Northeast Church Rock
95% Design Report

Appendix A:
General Design Information

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LIST OF ACRONYMS / ABBREVIATIONS

AOC	Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery
ARAR	Applicable or Relevant and Appropriate Requirement
BMP	best management practice
CC	Construction Contractor
CSF	construction support facility
CY	cubic yard(s)
GSR	Green and Sustainable Remediation
ICIAP	Institutional Control Implementation Assurance Plan
LED	light emitting diode
LEED	Leadership in Energy and Environmental Design
Mill Site	Church Rock Mill Site
Mine Site	Northeast Church Rock Mine Site
MSOC	Mine Site outlet channel
NECR	Northeast Church Rock
NRC	US Nuclear Regulatory Commission
OM&M	Operations, Monitoring and Maintenance
PDSP	Phased Development Site Plan
PTW	principal threat waste
RA	Removal Action
RAL	removal action limit
RAO	Remedial Action Objective or Removal Action Objective
ROD	Record of Decision
SOW	Scope of Work
TDA	Tailings Disposal Area
USEPA	US Environmental Protection Agency

A.1 INTRODUCTION

This appendix to the Northeast Church Rock (NECR) 95% Design Report summarizes the general design information and includes:

- A description of the general section (Section 1) of the design drawings
- Reference to how the design addresses the Performance Standards contained in the Action Memorandum: Request for a Non-Time-Critical Removal Action at the Northeast Church Rock Site (2011 Action Memo; USEPA, 2011), the Record of Decision, United Nuclear Corporation Site (ROD; USEPA, 2013), and the Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery (AOC; USEPA, 2015)
- A summary of the Removal Action (RA) elements and construction progression
- Green and Sustainable Remediation (GSR) considerations

A.2 PERFORMANCE STANDARDS

The Performance Standards presented here are defined 2011 Action Memo (USEPA, 2011), the ROD (USEPA, 2013), and the AOC (USEPA, 2015) including the Statement of Work attached as Appendix D to the AOC, and were developed to define attainment of the Removal Action and Remedial Action Objectives (RAOs) for the Selected Remedy. The Performance Standards include both general and specific standards applicable to the Selected Remedy work elements and associated work components. Table A.2-1 presents performance standards related to general design and explains how the design accomplishes these standards. In addition, each subsequent design appendix provides a similar performance standards table based on the table of performance standards included in the main text.

Table A.2-1: Performance Standards Applicable to General Design

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
14	2015 AOC SOW, Paragraph 29 – Green Remediation Best Management Practices	Green Remediation Best Management Practices	Respondents shall incorporate applicable Best Management Practices for Green Remediation listed in ASTM-E2893-13 consistent with USEPA's policy Superfund Green Remediation Strategy (2010), found at http://www.epa.gov/superfund/greenremediation/sf-gr-strategy.pdf.	A general overview of GSR is discussed in Section A.5. The individual appendices include a description of GSR specific to the design components.
16	2015 AOC SOW, Paragraph 32 – Data Gaps	Data Gaps	If USEPA notifies Respondents that there are data gaps that must be addressed by field investigations or by additional analyses not specifically identified in this SOW, or if the Respondents identify such data gaps, then the Respondents shall submit to USEPA for review and approval an addendum to the PDSP that will include work plans for additional investigations and/or reports necessary as determined by USEPA to support the Design. Respondents shall perform the data gap investigations identified in the addendum to the PDSP once each work plan has been approved by USEPA. Respondents shall also submit reports documenting the results of each of the supplemental pre-design investigations within 60 days of completion of the investigation and receipt of any associated laboratory and/or geotechnical data.	An additional investigation was conducted after the 30% Design, a geotechnical evaluation of the Jetty area. This evaluation was conducted in November 2016 following USEPA approval of the work plan. The geotechnical evaluation report was submitted to USEPA with the interim deliverable for Appendix I on April 24, 2017, and is included as Attachment I.8 to Appendix I of the 95% Design Report. The results of laboratory testing conducted prior to April 2017 on samples collected from this investigation are included in Attachment I.8 to Appendix I. Laboratory testing results for geotechnical and agronomic testing conducted after April 2017 are summarized in Appendix H and Attachment U.2 to Appendix U, respectively.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
17	2015 AOC SOW, Paragraph 37 – Preliminary Design	Preliminary Design	Respondents shall submit to USEPA for review and approval a Preliminary Design based on the USEPA-approved preferred waste-Repository configuration when the design effort is approximately 30% complete but no later than 120 days from USEPA's approval of the Design Work Plan. Respondents shall include the following elements in their Preliminary Design: a. Finalized design assumptions and parameters from the Basis of Design/Design Criteria Report; b. Preliminary plans, drawings, and sketches, including design calculations; c. An outline of required specifications; d. A plan for additional field sampling, if needed; e. A traffic safety plan, including upgrades to local roads; f. A storm-water management plan; g. An air monitoring plan; h. A site control and security plan; i. A project delivery strategy; j. A preliminary construction schedule, including a schedule for applicable permit requirements; k. A material management plan that shall describe how all NECR Site mine waste, borrow material, backfill material, and cover material will be managed and transported. The material management plan shall include a map and description with coordinates of routes that will be used by heavy equipment and a map and description with coordinates of staging and stockpiling areas. For staging and stockpiling areas, the material management plan shall include a description of activities that will be associated with these areas; l. A description of how the principal threat waste will be segregated and a description of the facility or facilities being considered for disposal of Principal Threat Waste from the NECR Site; m. Detailed plans and specifications for backfilling and re-grading excavated areas of the NECR Site, which address the impacts of re-grading of storm water runoff on and downstream of the NECR Site; n. A permitting requirements and compliance plan that shall ensure all on-site activities meet the substantive (but not the administrative) requirements of environmental permitting regulations;	These items are addressed in the following parts of this report: a. Appendices B through I b. Plans in Volume 2, calculations in Attachments to Appendices B through I c. Appendix J d. Appendix I e. Appendix M f. Appendices E, F, and I g. Appendix Q h. Appendix M i. Main text j. Appendix K k. Appendices B, C, D and H l. Appendices B and C m. Appendix C n. Appendix N o. Appendix U p. Appendix G q. Appendix G r. Appendix V s. Appendix M, Q t. Appendices O and P u. Tables throughout the main text and appendices v. Appendix T w. Appendix U

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			o. A revegetation plan which shall describe the approach that Respondents shall take to revegetate the borrow areas, and other disturbed areas on the UNC Site; p. A water-balance model report that provides the following: A description of how water would behave in the short-term and over an extended period of time within the enhanced design of the tailings impoundment; and, if the water-balance model indicates that, as a result of Repository construction, there may be increased water seepage from the impoundment, analysis explaining how increased seepage would not adversely impact the existing groundwater; q. An evapotranspiration analysis which shall describe the complete water-balance model assumptions and calculations for the Repository cover system. Respondents' evaluation shall show the percolation response to design parameters such as rooting depth, the type of flora, cover thickness, cover soil properties, initial moisture content of the cover soils, and hydraulic conductivity; r. An outline of the construction quality assurance plan; s. Mitigation measures to minimize traffic, noise, dust and any other impacts to the community and environment t. Biological and cultural resources surveys or reports; u. A description of how the design complies with all Performance Standards, including ARARs; v. A description of procedures for cleanup verification at the NECR Site (including the step out areas), including an updated QAPP for verification sampling; and, w. A description of procedures for revegetation of the NECR Site, including the approach that Respondents shall use to revegetate the NECR Site and to maintain revegetated areas until vegetation is established.	
19	2015 AOC SOW, Paragraph 42 – Preliminary Design	Pre-Final Design	Respondents shall submit to USEPA for review and approval a Pre-Final Design which represents 95% completion. The Pre-Final Design shall be based on the USEPA approved Preliminary Design, or if one has been requested, the USEPA approved Intermediate Design, and shall include the following additional items:	These items are addressed in the following parts of this report: a. Appendix L b. Appendix X c. Appendix W d. Appendix R

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			a. A health and safety plan; b. An institutional control implementation and assurance plan ("ICIAP") that includes plans for implementing, maintaining, monitoring, and reporting on any institutional controls proposed in the design; c. A draft operation, monitoring, and maintenance plan; d. A release prevention/contingency plan; e. An emergency response plan; f. A construction quality assurance plan;	Incorporated into a. Appendix L b. Appendix V
20	2015 AOC SOW, Paragraph 43 – Preliminary Design	Pre-Final NECR Mine Cleanup Verification and Revegetation Plan	Respondents shall submit a Pre-Final NECR Mine Cleanup Verification and Revegetation Plan for the NECR Site that shall be a continuation and expansion of the Preliminary NECR Mine Cleanup Verification and Revegetation Plan, and any Intermediate Design.	The Pre-Final Cleanup Verification Plan is included as Appendix T and the Pre-Final Revegetation Plans are included in Appendix U
76, 79, 80	2011 Action Memo, Table A-1; 2013 ROD, Table 1 and Sections 2.9.2 and 2.9.5	Repository Design	40 CFR 192.02 (a) through (d). Control of residual radioactive materials. Refer to www.ecfr.gov.	The Repository cover and associated stormwater controls are designed to be effective for up to 1,000 years and at least 200 years, and to minimize reliance on active maintenance. The cover will attenuate radon flux to a rate of rate of 20 pCi/m^2-s, averaged over the surface and minimize infiltration into the existing Tailings Disposal Area (TDA). Also see appendices G and I.

*Refers to identifying numbers listed in Summary of ARARs, Performance Standards and Applicable NRC Design Requirements Table (provided in Attachment 1 to main text of the 95% Design Report)

A.3 ENGINEERING DESIGN DRAWINGS

The general section (Section 1) of the design drawings contains information related to site location, access, general location of existing and proposed facilities, site boundaries, survey control points, and standard symbols and abbreviations used in subsequent Drawings. The Section 1 drawings also depict the principal remedial components as well as the design Site topography and layout upon completion of the RA. The NECR engineering design drawings are contained in Volume II – Design Drawings. Drawings related to the general project information and the site overview are listed in Table A.3-1.

Table A.3-1: Engineering Design Drawings

Drawing No.	Drawing Title
1-01	Cover Sheet
1-02	Sheet Index
1-03	General Notes and Acronyms
1-04	Site Location Map
1-05	Principal Existing Condition, Site Features, and Survey Control
1-06	Existing Condition NECR Mine Site
1-07	Existing Condition UNC Site
1-08	Site Utilities
1-09	Principal Components and Limits of Disturbance
1-10	Final Reclaimed Topography

A.4 REMOVAL ACTION CONSTRUCTION PROGRESSION

The RA will comprise an Early Works element, the RA, a final demobilization and revegetation element, and a schedule-independent Pipeline Arroyo stabilization element, as summarized in the following sections. The preliminary RA schedule is included in Appendix K – Removal Action Schedule.

A.4.1 Early Works

The Early Works element includes preparation of the construction support facilities (CSFs), construction of access and haul roads, preparation of borrow areas, implementation of environmental monitoring, and implementation of stormwater and traffic controls.

A.4.1.1 Construction Support Facilities

The CSFs will be prepared for use during all phases of RA construction, and include security, construction laydown areas, construction water and fuel storage, Decontamination Area facilities (including vehicle decontamination pad, drainage controls, and personnel facilities such as showers, lockers and laundry), and facilities required for handling principal threat waste (PTW). The CSFs are shown on the Section 2 Drawings. Additional details regarding the CSFs are included in Appendix B – Construction Support Facilities.

Selected locations for the CSFs include the former mill facilities area of the Church Rock Mill Site (Mill Site), an area at the east end of the NECR Mine Site (Mine Site), and two proposed laydown yards: one west of the Tailings Disposal Area (TDA) and one immediately north of the Mill Site TDA. These areas are identified on the Drawings as:

- Former Mill Site Yard
- Mine Site Staging Area
- Repository Yard
- Optional Repository Yard

Additionally, support facilities are organized in areas using the following terms and definitions for the various work areas:

- Support: Area(s) free of contamination.
- Controlled: Area(s) with potential contamination.
- Exclusion: Area(s) with contamination subject to the RA (Mine Site and Repository).
- Decontamination Area: The transition area between the Controlled Area and the Support Area. This is where personnel enter and exit the Controlled Area and where most decontamination activities take place.

CSF construction activities will include:

- Site grading
- Infrastructure construction followed by placement of temporary support facilities
- Post-construction radiological surveys of staging areas and support facilities

A.4.1.2 Access and Haul Roads

Several access and haul roads will be constructed to support the RA. These road details are summarized below and shown on the Section 4 Drawings. Additional details regarding haul and access roads are included in Appendix D – Haul Routes.

Temporary access roads will be constructed to provide access to the CSFs in the Former Mill Site Yard and the Repository Yard(s).

A mine waste haul road will be constructed to haul mine waste excavated at the Mine Site to the Repository located at the Mill Site. The haul road will begin at the Mine Site and will be located roughly parallel to New Mexico Highway 566 (NM 566), until it crosses the highway near the north end of the TDA.

Haul roads will be constructed to access each of the four proposed borrow areas. Plans and profiles for the north, east, and west borrow haul roads are shown on the Section 4 Drawings. Haul road construction would be conducted from each borrow area to the edge of the TDA. Once on the TDA, borrow haul trucks would operate directly on the existing cover surface. Upon completion of the RA, areas of the Repository cover and the TDA cover subjected to haul traffic would be reconstructed to mitigate over-compaction of cover soils, or other damage that may occur from haul traffic.

The anticipated sequence of road construction will be:

- Access road construction, including stormwater controls
- Mine waste haul road construction, including stormwater controls
- Borrow haul road construction, including stormwater controls
- Reclamation of haul roads
- Post-construction radiological surveys of impacted areas of the NM 566, and haul and access roads,

A.4.1.3 Borrow Areas

Approximately 510,000 cubic yards (CY) of soil and rock are required for Repository construction plus approximately 150,000 CY of rock and other materials for stormwater structures, including general fill to meet surface design grades, for the cover system, and long-term stormwater controls. Five proposed on-site borrow areas have been identified to meet volume and material property requirements. These borrow areas are identified as the East, West, North, and South Borrow Areas, and are shown on the Section 8 Drawings. An additional proposed borrow source, the jetty excavation, was identified during the 95% NECR design. At least one of these borrow areas will be developed as they are needed for Repository construction. Other borrow areas may be developed as needed during the RA.

Other borrow sources include on-site stockpiles and off-site commercial pits or quarries. Additional details regarding the borrow materials are included in Appendix H – Borrow Areas.

A.4.2 Removal Action

The RA element consists of preparation of the Repository to receive mine waste, mine site removals, Repository cover construction, and construction of permanent stormwater controls at the Mill and Mine sites.

A.4.2.1 Repository

Mine waste will be placed in a Repository constructed on the TDA as shown on the Section 7 Drawings and summarized below. Additional details regarding the Repository design are included in Appendix G – Mine Waste Repository Design.

The existing radon barrier above the tailings in the TDA will be modified in-place to serve as the foundation layer for the Repository. The sequence for radon barrier improvement is as follows:

- Baseline gamma radiation survey
- Rock mulch and riprap removal

- Visual inspection of radon barrier to verify tailings were not exposed during the removal process
- If tailings have been exposed, conduct a post-excavation (one-minute) static gamma survey and excavate radon barrier in the vicinity of one of the branch swales so that the material can be placed back below the radon barrier
- Filling swales
- Radon barrier compaction

Following preparation of the radon barrier, the initial lifts of the perimeter stormwater berms will be constructed using clean borrow soils at the edge of waste. These berms will allow for containment of contact water within the Repository during waste placement. Waste will be spread in lifts for compaction. The perimeter slopes of the waste surface will be built as the material is placed and the stormwater berms can be raised, as needed, to provide clean cover material over the outer slopes of the waste.

Once the berms are no longer needed for stormwater control, the berms will be graded over the waste surface during placement of the soil cover layer.

Cover placement will be conducted after areas of the Repository reach their design capacity. The cover design entails an erosion protection layer consisting of a rock soil admixture layer overlying a soil layer. The thicknesses of these layers and the sizes of the rock used for erosion protection vary based on locations on the Repository, with an overall cover thickness (including erosion protection layers) of 4 feet.

A.4.2.2 Mine Site

The Mine Site removals are divided into six phases of excavation, with a total estimated volume of about 761,000 CY. Mine site removals will include:

- Excavation of soils within the Mine Site above bedrock and with measured activity concentrations above the 2.24 pCi/g radium-226 removal action limit (RAL) or uranium concentrations above 230 mg/kg
- Disposal of mine site debris
- Transportation of excavated materials to the Mill Site Repository location or off-site as required for PTW
- Confirmation surveys to demonstrate that remaining materials within the Mine Site have measured activity concentrations below USEPA action levels
- Construction and maintenance of temporary stormwater controls during removal activity
- Mine Site excavation area final grading
- Mine Site restoration

Additional details regarding Mine Site removals are included in Appendix C – Mine Site Removals Excavations and Demolition. Additional details regarding verification surveys are included in Appendix T – Cleanup Verification Plan. Additional details regarding temporary stormwater controls are included in Appendix E – Stormwater Management Plan, as well as the other parts of the design documents.

A.4.2.3 Permanent Stormwater Controls

A.4.2.3.1 Mine Site Stormwater Controls

As part of the RA, the Mine Site outlet channel (MSOC) will be modified to convey stormwater from the Mine Site to minimize scouring of the existing engineered channel and unimproved sections of the downstream Unnamed Arroyo No. 1. These modifications will contain the predicted 100-year flood so that it does not impact homes located near the MSOC (Unnamed

Arroyo No. 1). The proposed channel improvements are shown on the Section 6 Drawings and will be constructed upon completion of the mine site removals. Additional detail is included in Appendix F – Mine Site Stormwater Controls.

A.4.2.3.2 Mill Site Stormwater Controls

Permanent stormwater controls for the Mill Site Repository use existing swales and channels constructed for the TDA with improvements and supplemental controls where necessary. These stormwater controls, shown on the Section 9 Drawings, include:

- North Diversion Channel
- East Repository Channel and related sediment controls
- Repository southwest and west side drainage

The East Repository Channel and related sediment controls will be constructed early in the RA to provide upstream stormwater control and to avoid construction constraints due to limited space if they are constructed after waste placement. The remaining Mill Site stormwater controls will be constructed after waste placement is completed and it is verified that any downstream contamination in these areas has been mitigated. Additional detail is included in Appendix I – Mill Site Stormwater Controls.

A.4.3 Demobilization and Revegetation

Upon completion of the RA, areas subject to mine waste removals will be graded as shown in the Section 3 Drawings, borrow areas will be graded as shown in the Section 8 Drawings, and the Repository cover surface will be graded as shown in the Section 7 Drawings.

Haul roads, access roads, and ground areas used for CSFs within the Exclusion Area will also be subject to final cleanup and verification in accordance with Appendix T. Trailers and equipment used within the Exclusion Area will be scanned and decontaminated (if required). Reclamation would consist of removal of imported gravel surfacing, removal of temporary culverts and stormwater controls, and grading according to the final approved post-reclamation grading plans.

Revegetation will be conducted in accordance with the plans in Appendix U – Revegetation Plans.

A.4.4 Pipeline Arroyo Stabilization

The Pipeline Arroyo is an existing ephemeral arroyo that runs along the northwest side of the TDA. Stability of the Pipeline Arroyo is important for long-term viability of the Repository and the TDA, as lateral southeastward migration of the arroyo could create embankment erosion, with significant erosion resulting in release of mine waste or tailings. The Section 9 Drawings show the design for the reconstructed rock jetty with a riprap chute designed for floods up to the Probable Maximum Flood. Additional detail on the design for the reconstructed rock jetty is included in Appendix I – Mill Site Stormwater Controls.

A.5 GREEN AND SUSTAINABLE REMEDIATION CONSIDERATIONS

Section 4.2.1 of the 95% Design Report includes an overview of the GSR evaluation and applicable best management practices (BMPs) that have been selected for implementation at the NECR RA. Specific GSR concepts to various parts of the design are included in subsequent design appendices. Steps 1 and 2 of the BMP Process involves identifying potential applicable BMPs to each phase of cleanup activities (ASTM, 2016). Table A.5-1 presents potentially applicable BMPs to the NECR RA, which BMPs have been determined to be appropriate for implementation at the site and why some have not been considered.

Table A.5-1: BMPs Selected during Step 1 and Step 2 of the BMP Process with Projected Impact and Decision to Carry BMP into Implementation

BMP	Impact[1]	Selected for Implementation	Location in RDR	Comment
Use of energy star compliant equipment and premium-efficiency motors as available and prudent	Medium	Yes	B.7.1	
Purchase of renewable energy for CSFs. This includes using renewable energy (photovoltaic cells and/or small wind turbines) for power. Use electric generators in place of diesel/gasoline generators if it is possible to extend local power lines to site or purchase of green energy from utility (e.g., Blue Sky Program)	Medium	Yes	B.7.1	Use of alternative energy to supplement existing power will be suggested for contractors but will ultimately be at the discretion of the Construction Contractor (CC).
Transporting workers from centralized carpool and bus locations to the work site	Medium	Yes	B.7.2	
Maintaining a single point of entry/exit to the remedial area helps prevent re-contamination of areas previously remediated while minimizing required support facilities.	High	Yes	B.7.3	
Use of LEED-certified portable structures or if LEED-certified structures are not cost effective, utilize LEED principles when possible. This can include use of low energy light bulbs (i.e. LEDs), use of passive cooling instead of air conditioning when possible	Medium	Yes	B.7.1	Will include in specifications but will ultimately be at the discretion of the CC.
Minimize site grading for construction facilities and associated roads to reduce required construction equipment operating time, greenhouse gas emissions and fill material	High	Yes	B.7.1	Construction facility grading and site wide grading has been designed with the aim of minimizing required grading and cut/fill.
Use of 'Green' concrete with a percentage of fly ash if concrete is required	Medium	Yes	F.6.1, E.7.1	CSFs will not utilize concrete
Consolidate CSFs in one area to minimize disturbance of remedial area and reduce emissions used to drive from facility to facility	Low	Yes	B.7.3	
Plan for access roads to be used as permanent roads if needed, this reduces the requirement for construction of new roads at the end of the remedial activities	High	No		Access roads are not planned to be used as permanent roads.
Use alternative vehicles such as electric vehicles, hybrid vehicles and compressed natural gas vehicles to reduce on-site emissions and fuel use	Low	No		Such requirements would likely limit number of local contractors eligible for bidding.
Optimizing number of vehicles used for support activities	Medium	Yes	B.7.2	Construction contractors will be instructed to optimize vehicle use and size.
Use products with recycled and bio-based contents instead of petroleum based	Low	Yes	B.7.1	Construction contractors will be encouraged to use recycled products when possible.
Designate collection points for routine recycling of single-use items such as metal, plastic, and glass containers; paper and cardboard; and other items that may be recycled locally	Low	Yes	B.7.3	
Utilize existing facilities for construction support facilities when possible	Medium	Yes	B.7.1	
Plan excavation and placement to avoid moving material more than once, reducing the fuel and emissions created by multiple stock-piling and moving locations	Medium	Yes	D.6.3	
Sizing equipment correctly with the task needs thereby minimizing use of heavy equipment for small tasks	High	Yes	D.6	
Phasing of construction activities to avoid recontamination of remediated areas	High	Yes	C.4.6	
If possible, use rails in place of trucks shipping of contaminated waste	Low	No		No rail routes near site
Implementation of a no-idle policy and speed limit signs for all construction equipment and support vehicles	High	Yes	B.7.2	Idle restrictions will be required of construction contractors through Technical Specifications (Appendix J)
Routine, on-time maintenance of equipment to improve efficiency and prevent unnecessary breakdown requiring additional resources and transport for repairs	Medium	Yes	B.7.2	
Require new, energy efficient engines	Medium	Yes	B.7.2	Require use of Tier 2 non-road diesel engines or better. Concerns that stricter requirements would make local contractors uncompetitive, which represents a major GSR goal.
Use of ultra-low sulfur diesel in construction equipment and support vehicles, including use of biodiesel where possible	Medium	Yes	B.7.2	

BMP	Impact[1]	Selected for Implementation	Location in RDR	Comment
Requiring low-maintenance multistage filters for cleaner engine exhaust	Low	No		Vehicle requirements, as described above, will be utilized to reduce emissions.
Use biodegradable fabric to cover excavated areas which act to control erosion and serve as substrate for regrowth	Medium	Yes	U Section 2.4	
Reusing covers that secure and cover material in open trucks during off-site transport	Low	Yes	C.6.1	
Limit speeds (10-15 MPH) in order to reduce production of dust and improve fuel efficiency	High	Yes	D.6.1	
Where possible, use biodegradable tarps and mats for dust suppression rather than using water	Low	Yes	C.4.6/E.7.1	
Use phosphate-free detergents in place of organic solvents or acids for decontamination of equipment	Low	Yes	Appendix J	Use of phosphate-free detergents will be required in specifications.
Evaluate potential of using excavated areas as retention basins in final stormwater control plans	High	Yes	H.4.1.1	Soil excavated during the jetty improvement work will be utilized as clean fill.
Re-grade excavation areas to conform to pre-mining topography, rather than altering the site's natural setting, to improve the cover's long-term performance and protect local ecosystem services.	Medium	Yes	Appendix G	Where possible reclamation of disturbed areas will attempt to return disturbed areas to their natural state.
Where possible use products, packing material and disposable equipment that can be reused or recycled and where possible, are made of recycled materials	Low	Yes	B.7.1	
Stockpile uncontaminated soil for use as fill or other purposes	High	Yes	Appendix G	Design strategy aims to maximize use of uncontaminated cut when possible.
Salvage uncontaminated objects with potential recycle, resale or donation.	Medium	Yes	G.13.1	Erosion protection rock removed from TDA cover will be utilized for Repository cover.
Use local staff (including subcontractors) when possible to minimize transportation impacts	Medium	Yes	Appendix S	Local contractors will be given priority over non-local contractors
Maintaining a single point of entry/exit to the remedial area helps prevent re-contamination of areas previously remediated while minimizing required support facilities.	High	Yes	D.6.3	
Use of ultra-low sulfur diesel in construction equipment and support vehicles	Medium	Yes	B.7.2	
Minimize speed to reduce dust creation and minimize water use for dust suppression	Medium	Yes	B.7.2, D.6.3	
Consider use of rumble grates with a closed-loop graywater washing system to minimize tracking of contaminated sediment and soil offsite	Low	No		Decontamination procedure is more rigorous than use of rumble grates.
Optimize haul routes to minimize vehicle miles	Medium	Yes	B.6.3	
Installation of silt fences and basins and other stormwater BMPs to capture sediment runoff along sloped areas	Medium	Yes	Attachment E.1	
Construction of long-term structural controls such as earth dikes and swales to prevent up-gradient surface flow into excavated areas	Medium	Yes	Attachment E.1	
Segregating contaminated water from clean water to minimize volume of stormwater requiring treatment	High	Yes	E.7.3	
Diverting clean water away from pits and remediation activities to prevent potential contamination	High	Yes	E.7.3	CC will be responsible for fulfilling this BMP in their CSWPPP.
Select drought-resistant plants for the upper vegetative layer, to reduce maintenance needs	High	Yes	App G.13 & App U	
Use nonsynthetic nutritional soil amendments such as compost or biochar instead of chemical fertilizers	Medium	Yes	App G.13.1 & App U	
Use recycled materials for capillary breaks instead of natural rock to minimize ecosystem disturbance	Medium	Yes	App G.13.1	Site location would make importing recycled concrete not in line with emission reduction policies. Some rock for the Repository cover will be sourced from existing erosion protection rock on a previously used cover. When possible other rock and materials from the site will be utilized for temporary roads or laydown areas.

BMP	Impact[1]	Selected for Implementation	Location in RDR	Comment
Use geotextile fabric or drainage tubing composed of 100% recycled materials rather than virgin materials for lining, erosion control and drainage	Medium	Yes	App G.13.1	
Use uncontaminated soil, sediment or sand rather than importing soils if possible. If importing soils is necessary, consider using industrial waste products as partial substitutes for cap soil	High	Yes	Appendix H	
Blend amendments into a single mixture that can be applied above the cover through a one-step process rather than a series of applications, to minimize operation of front loaders and other heavy machinery	High	Yes	App G.13.2	
Operation, Monitoring and Maintenance (OM&M) Procedures: Use in-place soil depth indicators rather than manual depth probes to monitor cap thickness in order to minimize cover damage during inspection	Low	Yes	W.6.2.1	
OM&M Procedures: Use remotely controlled or non-invasive techniques to avoid cover damage and minimize field visits	Low	Yes	Appendix U	Revegetation monitoring will incorporate 'laser point bars' to acquire high resolution coverage data while minimizing disturbance and time.
OM&M Procedures: Integrate onsite structures to capture rainfall as a source of water for rinsing and decontaminating field equipment	Low	No		Decontamination procedures are minimal for site OM&M and utilizing on-site water well can provide more than enough water without requiring additional construction.
Use non-chemical solarizing techniques for soil preparation	Low	No		Seeding contractor does not recommend use of solarizing for particular soil and environment.
Use minimum slope while maintaining proper drainage to reduce the volume of fill material	High	Yes	G.13.3	
Use of nearest qualifying source for borrow material to reduce fuel emissions associated with increased transportation	High	Yes	H.4.1	While on-sight borrow sources that are closer to the Mine Site may exist, it was determined to be more in line with GSR principles to utilize previously disturbed borrow sources located on-site; however, haul distances have been minimized so that the nearest borrow source is utilized for each activity.
Sizing equipment correctly with the task needs thereby minimizing use of heavy equipment for small tasks	High	Yes	Appendix H	
Throughout project re-evaluate volume of borrow needed in order to avoid over excavating and transportation of borrow source	Low-High	Yes	H.5	
Restoration of land surface within a timely manner to minimize erosion and prevent growth of invasive species	High	Yes	H.5/G.13.3	
Enhancements of habitat, in the form of trees and other native landscaping to be completed following construction	Medium	Yes	H.5/G.13	
Minimizing soil and habitat disturbance of stormwater controls and effluent pipelines by aligning them with existing or proposed roadways	High	Yes	D.6.3	
Prioritize prevention of noxious weeds via inspections rather than reactive application of herbicides.	Medium	Yes	Appendix U	

1-Low, medium and high are relative designations that represent a qualitative judgment and is not meant to be a quantitative expression.

A.6 REFERENCES

ASTM International, 2016. ASTM Standard E2893-16, “Standard Guide for Greener Cleanups,” ASTM International, West Conshohocken, PA, 2016, DOI: 10.1520/E2893-16E01, www.astm.org.

US Environmental Protection Agency (USEPA), 2011. Action Memorandum: Request for a Non-Time-Critical Removal Action at the Northeast Church Rock Mine Site, McKinley County, New Mexico, Pinedale Chapter of the Navajo Nation. Prepared for U.S. EPA Regions 6 and 9. September 29.

US Environmental Protection Agency (USEPA), 2013. Record of Decision, United Nuclear Corporation Site, McKinley County, New Mexico, EPA ID: NMD030443303. March 29.

US Environmental Protection Agency (USEPA), 2015. Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery. April 27

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Appendix G:
Mine Waste Repository Design

MWH® now part of Stantec

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LIST OF ACRONYMS / ABBREVIATIONS

AOC	Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
bgs	below ground surface
BMP	best management practice
CC	Construction Contractor
CPT	cone penetration test
CY	cubic yard(s)
DOE	US Department of Energy
DSHA	deterministic seismic hazard analysis
ET	evapotranspirative
FS	factor of safety
GE	General Electric
GSR	Green and Sustainable Remediation
HSA	hollow-stemmed auger
LAR	license amendment request
Mill Site	Church Rock Mill Site
Mine Site	Northeast Church Rock Mine Site
MWH	Montgomery Watson Harza
NAVFAC	Naval Facilities Engineering Command
NRC	US Nuclear Regulatory Commission
pcf	pounds per cubic foot
PDS	Pre-design studies
PGA	peak ground acceleration
PI	plasticity index
PSHA	probabilistic seismic hazard analysis
PTW	principal threat waste
RAO	Remedial Action Objective
ROD	Record of Decision
SHA	seismic hazard analysis
SOW	Statement of Work
SPT	standard penetration testing
TDA	Tailings Disposal Area

UNC	United Nuclear Corporation
USCS	Unified Soil Classification System
USEPA	US Environmental Protection Agency

G.1 INTRODUCTION

G.1.1 Repository Design Objectives

The design objectives for the Repository to be located on the Church Rock Mill Site (Mill Site) Tailings Disposal Area (TDA) were listed in Appendix A of the Design Work Plan (MWH, 2016). These design objectives are summarized below.

- Repository capacity designed for 1,000,000 (1M) cubic yards (CY) of mine waste. The design (with associated cover erosion control) will accommodate variations in the mine waste volume.
- Repository located on the north and central cells.
- Edge of Repository set back a minimum of 50 feet from the western embankment to limit traffic loading from haul traffic and stress from fill placement on the tailings impoundment.
- Minimize the rock size and volume required for the erosion protection layer on the Repository cover by limiting cover slope lengths and grades. Slope grades are to be designed to be between 2 and 5 percent.
- Fill thickness over the former borrow pits is to be limited to reduce the potential for differential settlement of the cover surface. The area of maximum fill thickness is to be located as far to the north as practical, with the western half of the central cell used for Repository capacity if necessary.
- Abrupt transition slopes, rock aprons at the toe of slopes, and additional diversion channels will be limited, with existing drainage channels and drainage swales on the existing cover used where possible. Flow path lengths for stormwater collection and conveyance from the TDA will be minimized.

G.1.2 Repository Design Summary

In addition to meeting the design objectives summarized above, the Repository design has been analyzed for long-term performance to maintain isolation of the mine waste within the Repository. This design appendix presents the supporting technical analyses for the Repository design. The technical analysis methods used are described in the Design Work Plan (MWH, 2016), and follow the analysis requirements of NUREG-1620 (NRC, 2003). The technical analyses and design objective discussions presented in this appendix are listed below.

- A description of preparation of the existing TDA radon barrier to be a foundation layer for the Repository
- A description of the mine waste placement sequence within the Repository
- Site specific seismic hazard analysis (SHA) for the Mill Site
- Slope stability analyses for the Repository
- Settlement analyses associated with mine waste placement, including discussion of immediate settlement, primary and secondary consolidation of underlying tailings, and seismic-induced settlement.
- Liquefaction analyses of the Repository and Repository foundation materials
- Cover cracking analyses of the existing radon barrier
- Stress influence evaluation from mine waste placement
- Evapotranspirative (ET) cover design including water-balance and infiltration modeling, erosion protection design, and radon modeling (by Dwyer Engineering, LLC)
- Evaluation of tailings pore water migration is provided under separate cover by Dwyer Engineering, LLC.

G.2 PERFORMANCE STANDARDS

The Performance Standards presented here are defined in the Action Memorandum: Request for a Non-Time-Critical Removal Action at the Northeast Church Rock Site (2011 Action Memo; USEPA, 2011), the Record of Decision, United Nuclear Corporation Site, (ROD; USEPA, 2013), and the Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery (AOC; USEPA, 2015) including the Statement of Work (SOW) attached as Appendix D to the AOC, and were developed to define attainment of the Removal Action and Remedial Action Objectives (RAOs) for the Selected Remedy. The Performance Standards include both general and specific standards applicable to the Selected Remedy work elements and associated work components. Table G.2-1 presents Performance Standards related to the Repository design and construction and explains how the design accomplishes these standards.

Table G.2-1: Performance Standards Applicable to Waste Repository Design

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
105	10 CFR 61.23(g)	Licensing	10 CFR 61.23(e) Standards for Issuance of a License. Refer to www.ecfr.gov.	The Repository is designed for long-term stability and the design criteria used to eliminate, to the extent practicable, the need for ongoing maintenance.
99	10 CFR 61.51(a)(2)	Site Controls and Security	10 CFR 61.42. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7
94	2011 Action Memo, V.A.1., Bullet 1 – Repository Design	Repository Design	Design a repository for the contaminated material excavated and removed from the NECR Mine Site. Design specifications will comply with CERCLA requirements, specifically all ARARs. The design, at a minimum, will include a low permeability layer (liner) and a cap structure that will mitigate direct contact, limit water infiltration, and perform as a radon barrier.	The radon barrier (low-permeability layer) is described in Section G.5. The Repository cover (cap structure) is discussed in Section G.12 (see also Dwyer Cover System Design Report, Attachment G.7)
89	2011 Action Memo, V.A.1, Bullet 3 – Construction	Construction	Construct a repository that will contain the contaminated mine waste and soil excavated and removed from the NECR Mine Site in accordance with the approved design specifications. This action is contingent on the NRC approval of a license amendment for the UNC Mill Site disposal cells, and on EPA's decision document for the surface contamination at the UNC Mill Site.	The Repository design is being prepared with consideration for US Nuclear Regulatory Commission (NRC) license amendment requirements. The performance standards from the 2013 ROD (USEPA Region 6) are addressed later in this table.
87	2011 Action Memo, V.A.1., Bullet 5 – Closure	Closure	Closure of the repository once all NECR Mine Site contaminated waste rock and soil is disposed. Once all contaminated mine waste and soil is excavated from the NECR Mine Site, transported to the repository and disposed in the repository, the repository will be closed, and the cap will be put in place.	Sequencing for waste and cover placement is described in Section G.5 and shown on Drawings 7-01 through 7-03 of the Drawings. After construction is complete, the final cover will be placed over the Repository.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
80	2011 Action Memo, Table A-1; 2013 ROD Table 1 and Sections 2.9.2 and 2.9.5	Repository Design	40 CFR 192.02(a) and 02(b) Standards for the Control of Residual Radioactive Materials from Inactive Uranium Processing Sites. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7
155	2011 Action Memo Table A-1, 2013 ROD Table 1	Closure	NMAC 20.9.6.9.A(3)(c) Closure and Post-Closure Requirements for Municipal and Special Waste Landfills and Monofills. See http://164.64.110.239/nmac/_titles.htm.	A description of the final cover and its placement is presented in Section G.12 (see also Dwyer Cover System Design Report, Attachment G.7) and the grading plan is shown on Drawings 7-01 through 7-03. The construction quality assurance plan is presented in Appendix V.
76, 79	2011 Action Memo, Table A-1; 2013 ROD Table 1 and Sections 2.9.2 and 2.9.5	Repository Design	40 CFR 192.02(c) and (d) Standards for the Control of Residual Radioactive Materials from Inactive Uranium Processing Sites. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7
24	2013 ROD, Section 1.4 – Repository Design	Repository Design	Design a repository at the UNC Site for the contaminated material excavated and removed from the NECR Site. Design specifications will comply with CERCLA requirements including all applicable or relevant and appropriate requirements (ARARs). The design will include a cap structure that will mitigate direct contact, limit water infiltration, and perform as a radon barrier. Final design will determine actual configurations of cap and liner structure and will be submitted as part of a license amendment request to the Nuclear Regulatory Commission (NRC).	The Repository has been designed to receive the anticipated volume of material to be removed from the Northeast Church Rock Mine Site (Mine Site). The Repository cover (cap structure) is discussed in Section G.12 (see also Dwyer Cover System Design Report, Attachment G.7) and the radon barrier (low-permeability layer) is described in Section G.5. Parts of this design including this appendix, once finalized, will be submitted to NRC for review and approval as part of the License Amendment Request (LAR).
22	2013 ROD, Section 1.4 - Construction	Construction	Construct a repository at the UNC Site that will contain the contaminated mine waste and soil excavated and removed from the NECR Site in accordance with the approved design specifications. This action is contingent on the NRC approval of a license amendment for the UNC Site Tailings Disposal Area which comprises three covered tailing cells and two covered borrow pits. In addition, there are two open evaporation ponds located on the South Cell. That is, unless the NRC approves a	Parts of this design including this appendix, once finalized, will be submitted to NRC for review and approval as part of the LAR.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			license amendment for the UNC Site Tailings Disposal Area, the construction described in this ROD will not go forward. If NRC disapproves the request for a license amendment, EPA will stop its efforts to dispose of the NECR Site waste at the UNC Site Tailings Disposal Area, and EPA will evaluate other alternatives for disposal of the NECR Site waste.	
26	2013 ROD, Section 2.9.1, Bullet 3	Repository Design	Remediation Action Objectives Prevent the migration of concentrations of contaminants located in the soil, mine waste, and tailings contained within the Tailings Disposal Area to ground water where the migration of those contaminants would result in ground water concentrations that exceed remediation goals established in EPA's 1988 ROD for the Ground Water Operable Unit (including any amendment), and, through this action, prevent human and ecological receptors from being exposed to ground water with concentrations of contaminants that exceed remediation goals established in the 1988 ROD, including any amendment.	See Dwyer Consolidation and Groundwater Evaluation Report.
27	2013 ROD, Section 2.9.2, Bullet 1	Repository Design	Radionuclides and their daughter products in soil, mine waste, and tailings contained within the Tailings Disposal Area will not release radon-222 emissions from residual radioactive material to the atmosphere in exceedance of an average release rate of 20 picocuries per square meter per second (pCi/m^2s) 16 [40 CFR §§ 192.02(b)(1) and 192.32(b)(1)(ii)].	See Dwyer Cover System Design Report, Attachment G.7
28	2013 ROD, Section 2.9.2, Bullet 2	Repository Design	Radionuclides and their daughter products in soil, mine waste, and tailings contained within the Tailings Disposal Area will not release radon-222 emissions from residual radioactive material to the atmosphere that will increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than one-half picocurie per liter [40 CFR § 192.02(b)(2)].	See Dwyer Cover System Design Report, Attachment G.7
29	2013 ROD, Section 2.9.2, Bullet 3	Repository Design	Remediation Goals Migration of contaminants from the Tailings Disposal Area shall not result in ground water concentrations that exceed remediation goals established in EPA's	See Dwyer Consolidation and Groundwater Evaluation Report.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			1988 ROD for the Ground Water Operable Unit, including any amendment.	
32	2013 ROD, Section 2.9.5 – Cap Design Criteria	Repository Design	Although the final design may vary, the major elements of the structure are not expected to be significantly different than those presented here. The cap design will be based on comprehensive planning, site-specific risk analysis, and ARARs. Cap design and cost estimates for Alternative 2 are based on the following elements:	See Dwyer Cover System Design Report, Attachment G.7
33	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 1	Repository Design	Cap longevity designed for a minimum of 200 years with minimal maintenance and for effectiveness up to one thousand years, to the extent reasonably achievable [40 CFR §§ 192.02(a),192.32(b)(1)(i), and 264.111(a)]	See Dwyer Cover System Design Report, Attachment G.7
34	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 2	Repository Design	A sufficient clean (uncontaminated) soil layer to provide assurance that releases in the form of Radon-220 and -222 will not exceed an average release rate of 20 picocuries per meter squared per second [40 CFR §§ 192.02(b)(1) and 192.32(b)(1)(ii)], and will not increase the annual average concentration of radon-220 and -222 in air at or above any location outside the disposal site by more than one-half picocurie per liter [40 CFR § 192.02(b)(2)]	See Dwyer Cover System Design Report, Attachment G.7
35	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 3	Repository Design	Cap construction to protect the mine waste, reduce the potential for leachate development, and prevent contaminated runoff by limiting infiltration of precipitation and by providing erosion protection and durability [40 CFR §§192.32(b)(1), 264.111(a), 264.111(b) 264.228(b)(1), 264.228(b)(3), and 264.228(b)(4)]	See Section G.12. Also see Dwyer Cover System Design Report, Attachment G.7
36	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 4	Repository Design	Cap slope, shape and drainage construction to ensure stability and minimize the effects of erosion, root intrusion, and animal destruction [40 CFR §§192.32(b)(1), 264.111(a), 264.111(b) 264.228(b)(1), 264.228(b)(3), and 264.228(b)(4)];	The shape of the Repository is designed with top slopes of 2 to 5% to minimize the effects of erosion. See Section G.12 for description of the cover design. See also Dwyer Cover System Design Report, Attachment G.7
37	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 5	Repository Design	Use of biosolids or top soil to facilitate vegetation growth	The revegetation plan for the Repository (Appendix U, Attachment U.2) includes the use of amendments such as composted cow or green

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
				manure, or composted biosolids to promote vegetation growth.
38	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 6	Repository Design	…the use of vegetation to emulate the structure, function, diversity, and dynamics of the native community to maximize resilience and sustainability	The Repository will be revegetated after cover soil placement is completed. See also Revegetation Plan for the Repository (Appendix U, Attachment U.2) See also Dwyer Cover System Design Report, Attachment G.7
39	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 7	Repository Design	Erosion modeling to determine effectiveness of cap design	See Section G.12 and also see Dwyer Cover System Design Report, Attachment G.7
40	2013 ROD, Section 2.9.5 – Cap Design Criteria, Bullet 8	Repository Design	A low permeability layer (liner) will be placed between the NECR mine waste and the tailings currently disposed within the Tailings Disposal Area. This layer will be constructed to eliminate the possibility that the layer will collect water and produce a "bathtub effect". This layer will be constructed of natural materials, not synthetic, to eliminate the sudden failure risk associated with punctures and rips. This layer will be compacted to meet a hydraulic conductivity of no more than 1 x 10^{-7} centimeters per second (cm/s). The liner will serve the following purposes: 1 – The liner will help protect workers doing construction. 2 – The liner will be an added level of protection for groundwater 3 – The liner will provide a stable foundation on which to place the NECR Site waste. 4 - The liner will form an added barrier, preventing exposure to the higher level of radioactivity found in the mill tailings that are currently disposed in the UNC Site Tailings Disposal Area.	The existing clay radon barrier will be modified in-place and serve as the "low-permeability layer" located between the mine waste and the existing tailings. This layer is described in Section G.5.1. Only the upper 6 inches of material (erosion protection layer) will be removed from the cover, prior to re-compaction of the radon barrier.
45	2013 ROD, Section 2.9.5, Waste Volume	Waste Volume	Approximately 871,000 cubic yards from the removal action described in the 2011 Non-Time-Critical Removal Action Memorandum for the NECR Site, 109,800 cubic yards from a removal action at the NECR Site that predates the 2011 Non-Time-Critical Removal Action Memorandum for the NECR Site, and an estimated 30,000 cubic yards to be excavated as part of a separate	The Repository design can be adjusted for a disposal volume of up to approximately 1.1M CY. Mine removal excavations are described in Appendix C. The estimated volume of material at the Mine Site, excluding the principal threat waste (PTW), will be moved to the Repository.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			time-critical removal action at the NECR Site will be interred at the Tailings Disposal Area and capped. Although the additional 109,800 and 30,000 cubic yards volume was not included in the EE/CA, the additional volume and associated cost are minimal compared to the overall volume and cost evaluated. In addition, the added expense is within the EE/CA's margin of error. Based on this, the additional volume and cost are considered included and addressed under this alternative. The waste acceptance criteria for mine waste that will be disposed at the UNC Site Tailings Disposal Area are 200 pCi/g or less of Ra-226 and/or 500 mg/kg or less of uranium.	
58	2013 ROD Table 1	Repository Design	10 CFR 40 Appendix A, Criterion 1 Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content. Refer to www.ecfr.gov.	The siting of the Repository is based on the previously approved site of the licensed TDA. The Repository design minimizes erosion and maintains the current isolation of the tailings below from the mine waste to be placed.
63	2013 ROD Table 1	Repository Design	10 CFR 40 Appendix A, Criterion 3 Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7
62	2013 ROD Table 1	Repository Design	10 CFR 40 Appendix A, Criterion 4 Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content. Refer to www.ecfr.gov.	(a) See Appendix I – Mill Site Stormwater Controls. The upstream catchment area was fixed based on the location of the TDA. (b) Surrounding topography was also generally predetermined by the location of the TDA. (c) Repository slopes are no steeper than 5:1 and generally between 2 and 5 percent. (d) Cover erosion protection will be achieved with a rock admixture. See Section G.12 and also the Dwyer Cover System Design Report, Attachment G.7. The final cover surface will also be seeded for vegetation establishment according to the revegetation plan (see Appendix U, Attachment U.2)

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
				The surface grading design is contoured to prevent concentrated runoff and direct flows to existing rock-lined swales. (e) Site-specific SHA is included as Attachment G.1 and analyses relevant to seismic events are presented in Sections G.7, G.8, G.9.4, and G.11. (f) The Repository is designed to shed stormwater to the perimeter of the existing TDA. Run-on flows are controlled by upstream diversion channels and these flows will not come in contact with the Repository. Discussion of cover erosion protection is presented in Attachment G.7 – Dwyer Cover System Design Report.
64	2013 ROD Table 1	Repository Design	10 CFR 40 Appendix A, Criterion 5 Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7
57	2013 ROD Table 1	Repository Design	10 CFR 40 Appendix A, Criterion 6 Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content. Refer to www.ecfr.gov.	See Dwyer Cover System Design Report, Attachment G.7 Also, for 6(1) see Section G.12.4 6(2) see Section G.12.3 6(3) The final cover will not be placed in phases. Radon testing will be conducted following completion of the cover. 6(4) Results of the radon testing will be included with the As-Built Report for the Repository.
59	2013 ROD Table 1	Repository Design	10 CFR 61.41. Refer to www.ecfr.gov.	See Appendix T.
55	2013 ROD Table 1	Performance Objectives	10 CFR 61.44. Refer to www.ecfr.gov.	See Appendix I regarding long-term stability of the stormwater control features around the Repository. Regarding the Repository cover, See Dwyer Cover System Design Report, Attachment G.7

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
60	2013 ROD Table 1	Repository Design	10 CFR 61 51(a)(1), 51(a)(4), 51(a)(5) and 51(a)(6). Refer to www.ecfr.gov.	(a)(1) The Repository is designed to provide long-term isolation of the mine waste, with avoidance of long-term active maintenance. This includes use of the probable maximum precipitation as the design storm event for erosion protection analyses. (a)(4) The ET cover is designed to minimize infiltration through to the mine spoils and the surface grading is designed to direct water away from the TDA. (a)(5) See Appendix I - Mill Site Storm Water Controls (a)(6) The mounded surface of the Repository promotes the shedding of surface runoff, with surface slopes and settlement analyses indicating no negative slope grades (depressions) from cover settlement. See also Dwyer Cover System Design Report, Attachment G.7
46	2013 ROD, Table 1	Closure	10 CFR 61.52(a)(9). Refer to www.ecfr.gov.	Closure and stabilization of the Repository will be completed with cover surface erosion protection rock and vegetation. See Section G.12 and the Dwyer Cover System Design Report, (Attachment G.7) for cover design details. See also the Revegetation Plan for the Repository (Appendix U, Attachment U.2).
68	2013 ROD Table 1	Waste Disposal	10 CR 61 52(a)(10). Refer to www.ecfr.gov.	Areas of the existing TDA cover that will be trafficked during construction will be restored following completion of the Repository. Existing stormwater channels will be either maintained or improved (Appendix I).
69	2013 ROD, Table 1	Waste Disposal	10 CFR 61 52(a)(11). Refer to www.ecfr.gov.	Materials designated for removal from the Mine Site, with the exception of materials classified as PTW, will be disposed of in the Repository.
49	2013 ROD, Table 1	Environmental Monitoring	10 CFR 61.53(c) Environmental Monitoring During the land disposal facility site construction and operation, the licensee shall maintain a monitoring program. Measurements and observations must be made and recorded to provide data to	The pre-final design includes a monitoring program for the operation of the Repository and the associated stormwater control features. Observations will be made during periodic inspections to evaluate

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
			evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system must be capable of providing early warning of releases of radionuclides from the disposal site before they leave the site boundary.	performance of the cover, provide early warning of potential problems and identify issues that may require mitigative measures.
72	2013 ROD Table 1 and Section 2.9.5 Cap Design, Bullets 1, 3, and 4.	Closure	40 CFR 264.111(a). Refer to www.ecfr.gov.	See Appendix I regarding maintenance of the stormwater control features around the Repository. Regarding the Repository cover see Section G.12 and the Dwyer Cover System Design Report, Attachment G.7
74	2013 ROD, Table 1 and Section 2.9.5, Cap Design Criteria, Bullets 3 and 4	Storm Water and Erosion Control	40 CFR 264.228(b)(4). Refer to www.ecfr.gov.	Run-on to the Repository site is managed by the upstream diversion channel which diverts storm flows north and south of the TDA. Runoff from the cover will be collected in the existing stormwater channels and swales located around the Repository. Regarding erosion and damage to the Repository cover, see Dwyer Cover System Design Report, Attachment G.7
75	2013 ROD Table 1 and Sections 2.9.2 and 2.9.5	Repository Design	40 CFR 192.32(b)(1). Refer to www.ecfr.gov. (2) The requirements of § 192.32(b)(1) shall not apply to any portion of a licensed and/or disposal site which contains a concentration of radium-226 in land, averaged over areas of 100 square meters, which, as a result of uranium byproduct material, does not exceed the background level by more than: (i) 5 picocuries per gram (pCi/g), averaged over the first 15 centimeters (cm) below the surface, and (ii) 15 pCi/g, averaged over 15 cm thick layers more than 15 cm below the surface	(1)(i), See Dwyer Cover System Design Report (Attachment G.7) regarding design life of the Repository cover. (ii) See Dwyer Cover System Design Report, Attachment G.7 (2) See Dwyer Cover System Design Report, Attachment G.7
1	2015 AOC SOW, Paragraph 16 – Design of the	Repository Design	Respondents shall design a Repository at the Tailings Disposal Area for permanent disposal of approximately 1,000,000 cubic yards of contaminated soil and mine waste	The Repository design can be adjusted for a disposal volume of up to approximately 1.1 million CY. The Performance Standards are

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
	UNC Site Repository		material with contamination that meets or exceeds the Performance Standards.	addressed throughout the design documents.
5	2015 AOC SOW, Paragraph 20 – Site Preparation Activities	Site Preparation	In the Design, Respondents shall include detailed plans and specifications for the following site preparation activities: a. An underground utility survey for the identification and verification of the location of subsurface utilities in SA Site areas that will be used for consolidation or disposal; b. A land survey that will delineate the parts of the Tailings Disposal Area that will be used for NECR Site contaminated soil and mine waste disposal; c. A description of construction activities to be undertaken on the portion of the SA Site that is at the UNC Site in order to prepare for placement of the NECR Site contaminated soil and mine waste in the Tailings Disposal Area; d. A description of the methods that will be used to decontaminate existing structures such as culverts, catch basins, foundations, and vaults; and, where decontamination is not practicable, a description of methods that shall be used to disassemble these structures, demolish and remove these structures, or include these structures within the Tailings Disposal Area.	a. See Appendix B – Early Works and Construction Support Facilities b. A series of aerial and land surveys have been conducted over the last 10 years. The most recent set of survey data was collected during the pre-design studies (PDS). These data sets have been combined for use in this design. c. See Appendix B –Construction Support Facilities and Appendix D – Haul Roads. Additional detail on design and construction of the Repository is provided throughout this appendix. d. See Appendix C – Mine Waste Removal Excavations and Demolition
11	2015 AOC SOW, Paragraph 26 – Acceptance Criteria	Administrative	For the part of the Tailings Disposal Area that is to contain the mine waste from the NECR Site and for the part of the current tailings cell that may be disturbed during implementation of the remedy, Respondents shall include, in their Design, detailed plans and specifications to meet and demonstrate compliance with Acceptance Criteria consistent with Section 5.1 of NUREG 1620.	Radon and gamma attenuation is addressed in the Dwyer Cover System Design Report (Attachment G.7) and Section G.12.4 of this appendix.
14	2015 AOC SOW, Paragraph 29 – Green Remediation Best Management Practices	Green Remediation Best Management Practices	Respondents shall incorporate applicable Best Management Practices for Green Remediation listed in ASTM-E2893-13 consistent with EPA's policy *Superfund Green Remediation Strategy* {2010}, found at http://www.epa.gov/superfund/greenremediation/sf-gr-strategy.pdf.	See Section G.13.
56	2013 ROD, Table 1	Radiation Protection	10 CFR 40, Appendix A, Criterion 6A. Refer to www.ecfr.gov.	The radon barrier over the byproduct materials will not be removed. It will

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
				be compacted in- place. See Section G.5.1.
18	2015 AOC SOW, Paragraph 38 – Potential Impacts on Ground Water Remediation	Groundwater	Respondent shall describe any potential impacts of the Design on the on-going ground water remediation infrastructure at the UNC Site, and a proposed approach to address such impacts.	The existing groundwater remediation infrastructure is shown on the utilities drawing in the Section 1 Drawings. The haul road from the North and South Borrow areas can be adjusted to prevent conflict with, or damage to, the existing wells in operation at the time of construction.

*Refers to identifying numbers listed in Summary of ARARs, Performance Standards and Applicable NRC Design Requirements Table (provided in Attachment 1 to main text of the 95% Design Report)

G.3 ENGINEERING DESIGN DRAWINGS

The engineering design drawings for the Repository are contained in Volume II – Design Drawings (Section 7). The complete set of Drawings related to the Repository are listed in Table G.3-1 and referenced by sheet number in the text.

Table G.3-1: Engineering Design Drawings

Drawing No.	Drawing Title
7-01	Repository Subgrade - Existing Radon Barrier
7-02	Repository Mine Waste Fill by Removal Phase and Temporary Stormwater Control Berms (Sheet 1 of 2)
7-03	Repository Mine Waste Fill by Removal Phase and Temporary Stormwater Control Berms (Sheet 2 of 2)
7-04	Repository Mine Waste Fill Profile by Removal Phase
7-05	Repository Top of Mine Waste and Cover Grading Plan
7-06	Repository Profiles
7-07	Repository Final Cover Grading Plan
7-08	Cover Surface Erosion Protection
7-09	Repository Cover Details
7-10	Repository Cover Details

G.4 DESIGN BACKGROUND

G.4.1 Design Data

The section summarizes the analyses of the Repository design. Each analysis relies on data collected during the Mill Site Pre-Design studies (PDS; MWH, 2014a) as well as other sources of information specifically referenced. The Repository layout with a waste volume of 1.0M CY and shown on Drawing 7-07 was used for the analyses. As described in the introduction, the Repository design was developed based on the approved design objectives described in Appendix A of the Design Work Plan (MWH, 2016). The fill thicknesses over specific locations on the TDA are based on the design fill elevations for the proposed layout. The cross sections for the slope stability models are based on the layout shown on the Drawings.

The material properties used in the 95% Design analyses are based primarily on the geotechnical laboratory data from the PDS. Assumptions have been applied, specific locations selected, or parts of the data set used in some cases, for various types of materials for conservative input on specific analyses. Average values were used as the base-case scenario for all material properties in all analyses. A sensitivity analysis was conducted for each individual analysis, and the parameter(s) that most influenced the results was found and varied to assess the impact on the overall results. Details of the sensitivity analyses can be found in the Attachments G.2 through G.6.Repository

G.4.2 Design Basis

The design basis for the Repository is provided in Table G.4-1. The individual design basis items comply with regulatory requirements and/or generally accepted engineering practice and meet the overall project design criteria as provided in the Design Work Plan (MWH, 2016).

Table G.4-1: Repository Design Basis

Design Category	Design Basis	Design Reference
Seismic Hazard	Design life to be 1,000 years to the extent reasonably achievable, and at least 200 years	US Environmental Protection Agency (USEPA) (40 CFR 192) US Nuclear Regulatory Commission (NRC) (10 CFR Appendix A to Part 100 A) (NRC, 2013)
Slope Stability	FS (static) = 1.5. FS (pseudo-static) = 1.0. FS (Probable Maximum Flood) = 1.2 Design Horizontal Seismic Coefficient = 2/3 of the max peak ground acceleration, determined from the seismic hazard analysis Critical conditions determined by cross-sections including maximum slope steepness, maximum slope height, existing embankment, and global stability.	NUREG 1620, Section 2.2 (NRC, 2003) NRC Regulatory Guide 3.11, Section C (NRC, 2008) Technical Approach Document, Revision II, Section 6.2 (DOE, 1989)
Settlement	Maintain positive cover drainage long-term, prevent ponding or reverse grades One-dimensional settlement analyses performed at multiple locations Results of the calculations summed to determine maximum potential cover settlement Two-dimensional sections generated through the one-dimensional settlement profiles to identify long-term maximum and minimum slopes of the Repository cover and maximum differential settlement.	NUREG 1620, Section 2.3(1) (NRC, 2003) NAVFAC 7.01, Chapter 5, Sections 3 and 4 (Department of the Navy, 1986) NUREG 1620, Section 2.2(3i) (NRC, 2003)

Design Category	Design Basis	Design Reference
	Seismically induced displacement is calculated and documented.	
Stress Influence/Cover Cracking	Prevent ponding or settlement beyond the edge of the Repository cover; identify extent of necessary improvements to the existing TDA cover (if any) Minimize differential settlement of the underlying tailings which may affect the existing radon barrier that would be detrimental to Repository performance or stability Calculate horizontal strain of the existing radon barrier based on calculated cover settlements Calculated horizontal strain < maximum allowable strain of the radon barrier	NAVFAC 7.01, Chapter 4, (Department of the Navy, 1986) NUREG 1620, Section 2.1, 2.3. 2.5 (NRC, 2003) Technical Approach Document, Rev. II, Section 6.3.3 (DOE, 1989) Horizontal Movements Related to Subsidence (Lee and Shen, 1969)
Liquefaction	The factor of safety against liquefaction should be greater than 1.0 (NRC, 2008)	NUREG 1620, Section 2.4 (NRC, 2003) NRC Regulatory Guide 3.11, Section C (NRC, 2008) Liquefaction Susceptibility of Fine-Grained Soils (Bray et al., 2009) Soil Liquefaction During Earthquakes (Idriss and Boulanger, 2008) Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops of Evaluation of Liquefaction Resistance of Soils (Youd et al., 2001)
Cover Design	See Attachments G.7 (Dwyer Cover Design Report, Dwyer Engineering, LLC) and G.8 (Rock Cover Design)	

G.5 REPOSITORY DESIGN AND CONSTRUCTION

G.5.1 Repository Subgrade Preparation

The existing radon barrier above the tailings in the TDA will be prepared to serve as the foundation layer for the Repository. The erosion protection layer overlying the radon barrier (consisting of a nominal 6-inch-thick layer of soil and rock) will be removed and reused for Repository cover construction. The erosion protection layer and existing rock (D_{50}=1.5 inches) in the swales within the Repository footprint will also be removed. The rock from the swales will either be combined with the rock taken from the erosion protection layer and reused on the new cover or used for erosion protection on other areas of the site. The residual soil from the existing erosion protection layer will be reused for Repository cover construction, to fill in the swales located on the existing cover, or for general fill around the Repository.

As summarized in Table G.2-1, from the RAOs section of USEPA (2013), “a low-permeability layer (liner) will be placed between the NECR mine waste and the tailings currently disposed within the Tailings Disposal Area.” The existing radon barrier over the tailings in the TDA is planned to comprise this layer. The design criteria for this layer (from USEPA, 2013) include providing a stable foundation for mine waste placement in the Repository and a zone of separation from the underlying tailings. USEPA (2013) states that “This layer will be compacted to meet a hydraulic conductivity of no more than 1 x 10^{-7} centimeters per second” while also stating that “This layer will be constructed to eliminate the possibility that the layer will collect water and produce a ‘bathtub effect’.” These two statements indicate the desire for a low hydraulic conductivity within this layer, but not creating a hydraulic barrier that creates a zone of saturation at the top of the layer (the bathtub effect).

From review of the TDA reclamation plan, as-built reports, and tests results on radon barrier material in MWH (2014a), the radon barrier material cannot achieve a saturated hydraulic conductivity of less than 1x10^{-7} cm/sec, even under controlled laboratory conditions. However, a hydraulic conductivity of less than 1x10^{-7} cm/sec can be achieved under unsaturated conditions. One of the radon barrier samples (sample TI-CS01-04) was tested for unsaturated flow characteristics (MWH, 2014a). Analysis of the resulting soil water characteristic curve (see Figure G.5-1) and estimating the unsaturated hydraulic conductivity curve from relationships in van Genuchten (1980) show a decrease in hydraulic conductivity by several orders of magnitude from saturated to unsaturated conditions (see Figure G.5-2). From these calculations and using the geomean of the measured hydraulic conductivity of the radon barrier for samples remolded to 95 percent compaction (4.6 x 10^{-6} cm/sec; MWH, 2014a), a hydraulic conductivity of 1x10^{-7} cm/sec is achieved at a matric suction greater than 0.75 bars of negative pressure which correlates to a volumetric water content of equal to or less than 26 percent. The maximum measured optimum moisture content for the radon barrier is 15 percent gravimetric water content (sample TI-CS04-04A; MWH, 2014a) which is equivalent to a volumetric water content of 26 percent. The specifications will require the radon barrier to be compacted to 95 percent relative compaction per standard Proctor, at a water content less than the optimum water content to achieve an unsaturated hydraulic conductivity of less than 1x10^{-7} cm/sec. With the mine waste and Repository cover in place, the flux of meteoric water through the Repository would be sufficiently low that no zone of saturation would develop on the surface of the radon barrier, and the radon barrier would remain in an unsaturated condition (see Attachment G.7). The ET performance of the Repository cover would aid in maintaining unsaturated conditions in the radon barrier and achieve the hydraulic conductivity and “no bathtub” design criteria outlined in USEPA (2013).

To achieve a stable foundation for mine waste placement and maintain a zone of separation from the underlying tailings, the following preparation tasks for the existing radon barrier beneath the footprint of the Repository are outlined.

Rock mulch and riprap removal. The rock mulch on the surface of the radon barrier would be excavated and stockpiled for use on the Repository cover. Rock mulch excavation will be conducted carefully to minimize removal of radon barrier material. Riprap currently lining the swales would also be removed. The swales would be filled to grade with the soil portion of the existing rock mulch, which will be separated by screening. The excavated surface of the radon barrier would be regraded where necessary to smooth the surface for compaction.

Radon barrier compaction. The radon barrier surface would be compacted using a method specification (consisting of a minimum number of passes with specific compaction equipment). The method specification would be developed from a test fill, with the number of passes determined to achieve 95 percent of standard Proctor dry density for the material in the top 6 inches of the radon barrier. The method specification would be checked with additional test fills if there is a variation in the radon barrier material or if the Construction Contractor (CC) changes compaction equipment. Additional reworking or excavation or ripping into the radon barrier is not recommended due to the potential for contact with and exposure of underlying tailings. Material properties of the radon barrier are described in the As-Built Reclamation Reports (Canonie, 1991, 1992, 1994, and 1995; Smith, 1996a, 1996b, and 1997)) from construction of the radon barrier, as well as in the test pit sampling of the cover in the PDS report (MWH, 2014a). A discussion of the radon barrier material properties is included in Section G.6.

Water application. Water would be added, as necessary, for dust control during rock mulch removal and radon barrier compaction. Water would be applied to the compacted radon barrier surface for dust control during initial mine waste hauling and placement.

Prior to removal of the erosion protection material from the cover of the existing TDA within the Repository, a baseline gamma radiation survey will be conducted on the surface. The survey will provide a location-specific ambient background level for comparison with the completed Repository cover (see Section G.12.4). The gamma survey will consist of a GPS-based one-minute static survey at each node of a 150-foot square grid over the Repository area. The gamma radiation levels will be measured in exposure rate (uR/hr). The static gamma radiation survey will be conducted consistent with the static survey procedure described in Appendix T (Attachment T.2 Final Status Survey Plan) using a 2x2 NaI(TI) scintillation detector interfaced with a scaler/rate meter. The scaler/rate meter will be integrated with a DGPS/controller to log the radiation levels and their corresponding position coordinates. Following removal of the erosion protection layer and prior to re-compaction of the radon barrier surface, a visual inspection of the cover will be completed to verify that tailings were not exposed during the removal process. The tailings are generally gray in color while the surficial materials are typically brown. This inspection will be completed prior to initiating compaction of the layer and prior to placement of mine waste in the Repository. If the visual inspection indicates tailings have been exposed, a post-excavation (one-minute) static gamma survey, similar to the baseline survey, can be performed to determine extent of the material exposed. If tailings are exposed in the process, the radon barrier would be excavated in the vicinity of one of the branch swales so that the material can be placed back below the radon barrier. The radon barrier extends down beneath the erosion protection in each of the branch swales. Removing the radon barrier within one of the swales would provide storage volume beneath the grade of the surrounding radon barrier.

G.5.2 Mine Waste Placement Sequence

Following preparation of the radon barrier, clean borrow soils will be used to construct perimeter stormwater berms at the edge of the mine waste placement area within the Repository. These berms will allow for containment of contact water within the Repository during waste placement (additional detail in G.5.3). As construction progresses, these berms will be incorporated into the construction of the soil cover layer. The stormwater containment berm design is described in Section G.5.3.1.

Excavated mine waste will be hauled from the Mine Site, and initially placed and compacted directly on the prepared radon barrier. The mine waste will be placed from the north to south across the Repository and will be spread in lifts for compaction. The perimeter slopes of the compacted mine waste surface will be extended as the mine waste surface is raised and the perimeter stormwater berms can be adjusted to maintain containment of contact water runoff from the outer slopes of the Repository. Once fill has been placed for the 2nd mine removal phase, subsequent fill phases should begin to mimic the final slope configuration so that the Repository can be completed with less volume, if necessary.

The Mine Site removal sequence is divided into six phases as shown on the Section 3 Drawings. Drawings 7-02 through 7-04 show, in concept, plan and section views of where each of the five phases (excluding the PTW phase) of removal from the Mine Site would be placed within the Repository. Three locations [Sandfill 1 (Area 7), Sediment Pad (Area 6), and Pond 1 (Area 9)] at the Mine Site have mine waste activity levels (for radium-226) greater than the weighted average (by volume) of the overall volume of mine waste. A summary of the activity levels for the mine removals is presented in Table G.5-1. The volume of these three areas combined account for less than 13 percent of the estimated total volume of mine waste to be placed in the

Repository. The activity levels were estimated from the analytical data in the PDS report, excluding the PTW. Of the 5 phases of removal and placement proposed, the majority of the volume is included in Phase 3. Areas 6, 7, and 9 (Sediment Pad, Sandfill 1, and Pond 1) would be removed in three different phases (Phases 2, 3, and 4). These three volumes would therefore will be dispersed within the other lower activity materials removed and then placed during that same phase. Further, the specifications for Mine Waste Excavation and Disposal limit the placement of the materials from these three Mine areas to greater than 200 feet from the outer slope of the Repository.

Table G.5-1: Mine Waste Weighted Average Activity Levels by Volume

Mine Removal Phase	Area(s)	Average of 75th Percentile Activity (pCi/g)	Estimated Removal Volume (CY)
2	1	2.4	14,763
2	2	26.7	37,005
2	3	11.4	67,138
2	4	5.2	13,771
2	7	50.5	40,917
3	6	86.3	23,086
3	8	24.2	422,473
4	5 and 11	9.8	6,399
4	9	85.2	29,302
4	10	10.2	7,758
5	12	7.1	34,272
6	13	6.5	28,356
		Weighted Average by Volume (75th percentile vales) = 26.5 pCi/g	

As described in Section G.12, the designed ET cover thickness is based on infiltration retention and evapotranspiration. This cover thickness has been analyzed for acceptable rates of radon-222 emanation at the cover surface, based on the weighted average (by volume) radium-226 activity levels of the mine waste. Refer to Attachment G.8 for specifics on the radon emanation calculations.

The Design Drawings (Section 7) show a Repository layout for storage of approximately 1.0M CY. The design capacity for the Repository is based on the removal estimate for soil and debris (waste) from the Mine Site described in Appendix C. The placement sequence allows for flexibility in the final volume by making adjustments to the top surface (at approximately 2 percent slope) and how this surface ties into the existing TDA cover on the south side of the Repository. The 1.0M CY capacity provides for approximately 30% contingency storage.

G.5.3 Stormwater Controls

The Repository design and layout has been incorporated into the existing site stormwater features of the previously reclaimed TDA. This has been accomplished by sloping the cover surface to existing Branch Swale C located on the east and south sides

of the Repository. On the north side, surface flow from the Repository will be directed into the North Cell Drainage Channel, which directs flow around the TDA from the east side to the north side and outlets to the Pipeline Arroyo. On the west side of the Repository, following construction of the Repository cover, clean fill will be added to the existing TDA cover, with similar erosion protection (rock admixture) to the Repository cover, to convey surface flow from the new cover to the crest of the TDA embankment and down into the existing Runoff Control Ditch. The Runoff Control Ditch will be modified, and the riprap will be enlarged.

On the southwest side of the Repository cover, clean fill will be required to fill in existing Branch Swale D, which currently drains to the northeast. Stormwater off the Repository will flow away from the new cover to the southwest. The surface of this fill area will include a similar erosion protection layer to the Repository cover. Flow from this small catchment area of the Repository will be directed onto the existing TDA cover and to existing Branch Swale H which flows to the south. Branch Swale H is planned to be reestablished once the evaporation ponds are decommissioned and removed. The Section 9 Drawings show the stormwater control designs for the Repository and they are described in Appendix I.

G.5.3.1 Stormwater Management during Construction

Stormwater control berms, constructed with clean borrow soil, will be used to contain contact water within the Repository footprint. These perimeter berms will be incorporated into the cover soils placed over the mine waste. The primary purpose for the stormwater controls will be to contain stormwater in contact with the mine waste within the Repository boundaries. The controls will include a clean soil berm placed along the perimeter of the Repository footprint that extends beyond the elevation of waste placement. The berm is sized to provide capacity for retention of the selected design storm event runoff volume, with an additional one foot of freeboard. Stantec selected the 10-year, 24-hour storm event as the design storm for the perimeter stormwater berms, based on the relatively short Repository construction period.

The perimeter berms will be constructed with clean fill in compacted lifts. The condition of the berms will be inspected and maintained by the CC during Repository construction for appropriate freeboard and discharge capacity and repaired or modified as necessary. The berms will be raised, as needed, as the waste surface is raised to maintain freeboard above the waste surface. Clean fill on the outside of the berms will also serve as interim cover over the mine waste so that stormwater in contact with the outer slopes is no longer considered contact water and can be allowed to be discharged as clean stormwater.

Temporary stormwater controls for the Repository and other areas of the Mill Site will include best management practices (BMPs) to prevent erosion from excavated areas and unprotected slopes. Proposed locations for the BMPs on the Repository are shown on the Section 5 Drawings. These measures will be required prior to establishment of vegetation on the cover. These BMPs are to be defined in the Stormwater Management Plan (Appendix E) which provides guidelines for the preparation of the Construction Stormwater Pollution Prevention Plan.

G.5.4 Potential Impacts to Ongoing Groundwater Remediation

Piping used by General Electric/United Nuclear Corporation (GE/UNC) site personnel at the pumping wells, the active sampling wells, and the bioventing area have been identified and are shown on the Site Utilities drawing in the Section 1 Drawings. Proposed haul roads and site improvements have been designed to account for the locations of the existing groundwater infrastructure and to minimize conflicts with existing operations during construction. Monitoring wells located near proposed areas of disturbance (particularly in the vicinity of the South Borrow Area) will be protected with visible barriers to prevent damage to the wells from construction traffic.

G.6 MATERIAL PROPERTIES

The material properties presented below represent the base case scenario used in the individual design analyses (i.e., stability, settlement, liquefaction, and cover cracking). Any variations to these material properties are discussed in the calculation briefs for each design analysis. Material strength parameters were used in the stability analysis, and the calculated total stress friction angles are discussed further in Appendix G.2, Slope Stability Analysis.

The Mill Site PDS investigation encountered the following materials within the TDA: general fill, erosion protection admixture, radon barrier (clay), tailings, alluvium, and various bedrock units (including coal, shale, and sandstone). Some of these units were further subdivided according to notation in the borehole logs, results of CPT logs, and results of laboratory analysis. The Mine Site PDS investigation included laboratory testing of mine spoils material.

The material identifications used in the analyses are discussed below and are as follows: erosion protection, cover soil, mine waste, radon barrier, general fill, coarse tailings, fine tailings, coarse/fine tailings, coarse alluvium, and fine alluvium. Table G.6-1 presents the material properties associated with each of these materials used in the analyses.

Erosion Protection

The erosion protection layer will be the uppermost layer of the proposed Repository. It will be constructed by placing a mixture of cover soil (67 percent by volume) and aggregate (33 percent by volume). Properties for this material were developed based on the material properties of the cover soil and testing results (specific gravity) from on-site aggregate stockpiles. Other assumptions regarding the erosion protection are as follows:

- It is assumed that this material will be placed at 90 percent relative compaction per standard Proctor.
- The aggregate in the erosion protection layer will have properties similar to those found in on-site stockpiles and tested as part of the PDS (MWH, 2014a).
- Due to the mixed nature of this material, it is assumed that the fines content of this material will be equal to 67 percent of that contained in the cover soil.
- This material will have a lower long-term moisture content than the cover soil due to the increased aggregate content.

Cover Soil

The cover soil consists of the material that will be placed over the mine waste as part of the Repository ET cover. It will be excavated from on-site borrow sources identified in the Mill Site PDS (MWH, 2014a) or from similar material to be excavated for the Jetty construction. These borrow sources were investigated during the Mill Site PDS and subsequent investigations conducted in the Jetty area. Samples obtained from the original borrow areas were classified as clayey and silty sands and low-plasticity clays. Fines contents range from 38 to 78 percent and plasticity index (PI) values range from 3 to 23 (MWH, 2014a). Samples from the Jetty area have fines contents (silt and clay-size particles by weight) ranging from 6 to 99 percent, with an average of 71 percent passing the no. 200 sieve. The Atterberg limits data from the Jetty area compared with the four original borrow areas indicates more high-plasticity clay (CH) materials and fewer silt samples (ML) (Stantec, 2019). The Dilco Hill Borrow Area is not a preferred borrow source and, at this time, there are no plans to use that material during the RA. Therefore, results of analyses performed on samples originating in the Dilco Hill Borrow Area were excluded when calculating the cover soil material properties. Other assumptions regarding the cover soil are as follows:

- The analyses related to Repository construction is based on the Jetty excavation being the primary source for cover borrow.
- The cover soil will be placed in a state of compaction similar to the in-situ conditions within the borrow areas.
- Specifications for the ET cover will require the soil be placed at 90 percent relative compaction per standard Proctor and have a water content no more than minus 3 percent from optimum water content.

Mine Spoils

Mine spoils consist of the material that will be removed from the Mine Site and placed into the Repository during the RA. Material properties of the mine spoils were estimated by averaging the results of laboratory tests performed on samples of mine spoils collected during the Mine Site PDS (MWH, 2014b). Mine spoils material was not tested for fines content and Atterberg limits. Therefore, due to the similarity between the geotechnical properties of these materials, it is assumed that the mine spoils material has the same fines content and Atterberg limits as the cover soils in the proposed borrow areas. The dry unit weights have a percent difference on average of 3.7 percent and the specific gravities have a percent difference of 1.1. In the absence of laboratory data, assuming other geotechnical properties are also similar is a reasonable approach. Other assumptions regarding the mine spoils are as follows:

- Mine spoils index properties are similar to the cover materials and are assumed to have the same fines content and PI as the cover soil.
- Mine spoils will be placed in horizontal lifts at 90 percent relative compaction per Standard Proctor.

Radon Barrier

The existing radon barrier over the TDA consists of low-plasticity clay with fines contents ranging from 51 to 69 percent (MWH, 2014a). Prior to construction of the Repository, the radon barrier within the footprint of the proposed Repository will be reconditioned and improved. Activities to improve the radon barrier will include: stripping the upper erosion protection material, separating unsuitable materials (organics and erosion protection rock), moisture conditioning the surface of the radon barrier material, and re-compaction of the radon barrier material. The radon barrier will be compacted to 95 percent relative compaction per Standard Proctor at a water content of less than a maximum of minus 1 percent of the optimum water content.

Strength Parameters of Cover, Mine Spoils, and Radon Barrier

Triaxial testing was not performed on the borrow material, mine spoils, or radon barrier material; therefore, strength parameters (cohesion, c, and friction angle, ϕ) for these materials were based on strength parameters obtained from triaxial testing on a sample of embankment material from borehole TI-B3 at 21 feet below ground surface (bgs). The average in-place dry densities were calculated to be 103.5 pcf, 106.5 pcf, and 104.7 pcf for the borrow material (Cover), mine spoils, and radon barrier materials, respectively. These values were compared to the Embankment material average in-place dry density of 105.3 pounds per cubic foot (pcf). The average fines content and PI of the embankment material are 50 percent and 13.5 percent, respectively. The average fines content and PI of the cover material (and assumed mine spoils) is 53 percent and 12 percent, respectively. The average fines content and PI of the radon barrier are 59 percent and 16 percent, respectively. Given the percent fines, PI, and liquid limit of these materials, each would classify as CL according to USCS (Unified Soil Classification System). Literature values (Lambe & Whitman, 1969, Figure 21.4) show that typical effective friction angles range from 28 degrees to 35 degrees for normally consolidated clays classified as CL with a similar plasticity index to the materials described above. Therefore, the triaxial shear strength test results of the embankment material (effective friction angle of 32 degrees) is considered representative of each of these three materials based on comparison of material index properties (i.e., dry density, fines content, and PI) and literature values.

General Fill

General fill was encountered in the TDA during the Mill Site PDS subsurface investigation. The existing fill material properties were calculated from the average of the laboratory test results from samples obtained from the existing impoundment material described as ‘fill’. The fill samples were generally classified as CL, but some were classified as SM and SC. Laboratory testing indicates that this material is sandy and low-plasticity clays with fines contents ranging from 35 to 72 percent and PIs ranging from 17 to 20.

Triaxial testing was not performed on the existing fill material, so the strength parameters (c and ϕ) for the fill material were also based on triaxial testing on a sample of embankment material from borehole TI-B3 at 21 feet bgs. The embankment material has a slightly higher density and fines content than the existing fill material, and slightly lower PI value than the existing fill

material. Based on these relationships between the two materials, it was assumed that the strength properties of the fill material would also be slightly lower (Figure 21.4 from Lambe and Whitman, 1969). The cohesion value was assumed to be zero, and the phi values were assumed to be 10 percent less than the embankment material phi values, resulting in a phi value of 29 degrees. This correlates well to the lower end of phi values shown in Lambe and Whitman (Figure 21.4) for PI values of approximately 20 percent. Since some of the fill material samples were classified as SM and SC, typical phi values for fine sands were also considered. As shown in Lambe and Whitman (1969) Figure 11.11, the phi value for fine sands with an initial void ratio of 0.67, would also be approximately 30 degrees. Based on literature values, an assumed phi value of 29 degrees is a conservative assumption given the known material properties of the existing fill.

Tailings

Tailings produced by the UNC uranium mill were deposited in the TDA. They range from silty and clayey sands to sandy clays and high plasticity clays. The fines content of tailings samples analyzed during the Mill Site PDS ranged from 7 to 97 percent and the fine-grained particles ranged from non-plastic to a PI of 61. Due to this wide range of material properties, the tailings have been subdivided into three categories: coarse tailings, fine tailings, and coarse/fine tailings.

During the milling process, a significant amount of sulfate was introduced into the tailings (from the sulfuric acid used for acidification), causing gypsum to precipitate. The concentration of gypsum in the tailings varies with grain size, with the greatest amount of gypsum likely present in the fine-grained tailings.

The presence of gypsum is known to affect certain geotechnical laboratory test results, specifically particle-size distribution and water content. Results of water content tests performed on samples containing gypsum are often artificially elevated due to the loss of molecular water within the gypsum. For this reason, samples containing gypsum should be dried at a lower temperature to remove the soil (pore) moisture without removing the molecular water from the sample.

As presented in the Mill Site PDS (MWH, 2014a), some of the tailings samples were analyzed at the standard temperature (110°C). Other samples were analyzed at both the reduced temperature recommended by ASTM (60°C) and the standard temperature. The reason for the reduced temperature drying was the presence of gypsum in the samples. At the standard temperature (110°C), gypsum will decompose and release molecular water. This molecular water is fundamentally different than the pore water that defines water content. The lower temperature will evaporate the pore water without decomposing the gypsum. The results of analyses performed on samples at both temperatures were used to develop a correlation between the artificially elevated water contents measured during the tests performed at the standard temperature and the more appropriate results from samples dried at the lower temperature. The higher temperature drying yielded water contents 0.5 percent to 3 percent larger than the lower temperature drying (due to the loss of water contained in molecular bonds). Tests that were only conducted at 110°C were therefore decreased by the same ratio that was observed empirically in samples tested at both temperatures. This process and the correlation between these values are discussed in more detail in the Mill Site PDS (MWH, 2014a). The water content, specific gravity, and unit weight values used to represent the fine tailings and coarse/fine tailings in the design analyses were obtained from averaging the results of samples performed at 60°C, as well as the adjusted results of tests performed at 110°C.

Coarse Tailings

Tailings identified as coarse tailings were generally unsaturated and exhibited higher tip resistance and sleeve friction during cone penetration tests (CPTs) than the fine-grained tailings. Coarse tailings are sandy *and* have a fines content of less than 40 percent. Atterberg limits testing performed on coarse tailings indicated that the fines in all samples were non-plastic. The coarse-grained tailings material properties were calculated from the average of the laboratory test results on the samples labeled 'coarse tailings' from the impoundment samples. The friction angle was determined from triaxial testing from a sample at borehole location TI-B1 at a depth of 27 feet, where coarse grained tailings were identified, and is considered representative of the coarse tailings based on material index properties.

Fine Tailings

Fine tailings exhibited lower tip resistances during CPTs than those exhibited by coarser tailings. CPT sleeve frictions of the fine tailings were also lower than those exhibited by coarser tailings and were often near zero. Fine tailings are clayey, have fines contents ranging from 69 to 97 percent, and PIs ranging from 27 to 61. The fine-grained tailings material properties were calculated from the average of the laboratory test results on the samples labeled 'fine tailings' from the impoundment samples, using the results of water content, specific gravity, and unit weight performed at 60°C, as discussed previously. The friction angle for the fine tailings material was determined from triaxial testing from a sample at borehole location TI-B1 at a depth of 31 feet, where fine-grained tailings were identified, and is considered representative of the fine-grained tailings within the impoundment.

Coarse/Fine Tailings

Tailings samples containing between 40 and 65 percent fines were identified as coarse/fine tailings. Coarse/fine tailings are classified as clayey sands and sandy clays according to the USCS. Coarse/fine tailings samples analyzed during the Mill Site PDS had fines contents ranging from 48 to 57 percent and PIs ranging from 17 to 24. Tailings samples identified as coarse/fine tailings were generally near 100 percent saturation (83 to 99 percent). Triaxial testing was not performed on the coarse/fine tailings material and strength parameters were not applied to this material. The use of strength parameters (friction angle and cohesion) is only applicable to the stability analysis, and this material was not used in the stability analysis. As discussed further in Attachment G.2, layers of coarse/fine tailings were conservatively assumed to be fine tailings.

Alluvium

The TDA was constructed on top of unconsolidated alluvium which overlies bedrock. The alluvium consists of a mixture of sand, silt, clay, and to a lesser amount, gravel. The fines content of alluvium samples analyzed during the Mill Site PDS ranged from 17 to 91 percent and the fine-grained particles ranged from non-plastic to a PI of 31. Due to this wide range of material properties, the alluvium has been subdivided into two categories for applicable analyses: coarse alluvium and fine alluvium.

Coarse Alluvium

Alluvium samples with fines content less than 50 percent were identified as coarse alluvium. Generally, coarse alluvium is unsaturated silty or clayey sands with non-plastic fines. Coarse alluvium samples submitted for laboratory analysis contained 17 to 50 percent fines.

Fine Alluvium

Alluvium samples with fines content greater than 50 percent were identified as fine alluvium. Generally, Fine alluvium is sandy or lean clays with plastic fines. Fine alluvium samples submitted for laboratory analysis contained 61 to 91 percent fines with PIs ranging from 0 (non-plastic) to 31.

Tailings Impoundment Dam (Embankment)

The existing tailings impoundment dam (embankment) was classified as a sandy or silty clay to a clayey sand with a fines content ranging from 14 to 42 percent and a plasticity index ranging from 9 to 18 percent. The material properties were determined from the average of laboratory test results from samples collected in the embankment (labeled as 'dam') to a depth of 40 feet. The friction angle was based on triaxial testing from a sample taken from borehole location TI-B3 in the embankment material at a depth of 21 feet and is considered representative of the embankment material. The cohesion was conservatively assumed to be zero for the analyses. The friction angle was also compared to literature values in Lambe and Whitman (Figure 21.4, 1969). The average, 60th percentile, and maximum plasticity index values the embankment material (13 percent, 14 percent, and 18 percent, respectively) correlate to friction angles ranging from approximately 34 degrees to 31 degrees based on the trendline. The data used to generate the trendline fall above and below the line, but typically correlate to friction angles ranging from 37 degrees to 30 degrees for a plasticity index range of 13 percent to 18 percent, respectively.

Bedrock

Bedrock (sandstone) material properties were determined from information included in the boring logs as well as from the average of laboratory test results from samples labeled as ‘sandstone’ and/or ‘claystone’. The cohesion value for the underlying bedrock was based on penetration resistance (blows/ft) data on the sandstone material, taken from the boring logs. A correlation between the penetration resistance and unconfined compressive strength was used to determine the cohesion value (Lambe and Whitman, 1969).

Table G.6-1: Summary of Material Properties

Material	Specific Gravity, Gs	Void Ratio, e	Relative Compaction (%)	Dry Density (pcf)	Max Dry Density (pcf)	Optimum Water Content (%)	Moist Unit Weight (pcf)	Water Content (%)	Effective Friction Angle (°)	Total Friction Angle (°)	Fines Content (%)	Plasticity Index (PI) (%)	Coefficient of Consolidation, Cc	Comment/Justification
Erosion Protection (rock)	2.71	0.45	90	117.0	130.0	-	122.9	5.0	-	-	-	-	-	Assumed maximum dry density and optimum water content. Assume 90 percent of maximum dry density and water content was calculated from optimum water content minus 3 percent.
Cover (soil)	2.69	0.62	90	103.5	115.0	13.8	114.7	10.8	32	-	53	12	0.086	Average maximum dry density and optimum water content from laboratory test results on borrow samples, excluding Dilco Hill. Calculated dry density from 90 percent maximum dry density and water content calculated from optimum water content minus 3 percent. Phi based on sample TI-B3 at 21 feet (median value of 3 tests), similar properties to borrow (i.e. fines and PI). Specification to be set at 90 percent of standard Proctor compaction.
Mine Spoils	2.66	0.56	90	106.5	118.3	12.3	116.4	9.3	32	-	53	12	0.086	Average maximum dry density and optimum water content from laboratory test results on mine samples. Calculated dry density as 90 percent of maximum dry density and water content calculated from optimum water content minus 3 percent. Strength based on embankment samples; density of recompacted mine spoils similar to the embankment fill. Specification to be set at a minimum of 90 percent of standard Proctor compaction.
Radon Barrier	2.68	0.51	95	110.5	116.3	13.7	122.3	10.7	32	-	59	16	-	Average maximum dry density and optimum water content from laboratory test results on radon barrier samples. Calculated dry density as 95 percent maximum dry density and water content as average of in-place water content of 'radon barrier' samples. Strength based on embankment CU samples, tested with similar properties to the radon barrier data (cover). Specification to be set at 95 percent of standard Proctor compaction and maximum of -1 percent to optimum water content.
Existing Fill	2.69	0.67	-	100.7	-	-	113.8	13.0	29	-	48	19	0.086	Average of results from laboratory test results for Impoundment - Samples labeled as "fill". Fill samples generally classified as CL, some SM, SC. Strength based on embankment fill, use lower value since density is lower than proposed fill and embankment samples
Coarse Tailings	2.67	0.71	-	97.5	-	-	108.1	10.9	34	-	21	0	0.084	Average of results from laboratory test results for Impoundment - Samples labeled as "coarse tailings", strength from B1 at 27 feet.
Coarse/Fine Tailings	2.72	0.90	-	89.2	-	-	116.0	30.0	-	-	52	20		Average of results from laboratory test results for Impoundment - Samples labeled as "coarse/fine tailings".
Fine Tailings	2.70	1.35	-	71.7	-	-	107.6	50.1	33	19	83	43	0.408	Average of results from laboratory test results for Impoundment - Samples labeled as "fine tailings", strength from B1 at 31 feet.
Alluvium (All)	2.72	0.73	-	97.9	-	-	114.8	17.3	22	-	57	22	0.090	Average of results from laboratory test results for Impoundment - Samples labeled as "alluvium", strength based on clay alluvium from B3 at 56 feet. Used for stability analyses only.
Alluvium (Coarse)	2.71	0.73	-	96.9	-	-	111.0	14.6	-	-	-	-	-	Average of results from laboratory test results for Impoundment - Samples labeled as "alluvium". Coarse alluvium defined as alluvium samples with less than 50% fines.
Alluvium (Fine)	2.74	0.72	-	99.4	-	-	120.7	21.4	-	-	-	-	-	Average of results from laboratory test results for Impoundment - Samples labeled as "alluvium". Fine alluvium defined as alluvium samples with greater than 50% fines.
Dam	2.66	0.55	-	107.0	-	-	119.1	11.3	32	-	45	13	-	Average of results from laboratory test results for Impoundment - Samples labeled as "dam" to a depth of 40 feet at B3.
Bedrock				107.2			124.4	16.0						From laboratory testing on 3 samples of sandstone; Cohesion = 4000.

G.7 SEISMIC HAZARD ANALYSIS

A site-specific probabilistic seismic hazard analysis (PSHA) and a deterministic seismic hazard analysis (DSHA) were conducted to develop seismic design criteria for the Repository. The complete seismic hazard analysis report is included as Attachment G.1. The probabilistic seismic hazard analysis is based on a seismotectonic model and source characterization of the Mill Site and surrounding area. The study evaluated an area within a 124-mile (200-km) radius surrounding the Mill Site. The SHA was performed to estimate the seismic hazard at the project site within a probabilistic and deterministic framework by characterizing potential seismic sources. The peak ground acceleration (PGA) calculated in this PSHA was used during design to evaluate liquefaction potential, seismic settlement, and slope stability for the Repository. A summary of the PSHA results are provided in Table G.7-1. A mean PGA value of 0.30 was used in the analyses for the 95% design.

Table G.7-1: Summary of PSHA Results

Return Period (years)	**V_{s30} (ft/s)**	**V_{s30} (m/s)**	**Mean PGA (g)**
10,000	902	275	0.30
	1,348	420	0.28
	1,857	566	0.25

1. V_{S30} = shear wave velocity in the upper 30 meters.
2. g = acceleration due to gravity

G.8 SLOPE STABILITY ANALYSES

Static and pseudo-static slope stability analyses were conducted for the Repository. The slope stability analysis calculation brief, which includes a figure showing the cross-sections locations used for the analyses, is included as Attachment G.2. Three cross-sections were selected for stability analyses (shown on Figure G.8-1). The cross sections were selected as representative of the maximum loading conditions, critical slope geometry, and maximum fill height for the Repository. The cross-sections are located along the Repository slopes to represent loading conditions on the existing TDA and embankment, to evaluate design slopes of the final Repository cover slopes, and to evaluate the global stability of the final Repository and existing TDA embankment. Limit equilibrium slope stability analyses were performed using the GeoStudio software SLOPE/W (Geoslope International, 2016). Material properties and the geometry and stratigraphy of the selected cross-sections were based on the results of previous field investigations and laboratory analyses conducted during the PDS. The analysis evaluated both circular and block-type failure surfaces along the selected cross-sections.

The critical (lowest) calculated factors of safety for both static and pseudo-static loading conditions for each of the cross sections from the model outputs were evaluated against the required design factors of safety given by the US Nuclear Regulatory Commission (NRC) design guidance documents. A summary of the static and pseudo-static slope stability results are provided in Table G.8-1. The calculated factors of safety are greater than the recommended minimum factors of safety for each case evaluated. Additional slip surfaces and factors of safety are presented and summarized in Attachment G.2 for deep failures to bedrock, shallow failures, and failures that toe at the bottom of the cover and/or embankment for each analysis.

Table G.8-1: Summary of Slope Stability Results

Cross Section	Failure Type	Loading Condition	Minimum Required Factor of Safety (1)	Calculated Factor of Safety
Cross Section A – Southwest Slope	Circular	Static	1.5	9.9
		Pseudo-Static	1.0	1.8
Cross Section A – Northeast Slope	Circular	Static	1.5	2.7
		Pseudo-Static	1.0	1.3
	Block	Static	1.5	2.7
		Pseudo-Static	1.0	1.3
Cross Section B – Repository Slope	Circular	Static	1.5	7.9
		Pseudo-Static	1.0	1.7
Cross Section B – Existing Dam	Circular	Static	1.5	2.4
		Pseudo-Static	1.0	1.2
Cross Section B – Arroyo Flood	Circular	Static	1.2	2.6
Cross Section C – North Slope	Circular	Static	1.5	3.2
		Pseudo-Static	1.0	1.7
Cross Section C – North Slope (Entry/exit)	Circular	Pseudo-Static	1.0	1.7
Cross Section C – Arroyo Flood	Circular	Static	1.2	2.6
Cross Section C – South Slope	Circular	Static	1.5	9.1
		Pseudo-Static	1.0	1.8

1. NRC Regulatory Guide 3.11 (NRC, 2008)

G.9 SETTLEMENT ANALYSES

The settlement analyses conducted for the Repository includes immediate settlement, primary consolidation, secondary consolidation, and seismic induced settlement. The analyses were conducted to evaluate settlement due to placement of the mine waste and cover material on the existing TDA. The settlement analyses calculation briefs, except for seismically-induced settlement, are provided as Attachment G.3. The seismically-induced settlement calculation brief is provided as Attachment G.4. Figure G.8-1 shows the borehole and CPT locations, and the fill thicknesses used to conduct the analyses. The proposed surfaces for the top of mine waste and top of cover for the Repository were used to determine the proposed thickness of fill at each CPT and/or borehole location within the Repository. These fill thicknesses were used to determine the increase in stress within the Repository at each location.

Based on the filling plan progressing from north to south, the north slope of the Repository will be filled to design waste grade during early stages of filling. The north slope of the Repository would be completed several months before completion of fill placement in the southeast corner. During placement to the design waste grade and covering with a temporary cover of clean soil, settlement will be monitored, by survey while fill placement continues in other areas of the Repository. Settlement monitoring data will be collected during the construction period and compared to the predicted consolidation settlements to verify that no additional grading mitigation measures are necessary prior to completion of the final cover.

G.9.1 Immediate Settlement

Immediate settlement was calculated for one-dimensional settlement, following the guidelines presented in the NAVFAC 7.01 design manual (Department of the Navy, 1986), based on guidance in NUREG-1620 (NRC, 2003). The immediate settlement of the TDA surface near the perimeter of fill placement was evaluated to address potential impacts of cover cracking of the existing radon barrier as a result of differential settlement. Immediate settlement of the upper unsaturated materials (including the radon barrier) would occur rapidly and incrementally with each layer of mine waste and will therefore not impact the long-term performance of the Repository cover. Cover cracking of the existing radon barrier is discussed in Section G.10.

Immediate settlement was calculated at three locations (B15/CPT-15, CPT-26, and B1/CPT-01) on the southwest slope of the Repository. These locations were selected because they are closest to the area where the Repository fill will transition directly to an area where the existing radon barrier will remain in-place and unmodified. The primary focus for evaluating the immediate settlement is to determine the contribution to differential settlement near the perimeter. Within the interior of the Repository the immediate settlement will occur incrementally as fill is placed and will not affect the Repository. The results of the immediate settlement analysis were used to determine the extent of the impacts from Repository construction on the existing TDA cover. A summary of the results of the immediate settlement analysis are present in Table G.9-1.

Table G.9-1: Summary of Immediate Settlement Results

Location	Immediate Settlement (ft)
CPT-01	0.1
CPT-15	1.0
CPT-26	0.6

G.9.2 Primary Consolidation

Settlement during and following active construction of the Repository is anticipated to result from primary consolidation caused by fill placement and the resulting dissipation of porewater pressures in the fine-grained tailings. Primary consolidation was calculated using a one-dimensional consolidation settlement analysis following the guidelines presented in the NAVFAC design manual 7.01 (Department of the Navy, 1986) and based on guidance in NUREG-1620 (NRC, 2003). Each of the 25 CPT locations within the Repository footprint were used to estimate the primary consolidation. The soil profiles were created using

data from CPT and borehole testing locations conducted during the PDS (see Figure G.8-1). Consolidation was calculated using the fill thickness from the Repository design at the locations of the CPT hole locations. Seven of the 25 locations included boreholes paired with the CPT.

Because only the fine-grained tailings are near saturation, the primary consolidation calculations only include settlement results for fine-grained tailings. In locations where the estimated settlement is presented as 0.0, a near saturated layer or no fine-grained tailings layers were encountered. The primary consolidation was estimated for each location where fine-grained tailings were encountered in the subsurface profile, if the profile information along with the laboratory data, indicate the fine tailings are near saturation (85 percent degree of saturation or greater). Additionally, in locations where interlayered fine and coarse tailings were encountered, the overall thickness of this material was assumed to behave as fine tailings to present a more conservative estimate of primary consolidation settlement totals for the location. The calculated primary consolidation at each location is summarized in Table G.9-2, and the calculations are included in Attachment G.3.

Table G.9-2: Summary of Primary, Secondary, and Total Consolidation Results

Location	Primary Consolidation (ft)	Secondary Consolidation (ft)	Total Primary and Secondary Consolidation Settlement (ft)
CPT-01 (TI-B1)	0.02	0.05	**0.1**
CPT-02 (TI-B2)	0.13	0.03	**0.2**
CPT-04	0.17	0.04	**0.2**
CPT-05	0.00	0.00	**0.0**
CPT-06	1.03	0.22	**1.2**
CPT-08 (TI-B8)	0.51	0.21	**0.7**
CPT-09	1.13	0.34	**1.5**
CPT-10 (TI-B10)	1.08	0.29	**1.4**
CPT-11 (TI-B11)	0.08	0.14	**0.2**
CPT-12	0.02	0.03	**0.1**
CPT-13	0.00	0.00	**0.0**
CPT-14	0.20	0.05	**0.3**
CPT-15 (TI-B15)	0.00	0.00	**0.0**
CPT-16	1.34	0.32	**1.7**
CPT-17	0.40	0.09	**0.5**
CPT-18	1.45	0.35	**1.8**
CPT-19	0.59	0.21	**0.8**
CPT-20	0.19	0.12	**0.3**
CPT-23 (TI-23)	0.00	0.00	**0.0**
CPT-24	0.00	0.00	**0.0**
CPT-25	0.00	0.00	**0.0**
CPT-26	0.00	0.00	**0.0**
CPT-27	0.00	0.00	**0.0**
CPT-28	0.00	0.00	**0.0**
CPT-29	0.00	0.00	**0.0**

G.9.3 Secondary Consolidation

Settlement estimates for the completed ET cover surface resulting from secondary consolidation (creep) are also included in the estimated overall total settlement. Secondary consolidation was calculated using a one-dimensional settlement analysis following the guidelines presented in the NAVFAC design manual 7.01 (Department of the Navy, 1986) and based on guidance in NUREG-1620 (NRC, 2003). The same soil profiles used for primary consolidation were used to estimate the secondary consolidation at 25 locations within the Repository footprint. The soil profiles were created using data from CPT and borehole testing locations conducted during the PDS. The secondary consolidation was calculated for each fine-grained tailings layer in each CPT vertical soil profile location. The summation of the secondary consolidation in each fine-grained tailings layer at one location resulted in the total estimated secondary consolidation at that location. The secondary consolidation calculations include estimates of secondary consolidation for locations where the fine-grained tailings are near saturation. The calculated secondary consolidation at each location is presented in Table G.9-2. In locations where the estimated settlement is presented as 0.0, a saturated or near saturated fine-tailings layer was not encountered. The overall total (primary plus secondary) consolidation estimates are also presented in Table G.9-2.

Figure G.9-1 shows the estimated total amounts of consolidation settlement expected to occur during the construction period as well as over the design life of the Repository. Immediate settlement is not included in the totals shown on Figure G.9-1 since immediate settlement will occur prior to the completion of the cover. In addition, a percentage of the consolidation settlement totals shown on the figure will occur prior to completion of the final surface of the cover as fill is placed. Therefore, the amounts shown represent upper limits for the post-construction settlement totals. The figure presents total estimated settlements based on profiles from the CPT and borehole locations as well as settled surface contours showing expected changes to the cover surface grading if the estimated total settlement were to occur. The contouring indicates changes to the design slopes will occur on the south facing slope and a portion of the east facing slope (over the east and south edge of the former borrow pit). However, based on the calculations, predicted settlements will not result in slope reversal or areas of ponding on the cover.

G.9.4 Seismic Settlement

Seismic settlement calculations were prepared to estimate the potential settlement that may occur within the footprint of the proposed Repository as a result of the design seismic event. Analysis of one-dimensional stratigraphic profiles was performed using the design seismic event which was characterized by the parameters presented in the PSHA (see Attachment G.1). The seismic settlement analysis used data collected during CPTs, hollow-stem auger (HSA) drilling, and laboratory testing from the PDS to estimate the magnitude of potential seismic settlement within the footprint of the proposed Repository.

Six one-dimensional stratigraphic profiles were developed and analyzed as part of the seismic settlement analysis. These six locations correspond with locations where shear wave velocities were measured during CPT. The stratigraphic profiles were developed based on conditions observed during the Mill Site PDS (MWH, 2014a) field investigation and modified to reflect proposed Repository construction (placement of mine waste and the Repository cover). During the Mill Site PDS field investigation, eight boreholes were "paired" with, and drilled adjacent to, CPT locations. Seven of these paired locations are within the footprint of the proposed Mill Site Repository, and shear wave velocity measurements were recorded during CPT at six of those locations. A summary of the seismic settlement analyses results is presented in Table G.9-3 and the calculation brief is included as Attachment G.4. These amounts of settlement are considered within the tolerable limits (6 to 12 inches) of seismic deformation for tailings impoundments described in NUREG-1620 (NRC, 2003).

Table G.9-3: Potential Seismic Settlement Resulting from the Design Seismic Event

Borehole ID	Seismic Settlement (ft)
TI-B1/CPT-01	0.08
TI-B2/CPT-02	0.12
TI-B8/CPT-08	0.08
TI-B10/CPT-10	0.12
TI-B11/CPT-11	0.14
TI-B15/CPT-15	0.09

G.10 COVER (RADON BARRIER) CRACKING ANALYSES AND STRESS INFLUENCE

G.10.1 Cover (Radon Barrier) Cracking

The differential settlement at the most likely location for cover cracking (along the tie-in between the proposed Repository and the existing TDA cover) was used to estimate the potential for cover cracking of the existing radon barrier. The cover cracking analysis calculation brief is included as Attachment G.5. The analysis was performed for the southwest edge of the proposed Repository, where the new cover ends on the existing TDA cover. Similar to the immediate settlement, these locations were selected because they are closest to the area where the Repository fill will transition directly to an area where the existing radon barrier will remain in-place and unmodified. Cover cracking of the exiting radon barrier is calculated using the location with the maximum anticipated differential settlement between the new cover and the existing cover. Around the remainder of the Repository perimeter, the new cover extends to an existing swale or drainage channel on the east and south or to the west apron which extends to the top of the dam. On the north edge of the Repository, the new cover will extend beyond the limits of regraded tailings (Canonie, 1991) and to approximately the top of the North Drainage Channel. The purpose of the analysis is to determine if the stress increase from the fill placement results in detrimental differential settlement at the edge of the Repository that will negatively affect the radon barrier outside the Repository.

Using the overall total combined predicted settlements (immediate, primary consolidation, secondary consolidation, and seismic induced settlement) for subsurface profiles from TI-B15/CPT-15, CPT-26, and TI-B1/CPT-01, differential settlement was estimated between the southwest slope of the Repository and the radon barrier located immediately beyond the edge of the Repository. For CPT-26, where seismic settlement was not estimated, the estimate for the seismic settlement from TI-B15/CPT-15 was used in the total. These three locations are beyond (TI-B1/CPT1) or near the edge of waste placement (TI-B15/CPT-15, CPT-26) where the new cover material will transition directly to the existing radon barrier. The maximum differential settlement was estimated for each point over the distance to the edge of the proposed cover.

Table G.10-1: Estimated Differential Settlement and Cover Cracking Potential near the Edge of the Repository

Borehole ID	Estimated Total Differential Settlement (ft)	Horizontal Distance to Edge of Cover (ft)	Resulting Slope Reduction (%)	Horizontal Strain (%)
TI-B1/CPT-01	0.25	80	0.33	0.009
TI-B15/CPT-15	1.10	180	0.61	0.008
CPT-26	0.60	210	0.29	0.003

To evaluate the potential for cracking in the existing radon barrier a relationship between tensile strain and PI of the soil is used (Morrison-Knudson, 1993). The PI value for the existing radon attenuation layer was estimated to be 16 percent, calculated as the average of the measured PIs of ten radon barrier samples collected during the PDS (MWH, 2014a). Using this value for PI, the minimum estimated horizontal tensile strain that will induce cracking is 0.10 percent. The resulting slope reduction from the estimated maximum differential settlement predicted near the edge of the Repository was then used to calculate horizontal movement for the 21-inch-thick radon barrier in the central cell. The horizontal movement was then doubled based on Gourc et al. (2010) and Rajesh and Viswanadham (2010). The values of peak horizontal movement were then used to estimate peak horizontal strain, which was calculated to be less than 0.01 percent or one-tenth of the maximum allowable horizontal strain to prevent cracking for the three locations evaluated. These results indicate cover cracking will not occur for the proposed conditions.

G.10.2 Stress Influence Analysis

The shape of the Repository concentrates the greatest fill thicknesses in the middle of the layout, with thickness decreasing from the center to the perimeter. Due to the gently sloping surface of the Repository and only minimal fill thickness around the

perimeter, induced stresses beyond the edge of the Repository (due to fill placement within the Repository footprint) are expected to be minimal and would not influence the areas of the TDA outside of the Repository footprint. Due to the configuration of the Repository, there would be no compressive stresses that would extend outward from the edges of the Repository.

G.11 LIQUEFACTION

The potential for liquefaction of saturated tailings and alluvium beneath the proposed Repository during the design seismic event was evaluated for the 95% Design. The analysis was performed for the most critical condition (a design seismic event after completion of Repository construction) and based on the subsurface profile at the time the PDS field sampling was conducted. The liquefaction analysis calculation brief is included as Attachment G.6, with the method and results summarized below.

The liquefaction triggering analysis evaluated the potential for liquefaction of saturated tailings or underlying alluvium beneath the Repository, which may result in damage to the existing TDA radon barrier or compromising the effectiveness of the Repository in isolating mine waste. A liquefaction screening evaluation (Bray et al., 2009) was performed to identify zones of tailings or soil that may be susceptible to liquefaction. One-dimensional profiles were developed for analysis, based on conditions observed during the Mill Site PDS field investigation and modified to reflect proposed loading conditions. Identified zones of potentially susceptible materials within these profiles, as identified by the screening analysis, were evaluated for liquefaction potential using simplified liquefaction triggering analysis methods (Idriss and Boulanger, 2008; Youd et al., 2001).

The liquefaction triggering analysis used data collected during the CPT program, drilling and standard penetration testing (SPT), and laboratory testing to calculate the factor of safety (FS) against liquefaction for potentially susceptible zones of saturated material below the Repository. The primary liquefaction analysis used the results of CPTs. SPT results, where available, were used to provide secondary data against which the results of the CPT-based analyses were checked. The liquefaction triggering analyses incorporated supplemental data from laboratory testing and were performed according to the methods outlined in Idriss and Boulanger (2008) and Youd et al. (2001). The FS was calculated as the average of the FS values calculated by each of the analysis methods.

The liquefaction screening evaluation identified eight samples, out of 33 samples screened, that were moderately susceptible to liquefaction. The remaining 25 samples that were screened were not susceptible to liquefaction. Of the samples representing zones that were saturated or nearly saturated, two zones had minimum average calculated FS values below the acceptable FS criteria (per NRC, 2008) of 1.0 (at 0.9). These zones consisted of fine-grained tailings relatively deep in the tailings profile (33 to 45 feet depth) within Borrow Pit 1 (from borings B8 and B10).

The interlayered nature of the materials in Borrow Pit 1, and the proximity of the samples with low-FS values to each other, indicate that this zone of potential liquefaction represents a small percentage of the overall Repository foundation. The depth of these zones is also significantly below the depth of critical failure surfaces generated from pseudo-static slope stability analysis, along selected cross-sections, that include these zones.

The potential for liquefaction of the tailings or alluvium beneath the Repository footprint was evaluated using accepted screening and analysis methods. The potential for liquefaction only applies to materials that are saturated or nearly saturated and in a relatively loose condition. Due to the unsaturated condition of most of the underlying tailings and alluvium beneath the Repository footprint, the screening and analysis identified only two zones of materials at depth in Borrow Pit 1 that were moderately susceptible to liquefaction. The depth and localized nature of these two zones pose a risk for minor amounts of additional post-earthquake consolidation settlement, but no slope stability concerns are anticipated.

Liquefaction-induced settlement was estimated using the results of the liquefaction analysis and field data. Liquefaction-induced settlement occurs following a seismic event during which liquefaction occur. The soil may experience a volume change as the excess pore water dissipates and the soil particles rearrange themselves. The method used for estimating this volume change is outlined in Idriss and Boulanger (2008), Section 4.4 “Post-liquefaction Reconsolidation Settlement”. The liquefaction induced settlement calculations and results are included in Attachment G.6. Based on the field data and the results of the calculations, the potential for liquefaction-induced settlement at the site is contained in a localized area and occurs at a depth where surficial expression and damage to the radon barrier or ET cover is considered unlikely.

G.12 COVER DESIGN

The cover system design report prepared by Dwyer Engineering, LLC is included as Attachment G.7. The cover system design report includes analyses for erosional stability of the cover, ET cover design, water balance, infiltration, radon emanation, and bio-intrusion. The Design Report was updated in 2019 to include the use of Jetty soils as borrow material and is included as an addendum to Attachment G.7. The consolidation and groundwater evaluation report by Dwyer Engineering, LLC includes the tailings pore water migration calculations. The cover design consists of an erosion protection layer including rock overlying a soil layer. The thicknesses of these layers and the sizes of the rock used for erosion protection vary based on locations on the Repository. The layout for the different erosion protection layers and the cover design details for the three different Dwyer Engineering cover sections are shown on Drawing 7-09 in the Section 7 Drawings.

G.12.1 Cover Materials

Materials to be used for the cover will consist of: (1) soil from the onsite borrow areas, and (2) erosion protection rock both reused from the existing TDA cover and imported from an offsite rock quarry or quarries. Borrow materials are described in Appendix H. The ET cover has been modeled and designed based on the soil properties of the on-site borrow areas. Construction specifications (Appendix J) have been developed to provide quality assurance and material consistency for the materials from the borrow areas that are used for cover construction. Based on the relatively uniform geotechnical properties of the soils from the four borrow areas and the topsoil stockpile, soils from any of these sources may be used in any order, for cover construction. Mixing of the borrow soil materials is not required. A comparison of available borrow sources is included in Appendix H, Section H.4.1.9.3 and Figures H.4-1 and H.4-2. The Jetty soil was approved by Dwyer Engineering, LLC as use for borrow material for the repository cover. Rock to be used for the erosion protection layer on the cover will vary in size (1.5 to 3.5 inches), depending on location and slope length. The erosion protection layer will consist of a mixture of soil and 33 percent rock by volume. The rock will meet NRC requirements for durability or be appropriately upsized. Upsizing will depend on the rock source selected for construction. Previous geotechnical testing of the borrow soils and durability testing of candidate rock sources for the project are summarized in Appendix H.

G.12.2 Erosion Protection Design

The Dwyer Engineering, LLC report included as Attachment G.7 includes the erosion protection designs for the ET cover admixture and the perimeter fill material (transition areas) located on the west and southwest sides of the Repository. Erosion protection designs for the 20% slope located on the east side of the Repository are included in Attachment G.8. Due to the steepness, this slope was designed as a riprap slope rather than as an ET cover with an admixture layer. However, in order to match the vegetation to be incorporated on the other areas of the cover, the 1.5-inch gravel will be mixed with 15% soil by volume and seeded with the cover seed mix. The rock alone provides full erosional stability. The incorporation of vegetation in this area is intended to match the overall vegetated cover surface and provide additional transpiration on the slope. The rock size for the 20% slope is a minimum D_{50} of 1.5. inches and is similar to the design rock sizes for other areas of the Repository (D_{50} of 3.5 inches or less) due to the length of the slope and the small catchment area.

G.12.3 Radon Flux Measurements

The Repository cover is designed and constructed to limit the release of radon-222 (radon) to the atmosphere, not exceeding an average release rate of 20 picocuries per square meter per second (pCi/m^{2}s). The ET cover design report (Attachment G.7) includes radon emanation calculations for the cover. Following completion of the erosion protection layer, radon emission testing will be conducted to verify that the design and construction of the cover is effective at limiting radon flux using the method described in 40 CFR part 61, Appendix B, Method 115. Section 2 of Method 115 describes the radon flux measurements.

Consistent with Method 115, a single set of radon flux measurements will be made over the entire Repository. The Repository will be considered a region within the existing TDA. Method 115 specifies a minimum of 100 measurements for a region. Radon flux measurements over the Repository will be made at 102 equally spaced locations (grid nodes of 150-foot square grid cast over the Repository). A radon measurement procedure, similar to the detailed measurement procedure provided in Appendix A of USEPA 520/5-85-0029 will be used to measure the radon flux on the Repository. This radon flux measurement procedure

involves adsorption of radon on activated charcoal in large-area canisters. The radon canisters will be placed on the surface of the pile and allowed to collect radon for 24-hour period. The radon flux measurements will not be initiated within 24 hours of a rainfall and will not be performed if the ambient temperature is below 35°F or if the ground is frozen. The radon collected on the charcoal will then be measured by gamma-ray spectroscopy.

The mean of the radon flux measurements will be calculated for verification of the 20 pCi/m^{2}s radon emission performance standard for the Repository region. Results of the individual radon flux measurements with locations will be included in the as-built report for the Repository.

G.12.4 Repository Cover Gamma Exposure Rate Measurement

Criterion 6(1) of 10 CFR Part 40, Appendix A specifies that: “Direct gamma exposure from the tailings or wastes should be reduced to background levels." A direct gamma radiation survey will be performed following placement of the ET cover to verify that the direct gamma exposure attains the required ambient background levels. The results of this survey will be compared to the survey conducted prior to removal of the erosion protection layer on the existing TDA. The direct gamma radiation survey will be performed at the same 102 locations as the radon flux measurement locations described in the previous section. The direct gamma radiation survey will be conducted during radon canister placement for radon emission testing. The gamma survey will consist of a one-minute static gamma measurement at each location over the Repository area. The gamma radiation levels will be measured in exposure rate (uR/hr). The static gamma radiation survey will be conducted consistent with the static survey described in Appendix T.2 (Final Status Survey) using a 2x2 NaI(Tl) scintillation detector interfaced with a scaler/rate meter. The mean of the direct gamma exposure rates will be calculated for comparison to the background levels. Results of the individual direct gamma exposure rate measurements with locations will be included in the as-built report for the Repository.

G.13 GREEN AND SUSTAINABLE REMEDIATION CONSIDERATIONS

The areas where Green and Sustainable Remediation (GSR) has been evaluated for the mine waste Repository design relate to: (1) construction materials (characteristics, manufacturing and transportation considerations), (2) construction methods, and (3) low impact/sustainability measures during construction. The 'BMP Process', as outlined in the 'Standard for Greener Cleanups' (ASTM, 2016), has been followed to select and prioritize BMPs for implementation during remedial action. The BMPs relating to Mine Waste Repository Design are listed below, for a complete description of the BMP Process and list of all GSR BMPs see Section 4 of the Main RD document and Appendix A (Section A.5).

G.13.1 Construction Material Considerations

The borrow soils for the cover, as described in this appendix and Attachment G.7 will be sourced locally to the Repository. Based on similarities in the borrow properties by area, preference will be given to the shortest haul distances to limit emissions during cover construction. The smaller (1.5-inch) rock to be used in the Repository cover will come from recycling existing erosion protection rock on the TDA cover. This material will be stripped from the surface, within the footprint of the Repository, and screened from soil before being applied and mixed into the new cover. Other rock and materials stockpiled at the site will be used for construction of temporary roads or laydown areas, to the extent possible, to limit the need to import materials.

The ET cover has been designed with a seed mix of select drought-resistant plants for the upper vegetative layer, to reduce maintenance needs. The seed mix for the Repository is described in Appendix U. Preference will be given to using non-synthetic nutritional soil amendments such as compost instead of chemical fertilizers for the plant growth layer. If temporary erosion control measures (BMPs) are required around the Repository, preference will be given to 100 percent recycled materials rather than virgin materials for erosion controls.

G.13.2 Construction Methods

The upper, erosion protection layer of the cover (rock, soil, and growth amendment) can be mixed in place using specialized equipment, rather than through a series of steps to place thinner layers of premixed materials, which will require more haul and placement traffic to place the materials. This approach could minimize operations of front loaders and other heavy machinery during cover placement. As described in Appendix D, new roads to the Repository will be minimized to the extent possible to reduce the required construction equipment operating time, greenhouse gas emissions, fill material, and habitat disruption. Roads will be constructed from in-situ native soils to reduce material haul distances and use of imported materials. Construction equipment will be appropriately sized to reduce fuel consumption and greenhouse gas emissions. Dust suppression will be utilized in the Repository area and along the access roads to decrease visible dust related emissions. Section G.5.3.1 discusses temporary stormwater controls for the Repository area, and Appendix E identifies BMPs and specific sediment control measures that will be employed during construction for both sediment and stormwater control.

G.13.3 Low Impact Development/Sustainability

For an equally protective design, limiting the overall size (footprint) of the Repository is a key consideration of GSR, since the larger the overall footprint of the Repository is, the more materials will be required to construct it. However, construction of the Repository on the existing TDA, as well as the use of two previously disturbed borrow areas and primarily existing roads, limits the disturbance to undisturbed land. Additionally, the improvement and reuse (in-place) of the existing radon barrier that will become the foundation of the Repository limits the need for additional haulage to bring in a clean base layer of soil for the Repository. Access and haul routes are optimized to minimize site disruption, vehicle mileage, and to protect public health and safety. Minimizing vehicle mileage and limiting speeds is a high yield action as it limits fuel consumption, minimizes emissions of both greenhouse gasses and dust and increases site safety by reducing likelihood of both minor and serious crashes. Access and haul roads chosen utilize existing or historical roads to the extent practical to limit additional habitat degradation and reduce amount of cut/fill and grading required. Access and haul roads will be reclaimed and revegetated as quickly as possible upon completion of construction.

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FIGURES

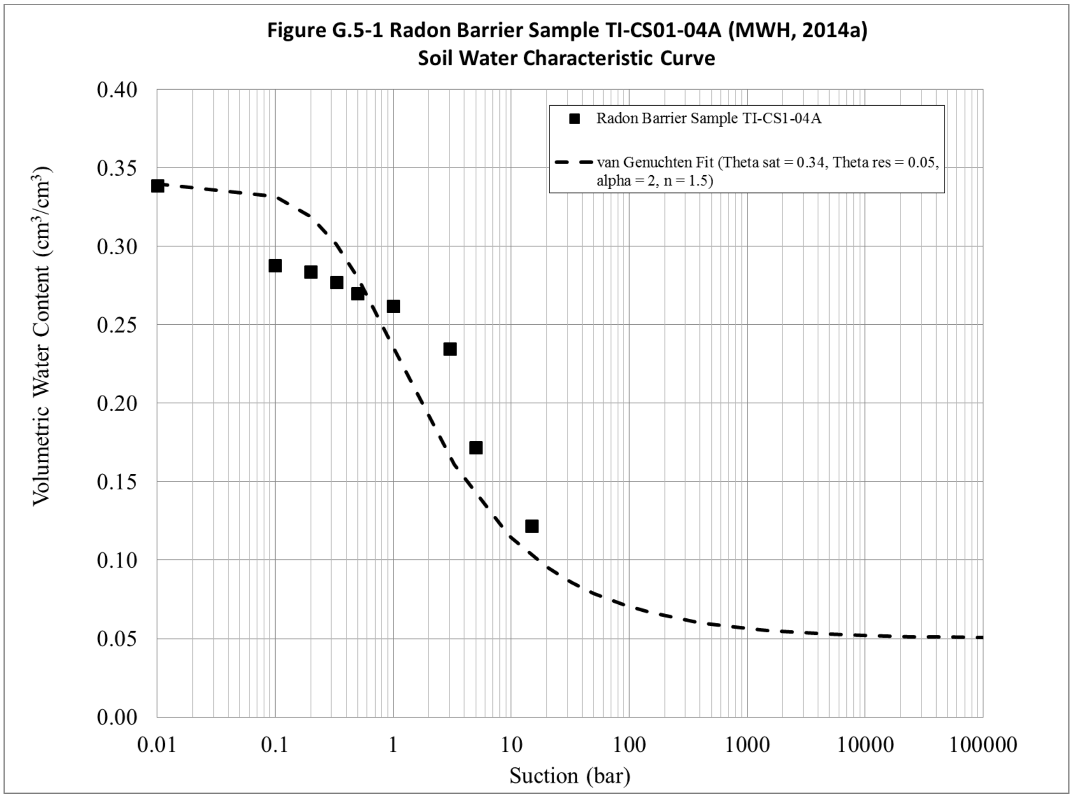

Figure G.5-1 Radon Barrier Sample TI-CS01-04A (MWH, 2014a)
Soil Water Characteristic Curve
Radon Barrier Sample TI-CS1-04A
van Genuchten Fit (Theta sat = 0.34, Theta res = 0.05, alpha = 2, n = 1.5)
Volumetric Water Content (cm³/cm³)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.01
0.1
1
10
100
1000
10000
100000
Suction (bar)

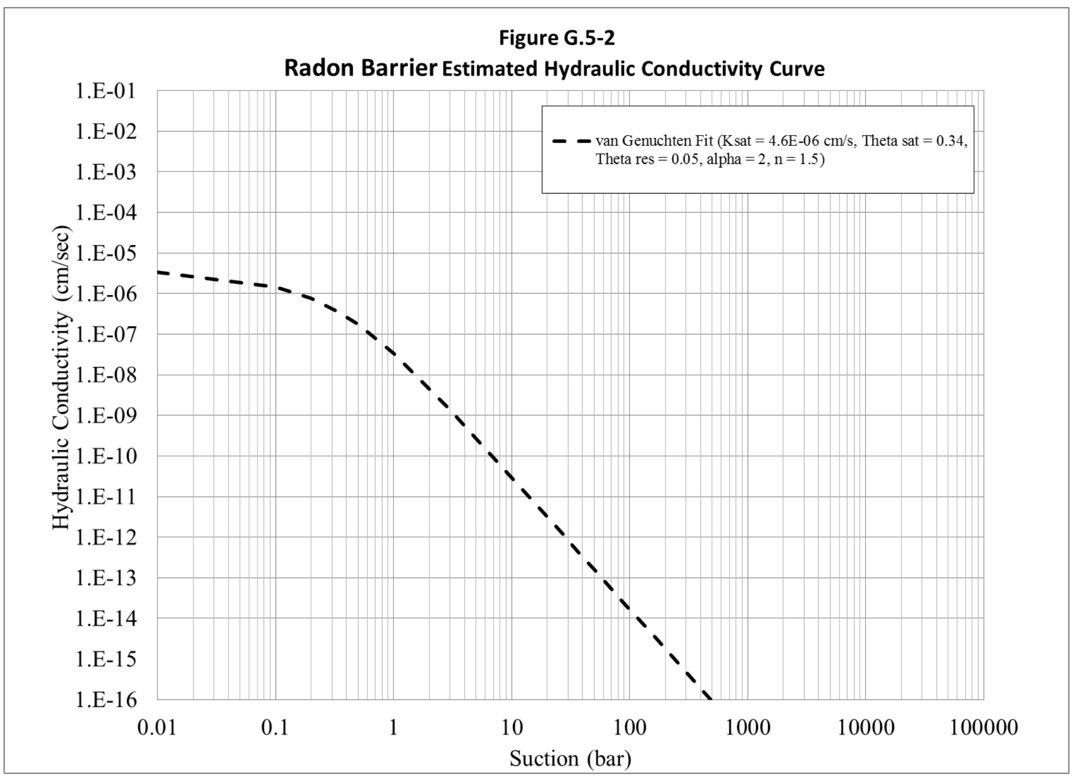

Figure G.5-2
Radon Barrier Estimated Hydraulic Conductivity Curve
van Genuchten Fit (Ksat = 4.6E-06 cm/s, Theta sat = 0.34, Theta res = 0.05, alpha = 2, n = 1.5)
Hydraulic Conductivity (cm/sec)
1.E-01
1.E-02
1.E-03
1.E-04
1.E-05
1.E-06
1.E-07
1.E-08
1.E-09
1.E-10
1.E-11
1.E-12
1.E-13
1.E-14
1.E-15
1.E-16
0.01
0.1
1
10
100
1000
10000
100000
Suction (bar)

ATTACHMENT G.2
Repository Stability Analysis

Client:	*General Electric (GE)*	**Sheet:**	*1* **of** *10*
Project:	*NECR 95% Design*	**Date:**	*10/14/2019*
Description:	*Mill Site Repository Stability Analyses*	**Job No:**	*233001369*

ATTACHMENT G.2: MINE WASTE RESPOSITORY STABILITY ANALYSIS

Revisioning					
Rev.	**Date**	**Description**	**By**	**Checked**	**Date**
0	*5/26/2016*	*Repository Stability Analyses*	*S. Moore*	*M. Witler*	*6/14/2016*
1	*07/19/2017*	*95% Design*	*S. Downey*	*S. Abbaszadeh*	*7/25/2017*
2	*05/24/2019*	*Response to RAIs*	*S. Downey*	*J. Cumbers*	*05/31/2019*
3	*10/14/2019*	*Revise Cover Thickness*	*S.Downey*	*M. Witler*	*11/8/2019*

Location and Format

Electronic copies of these calculations are located on the Stantec internal project teamsite.

The following calculations were generated using the following software:

GeoStudio (Slope/w) 2016, Version 8.16.1.13452
Microsoft Excel 2013

Table of Contents

Objective

This calculation brief documents the input data, methods, assumptions, and results of the static and pseudo-static slope stability analyses on the Church Rock Mill Site (Mill Site) repository after placement of the fill material and final cover material on the existing impoundment.

Background

This analysis was performed as part of the design of the Removal Action (RA) at the Northeast Church Rock Mine Site (Mine Site) and the related Remedial Action (RA) at the Mill Site. The Mine Site and Mill Site are located on adjacent Sections, approximately one-half mile apart, and approximately 16 miles northeast of Gallup, in McKinley County, New Mexico. The sites are temporarily being treated as one facility for purposes of the RA. The combined site is referred to as the “Settlement Agreement Site” (SA Site).

Site History

The NECR mine is a historical uranium mine operated by United Nuclear Corporation (UNC). Mining development began in 1967 and ended in 1982. While the mine operated, it served as the principal mineral source for the UNC uranium mill. The uranium mill and its adjacent disposal cells make up the UNC Superfund Site (the “UNC Mill Site”). Remedial activities addressing source control and on-site surface reclamation are being implemented by General Electric/United Nuclear Corporation (GE/UNC) under the direction of the U.S. Nuclear Regulatory Commission (NRC), pursuant to the UNC facility's NRC license, and integrated with the US Environmental Protection Agency’s (USEPA’s) selected remedy for the groundwater.

The tailings disposal area (TDA) is an unlined facility bounded by an embankment and subdivided by cross-dikes into three cells, which are identified as the South Cell, Central Cell, and North Cell. An estimated 3.5 million tons of tailings were pumped in slurry from the mill to the TDA.

Proposed Remedial Action

The proposed repository will be constructed on top of the existing TDA and will incorporate controlled placement of mine waste on top of the existing TDA cover/radon barrier, with a final evapo-transpirative (ET) cover placed over the mine waste. Improvements to the existing TDA cover/radon barrier within the footprint of the proposed repository will be completed prior to placement of mine waste. **Figure 1** shows the location and grading of the proposed repository.

The design for the selected repository alternative will be evaluated as part of a NRC license amendment request for the existing licensed facility. The repository features that affect the licensed facility will meet the performance standards outlined in NRC regulations and areas of the existing facility affected by the repository construction will be evaluated for compliance. However, existing conditions of the facility not affected by the proposed repository were not evaluated as part of this analysis, as they are managed by the existing NRC license.

Site Description

The natural stratigraphy at the Mill Site is divided into two main components: the surficial unconsolidated deposits (alluvium) and the underlying consolidated bedrock units. The alluvium consists of a mixture of sand, silt, and clay with minor portions of gravel. Alluvial thicknesses at the site are usually around 50 feet, but exceed 120 feet in some locations. Generally, the uppermost bedrock unit at the site is the Upper Gallup Sandstone, though in some locations it is overlain by coal or the Mancos shale (MWH, 2014a).

The TDA was constructed on top of the native alluvium and deposition of tailings, via slurry, within the TDA resulted in an interbedded accumulation of tailings. TDA closure construction began in 1989 and was completed in 1995. Closure construction included placement of an interim cover (general fill) from 1989 through 1991 followed by placement of the final cover (radon barrier and erosion protection layer) from 1993 through 1995.

Measurements taken in alluvial monitoring wells show an alluvial groundwater table in the vicinity of the TDA at approximately 6,867 feet above mean sea level (amsl), which indicates that the alluvium is unsaturated above this elevation. Additionally, subsurface investigations of the TDA indicate that there is not a consistent static water level within the tailings or the alluvium above approximately 6,867 feet amsl. However, localized perched zones of saturation exist within the low-permeability, fine-grained tailings. These zones of saturation do not appear to extend beyond the fine-grained tailings into the higher-permeability coarse-grained tailings.

Site Investigation

In 2013, MWH performed pre-design studies (PDS) at the Mill Site and Mine Site to supplement previous site investigations and collect data necessary to perform the Remedial Design (RD). Activities performed as part of the Mill Site PDS included: surveying, cone penetration tests (CPTs), drilling, standard penetration tests (SPTs), excavation and soil sampling, and subsequent laboratory testing through the tailings material. Geotechnical data collected during the PDS are presented in the PDS reports (MWH, 2014a and MWH, 2014b) and summarized in **Attachment A**. A list of the materials encountered within the TDA during the PDS is presented in the Model Inputs section below. Geotechnical properties for these materials, the assumed phreatic surface, and discussion of one-dimensional stratigraphic profiles developed for the stability analysis are also presented in the Model Inputs section.

Applicable Codes and Standards

NUREG 1620, Section 2.2 (NRC, 2003)
USNRC Regulatory Guide 3.11, Section C (NRC, 2008)
Technical Approach Document, Revision II, Section 6.2 (DOE, 1989)

Methods

General

The slope stability analysis evaluated the potential for slope failure within the proposed repository. One-dimensional soil profiles were developed for the analysis, based on conditions observed during the Mill Site PDS investigation and were updated to reflect the proposed repository construction. The analysis used data collected during the PDS field investigation which included CPTs, Hollow Stem Auger drilling, SPTs, and laboratory testing to calculate the factor of safety (FS) against slope failure within the repository.

Slope stability analyses are typically conducted for scenarios that represent critical conditions. Critical cross sections were identified for: (1) the existing embankment (dam) on the west and north sides of the impoundment, (2) steepest repository final cover slopes, and (3) global stability of the final repository and existing embankment. Three cross sections were selected and evaluated for the slope stability analyses. A figure showing the cross section locations is included as **Figure 2**.

Cross section A was selected through the southwest slope of the repository and continuing through the center of the repository, where the height of fill will be highest compared to the existing ground surface. This location was selected based on where the height of fill will be the greatest and through the steep side slope (20 percent) on the northeast side of the impoundment.

Cross section B was selected through the existing embankment on the northwest side of the repository and along the northwest facing slope. This location was chosen to evaluate the existing embankment to the west of the repository as well as the western slope of the repository.

Cross section C was selected through the existing embankment on the north side of the repository, through the center of the repository and continuing beyond the southern boundary of the repository. This location was chosen to evaluate the global stability of the existing embankment and repository.

Slope Stability Modeling

The limit equilibrium slope stability analyses were performed using the computer software Slope/W Version 8.16.1.13452 (Geo-Slope International, 2016). The Morgenstern-Price method (Morgenstern and Price, 1965) with a half-sine function for inter-slice forces was used for performing the calculations in Slope/W. This method uses both circular and non-circular shear surfaces and satisfies both moment and force equilibrium.

Grid and radius definitions were used to determine the failure surfaces. A block failure definition was used on the steeper slope (20 percent) in cross section A. These failure definitions were chosen to best model the actual field conditions and anticipated failure planes. The pore water pressures utilized as inputs to the stability analyses were defined using a piezometric line in the cross sections. The groundwater level was estimated from PDS borehole data (MWH, 2014a) and alluvial well data from January 2016 (water levels provided by Chester Engineers, included as **Attachment B**). The existing embankment depth in cross section B was estimated from historical data and figures (Hemphill, 1969). Each cross section was analyzed for long-term static and pseudo-static seismic loading conditions. The minimum slip surface depth was set to 3 feet for all scenarios. The static conditions of cross-sections B and C were also analyzed under the Probable Maximum Flood (PMF) loading condition. The material properties and other assumptions associated with these conditions are discussed below in the Model Inputs Section.

Design Criteria

The critical (lowest) calculated factors of safety for both static and pseudo-static loading conditions for each of the cross sections from the model outputs were evaluated against the required design factors of safety given by the NRC design guidance documents. The minimum acceptable factors of safety were adopted from the regulatory guides listed in the Applicable Codes and Standards section (NRC, 2003; NRC, 2008; and DOE, 1989). The following lists the applicable scenarios and their respective minimum acceptable factors of safety used in this analysis from the guidance documents:

Scenario	Minimum Factor of Safety
Long-term static stability	1.5
Long-term static stability with flood stability	1.2
Long-term seismic stability	1.0

Model Inputs

Material Properties

Material strength parameters and other properties used for the slope stability analyses are based on results from laboratory testing of samples collected during the PDS. The laboratory test results are summarized in Table 3-4 of the Church Rock Mill Site PDS Report (MWH, 2014a) and are also included in **Attachment A**. The parameters used as a base-case scenario for each material are discussed in the main text of Appendix G, Section G.6 and summarized in Table 1.

The material properties used for the base case analysis were taken as the average of all samples for a given material and parameter, with the exception of the friction angle. The lowest effective stress friction angle from laboratory triaxial testing was used for each material and the cohesion was conservatively assumed to be zero. For the slope stability analysis, the coarse and fine alluvium layers were not differentiated because there was not enough information from the CPT or boreholes near the analysis cross sections to properly define the contact between the two units. Therefore, the alluvium layer was conservatively modeled as a uniform unit with lower strength properties of the fine alluvium. Material properties were varied to the 30th and 60th percentile values and used in a sensitivity analysis to determine if, or how much, the results change with the varying material properties.

For the pseudo-static analyses, the total stress friction angle was used for the fine-grained materials. It was assumed that the other materials would behave as drained materials in the occurrence of a seismic event, and the effective stress friction angles were used for all other materials. The total stress friction angle for the fine-grained tailings materials was calculated using two different methods. Calculations for the total stress friction angle are included in **Attachment C**. The first method used the peak (failure) points obtained from the sample being placed under three different confining stresses in a triaxial consolidated undrained (CU) laboratory test, conducted during the PDS.. The friction angle was calculated for each confining stress peak point using the equation shown below, and then the three resulting friction angle values were averaged.

$$\sin\phi = \frac{q}{p}$$ (Lambe and Whitman, 1969, pg. 141)

where:

$$p = \frac{\sigma_1 + \sigma_3}{2}$$

$$q = \frac{\sigma_1 - \sigma_3}{2}$$

where:
ϕ is the friction angle, degrees
p and q are the coordinates of a stress point in a given state of stress, psf
σ_1 is the major principal stress, psf
σ_3 is the minor principal stress, psf

The second method plotted the peak points used the line of best fit between the three points. After plotting, the data showed a negative cohesion value (negative y-intercept). Since a negative cohesion value is meaningless, the intercept was set to zero, which is then conservative because it decreases the slope of the line and, therefore, decreases the calculated friction angle. The equation from the line of best fit was then used to determine the friction angle using the equation shown below.

$$\sin\phi = \tan\alpha$$ (Lambe and Whitman, 1969, pg. 141)

where tan (α) is the slope of the straight line approximation through the peak points of the stress-strain curves.

The difference of total stress friction angles for the fine-grained tailings materials using the two methods used was found to be 0.4 degrees (18.9 and 19.3). As such value of 19 degrees was used in the pseudo-static analyses for this material.

The material properties used in the stability analysis are summarized in **Table 1**. A table summarizing the samples and properties used from the PDS to estimate the material properties of each material type are included in **Attachment A**.

Seismic Coefficient

Stability analyses under seismic conditions were performed as pseudo-static analyses, where a horizontal acceleration or seismic coefficient is applied to the entire model. This seismic coefficient, in a very simplified manner, simulates the horizontal accelerations that are applied to the structure during an earthquake. A site-specific probabilistic seismic hazard analysis was performed for this project, where the lower bound V_{s30} resulted in the highest estimated mean peak ground acceleration (PGA) of 0.30g (see Appendix G, Attachment G.1). The design seismic coefficient of 67 percent

(2/3) of the PGA was used for the pseudo static stability analysis, resulting in a design seismic coefficient of 0.20g (NRC, 2003).

The cross sections were analyzed for long-term static and pseudo-static loading conditions. According to NUREG-1620, Rev. 1, a pseudo-static analysis is acceptable in lieu of a dynamic analysis if the strength parameters used in the analysis are conservative, the materials are not subject to significant loss of strength and development of high pore pressures under dynamic loads, the design seismic coefficient is 0.20 or less, and the resulting minimum FS suggests an adequate margin of safety, as provided in NRC Regulatory Guide 3.11 (NRC, 2008). A pseudo-static analysis was used due to a seismic coefficient of 0.20g and conservative strength parameters used in the analyses. As discussed in the material properties section above and the sensitivity analyses section below, strength parameters selected were conservative, and were also varied to determine the material property effects on the seismic analyses.

Stratigraphic Profiles

During the Mill Site PDS, eight CPTs were paired with boreholes to correlate CPT results with direct observation of the materials encountered. Seven of these "paired" CPT locations are within the footprint of the proposed repository, as shown on **Figure 1**. The CPT data combined with the profiles from the borehole logs were used to define the thickness and texture of the soil layers, as well as the location of the contact between the tailings and underlying alluvium. The relationships used to define the tailings-alluvium contact are described in the Mill Site PDS (MWH, 2014a) and also in Appendix G, Attachment G.3.

These subsurface profiles were modified using the proposed repository design to reflect proposed conditions after repository construction. The one-dimensional profiles from the CPT and borehole logs were used to create a three-dimensional surface in AutoCAD (CAD) for the top of bedrock surface, bottom of tailings surface, and existing grade surface (MWH, 2014a). Sections were cut through the surfaces in CAD to create the cross-sections used in the slope stability analysis. Locations and depths of additional material contacts (i.e., existing fill, coarse tailings, fine tailings, and alluvium) were interpreted from the CPT and borehole logs nearest to the cross section location. The depths were interpolated between CPT and boring locations along each cross section. The new cover was assumed to be 4.5 feet thick, and the existing radon barrier was assumed to be 1.5 feet thick for all sections. The existing fill varies in depth and underlies the cover and radon barrier materials. The locations and depths of the additional material contacts (i.e., coarse vs. fine tailings) are discussed below. A figure of each cross section showing the stratigraphic profiles is included in **Attachment D**, before the results for each respective cross section.

Cross Section A Cross section A is oriented from southwest to northeast through each end of the repository and is nearest to boring and CPT locations TI-B15/CPT-15, CPT-05, and CPT-25. A brief description of findings from these investigation is presented below.

TI-B15 and CPT-15
Silty sand (coarse) tailings were encountered approximately 3 feet bgs according to the boring log for TI-B15. At approximately 27 feet below ground surface (bgs), clayey (fine-grained) tailings were encountered. At 30 feet bgs, alluvium was encountered as a dark brown silty sand material. The CPT investigation reflects the boring log with coarse tailings present from approximately 3 feet bgs to 30 feet bgs, overlying alluvium at 30 ft bgs. A thin layer of fine tailings were included in the slope stability analysis to be conservative.

CPT-05
It was determined from the CPT data at location CPT-05 that coarse tailings were encountered from 6 feet bgs to approximately 10 feet bgs. Alluvium material was encountered directly below the coarse tailings.

CPT-25
Tailings were not encountered at CPT-25 location. The CPT penetrated 2.5 feet bgs, which was determined to be cover and fill material.

Based on the CAD surfaces and CPT and boring log data, it was determined that tailings were present in the repository in the southwest portion of the cross section. At approximately mid-point of the cross section, tailings material is not present and the existing radon barrier and a thin layer of existing fill material was assumed to be directly overlying the alluvium.

Cross Section B

Cross section B is oriented from northwest to southeast through the existing embankment to approximately the middle of the repository. Boring and CPT locations TI-B1/CPT-01, CPT-28, CPT-04, CPT-13, and CPT-26 were considered to estimate tailings material contact details and depths for Cross Section B. A brief description of findings from these investigation is presented below.

TI-B1 and CPT-01

Sandy (coarse) tailings were encountered at approximately 18 feet bgs according to both the borehole log and CPT data. The tailings encountered at approximately 29 feet bgs were very fine grained according to the boring log. The CPT data also assumed fine tailings from 29 feet bgs to approximately 34 feet bgs, where alluvium was encountered.

CPT-28

At CPT-28, coarse tailings were encountered from approximately 13 feet bgs to 24 feet bgs. The thickness of the coarse tailings is consistent between CPT-01 and CPT-28, and was used as the approximate thickness in the cross section near the embankment.

CPT-04

Coarse tailings were encountered from approximately 9 feet bgs to 15 feet bgs. Fine tailings were encountered from approximately 15 feet bgs to 19 feet bgs. As a comparison between CPT-28 and CPT-04, the fine tailings material gets thicker further away from the existing embankment.

CPT-13 and CPT-26

These locations were analyzed together, since cross section B is located between the two locations. It was assumed that the stratigraphy could be interpolated between the two locations. CPT-13 data shows that only cover/fill material was encountered at this location, and no tailings were encountered. CPT-26 shows a significant layer of coarse tailings from 12 feet bgs to 25 feet bgs. The thickness of the tailings were assumed to be approximately 7 to 8 feet thick at this location.

Based on the CAD surfaces and CPT and boring log data, there are two separate deposits of tailings material within cross section B. One deposit is present on the northwest side of cross section B, inside of the existing embankment; the other is present from approximately the middle of the repository to the southeast edge of the repository. The deposits are separated by alluvium and bedrock that rises steeply in elevation, and then dips back down towards the southeast. Cross section B captures a portion of the tailings located on the southeast side of the repository.

Cross Section C

Cross section C traverses north to south across each end of the repository boundary and was analyzed for global stability of the repository. Locations TI-B23/CPT-23, CPT-25, CPT-16, CPT-09, and CPT-14 were considered for material contact details and depths for Cross Section C. A brief description of findings from this investigation is presented below.

TI-B23/CPT-23

A thin layer (less than 1 foot thick) of fine tailings with sand was encountered at 13.4 feet bgs. Silty sand (coarse) tailings were encountered from 14.2 feet bgs to 16 feet bgs. At 16 feet bgs, alluvium material was encountered to the bottom of the CPT at 44 feet, where refusal was met.

CPT-25

As discussed in Cross Section A, CPT-25 did not encounter tailings material.

CPT-16
Coarse tailings were encountered from approximately 9 feet bgs to 14 feet bgs. A thick layer of fine tailings was encountered from 14 feet bgs to 43 feet bgs.

CPT-09
Coarse tailings were encountered from approximately 7 feet bgs to 15 feet bgs. A thick layer of fine tailings was again encountered from approximately 15 feet bgs to 44 feet bgs.

CPT-14
Coarse tailings were encountered from approximately 9 feet bgs to 15 feet bgs. Fine tailings were encountered from approximately 15 feet bgs to 21 feet bgs.

The coarse tailings across CPT-16, -09, and -14 are fairly consistent at 5 to 8 feet thick. The fine tailings are thickest at CPT-16 and CPT-09 at 29 feet thick, but taper dramatically from CPT-09 to CPT-14 from 29 feet to 6 feet thick. Combining the CAD data with the boring log and CPT data, there are two separate deposits of tailings material within cross section C. The thick deposit of tailings is located on the south end, whereas a thin deposit (approximately 3 feet thick) of fine tailings overlying coarse tailings is present on the north end.

Groundwater

Groundwater was encountered during drilling in two of the boreholes (TI-B10 and TI-B11) within the footprint of the proposed repository. In both boreholes, the groundwater elevation was approximately 6,885 feet amsl. Groundwater was also encountered at about 6,903 feet amsl while drilling in boring B3 (drilled through the dam). In addition, alluvial wells 509D and EPA 23 (measured on 1/4/2016) show an alluvial ground water elevation of approximately 6,867 feet amsl. In the stability analyses, the groundwater is assumed to be at or slightly above 6,900 ft amsl. The selected groundwater elevation is conservatively higher than those encountered during historical investigations.

The stability of the repository and embankment dam is also analyzed for the probable maximum flood (PMF) event as discussed in **Appendix I**. The PMF estimated that the floodplain extents will overtop the pipeline arroyo adjacent to the repository, and encroach the west and north edge of the TDA and base of the repository. The PMF extents affected cross sections B and C, and these cross sections were analyzed with a scenario including a phreatic surface at the floodplain extents to the PMF (approximately elevation 6,955 ft amsl and 6,958 ft amsl in cross sections B and C, respectively).

A plan view and cross section showing the PMF floodplain extents is included in **Attachment E**. The groundwater well levels provided to Stantec by Chester Engineers in 2016 is included in **Attachment B**.

Sensitivity Analyses

A sensitivity analysis is performed to evaluate the impact of the embankment material strength parameters in the pseudo-static analysis, cross section B. This analysis is selected as the worst-case scenario because it yielded to lowest FS and therefore is expected to be more sensitive to lowered material strengths and varying material properties. Material properties and strengths were varied for the embankment materials only, since the critical slip surface passes exclusively through the embankment materials.

The material index properties (dry density and water content) are varied from the 30th percentile values, median, and average (base case) for the embankment material, while keeping the effective stress friction angle at the base case. As mentioned before, the lowest friction angle from the PDS laboratory samples of embankment material was used in the base case analysis, instead of the average value. Also, the cohesion was conservatively assumed to be zero, despite triaxial testing on the embankment samples showing the material had cohesion values between 130 and 200 pounds per square foot (psf). The effective stress friction angle (strength parameter) of the embankment material was also varied in one degree increments from 28 degrees to 32 degrees. These strength values correlated to literature values

for the embankment material based on PI's ranging from 60th percentile to 30th percentile values, respectively. The material properties used in the sensitivity analysis are included in Table 3.

Model Inputs Summary

The materials were modeled with the Mohr-Coulomb failure criteria, except for the bedrock material. The sandstone bedrock material was modeled as impenetrable based on the results from SPT blow counts. According to Lambe and Whitman (1969), a blow count of greater than 32 blows per foot correlates to a strength of greater than 4,000 psf. The blow count data for the sandstone material averaged 50 blows per 1.5 inches; therefore, the bedrock was assumed to have a high enough strength to be modeled as impenetrable in the slope stability analyses, and slope failures are not anticipated to extend through the sandstone bedrock. The material parameters used as inputs in the stability analyses models are summarized in **Table 2**. The stability analyses used the effective stress friction angles, with the exception of using the total stress friction angle for the fine-grained tailings material in the pseudo-static analyses.

As discussed in the previous section, a seismic coefficient of 0.20g was used as the seismic load horizontal coefficient for the pseudo static stability analysis.

Pore-water pressures were drawn in as a piezometric line in each model at the elevation discussed above in the Groundwater section of Model Inputs (approximately 6,900 ft amsl). In cases where the PMF condition was analyzed, the flood-level piezometric line was applied in the model at the elevations specified previously for each cross section.

Results

The calculated FS results of the base case stability analyses for cross sections A, B, and C are presented in **Table 4**. Output files from Slope/w showing slip surfaces and factors of safety for each scenario are included in **Attachment D**.

The sensitivity analysis showed that varying the dry density, water content, and friction angle had little to no effect on the calculated FS for the analyzed scenarios. The slip surface location changed slightly, and the resulting FS was reduced from 1.2 to 1.1 when the 60th percentile values were used for the dry density and water content as well as when the friction angle was reduced. The output files for the sensitivity analysis are included in **Attachment D.1**.

Conclusions

The cross sections selected represented three different locations and failure surfaces in the proposed repository. Cross-sections were evaluated for: (1) the existing embankment (dam) on the west and north sides of the impoundment, (2) steepest repository final cover slopes, and (3) global stability of the final repository and existing embankment. The geometries chosen represent critical conditions (i.e., highest embankment and steepest slope)

The average, median, 30th percentile and 60th percentile values for all material properties were evaluated. Average properties were used as the base case scenario, and a sensitivity analysis was conducted on a critical section where the resulting FS was low, but still above the minimum required values. In the sensitivity analysis, material properties were varied, as well as material strength parameters.

Based on the stability analyses using the methods and material parameters presented above, the representative cross sections meet or exceed the minimum FS requirements for static and pseudo-static loading conditions for all scenarios considered, including the PMF. The calculated FS for Cross Section B, pseudo static analysis was low (1.2), but still acceptable. The Slope/W output figures for static and pseudo-static loading conditions are included in **Attachment D**.

Attachments

Figure 1 – Borehole and CPT Locations
Figure 2 – Repository Layout and Cross-Sections

Attachment A – Impoundment Laboratory Results from Pre-Design Studies (MWH, 2014a and MWH, 2014b)
Attachment B – Recorded Water Levels at the Church Rock Site (Chester Engineers, 2016)
Attachment C – Total Stress Friction Angle Spreadsheet Calculations
Attachment D – Slope/W Output Files
Attachment E – PMF Extents

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TABLES

Table 1: Summary of Base Case Material Properties Used in Slope Stability Analysis

Material	Specific Gravity, Gs	Relative Compaction (%)[1]	Dry Unit Wt (pcf)	Moist Unit Wt (pcf)[2]	Water Content (%)	Effective Friction Angle (°)	Total Friction Angle (°)	Fines Content (%)	PI (%)
Cover (soil)	2.69	90	103.5	114.7	10.8	32	28	53	12
Mine Spoils	2.66	90	106.5	116.4	9.3	32	28	53[4]	12[4]
Radon Barrier	2.68	95	110.5	122.3	10.7	32	28	59	16
Existing Fill	2.69	-	100.7	113.8	13.0	29	25	48	19
Coarse Tailings	2.67	-	97.5	108.1	10.9	34	28	21	0
Fine Tailings	2.70	-	71.7	107.6[3]	50.1	33	19	83	43
Alluvium (All)	2.72	-	97.9	114.8	17.3	22	20	57	22
Dam	2.66	-	107.0	119.1	11.3	32	28	45	13
Bedrock			107.2	124.4	16.0				

Notes:

pcf = pounds per cubic foot, PI = plasticity index

All values are the average of laboratory testing results from the PDS (MWH, 2014a, b), unless otherwise noted.

[1]Assumed

[2]Calculated

[3]Assumes material is fully saturated

[4]Assumed to be the same as cover soil

Table 2: Material Parameters Used in Slope Stability Analysis

Material Identification	Moist Unit Weight (pcf)	Cohesion (psf)	Effective Stress Friction Angle (°)	Total Stress Friction Angle (°)[1]
Borrow - New Cover	114.7	0	32	-
Mine Spoils	116.4	0	32	-
Radon Barrier Recompacted (1.5-feet)	122.3	0	32	-
Existing fill	113.8	0	29	-
Coarse Tailings	108.1	0	34	-
Fine Tailings	107.6	0	33	19
Alluvium	114.8	0	22	-
Dam (Embankment)	119.1	0	32	-
Bedrock	Impenetrable			

pcf = pounds per cubic foot, psf = pounds per square foot

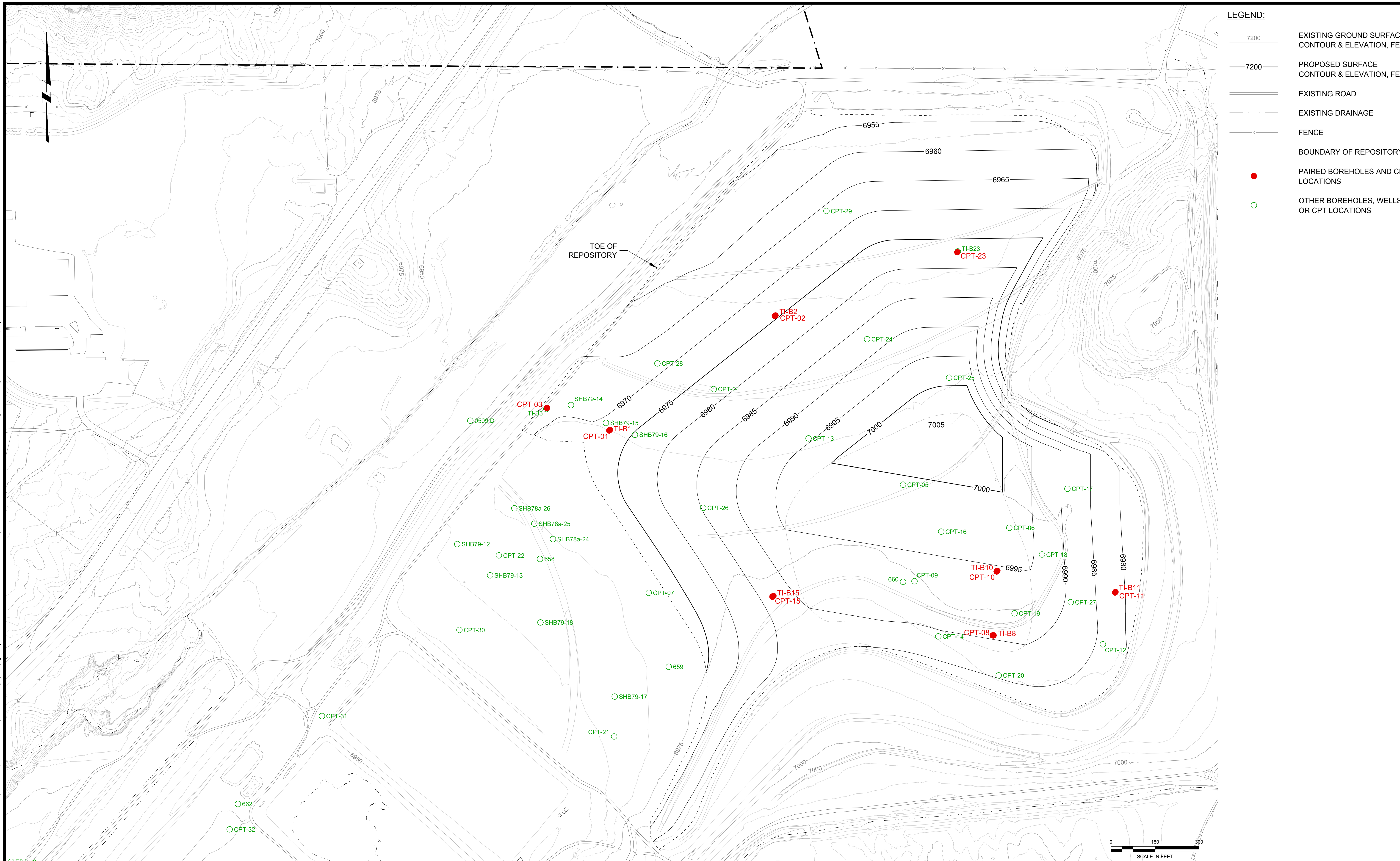
[1]Total stress friction angle is only applicable to the fine tailings material

Table 3: Embankment Material Parameters Used in Sensitivity Analysis

Sensitivity	Water content (by mass, %)	Dry density (pcf)	Calculated Moist Unit Wt (pcf)	PI (%)	Effective Friction Angle (°)
30th percentile	7.3	105.5	113.1	10	35
Median	12.0	107.6	120.5	12	34
Average	11.3	107.0	119.1	13	33
60th Percentile	14.2	108.4	123.7	14	32

Table 4: Slope Stability Analyses Results

Cross Section	Figure	Failure Type	Loading Condition	Required Factor of Safety	Calculated Factor of Safety
Cross Section A – Southwest Slope	D.1	Circular	Static	1.5	9.9
	D.2		Pseudo-Static	1.0	1.8
Cross Section A – Northeast Slope	D.3	Circular	Static	1.5	2.7
	D.4		Pseudo-Static	1.0	1.3
	D.5	Block	Static	1.5	2.7
	D.6		Pseudo-Static	1.0	1.3
Cross Section B – Repository Slope	D.7	Circular	Static	1.5	7.9
	D.8		Pseudo-Static	1.0	1.7
Cross Section B – Existing Dam	D.9	Circular	Static	1.5	2.4
	D.10		Pseudo-Static	1.0	1.2
Cross Section B – Probable Maximum Flood	D.11	Circular	Static	1.2	2.6
Cross Section C – North Slope	D.12	Circular	Static	1.5	3.2
	D.13		Pseudo-Static	1.0	1.7
Cross Section C – North Slope (Entry/exit)	D.14	Circular	Pseudo-Static	1.0	1.7
Cross Section C – Probable Maximum Flood	D.15	Circular	Static	1.2	2.6
Cross Section C – South Slope	D.16	Circular	Static	1.5	9.1
	D.17		Pseudo-Static	1.0	1.8



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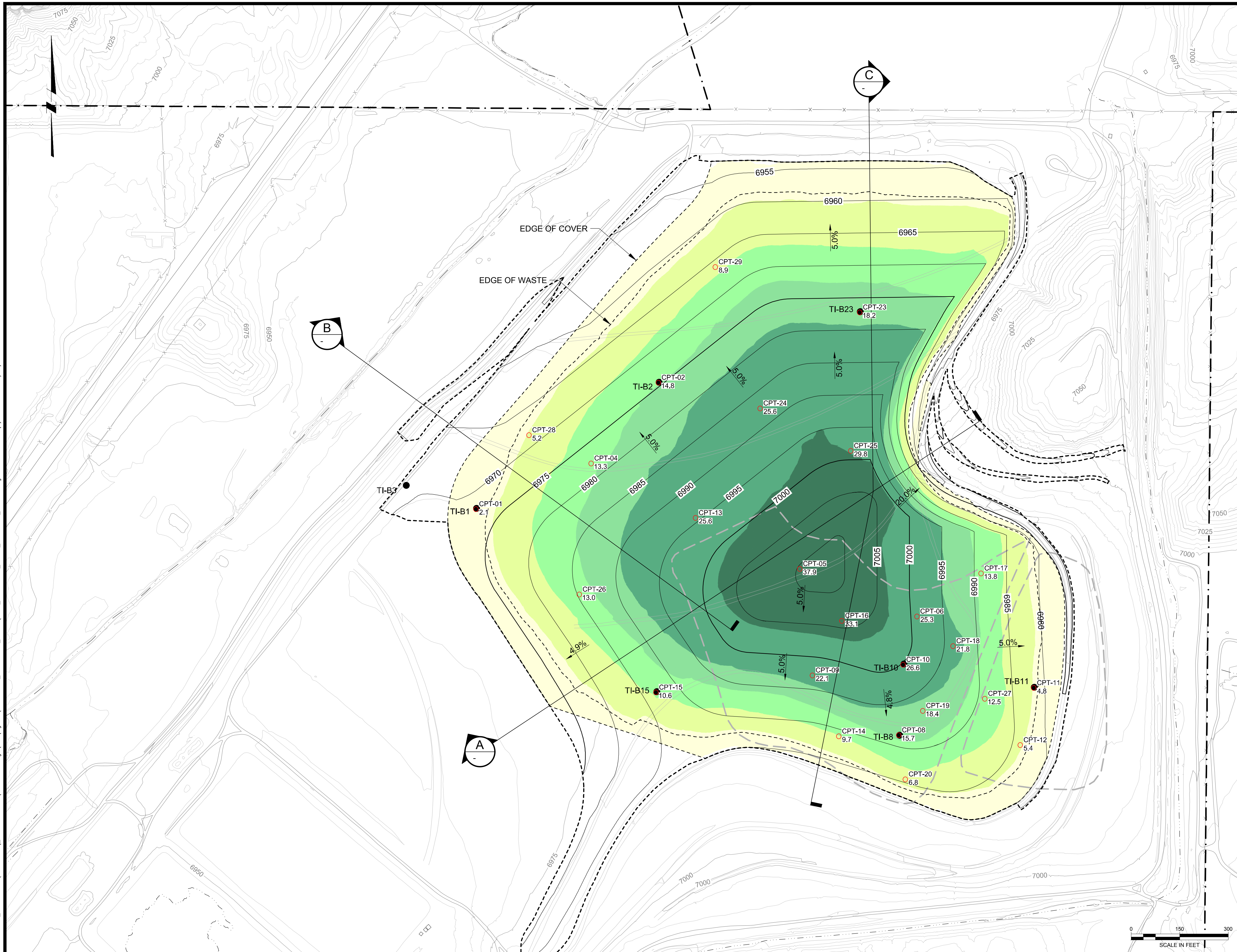

LEGEND:

- 7200 EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- EXISTING ROAD
- EXISTING DRAINAGE
- FENCE
- BOUNDARY OF REPOSITORY
- FORMER BORROW PIT BOUNDARY
- CPT-17 CPT LOCATION
- TI-B15 BORING LOCATION
- A SLOPE STABILITY CROSS SECTIONS

REPOSITORY FILL THICKNESS

NUMBER	MIN (FT)	MAX (FT)	COLOR
1	0.0	5.0	
2	5.0	10.0	
3	10.0	15.0	
4	15.0	20.0	
5	20.0	30.0	
6	30.0	42.0	

DESIGNED S DOWNEY
CHECKED M DAVIS
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

REPOSITORY FILL THICKNESS
AND STABILITY CROSS SECTION LOCATIONS

FIGURE
2
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ATTACHMENT A

IMPOUNDMENT LABORATORY RESULTS FROM PRE-DESIGN STUDIES (MWH, 2014A AND B)

Table 3-1 Summary of Geotechnical Laboratory Data - Cover Samples

Cover Layer	Sample	Sample Type (1)	Sample Depth Interval (in)		Material Description (2)	USCS (2)	USDA Classification (3)	Water Content (by mass) (%)	Specific Gravity	Standard Proctor (max. dd@opt. w.c.) (pcf @ %)	Atterberg Limits (%) (5)			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	L.A. Abrasion (6) (% loss)	Sodium Soundness (7) (% loss)	Absorption (8) (%)	Pinhole Dispersion (9)	Remolded Saturated Hydraulic Conductivity (cm/sec) (10)			Confining Stress (psi)	SWCC: -5 bar Water Content (by mass) (%) (10)	SWCC: Saturated Water Content (by mass) (%) (11)
											LL	PL	PI										90%	95%	100%			
Admix. (Gravel/ Soil Mixture)	TI - CS01 - 02A	Bulk	0	11	Clayey Gravel with Sand		Loam							33.3	23.4	43.3	28.0	15.3										
	TI - CS02 - 02A	Bulk	0	10	Clayey Gravel with Sand		Clay Loam		2.81 (4)					36.9	17.0	46.1	28.8	17.3	3.8	0.37	1.06							
	TI - CS03 - 02A	Bulk	0	6	Clayey Gravel with Sand		Loam							53.6	18.7	27.7	18.1	9.6										
	TI - CS04 - 02A	Bulk	0	10	Clayey Gravel with Sand		Loam							53.6	18.2	28.2	18.0	10.2										
	TI - CS05 - 02A	Bulk	0	9	Sandy Lean Clay		Loam							13.9	34.4	51.7	31.2	20.5										
	TI - CS06 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam		2.77 (4)					48.4	18.5	33.1	23.4	9.7	5.7	0.14	1.91							
	TI - CS07 - 02A	Bulk	0	20	Sandy Lean Clay	CL	Loam	7.8			28	13	15	1.1	41.0	60.9	42.4	18.5										
	TI - CS08 - 02A	Bulk	0	8	Clayey Gravel with Sand		Loam							56.7	18.5	24.8	17.2	7.6										
	TI - CS09 - 02A	Bulk	0	9	Clayey Gravel		Loam		2.78 (4)					53.6	14.2	32.2	21.2	11.0	5.1	1.17	1.55							
	TI - CS10 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam							41.4	19.7	38.9	26.1	12.8										
	TI - CS11 - 02A	Bulk	0	9	Clayey Gravel with Sand		Sandy Loam							30.7	30.1	39.2	26.1	13.1										
	TI - CS12 - 02A	Bulk	0	14	Sandy Lean Clay	CL	Loam	9.1			33	13	20	1.3	28.8	69.9	43.5	26.4										
Radon barrier (clay layer)	TI - CS03 - 04A	Bulk	6	24	Sandy Lean Clay	CL	Loam	6.0			28	14	14	6.3	38.7	55.0	36.1	18.9										
	TI - CS06 - 04A	Bulk	7	24	Sandy Lean Clay	CL	Loam	11.0			30	13	17	6.7	34.2	59.1	40.2	18.9										
	TI - CS10 - 04A	Bulk	7	25	Sandy Lean Clay	CL	Loam	7.7			29	14	15	2.3	39.5	58.2	36.9	21.3										
	TI - CS08 - 04A	Bulk	8	28	Sandy Lean Clay	CL	Loam	8.1	2.67	119.4 @ 11.9	27	12	15	11.3	35.0	53.7	36.7	17.0					9.1E-06	1.1E-05	1.5E-06	24		
	TI - CS05 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Loam	9.6			29	12	17	1.3	37.3	61.4	42.0	19.4										
	TI - CS09 - 04A	Bulk	9	26	Sandy Lean Clay	CL	Loam	7.7			28	13	15	4.0	38.1	57.9	40.0	17.9										
	TI - CS11 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Clay Loam	8.6	2.68	115.0 @ 14.9	32	13	19	5.1	28.4	66.5	40.7	25.8					7.6E-08	1.4E-07	1.0E-07	24		
	TI - CS02 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Sandy Clay Loam	11.4			28	12	16	3.6	44.7	51.7	30.4	21.3										
	TI - CS04 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Clay Loam	15.0	2.68	113.5 @ 15.0	35	15	20	0.9	35.0	68.2	37.2	26.9					4.6E-06	6.2E-06	2.3E-07	8		
	TI - CS01 - 04A	Bulk	11	24	Sandy Lean Clay	CL	Loam	9.2	2.68	117.3 @ 13.0	29	15	14	2.0	39.8	58.2	39.0	19.2				ND3	3.0E-04	4.6E-05	7.8E-07	8	8.6 / 9.6	21.7 / 19.0

Notes: 1. Sample Types: Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.

4. Bulk saturated surface dry (SSD) specific gravity of the gravel fraction, average of three results (ASTM C127).

5. LL = liquid limit, PL = plastic limit, PI = plasticity index

6. L.A. abrasion results are percent loss, by mass, for 100 revolutions.

7. Weighted percent loss for the 3/4-inch to 3/8-inch size range

8. Average of three results for the gravel fraction of the cover gravel/soil mixture samples

9. Pinhole dispersion test (ASTM method A) conducted on a specimen remolded to approximately 95% of the maximum standard Proctor density at optimum water content. ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head.

10. Flexible wall permeameter tests conducted on specimens remolded to approximately 90, 95 and 100% of the maximum standard Proctor density and tested at the confining stresses shown in the table.

11. SWCC test conducted on material passing the No. 10 sieve, remolded to approximately 95% of the maximum standard Proctor density and optimum water content. SWCC tests performed with pairs of specimens for each test.

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment

Area	Boring	Sample Type (9)	Sample Depth Interval (ft.)		Material Description (1)		USCS (1)	Water content (by mass, %) 110C	Water content (by mass, %) 60C	saturation (%)	SWCC - Saturated water content (by mass, %) (2)	SWCC - Specimen dry density (pcf) (2)	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) (3)	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) (7)	Collapse potential (%) (inundation load (psf))	Triaxial (12) (peak friction angle (ϕ) (degrees), cohesion (psf), where applicable)
CENTRAL	TI-B1	CA	36	36.5	Alluvium Clayey Sand	coarse		21.0	19.9	76%	36.3 / 33.2	85.2 / 88.0	97.3		2.73					0.0	62.5	37.5	32.8	4.7	1.7E-06	32	0.059		
CENTRAL	TI-B1	ST	45	46	Alluvium Clayey Sand	coarse		22	21.2				106.0														0.058		34.4
CENTRAL	TI-B10	CA	91	91.5	Alluvium Clayey Sand	coarse		18.6					105.6		2.66														
CENTRAL	TI-B15	CA	41	41.5	Alluvium Clayey Sand	coarse		11.4	10.1				87.1	88.1															
CENTRAL	TI-B15	CA	66	66.5	Alluvium Clayey Sand	coarse		12.7	11.8				100.7	101.5															
CENTRAL	TI-B11	CA	81	81.5	Alluvium Clayey Sand with Gravel	coarse		11.0					107.6		2.76					12.9	65.6	21.5	9.9	11.6					
CENTRAL	TI-B10	CA	46	46.5	Alluvium Silty Sand	coarse		9.9					95.4		2.74					0.0	65.8	34.2	23.4	10.8					
CENTRAL	TI-B10	ST	55	56	Alluvium Silty Sand	coarse		14.1			25.7 / 24.8	98.0 / 99.9	100.8												2.4E-05	72	0.139		
CENTRAL	TI-B10	CA	71	71.5	Alluvium Silty Sand	coarse		18.1					100.8																
CENTRAL	TI-B11	ST	56	57	Alluvium Silty Sand	coarse	SM	16.2			31.0 / 30.8	90.6 / 92.8	77.9		2.64		NP			0.0	60.4	39.6	31.9	7.7	5.6E-04	72	0.129		
CENTRAL	TI-B11	CA	66	66.5	Alluvium Silty Sand	coarse		14.2					96.2																
BORROW PIT 1	TI-B8	CA	56	56.5	Alluvium Silty Sand	coarse	SM	12.6					97.6		2.70		NP			0.0	57.0	43.0	30.9	12.1					
CENTRAL	TI-B15	CA (top)	31	31.5	Alluvium Silty Sand	coarse		22.3	21.3																				
CENTRAL	TI-B15	CA (bottom)	31	31.5	Alluvium Silty Sand	coarse	SM	17.1					101.8		2.71		NP			6.2	51.9	41.9	25.9	16.0					
NORTH CELL	TI-B2	CA	15	15.5	Alluvium Silty Sand	coarse		6.9					90.4		2.68														
NORTH CELL	TI-B2	CA	21	21.5	Alluvium Silty Sand	coarse		7.0					91.4		2.74					0.0	82.9	17.1	11.5	5.6					
CENTRAL	TI-B10	CA	66	66.5	Alluvium Silty Sand / Sandy Silt	coarse	SM/ML	13.8					94.5				NP			0.0	50.1	49.9	33.4	16.5					
NORTH CELL	TI-B23	ST	26	27	Alluvium Lean Clay	fine	CL	21.6					101.7		2.73		49	18	31	0.0	8.8	91.2	43.8	47.5			0.046		
DAM	TI-B3	ST	56	57	Alluvium Lean Clay	fine	CL	22.1	21.1				105.3	106.2	2.72		43	14	29	0.0	11.7	88.3	48.4	39.9				-1.5 (7,204)	22.2, 494
CENTRAL	TI-B1	CA	41	41.5	Alluvium Lean Clay with Sand	fine	CL	26.7					98.6				31	15	16	0.0	18.2	81.8	54.7	27.1	1.2E-07	35			
BORROW PIT 1	TI-B8	CA	46	46.5	Alluvium Lean Clay with Sand	fine	CL	21.9					95.2		2.72		30	16	14	0.0	27.9	72.1	55.6	16.5					
NORTH CELL	TI-B2	CA	26	26.5	Alluvium Lean Clay with Sand	fine	CL	23.5					93.2				34	16	18	0.0	20.9	79.1	51.5	27.6					
CENTRAL	TI-B11	CA	61	61.5	Alluvium Sandy Clay	fine		16.0					95.4							0.0	38.7	61.3	44.1	17.2					
NORTH CELL	TI-B23	ST	17.25	17.5	Alluvium Sandy Clay	fine		22.5					101.9		2.73					0.0	31.1	68.9	46.5	22.5					
CENTRAL	TI-B15	CA (top)	46	46.5	Alluvium Sandy Silt	fine		25.8	24.0																				
CENTRAL	TI-B15	CA (bottom)	46	46.5	Alluvium Sandy Silt	fine	ML	17.3					99.3		2.81		NP			0.0	37.0	63.0	55.7	7.3					
CENTRAL	TI-B15	CA	56	56.5	Alluvium Silty Clay	fine		11.7	10.5				104.2	105.3															
DAM	TI-B3	CA	61	61.5	Alluvium Silty Clay	fine		25.8					99.0							0.0	22.0	78.0	54.9	23.1					
CENTRAL	TI-B10	ST (top)	10	11	Coarse Tailings			9.7	9.1				110	110.5	2.63	2.65													
CENTRAL	TI-B10	ST (bottom)	10	11	Coarse Tailings	Clayey Sand		9.0			20.7 / 21.5	102.6 / 101.2	96.8							0.2	71.9	27.9	16.6	11.3	4.3E-04	34	0.094		
CENTRAL	TI-B10	CC-AC (4) (top)	12.5	14	Coarse Tailings			6.7	6.3						2.61	2.64													
CENTRAL	TI-B10	CC-AC (4) (bot)	12.5	14	Coarse Tailings	Clayey Sand		7.5			31.3 / 31.4	85.0 / 85.0	99.1							0.7	71.5	27.8	18.9	8.9	6.7E-05	36			
CENTRAL	TI-B10	CA	15	15.5	Coarse Tailings			9.3					103.0																
CENTRAL	TI-B10	CA	16	16.5	Coarse Tailings	Silty Sand	SM	6.5					100.0		2.65		NP			2.4	82.3	15.3	10.2	5.1					
CENTRAL	TI-B10	ST	32	32.5	Coarse Tailings		SM	15.4					100.1		2.67		NP			0.0	83.1	16.9	12.6	4.3					
CENTRAL	TI-B1	CA	20.5	21	Coarse Tailings			6.1	5.7																				
CENTRAL	TI-B1	CA	21	21.5	Coarse Tailings	Poorly Graded Sand w/ Clay		7.5			21.9 / 19.8	96.5 / 99.6	105.5							0.0	90.7	9.3	5.5	3.8	3.7E-04	18	0.024		
CENTRAL	TI-B1	ST	27	27.5	Coarse Tailings		SP	4.0					97.6		2.67		NP			0.0	92.7	7.3	5.2	2.1	2.9E-03	14			34.9
CENTRAL	TI-B1	CA	30	30.5	Coarse Tailings			13.9	13.5																				
CENTRAL	TI-B1	CA	30.5	31	Coarse Tailings			14.6			29.6 / 33.8	84.2 / 83.6	91.6												3.0E-07	25	0.092		
CENTRAL	TI-B1	CA (top)	31	31.5	Coarse Tailings			0.8	0.4																				
CENTRAL	TI-B8	CA	25	25.5	Coarse Tailings			9.0	8.4				103.7	104.2	2.72	2.72													
CENTRAL	TI-B8	CA (5)	25.5	26	Coarse Tailings			6.2			25.7	94.6	99.6							0.0	87.9	12.7	7.9	4.8	3.6E-04	46			
CENTRAL	TI-B8	CA (5)	26	26.5	Coarse Tailings	Silty Sand	SM	16.8			27.0	94.8	91.7				NP			0.0	76.0	24.0	19.0	5.0					
CENTRAL	TI-B8	ST (top)	35	36	Coarse Tailings			14.3	13.6				90.9	91.4	2.66	2.67													
CENTRAL	TI-B8	ST (bottom)	35	36	Coarse Tailings			16.5			31.2 / 39.3	89.3 / 82.3	89.6		2.67										1.6E-05	43			
CENTRAL	TI-B15	CA	6	6.5	Coarse Tailings			5.4					101.1							0.0	87.5	12.5	9.8	2.7					
CENTRAL	TI-B15	CA	11	11.5	Coarse Tailings			6.8					93.8																
CENTRAL	TI-B15	CC-AC	13.5	14	Coarse Tailings		SM	19.0	18.4						2.68		NP			0.0	69.6	30.4	22.6	7.8					
CENTRAL	TI-B15	ST	15.5	16	Coarse Tailings		SM	14.2					90.4		2.66		NP			0.0	54.9	15.1	10.1	5.0	8.3E-04	38	0.126		
CENTRAL	TI-B15	CA	21	21.5	Coarse Tailings		SM	12.7					99.8		2.68		NP			0.0	80.6	19.4	13.3	6.1					
CENTRAL	TI-B15	CC-AC	28.5	29.5	Coarse Tailings		SM	19.3							2.66		NP			0.0	65.4	34.6	24.4	10.2					
NORTH CELL	TI-B23	ST	15.5	15.75	Coarse Tailings			20.7	19.6				87.7		2.77					0.0	62.8	37.2	34.1	3.1					
CENTRAL	TI-B10	ST	21.5	22.5	Coarse/Fine Tailings		CL	28.1	*26.7*				91.9	*92.9*			43	19	24	0.0	43.0	57.0	51.4	5.6			0.111		
CENTRAL	TI-B1	CC-AC	32	33	Coarse/Fine Tailings		CL	29.3	*27.8*								33	16	17	0.0	46.7	53.3	37.4	15.9					
CENTRAL	TI-B10	CA	36	36.5	Coarse/Fine Tailings	Clayey Sand / Sandy Clay	SC/CL	33.9	*32.2*	94%			86.7	*87.8*	2.68	*2.72*	36	16	20	0.0	50.6	49.4	31.1	18.3					
CENTRAL	TI-B8	ST (bottom)	41	42	Coarse/Fine Tailings	Clayey Sand / Sandy Clay	SC/CL	35.6	34.3		33.1 / 31.6	88.7 / 90.7	82.8	83.6			35	16	19	0.0	51.2	48.8	40.7	8.1	1.3E-07	53	0.262		
CENTRAL	TI-B8	CC-AC (top)	43.5	44.5	Coarse/Fine Tailings			31.2	29.3				91.0	92.3															
DAM	TI-B3	ST (top)	35	36	Dam Clayey Sand (dam)			10.5	10.2																				
DAM	TI-B3	ST (bottom)	35	36	Dam Clayey Sand (dam)		SC	14.7					102.2		2.67		23	14	9	2.1	50.2	47.7	30.9	16.8				-0.7 (4,608)	33.7, 135
DAM	TI-B3	ST	21	22	Dam Sandy Clay (dam)		CL	16.0					111.1				30	12	18	0.0	32.8	67.2	41.7	25.5				-0.03 (2,709)	32.2, 195
DAM	TI-B3	CA	26	26.5	Dam Sandy Clay (dam)			12.0					106.8				25	13	12										
DAM	TI-B3	CA	31	31.5	Dam Sandy Clay (dam)			16.1					108.4																
DAM	TI-B3	CA	11	11.5	Dam Silty Sand (dam)			5.1					108.4		2.64					5.4	74.7	19.9	13.5	6.4					
DAM	TI-B3	CA	16	16.5	Dam Silty Sand (dam)			4.7					105.3															-2.8 (2,236)	
DAM	TI-B3	CA	41	41.5	Dam Sandy Clay (dam)			21.5					90.6							0.0	33.8	66.2	41.7	24.5					
DAM	TI-B3	CA	45.5	46	Dam Sandy Clay (dam)			17.0	17.7				110.1	109.4															29.3, 293
DAM	TI-B3	CA	46	46.5	Dam Sandy Clay (dam)			18.0					104.8				28	13	15										
CENTRAL	TI-B11	ST	15	16	Fill Clayey Sand (Fill)			8.2			16.0 / 16.3	117.7 / 116.6	110.4		2.67					3.9	57.6	38.5	24.6	13.9	2.5E-05	38	0.085		
NORTH CELL	TI-B2	CA	11	11.5	Fill Clayey Sand (fill)			24.5					75.9		2.73					0.0	65.4	34.6	30.3	4.3					
CENTRAL	TI-B1	CA	16	16.5	Fill Lean Clay with Sand (Fill)		CL	16.2					104.7				33	13	20	0.3	27.2	72.5	42.9	29.6					
CENTRAL	TI-B11	CA	6	6.5	Fill Sandy Clay (Fill)			8.6					93.5																
CENTRAL	TI-B11	CA	21	21.5	Fill Sandy Clay (Fill)			12.3					107.6																
CENTRAL	TI-B11	ST	30.5	31.5	Fill Sandy Clay (Fill)		CL	13.7					112.4				30	13	17	7.1	41.3	51.6	33.9	17.7	9.0E-07	51	0.059		
NORTH CELL	TI-B2	CA	6	6.5	Fill Silty Sand with Gravel (Fill)			7.7					100.4		2.68					26.9	29.9	43.2	30.7	12.5					
CENTRAL	TI-B10	CA	25.75	26	Fine Tailings			43.7	41.0																				

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment **(continued)**

Area	Boring	Sample Type [9]	Sample Depth Interval (ft.)		Material Description [1]		USCS [1]	Water content (by mass, %) 110C	Water content (by mass, %) 60C	saturation (%)	SWCC - Saturated water content (by mass, %) [2]	SWCC - Specimen dry density (pcf) [2]	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) [3]	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) [7]	Collapse potential (%) (inundation load (psf))	Triaxial [12] (peak friction angle (φ') (degrees), cohesion (psf), where applicable)
CENTRAL	TI-B10	CA	26	26.5	Fine Tailings	Fat Clay	CH	60.4	*57.4*				63.1	*64.3*	2.71	*2.80*	74	27	47	0.0	10.0	90.0	82.6	7.4					
CENTRAL	TI-B10	ST	30.3	30.7	Fine Tailings		CH	47.7	*45.3*	92%			72.2	*73.4*	2.71	*2.78*	57	22	35	0.0	24.3	75.7	68.4	7.3					
CENTRAL	TI-B10	ST (top)	40	41	Fine Tailings	Fat Clay with Sand		47.3	45.7				70.5	73.7	2.54	2.56													
CENTRAL	TI-B10	ST (bottom)	40	41	Fine Tailings	Fat Clay with Sand	CH	49.7	*47.2*		47.7 / 55.7	75.3 / 67.9	73.3	*74.5*			61	21	40	0.0	20.7	79.3	46.5	32.9	2.9E-08	58	0.315		
CENTRAL	TI-B11	ST	51.5	52.5	Fine Tailings		CH	63.0	*59.9*	95%			62.5	*63.7*	2.75	*2.84*	91	30	61	0.0	2.7	97.3	90	7.3	3.1E-08	67	0.482		
CENTRAL	TI-B1	CA (bottom)	31	31.5	Fine Tailings		CL		41.6	94%				76.5	2.68	*2.69*	44	17	27	0.0	30.9	69.1	54.6	14.5					33.3
CENTRAL	TI-B10	CA	35	35.5	Fine Tailings			50.2	*47.7*				71.3	*72.5*															
CENTRAL	TI-B10	CA	35.5	36	Fine Tailings			54.2	51.4																				
CENTRAL	TI-B11	CA	45.5	46	Fine Tailings			117.2	88.7																				
CENTRAL	TI-B8	ST	30	31	Fine Tailings		CH	65.1	*61.8*				61.5	*62.7*			74	25	49	0.0	9.2	90.8	81.2	9.6			0.426		
CENTRAL	TI-B8	ST	31	31.5	Fine Tailings			44.3	41.4																				
CENTRAL	TI-B8	ST (top)	41	42	Fine Tailings			41.8	*39.7*	**100%**			79.2	*80.4*	2.60	2.63													
CENTRAL	TI-B8	CC-AC [6] (bot)	43.5	44.5	Fine Tailings			45.6	*43.3*	96%	47.9 / 49.0	74.4 / 73.6	73.6	*74.8*						0.0	14.5	85.5	74.7	10.8	3.0E-08	61			
BORROW PIT 1	TI-B8	CC-AC	44.5	45	Fine Tailings										2.59	2.60													
NORTH CELL	TI-B2	CC-AC	13.5	14.5	Fine Tailings	Sandy Clay		41.7	*39.6*											0.0	23.1	76.9	49.2	27.7					
CENTRAL	TI-B10	CC	106.9	107.3	Sandstone			14.2					109.1												1.4E-07	115			
CENTRAL	TI-B11	CA	100	100.2	Sandstone			21.1					103.9												1.3E-05	112			
NORTH CELL	TI-B23	CA	45.2	45.7	Sandstone			13.8					108.7												2.4E-07	43			
NORTH CELL	TI-B2	BULK	38.4	38.7	Sandstone			13.5					X																
BORROW PIT 1	TI-B8	BULK	63.5	64	Shale			X					X												X	X			
NORTH CELL	TI-B23	CA [8]	65.5	66	Shale			10.2					103.0												9.7E-08	62			

Notes: 1. Material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available.
2. SWCC tests conducted with pairs of specimens for each test.
3. Flexible wall permeameter tests conducted at confining pressures representing confining stresses for the proposed design fill. Confining stresses were estimated as the existing overburden stress on the specimens (depth times total unit weight of material above) plus the maximum anticipated fill height for the location times the estimated unit weight of fill.
4. Specimen remolded to the in-situ water content and density of the Shelby tube sample from 10-12.5 for the SWCC.
5. Remolded SWCC and permeability tests conducted on a 50-50 mixture of the materials from these two specimens, remolded to the average measured density of the two CA samples.
6. SWCC specimen remolded to the in-situ water content and density of the Shelby tube sample from 41-42 feet.
7. Compression indices estimated using the maximum anticipated loading during fill placement and the range of loading during testing. Initial void ratios are calculated using the average specific gravity for all samples of 2.70.
8. Shale sample had multiple horizontal fractures and was likely disturbed during sampling.

9. Sample Types: CC = continuous core, CC-AC = continuous core in acrylic liner, top/bottom indicates the specimen was taken from the top or bottom of the sample interval

10. Values in italics were calculated based on the relationship (WC60=0.951(WC110)-.0611) between the water content results measured for 15 tailings samples at the two oven temperatures.*

11. Shaded cells are alluvium.

12. Consolidated undrained (CU) triaxial shear, staged loading of one specimen with pore pressure measurements

ST = 3" diam. Shelby tube, CA = California sample

R = remolded, nc = Cc not calculated, because fill will not be placed in this location

X = testing not possible due to sample disturbance

LL = liquid limit, PL = plastic limit, PI = plasticity index

Table 3-5 Summary of Geotechnical Laboratory Data - Borrow Areas

Area	Sample	Sample Type [1]	Sample Depth Interval (ft)		Material Description [2]	USCS [2]	USDA Classification [3]	Water Content (by mass, %)	Dry Density (pcf)	Porosity	Specific Gravity	Standard Proctor (max. dd@opt. w.c.), (pcf @ %)	Atterberg Limits (%) [4] LL	PL	PI	USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	Pinhole Dispersion [5,6]	Remolded Saturated Hydraulic Conductivity [7] (cm/sec) 80%	85%	90%	SWCC: -5 bar Water Content (by mass, %) [8]	SWCC: Saturated Water Content (by mass, %) [8]
West Borrow	WB-B1-01A	CA	3.0	3.5	Clayey Sand			3.8	88.8	46.7	2.67															
	WB-B1-03A	CA	11.0	11.5	Clayey Sand	SC	Sandy Loam	6.4	111.0	33.3	2.67		28	18	10	2.8	48.6	48.6	32.8	15.8						
	WB-B1-06	Bulk	5.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.64	112.5 @ 13.7	26	20	6	0.8	52.3	46.9	31.0	15.9	ND3	7.2E-04	5.8E-04	2.1E-04	6.6 / 6.2	31.7 / 32.4
	WB-B2-02A	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	5.6	87.1	47.8	2.67					8.6	53.5	37.9	23.8	14.1						
	WB-B2-05	Bulk	10.0	20.0	Clayey Sand	SC	Sandy Loam						26	17	9	9.9	46.3	43.8	27.7	16.1	ND3	8.5E-05	1.2E-04	6.4E-05	6.4 / 6.7	30.9 / 33.7
	WB-B5-001B	CA	3.0	3.5	Clayey Sand			3.7	92.5	44.3	2.66															
	WB-B5-002A	CA	6.0	6.5	Silty, Clayey Sand	SC-SM	Sandy Loam	5.1	86.9	47.7	2.66		24	17	7	0.0	56.3	43.7	27.8	15.9						
	WB-B5-005	Bulk	0.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam					117.3 @ 12.7				0.0	61.6	38.4	22.8	15.6						
East Borrow	EB-B2-001A	CA	3.0	3.5	Weath. Sandstone			5.8	107.1	35.8	2.67															
	EB-B3-003B	CA	10.5	11.0	Sandy Lean Clay	CL	Sandy Loam	6.0	83.1	50.7	2.70		26	15	11	0.0	46.3	53.7	34.9	18.8						
	EB-B4-02A	CA	6.0	6.5	Sandy Lean Clay	CL	Sandy Loam	5.4	80.7	51.2	2.65					0.0	48.5	51.5	33.9	17.6						
	EB-B4-06	Bulk	10.0	20.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.67	117.1 @ 12.9	23	17	6	0.0	50.5	49.5	32.0	17.5	ND3	8.7E-04	9.0E-04	4.4E-04	4.6 / 4.2	30.8 / 29.8
	EB-B5-02B	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	6.7	93.8	44.4	2.71		27	15	12	8.8	45.7	45.5	28.8	16.7						
	EB-B6-01B	CA	3.0	3.5	Sandy Clay			7.6	91.2	46.1	2.71															
	EB-B6-03	Bulk	0.0	10.0	Lean Clay with Sand	CL	Clay Loam					114.8 @ 14.1				0.0	26.6	73.4	44.3	29.1	ND3	2.3E-04	3.6E-05	2.9E-05	9.4 / 9.3	32.8 / 32.2
	EB-B6-04A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	8.6	95.2	43.3	2.69		31	13	18	0.0	31.1	68.9	43.8	25.1						
South Borrow	SB-B1-01A	CA	3.5	4.0	Sandy Lean Clay	CL	Sandy Loam	7.1	91.4	49.3	2.89					0.0	43.1	56.9	39.2	17.7						
	SB-B1-03A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	6.6	82.6	50.7	2.69		31	15	16	0.0	46.7	53.3	32.9	20.4						
	SB-B1-04	Bulk	0.0	25.0	Sandy Lean Clay	CL	Sandy Clay Loam				2.70	115.5 @ 14.2	33	14	19	0.0	42.6	57.4	30.7	26.7	ND1	2.3E-04	5.7E-05	1.4E-04	6.4 / 5.9	31.9 / 30.3
	SB-B2-02B	CA	5.5	6.0	Sandy Lean Clay	CL	Loam	7.7	80.1	52.6	2.70		36	15	21	0.0	29.8	70.2	45.4	24.8						
	SB-B3-02A	CA	6.0	6.5	Lean Clay with Sand	CL	Clay Loam	10.2	84.3	49.7	2.69		40	17	23	0.0	21.6	78.4	46.2	32.2						
	SB-B4-01	Bulk	0.0	15.0	Sandy Lean Clay	CL	Sandy Clay Loam	7.1			2.67	114.1 @ 14.4	33	15	18	0.8	39.6	59.6	35.7	23.9	ND3	3.4E-04	2.0E-04	7.4E-05	9.1 / 8.6	29.6 / 33.5
North Borrow	NB-B1-03B	CA	10.5	11.0	Silty Sand	SM	Sandy Loam	5.4	84.4	49.5	2.68		25	22	3	0.0	55.6	44.4	30.3	14.1						
	NB-B2-01B	CA	3.0	3.5	Silty Sand	SM	Sandy Loam	4.9	81.9	50.3	2.64		27	23	4	0.0	51.2	48.8	33.9	15.0						
	NB-B2-04	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam					113.9 @ 14.5	26	19	7	0.0	49.0	51.0	32.5	18.5	ND3	4.0E-04	2.7E-04	7.5E-05	4.9 / 4.7	29.5 / 29.9
Dilco Hill	DH-B1-01B	CA	3.0	3.5	Silty Sand			3.5	88.8	46.6	2.66															
	DH-B1-03	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam	5.4			2.67	117.5 @ 13.8	25	19	6	2.0	47.4	50.6	35.0	15.6	ND4	6.3E-04	7.1E-04	2.5E-04	4.2 / 4.1	39.6 / 35.0
	DH-B1-10	Bulk	35.0	45.0	Lean Clay with Sand	CL	Loam	10.3			2.38					1.5	20.9	77.6	60.9	16.7	ND3	1.6E-04	2.5E-05	3.2E-06	5.8 / 6.0	25.7 / 24.5
	DH-B2-03	CA	15.0	15.5	Silty Clay with Sand	CL-ML	Sandy Loam	10.5	96.7	39.2	2.55		29	24	5	0.0	27.7	72.3	66.9	5.4						
	DH-B3-05	Bulk	20.0	30.0	Sandy Lean Clay	CL	Loam	7.3			2.66	116.3 @ 13.0	29	18	11	2.5	34.6	62.9	45.5	17.4						

Notes: 1. Sample Types: CA = California sample, Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. With the exception of DH-B1-03, which was tested at a density based on the natural in-situ density measured from the CA samples, specimens were remolded to approximately 85% of standard Proctor density and between the estimated natural and optimum water contents for the soil.

6. ND1 = nondispersive clay with very slight to no colloidal erosion under 15-inch or 40-inch head; ND4, ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head (ASTM test method A)

7. Specimens remolded to approximately 80%, 85%, and 90% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil.

8. Specimens remolded to approximately 85% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil. SWCC tests performed with pairs of speciments for each test.

Table 3-6 Summary of Geotechnical Laboratory Data - Site Stockpiles

Area	Sample	Sample Type (1)	Material Description	USCS (2)	Specific Gravity	Atterberg Limits (%) (4) LL	PL	PI	USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	L.A. Abrasion (% loss) (5)	Sodium Sulfate Soundness (% loss) (6)	Absorption (%) (7)	Unconfined Compressive Strength (psi) (8)	Splitting Tensile Strength (psi) (8)
Stockpiles	Topsoil-01	Bulk	Sandy Clay	CL	2.68	33	10	23	2.6	32.4	65.0					
	Topsoil-02	Bulk	Sandy Clay	CL	2.71	39	12	27	0.5	26.8	72.7					
	TI-SP1-01	Bulk	Crusher Fines						1.9	80.8	17.3					
	TI-SP2-01A	Bulk	Erosion Protection Gravel		2.78 (3)				93.0	6.3	0.7	5.7	8.26	1.868		
	TI-SP2-01C	Bulk	Erosion Protection Gravel						83.3	4.9	11.8					
	TI-SP3-01A	Bulk	Road Base (gravel with sand)						67.4	24.6	8.0					
	TI-SP4-01A	Bulk	Erosion Protection Gravel		2.75 (3)				98.0	1.2	0.8	6.1	10.47	2.091		
	TI-SP6 (56A)	Bulk	9-inch riprap												20,780 and 23,630	1,320 and 1,400
	TI-SP6 (56B)	Bulk	9-inch riprap												19,100 and 14,440	1,530 and 1,720

Notes: 1. Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. Average of three bulk saturated surface dry (SSD) specific gravity results for the rock samples (ASTM C127)

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. L.A. Abrasion results are percent loss, by mass, for 100 revolutions.

6. Weighted percentage loss for 0.75 to 1.5-inch size range

7. Average of three absorption results

8. Specimens were collected from the 9-inch stockpile and cored for strength testing.

Table 3-6 Geotechnical Test Results

Sample ID[1]	Sample Location	Sample Type	Sample Depth Interval		Gravimetric Water content	Dry Density	Specific gravity	Standard Proctor	
		Units:	top (ft bgs)	bottom (ft bgs)	(% by mass)	(pcf)	(g/cm^3)	max. dry density (pcf)[3]	optimum water content (%)
NECR1-CC01	NECR-1	Bulk	10	20			2.68	120.7	11.9
NECR1-CC17	NECR-1	CA[2]	5.5	6	4.9	92.3			
NECR1-CC17	NECR-1	CA	10.5	11	6.2	96.5			
NECR1-CC17	NECR-1	CA	15.5	16	2	106.7			
NECR1-CC17	NECR-1	CA	20.5	21	19.1	95.8			
NECR1-CC17	NECR-1	Bulk	0	10				120.3	11.3
NECR1-CC17	NECR-1	Bulk	10	20				125.1	10
NECR2-CC05	NECR-2	Bulk	0	10				118.8	11.9
NECR2-CC07	NECR-2	Bulk	0	10			2.71	117.8	11.6
NECR2-CC05	NECR-2	CA	2.5	3	8.1	93.7			
NECR2-CC05	NECR-2	CA	5	5.5	10	D[3]			
NECR2-CC06	NECR-2	CA	3.5	4	4.7	101.1			
NECR2-CC07	NECR-2	CA	6	6.5	2.7	101			
NECR2-CC07	NECR-2	CA	5.5	6	4.5	101.3			
NECR2-CC07	NECR-2	CA	10	10.5	4.1	97.1			
NECR2-CC01	NECR-2	CA	5.5	6	7.4	99.1			
NECR2-CC06	NECR-2	CA	3	3.5	5	103.4			
N2D-CC01	NECR-2 Drainage	Bulk	0	10				115.6	13.4
N2D-CC01	NECR-2 Drainage	CA	3.5	4	8.6	91.2			
N2D-CC01	NECR-2 Drainage	CA	6	6.5	4.7	87.2			
N2D-CC01	NECR-2 Drainage	CA	11	11.5	4	91.8			
NMSA-CC02	NEMSA	CA	3	3.5	8.1	110.6			
NMSA-CC02	NEMSA	CA	6	6.5	20	97.5			
NMSA-CC02	NEMSA	CA	10.5	11	15	86.6			
NMSA-CC04	NEMSA	Bulk	0	15			2.66	125.2	9.8
P2-CC04	Pond 2	Bulk	0	3			2.66	102.0	20.6
P3-CC07	Pond 3	Bulk	0	5			2.63	109.7	13.7
SF2-CC01	Sandfill 2	Bulk	0	10			2.65	121.5	10.5
SF3-CC01	Sandfill 3	Bulk	0	10			2.68	121.7	11.1
SF3-CC01	Sandfill 3	CA	3.5	4	17	99.3			
SF3-CC01	Sandfill 3	CA	6	6.5	10.5	96.4			
SF3-CC01	Sandfill 3	CA	11	11.5	8.2	83.5			
SP-CC13	Sediment Pad	CA	5.5	6	10.2	101.4			
SP-CC13	Sediment Pad	CA	11	11.5	3.5	100.8			
SP-CC13	Sediment Pad	CA	15.5	16	6.9	97.5			
SP-CC13	Sediment Pad	Bulk	0	15			2.62	120.6	11.5

Notes:

pcf=pounds per cubic foot

1. Samples collected October-December 2013 during the Pre-Design Studies
2. CA = 2-inch diameter California sample, Bulk = 5-gallon bucket sample
3. Maximum dry density listed includes rock correction
4. D = Disturbed, moisture content only

ATTACHMENT B

RECORDED WATER LEVELS AT THE CHURCH ROCK SITE (CHESTER ENGINEERS, 2016)

Well ID	Measurement Date	Measurement Time	Historical Reference Elev	Water Level Depth	Water Level Elev
0509 D	1/4/2016	8:37	6949.44	82.89	6866.55
EPA 23	1/4/2016	9:30	6926.31	59.52	6866.79
GW 1	1/4/2016	14:20	6916.46	65.01	6851.45
GW 2	7/6/2015	14:25	6912.88	58.96	6853.92
GW 3	7/7/2015	10:50	6910.04	56	6854.04
632	1/4/2016	12:35	6903.49	48.05	6855.44
EPA 25	1/5/2016	10:35	6903.38	56.62	6846.76
EPA 27	1/12/1999		6910.95	55.45	6855.5
EPA 28	1/4/2016	15:20	6917.86	65.83	6852.03
624	1/4/2016	16:35	6898.57	53.61	6844.96

Note: Water levels provided by email from Chester Engineers, on April 20, 2016.

ATTACHMENT C

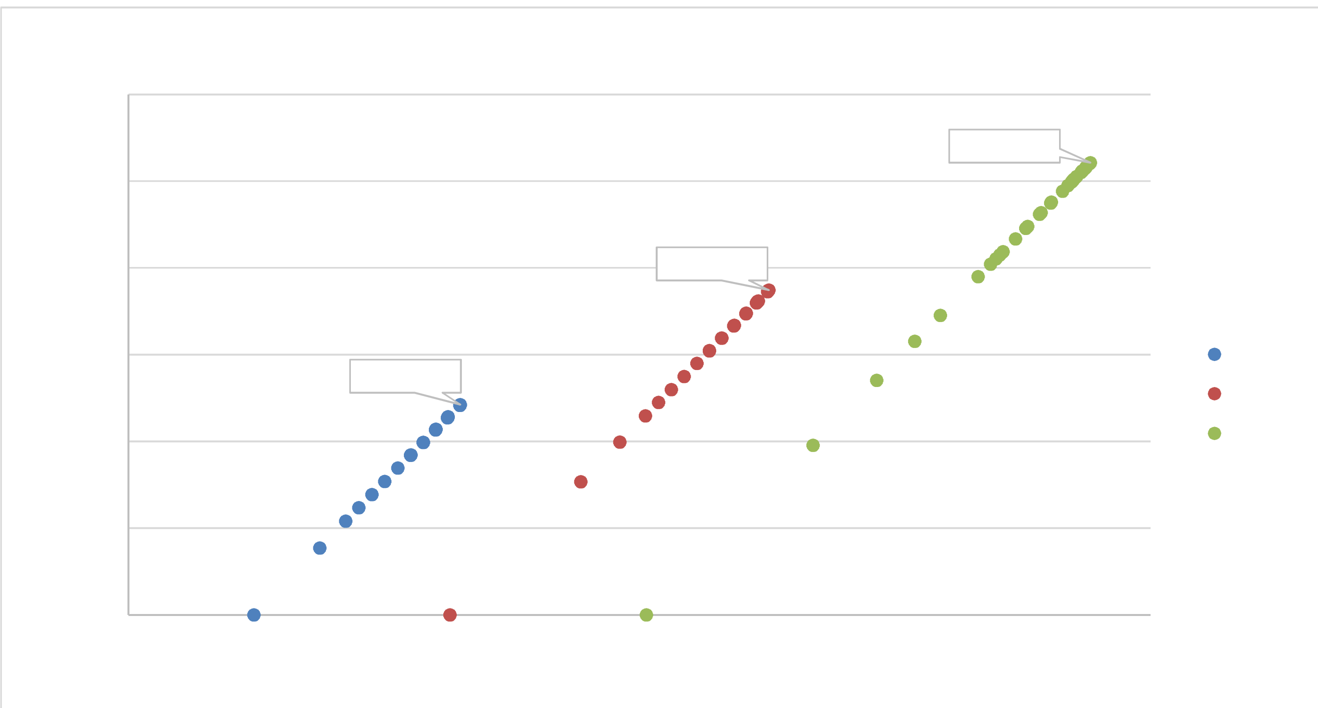
TOTAL STRESS FRICTION ANGLE SPREADSHEET CALCULATIONS

Fine Tailings - Total Stress Internal Friction Angle Calculation

By: S. Downey
Date: 7/19/2017

Purpose:
Resolve the total stress internal friction angle based on laboratory results obtained from the PDS investigation (MWH, 2014). Two approaches were used to calculate the total stress friction angle. The first approach calculates the friction angle from each confining stress, and then averages the three friction angles. The second approach plots the peak values from each confining stress and finds the line of best fit with a y-intercept of 0 or greater. The equation from the line of best fit is then used to determine the total stress friction angle.

Approach 1:
-Found peak vertical stress values associated with peak confining stresses
-Used Lambe & Whitman equation with peak values of each sample
-Found the average of the three Lambe & Whitman values

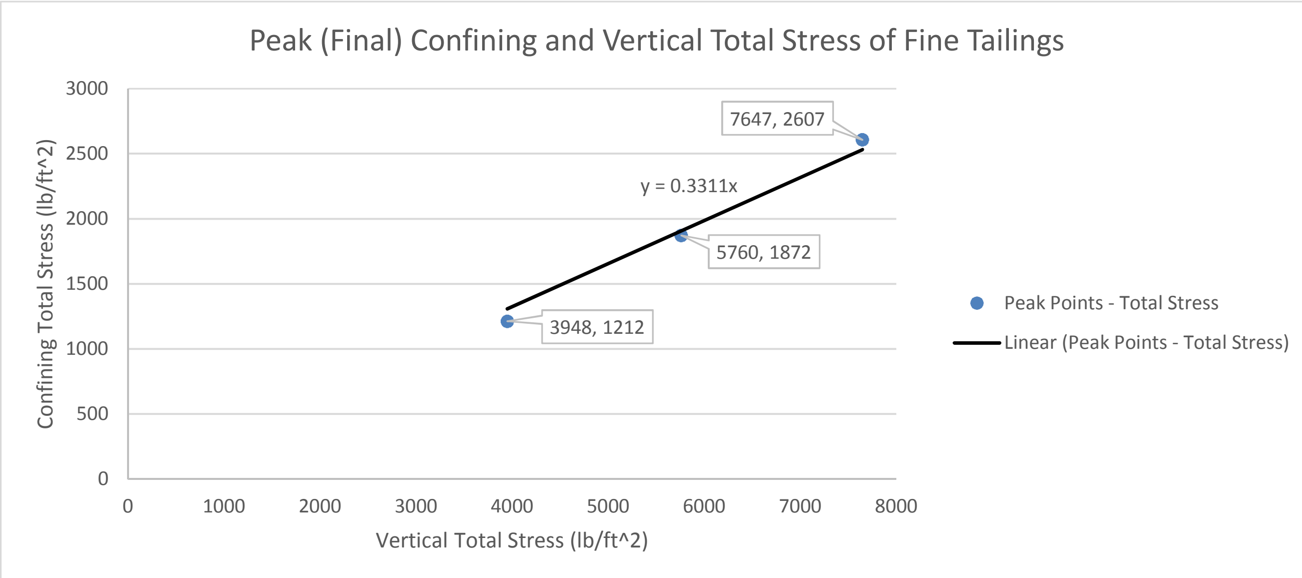


$$\sin\phi = \frac{q}{p}$$ (Lambe and Whitman, 1969, pg. 141)

; q = peak (final) confining stress
p = peak (final) vertical stress
ϕ = total stress internal friction angle

Sample	p (lb/ft^2)	q (lb/ft^2)	ϕ (deg.)
A	3948	1212	18
B	5760	1872	19
C	7647	2607	20
		Avg. ϕ (deg.) =	**19**

Approach 2:
-Found peak vertical stress values associated with peak confining stresses
-Plotted peak values of each sample
-Established a best fit line with a conservative y-intercept of 0
-Used slope value from the best fit line equation in Lambe & Whitman equation

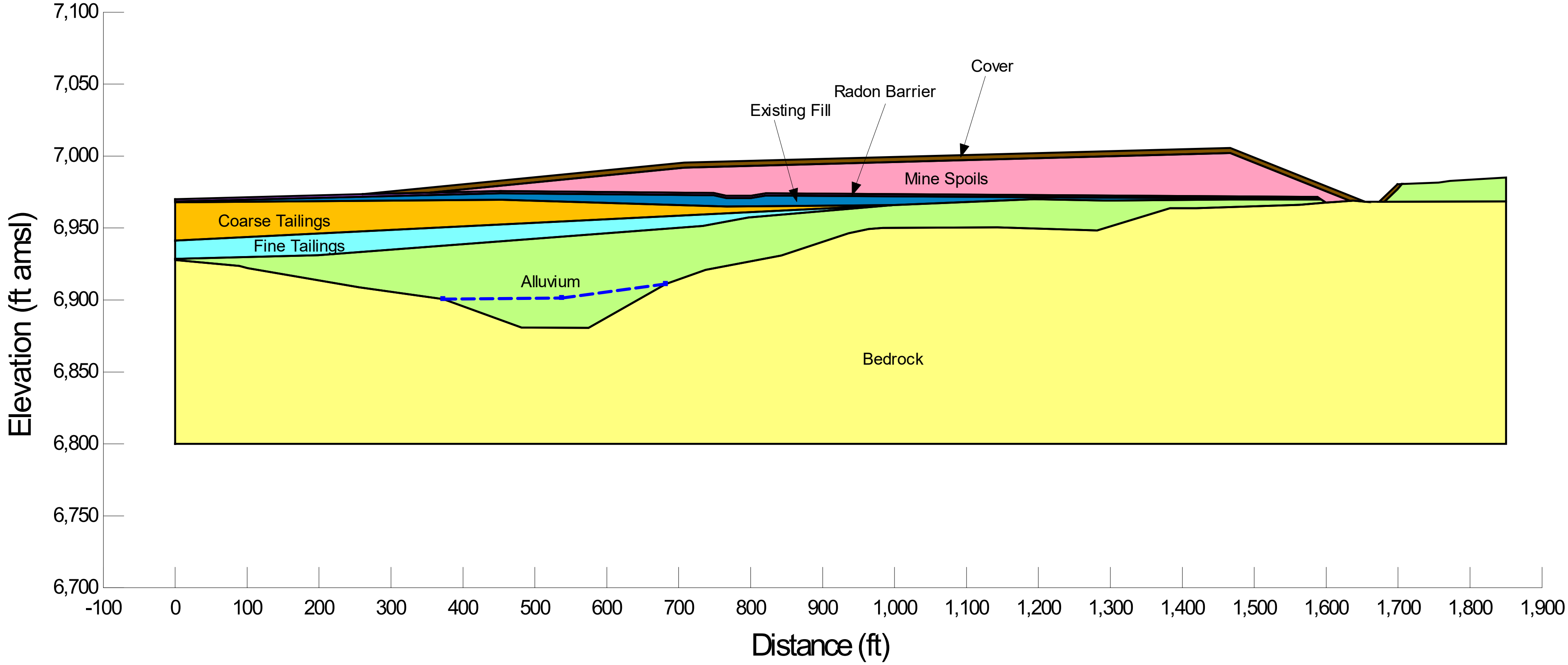


$\sin\phi = \tan\alpha$ (Lambe and Whitman, 1969, pg. 141) ; tan α = slope of best fit line

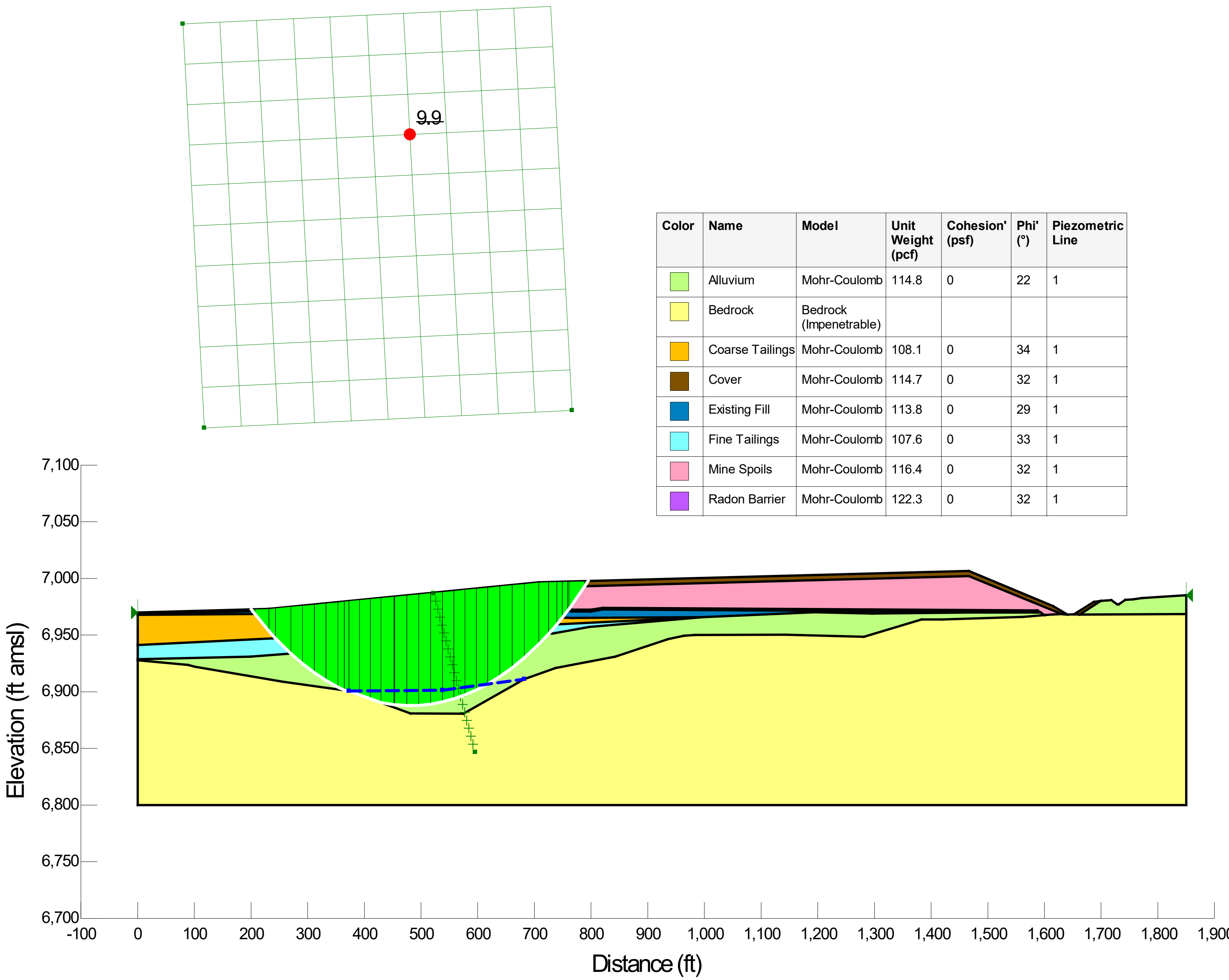
Best Fit Line Equation	Best Fit Line Slope	ϕ (deg.)
0.3311x	0.3311	19

ATTACHMENT D

SLOPE/W OUTPUT FILES

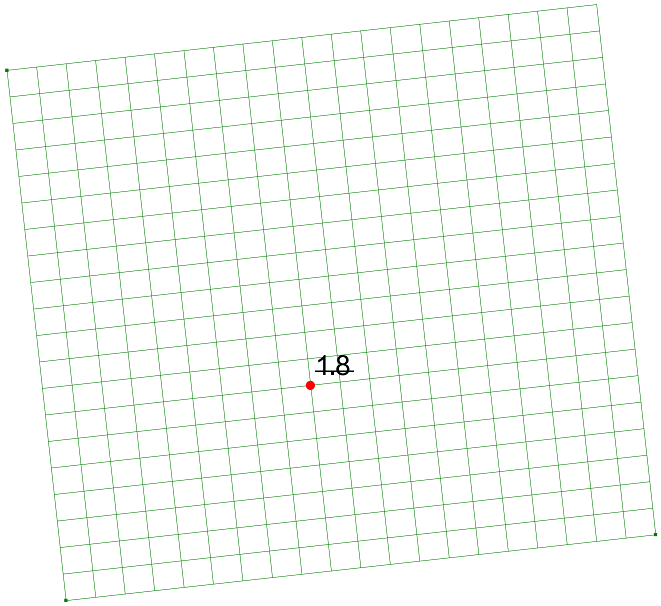


Cross Section A
Geometry



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

Figure D.1 - Cross Section A
Static Analysis – Southwest Slope



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

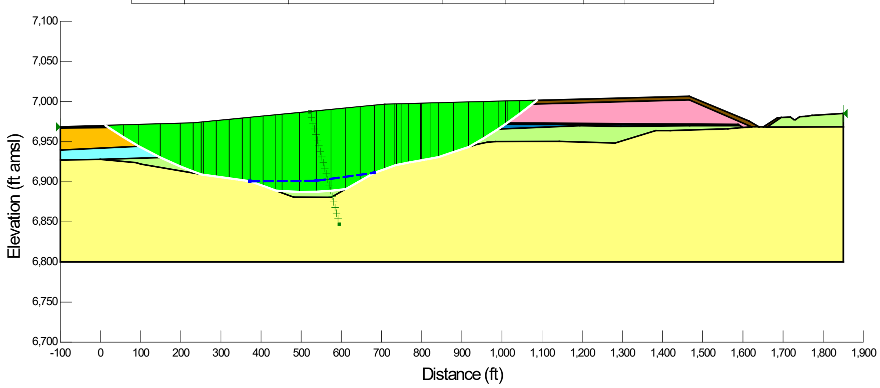


Figure D. 2 – Cross Section A
Pseudo-Static Analysis – Southwest Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

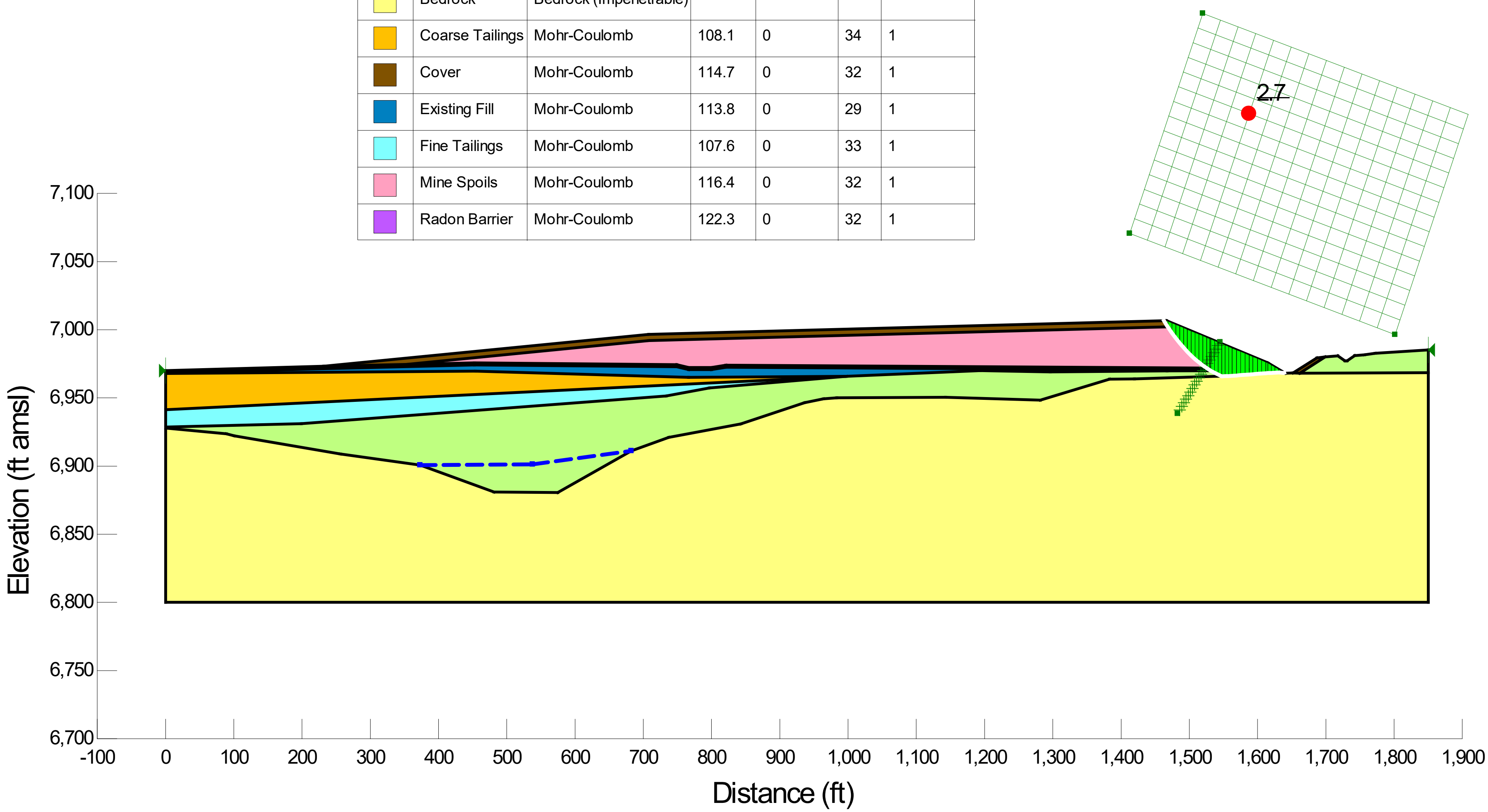


Figure D.3 – Cross Section A
Static Analysis – Northeast Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

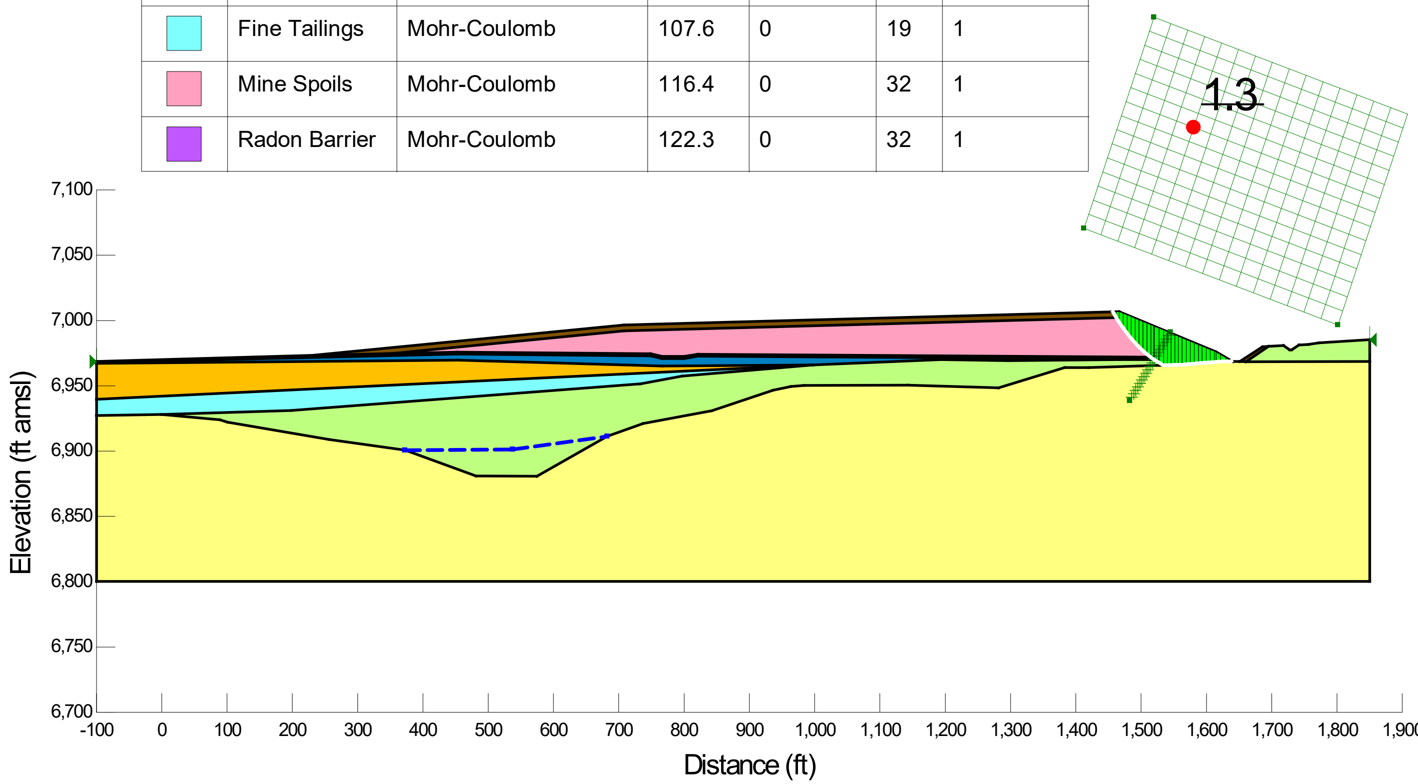


Figure D.4 – Cross Section A
Pseudo-Static Analysis – Northeast Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

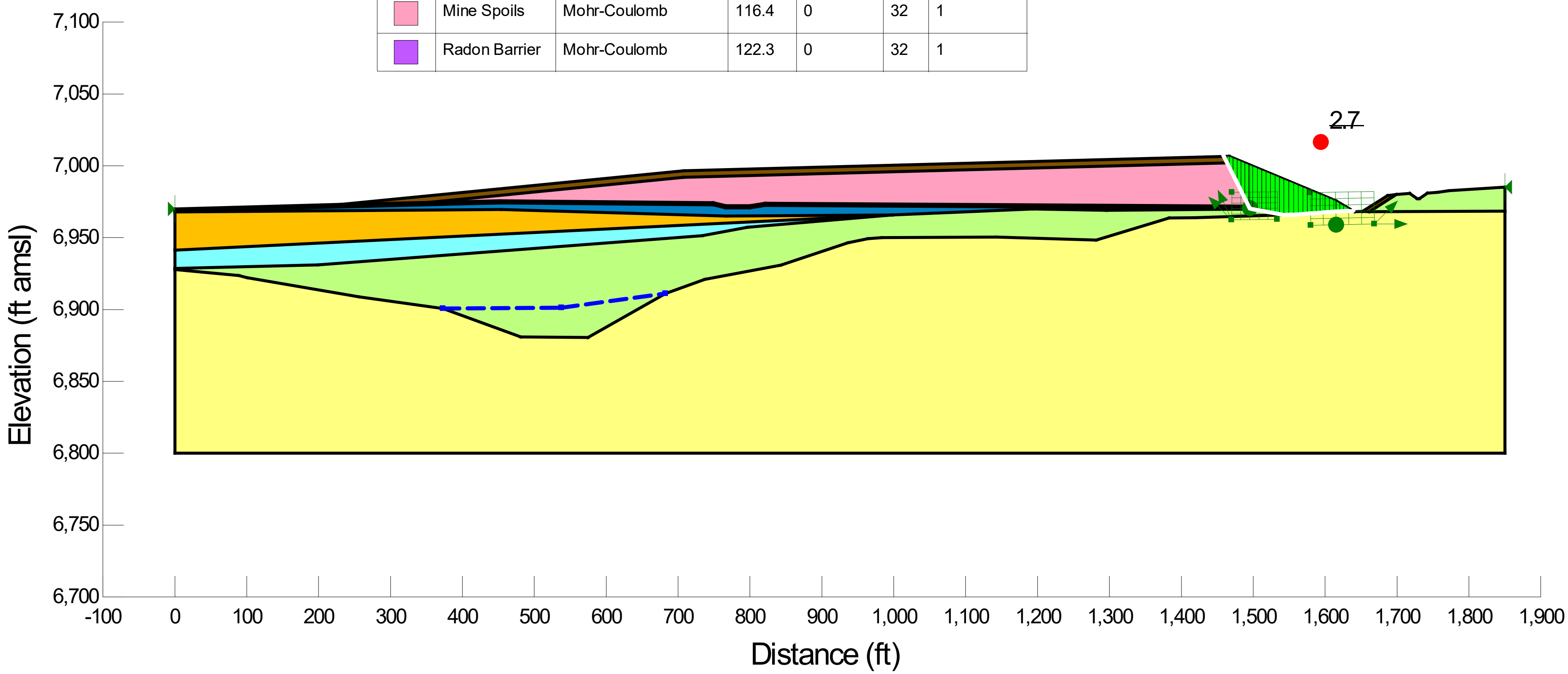


Figure D.5 – Cross Section A
Static Analysis – Northeast Slope – Block Failure

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

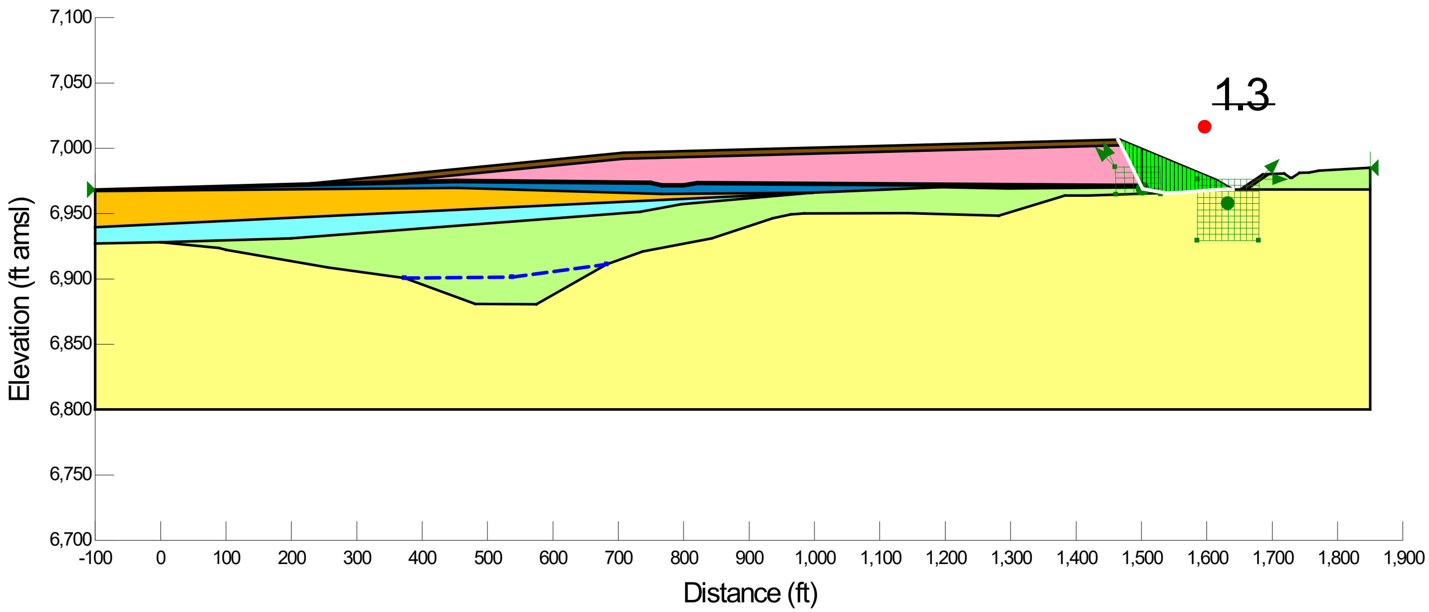
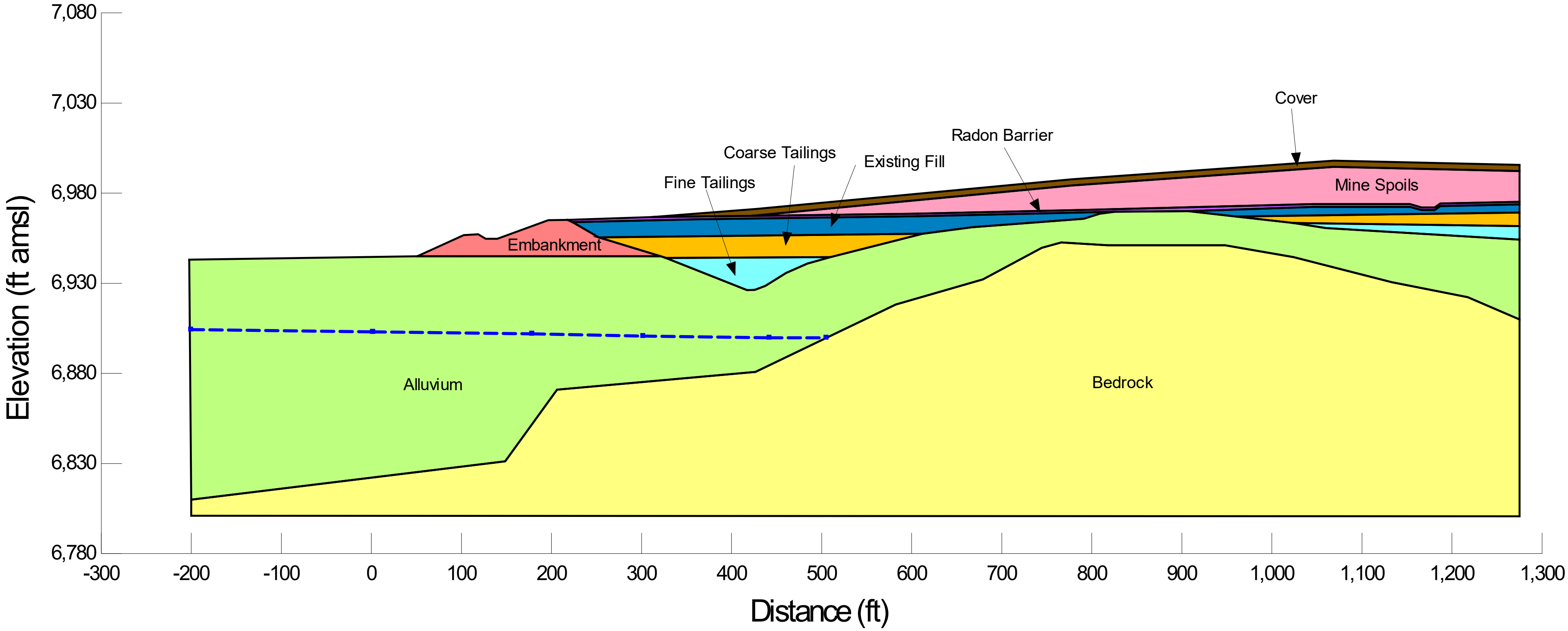
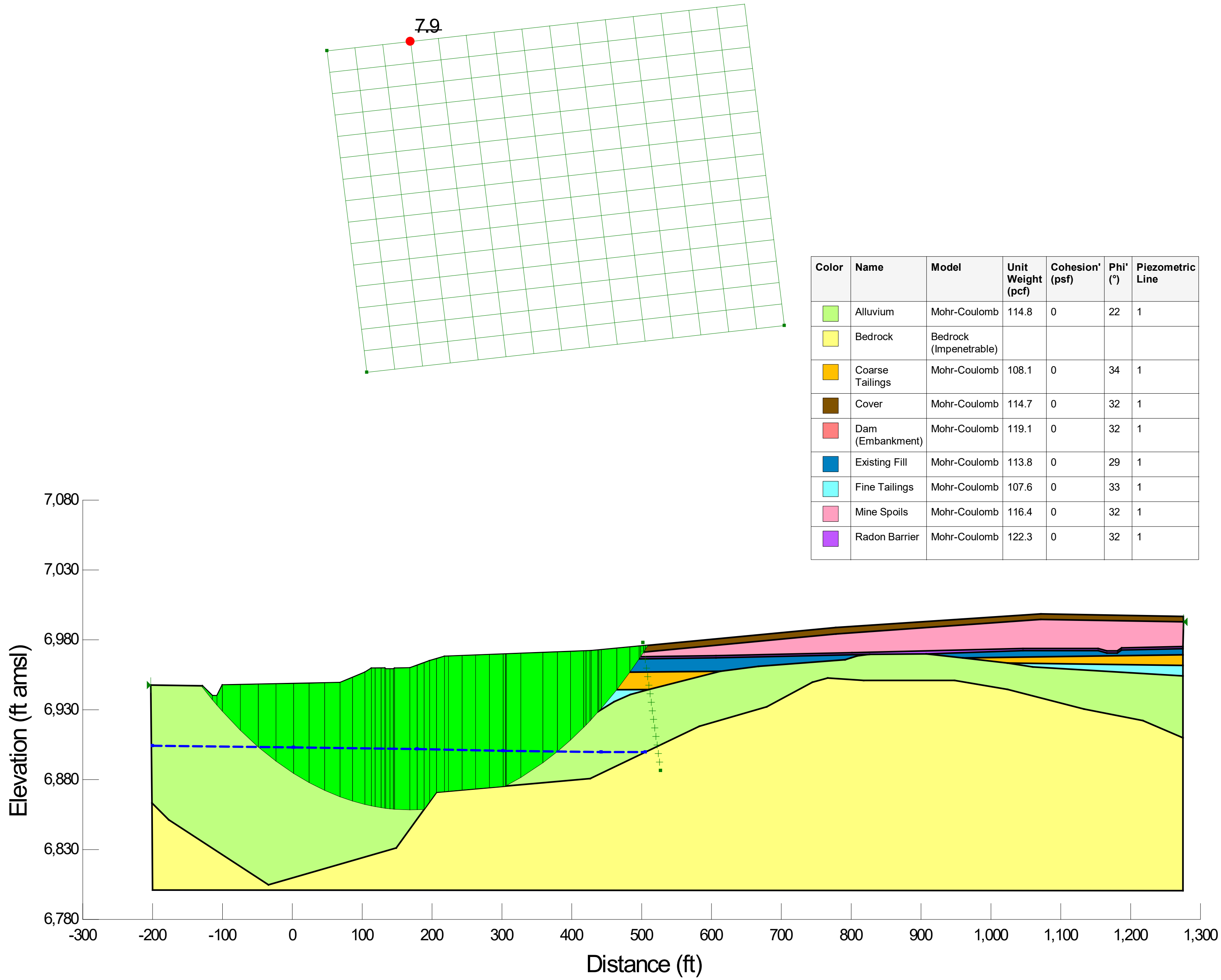


Figure D.6 – Cross Section A
Pseudo-Static Analysis – Northeast Slope – Block Failure



Cross Section B
Geometry



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment)	Mohr-Coulomb	119.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

Figure D.7 – Cross Section B
Static Analysis – Repository Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment)	Mohr-Coulomb	119.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

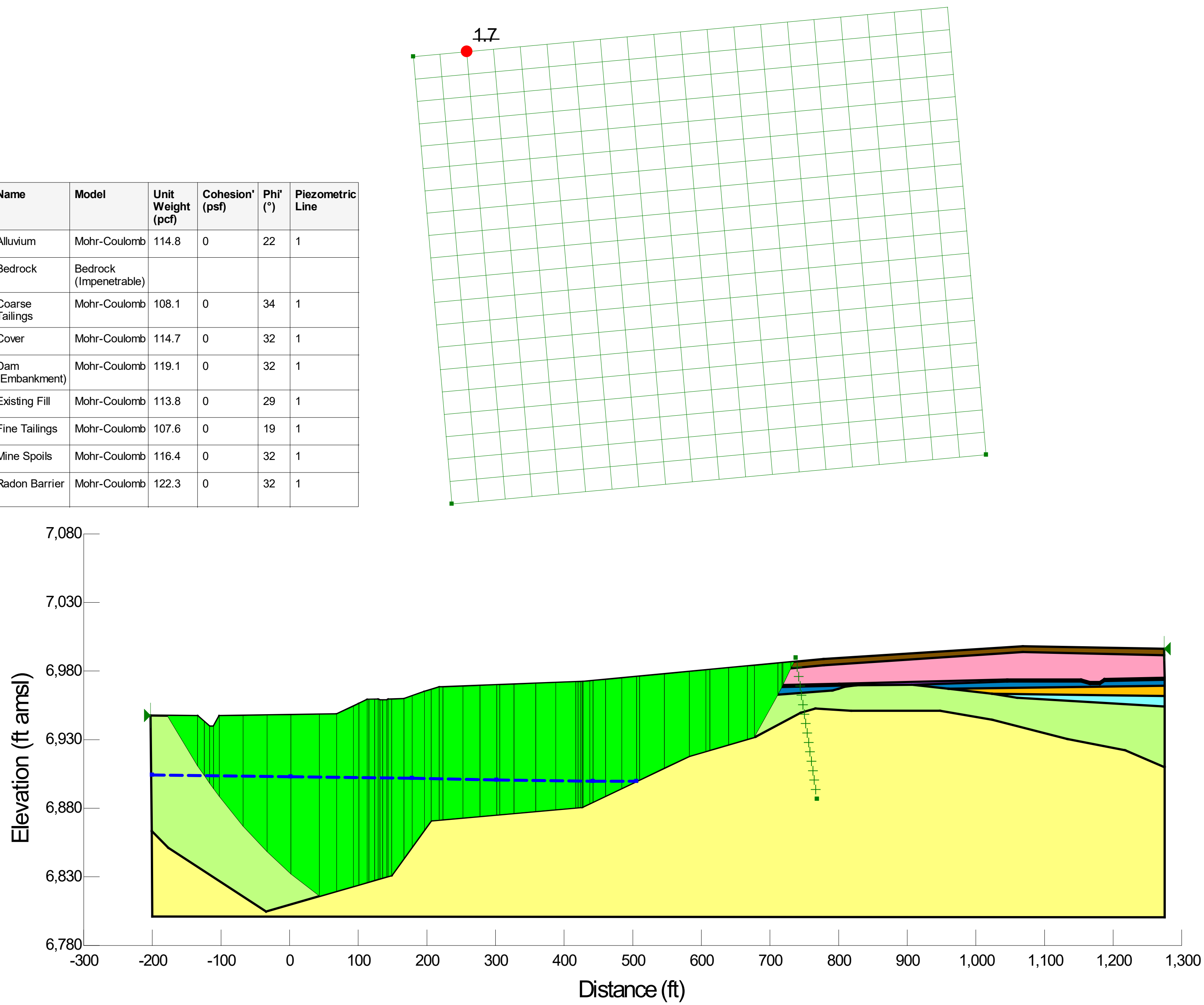


Figure D.8 – Cross Section B
Pseudo-Static Analysis – Repository Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment)	Mohr-Coulomb	119.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

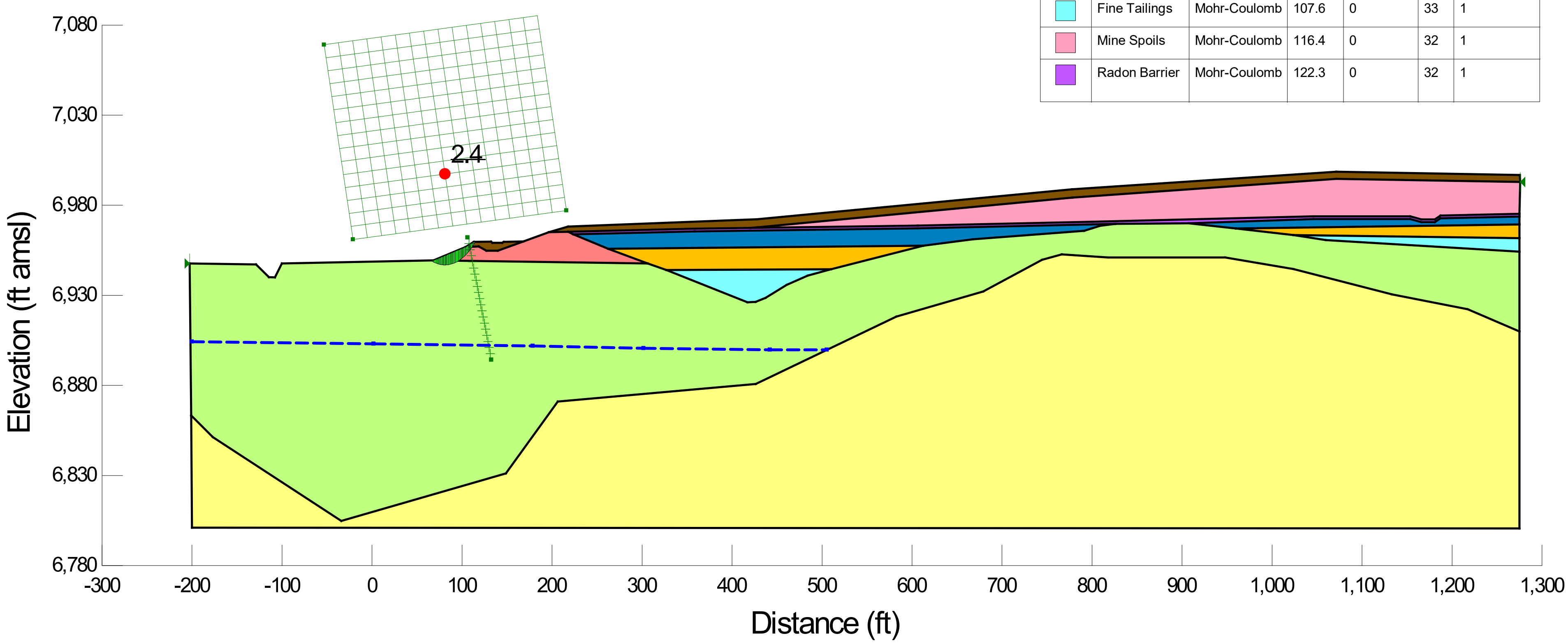


Figure D.9 – Cross Section B
Static Analysis – Existing Embankment (Dam)

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment)	Mohr-Coulomb	119.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

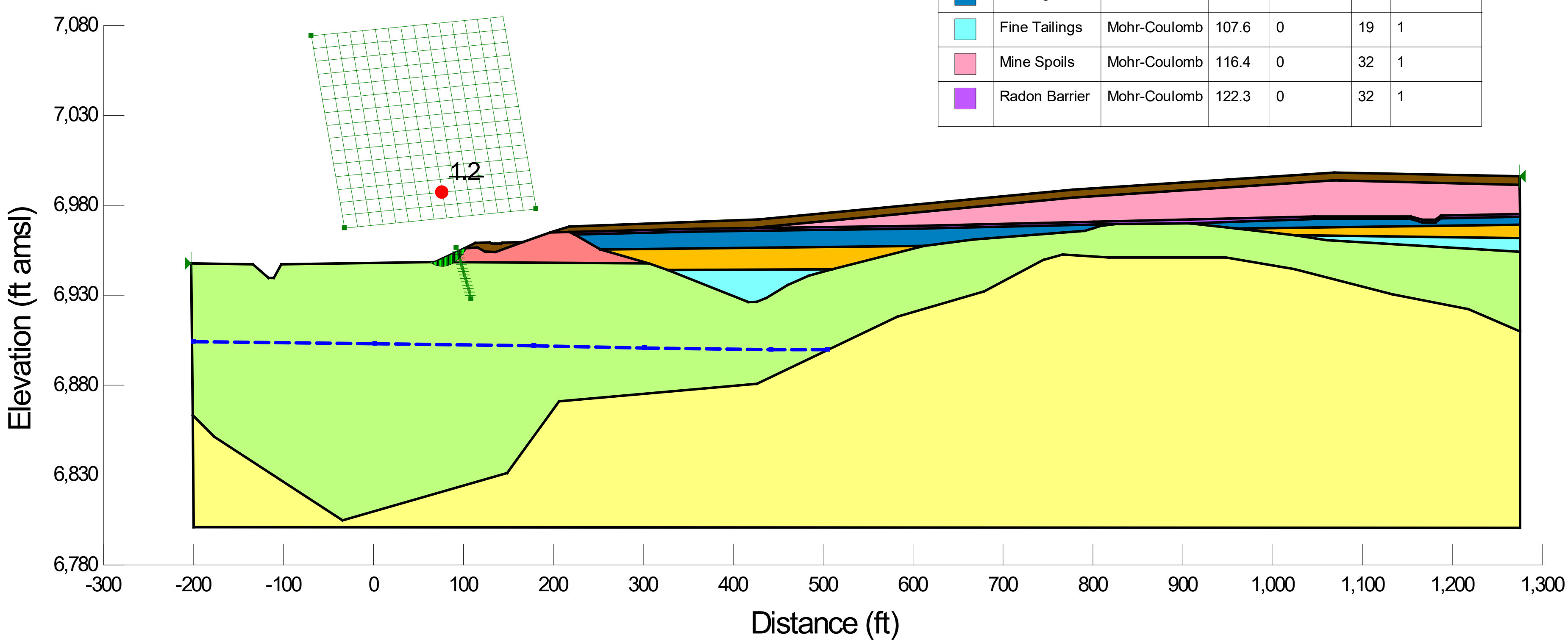


Figure D.10 – Cross Section B
Pseudo-Static Analysis – Existing Embankment (Dam)

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	2
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	2
	Cover	Mohr-Coulomb	114.7	0	32	2
	Dam (Embankment)	Mohr-Coulomb	119.1	0	32	2
	Existing Fill	Mohr-Coulomb	113.8	0	29	2
	Fine Tailings	Mohr-Coulomb	107.6	0	33	2
	Mine Spoils	Mohr-Coulomb	116.4	0	32	2
	Radon Barrier	Mohr-Coulomb	122.3	0	32	2

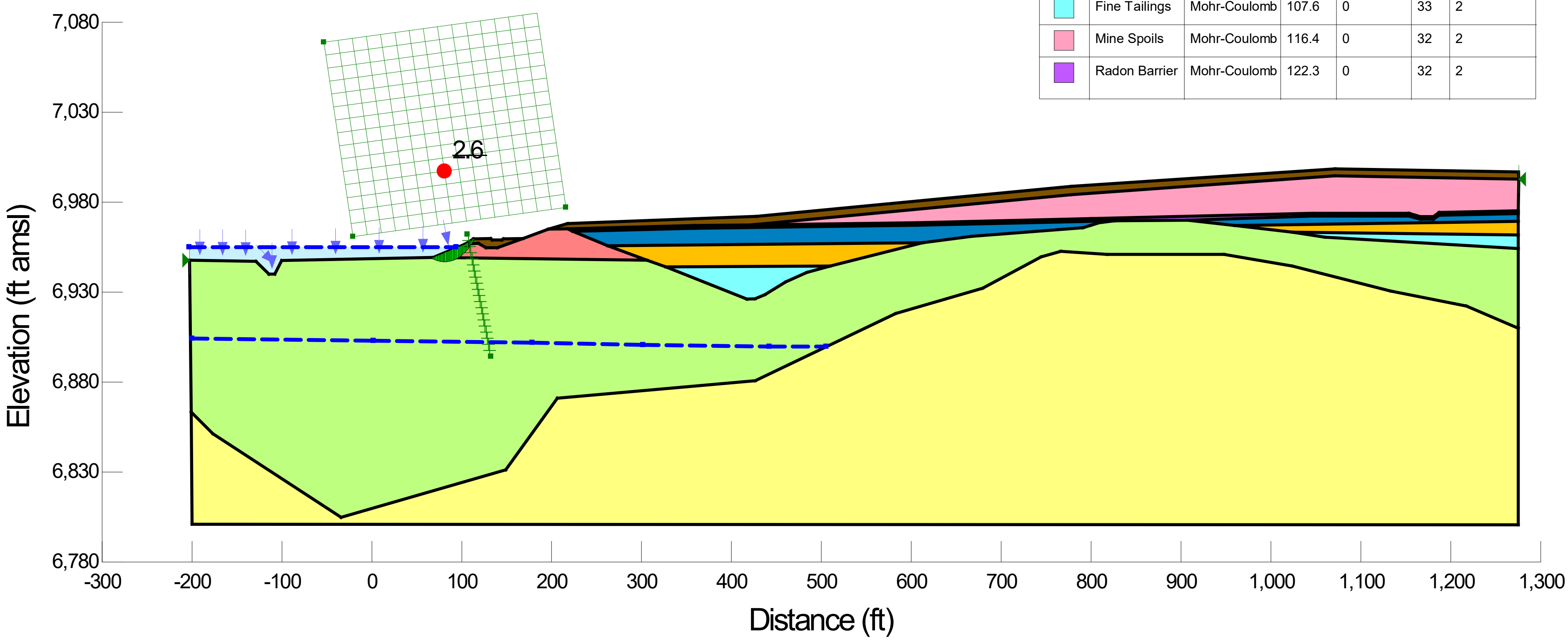
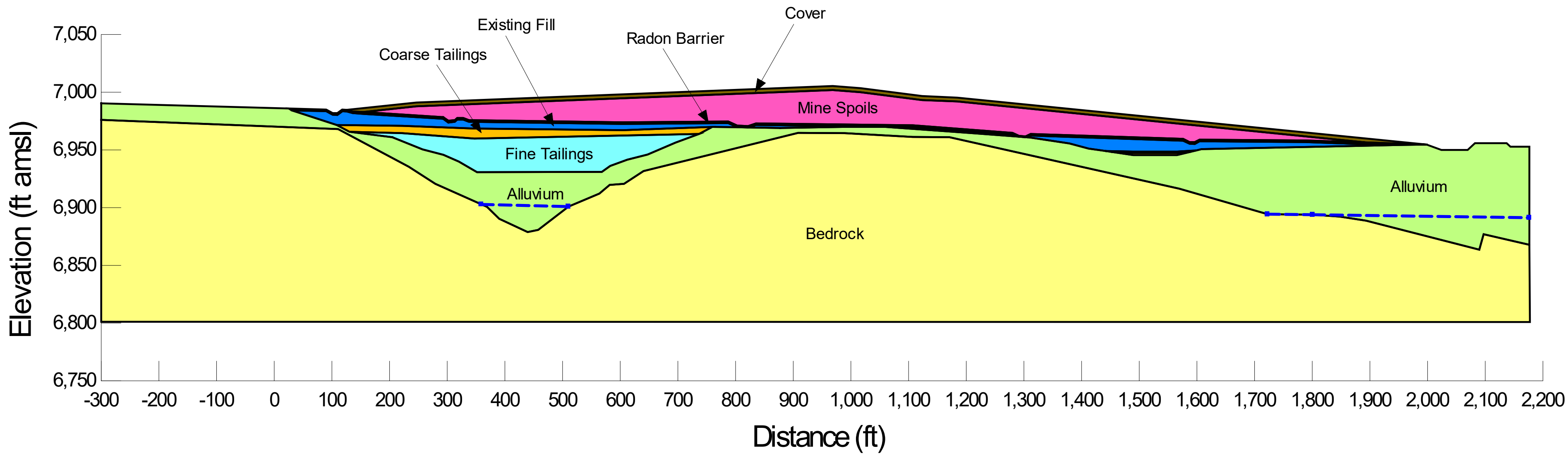


Figure D.11 – Cross Section B
Static Analysis – Probable Maximum Flood



Cross Section C
Geometry

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				1
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

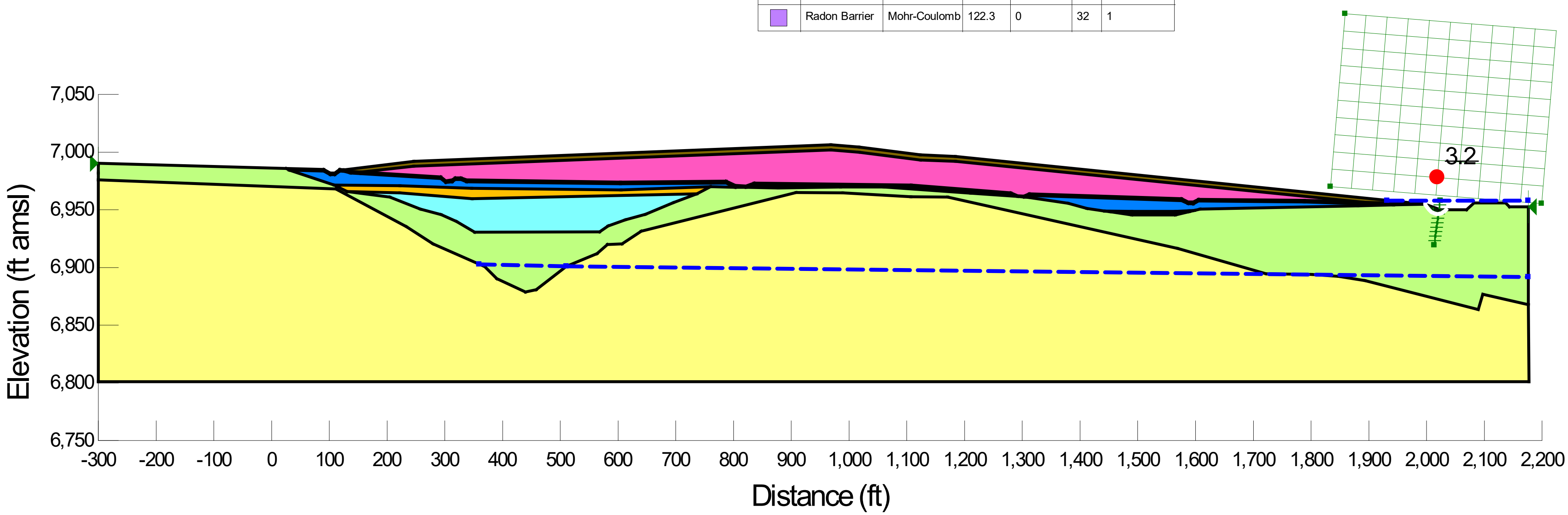
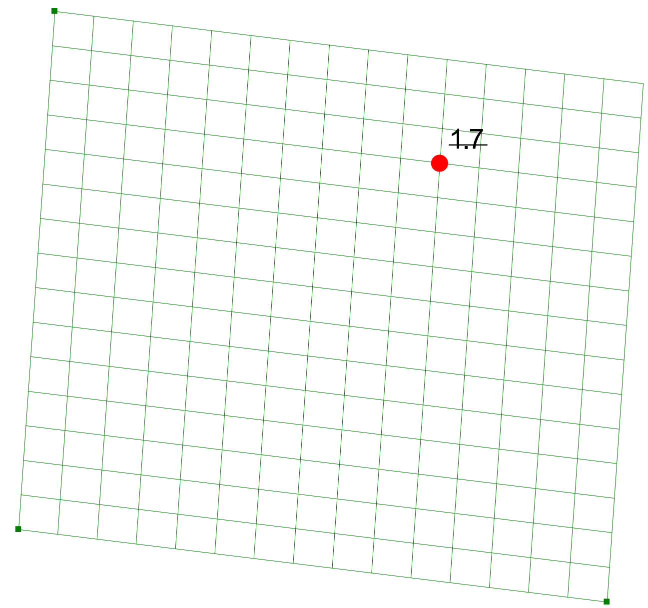


Figure D.12 – Cross Section C
Static Analysis – North Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				1
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1



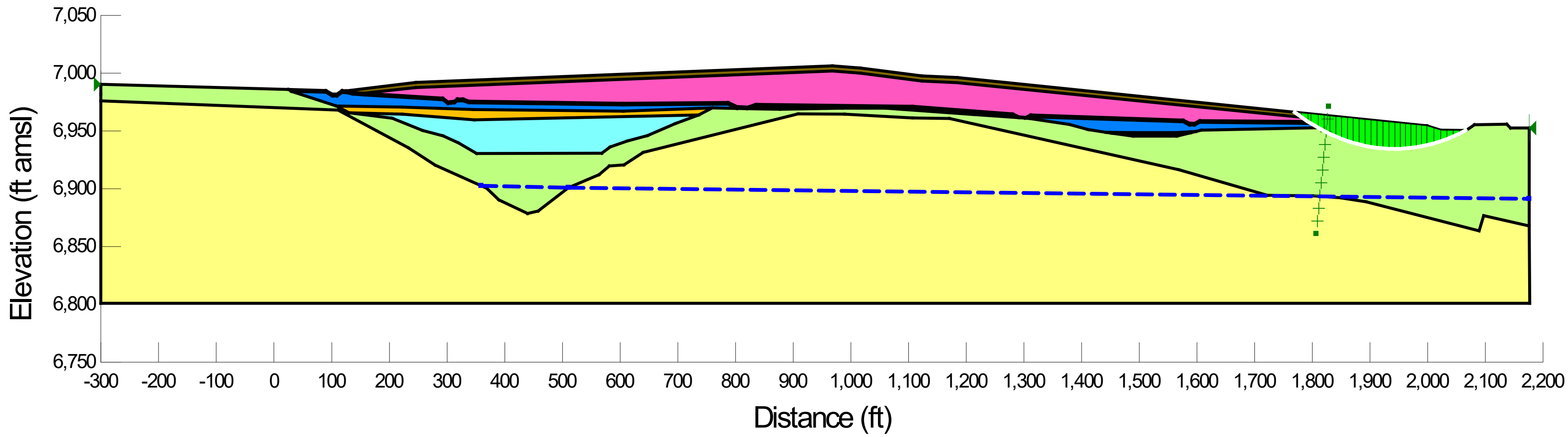


Figure D.13 – Cross Section C
Pseudo-Static Analysis – North Slope

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				1
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

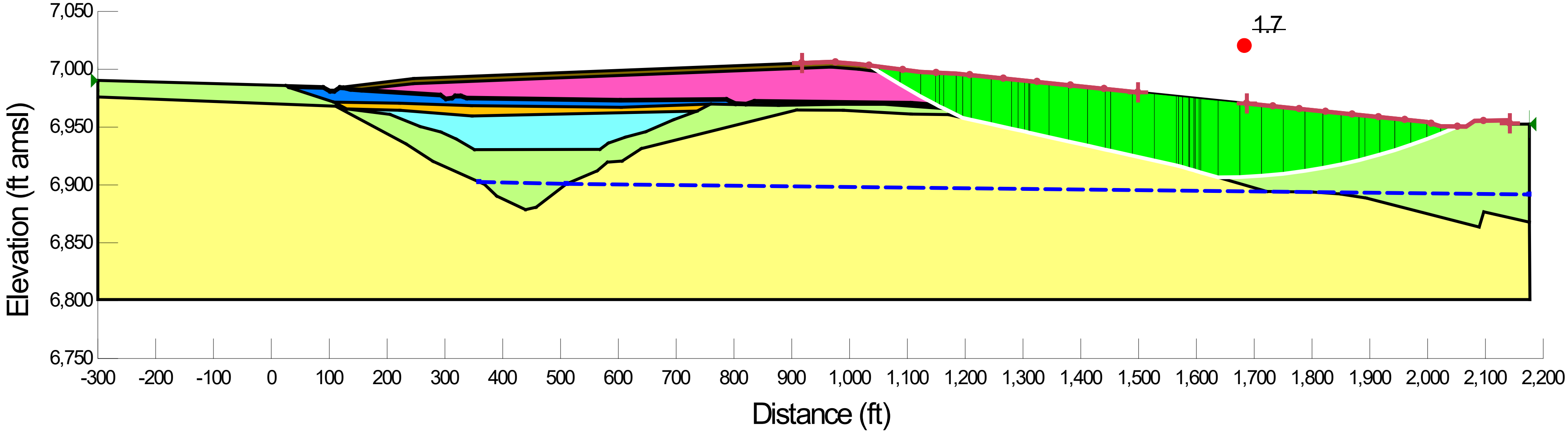


Figure D.14 – Cross Section C
Pseudo-Static Analysis – North Slope – Entry/Exit

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	2
	Bedrock	Bedrock (Impenetrable)				2
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	2
	Cover	Mohr-Coulomb	114.7	0	32	2
	Existing Fill	Mohr-Coulomb	113.8	0	29	2
	Fine Tailings	Mohr-Coulomb	107.6	0	33	2
	Mine Spoils	Mohr-Coulomb	116.4	0	32	2
	Radon Barrier	Mohr-Coulomb	122.3	0	32	2

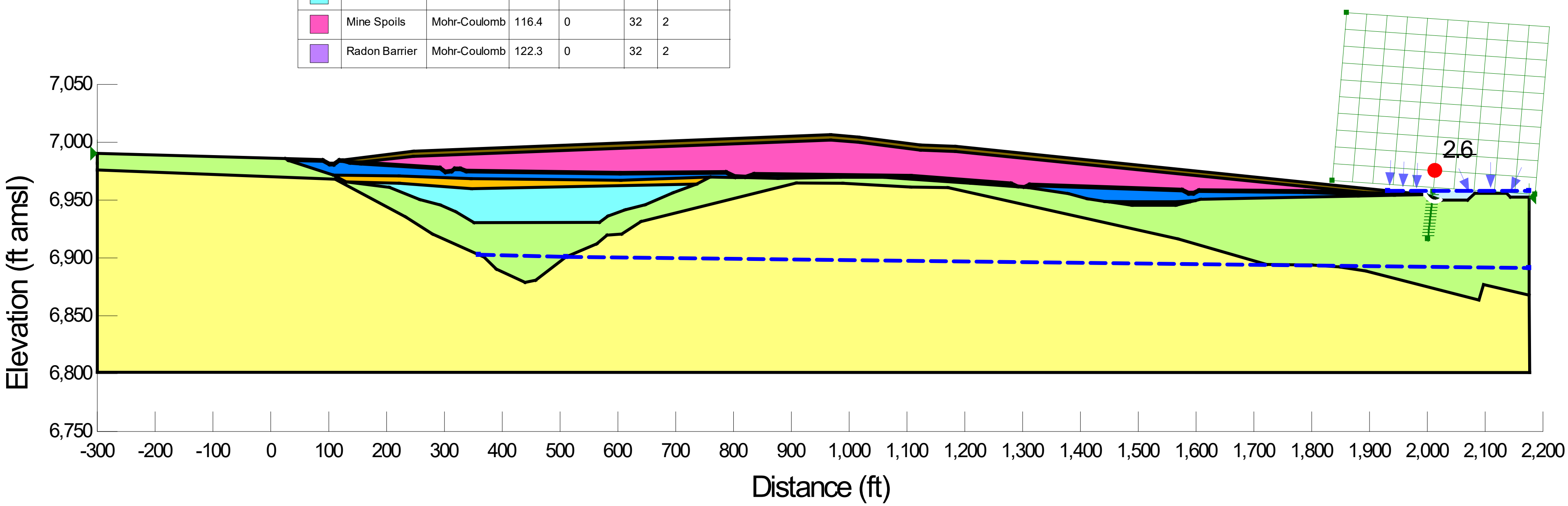
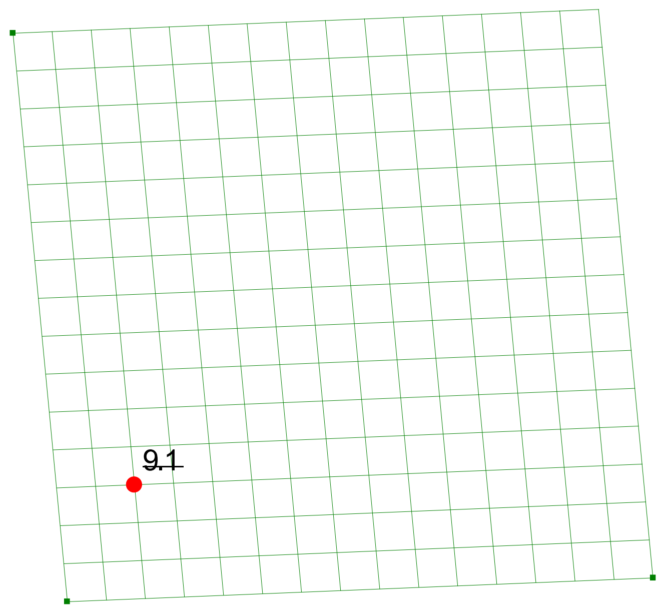


Figure D.15 – Cross Section C
Static Analysis – Probable Maximum Flood



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				1
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	33	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

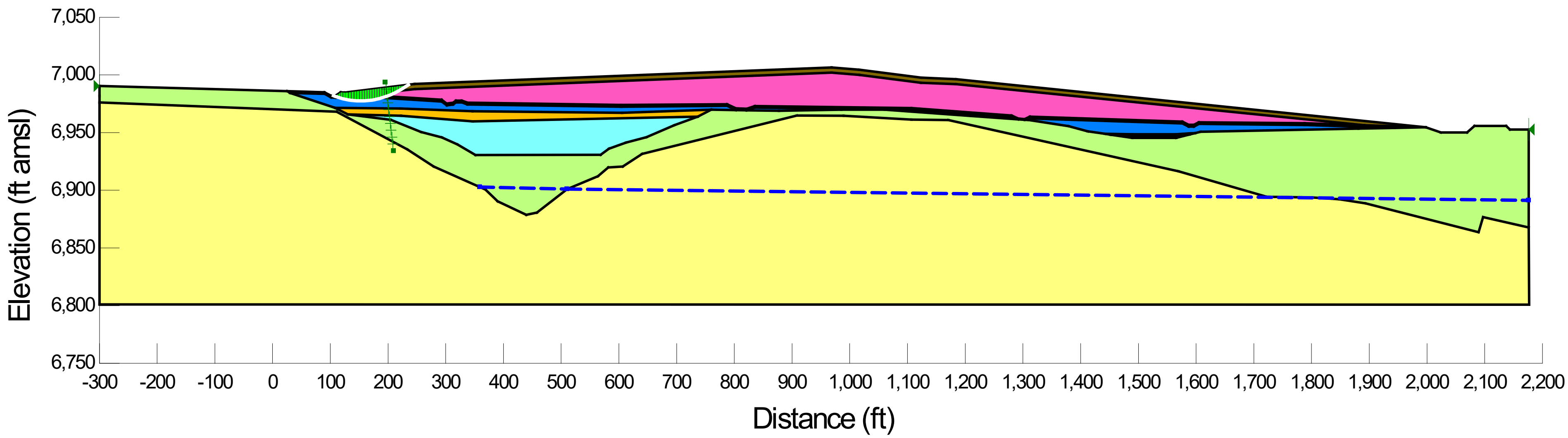
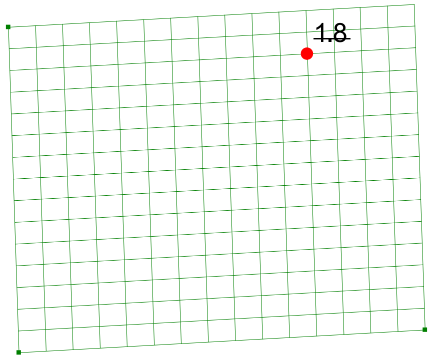


Figure D.16 – Cross Section C
Static Analysis – South Slope



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				1
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

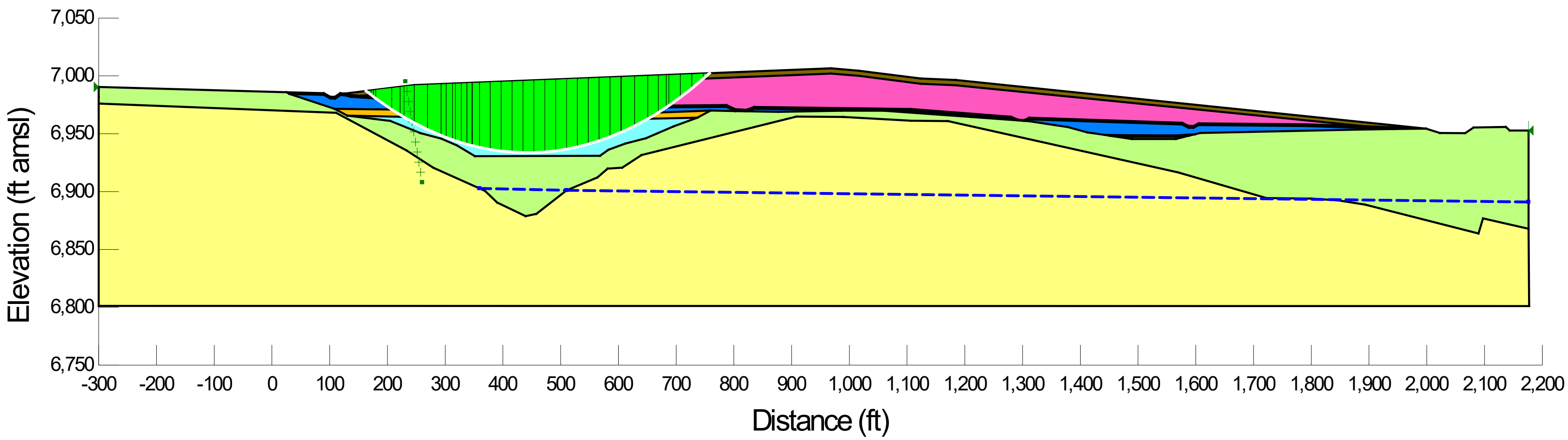
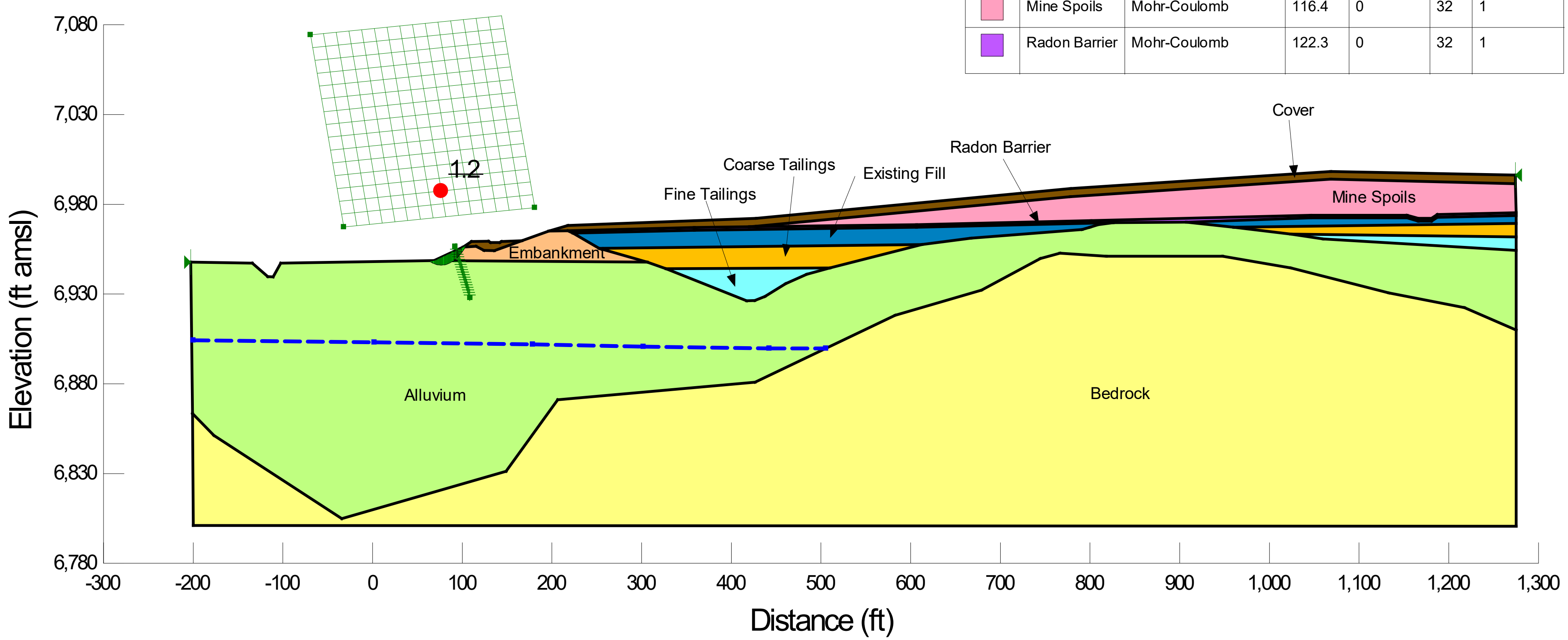


Figure D.17 – Cross Section C
Pseudo-Static Analysis – South Slope

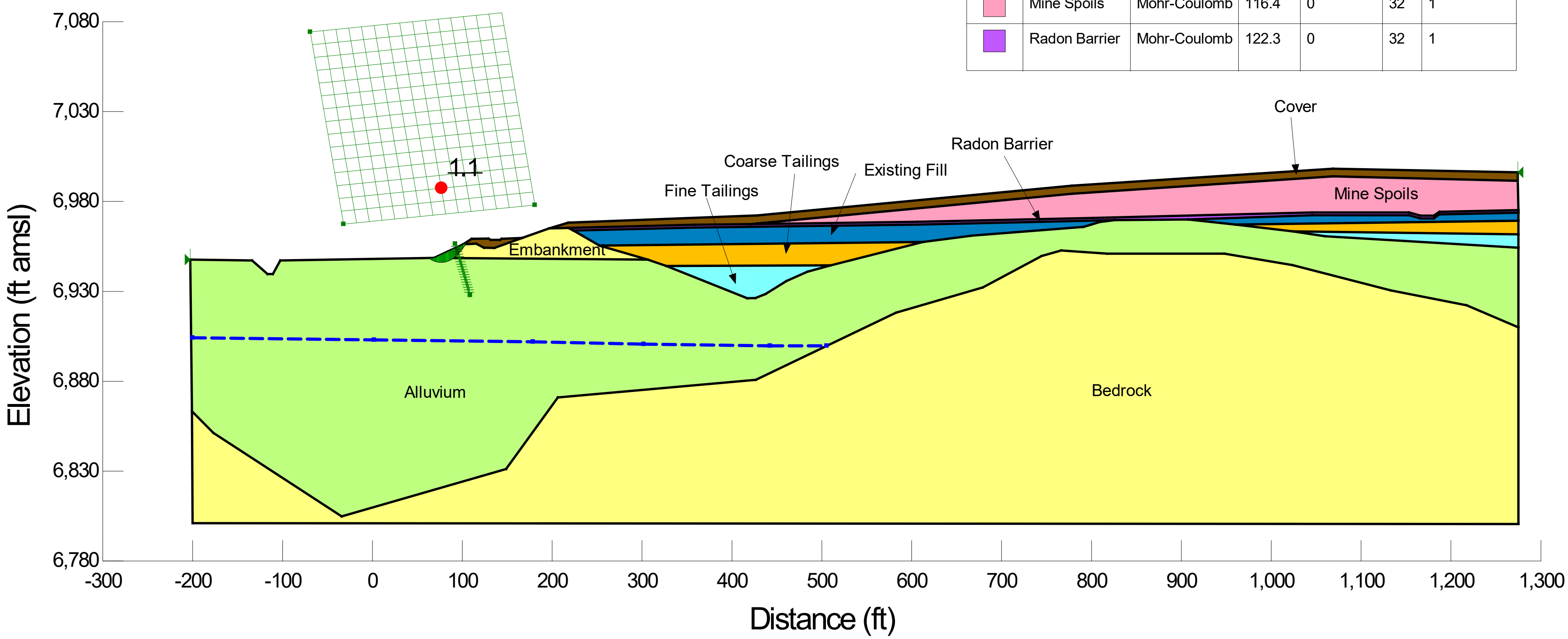
Attachment D.1 Sensitivity Analysis
Slope/w Output Files



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment) 30th	Mohr-Coulomb	113.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1

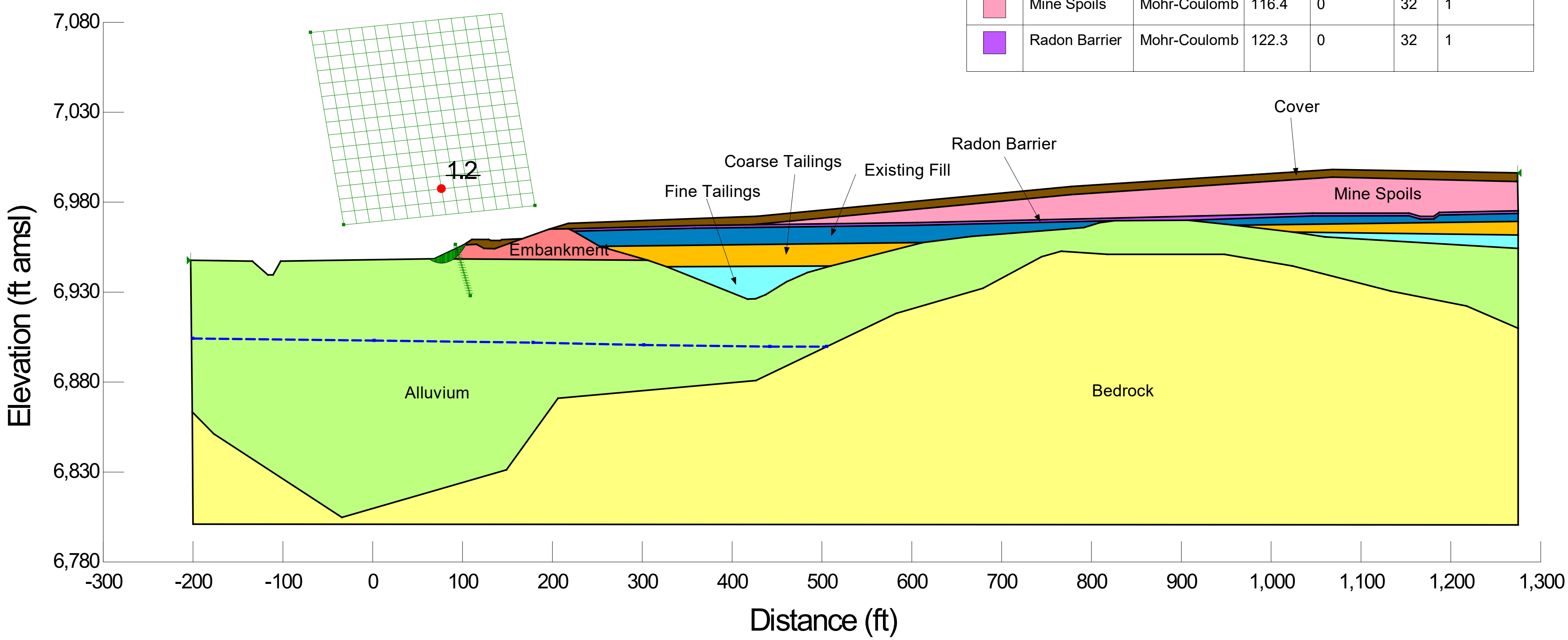
Cross Section B
Pseudo-Static Sensitivity Analysis – 30th Percentile Values

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment) 60th	Mohr-Coulomb	123.7	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1



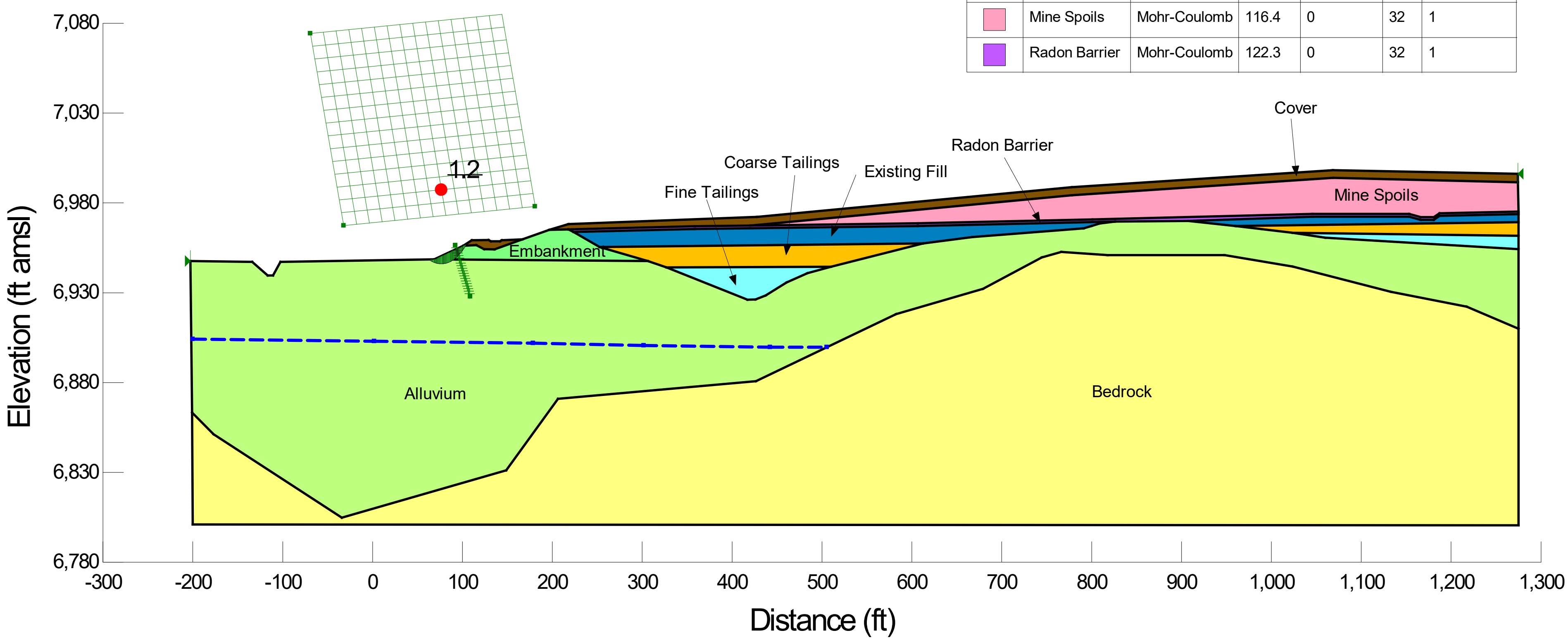
Cross Section B
Pseudo-Static Sensitivity Analysis – 60th Percentile Values

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment) avg	Mohr-Coulomb	119.1	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1



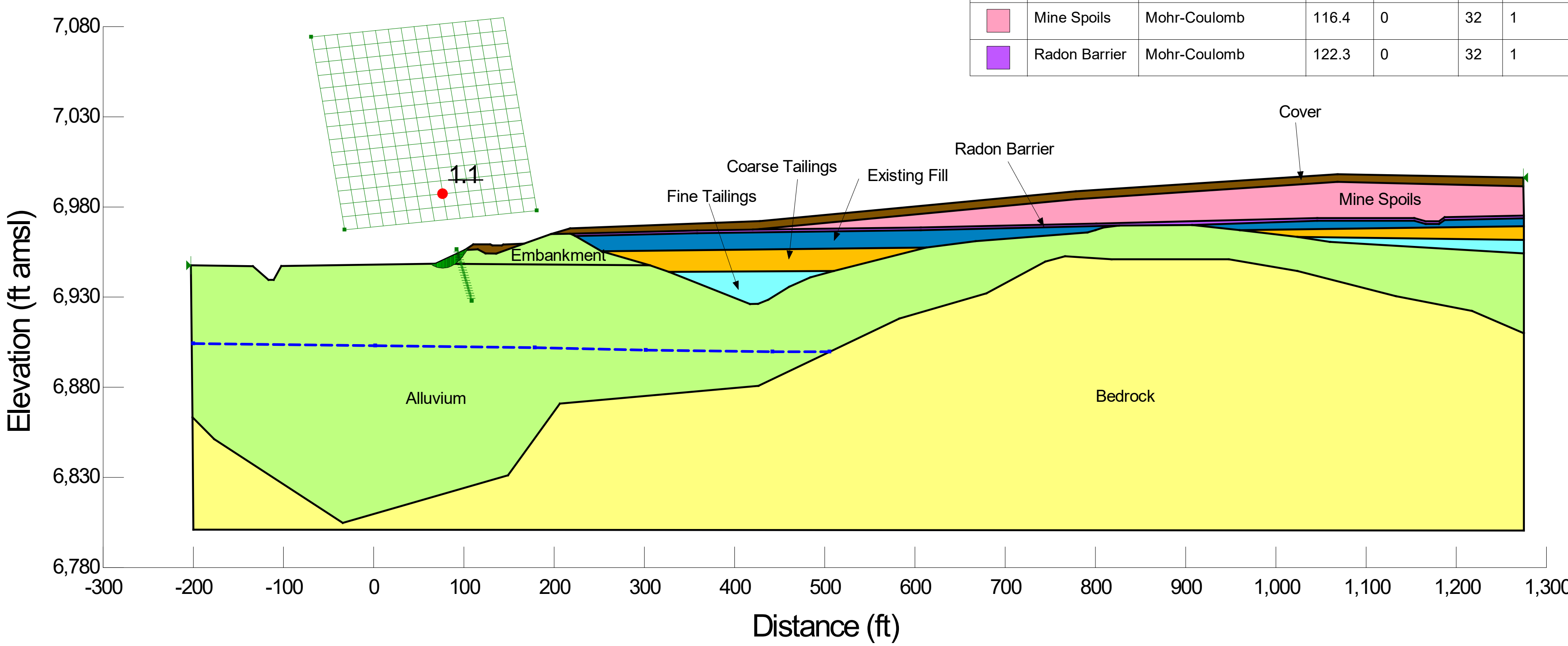
Cross Section B
Pseudo-Static Sensitivity Analysis – Average Values

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment) median	Mohr-Coulomb	120.5	0	32	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1



Cross Section B
Pseudo-Static Sensitivity Analysis – Median Values

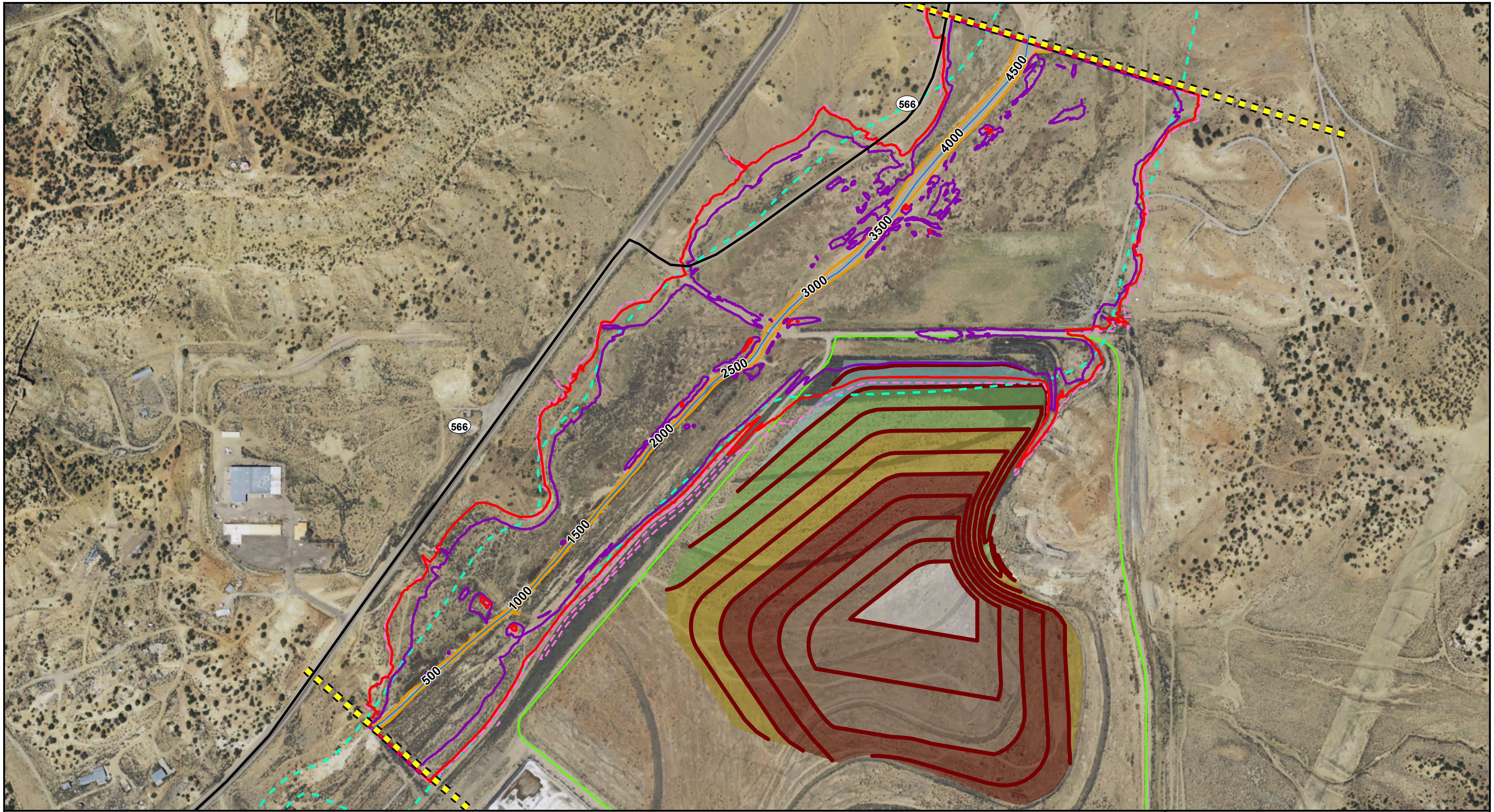
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	114.8	0	22	1
	Bedrock	Bedrock (Impenetrable)				
	Coarse Tailings	Mohr-Coulomb	108.1	0	34	1
	Cover	Mohr-Coulomb	114.7	0	32	1
	Dam (Embankment) Vary Phi	Mohr-Coulomb	119.1	0	28	1
	Existing Fill	Mohr-Coulomb	113.8	0	29	1
	Fine Tailings	Mohr-Coulomb	107.6	0	19	1
	Mine Spoils	Mohr-Coulomb	116.4	0	32	1
	Radon Barrier	Mohr-Coulomb	122.3	0	32	1



Cross Section B
Pseudo-Static Sensitivity Analysis – Reduce Dam Material Friction Angle

ATTACHMENT E

PMF EXTENTS



Legend

- Proposed Repository Area (5' Contour Interval)
- Upper & Lower Extents of Study
- Pipeline Road
- Upper Pipeline Arroyo Thalweg
- PMF Flood Extents from Canonie (1991)
- TDA-North Cell
- PMF Flood Extents
- 100 Year Event Flood Extents
- 5 Year Event Flood Extents
- PMF Flood Extents (Maximum Roughness)

N
W E
S

0 250 500 1,000 1,500 Feet

unc

FIGURE I-6.3:

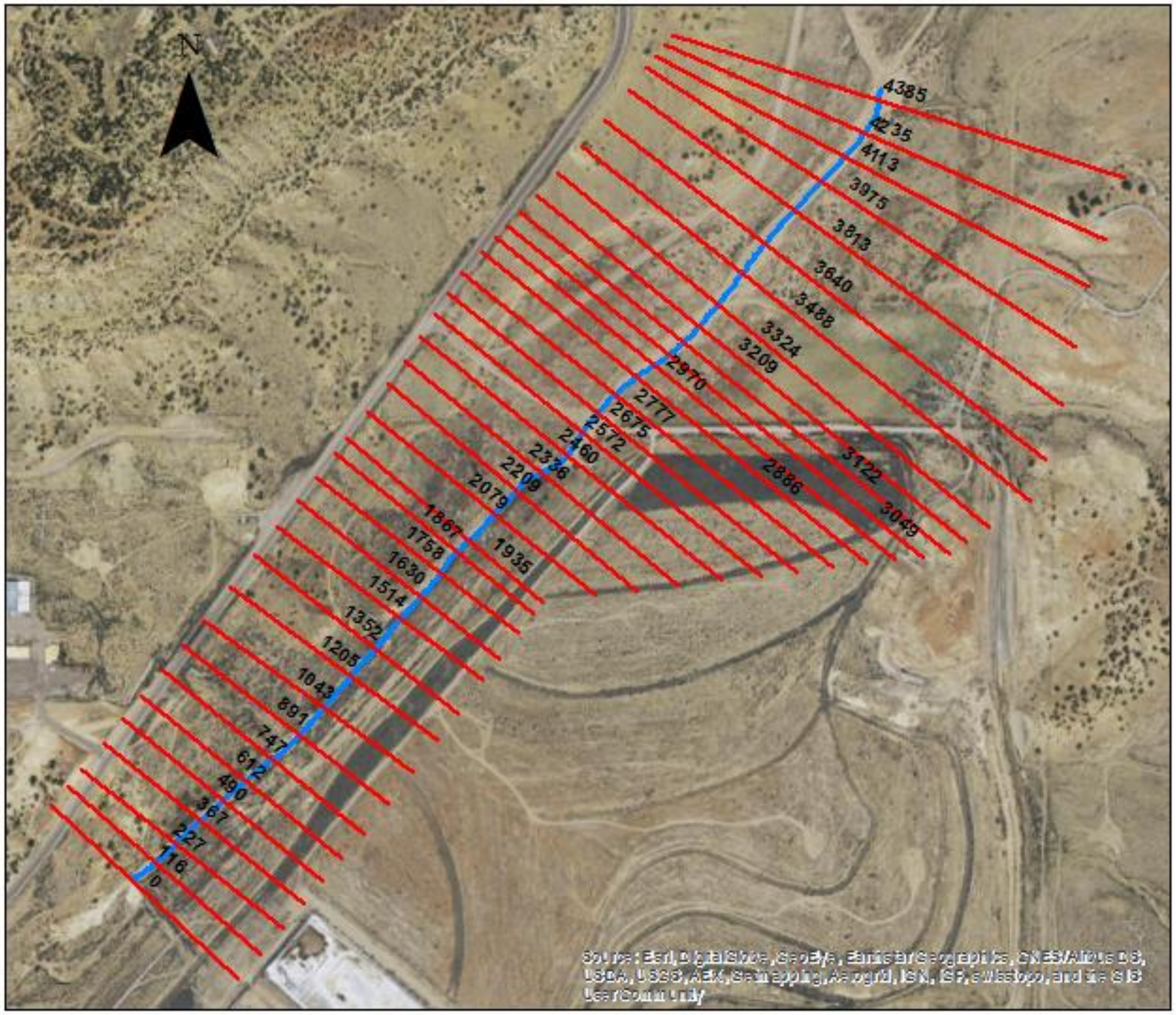
Estimated Pipeline Arroyo Flood Extents

Northeast Church Rock

, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS

MWH

Date Revised: 5/18/2016

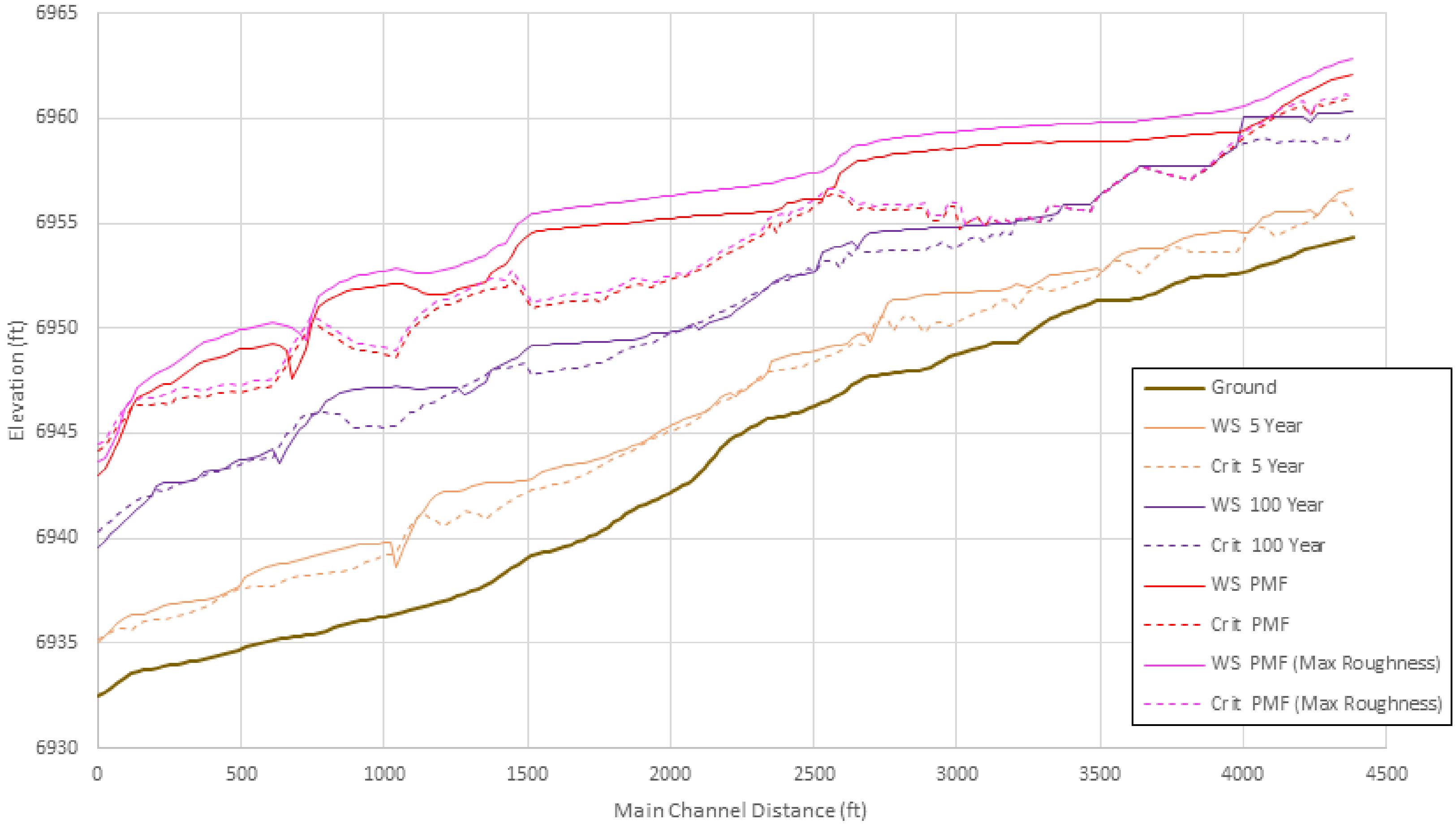


Legend

Cross Sections

Upper Pipeline Arroyo Thalweg

0 250 500 1,000 1,500 Feet


6965
6960
6955
6950
6945
6940
6935
6930
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Main Channel Distance (ft)
Ground
WS 5 Year
Crit 5 Year
WS 100 Year
Crit 100 Year
WS PMF
Crit PMF
WS PMF (Max Roughness)
Crit PMF (Max Roughness)

ATTACHMENT G.3
Repository Settlement Analysis

Client:	*GE*	**Sheet:**	*1* **of** *8*
Project:	*NECR 95% Design*	**Date:**	*11/12/2019*
Description:	*Repository Settlement*	**Job No:**	*10508639*

ATTACHMENT G.3: REPOSITORY SETTLEMENT ANALYSIS

Revisioning

Rev.	Date	Description	By	Checked	Date
0	*5/31/2016*	*30% Design*	*S. Moore*	*J. Cumbers*	*6/29/2016*
1	*July 2017*	*95% Design*	*S. Downey*	*M. Davis*	*10/11/2017*
2	*Oct 2019*	*Update Cover Thickness*	*S. Downey*	*M. Davis*	*11/11/2019*

Location and Format

Electronic copies of these calculations are located on the Stantec internal project teamsite.

The following calculations were generated using the following software:

Microsoft Excel 2013

Table of Contents

Objective

The purpose of this calculation brief is to document the input data, assumptions, procedures, and results of the consolidation and immediate settlement analyses for the proposed Church Rock Mill Site (Mill Site) repository due to the waste and cover material that will be placed on the existing tailings impoundment. The analyses include immediate settlement and primary and secondary consolidation. Seismic settlement is addressed in a separate calculation brief (Attachment G.4 of Appendix G) and liquefaction-induced settlement is addressed in the liquefaction calculation brief (Attachment G.6 of Appendix G).

Background

This analysis was performed as part of the design of the Removal Action (RA) at the Northeast Church Rock Mine Site (Mine Site) and the related Remedial Action (RA) at the Church Rock Mill Site (Mill Site). The Mine Site and Mill Site are located in close proximity to one another, approximately 16 miles northeast of Gallup, in McKinley County, New Mexico. They are located on adjacent Sections approximately one-half mile apart. The sites are temporarily being treated as one facility for purposes of the RA. The combined site is referred to as the “Settlement Agreement Site” (SA Site).

Site History

The NECR mine is a historical uranium mine operated by United Nuclear Corporation (UNC). Mining development began in 1967 and ended in 1982. While the mine operated, it served as the principal mineral source for the UNC uranium mill. The uranium mill and its adjacent disposal cells make up the UNC Superfund Site (the “UNC Mill Site”). Remedial activities addressing source control and on-site surface reclamation are being implemented by General Electric/United Nuclear Corporation (GE/UNC) under the direction of the U.S. Nuclear Regulatory Commission (NRC), pursuant to the UNC facility's NRC license, and integrated with the US Environmental Protection Agency’s (USEPA’s) selected remedy for the groundwater.

The Tailings Disposal Area (TDA) is an unlined facility bounded by an embankment and subdivided by cross-dikes into three cells, which are identified as the South Cell, Central Cell, and North Cell. An estimated 3.5 million tons of tailings were pumped in slurry from the mill to the TDA.

Proposed Remedial Action

The proposed repository will be constructed on top of the existing TDA and will incorporate controlled placement of mine waste on top of the existing TDA cover/radon barrier and a final evapotranspirative (ET) cover placed over the mine waste. Improvements to the existing TDA cover/radon barrier within the footprint of the proposed repository will be completed prior to placement of mine waste. **Figure 1** shows the location and grading of the proposed repository.

The design for the selected repository alternative will be evaluated as part of a NRC license amendment request for the existing licensed facility. The repository features that affect the licensed facility will meet the performance standards outlined in NRC regulations and areas of the existing facility affected by the repository construction will be evaluated for compliance. However, existing conditions of the facility not affected by the proposed repository were not evaluated as part of this analysis, as they are managed by the existing NRC license.

Site Description

The natural stratigraphy at the Mill Site is divided into two main components: the surficial unconsolidated deposits (alluvium) and the underlying consolidated bedrock units. The alluvium consists of a mixture of sand, silt, and clay with minor portions of gravel. Alluvial thicknesses at the site are usually around 50 feet, but exceed 120 feet in some locations. Generally, the uppermost bedrock unit at the site is the Upper Gallup Sandstone, though in some locations it is overlain by coal or the Mancos shale.

The TDA was constructed on top of the native alluvium and deposition of tailings via slurry within the TDA resulted in an interbedded accumulation of tailings. TDA closure construction began in 1989 and was completed in 1995. Closure construction included placement of an interim cover (general fill) from 1989 through 1991 followed by placement of the final cover (radon barrier and erosion protection layer) from 1993 through 1995.

Measurements taken in alluvial monitoring wells show an alluvial groundwater table in the vicinity of the TDA at approximately 6,867 feet above mean sea level (amsl), which indicates that the alluvium is unsaturated above this elevation. Additionally, subsurface investigations of the TDA indicate that there is not a consistent static water level within the tailings or the alluvium above approximately 6,867 feet amsl. However, localized perched zones of saturation exist within the low-permeability, fine-grained tailings. These zones of saturation do not appear to extend beyond the fine-grained tailings into the higher-permeability coarse-grained tailings.

Site Investigation

In 2013, MWH performed pre-design studies (PDS) at the Mill Site and Mine Site to supplement previous site investigations and collect data necessary to perform the Remedial Design (RD). Activities performed as part of the Mill Site PDS included: surveying, cone penetration tests (CPTs), drilling, standard penetration tests (SPTs), excavation and soil sampling, and subsequent laboratory testing. Geotechnical data collected during the PDS are presented in the PDS reports (MWH, 2014a and MWH, 2014b) and summarized in **Attachment A**. A list of the materials encountered within the TDA during the PDS is presented in the Assumptions section below. Geotechnical properties for these materials and discussion of one-dimensional stratigraphic profiles developed for the settlement analysis are also presented in the Assumptions section.

Applicable Codes and Standards

NAVFAC Section 7.1 (Department of the Navy, 1986)
NUREG-1620 (NRC, 2003)

Methods

One-dimensional (1-D) consolidation analyses were conducted for the tailings and existing fill/cover material in the Mill Site repository footprint to estimate total potential future settlement of the tailings and existing fill/cover material after placement of the waste material and final cover. Data from CPT and borehole testing locations from the PDS (MWH, 2014a and MWH, 2014b) were used for the settlement analysis.

The CPT data, in combination with the borehole logs, were used to determine the thickness of the layers and contact locations between different materials encountered. Eight boreholes were drilled adjacent to eight of the CPT locations to correlate and verify the CPT data with direct observation of the materials encountered from the borehole logs. Seven of these paired locations, located within the repository footprint, were used to analyze and verify the CPT data. The relationships observed in the paired CPT/borehole locations were then used to analyze the data from the CPT-only locations. Vertical soil profiles were created from the CPT/borehole data for each of the 25 CPT locations within the repository and were used in the 1-D consolidation analyses.

Primary and secondary consolidation analyses were conducted for the fine-grained tailings layers under the assumption that the fine-grained tailings layers are saturated, although in several locations the fine-grained tailings are unsaturated. The coarse-grained tailings were excluded from the calculations because the coarse-grained tailings are unsaturated. The alluvium is unsaturated like most of the tailings and the stresses from the mine spoils and cover placement will not induce consolidation settlement in the unsaturated alluvium that will impact the repository. Therefore, the alluvium was also excluded from the calculations. Immediate settlement was calculated for the cover and fill materials to the base of coarse-grained tailings in areas where the repository cover slope will transition directly to the existing radon barrier (CPT-15, CPT-26, and CPT-01). Immediate settlement was estimated using the NAVFAC method (Department of the Navy, 1986). Immediate elastic compression is not expected to influence the performance of the final cover system because it will occur in very small increments as the TDA is being filled incrementally with mine spoils and cover material. Any settlement that does occur from immediate elastic compression will be corrected for by the placement of mine waste in lifts, and will not be noticeable once the final cover is placed.

Material Properties and Stratigraphic Profiles

Material Properties

Material strength parameters used for the settlement analysis were based on parameters from laboratory testing of materials at the site during the PDS. The laboratory test results are located in Table 3-4 of the Mill Site PDS Report (MWH, 2014a). The parameters used as a base-case scenario for each material are discussed in the main text of Appendix G, Section G.6 and are summarized in **Table 1** included in this appendix. The CPT and borehole locations are shown on **Figure 1**.

The material properties used for the base case analysis were taken as the average of all samples for a given material and parameter. The compression index values, C_c, were also taken as an average of all samples for a given material. As discussed previously, primary and secondary consolidation analyses were conducted for only the fine-grained tailings layers. Therefore, the C_c value of the fine-grained tailings is the only C_c value applied in the settlement analysis.

A sensitivity analysis was conducted to determine the critical material property and evaluate the effects of varying this property on the total calculated settlement at each CPT location. The material index properties (dry density and water content) were varied from the base case (average) to the 30th percentile values. The compression index, C_c, was also varied from the base case value to the 60th percentile value. The total settlement is directly proportional to the C_c value, so increasing the C_c value results in an increased settlement. The critical material property for the settlement analysis was found to be the C_c value for the fine-grained tailings material. This property was varied to the 60th percentile value of 0.448 for the sensitivity analysis.

The material properties were also varied to include material properties from the Jetty borrow area in the overall average of each property (dry density, moisture content, void ratio, and specific gravity). An additional sensitivity analysis was conducted to determine how the results change when the Jetty soil properties are used. The total settlement at CPT-02 decreased from 0.2 to 0.1 feet. Therefore, the material properties from the PDS borrow areas excluding the Jetty soils were used in the analyses and results presented in this calculation brief.

Stratigraphic Profiles

Soil profiles were used to estimate the settlement at various locations within the repository footprint. CPT data combined with profiles from borehole logs were used to determine the thickness of the material layers (cover/fill, coarse- or fine-grained tailings, and alluvium), as well as the contact between the different layers in each soil profile. The cone resistance and electrical resistivity measurements were used to identify contact locations between the cover/fill material, coarse tailings, fine tailings, and underlying alluvium. The cone sleeve resistance, f_s, and resistivity were plotted with depth to identify a trend or correlation between material contacts. The material contacts were verified with the borehole logs for seven paired locations, and the correlations were then used for the remaining CPT-only locations. The CPT profile plots used for interpretation are included as **Attachment A**. The borehole logs used are included as **Attachment B**. The CPT logs and complete CPT report are included in the PDS report but are not attached here.

The paired borehole and CPT locations were used to evaluate CPT properties for comparison with visual classification from the borehole logs. The trends for sleeve resistance and resistivity were semi-quantitatively used to identify the layers of fine tailings, coarse tailings and alluvium, using the paired borehole/CPT locations of B1, B2, B8, B10, B11, B15, and B23.

The cover/fill material exhibited the highest cone resistances and resistivity values. The coarse tailings had similar resistivity values to the cover/fill material, but exhibited lower overall average cone resistance values. The cone resistance values for the cover/fill material typically was greater than 2.0 tons per square foot (tsf), whereas the cone resistance values for the coarse tailings material typically ranged from about 0.5 to 2.0 tsf. While these values denoted the typical range, the limits varied depending on the CPT data, typically reducing the range (i.e., 0.5 to 1.0 tsf). These limits for the coarse tailings cone resistance values are shown on each CPT profile by a vertical green line. The

resistivity values of the cover/fill material and coarse tailings were typically in the range of 630 to 700 ohm-m, however some coarse tailings resistivity measurements were as low as zero.

The fine tailings were identified based on the combination of the sleeve resistances, f_s, of less than 0.5 tsf and low or zero resistivity measurements. The lower limit of the coarse tailings sleeve resistance limit shown by the vertical green line on the CPT profiles also denotes the upper limit of the fine tailings sleeve resistances. At CPT-1, sleeve resistances in the fines ranged up to 1.8 tsf, however the fines content of the fine-grained tailings at this location was on the order of 53 to 69 percent, which was generally less than the fines content for fine-grained tailings at other locations.

Sixteen of the 25 CPTs encountered fine-grained tailings in contact with the alluvium. Typically, sleeve resistance values increased from approximately 0.2-0.3 tsf in the fine-grained tailings to 0.7-1.0 tsf or greater in the underlying alluvial material. Resistivity increased from zero ohm-m in the fine-grained tailings to approximately 450-650 ohm-m in the alluvium. In five of the 25 CPTs (CPT-05, CPT-15, CPT-23, CPT-26, CPT-28), coarse-grained tailings were in contact with the underlying alluvial material. The sleeve resistance provided the most distinct pattern at the transition from coarse-grained tailings to the alluvium. The resistance increased from about 0.5-1.5 tsf in the coarse-grained tailings to 1.5-2.5 tsf in the alluvium. The remaining four CPT locations (CPT-13, CPT-24, CPT-25, and CPT-27) did not contain tailings material and encountered either cover/fill material and alluvium, or just alluvium.

Layer thicknesses were limited to a minimum depth of 2 feet to minimize the number of layers in each soil layer profile. To be conservative, profiles that showed potential lenses of small, intermittent coarse- and fine-grained tailings were assumed to be one layer of fine tailings. Fine-grained tailings were assumed to be fully saturated, with the exception of two locations (CPT-23 and CPT-29), and the compression index (Cc) values measured in the lab were used to estimate total primary consolidation. Profiles of CPT holes were interpreted based on the profiles from the paired CPT/boreholes locations and the locations within the TDA. Based on the CPT interpretation and boring logs, it was determined that the fine-grained tailings at locations CPT-23 (TI-B23) and CPT-29 are unsaturated and, therefore, settlement will not occur at these two locations.

Stress increases for the settlement calculations are based on the repository cover thickness, and the proposed thickness of the mine spoils at each specific location, determined from the design grading plan.

Settlement totals include primary and secondary consolidation in the fine-grained tailings. These calculations excluded the coarse-grained tailings and alluvium. Immediate settlement included settlement totals for the radon barrier material and coarse-grained tailings (the unsaturated materials).

Calculations

Primary Consolidation

Settlement of the fine-grained tailings resulting from fill placement of the mine waste and cover is assumed to initiate as loading begins and progress to completion as the porewater pressures within the fine-grained tailings dissipate. Primary consolidation was calculated using the following equation:

$$S = \frac{C_c H}{1 + e_0} \log \frac{\sigma'_f}{\sigma'_i}$$

where:

- S = settlement (ft)
- C_c = compression index
- H = thickness of tailings layer (ft)
- e_0 = initial void ratio of tailings
- σ'_I = initial average effective overburden pressure (psf)

σ'_f = final effective vertical pressure (psf)

The total estimated primary consolidation was calculated for the fine-grained tailings layer in each CPT vertical soil profile location.

Secondary Consolidation

Additional settlement is expected to occur due to creep (secondary consolidation). For secondary consolidation, the secondary consolidation coefficient, C_α, was estimated from a time-compression curve. This curve was plotted using laboratory test data from consolidation tests performed on fine-grained tailings at borehole locations TI-B8, TI-B10, and TI-B11 (these plots will be included in the Pre-final Design). The elapsed time (log time) and dial reading data for each load step were plotted in excel to obtain the time-compression curve, and C_α was estimated by the slope of the final portion of the curve. The secondary consolidation was then calculated at each CPT location using the following equation:

$$S_s = C_\alpha * H * \log\left(\frac{t_2}{t_1}\right)$$

where:

S_s = secondary settlement (ft)
C_α = secondary consolidation coefficient
H = layer thickness of the fine-grained tailings (ft)
t_2 = time from t_1 (yrs)
t_1 = time to complete primary consolidation (yrs)

The consolidation tests were performed at four load increments, and the C_α value was calculated for each of the four load increments in each consolidation test. The average C_α values were then calculated from each similar load increment from the consolidation tests at different locations. The C_α value used in the settlement calculations depended on the final effective stress at the mid-point of the fine-grained tailings layer at each CPT location. The average calculated C_α values and the range of stresses to which they apply are shown in **Table 2**.

The time to complete primary consolidation, t_1, was estimated using data in the Central Cell Interim Stabilization As-Built Report (Canonie, 1992). Canonie recorded settlement data prior to construction activities and continued monitoring for several months after completing the interim soil cover construction, totaling 280 days of monitoring. Canonie reported that the data showed that 90 percent of primary consolidation had occurred at the end of 280 days of monitoring. The data suggests that monitoring was terminated too soon to determine when primary consolidation would have been complete. Stantec estimates from graphical interpretation using the Square-Root-of-Time Method that primary consolidation would have been completed by approximately 458 days. A second calculation was conducted using the time rate of consolidation theory, which estimates that consolidation would have been completed by 588 days. These calculations can be found in **Attachment E**. Since the data from the previous reclamation cover construction indicates that primary consolidation would have lasted more than 280 days, this settlement analysis assumed 280 days as a conservative estimate. It is anticipated that the tailings will complete the new primary consolidation in a shorter duration than previously since the material has been consolidating for nearly 30 years already and the new fill load will be significantly larger than the fill place previously for the current cover system. The secondary consolidation was calculated at a time (t_2) of 200 years from the completion of primary consolidation. The primary and secondary consolidation spreadsheet calculations are included in **Attachment C**.

Immediate Settlement

Immediate settlement of the unsaturated upper layers of the TDA beneath the repository will occur while the waste is placed and compacted. Therefore immediate settlement is not anticipated to contribute to the long-term performance of the new repository cover. However, immediate settlement was estimated in order to evaluate the potential for cover

cracking of the existing radon barrier in locations where fill will be placed adjacent to areas of the radon barrier where fill will not be placed. Immediate settlement was estimated for the existing unsaturated cover, fill, and tailings, near areas where the repository cover slope will transition directly to the existing radon barrier. This was done for three locations near the southwest edge of the repository (B15/CPT-15, CPT-26, and B01/CPT-01). Around the perimeter of the repository, in the remainder of the areas, the cover will extend either to an existing swale or channel, or beyond the edge of the radon barrier. The estimate of immediate settlement was completed using a similar approach to that described in NAVFAC (Department of the Navy, 1986). The immediate settlement is estimated by the following equation:

$$\delta_v = \Delta q * B * \frac{(1-\nu^2)}{E} * I$$

where:

- Δq = applied uniform pressure, kips per square foot (ksf)
- B = width of the loaded area (ft)
- I = combined shape and rigidity factor
- ν = Poisson's ratio
- E = modulus of elasticity (ksf)

The proposed thickness of the repository mine waste and cover materials were used to estimate Δq at each of the three selected CPT locations. The southwest slope of the repository where the three CPT holes are located was divided into three 250-foot sections (by width). The width of the loaded area, B, was assumed to be 250 feet for each of the calculations since the three borings were drilled at approximately equidistant spacing along the entire 750 feet of fill slope in contact with the existing cover. Therefore, the slope was divided into thirds and the profiles from each borehole or CPT were applied to a 250 foot section. The three borings used to complete the calculations were B15/CPT-15, CPT-26, and B01/CPT-01.

The vertical soil profiles were used to determine the thicknesses of each layer to the base of the coarse-grained tailings material. The CPT cone resistance (q_c) data with depth was used to estimate the modulus of elasticity, E, for the profiles. A correlation between E and q_c (McCarthy, 1998) was applied to each layer material, depending on the soil type. An average E value was then estimated for each material type based on the CPT. Published values of E by material type were also to calculate a weighted average of E for the profile. These weighted averages were compared with the values calculated from the cone resistances and the lower E values were selected for the settlement calculation, to present a more conservative total result.

The value of ν was estimated for each layer using a typical range of values from (McCarthy, 1998), and was based on both soil type and the estimated E value. The shape and rigidity factor, I, was taken from the NAVFAC table (Table 1, Section 7.1), assuming a circular (flexible) shape and rigidity, calculated on the edge of the shape. This is based on the locations of interest being on the edge of the repository. This approach and selection of the I value is assumed to be conservative since the shape of the fill is gently sloping and the shape factor in the references is for a circular vertical load (such as a tank) which would concentrate more load at the perimeter than the repository does.

The immediate settlement spreadsheet calculations are included in **Attachment D**.

Results

A settlement analysis was conducted to estimate future settlement after placement of the mine waste and final cover. The total settlement estimates ranged in value from 0.00 feet to 1.8 feet, by location. The primary and secondary consolidation at each CPT location is summarized in **Table 3**. The post-settlement surface is attached on **Figure 1**. The spreadsheet calculations of the settlement analysis are provided in **Attachment C**.

The sensitivity analysis conducted on the settlement analysis resulted in a slight increase in settlement values when using the 60th percentile value for the fine-grained tailings C_c. The total settlement estimates ranged in value from 0.0 feet to 1.9 feet, by location. These results show that varying the critical property, C_c of the fine-grained tailings, had little effect on the calculated total settlement values. The primary and secondary consolidation at each location resulting from the sensitivity analysis are summarized in **Table 4**.

The immediate settlement calculations estimated 1.0 feet at CPT-15, 0.6 feet at CPT-26, and 0.1 feet at CPT-01.

Conclusions

Evaluation of total long-term settlement due to waste and final cover placement indicates potential future settlement of the cover ranging from 0 to 1.8 feet. The estimated settlement of the cover is small enough that slope reversal and ponding are not expected to occur on the final cover surface. **Figure 1** shows the post-settlement surface and **Figure 2** shows cross-sections confirming that slope reversal and ponding are not expected to occur.

Attachments

Figure 1 – Estimated Consolidation and Settled Isopach Contours
Figure 2 – Settled Surface Cross-Sections

Attachment A – Paired borehole logs
Attachment B – CPT profile interpretations
Attachment C – Consolidation spreadsheet calculations
Attachment D – Immediate settlement calculations
Attachment E – Estimated time to complete primary consolidation

References

Canonie Environmental, 1992. Central Cell Interim Stabilization, As-Built Report Addendum. Project 86-060-26, April.

Department of the Navy, Naval Facilities Engineering Command, 1986. NAVFAC Soil Mechanics Design Manual 7.01. September.

McCarthy, D.F., 1998. Essentials of Soil Mechanics and Foundations: Basic Geotechnics, Fifth Edition, Prentice Hall, 1998.

MWH, Inc. (MWH), 2014a. Pre-Design Studies, Northeast Church Rock Mine Site Removal Action, Church Rock Mill Site. Prepared for United Nuclear Corporation and General Electric Corporation. October 31.

MWH, Inc. (MWH), 2014b. Pre-Design Studies, Northeast Church Rock Mine Site Removal Action, Northeast Church Rock Mine Site. Prepared for United Nuclear Corporation and General Electric Corporation. October 31.

U.S. Nuclear Regulatory Agency (NRC), 2003. Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978. NUREG-1620, Revision 1. June.

TABLES

Table 1: Material Properties

Material	Specific Gravity, G_s	Dry Unit Weight, γ_d (pcf)	Moist Unit Weight, γ_m (pcf)	Water Content, w (%)	Void Ratio, e	Compression Index, C_c
Coarse-grained tailings	2.67	97.5	108.1	10.9	0.71	0.084
Fine-grained tailings	2.70	71.7	107.6	50.1	1.35	0.408
Cover soil	2.69	115.0	114.7[1]	10.8	0.62[2]	0.086
Mine spoils	2.66	118.3	116.4[1]	9.3	0.56[2]	0.086
Erosion protection	2.71	130.0	122.9	5.0	0.45[2]	NA[3]

[1] Moist unit weights for cover soil, mine waste, and erosion protection materials were calculated at 90 percent relative compaction, γ_{m90}=0.9*(γ_d+γ_d*w)
[2] Void ratio for cover soil, mine waste, and erosion protection materials were calculated at 90 percent relative compaction, e_{90}={[1-(0.9*γ_d/G_s*γ_w)]/(0.9*γ_d/G_s*γ_w)}
[3]It was assumed the erosion protection layer will not settle, and assuming a compression index value for this material was unnecessary.

Table 2: Secondary Consolidation Coefficient Values for Load Increments

Effective Stress	C_α
<1650 psf	0.0017
1650 – 3250 psf	0.0036
3250 – 6500 psf	0.0047
6500 – 13000 psf	0.0087

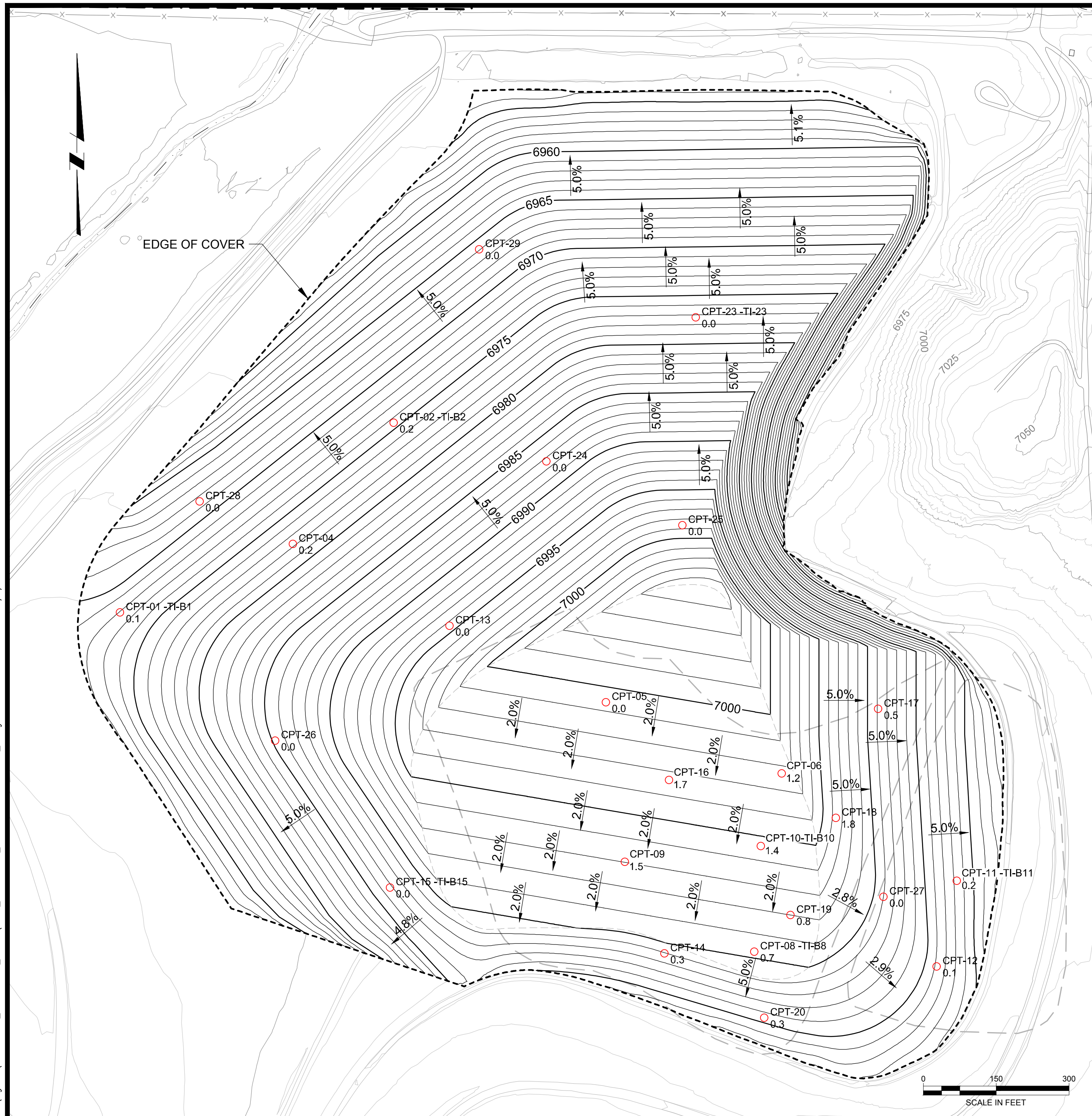
Table 3: Settlement Summary

Location	Primary Consolidation (ft)	Secondary Consolidation (ft)	Total Settlement (ft)
CPT-01 (TI-B1)	0.02	0.05	**0.1**
CPT-02 (TI-B2)	0.13	0.03	**0.2**
CPT-04	0.17	0.04	**0.2**
CPT-05	0.00	0.00	**0.0**
CPT-06	1.03	0.22	**1.2**
CPT-08 (TI-B8)	0.51	0.21	**0.7**
CPT-09	1.13	0.34	**1.5**
CPT-10 (TI-B10)	1.08	0.29	**1.4**
CPT-11 (TI-B11)	0.08	0.14	**0.2**
CPT-12	0.02	0.03	**0.1**
CPT-13	0.00	0.00	**0.0**
CPT-14	0.20	0.05	**0.3**
CPT-15 (TI-B15)	0.00	0.00	**0.0**
CPT-16	1.34	0.32	**1.7**
CPT-17	0.40	0.09	**0.5**
CPT-18	1.45	0.35	**1.8**
CPT-19	0.59	0.21	**0.8**
CPT-20	0.19	0.12	**0.3**
CPT-23 (TI-23)	0.00	0.00	**0.0**
CPT-24	0.00	0.00	**0.0**
CPT-25	0.00	0.00	**0.0**
CPT-26	0.00	0.00	**0.0**
CPT-27	0.00	0.00	**0.0**
CPT-28	0.00	0.00	**0.0**
CPT-29	0.00	0.00	**0.0**

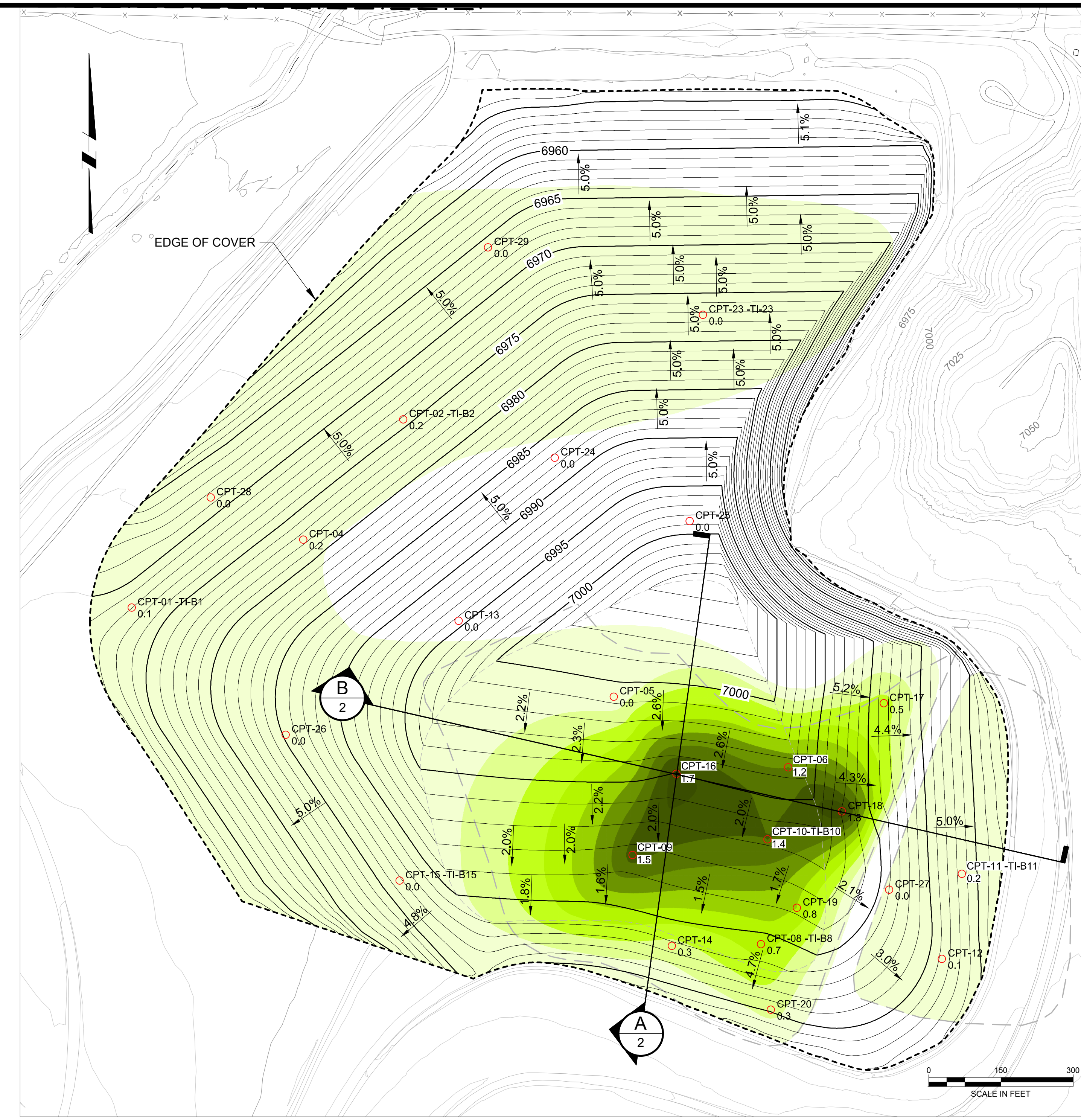
Table 4: Sensitivity Analysis Settlement Summary

Location	Primary Consolidation (ft)	Secondary Consolidation (ft)	Total Settlement (ft)
CPT-01 (TI-B1)	0.03	0.05	**0.1**
CPT-02 (TI-B2)	0.14	0.03	**0.2**
CPT-04	0.19	0.04	**0.2**
CPT-05	0.00	0.00	**0.0**
CPT-06	1.13	0.22	**1.3**
CPT-08 (TI-B8)	0.56	0.21	**0.8**
CPT-09	1.24	0.34	**1.6**
CPT-10 (TI-B10)	1.18	0.29	**1.5**
CPT-11 (TI-B11)	0.09	0.14	**0.2**
CPT-12	0.02	0.03	**0.1**
CPT-13	0.00	0.00	**0.0**
CPT-14	0.22	0.05	**0.3**
CPT-15 (TI-B15)	0.00	0.00	**0.0**
CPT-16	1.47	0.32	**1.8**
CPT-17	0.44	0.09	**0.5**
CPT-18	1.59	0.35	**1.9**
CPT-19	0.64	0.21	**0.9**
CPT-20	0.21	0.12	**0.3**
CPT-23 (TI-23)	0.00	0.00	**0.0**
CPT-24	0.00	0.00	**0.0**
CPT-25	0.00	0.00	**0.0**
CPT-26	0.00	0.00	**0.0**
CPT-27	0.00	0.00	**0.0**
CPT-28	0.00	0.00	**0.0**
CPT-29	0.00	0.00	**0.0**

FIGURES



DESIGN CONTOURS AND TOTAL ESTIMATED CONSOLIDATION SETTLEMENT



CONSOLIDATION SETTLEMENT AND SETTLED SURFACE CONTOURS

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- EXISTING ROAD
- EXISTING DRAINAGE
- FENCE
- BOUNDARY OF REPOSITORY
- BORROW PIT BOUNDARY
- CPT-26 1.8 — ESTIMATED TOTAL SETTLEMENT (FT)

SETTLEMENT DEPTHS			
Number	MIN (FT)	MAX (FT)	Color
1	0.0	0.2	
2	0.2	0.4	
3	0.4	0.6	
4	0.6	0.8	
5	0.8	1.0	
6	1.0	1.2	
7	1.2	1.4	
8	1.4	1.6	
9	1.6	1.8	
10	1.8	2.0	

NOTE(S):

1. THE ESTIMATED SETTLEMENT TOTALS INCLUDE PRIMARY CONSOLIDATION AND SECONDARY CONSOLIDATION IN THE FINE-GRAINED TAILINGS.

DESIGNED S DOWNEY
CHECKED C FOWLER
APPROVED S DOWNEY

MWH now part of Stantec

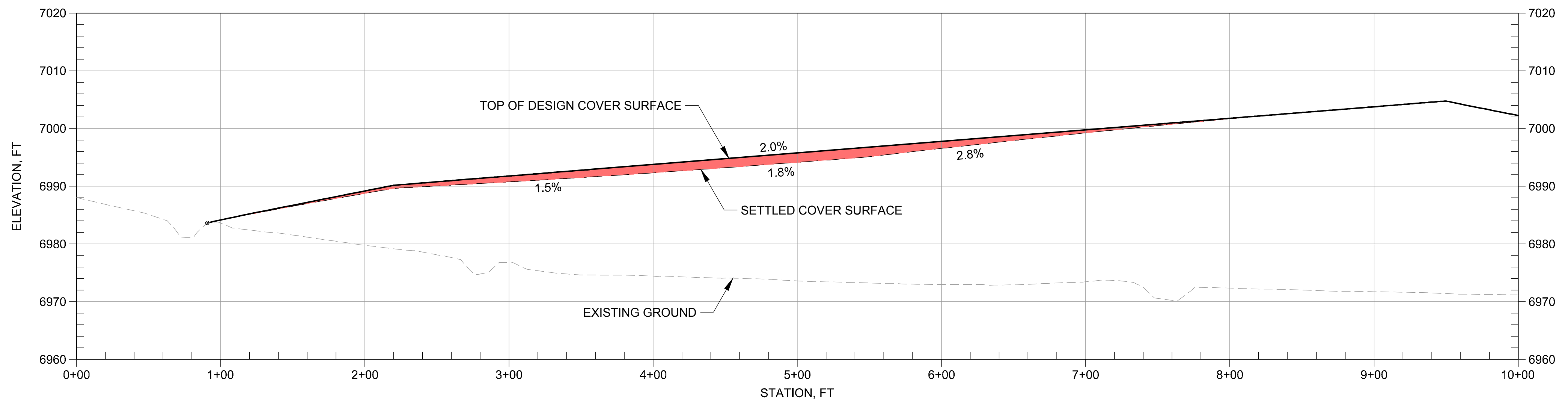
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

TOTAL ESTIMATED CONSOLIDATION SETTLEMENT

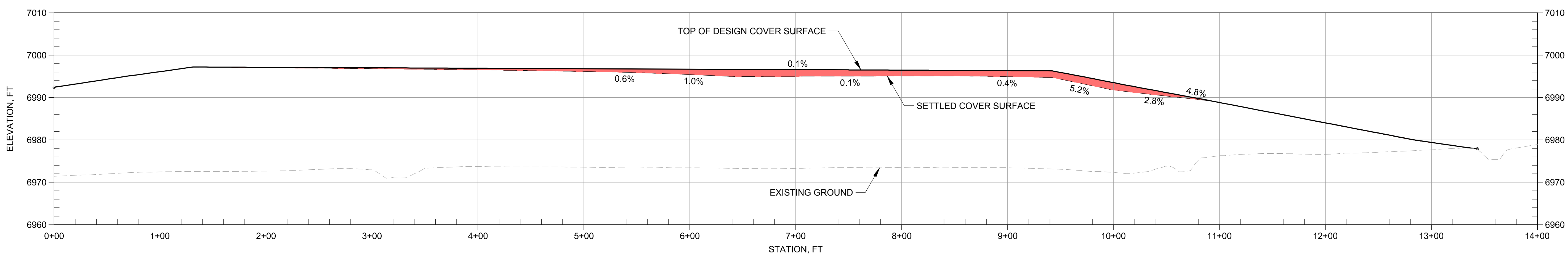
FIGURE 1

10508639

JULY, 2017



A - CROSS SECTION A



B - CROSS SECTION B

LEGEND:

AREAS OF SETTLEMENT

DESIGNED S DOWNEY
CHECKED C FOWLER
APPROVED S DOWNEY

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McKINLEY COUNTY, NEW MEXICO

TOTAL ESTIMATED CONSOLIDATION SETTLEMENT
CROSS SECTIONS

FIGURE
2
10508639
JULY, 2017

ATTACHMENT A

PAIRED BOREHOLE LOGS

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/21/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6969.7	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	14"				NA	(0' - 8") SILTY CLAY (FILL) - Light brown, soft, moist silty clay, trace to few very fine to fine sand.												
						(8" - 12") ROCK - 1/2" to 3" crushed basalt.												
1						(1' - 18.5') SILTY CLAY WITH SAND (FILL) - Dark brown, firm to hard, slightly moist silty clay, little to some very fine to fine sand, occasional coarse sand and gravel (upper ~5' may be compacted radon barrier).												
3						[0 - 5' Core not retained.]												
5	24"	CA 18"	1C	8														
			1B	9														
6			1A	11														
		AC	2															
10	30"	CA 18"	3C	10		[Below ~10', occasional elevated rad readings indicating possible sand tailings mixed with silty clay fill.]												
			3B	12														
11			3A	14		(~11' - ~11.5') 1/2" to 1" gravel observed.												
		AC	4															
13																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE, UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	AC	4		NA													
14						(~13 - ~14') - Sand Tailings - see description below, slightly elevated rad readings.]												
15	32"	CA 18"	5C	5														
			5B	6														
16			5A	10			CL		16.2	104.7		33/13/20	0.3	27.2	72.5			
		AC	6															
17																		
18																		
19						(18.5' - 34.3') SAND TAILINGS - Pale gray, dense, moist, fine to medium sand tailings, slightly elevated rad levels.												
20	36"	CA 18"	7C	19														
			7B	22					6.1									
21			7A	24					7.5	105.5			0.0	90.7	9.3	3.7E-4		
22		AC	8															
23																		
24																		
25	30"	ST 28"	9															
26																		
27									4.0	97.6	2.67	NP	0.0	92.7	7.3	2.9E-3		34.9
		AC	10															

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE / UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	30"	AC	10		NA												
29						(29.6' - 34.3') Very fine grained sand tailings, abundant clayey zones.											
30	36"	CA 18"	11C	5				13.9									
			11B	5				14.6	91.6						3.0E-7	0.092	
31			11A	4			CL	41.6	76.5	2.69	44/17/27	0.0	30.9	69.1			33.3
32		AC	12				CL	27.8			33/16/17	0.0	46.7	53.3			
33																	
34						(34.3' - ~41') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, increasing clay content with depth.											
35	40"	CA 18"	13C	7													
			13B	20													
36			13A	22		(35' - 36.5') High blow counts due to rock in CA shoe.		21.0	97.3	2.73		0.0	62.5	37.5	1.7E-6	0.059	
		AC	14B														
37		AC	14A														
38																	
39																	
40	42"	CA 18"	15C	3													
			15B	5													
41			15A	5		(~41' - ~45') SANDY CLAY - Very moist to wet sandy clay, sand is very fine-grained.	CL	26.7	98.6		31/15/16	0.0	18.2	81.8	1.2E-7		
42																	

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
43	42"	AC	16		NA													
45	40"	ST 30"	17			(~45' - 54') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, decreasing clay content with depth.			22.0	106.0							.058	34.4
50	42"	CA 18"	18C	4														
			18B	5														
51			18A	7														
54						(54' - 68.2') SILTY CLAY - Dark brown, firm, very moist to wet silty clay, trace to few very fine sand.												
55	60"	CA 18"		6														
			19B	7														
56			19A	10														
57																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	60"				NA													
58																		
59																		
60	60"	CA 18"		5														
			20B	8														
61			20A	12														
62																		
63																		
64																		
65	60"	CA 18"		5														
			21B	7														
66			21A	11														
67																		
68						(68.2' - E.O.B.) SILTY SAND - Brown, silty, moist very fine to fine sand.												
69																		
70						E.O.B. at 70.0'												
71																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/20/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6959.9	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 33.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 38.7	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	8"					(0" - 3") SILTY CLAY - Brown, soft, silty clay, dry, trace few very fine to fine sand.												
						(3" - 6") ROCK - 1/2" to 3" crushed basalt.												
1		CA 17"		13		(6" - ~2.5') SILTY CLAY - Dark brown, hard, slightly moist silty clay, few to little very fine sand, occasional coarse sand.												
			1B	11														
2			1A	18		[0' - 5' Core not retained.]												
3						(~2.5' - 7.3') SILTY SAND WITH GRAVEL - Pale yellow, dense, dry to slightly moist silty very fine to medium sand with coarse sand and gravel.												
5	42"	CA 15"		23														
			2B	22														
6			2A	18					7.7	100.4	2.68		26.9	29.9	43.2			
		AC	3															
7		AC	4			(7.3' - 12.8') CLAYEY SAND - Predominantly brown, medium dense, slightly moist to moist clayey fine to medium sand, abundant clay "pockets" throughout. May be sand tailings mixed with site soils.												
10	40"	CA 18"	5C	6														
			5B	7														
11			5A	7					24.5	75.9	2.73		0.0	65.4	34.6			
		AC	6															
12		AC	7															
13						(12.8' - 15') SAND TAILINGS - Pale gray, moist sand												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation).

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	40"	AC	7			tailings, very fine silty sand from 12.8' to 13.2', fine to medium sand from 13.2' to 15'.		39.6				0.0	23.1	76.9			
14																	
15	42"	CA 18"	8C	5		(15' - 25.7') SILTY SAND - Brown, medium dense, moist silty very fine to fine sand, occasional roots. Appears to be natural "alluvium." Occasional dark brown clay lenses. Rad levels ~ background.		6.9	90.4	2.68							
			8B	5													
16			8A	7													
		AC	9														
17																	
		AC	10														
18																	
19																	
20	42"	CA 18"	11C	4													
			11B	4													
21			11A	6				7.0	91.4	2.74		0.0	82.9	17.1			
		AC	12														
22																	
		AC	13														
23																	
24																	
25	48"	CA 18"	14C	5													
			14B	6													
26			14A	6		(25.7' - 33.5') SILTY CLAY - Dark brown, moist, firm to hard, silty clay, trace to few very fine to fine sand, occasional coarse sand.	CL	23.5	93.2		34/16/18	0.0	20.9	79.1			
27																	

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation).

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B2

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	48"																	
29																		
30	54"	CA 18"	15C	6														
			15B	11														
31			15A	12														
32						(32' - 33.5') Softer (soft to firm).												
33																		
33.5						(33.5' - 38.7') WEATHERED SANDSTONE - Mottled pale yellow and reddish orange, moist, fissile, lightly cemented, very fine to fine sand.												
34																		
35	48"	NR		50/ 1"														
36																		
37																		
38					16	Bag sample of SS Core.			13.5	X								
38.7						E.O.B. = 38.7' (Practical Auger Refusal)												
39																		
40																		
41																		
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation).

CLIENT:

PROJ. LOC.: GALLUP, NM

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/19/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6968.6	FINISH: 11/19/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	31"					(0' - 0.8') SANDY CLAY - Brown, hard, slightly moist sandy clay, silty, sand is fine-grained.												
0.8						(0.8' - 10.8') GRAVELLY SAND - Pale yellow, dense, slightly moist gravelly very fine to medium sand.												
5	33"	CA 7"		18, 50/ 6"		[Sample loose - not retained.]												
10	50"	CA 18"	1C	30														
			1B	34														
10.8			1A	43		(10.8' - 16.8') SILTY SAND - Yellow/orange, dense, moist very fine to fine sand, silty, occasional gravel.			5.1	108.4	2.64		5.4	74.7	19.9			

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	50"																
15	38"	CA 18"	2C	18													
			2B	21													
16			2A	28				4.7	105.3								
16.8						(16.8' - 46.5') SANDY CLAY - Dark brown, firm to hard, moist sandy clay, very fine to fine sand.											
20	50"	ST 28.5"	3														
21							CL	16.0	111.1		30/12/18	0.0	32.8	67.2			32.2, 195
22.6						(22.6' - 26') More sand and gravel.											
25	52"	CA 18"	4C	10													
			4B	12													
26			4A	16			CL	12.0	106.8		25/13/12						

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	52"																	
29																		
30	58"	CA 18"	5C	10														
			5B	10														
31			5A	19					16.1	108.4								
						(31.5' - 36') More sand: Sandy/Silty Clay.												
32																		
33																		
34																		
35	48"	ST 28"	6						10.5									
							SC		14.7	102.2	2.67	23/14/9	2.1	50.2	47.7			33.7, 135
36																		
37																		
38																		
39																		
40	57"	CA 18"	7C	3		(~40') Becomes very moist to wet.												
			7B	7														
41			7A	6					21.5	90.6			0.0	33.8	66.2			
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	57"																	
43																		
44																		
45	48"	CA 17"		6														
			8B	7					17.0	110.1								29.3, 293
46			8A	12					18.0	104.8		28/13/15						
47						(46.5' - ~55') SILTY/CLAYEY SAND - Brown, loose, very moist to wet, silty/clayey very fine sand.												
48																		
49																		
50	27"	CA 17"	9C	2		["B" and "C" samples are best.]												
			9B	3														
51			9A	6														
52																		
53																		
54																		
55	30"	ST 24"	10			(~55' - 57.3') SILTY CLAY - Dark brown, firm to hard, wet silty clay, few to little very fine sand.												
56							CL		22.1	105.3	2.72	43/14/29	0.0	11.7	88.3			22.2, 494
57																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"					(57.3' - 61.9') SILTY SAND - Brown, loose, wet, silty very fine to fine sand.												
58																		
59																		
60	33"	CA 18"	11C	3														
			11B	5														
61			11A	4					25.8	99.0			0.0	22.0	78.0			
62						(61.9' - E.O.B.) SILTY CLAY - Dark brown, firm to hard, wet silty clay, trace to few very fine to fine sand.												
63																		
64																		
65	32"	ST 28"	12															
66																		
67																		
68																		
69																		
70						E.O.B. at 70'												
71																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

PROJ. LOC.: GALLUP, NM

BORING LOG

BOREHOLE ID: **TI-B8**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/3/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.1	FINISH: 12/4/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 60.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 65.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0–7						(0' - ~7') SANDY CLAY - Dark brown, slightly moist sandy clay, silty, sand is very fine to fine-grained, occasional coarse sand and fine gravel. (0' - 20' No sampling. Material descriptions based on cuttings and should be considered approximate.)												
7–13						(~7' - ~18') SAND TAILINGS - Predominantly pale yellowish brown, fine to medium grained, slightly moist, some clayey material.												

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT:		
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: **TI-B8**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
14																		
15																		
16																		
17																		
18						(~18' - 20.7') SANDY CLAY - Dark brown, firm to hard, slighly moist sandy clay, very fine to fine sand, few to little coarse sand and fine gravel.												
19																		
20	36"					Begin sampling at 20'												
		AC	8															
21						(20.7' - 26.3') SAND TAILINGS - Pale yellow, medium dense, slightly moist to moist, fine to medium sand tailings, silty.												
22																		
23																		
24																		
25	54"	CA 18"	2C	7					9.0	103.7	2.72							
			2B	7					6.2	99.6			0.0	87.9	12.7	3.6E-4		
26			2A	10			SM		16.8	91.7		NP	0.0	76.0	24.0			
		AC	3B			(26.3' - ~31') FINE TAILINGS - Soft to firm, moist. (26.3' - 28.8') - Pale yellowish brown, few to little very fine sand.												
27																		
		AC	3A															

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

BORING LOG

MWH — PROJ. LOC.: GALLUP, NM

CLIENT: GE / UNC — NECR - PRE DESIGN STUDY INVESTIGATION

BOREHOLE ID: **TI-B8**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	54"	AC	3A															
29						(28.8' - 31') Pale gray, no sand.												
30	24"	ST 23"	4				CH		61.8	62.7		74/25/49	0.0	9.2	90.8		0.43	
31						(~31' - ~32.5') SAND TAILINGS - Pale yellowish brown, medium dense, moist, fine to medium sand, trace silt.			41.4									
32																		
32.5		AC	5			(~32.5' - 35') FINE TAILINGS WITH SAND - Pale gray, soft, moist, very fine to fine sand.												
33																		
34																		
35	30"	ST 28"	6			(35' - 38.6') CLAYEY/SILTY SAND TAILINGS - Pale yellowish gray, soft, moist, very fine to fine sand.			14.3	90.9	2.66							
35.5									16.5	89.6	2.67					1.6E-5		
36																		
37																		
37.5		AC	7															
38																		
39						(38.6' - 44.5') FINE TAILINGS - Pale gray, firm, moist, trace to few very fine sand.												
40	37"	ST 27"	8															
41									39.7	80.4	2.63							
41.5							SC / CL		34.3	83.6		35/16/19	0.0	51.2	48.8	1.3E-7	0.262	
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	37"	AC	9			(42.5' - 43.7') More sand (little to some).											
43.5								29.3	92.3								
44								43.3	74.8			0.0	14.5	85.5	3.0E-8		
44.5						(44.5' - 60.5') SILTY/CLAYEY SAND - Predominantly yellowish brown, medium dense, moist silty/clayey very fine to fine sand with abundant clay zones (as shown), occasional coarse sand throughout.				2.60							
45	48"	CA 18"	10C	6													
45.5			10B	9		(44.5' - 47.5') Silty clay with sand.											
46			10A	10			CL	21.9	95.2	2.72	30/16/14	0.0	27.9	72.1			
49						(49' - 50') Reddish brown.											
50	40"	CA 18"		9													
50.5			11B	10													
51			11A	12													
53.5						(53.4' - 55') Silty clay with sand.											
55	42"	CA 18"	12C	8													
55.5			12B	8													
56			12A	8			SM	12.6	97.6	2.70	NP	0.0	57.0	43.0			

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
58																		
59						(58.7' - 59.5') Silty clay with sand.												
						(59.5' - 60') Reddish brown, fine to medium sand.												
60	48"	CA 18"	13C	16														
			13B	22		(60.5' - 61') COAL - sandy.												
61			13A	50/ 4"		(61' - E.O.B.) SHALE - Dark grayish brown, hard to very hard, moist, silty, trace very fine sand.												
62																		
63					14	(bagged core)												
64	12"					At 64' - becomes fissile, very hard, brittle, more sand (few to little).												
65		CA 2"	15	50/ 2"		65.2' E.O.B. (Practical Auger Refusal at 65.0')												
66																		
67																		
68																		
69																		
70																		
71																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/26/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6973.3	FINISH: 11/27/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 105.0	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 108.2	

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	21"					(0' - 0.6') SANDY CLAY - Light brown, soft, very moist sandy clay, very fine sand, some roots, silty.												
						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt.												
1						(0.9' - 6.8') SANDY CLAY - Dark brown, hard, slighly moist to moist sandy clay, very fine to fine sand, occasional coarse sand to fine gravel, silty.												
5	45"	CA 17"		12														
			1B	13														
6			1A	19														
7						(6.8' - 18.9') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium, silty sand tailings, occasional more clayey/silty zones.												
10	33"	ST 27.5"	2						9.7	110.0	2.63							
									9.0	96.8			0.2	71.9	27.9	4.3E-4	0.094	
		AC	3						6.7		2.61							
13									7.5	99.1			0.7	71.5	27.8	6.7E-5		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
FIELD SAMPLE RECOVERY DATA									LABORATORY TEST DATA									
	33"	AC	3															
15	42"	CA 18"	4C	5					9.3	103.0								
			4B	5														
16			4A	5			SM		6.5	100.0	2.65	NP	2.4	82.3	15.3			
		AC	5B															
		AC	5A															
						(18.9' - 24.4') FINE TAILINGS - Pale gray, soft, moist, trace to few fine to medium sand.												
20	36"	ST 30"	6															
							CL		26.7	92.9		43/19/24	0.0	43.0	57.0		0.111	
		AC	7															
						(24.4' - 25.7') SAND TAILINGS - Pale yellowish gray, loose, moist to very moist, fine to medium sand.												
25	42"	CA 18"	8C	2														
			8B	2														
						(25.7' - ~31') FINE TAILINGS - Pale gray, soft, moist to very moist, trace to few fine to medium sand.			41.0									
26			8A	3			CH		57.4	64.3	2.80	74/27/47	0.0	10.0	90.0			
		AC	9B															
		AC	9A															

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	42"	AC	9A															
30	42"	ST 27"	10				CH		45.3	73.4	2.78	57/22/35	0.0	24.3	75.7			
31						(~31' - 33.2') SAND TAILINGS - See description for 24.4' - 25.7'.												
32							SM		15.4	100.1	2.67	NP	0.0	83.1	16.9			
		AC	11															
33.2						(33.2' - 44.6') FINE TAILINGS - Pale gray, soft, moist to very moist.												
35	48"	CA 18"	12C	2					47.7	72.5								
			12B	2					51.4									
36			12A	2			SC / CL		32.2	87.8	2.72	36/16/20	0.0	50.6	49.4			
		AC	13B			(36.3' - 37.8') Some very fine to fine sand.												
		AC	13A															
40	30"	ST 30"	14						45.7	73.7	2.56							
							CH		47.2	74.5		61/21/40	0.0	20.7	79.3	2.9E-8	0.315	
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

FIELD SAMPLE RECOVERY DATA									LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
42.6	30"	ST 30" AC	14 / 15															
44.3						(44.3' - 44.6') Appears finer grained (clayey), lighter gray, more moist.												
44.6						(44.6' - 62.5') SILTY SAND - Light brown, medium dense, moist, silty very fine to fine sand, occasional coarse sand and fine gravel.												
45	42"	CA 17"		12														
45.5			16B	12														
46			16A	14					9.9	95.4	2.74		0.0	65.8	34.2			
50	48"	CA 18"	17B	10														
50.5			17A	11														
51				14														
55	42"	ST 17"	18						14.1	100.8						2.4E-5	0.139	
56						(~56' - 57.5') Gravelly.												
56.5						(Shelby Tube refusal at 56.5')												

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																
58																	
59																	
60	39"	CA 18"		11													
			19B	11													
61			19A	14													
62																	
						(62.5' - 65.2') WEATHERED SANDSTONE (?) - Hard, moist, gravelly.											
63																	
64																	
65	48"	CA 18"		14													
			20B	14		(65.2' - 82') SILTY SAND - See description above for 44.6' - 62.5'.											
66			20A	15			SM / ML	13.8	94.5		NP	0.0	50.1	49.9			
67																	
68																	
69																	
70	30"	CA 18"		4													
			21B	6		(70.5' - 71.5') Moist to very moist, increased clay.											
71			21A	10				18.1	100.8								

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	30"																	
73																		
74																		
75	42"	CA 18"		5														
			22B	7														
76			22A	11														
77																		
78																		
79																		
80	36"	CA 18"		9		(80' - 82') Gravelly (sandstone fragments)												
			23B	14														
81			23A	17														
82						(82' - 85.5') WEATHERED SANDSTONE - Mottled red/gray/brown, moist, fine to medium weathered sandstone.												
83																		
84	NA	3"	24	50/ 3"														
85	50"																	
						(85.5' - 105') CLAYEY SAND - Dark brown, firm, very moist to wet, fine to medium clayey sand, occasional sandstone fragments.												
86																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	50"																	
87																		
88																		
89																		
90	40"	CA 18"		7		[CA sampler wet 11/26/13.] [Water measured at approximately 90.2' bgs at 9:30 11/27/13.]												
			25B	12														
91			25A	10					18.6	105.6	2.66							
92						[Core barrel wet 11/27/13.]												
93																		
94																		
95	52"	NR		1														
				5														
96				8														
97						[Core barrel wet.]												
98																		
99																		
100	44"																	
101																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE / UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	44"																	
102						[Core barrel wet.]												
103																		
104																		
105	36"					(105' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, very moist, very fine to fine sandstone, some cemented zones.												
106						[Core barrel wet.]												
107					26	(106.9' - 107.3') Bagged core sample.			14.2	109.1						1.4E-7		
108		1"		50/ 1.5"	27	(107.9' - 108') Bagged core sample. (108') CA sample not retained.												
						E.O.B. = 108.2 ft at 9:00 on 11/27/13 (practical auger refusal)												
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT:	BORING LOG	BOREHOLE ID: TI-B11
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/2/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6977.3	FINISH: 12/3/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 96.9	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 103.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	19"					(0' - 0.6') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very fine to fine sand, roots, silty.												
						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt, silty clay in voids.												
1						(0.9' - 10.3') SANDY CLAY - Dark brown, hard, slightly moist sandy clay, very fine to fine sand, occasional coarse sand and gravel up to 1.5".												
5	30"	CA 17"	1C	12														
			1B	16														
6			1A	15					8.6	93.5								
10	42"	CA 18"	2C	7														
			2B	7		(10.3' - 12') SILTY SAND - Light brown, medium dense, slightly moist, silty very fine to fine sand.												
11			2A	8														
12						(12' - 15') SANDY CLAY - Dark brown, firm to hard, slightly moist sandy clay, very fine to fine sand, occasional gravel up to 3" size.												
13																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
15	45"	ST 13"	3			(15' - 18') CLAYEY SAND - Light yellowish brown, medium dense, slightly moist, fine to medium clayey sand, occasional gravel up to 1".			8.2	110.4	2.67		3.9	57.6	38.5	2.5E-5	0.09	
18						(18' - 32.9') SANDY CLAY - Predominantly dark brown, hard, slighly moist sandy clay, silty, very fine to medium sand, few to little coarse sand and gravel up to ~1" size.												
19.2						(19.2' - 19.4') Sand, very fine to fine.												
20	48"	CA 18"	4C	4														
			4B	7														
21			4A	10					12.3	107.6								
25	56"	CA 18"	5C	7														
			5B	8														
26			5A	13														

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	56"																
30	47"	ST 21"	6				CL	13.7	112.4		30/13/17	7.1	41.3	51.6	9.0E-7	0.06	
32.9						(32.9' - 34') SAND (TAILINGS?) - Pale yellowish gray, slightly moist, fine to medium sand.											
34	NA					(34' - 45.5') SANDY CLAY WITH GRAVEL - Dark brown, firm to hard, moist sandy clay with very fine to coarse sand and gravel up to ~3", some metallic and fibrous debris. [34' - 38' Drilling through metallic debris (appers to be metal siding). Center bit required to penetrate debris. No core collected. CA sample attempted at 34' and 35' - no penetration or recovery.]											
40	51"	CA 3"		25 27 22		[Metallic debris in CA shoe - no sample.]											
42																	

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
42.5	51"																
45	60"	CA 18"	7C	7		(Photo 310 at 46'.)											
45.5			7B	7		(45.5' - 53.9') FINE TAILINGS - Mottled orange and dark greenish gray (to 50'), pale yellowish gray (50' - 53.9'), firm, moist tailings.		88.7									
46			7A	8													
46.5						[Photo 311 at 46.5'.]											
50	43"	ST 28"	8														
51.5							CH	59.9	63.7	2.84	91/30/61	0.0	2.7	97.3	3.1E-8	0.48	
52.5		AC	9			[Photo 312 at 52.5']											
53.9						(53.9' - 55') SILTY CLAY - Dark brown, hard, moist silty clay, trace very fine sand.											
55	48"	ST 25"	10			(55' - 77.5') SILTY SAND - Yellowish brown, medium dense, slighly moist to moist, silty, very fine to fine sand.											
56							SM	16.2	77.9	2.64	NP	0.0	60.4	39.6	5.6E-4	0.129	
57																	

LEGEND:
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- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	48"	AC	11															
58																		
59																		
60	48"	CA 17"		9														
			12B	11														
61			12A	12		(61.1' - 62.1') Sandy clay.			16.0	95.4			0.0	38.7	61.3			
62																		
63						(63.1' - 64') Sandy clay.												
64																		
65	49"	CA 18"	13C	7														
			13B	7														
66			13A	12					14.2	96.2								
67																		
68																		
69																		
70	44"	CA 18"	14C	7														
			14B	9														
71			14A	10														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	44"					(71.5' - 73.5') Abundant clayey sand zones.												
73																		
74																		
75	38"	CA 18"	15C	7														
			15B	8														
76			15A	11														
77																		
					16	(77.5' - 78') WEATHERED SANDSTONE - Rusty red, moist, fine to medium grained. (Sample #16 is bagged core.)												
78						(78' - 96.9') GRAVELLY SAND - Mottled rusty red/brown/yellow, dense, moist fine to medium sand, silty throughout, some clayey zones, abundant coarse material from coarse sand up to 3" gravel comprised of cemented sandstone.												
79																		
80	42"	CA 18"	17C	16														
			17B	21														
81			17A	21					11.0	107.6	2.76		12.9	65.6	21.5			
82																		
83																		
84																		
85	36"	CA 17"	18C	18														
			18B	21														
86			18A	19														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	36"					(~86.7' - 87.2) Clayey.												
90	48"	NR		3, 5, 6		(~90' to 96.9') Becomes very moist to wet.												
92						(92' - 92.5') Clayey.												
						[Core barrel is wet.]												
95	55"	CA 14"	19B	13														
			19A	20														
96				18														
96.9						(96.9' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, moist to very moist, fissile, fine-grained, weakly cemented.												
98					21	(98' - 98.3') Bagged core sample.												
100		CA 2"	20A	50/ 2"					21.1	103.9						1.3E-5		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
102																		
						(102.5' - 103') Reddish brown, strongly cemented sandstone.												
103						E.O.B. at 103.0' at 10:00 (practical auger refusal)												
104																		
105																		
106																		
107																		
108																		
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT: GE / UNC	BORING LOG	BOREHOLE ID: TI-B15
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/5/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.8	FINISH: 12/5/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 71.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	18"					(0' - 0.5') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very find sand, roots.												
0.5						(0.5' - 0.8') ROCK - Crushed basalt, up to 3" size, sandy clay in voids.												
0.8						(0.8' - ~3') SANDY CLAY - Dark yellowish brown, hard, moist sandy clay, very fine to fine sand.												
3						(~3' - 30') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium sand.												
5	30"	CA 18"	1C	10														
5.5			1B	11														
6			1A	12					5.4	101.1			0.0	87.5	12.5			
6.5		AC	2															
10	30"	CA 18"		3														
10.5			3B	3														
11			3A	3					6.8	93.8								
11.5		AC	4															

LEGEND:
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- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	AC	4			(13.5' - 13.8') Silty sand tailings.	SM		19.0		2.68	NP	0.0	69.6	30.4			
14																		
15	32"	ST 27"	5															
							SM		14.2	90.4	2.66	NP	0.0	54.9	15.1	8.3E-4	0.126	
16																		
17																		
		AC	6															
18																		
19						(~19.5' to ~25') Becomes slightly finer grained (very fine to medium sand), slightly clayey.												
20	28"	CA 18"	7C	3														
			7B	2														
21			7A	4			SM		12.7	99.8	2.68	NP	0.0	80.6	19.4			
		AC	8															
22																		
23																		
24																		
25	27"	ST 23"	9															
26																		
27		AC	10			(~27' and below) Becomes clayey.												

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	27"	AC	10			(~28.5' - 30') Very fine to fine sand	SM		19.3		2.66	NP	0.0	65.4	34.6			
29																		
30	36"	CA 18"	11C	6		(30' - ~32') SILTY SAND - Dark brown, medium dense, moist silty sand, very fine to fine sand.												
			11B	7														
31			11A	10					22.3									
							SM		17.1	101.8	2.71	NP	6.2	51.9	41.9			
32		AC	12			(~32' - 38') SILTY CLAY - Dark brown, firm to hard, moist silty clay, trace to few very fine to fine sand.												
33																		
34																		
35	40"	CA 18"	13C	8														
			13B	12														
36			13A	15														
37																		
38						(38' - 45') CLAYEY SAND - Yellowish brown, medium dense, moist clayey very fine to fine sand, silty, occasional 1-6" sandy clay zones.												
39																		
40	48"	CA 18"		10														
			14B	9														
41			14A	12					11.4	87.1								
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH PROJ. LOC.: GALLUP, NM	CLIENT: GE / UNC — NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: **TI-B15**

FIELD SAMPLE RECOVERY DATA / **LABORATORY TEST DATA**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
43	48"																	
44																		
45	26"	CA 18"	15C	13		(45' - 50') SANDY SILT - Dark yellowish brown, hard, moist, very fine to fine sand, occasional clayey sand zones.												
			15B	25														
46			15A	26					25.8									
									17.3	99.3	2.81	NP	0.0	37.0	63.0			
47																		
48																		
49																		
50	24"	CA 18"	16C	6		(50' - 52') CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine sand, silty.												
			16B	8														
51			16A	11														
52						(52' - 65') SILTY CLAY - Dark yellowish brown, firm to hard, moist silty clay, trace to few very fine to fine sand, occasional thin (1-6") clayey sand zones.												
53						(~53' - 55') Very hard, very dense clay.												
54																		
55	18"	CA 18"	17C	10														
			17B	11														
56			17A	12					11.7	104.2								
57																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	18"																	
60	60"	CA 18"	18C	8														
			18B	11														
61			18A	15														
65	40"	CA 18"		6		(65' - E.O.B.) CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine clayey sand, silty, occasional 1-3" zones of sandy clay.												
			19B	8														
66			19A	10					12.7	100.7								
70		CA 18"		7														
			20B	6														
71			20A	9														
						E.O.B. 71.5' at 14:30												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/6/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6959.3	FINISH: 12/6/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 43.0	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	39"					(0' - 0.6') SANDY CLAY - Light brown, soft, moist, very fine to fine sand, roots.												
						(0.6' - 0.9') ROCK - Crushed basalt, 1/2" - 3", sandy clay in voids.												
						(0.9' - 5') SANDY CLAY - Firm to hard, slighly moist to moist, sandy clay, very fine to fine sand, occasional coarse sand and very fine gravel.												
5	44"	CA 18"	1C	12		(5' - 7') SILTY SAND WITH GRAVEL - Light brown, medium dense, slightly moist to moist, silty very fine to fine sand with little to some gravel to 2".												
			1B	14														
6			1A	10														
7						(7' - 13.4') SANDY CLAY - See 0.9' to 5' above.												
10	42"	CA 16"		5														
			2B	4														
11			2A	6														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"					(13.4' - 14.2') FINE TAILINGS WITH SAND - Pale gray, soft to firm, moist with very fine to fine sand tailings.												
14						(14.2' - ~16') SILTY SAND TAILINGS - Pale yellowish gray, loose, moist, fine to medium sand.												
15	25"	ST 28"	3						20.7	87.7	2.77		0.0	62.8	37.2			
16						(~16' - 20.3') SANDY CLAY - Dark yellowish brown, firm, moist, very fine to fine sand.												
17									22.5	101.9	2.73		0.0	31.1	68.9			
18		AC	4															
19																		
20	36"	CA 18"	5C	5														
			5B	6		(20.3' - 23') SILTY SAND - Yellowish brown, medium dense, moist, silty very fine to fine sand.												
21			5A	7														
22																		
23						(23' - 38.6') SILTY CLAY - Predominantly dark yellowish brown, firm to hard, moist silty clay with varying amount of sand as shown, occasional coarse sand to very fine gravel throughout.												
24						(23' - 27.5') Trace to few sand.												
25	39"	ST 30"	6															
26							CL		21.6	101.7	2.73	49/18/31	0.0	8.8	91.2		0.05	
27																		
						(27.5' - 30') Little to some sand.												

LEGEND:
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- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	39"																	
29																		
30	44"	CA 18"		5		(30' - 30.5') Gravelly.												
			7B	6		(30.5' - ~33.5') Little to some sand.												
31			7A	8														
32																		
33						(~33.5' - ~34.3') Clayey sand, very fine to fine.												
34						(~34.3' - 38.6') Few to little sand.												
35	42"	ST 28"	8															
36																		
37																		
38																		
39						(38.6' - 40.3') CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine sand, silty.												
40	25"	CA 18"		6														
			9B	9		(40.3' - 43') SILTY CLAY WITH SAND - Dark yellowish brown, firm to hard, moist, silty clay with little to some very fine to fine sand.												
41			9A	12														
42																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	25"																	
43						(43' - 65.5') SANDSTONE - Mostly very pale yellowish gray, moist, mostly non-or weakly cemented very fine to fine sand, some very hard, strongly cemented, fissile zones as shown, some clay zones as shown ("Zone 3"?).												
44						(43' - 43.6') Strongly cemented, fissile. (43.6' - 44') Clay - yellowish brown, firm to hard, moist, slightly silty.												
45	32"	CA 8"	10A	13 50/ 3"		(44' - 45.5') strongly cemented, fissile. (45.5' - 46.2') Clayey sand, yellowish brown.			13.8	108.7						2.4E-7		
46																		
47						(~47' - ~48') Very hard, strongly cemented, fissile.												
48	16"																	
49		CA NR		50/ 4"														
50	29"																	
51																		
52																		
53																		
54																		
55	33"	CA 3"	11A	50/ 5"		(~55' - 63') Coarser (fine to medium).												
56						(~56' - 56.8') Color is reddish yellow.												
57																		

LEGEND:
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- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH — PROJ. LOC.: GALLUP, NM	CLIENT: GE / UNC — NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: **TI-B23**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	33"																	
60	24"	CA 3"	12A	50/ 4"														
63						(~63 - 65.5') COAL - Black, hard, dry to slightly moist, fissile.												
65	30"	CA 13"	13B	24														
65.5			13A	50/ 4.5"		(65.5' - E.O.B.) SHALE - Gray, very hard, slightly moist shale, trace silt, non- to weakly-cemented ("Zone 2"?).			10.2	103.0						9.7E-8		
70		CA 4"	14	50/ 5"														
70.5						E.O.B. 70.5' @ 13:50												

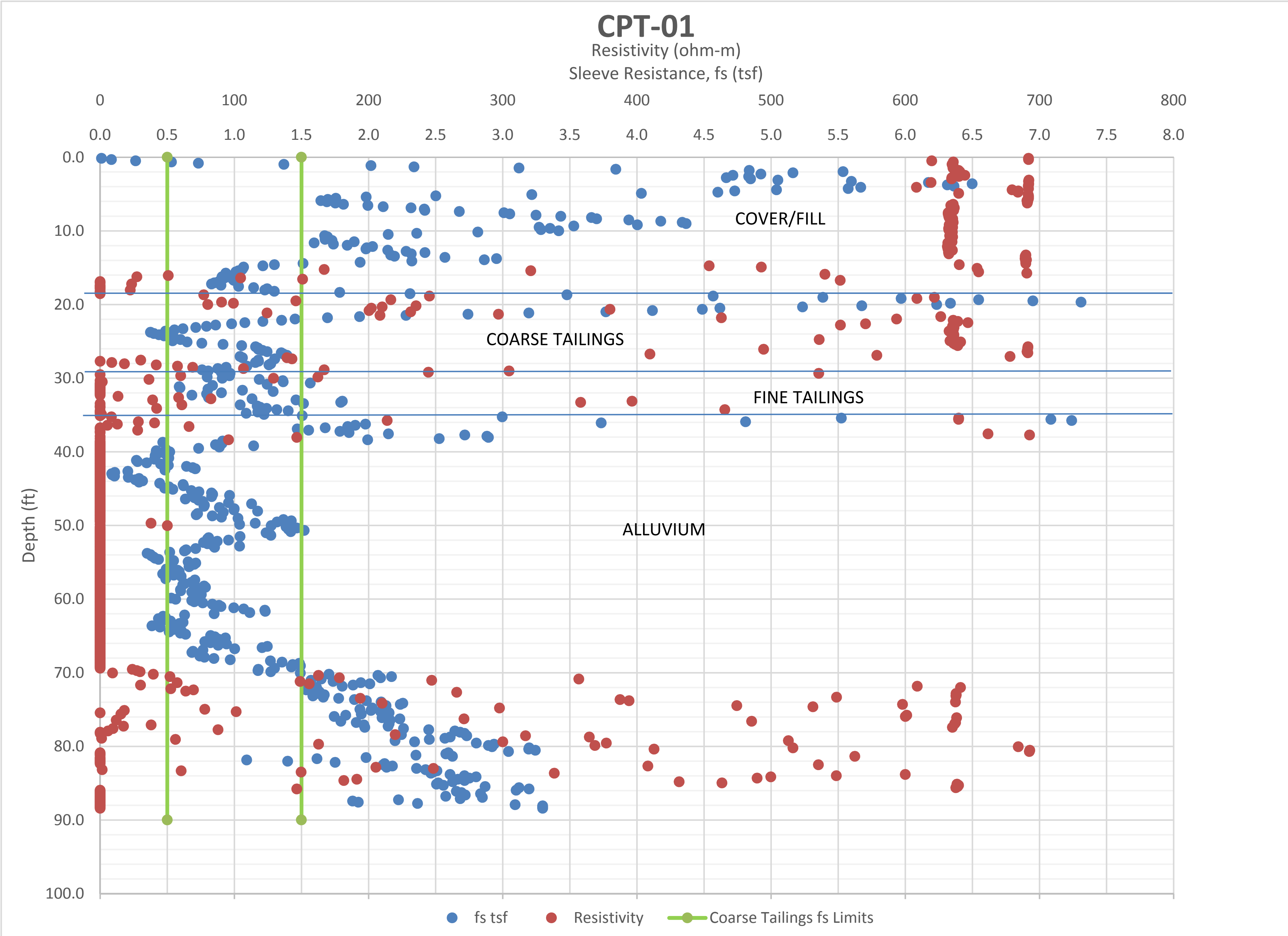
Depth scale: 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71

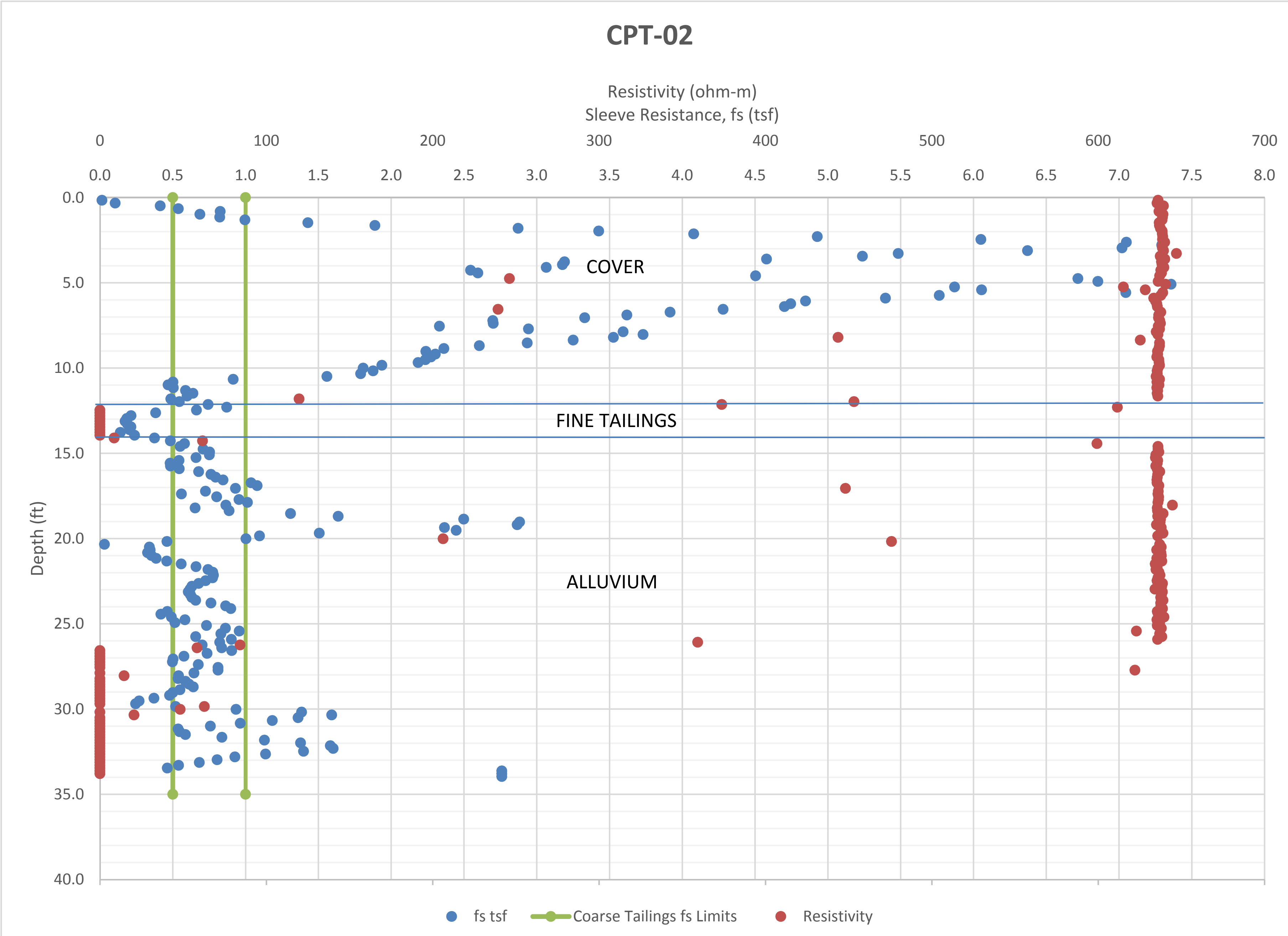
LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

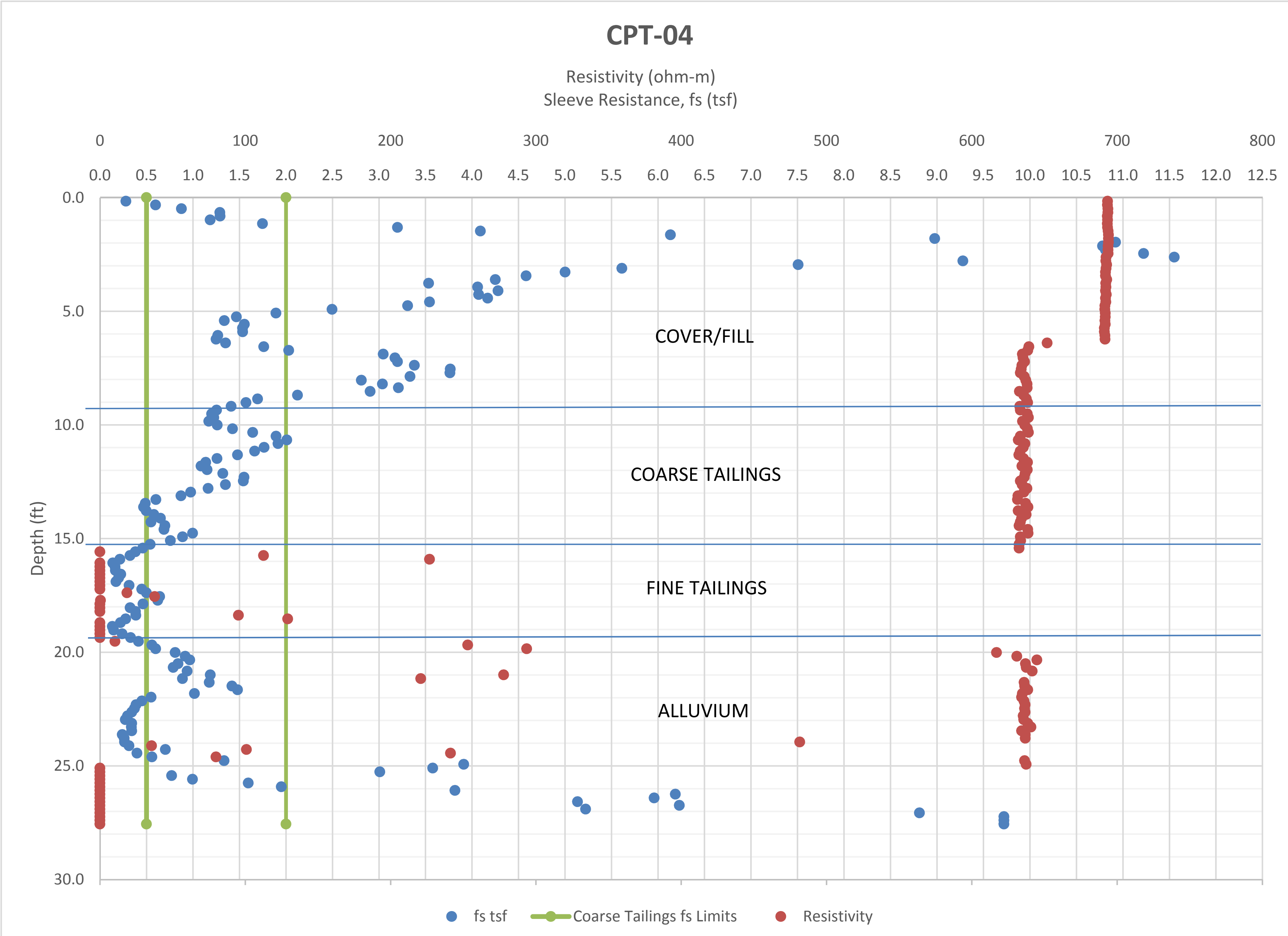
NOTES:
Hole backfilled with cement/bentonite grout.

ATTACHMENT B

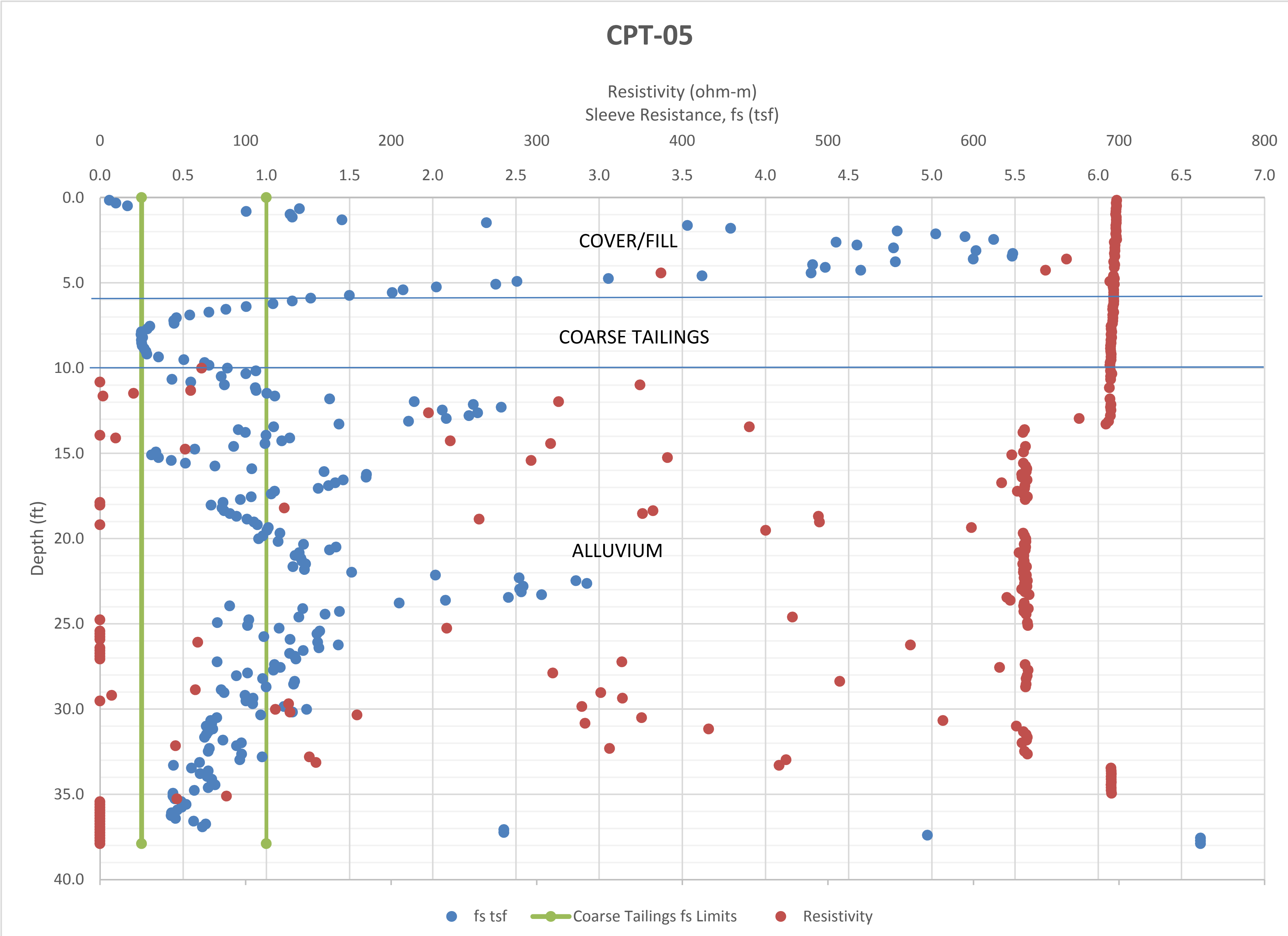
CPT PROFILE INTERPRETATIONS


CPT-01
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Resistivity
Coarse Tailings fs Limits

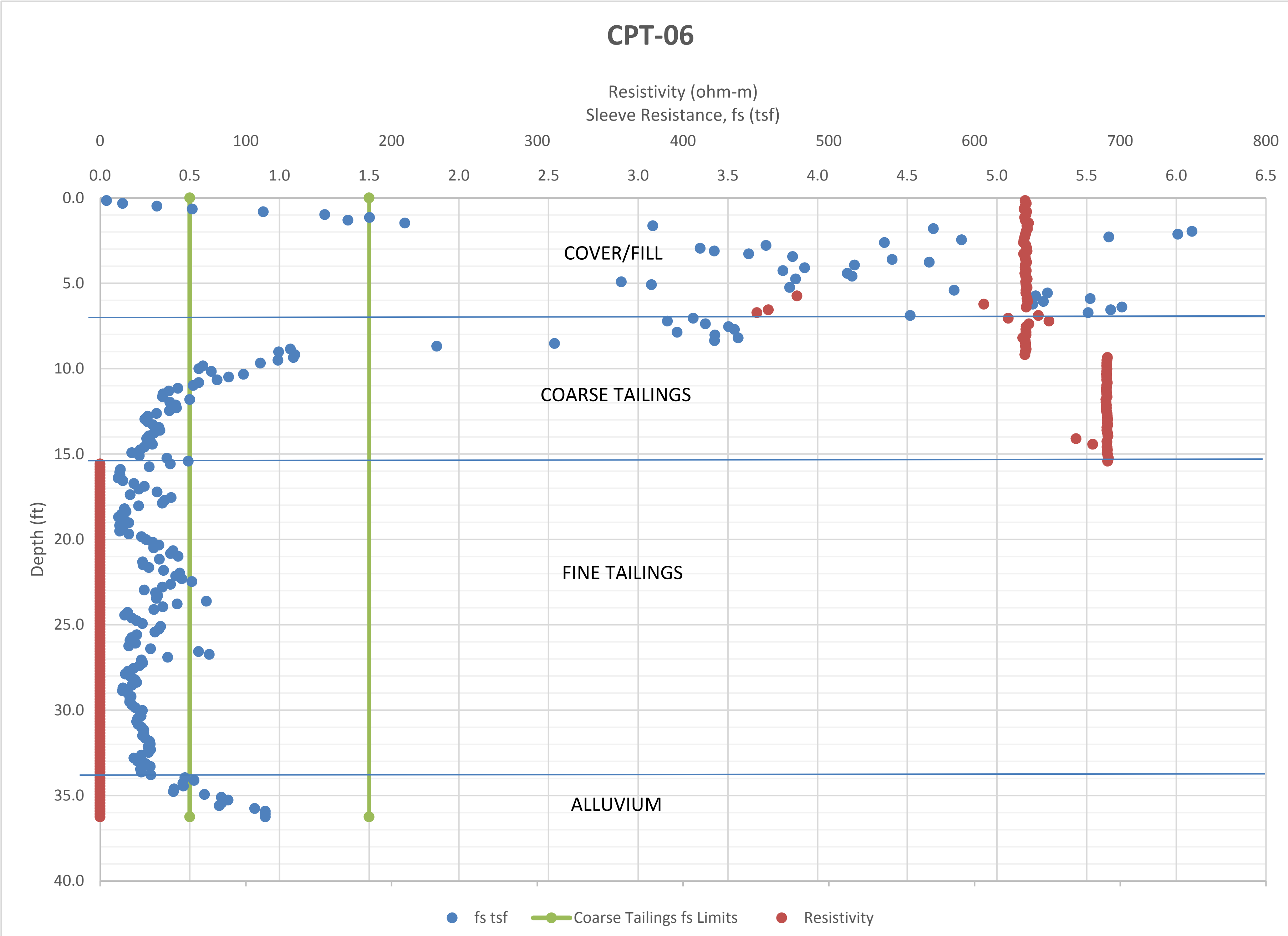

CPT-02
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
COVER
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity



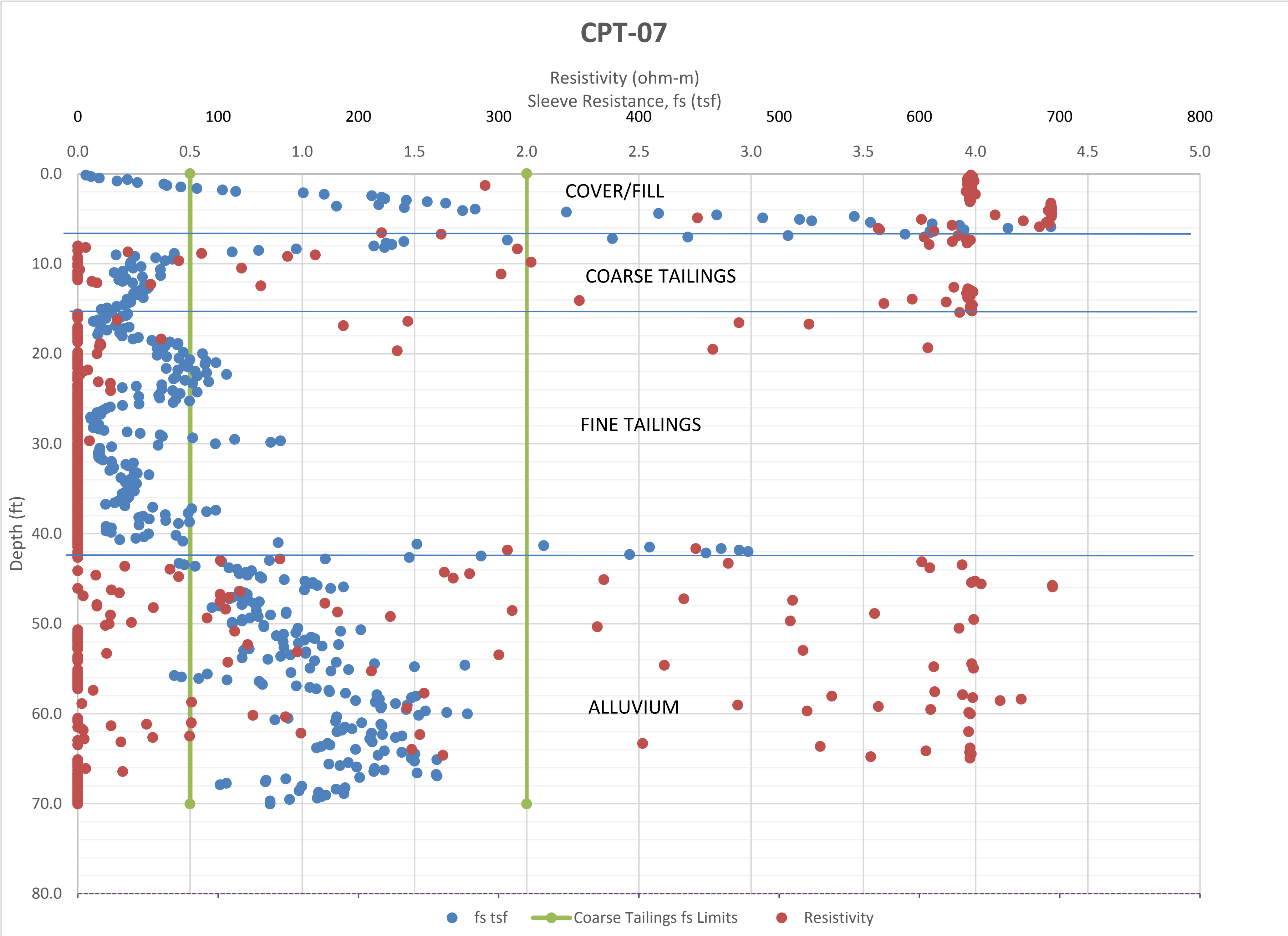
CPT-04
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

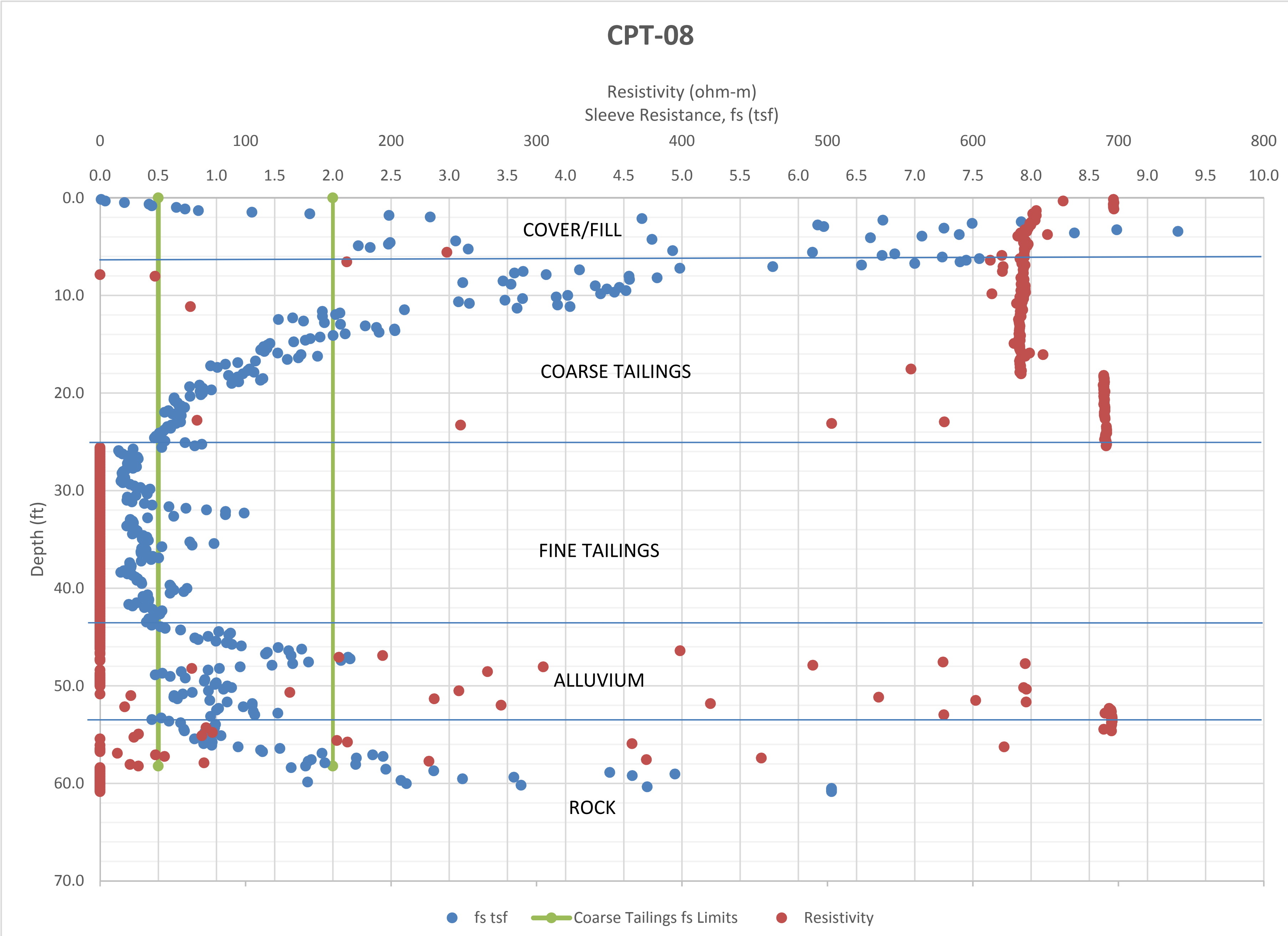


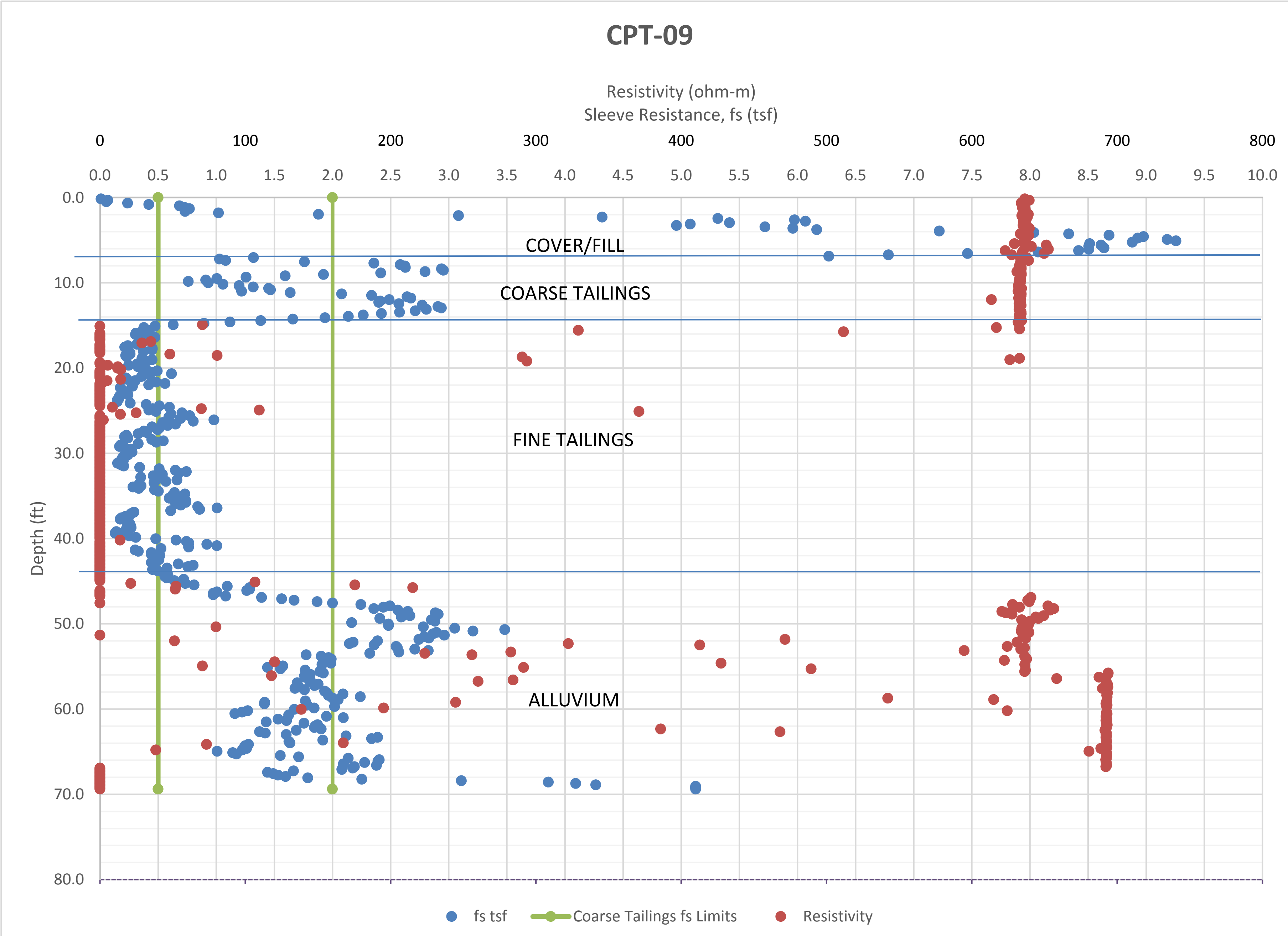
CPT-05
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
COVER/FILL
COARSE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity



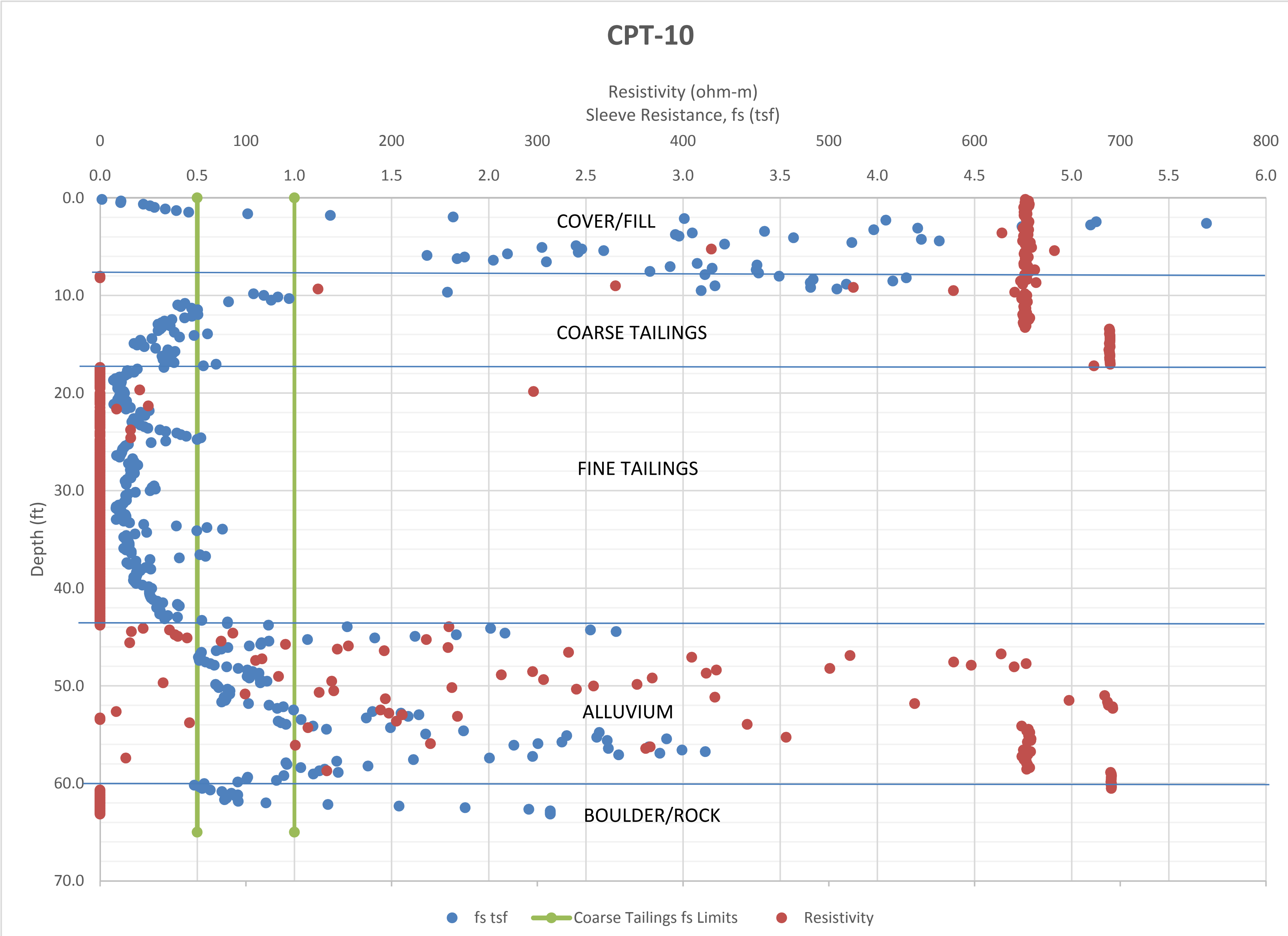
CPT-06
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

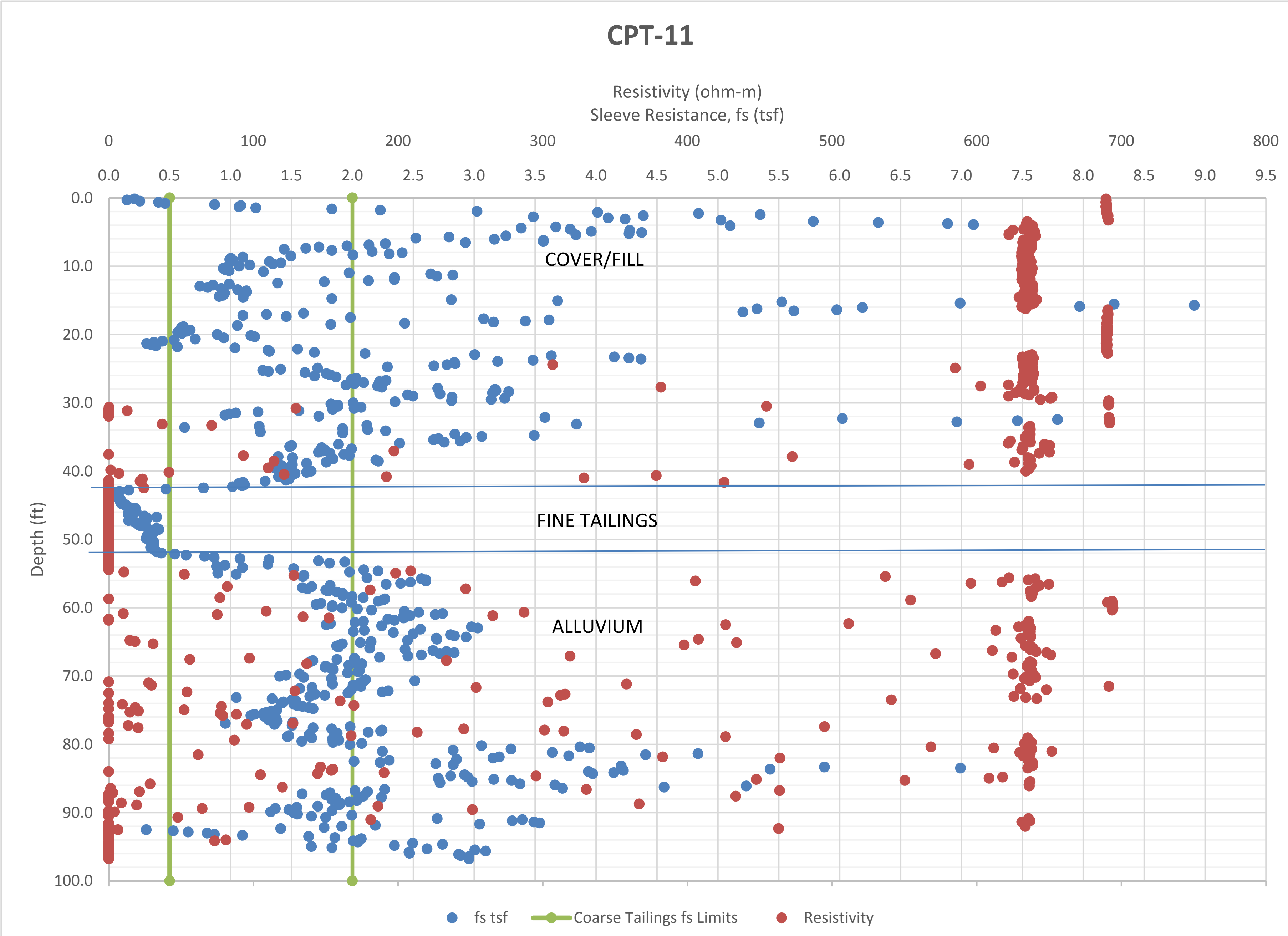

CPT-07
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity


CPT-08
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
ROCK
fs tsf
Coarse Tailings fs Limits
Resistivity

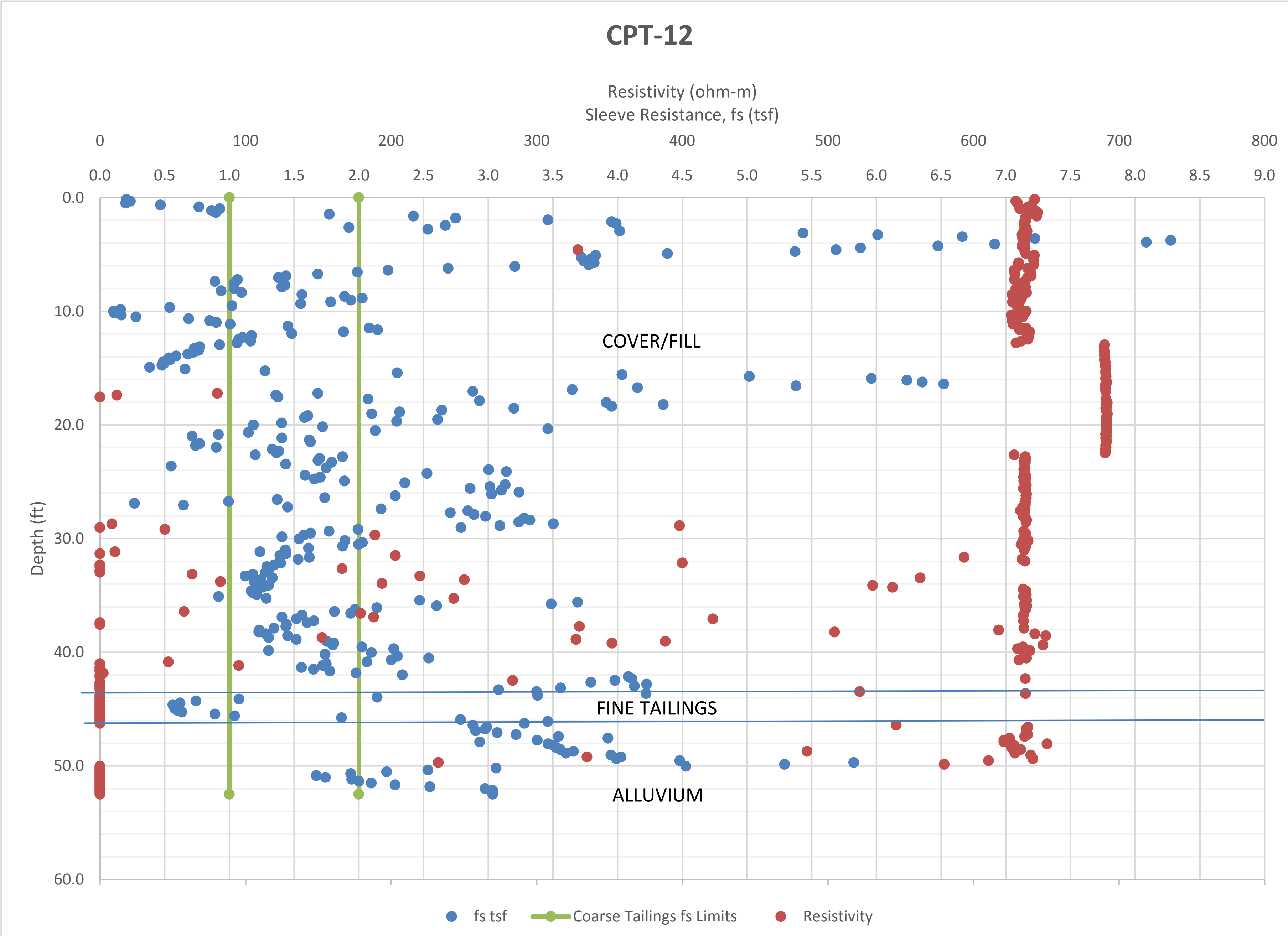


CPT-09
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

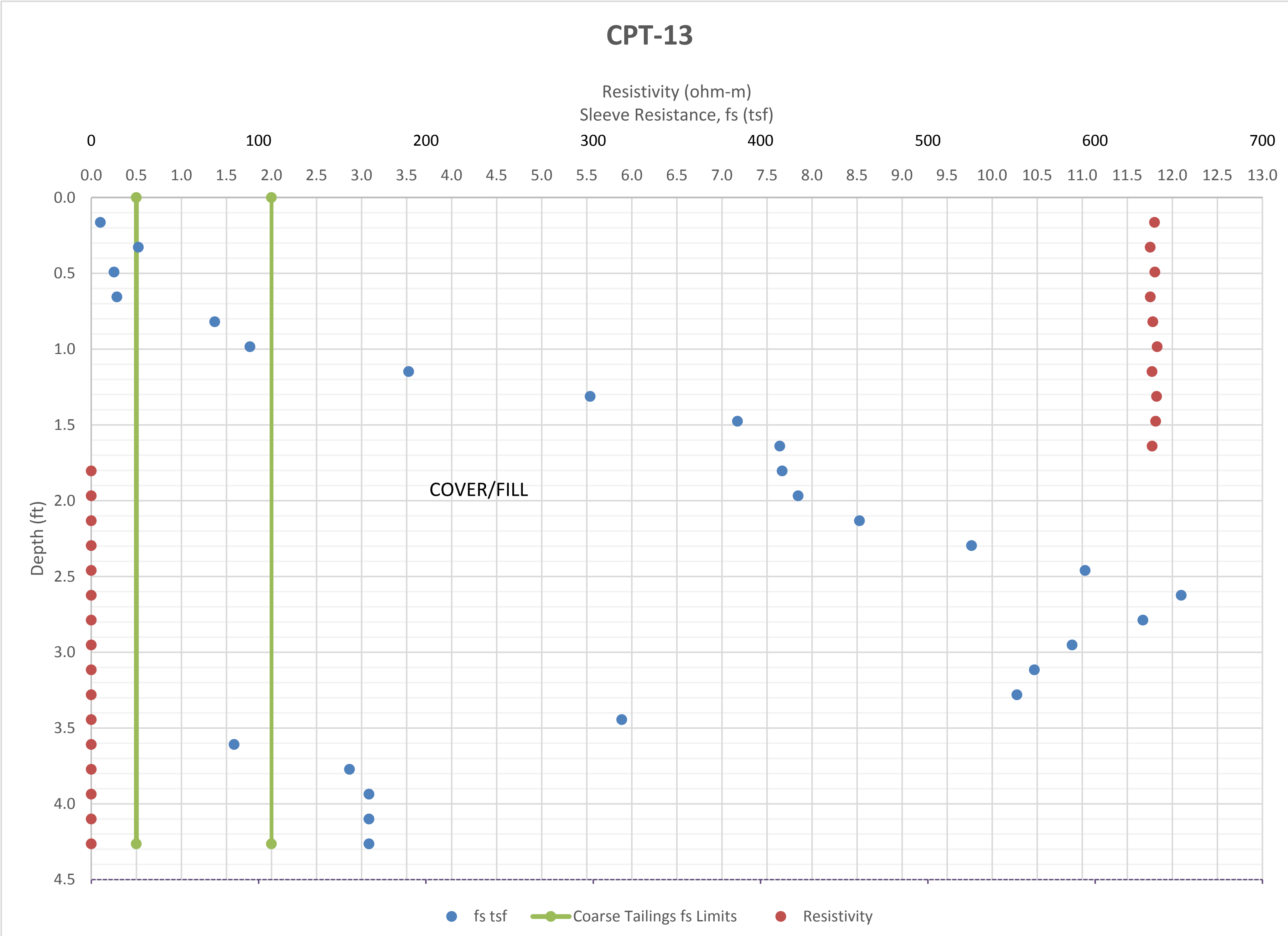

CPT-10
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
BOULDER/ROCK
fs tsf
Coarse Tailings fs Limits
Resistivity

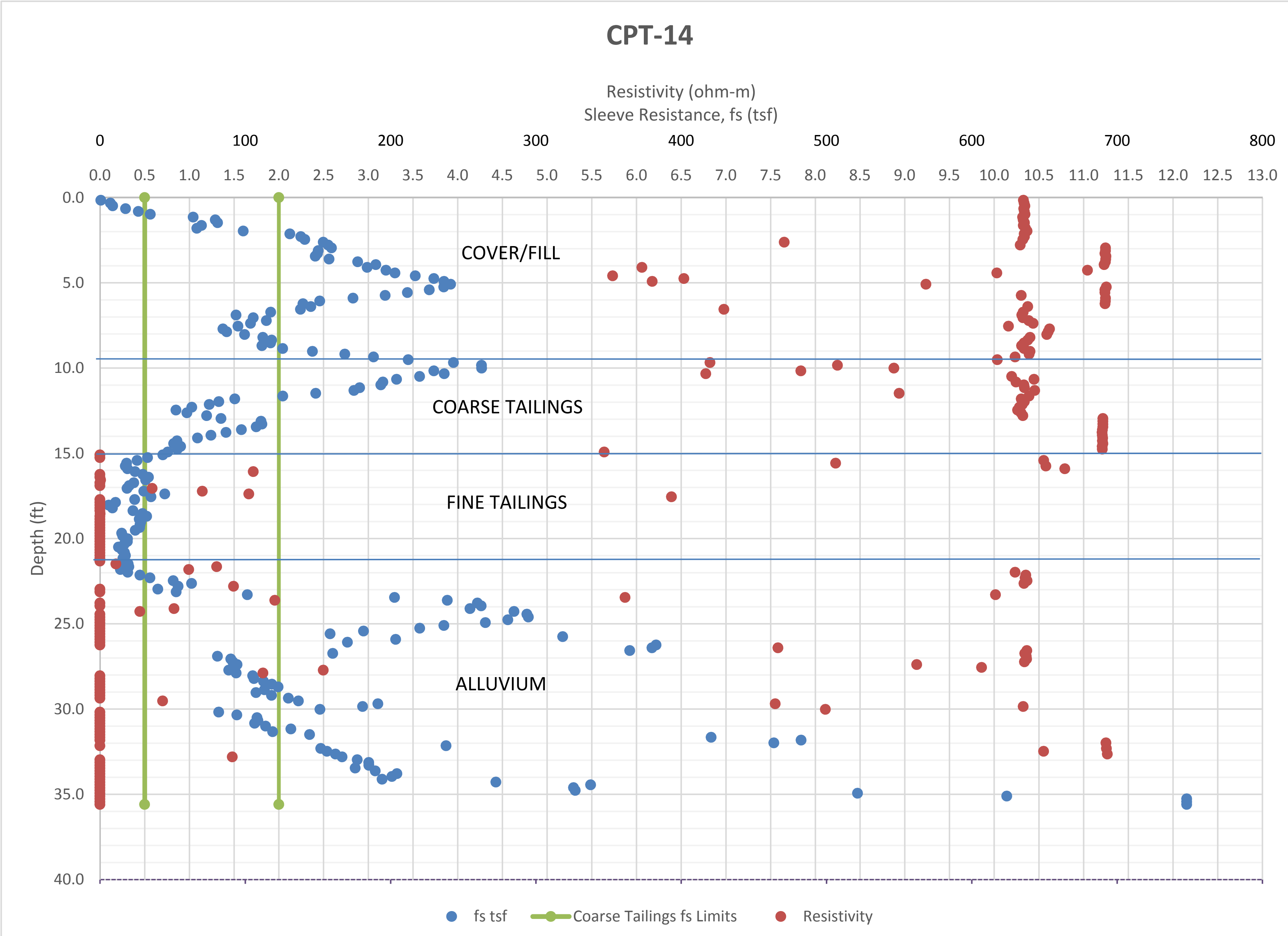


CPT-11
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
COVER/FILL
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

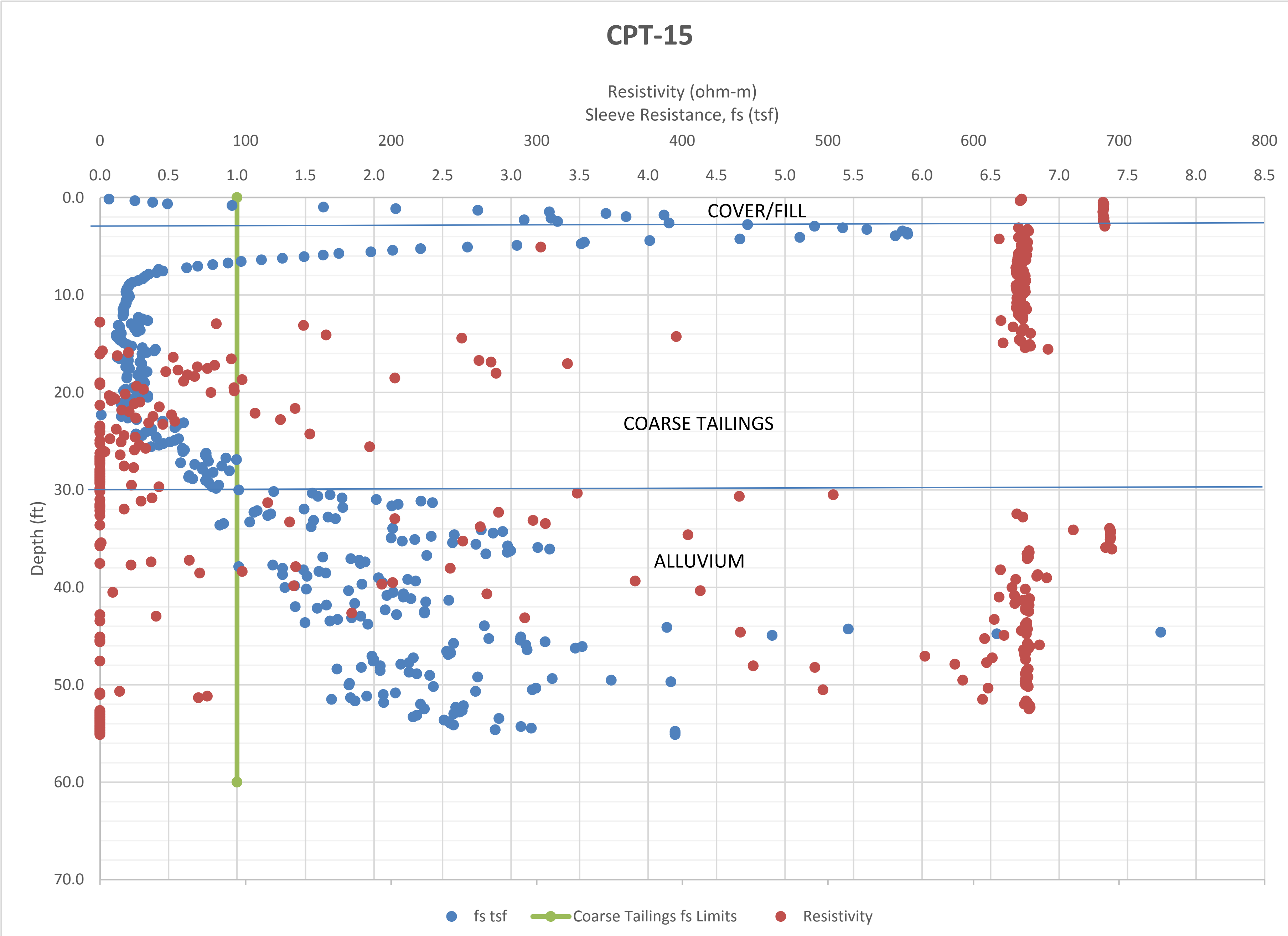


CPT-12
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
COVER/FILL
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

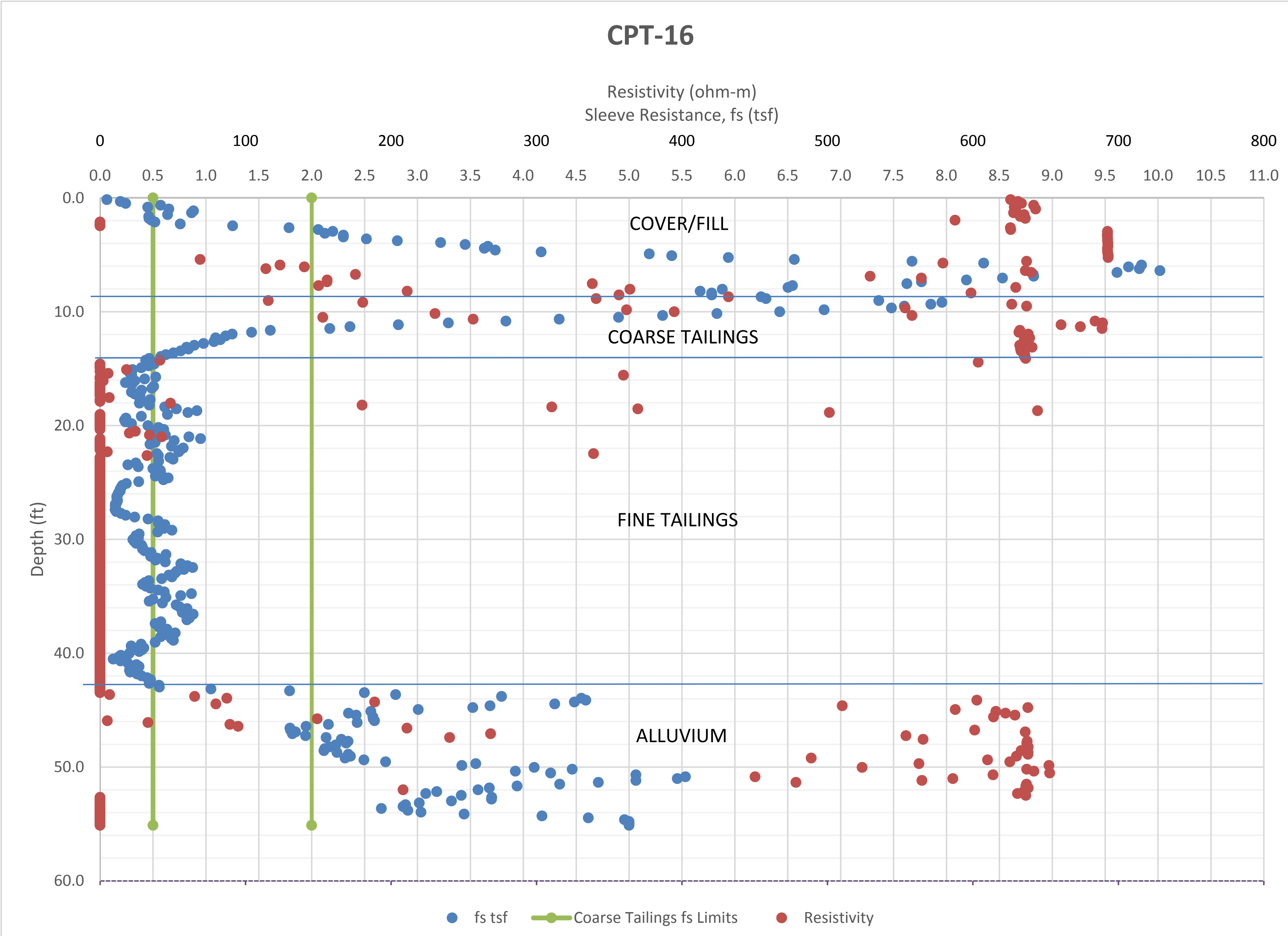

CPT-13
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0
Depth (ft)
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
COVER/FILL
fs tsf
Coarse Tailings fs Limits
Resistivity

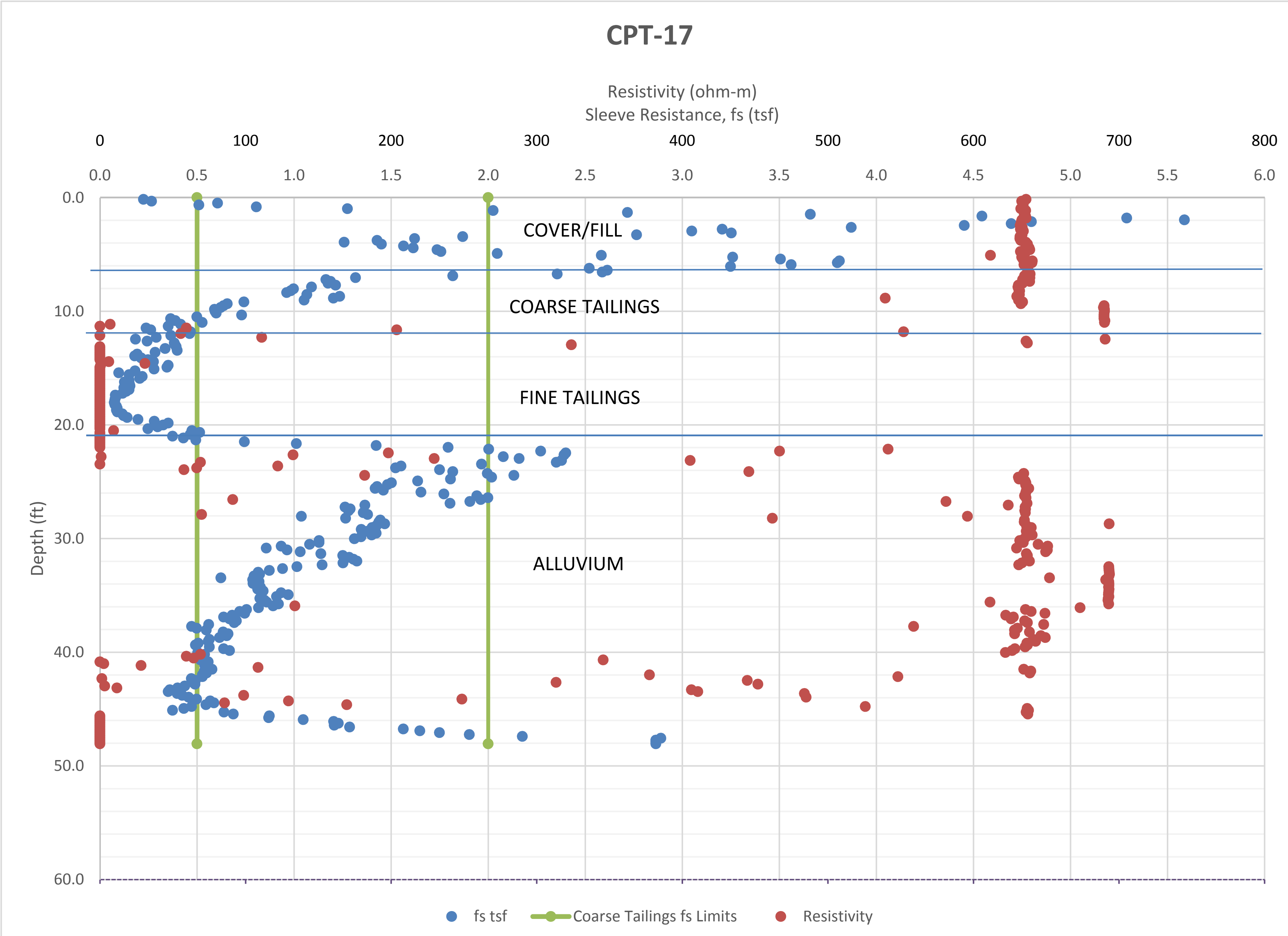


CPT-14
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

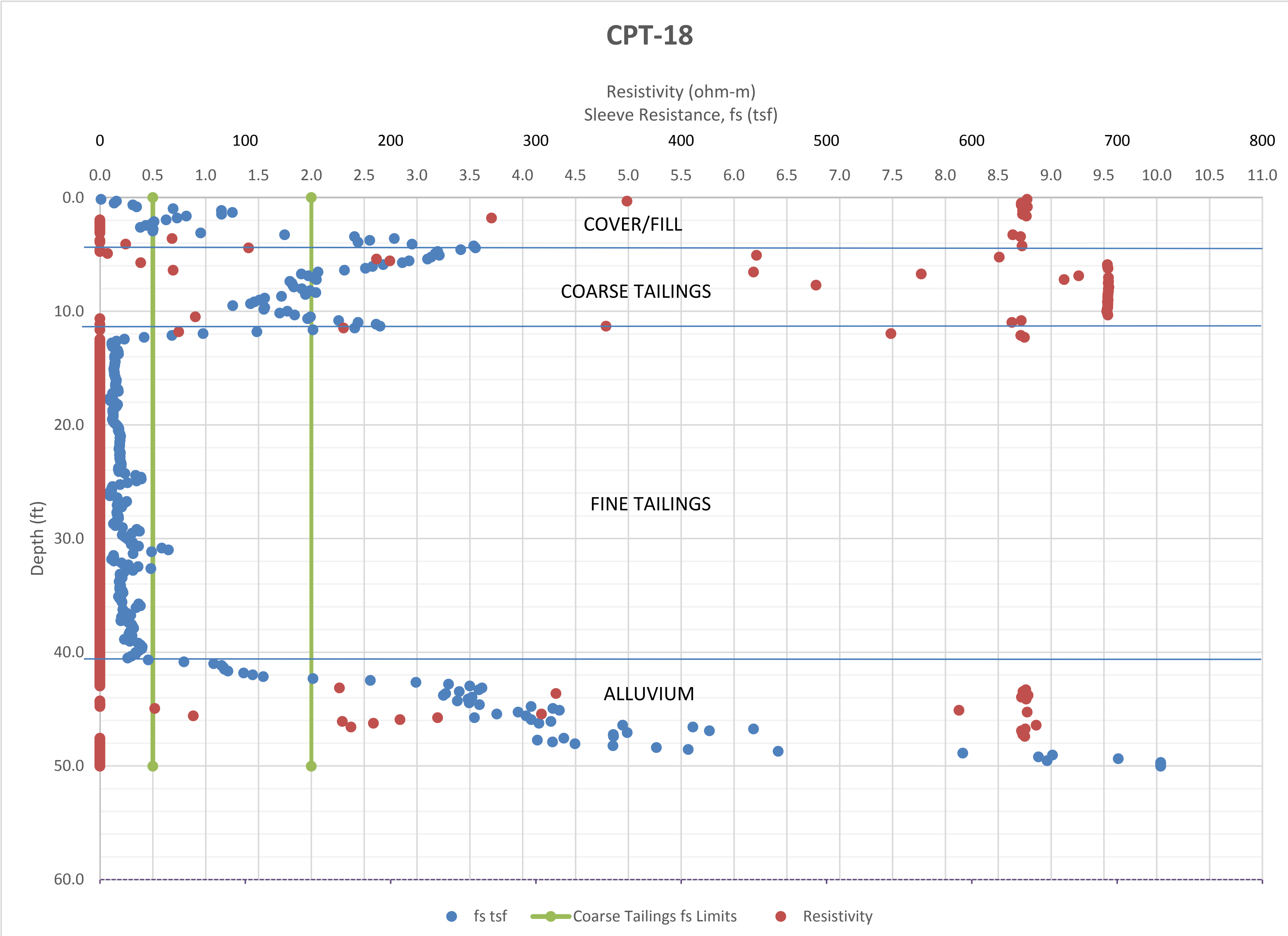


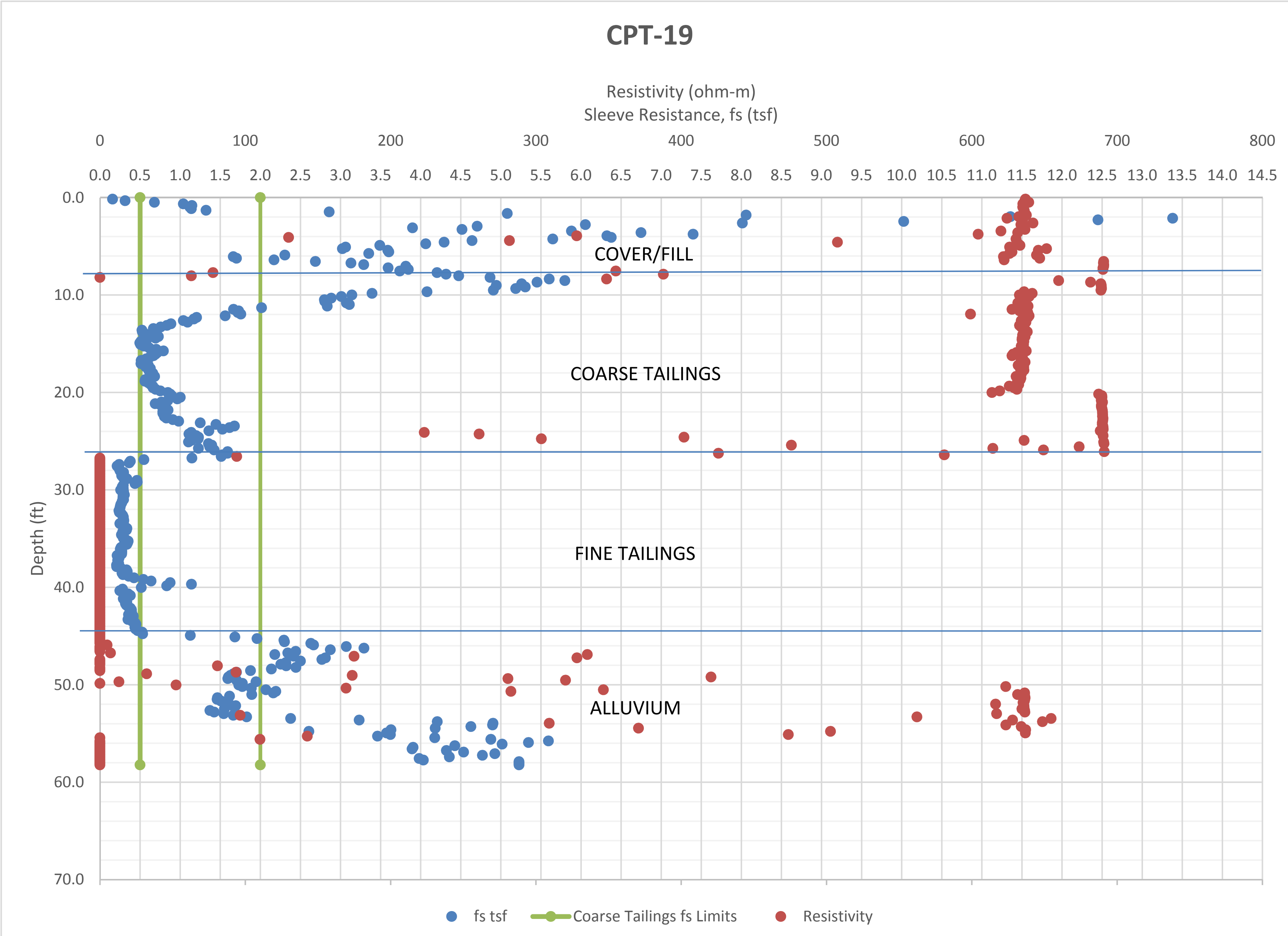
CPT-15
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700 800
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5
Depth (ft)
0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0
COVER/FILL
COARSE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity


CPT-16
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

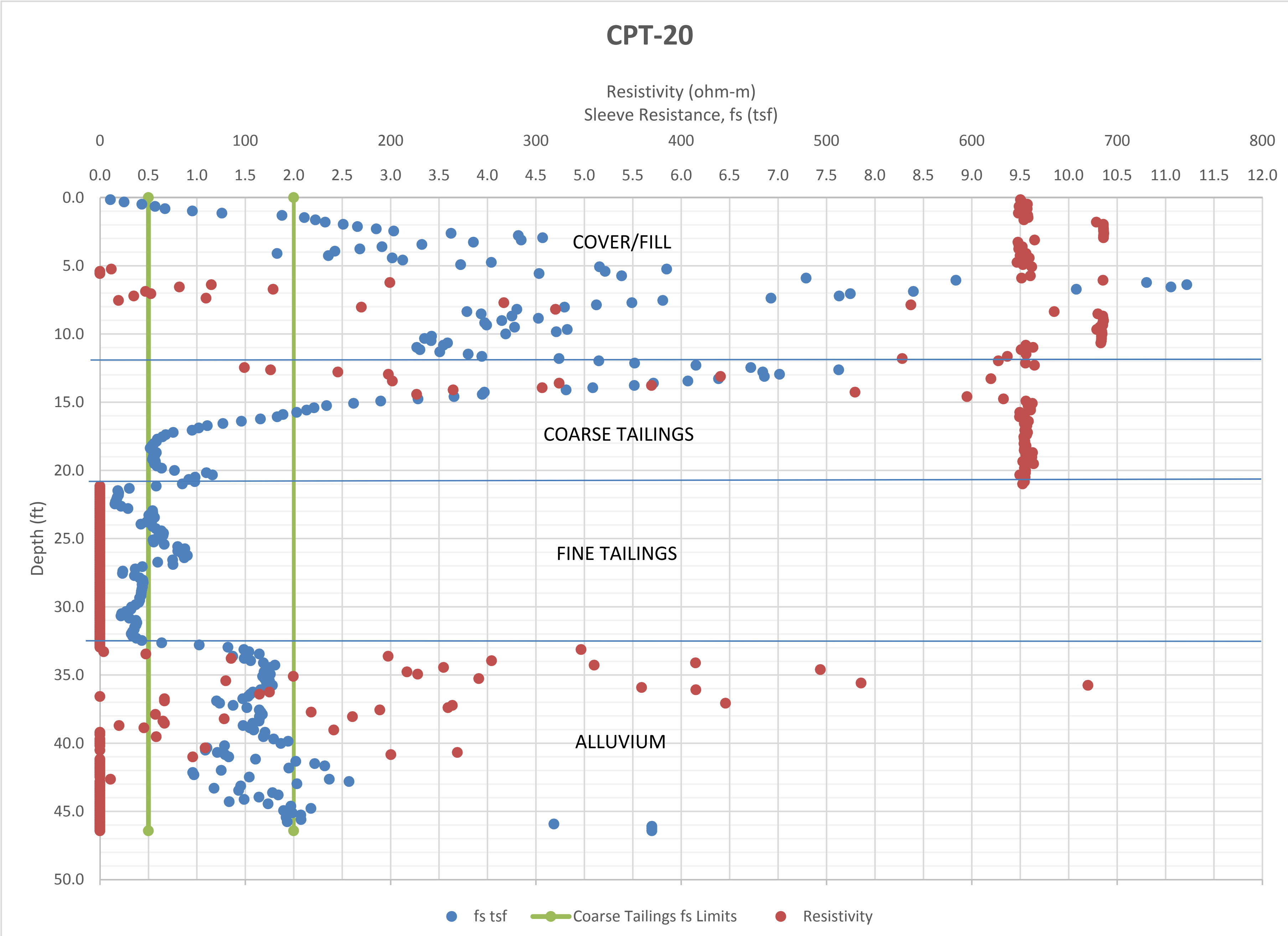


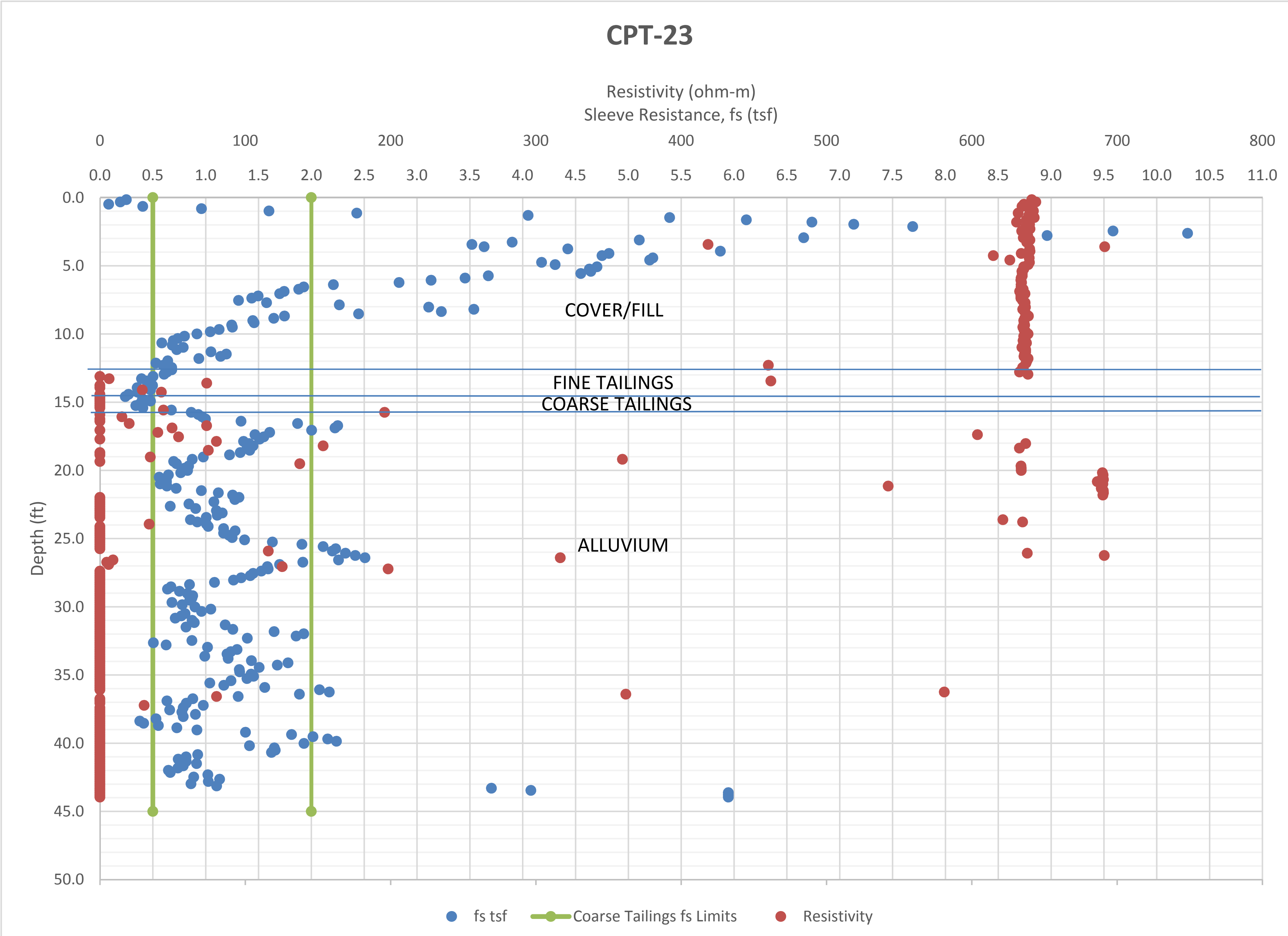
CPT-17
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

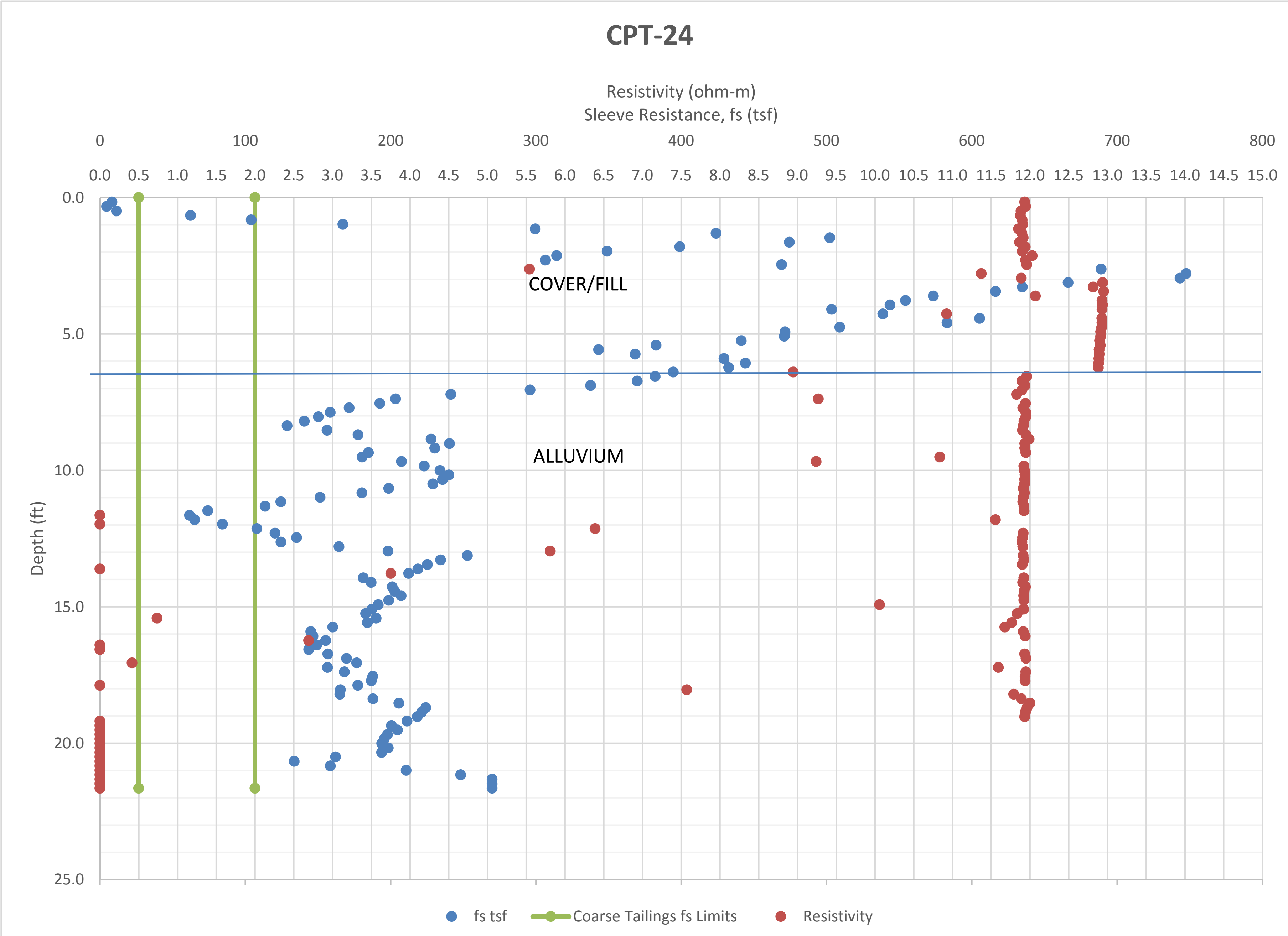

CPT-18
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700 800
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0
Depth (ft)
0.0 10.0 20.0 30.0 40.0 50.0 60.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

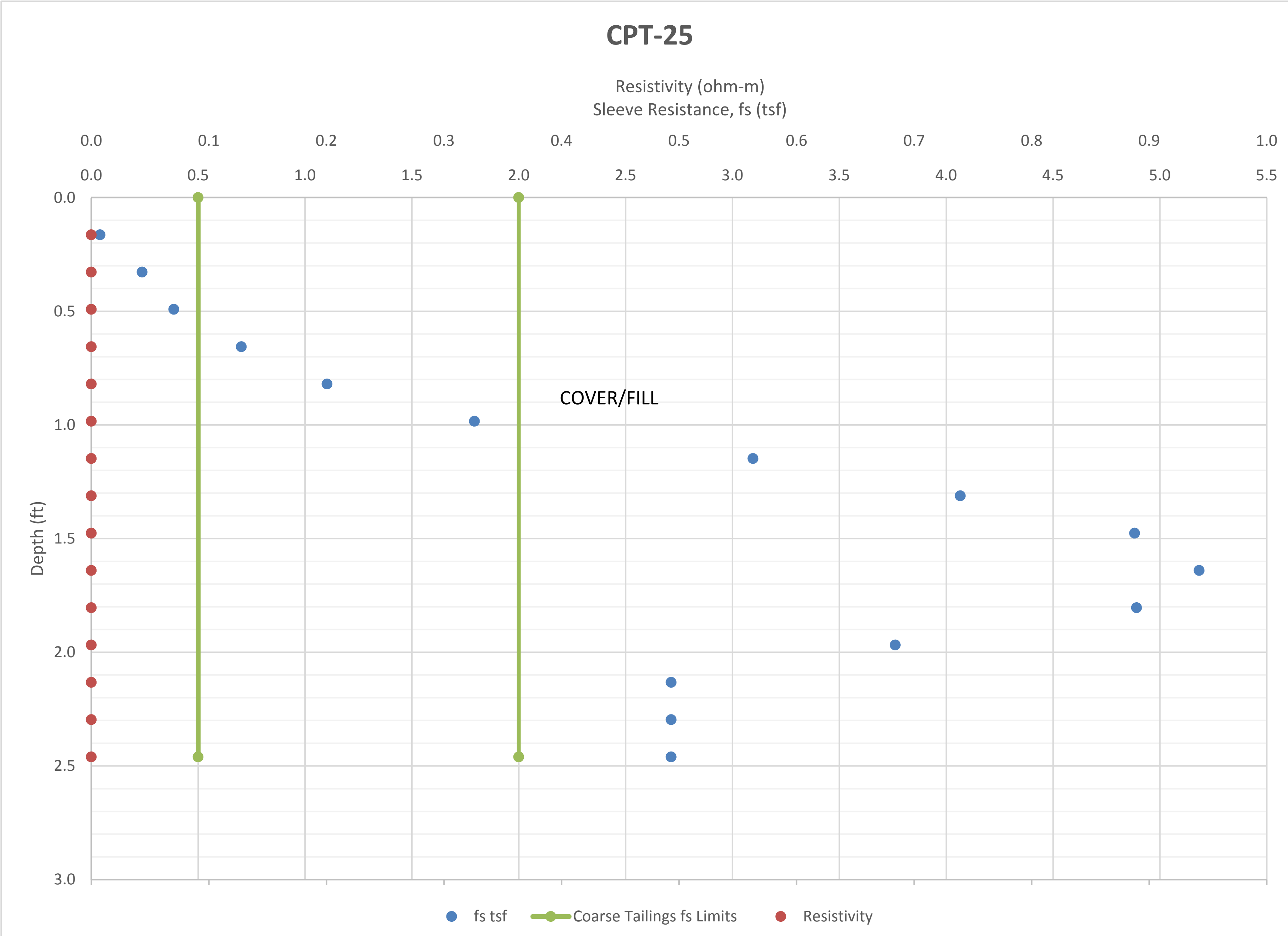


CPT-19
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700 800
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5
Depth (ft)
0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

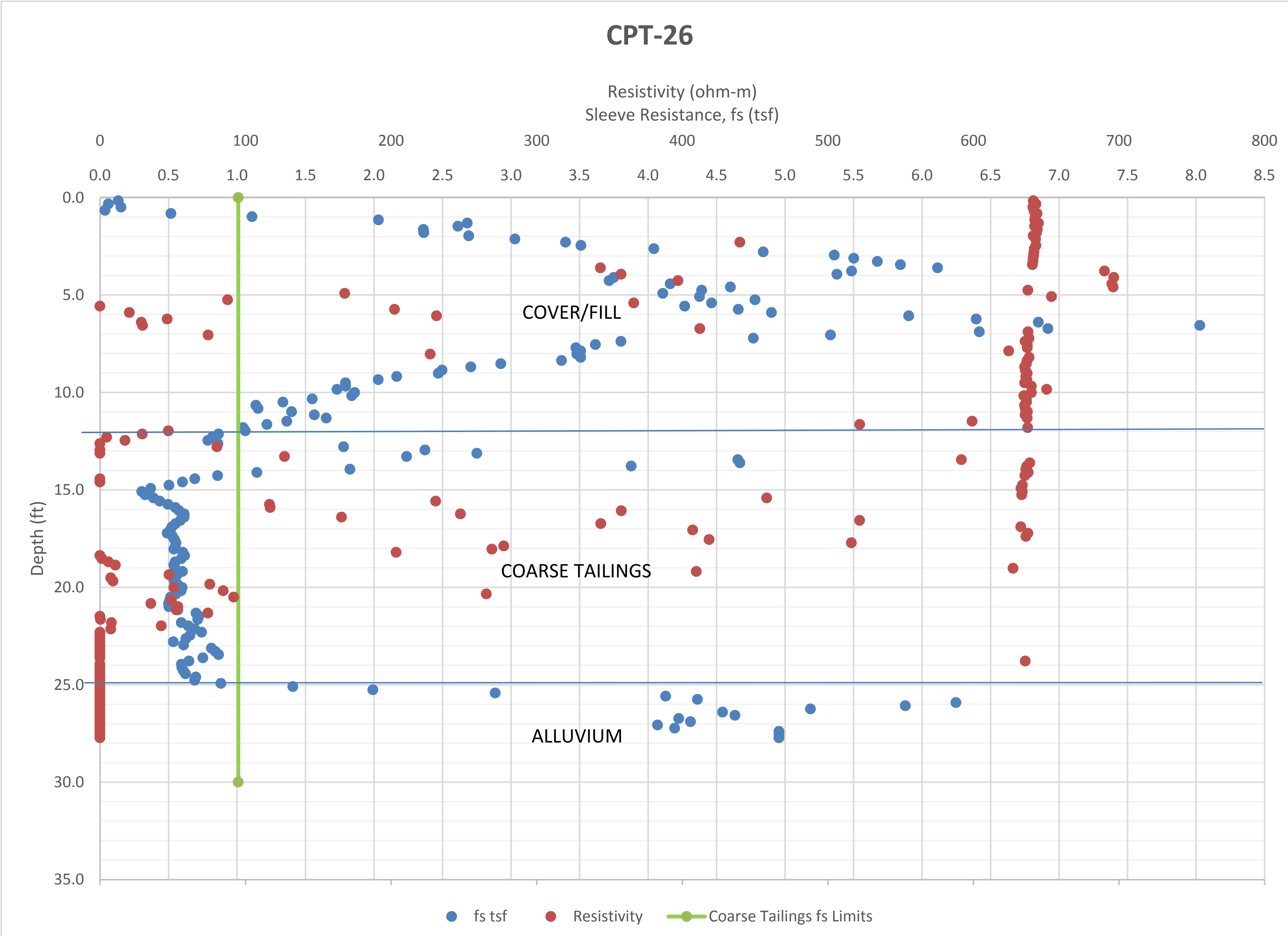

CPT-20
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
COVER/FILL
COARSE TAILINGS
FINE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity


CPT-23
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
COVER/FILL
FINE TAILINGS
COARSE TAILINGS
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

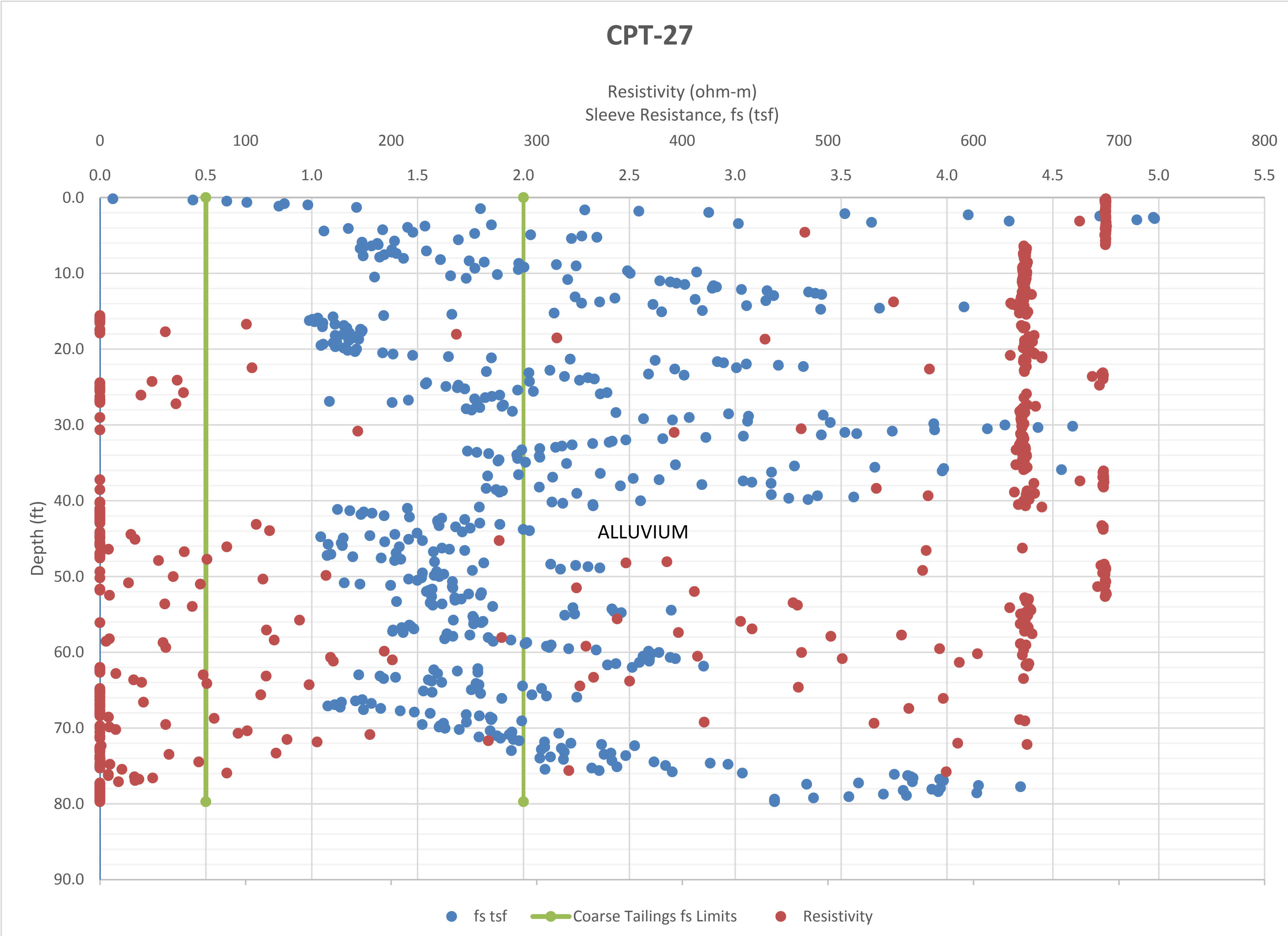

CPT-24
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700 800
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
COVER/FILL
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity

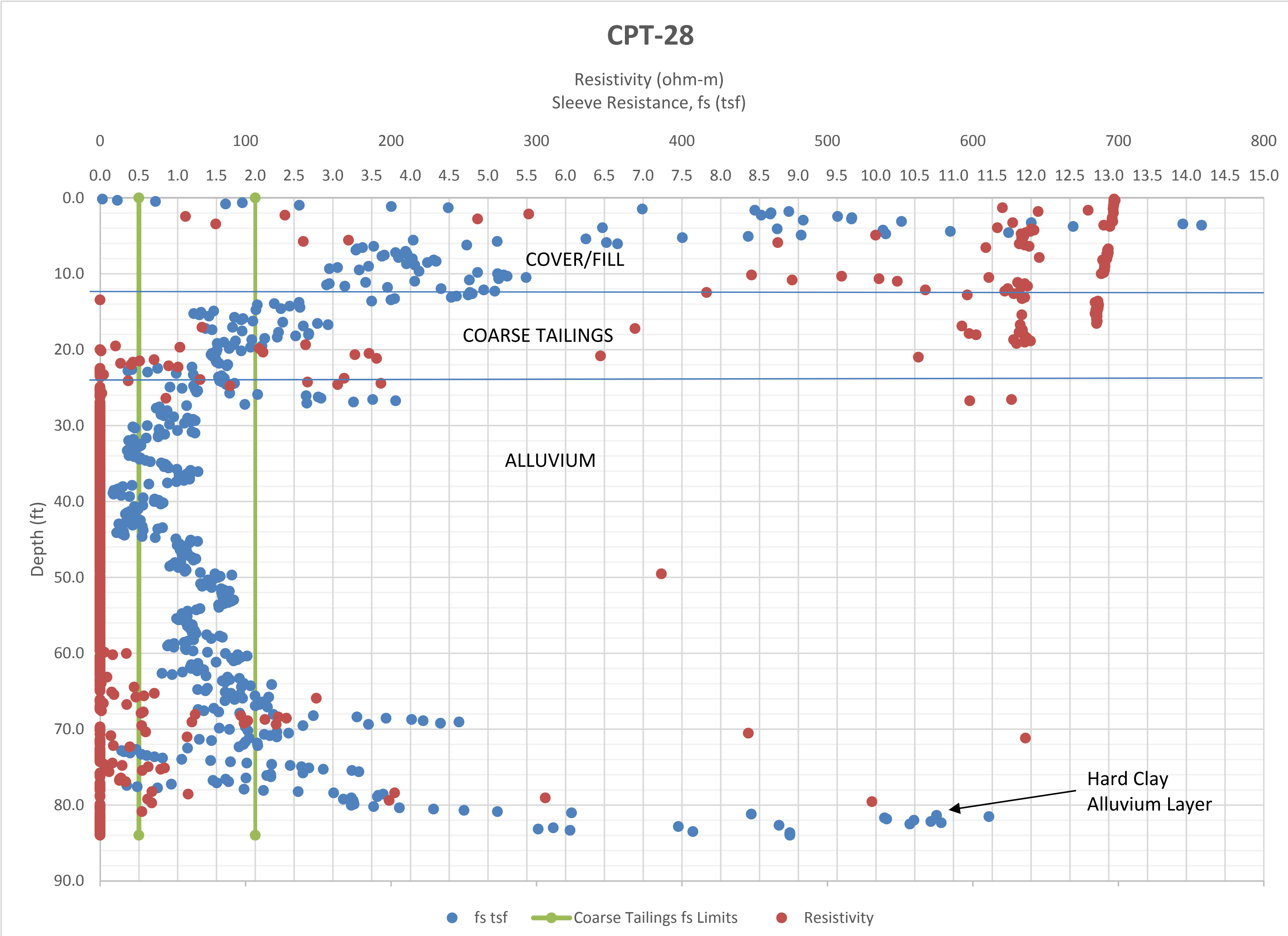


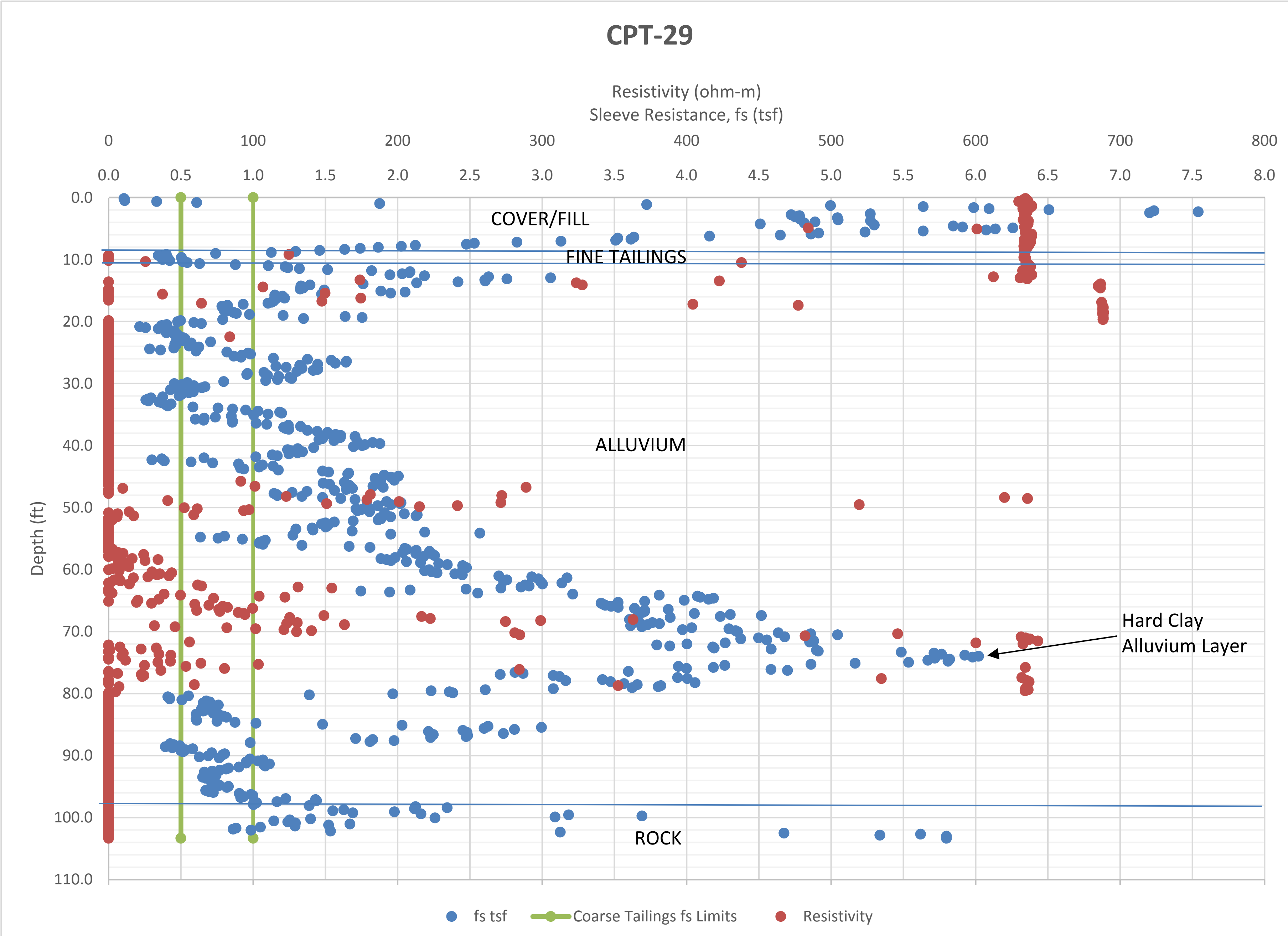
CPT-25
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5
Depth (ft)
0.0 0.5 1.0 1.5 2.0 2.5 3.0
COVER/FILL
fs tsf
Coarse Tailings fs Limits
Resistivity



CPT-26
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
Depth (ft)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
COVER/FILL
COARSE TAILINGS
ALLUVIUM
fs tsf
Resistivity
Coarse Tailings fs Limits


CPT-27
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
ALLUVIUM
fs tsf
Coarse Tailings fs Limits
Resistivity


CPT-28
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0 100 200 300 400 500 600 700 800
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0
Depth (ft)
0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0
COVER/FILL
COARSE TAILINGS
ALLUVIUM
Hard Clay
Alluvium Layer
fs tsf
Coarse Tailings fs Limits
Resistivity


CPT-29
Resistivity (ohm-m)
Sleeve Resistance, fs (tsf)
0
100
200
300
400
500
600
700
800
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
Depth (ft)
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
COVER/FILL
FINE TAILINGS
ALLUVIUM
Hard Clay
Alluvium Layer
ROCK
fs tsf
Coarse Tailings fs Limits
Resistivity

ATTACHMENT C

CONSOLIDATION SPREADSHEET CALCULATIONS

Notes

t_0 corresponds to beginning of mine spoils and final cover placement — Assumes 99% of consolidation due to existing stress conditions has taken place

t_1 corresponds to completion of settlement due to waste and cover placement.

SOIL PROPERTIES

TAILINGS

Specific Gravity, G_s		
2.67	Specific gravity of coarse tailings, $G_{s\text{-}CT}$	Average of results from laboratory testing of samples classified as "coarse tailings"
2.70	Specific gravity of fine tailings, $G_{s\text{-}FT}$	Average of results from laboratory testing of samples classified as "fine tailings"
Dry Unit Weight, γ_d		
97.5	In-situ dry unit weight of coarse tailings at t_0, $\gamma_{d0\text{-}CT}$ (pcf)	Average of results from laboratory testing of samples classified as "coarse tailings"
71.7	In-situ dry unit weight of fine tailings at t_0, $\gamma_{d0\text{-}FT}$ (pcf)	Average of results from laboratory testing of samples classified as "fine tailings"
Saturated Unit Weight, γ_{sat}		
123.4	In-situ saturated unit weight of coarse tailings at t_0, $\gamma_{sat0\text{-}CT}$ (pcf)	Calculated
107.5	In-situ saturated unit weight of fine tailings at t_0, $\gamma_{sat0\text{-}FT}$ (pcf)	Calculated
Moist Unit Weight, γ_m		
108.1	Moist unit weight of coarse tailings, $\gamma_{m\text{-}CT}$ (pcf)	Calculated
107.6	Moist unit weight of fine tailings, $\gamma_{m\text{-}FT}$ (pcf)	Calculated, assuming 100% saturation
Void Ratio, e		
0.71	Void ratio of coarse tailings at t_0, $e_{0\text{-}CT}$	Calculated
1.35	Void ratio of fine tailings at t_0, $e_{0\text{-}FT}$	Calculated
Saturated Water Content, w_{Sat}		
27.8%	Saturated water content of coarse tailings at t_0, $w_{sat0\text{-}CT}$ (%)	Average of 12 specimens tested for SWCC
50.1%	Saturated water content of fine tailings at t_0, $w_{sat0\text{-}FT}$ (%)	Average of 4 specimens tested for SWCC
Water Content of Moist Tailings, w_m		
10.9%	Water content of moist coarse tailings, $w_{m\text{-}CT}$ (%)	Average of results from laboratory testing of samples classified as "coarse tailings"
50.1%	Water content of moist fine tailings, $w_{m\text{-}FT}$ (%)	Assumes 100% saturation of fine tailings
Compression Index, C_c		
0.084	Compression index of coarse tailings, $C_{c\text{-}CT}$	Average of 4 results from laboratory testing of samples classified as "coarse tailings"
0.408	Compression index of fine tailings, $C_{c\text{-}FT}$	Average of 3 results from laboratory testing of samples classified as "fine tailings"
Other		
62.4	Unit Weight of Water, γ_W	

MINE SPOILS AND COVER MATERIALS

Specific Gravity, G_s		
2.71	Specific gravity of cover soil with rock admixture, $G_{s\text{-}rock\text{-}mix}$	Average of results of laboratory testing performed on samples from erosion protection gravel stockpiles and all borrow sources, weighted for 33% rock in the mixture
2.69	Specific gravity of cover soil, $G_{s\text{-}cover}$	Average of results of laboratory testing performed on samples from all borrow sources, except the Dilco Hill borrow source
2.66	Specific gravity of mine spoils, $G_{s\text{-}spoils}$	Average of results of laboratory testing performed on samples from mine spoils
Unit Weight, γ		
130.0	Maximum dry unit weight of cover soil with rock admixture, $\gamma_{rock\text{-}mix\text{-}max}$ (pcf)	Assumed, based on the properties of materials and 33% rock by volume
122.9	Moist unit weight of cover soil with rock admixture at 90% relative compaction, $\gamma_{rock\text{-}mix\text{-}90}$ (pcf)	Calculated
115.0	Maximum dry unit weight of cover soil $\gamma_{cover\text{-}max}$ (pcf)	Average of results of laboratory Proctor testing performed on samples from all borrow sources, except the Dilco Hill borrow source
114.7	Moist unit weight of cover soil at 90% relative compaction, $\gamma_{cover90}$ (pcf)	Calculated
118.3	Maximum dry unit weight of mine spoils, $\gamma_{spoils\text{-}max}$ (pcf)	Average of results of laboratory testing performed on samples from mine spoils
116.4	Moist unit weight of mine spoils at 90% relative compaction, $\gamma_{spoils90}$ (pcf)	Calculated
Void Ratio, e		
0.45	Void Ratio of cover soil with rock admixture at 90% relative compaction, $e_{rock\text{-}mix\text{-}90}$	Calculated
0.62	Void Ratio of cover soil at 90% relative compaction, $e_{cover90}$	Calculated
0.56	Void Ratio of mine spoils at 90% relative compaction, $e_{spoils90}$	Calculated
Long-Term Moisture Content, w		
5.0%	Long-term moisture content of cover soil with rock admixture, $w_{rock\text{-}mix}$ (%)	Assumed to be the same as the cover soil, average from the borrow samples
10.8%	Long-term moisture content of cover soil, w_{cover} (%)	Average minus 3% of optimum, of results of laboratory Proctor testing performed on samples from all borrow sources, except the Dilco Hill borrow source
9.3%	Long-term moisture content of mine spoils, w_{spoils} (%)	Average minus 3% of optimum water content based on results of laboratory testing performed on samples from mine spoils

Compression Index, C_c

	Compression index of cover soil with rock admixture, $C_{c\text{-rock-mix}}$ (%)	Assumed to be the same as coarse tailings
0.086	Compression index of cover soil, $C_{c\text{-cover}}$ (%)	Assumed to be the same as mine spoils
0.086	Compression index of mine spoils, $C_{c\text{-spoils}}$ (%)	Average of 5 results of laboratory testing performed on samples from alluvium located beneath the tailings impoundment.

ALLUVIUM MATERIAL

Specific Gravity, G_s

2.72		Average of results of laboratory testing performed on samples of alluvium

Unit Weight, γ

97.9	Dry unit weight of alluvium $\gamma_{alluvium}$ (pcf)	Average of results of laboratory testing performed on samples of alluvium
114.8	Moist unit weight of alluvium, $\gamma_{m\text{-alluvium}}$ (pcf)	Calculated

Void Ratio, e

0.73		Calculated

In-place Moisture Content, w

17.3		Average of results of laboratory testing performed on samples of alluvium

Compression Index, C_c

0.09		Average of 5 results from laboratory testing performed on samples of alluvium

SECONDARY COMPRESSION INDEX

Secondary Compression Index, C_α

0.0017	For loads < 1650 psf	Average of 3 consolidation test results from laboratory testing performed on fine tailings (TI-B8, TI-B10, and TI-B11)
0.0036	For loads < 3250 psf, but > 1650 psf	Average of 3 consolidation test results from laboratory testing performed on fine tailings (TI-B8, TI-B10, and TI-B11)
0.0047	For loads < 6500 psf, but > 3250 psf	Average of 3 consolidation test results from laboratory testing performed on fine tailings (TI-B8, TI-B10, and TI-B11)
0.0087	For loads < 13000 psf, but > 6500 psf	Average of 2 consolidation test results from laboratory testing performed on fine tailings (TI-B10, and TI-B11)

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-01(TI-B1)

LOCATION INFORMATION

1,692,256	Northing coordinate of CPT sounding	
2,524,535	Easting coordinate of CPT sounding	
6,972.1	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,970.0	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,935.7	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

2.1	Thickness of Erosion Protection Layer (ft)	B1 is beyond edge of waste
0.0	Thickness of General Fill Cover (ft)	B1 is beyond edge of waste

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6972.1	6971.0	6970.0	2.1	N/A	N/A	128.9	257.9	0.00	0.0%	0.45	0.00
3	Cover	114.7	0.086	0.62	6970.0	6960.7	6951.5	18.5	1058.5	2117.1	1316.4	2374.9	0.00	0.0%	0.62	0.00
4	Coarse Tailings	108.1	0.084	0.71	6951.5	6946.0	6940.4	11.1	2717.2	3317.3	2975.0	3575.1	0.00	0.0%	0.62	-0.09
5	Fine Tailings	107.6	0.408	1.35	6940.4	6938.1	6935.7	4.7	3570.2	3823.1	3828.1	4081.0	0.02	0.5%	0.61	-0.74
											TOTAL SETTLEMENT:		0.02			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0047	4.7	0.05
		TOTAL SETTLEMENT:		0.05

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-02(TI-B2)

LOCATION INFORMATION

1,692,647	Northing coordinate of CPT sounding	
2,525,098	Easting coordinate of CPT sounding	
6,974.4	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,960.2	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,945.2	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.5	Thickness of Erosion Protection Layer (ft)	Assumed
3.0	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6974.4	6973.7	6972.9	1.5	N/A	N/A	92.1	184.3	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6972.9	6971.4	6969.9	3.0	N/A	N/A	356.3	528.3	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6969.9	6964.8	6959.7	10.3	N/A	N/A	1126.1	1723.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6959.7	6953.5	6947.4	12.3	705.4	1410.9	2429.2	3134.7	0.00	0.0%	0.62	0.00
5	Fine Tailings	107.6	0.408	1.35	6947.4	6946.3	6945.2	2.2	1529.3	1647.7	3253.1	3371.4	0.13	5.7%	0.53	-0.82
											TOTAL SETTLEMENT:		0.13			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0047	2.2	0.03
		TOTAL SETTLEMENT:		0.03

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-04

LOCATION INFORMATION

1,692,397	Northing coordinate of CPT sounding	
2,524,891	Easting coordinate of CPT sounding	
6,977.8	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,965.0	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,945.2	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.5	Thickness of Erosion Protection Layer (ft)	Assumed
3.0	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6977.8	6977.0	6976.3	1.5	N/A	N/A	92.1	184.3	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6976.3	6974.8	6973.3	3.0	N/A	N/A	356.3	528.3	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6973.3	6968.9	6964.5	8.8	N/A	N/A	1038.4	1548.4	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6964.5	6959.7	6955.0	9.5	543.9	1087.8	2092.3	2636.3	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6955.0	6952.0	6949.0	6.0	1412.2	1736.6	2960.6	3285.0	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6949.0	6947.1	6945.2	3.8	1942.9	2149.1	3491.3	3697.5	0.17	4.4%	0.55	-0.80
											TOTAL SETTLEMENT:		0.17			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	3.8	0.04
		TOTAL SETTLEMENT:		0.04

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-05

LOCATION INFORMATION

1,692,072	Northing coordinate of CPT sounding	
2,525,535	Easting coordinate of CPT sounding	
6,999.4	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,973.0	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,963.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6999.4	6998.8	6998.2	1.1	N/A	N/A	69.1	138.2	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6998.2	6996.5	6994.8	3.4	N/A	N/A	333.2	528.1	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6994.8	6983.7	6972.5	22.3	N/A	N/A	1826.2	3124.4	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6972.5	6969.8	6967.0	5.5	317.0	634.1	3441.4	3758.4	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6967.0	6965.0	6963.0	4.0	851.4	1068.8	3975.8	4193.2	0.00	0.0%	0.62	-0.09
											TOTAL SETTLEMENT:		0.00			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-06

LOCATION INFORMATION

1,691,925	Northing coordinate of CPT sounding	
2,525,897	Easting coordinate of CPT sounding	
6,997.7	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,974.2	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,940.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-top}0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-mid}0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-bott}0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-mid}0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-bott}0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-mid}1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-bott}1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6997.7	6997.1	6996.6	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6996.6	6994.9	6993.2	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6993.2	6983.4	6973.7	19.5	N/A	N/A	1658.2	2791.3	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6973.7	6970.5	6967.3	6.4	367.0	733.9	3158.2	3525.2	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6967.3	6963.2	6959.0	8.3	1182.7	1631.4	3973.9	4422.7	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6959.0	6949.5	6940.0	19.0	2654.1	3676.7	5445.3	6468.0	1.03	5.4%	0.53	-0.82
											TOTAL SETTLEMENT:		1.03			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	19.0	0.22
		TOTAL SETTLEMENT:		0.22

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-08(TI-B8)

LOCATION INFORMATION

1,691,558	Northing coordinate of CPT sounding	
2,525,841	Easting coordinate of CPT sounding	
6,990.3	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,976.0	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,931.6	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6990.3	6989.7	6989.2	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6989.2	6987.5	6985.8	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6985.8	6980.7	6975.5	10.2	N/A	N/A	1119.4	1713.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6975.5	6972.3	6969.1	6.4	369.5	739.0	2083.3	2452.8	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6969.1	6959.5	6949.8	19.3	1782.4	2825.8	3496.2	4539.6	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6949.8	6940.7	6931.6	18.2	3805.2	4784.6	5519.0	6498.3	0.51	2.8%	0.58	-0.77
											TOTAL SETTLEMENT:		**0.51**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	18.2	0.21
		TOTAL SETTLEMENT:		**0.21**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-09

LOCATION INFORMATION

1,691,743	Northing coordinate of CPT sounding	
2,525,574	Easting coordinate of CPT sounding	
6,993.0	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,975.5	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,930.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6993.0	6992.5	6991.9	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6991.9	6990.2	6988.5	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6988.5	6981.8	6975.0	13.5	N/A	N/A	1310.4	2095.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6975.0	6971.8	6968.6	6.4	367.7	735.4	2463.5	2831.3	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6968.6	6964.4	6960.2	8.4	1189.6	1643.7	3285.4	3739.5	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6960.2	6945.1	6930.0	30.2	3268.8	4893.9	5364.6	6989.7	1.13	3.7%	0.56	-0.79
												TOTAL SETTLEMENT:	**1.13**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	30.2	0.34
			TOTAL SETTLEMENT:	**0.34**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-10(TI-B10)

LOCATION INFORMATION

1,691,776	Northing coordinate of CPT sounding	
2,525,854	Easting coordinate of CPT sounding	
6,994.6	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,973.6	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,930.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6994.6	6994.0	6993.5	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6993.5	6991.8	6990.1	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6990.1	6981.6	6973.1	17.0	N/A	N/A	1514.0	2503.0	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6973.1	6970.0	6967.0	6.1	349.7	699.3	2852.7	3202.3	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6967.0	6961.2	6955.4	11.6	1326.4	1953.6	3829.5	4456.6	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6955.4	6942.7	6930.0	25.4	3320.4	4687.2	5823.4	7190.2	1.08	4.2%	0.55	-0.80
											TOTAL SETTLEMENT:		**1.08**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	25.4	0.29
		TOTAL SETTLEMENT:		**0.29**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-11(TI-B11)

LOCATION INFORMATION

1,691,704	Northing coordinate of CPT sounding	
2,526,258	Easting coordinate of CPT sounding	
6,981.7	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,977.4	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,920.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6981.7	6981.2	6980.6	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6980.6	6978.9	6977.2	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6977.2	6977.1	6976.9	0.3	N/A	N/A	541.0	557.0	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6976.9	6954.4	6931.9	45.0	2582.0	5164.1	3139.1	5721.1	0.00	0.0%	0.62	0.00
5	Fine Tailings	107.6	0.408	1.35	6931.9	6926.0	6920.0	11.9	5804.4	6444.8	6361.5	7001.8	0.08	0.7%	0.61	-0.74
											TOTAL SETTLEMENT:		0.08			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0047	11.9	0.14
		TOTAL SETTLEMENT:		0.14

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-12

LOCATION INFORMATION

1,691,527	Northing coordinate of CPT sounding	
2,526,216	Easting coordinate of CPT sounding	
6,983.8	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,978.9	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,932.4	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6983.8	6983.3	6982.7	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6982.7	6981.0	6979.3	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6979.3	6978.9	6978.4	0.9	N/A	N/A	576.8	628.5	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6978.4	6956.7	6934.9	43.5	2496.3	4992.6	3124.8	5621.1	0.00	0.0%	0.62	0.00
5	Fine Tailings	107.6	0.408	1.35	6934.9	6933.7	6932.4	2.5	5127.1	5261.7	5755.6	5890.2	0.02	0.9%	0.61	-0.74
											TOTAL SETTLEMENT:		**0.02**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)	
200.0	Time from completion of primary settlement, t_2 (years)	

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0047	2.5	0.03
		TOTAL SETTLEMENT:		**0.03**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-13

LOCATION INFORMATION

1,692,229	Northing coordinate of CPT sounding	
2,525,213	Easting coordinate of CPT sounding	
6,994.4	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,969.2	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
-	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6994.4	6993.8	6993.3	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6993.3	6991.6	6989.9	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6989.9	6979.3	6968.7	21.1	N/A	N/A	1754.8	2984.6	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6968.7	6966.9	6965.1	3.6	208.3	416.5	3192.8	3401.1	0.00	0.0%	0.62	0.00
											TOTAL SETTLEMENT:		0.00			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-14

LOCATION INFORMATION

1,691,554	Northing coordinate of CPT sounding	
2,525,656	Easting coordinate of CPT sounding	
6,988.9	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,979.7	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,957.3	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6988.9	6988.4	6987.8	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6987.8	6986.1	6984.4	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6984.4	6981.8	6979.2	5.2	N/A	N/A	829.4	1133.7	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6979.2	6974.6	6970.0	9.2	526.0	1052.1	1659.7	2185.7	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6970.0	6966.8	6963.5	6.5	1403.5	1754.9	2537.1	2888.5	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6963.5	6960.4	6957.3	6.3	2091.2	2427.5	3224.9	3561.2	0.20	3.3%	0.57	-0.78
											TOTAL SETTLEMENT:		0.20			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0036	6.3	0.05
		TOTAL SETTLEMENT:		0.05

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-15(TI-15)

LOCATION INFORMATION

1,691,690	Northing coordinate of CPT sounding	
2,525,091	Easting coordinate of CPT sounding	
6,986.7	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,976.6	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,946.7	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, z_{i-top0} (ft amsl)	Elevation at Midpoint of Layer at t_0, z_{i-mid0} (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i-bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, σ'_{i-mid0} (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i-bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, σ'_{i-mid1} (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i-bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, δ_{ci-t1} (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6986.7	6986.2	6985.6	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6985.6	6983.9	6982.2	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6982.2	6979.2	6976.1	6.1	N/A	N/A	879.2	1233.4	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6976.1	6975.1	6974.0	2.1	123.0	246.0	1356.4	1479.4	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6974.0	6960.3	6946.7	27.4	1724.6	3203.3	2958.0	4436.7	0.00	0.0%	0.62	-0.09
											TOTAL SETTLEMENT:		**0.00**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		**0.00**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-16

LOCATION INFORMATION

1,691,911	Northing coordinate of CPT sounding	
2,525,665	Easting coordinate of CPT sounding	
6,996.6	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,973.3	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,930.2	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6996.6	6996.1	6995.5	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6995.5	6993.8	6992.1	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6992.1	6982.5	6972.8	19.4	N/A	N/A	1651.9	2778.7	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6972.8	6968.7	6964.7	8.1	463.3	926.6	3242.0	3705.3	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6964.7	6961.4	6958.2	6.5	1278.0	1629.4	4056.7	4408.1	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6958.2	6944.2	6930.2	28.0	3137.2	4645.0	5915.9	7423.7	1.34	4.8%	0.54	-0.81
											TOTAL SETTLEMENT:		1.34			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	28.0	0.32
		TOTAL SETTLEMENT:		0.32

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-17

LOCATION INFORMATION

1,692,058	Northing coordinate of CPT sounding	
2,526,096	Easting coordinate of CPT sounding	
6,988.9	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,975.6	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,955.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6988.9	6988.4	6987.8	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6987.8	6986.1	6984.4	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6984.4	6979.8	6975.1	9.3	N/A	N/A	1067.8	1610.6	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6975.1	6972.2	6969.2	5.9	338.2	676.4	1948.7	2286.9	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6969.2	6966.2	6963.1	6.1	1004.5	1332.6	2615.0	2943.2	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6963.1	6959.1	6955.0	8.2	1772.3	2212.0	3382.8	3822.5	0.40	4.9%	0.54	-0.81
												TOTAL SETTLEMENT:	**0.40**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	8.2	0.09
			TOTAL SETTLEMENT:	**0.09**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-18

LOCATION INFORMATION

1,691,833	Northing coordinate of CPT sounding	
2,526,009	Easting coordinate of CPT sounding	
6,993.6	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,972.4	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,930.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6993.6	6993.1	6992.5	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6992.5	6990.8	6989.1	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6989.1	6980.5	6971.9	17.3	N/A	N/A	1529.7	2534.3	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6971.9	6969.8	6967.8	4.1	234.7	469.4	2769.0	3003.7	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6967.8	6964.2	6960.6	7.2	859.6	1249.8	3393.9	3784.2	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6960.6	6945.3	6930.0	30.6	2894.7	4539.5	5429.0	7073.8	1.45	4.7%	0.54	-0.80
											TOTAL SETTLEMENT:		1.45			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	30.6	0.35
		TOTAL SETTLEMENT:		0.35

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-19

LOCATION INFORMATION

1,691,633	Northing coordinate of CPT sounding	
2,525,915	Easting coordinate of CPT sounding	
6,992.0	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,975.3	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,930.0	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6992.0	6991.4	6990.9	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6990.9	6989.2	6987.5	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6987.5	6981.2	6974.8	12.7	N/A	N/A	1262.5	1999.9	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6974.8	6970.6	6966.3	8.5	488.6	977.3	2488.6	2977.2	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6966.3	6957.5	6948.7	17.6	1926.2	2875.1	3926.1	4875.1	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6948.7	6939.4	6930.0	18.7	3883.8	4892.5	5883.8	6892.4	0.59	3.1%	0.57	-0.78
											TOTAL SETTLEMENT:		**0.59**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	18.7	0.21
		TOTAL SETTLEMENT:		**0.21**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-20

LOCATION INFORMATION

1,691,422	Northing coordinate of CPT sounding	
2,525,862	Easting coordinate of CPT sounding	
6,985.5	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,979.1	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,947.7	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6985.5	6984.9	6984.4	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6984.4	6982.7	6981.0	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6981.0	6979.8	6978.6	2.3	N/A	N/A	661.4	797.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6978.6	6972.7	6966.8	11.8	676.8	1353.5	1474.6	2151.4	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6966.8	6962.3	6957.8	9.0	1841.7	2329.9	2639.6	3127.8	0.00	0.0%	0.62	-0.09
6	Fine Tailings	107.6	0.408	1.35	6957.8	6952.7	6947.7	10.1	2874.2	3418.5	3672.0	4216.3	0.19	1.8%	0.59	-0.76
											TOTAL SETTLEMENT:		**0.19**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
6	Fine Tailings	0.0047	10.1	0.12
		TOTAL SETTLEMENT:		**0.12**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-23(TI-23)

LOCATION INFORMATION

1,692,864	Northing coordinate of CPT sounding	
2,525,720	Easting coordinate of CPT sounding	
6,977.3	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,959.5	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6,943.5	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.5	Thickness of Erosion Protection Layer (ft)	Assumed
3.0	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6977.3	6976.5	6975.8	1.5	N/A	N/A	92.1	184.3	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6975.8	6974.3	6972.8	3.0	N/A	N/A	356.3	528.3	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6972.8	6965.9	6959.0	13.7	N/A	N/A	1328.2	2128.1	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6959.0	6952.6	6946.1	12.9	739.7	1479.3	2867.7	3607.4	0.00	0.0%	0.62	0.00
5*	Fine Tailings	107.6	0.408	1.35	6946.1	6945.7	6945.3	0.8	43.0	86.1	3650.5	3693.5	0.00	0.0%	1.35	0.00
6	Coarse Tailings	108.1	0.084	0.71	6945.3	6944.4	6943.5	1.8	183.4	280.7	3790.8	3888.1	0.00	0.0%	0.71	0.00
											TOTAL SETTLEMENT:		0.00			

Notes:

*Assumed that the fine tailings layer is unsaturated at this location and no settlement will occur

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0047	0.8	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-24

LOCATION INFORMATION

1692567.3	Northing coordinate of CPT sounding	
2525413	Easting coordinate of CPT sounding	
6987.33	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6962.28	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
-	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.5	Thickness of Erosion Protection Layer (ft)	Assumed
3.0	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6987.3	6986.6	6985.8	1.5	N/A	N/A	92.1	184.3	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6985.8	6984.3	6982.8	3.0	N/A	N/A	356.3	528.3	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6982.8	6972.3	6961.8	21.1	N/A	N/A	1753.4	2978.5	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6961.8	6958.6	6955.3	6.4	369.1	738.1	3347.5	3716.6	0.00	0.0%	0.62	0.00
											TOTAL SETTLEMENT:		0.00			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-25

LOCATION INFORMATION

1,692,436	Northing coordinate of CPT sounding	
2,525,693	Easting coordinate of CPT sounding	
6,998.6	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6,969.3	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
-	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-top}0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-mid}0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-bott}0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-mid}0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-bott}0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-mid}1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-bott}1}$ (psf)	Consolidtion of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6998.6	6998.1	6997.5	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6997.5	6995.8	6994.1	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6994.1	6981.6	6969.1	25.0	N/A	N/A	1981.2	3437.4	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6969.1	6969.1	6969.1	0.0	0.0	0.0	3437.4	3437.4	0.00	0.0%	0.62	0.00
											TOTAL SETTLEMENT:		**0.00**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		**0.00**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-26

LOCATION INFORMATION

1691992.5	Northing coordinate of CPT sounding	
2524854.3	Easting coordinate of CPT sounding	
6985.2	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6972.7	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6947.2	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6985.2	6984.7	6984.1	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6984.1	6982.4	6980.7	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6980.7	6976.5	6972.2	8.5	N/A	N/A	1017.9	1510.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6972.2	6966.2	6960.2	12.0	688.1	1376.1	2198.8	2886.9	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6960.2	6953.7	6947.2	13.0	2079.0	2781.8	3589.7	4292.5	0.00	0.0%	0.62	-0.09
											TOTAL SETTLEMENT:		0.00			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-27

LOCATION INFORMATION

1691670.7	Northing coordinate of CPT sounding	
2526106.9	Easting coordinate of CPT sounding	
6989.0	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6977.0	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
-	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

1.1	Thickness of Erosion Protection Layer (ft)	Assumed
3.4	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6989.0	6988.5	6987.9	1.1	N/A	N/A	67.6	135.1	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6987.9	6986.2	6984.5	3.4	N/A	N/A	330.1	525.0	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6984.5	6980.5	6976.5	8.0	N/A	N/A	990.4	1455.8	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6976.5	6969.3	6962.0	14.5	831.4	1662.8	2287.2	3118.6	0.00	0.0%	0.62	0.00
											TOTAL SETTLEMENT:		0.00			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		0.00

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-28

LOCATION INFORMATION

1692484.7	Northing coordinate of CPT sounding	
2524698.6	Easting coordinate of CPT sounding	
6968.5	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)	From cover design grading plan AutoCAD file
6963.7	Existing Ground Surface Elevation (ft amsl)	From AutoCAD file
6937.3	Elevation of Base of Tailings (ft amsl)	From AutoCAD file

FINAL COVER

2.3	Thickness of Erosion Protection Layer (ft)	Assumed
2.2	Thickness of General Fill Cover (ft)	Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6968.5	6967.3	6966.2	2.3	N/A	N/A	138.2	276.4	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6966.2	6965.1	6964.0	2.2	N/A	N/A	402.6	528.7	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6964.0	6963.6	6963.2	0.8	N/A	N/A	573.2	617.7	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6963.2	6957.0	6950.8	12.5	714.4	1428.8	1332.1	2046.5	0.00	0.0%	0.62	0.00
5	Coarse Tailings	108.1	0.084	0.71	6950.8	6944.1	6937.3	13.5	2156.0	2883.3	2773.8	3501.0	0.00	0.0%	0.62	-0.09
											TOTAL SETTLEMENT:		**0.00**			

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
NA	Fine Tailings	0.0000	0.0	0.00
		TOTAL SETTLEMENT:		**0.00**

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-29

LOCATION INFORMATION

1693003.9	Northing coordinate of CPT sounding
2525274.5	Easting coordinate of CPT sounding
6965.9	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl) — From cover design grading plan AutoCAD file
6957.5	Existing Ground Surface Elevation (ft amsl) — From AutoCAD file
6948.0	Elevation of Base of Tailings (ft amsl) — From AutoCAD file

FINAL COVER

2.6	Thickness of Erosion Protection Layer (ft) — Assumed
1.9	Thickness of General Fill Cover (ft) — Assumed

PRIMARY CONSOLIDATION

Soil Layer	Material Type	Unit Weight, γ (pcf)	Compression Index, C_c	Void Ratio at t_0, e_0	Elevation at Top of Layer at t_0, $z_{i\text{-}top0}$ (ft amsl)	Elevation at Midpoint of Layer at t_0, $z_{i\text{-}mid0}$ (ft amsl)	Elevation at Bottom of Layer at t_0, $z_{i\text{-}bott0}$ (ft amsl) [1]	Thickness of Layer at t_0, H (ft)	Effective Stress at Midpoint of Layer at t_0, $\sigma'_{i\text{-}mid0}$ (psf)	Effective Stress at Bottom of Layer at t_0, $\sigma'_{i\text{-}bott0}$ (psf)	Effective Stress at Midpoint of Layer at t_1, $\sigma'_{i\text{-}mid1}$ (psf)	Effective Stress at Bottom of Layer at t_1, $\sigma'_{i\text{-}bott1}$ (psf)	Consolidation of Layer from t_0 to t_1 due to Placement of Mine Spoils and Final Cover, $\delta_{ci\text{-}t1}$ (ft)	% Settlement	Void Ratio at t_1, e_1	Change in Void Ratio, Δe
1	Erosion Protection	122.9	0.000	0.45	6965.9	6964.6	6963.3	2.6	N/A	N/A	161.2	322.5	0.00	0.0%	0.45	0.00
2	Cover	114.7	0.086	0.62	6963.3	6962.4	6961.4	1.9	N/A	N/A	430.0	537.5	0.00	0.0%	0.62	0.00
3	Mine Spoils	116.4	0.086	0.56	6961.4	6959.2	6957.0	4.4	N/A	N/A	796.0	1054.6	0.00	0.0%	0.56	0.00
4	Cover	114.7	0.086	0.62	6957.0	6953.0	6949.0	8.0	458.7	917.4	1513.3	1972.0	0.00	0.0%	0.62	0.00
5*	Fine Tailings	107.6	0.408	1.35	6949.0	6948.5	6948.0	1.0	971.5	1025.6	2026.1	2080.2	0.00	0.0%	1.35	0.00
											TOTAL SETTLEMENT:		**0.00**			

Notes:

*Assumed that the fine tailings layer is unsaturated at this location and no settlement will occur

SECONDARY CONSOLIDATION

0.8	Time for completion of primary settlement, t_1 (years)
200.0	Time from completion of primary settlement, t_2 (years)

Soil Layer	Material Type	Secondary Compression Index, C_a	Thickness of Layer at t_0, H (ft)	Secondary Consolidation, S_s (ft)
5	Fine Tailings	0.0036	1.0	0.00
		TOTAL SETTLEMENT:		**0.00**

ATTACHMENT D

IMMEDIATE SETTLEMENT CALCULATIONS

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-01 Settlement

IMMEDIATE SETTLEMENT

CPT Profile Information

	Thickness (ft)	E (ksf)	ν	γ (psf)	
Erosion Protection (repository)	2.1			122.9	
Cover Fill (repository)	0.0			114.7	
Mine Spoils (repository)	0.0			116.4	
Radon Barrier (existing)	2.5	450	0.3	122.3	Hard, moist, sandy clay
Existing Fill (existing)	16.0	680	0.35	113.8	
Coarse Tailings (existing)	11.1	150	0.3	108.1	Silty sand tailings
		McCarthy (1998)	McCarthy (1998)		

Total Fill Height 2.1 above radon barrier

Soil Properties (McCarthy, 1998):

Soil Type	E/N	E/qc
Silts, sand silts, slightly cohesive silt-sand mixtures	4	1.5
Clean, Fine to med, sands and slightly silty sands	7	2
Coarse sands and sands with little gravel	10.0	3
Sandy gravels and gravel	12.0	4

Modulus of Elasticity, E (ksf)
Weighted average 462 by depth/thickness of layers

Poisson's Ratio, ν
Weighted average 0.3 McCarthy (1998)

Influence Factor, I 0.64

$\delta v = (\Delta q) * B * (1-v^2)/E * I$ NAVFAC (1989), section 7.1-211

Δq = 258.1 psf
Δq = 0.26 ksf
B = 250 ft

I = 0.64 From NAVFAC chart, assuming a circular (flexible) shape and rigidity, calculated on the edge

Solution: δv = **0.1** ft

Estimate E:

Layer	Soil Description	z (ft)	Δz (ft)	E/qc	qc (ksf)	E (ksf)	Avg E (ksf) per layer
1	Ex. Cover	0.16404	0.16404	1.5	32.260	48.39	
2	Ex. Cover	0.32808	0.16404	1.5	84.140	126.21	
3	Ex. Cover	0.49212	0.16404	1.5	138.060	207.09	
4	Ex. Cover	0.65616	0.16404	1.5	225.500	338.25	
5	Ex. Cover	0.8202	0.16404	1.5	312.820	469.23	
6	Ex. Cover	0.98424	0.16404	1.5	333.860	500.79	
7	Ex. Cover	1.14828	0.16404	1.5	381.540	572.31	
8	Ex. Cover	1.31232	0.16404	1.5	380.120	570.18	505.5
9	Ex. Cover	1.47636	0.16404	1.5	424.100	636.15	
10	Ex. Cover	1.6404	0.16404	1.5	442.080	663.12	
11	Ex. Cover	1.80444	0.16404	1.5	449.340	674.01	
12	Ex. Cover	1.96848	0.16404	1.5	435.320	652.98	
13	Ex. Cover	2.13252	0.16404	1.5	402.300	603.45	
14	Ex. Cover	2.29656	0.16404	1.5	469.240	703.86	
15	Ex. Cover	2.4606	0.16404	1.5	543.940	815.91	
16	Ex. Fill	2.62464	0.16404	3.0	628.440	1885.32	
17	Ex. Fill	2.78868	0.16404	3.0	761.660	2284.98	
18	Ex. Fill	2.95272	0.16404	3.0	861.220	2583.66	
19	Ex. Fill	3.11676	0.16404	3.0	885.940	2657.82	

20	Ex. Fill	3.2808	0.16404	3.0	892.700	2678.1	
21	Ex. Fill	3.44484	0.16404	3.0	890.400	2671.2	
22	Ex. Fill	3.60888	0.16404	3.0	836.740	2510.22	
23	Ex. Fill	3.77292	0.16404	3.0	769.440	2308.32	
24	Ex. Fill	3.93696	0.16404	3.0	767.520	2302.56	
25	Ex. Fill	4.101	0.16404	3.0	764.600	2293.8	
26	Ex. Fill	4.26504	0.16404	3.0	719.340	2158.02	
27	Ex. Fill	4.42908	0.16404	3.0	674.720	2024.16	
28	Ex. Fill	4.59312	0.16404	3.0	635.460	1906.38	
29	Ex. Fill	4.75716	0.16404	3.0	568.660	1705.98	
30	Ex. Fill	4.9212	0.16404	3.0	460.940	1382.82	
31	Ex. Fill	5.08524	0.16404	3.0	359.220	1077.66	
32	Ex. Fill	5.24928	0.16404	3.0	258.400	775.2	
33	Ex. Fill	5.41332	0.16404	3.0	163.540	490.62	
34	Ex. Fill	5.57736	0.16404	3.0	113.840	341.52	
35	Ex. Fill	5.7414	0.16404	3.0	92.040	276.12	
36	Ex. Fill	5.90544	0.16404	3.0	79.420	238.26	
37	Ex. Fill	6.06948	0.16404	3.0	72.160	216.48	
38	Ex. Fill	6.23352	0.16404	3.0	81.460	244.38	
39	Ex. Fill	6.39756	0.16404	3.0	80.180	240.54	
40	Ex. Fill	6.5616	0.16404	3.0	76.620	229.86	
41	Ex. Fill	6.72564	0.16404	3.0	84.140	252.42	
42	Ex. Fill	6.88968	0.16404	3.0	96.760	290.28	
43	Ex. Fill	7.05372	0.16404	3.0	107.340	322.02	
44	Ex. Fill	7.21776	0.16404	3.0	126.200	378.6	
45	Ex. Fill	7.3818	0.16404	3.0	148.900	446.7	
46	Ex. Fill	7.54584	0.16404	3.0	151.940	455.82	
47	Ex. Fill	7.70988	0.16404	3.0	134.480	403.44	
48	Ex. Fill	7.87392	0.16404	3.0	138.180	414.54	
49	Ex. Fill	8.03796	0.16404	3.0	153.860	461.58	
50	Ex. Fill	8.202	0.16404	3.0	153.740	461.22	
51	Ex. Fill	8.36604	0.16404	3.0	151.180	453.54	
52	Ex. Fill	8.53008	0.16404	3.0	183.440	550.32	
53	Ex. Fill	8.69412	0.16404	3.0	186.240	558.72	
54	Ex. Fill	8.85816	0.16404	3.0	178.980	536.94	
55	Ex. Fill	9.0222	0.16404	3.0	156.800	470.4	
56	Ex. Fill	9.18624	0.16404	3.0	157.940	473.82	
57	Ex. Fill	9.35028	0.16404	3.0	144.180	432.54	
58	Ex. Fill	9.51432	0.16404	3.0	136.020	408.06	
59	Ex. Fill	9.67836	0.16404	3.0	141.240	423.72	
60	Ex. Fill	9.8424	0.16404	3.0	142.900	428.7	
61	Ex. Fill	10.00644	0.16404	3.0	124.800	374.4	
62	Ex. Fill	10.17048	0.16404	3.0	111.280	333.84	
63	Ex. Fill	10.33452	0.16404	3.0	98.420	295.26	
64	Ex. Fill	10.49856	0.16404	3.0	90.000	270	661.3
65	Ex. Fill	10.6626	0.16404	3.0	84.780	254.34	
66	Ex. Fill	10.82664	0.16404	3.0	75.200	225.6	
67	Ex. Fill	10.99068	0.16404	3.0	70.500	211.5	
68	Ex. Fill	11.15472	0.16404	3.0	70.740	212.22	
69	Ex. Fill	11.31876	0.16404	3.0	73.420	220.26	
70	Ex. Fill	11.4828	0.16404	3.0	74.060	222.18	
71	Ex. Fill	11.64684	0.16404	3.0	68.080	204.24	
72	Ex. Fill	11.81088	0.16404	3.0	67.300	201.9	
73	Ex. Fill	11.97492	0.16404	3.0	148.760	446.28	
74	Ex. Fill	12.13896	0.16404	3.0	228.560	685.68	
75	Ex. Fill	12.303	0.16404	3.0	304.920	914.76	
76	Ex. Fill	12.46704	0.16404	3.0	348.760	1046.28	
77	Ex. Fill	12.63108	0.16404	3.0	377.580	1132.74	
78	Ex. Fill	12.79512	0.16404	3.0	381.540	1144.62	

79	Ex. Fill	12.95916	0.16404	3.0	371.580	1114.74
80	Ex. Fill	13.1232	0.16404	3.0	347.240	1041.72
81	Ex. Fill	13.28724	0.16404	3.0	283.760	851.28
82	Ex. Fill	13.45128	0.16404	3.0	208.800	626.4
83	Ex. Fill	13.61532	0.16404	3.0	148.260	444.78
84	Ex. Fill	13.77936	0.16404	3.0	113.700	341.1
85	Ex. Fill	13.9434	0.16404	3.0	96.380	289.14
86	Ex. Fill	14.10744	0.16404	3.0	80.700	242.1
87	Ex. Fill	14.27148	0.16404	3.0	72.020	216.06
88	Ex. Fill	14.43552	0.16404	3.0	58.380	175.14
89	Ex. Fill	14.59956	0.16404	3.0	55.700	167.1
90	Ex. Fill	14.7636	0.16404	3.0	54.180	162.54
91	Ex. Fill	14.92764	0.16404	3.0	50.980	152.94
92	Ex. Fill	15.09168	0.16404	3.0	49.080	147.24
93	Ex. Fill	15.25572	0.16404	3.0	46.920	140.76
94	Ex. Fill	15.41976	0.16404	3.0	42.840	128.52
95	Ex. Fill	15.5838	0.16404	3.0	45.260	135.78
96	Ex. Fill	15.74784	0.16404	3.0	42.840	128.52
97	Ex. Fill	15.91188	0.16404	3.0	41.560	124.68
98	Ex. Fill	16.07592	0.16404	3.0	36.720	110.16
99	Ex. Fill	16.23996	0.16404	3.0	38.360	115.08
100	Ex. Fill	16.404	0.16404	3.0	44.360	133.08
101	Ex. Fill	16.56804	0.16404	3.0	45.260	135.78
102	Ex. Fill	16.73208	0.16404	3.0	42.060	126.18
103	Ex. Fill	16.89612	0.16404	3.0	41.820	125.46
104	Ex. Fill	17.06016	0.16404	3.0	56.600	169.8
105	Ex. Fill	17.2242	0.16404	3.0	55.460	166.38
106	Ex. Fill	17.38824	0.16404	3.0	53.160	159.48
107	Ex. Fill	17.55228	0.16404	3.0	62.840	188.52
108	Ex. Fill	17.71632	0.16404	3.0	65.900	197.7
109	Ex. Fill	17.88036	0.16404	3.0	67.820	203.46
110	Ex. Fill	18.0444	0.16404	3.0	68.080	204.24
111	Ex. Fill	18.20844	0.16404	3.0	66.160	198.48
112	Ex. Fill	18.37248	0.16404	3.0	75.080	225.24
113	Ex. Fill	18.53652	0.16404	3.0	404.860	1214.58
114	Coarse Tailings	18.70056	0.16404	2.0	756.680	1513.36
115	Coarse Tailings	18.8646	0.16404	2.0	883.660	1767.32
116	Coarse Tailings	19.02864	0.16404	2.0	910.940	1821.88
117	Coarse Tailings	19.19268	0.16404	2.0	888.360	1776.72
118	Coarse Tailings	19.35672	0.16404	2.0	894.360	1788.72
119	Coarse Tailings	19.52076	0.16404	2.0	906.480	1812.96
120	Coarse Tailings	19.6848	0.16404	2.0	872.560	1745.12
121	Coarse Tailings	19.84884	0.16404	2.0	844.400	1688.8
122	Coarse Tailings	20.01288	0.16404	2.0	796.840	1593.68
123	Coarse Tailings	20.17692	0.16404	2.0	743.300	1486.6
124	Coarse Tailings	20.34096	0.16404	2.0	694.860	1389.72
125	Coarse Tailings	20.505	0.16404	2.0	654.460	1308.92
126	Coarse Tailings	20.66904	0.16404	2.0	614.800	1229.6
127	Coarse Tailings	20.83308	0.16404	2.0	553.120	1106.24
128	Coarse Tailings	20.99712	0.16404	2.0	501.620	1003.24
129	Coarse Tailings	21.16116	0.16404	2.0	441.580	883.16
130	Coarse Tailings	21.3252	0.16404	2.0	388.280	776.56
131	Coarse Tailings	21.48924	0.16404	2.0	331.560	663.12
132	Coarse Tailings	21.65328	0.16404	2.0	288.100	576.2
133	Coarse Tailings	21.81732	0.16404	2.0	252.140	504.28
134	Coarse Tailings	21.98136	0.16404	2.0	226.520	453.04
135	Coarse Tailings	22.1454	0.16404	2.0	204.600	409.2
136	Coarse Tailings	22.30944	0.16404	2.0	190.320	380.64
137	Coarse Tailings	22.47348	0.16404	2.0	157.180	314.36

138	Coarse Tailings	22.63752	0.16404	2.0	139.960	279.92	
139	Coarse Tailings	22.80156	0.16404	2.0	130.020	260.04	
140	Coarse Tailings	22.9656	0.16404	2.0	112.680	225.36	
141	Coarse Tailings	23.12964	0.16404	2.0	102.620	205.24	
142	Coarse Tailings	23.29368	0.16404	2.0	94.960	189.92	
143	Coarse Tailings	23.45772	0.16404	2.0	88.980	177.96	
144	Coarse Tailings	23.62176	0.16404	2.0	86.180	172.36	
145	Coarse Tailings	23.7858	0.16404	2.0	82.340	164.68	
146	Coarse Tailings	23.94984	0.16404	2.0	84.520	169.04	
147	Coarse Tailings	24.11388	0.16404	2.0	78.660	157.32	576.4
148	Coarse Tailings	24.27792	0.16404	2.0	87.820	175.64	
149	Coarse Tailings	24.44196	0.16404	2.0	90.380	180.76	
150	Coarse Tailings	24.606	0.16404	2.0	91.900	183.8	
151	Coarse Tailings	24.77004	0.16404	2.0	100.060	200.12	
152	Coarse Tailings	24.93408	0.16404	2.0	109.120	218.24	
153	Coarse Tailings	25.09812	0.16404	2.0	122.640	245.28	
154	Coarse Tailings	25.26216	0.16404	2.0	148.640	297.28	
155	Coarse Tailings	25.4262	0.16404	2.0	172.980	345.96	
156	Coarse Tailings	25.59024	0.16404	2.0	206.900	413.8	
157	Coarse Tailings	25.75428	0.16404	2.0	214.160	428.32	
158	Coarse Tailings	25.91832	0.16404	2.0	209.320	418.64	
159	Coarse Tailings	26.08236	0.16404	2.0	202.420	404.84	
160	Coarse Tailings	26.2464	0.16404	2.0	196.820	393.64	
161	Coarse Tailings	26.41044	0.16404	2.0	191.980	383.96	
162	Coarse Tailings	26.57448	0.16404	2.0	181.660	363.32	
163	Coarse Tailings	26.73852	0.16404	2.0	167.380	334.76	
164	Coarse Tailings	26.90256	0.16404	2.0	142.780	285.56	
165	Coarse Tailings	27.0666	0.16404	2.0	126.580	253.16	
166	Coarse Tailings	27.23064	0.16404	2.0	133.980	267.96	
167	Coarse Tailings	27.39468	0.16404	2.0	98.020	196.04	
168	Coarse Tailings	27.55872	0.16404	2.0	73.940	147.88	
169	Coarse Tailings	27.72276	0.16404	2.0	69.220	138.44	
170	Coarse Tailings	27.8868	0.16404	2.0	129.520	259.04	
171	Coarse Tailings	28.05084	0.16404	2.0	126.320	252.64	
172	Coarse Tailings	28.21488	0.16404	2.0	99.680	199.36	
173	Coarse Tailings	28.37892	0.16404	2.0	105.300	210.6	
174	Coarse Tailings	28.54296	0.16404	2.0	136.520	273.04	
175	Coarse Tailings	28.707	0.16404	2.0	137.540	275.08	
176	Coarse Tailings	28.87104	0.16404	2.0	131.940	263.88	
177	Coarse Tailings	29.03508	0.16404	2.0	130.780	261.56	
178	Coarse Tailings	29.19912	0.16404	2.0	116.640	233.28	
179	Coarse Tailings	29.36316	0.16404	2.0	100.580	201.16	
180	Coarse Tailings	29.5272	0.16404	2.0	125.300	250.6	
181	Coarse Tailings	29.69124	0.16404	2.0	120.080	240.16	

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-15 Settlement

IMMEDIATE SETTLEMENT

CPT Profile Information

	Thickness (ft)	E (ksf)	ν	γ (psf)	
Erosion Protection (repository)	1.1			122.9	
Cover Fill (repository)	3.4			114.7	
Mine Spoils (repository)	6.1			116.4	
Radon Barrier (existing)	2.1	450	0.3	122.3	Hard, moist, sandy clay
Existing Fill (existing)	0.0			113.8	
Coarse Tailings (existing)	27.4	150	0.3	108.1	Silty sand tailings
		McCarthy (1998)	McCarthy (1998)		

Total Fill Height 10.6 above radon barrier

Soil Properties (McCarthy, 1998)**:**

Soil Type	E/N	E/qc
Silts, sand silts, slightly cohesive silt-sand mixtures	4	1.5
Clean, Fine to med, sands and slightly silty sands	7	2
Coarse sands and sands with little gravel	10.0	3
Sandy gravels and gravel	12.0	4

Modulus of Elasticity, E (ksf)
Weighted average 172 by depth/thickness of layers

Poisson's Ratio, v
Weighted average 0.3 McCarthy (1998)

Influence Factor, I 0.64

$$\delta v = (\Delta q) * B * (1-v^2)/E * I$$

NAVFAC (1989), section 7.1-211

Δq = 1235 psf
Δq = 1.24 ksf
B = 250 ft

I = 0.64 From NAVFAC chart, assuming a circular (flexible) shape and rigidity, calculated on the edge

Solution: δv = **1.0** ft

Estimate E:

Layer No.	Soil Description	z (ft)	Δz (ft)	E/qc	qc (ksf)	E (ksf)	Avg E (ksf) per layer
1	Ex. Cover	0.16	0.16	1.5	77.9	116.8	
2	Ex. Cover	0.33	0.16	1.5	136.9	205.4	
3	Ex. Cover	0.49	0.16	1.5	306.8	460.3	
4	Ex. Cover	0.66	0.16	1.5	397.6	596.4	
5	Ex. Cover	0.82	0.16	1.5	418.2	627.4	
6	Ex. Cover	0.98	0.16	1.5	403.7	605.6	
7	Ex. Cover	1.15	0.16	1.5	388.0	582.1	
8	Ex. Cover	1.31	0.16	1.5	352.7	529.1	449.1
9	Ex. Cover	1.48	0.16	1.5	344.7	517.1	
10	Ex. Cover	1.64	0.16	1.5	351.3	527.0	
11	Ex. Cover	1.80	0.16	1.5	323.7	485.5	
12	Ex. Cover	1.97	0.16	1.5	268.1	402.1	
13	Ex. Cover	2.13	0.16	1.5	241.1	361.6	
14	Ex. Cover	2.30	0.16	1.5	229.2	343.8	
15	Ex. Cover	2.46	0.16	1.5	251.0	376.5	
16	Coarse Tailings	2.62	0.16	2.0	220.2	440.3	

17	Coarse Tailings	2.79	0.16	2.0	256.4	512.8
18	Coarse Tailings	2.95	0.16	2.0	305.1	610.1
19	Coarse Tailings	3.12	0.16	2.0	377.3	754.5
20	Coarse Tailings	3.28	0.16	2.0	421.6	843.1
21	Coarse Tailings	3.44	0.16	2.0	430.2	860.3
22	Coarse Tailings	3.61	0.16	2.0	431.4	862.9
23	Coarse Tailings	3.77	0.16	2.0	421.6	843.2
24	Coarse Tailings	3.94	0.16	2.0	400.9	801.8
25	Coarse Tailings	4.10	0.16	2.0	372.4	744.8
26	Coarse Tailings	4.27	0.16	2.0	342.8	685.6
27	Coarse Tailings	4.43	0.16	2.0	307.9	615.7
28	Coarse Tailings	4.59	0.16	2.0	291.3	582.7
29	Coarse Tailings	4.76	0.16	2.0	272.4	544.8
30	Coarse Tailings	4.92	0.16	2.0	249.3	498.6
31	Coarse Tailings	5.09	0.16	2.0	231.8	463.6
32	Coarse Tailings	5.25	0.16	2.0	201.6	403.2
33	Coarse Tailings	5.41	0.16	2.0	185.0	370.1
34	Coarse Tailings	5.58	0.16	2.0	170.7	341.4
35	Coarse Tailings	5.74	0.16	2.0	159.5	318.9
36	Coarse Tailings	5.91	0.16	2.0	146.7	293.4
37	Coarse Tailings	6.07	0.16	2.0	132.1	264.3
38	Coarse Tailings	6.23	0.16	2.0	121.9	243.9
39	Coarse Tailings	6.40	0.16	2.0	113.3	226.5
40	Coarse Tailings	6.56	0.16	2.0	104.0	207.9
41	Coarse Tailings	6.73	0.16	2.0	96.0	192.0
42	Coarse Tailings	6.89	0.16	2.0	85.2	170.3
43	Coarse Tailings	7.05	0.16	2.0	76.4	152.8
44	Coarse Tailings	7.22	0.16	2.0	71.0	142.0
45	Coarse Tailings	7.38	0.16	2.0	66.5	133.1
46	Coarse Tailings	7.55	0.16	2.0	59.5	118.9
47	Coarse Tailings	7.71	0.16	2.0	54.6	109.1
48	Coarse Tailings	7.87	0.16	2.0	49.6	99.2
49	Coarse Tailings	8.04	0.16	2.0	48.4	96.9
50	Coarse Tailings	8.20	0.16	2.0	46.7	93.3
51	Coarse Tailings	8.37	0.16	2.0	45.0	90.0
52	Coarse Tailings	8.53	0.16	2.0	43.4	86.8
53	Coarse Tailings	8.69	0.16	2.0	40.9	81.7
54	Coarse Tailings	8.86	0.16	2.0	40.2	80.4
55	Coarse Tailings	9.02	0.16	2.0	40.4	80.7
56	Coarse Tailings	9.19	0.16	2.0	39.9	79.8
57	Coarse Tailings	9.35	0.16	2.0	39.5	78.9
58	Coarse Tailings	9.51	0.16	2.0	39.1	78.1
59	Coarse Tailings	9.68	0.16	2.0	37.4	74.7
60	Coarse Tailings	9.84	0.16	2.0	37.0	74.1
61	Coarse Tailings	10.01	0.16	2.0	39.5	78.9
62	Coarse Tailings	10.17	0.16	2.0	37.7	75.5
63	Coarse Tailings	10.33	0.16	2.0	35.4	70.7
64	Coarse Tailings	10.50	0.16	2.0	33.7	67.3
65	Coarse Tailings	10.66	0.16	2.0	33.1	66.2
66	Coarse Tailings	10.83	0.16	2.0	32.8	65.5
67	Coarse Tailings	10.99	0.16	2.0	32.4	64.9
68	Coarse Tailings	11.15	0.16	2.0	31.7	63.5
69	Coarse Tailings	11.32	0.16	2.0	31.0	62.0
70	Coarse Tailings	11.48	0.16	2.0	30.8	61.6
71	Coarse Tailings	11.65	0.16	2.0	30.2	60.4
72	Coarse Tailings	11.81	0.16	2.0	30.5	60.9
73	Coarse Tailings	11.97	0.16	2.0	29.2	58.4
74	Coarse Tailings	12.14	0.16	2.0	27.0	53.9
75	Coarse Tailings	12.30	0.16	2.0	23.4	46.8

76	Coarse Tailings	12.47	0.16	2.0	16.3	32.5	
77	Coarse Tailings	12.63	0.16	2.0	12.4	24.9	
78	Coarse Tailings	12.80	0.16	2.0	15.2	30.5	
79	Coarse Tailings	12.96	0.16	2.0	20.6	41.2	
80	Coarse Tailings	13.12	0.16	2.0	24.8	49.6	
81	Coarse Tailings	13.29	0.16	2.0	26.3	52.5	
82	Coarse Tailings	13.45	0.16	2.0	22.3	44.6	
83	Coarse Tailings	13.62	0.16	2.0	19.6	39.3	
84	Coarse Tailings	13.78	0.16	2.0	25.8	51.6	
85	Coarse Tailings	13.94	0.16	2.0	27.2	54.4	
86	Coarse Tailings	14.11	0.16	2.0	28.2	56.3	
87	Coarse Tailings	14.27	0.16	2.0	28.9	57.9	
88	Coarse Tailings	14.44	0.16	2.0	30.1	60.2	145.0
89	Coarse Tailings	14.60	0.16	2.0	30.0	59.9	
90	Coarse Tailings	14.76	0.16	2.0	29.6	59.3	
91	Coarse Tailings	14.93	0.16	2.0	27.3	54.7	
92	Coarse Tailings	15.09	0.16	2.0	22.9	45.8	
93	Coarse Tailings	15.26	0.16	2.0	23.2	46.4	
94	Coarse Tailings	15.42	0.16	2.0	22.4	44.9	
95	Coarse Tailings	15.58	0.16	2.0	23.3	46.7	
96	Coarse Tailings	15.75	0.16	2.0	15.4	30.7	
97	Coarse Tailings	15.91	0.16	2.0	13.8	27.5	
98	Coarse Tailings	16.08	0.16	2.0	24.9	49.8	
99	Coarse Tailings	16.24	0.16	2.0	27.6	55.2	
100	Coarse Tailings	16.40	0.16	2.0	25.9	51.8	
101	Coarse Tailings	16.57	0.16	2.0	25.8	51.5	
102	Coarse Tailings	16.73	0.16	2.0	25.9	51.9	
103	Coarse Tailings	16.90	0.16	2.0	26.6	53.2	
104	Coarse Tailings	17.06	0.16	2.0	26.6	53.2	
105	Coarse Tailings	17.22	0.16	2.0	30.6	61.2	
106	Coarse Tailings	17.39	0.16	2.0	34.6	69.2	
107	Coarse Tailings	17.55	0.16	2.0	29.3	58.5	
108	Coarse Tailings	17.72	0.16	2.0	28.8	57.6	
109	Coarse Tailings	17.88	0.16	2.0	23.4	46.8	
110	Coarse Tailings	18.04	0.16	2.0	30.2	60.3	
111	Coarse Tailings	18.21	0.16	2.0	32.4	64.9	
112	Coarse Tailings	18.37	0.16	2.0	38.3	76.6	
113	Coarse Tailings	18.54	0.16	2.0	36.6	73.2	
114	Coarse Tailings	18.70	0.16	2.0	28.6	57.1	
115	Coarse Tailings	18.86	0.16	2.0	18.4	36.8	
116	Coarse Tailings	19.03	0.16	2.0	14.9	29.7	
117	Coarse Tailings	19.19	0.16	2.0	22.6	45.3	
118	Coarse Tailings	19.36	0.16	2.0	33.4	66.8	
119	Coarse Tailings	19.52	0.16	2.0	33.8	67.6	
120	Coarse Tailings	19.68	0.16	2.0	32.5	65.0	
121	Coarse Tailings	19.85	0.16	2.0	30.9	61.7	
122	Coarse Tailings	20.01	0.16	2.0	28.7	57.4	
123	Coarse Tailings	20.18	0.16	2.0	22.4	44.7	
124	Coarse Tailings	20.34	0.16	2.0	22.1	44.1	
125	Coarse Tailings	20.51	0.16	2.0	20.1	40.2	
126	Coarse Tailings	20.67	0.16	2.0	22.8	45.5	
127	Coarse Tailings	20.83	0.16	2.0	28.8	57.6	
128	Coarse Tailings	21.00	0.16	2.0	27.9	55.7	
129	Coarse Tailings	21.16	0.16	2.0	29.6	59.1	
130	Coarse Tailings	21.33	0.16	2.0	31.3	62.6	
131	Coarse Tailings	21.49	0.16	2.0	32.4	64.8	
132	Coarse Tailings	21.65	0.16	2.0	32.8	65.5	
133	Coarse Tailings	21.82	0.16	2.0	34.4	68.8	
134	Coarse Tailings	21.98	0.16	2.0	34.7	69.5	

135	Coarse Tailings	22.15	0.16	2.0	35.6	71.3	
136	Coarse Tailings	22.31	0.16	2.0	37.2	74.4	
137	Coarse Tailings	22.47	0.16	2.0	40.2	80.4	
138	Coarse Tailings	22.64	0.16	2.0	6.0	12.0	
139	Coarse Tailings	22.80	0.16	2.0	46.2	92.3	
140	Coarse Tailings	22.97	0.16	2.0	40.5	80.9	
141	Coarse Tailings	23.13	0.16	2.0	26.1	52.3	
142	Coarse Tailings	23.29	0.16	2.0	19.6	39.1	
143	Coarse Tailings	23.46	0.16	2.0	22.0	44.0	
144	Coarse Tailings	23.62	0.16	2.0	21.9	43.7	
145	Coarse Tailings	23.79	0.16	2.0	17.2	34.3	
146	Coarse Tailings	23.95	0.16	2.0	20.5	41.0	
147	Coarse Tailings	24.11	0.16	2.0	28.2	56.5	
148	Coarse Tailings	24.28	0.16	2.0	32.1	64.2	
149	Coarse Tailings	24.44	0.16	2.0	34.6	69.2	
150	Coarse Tailings	24.61	0.16	2.0	31.4	62.7	
151	Coarse Tailings	24.77	0.16	2.0	19.6	39.3	
152	Coarse Tailings	24.93	0.16	2.0	28.9	57.7	
153	Coarse Tailings	25.10	0.16	2.0	21.7	43.5	
154	Coarse Tailings	25.26	0.16	2.0	29.9	59.8	
155	Coarse Tailings	25.43	0.16	2.0	41.6	83.1	
156	Coarse Tailings	25.59	0.16	2.0	37.9	75.8	
157	Coarse Tailings	25.75	0.16	2.0	35.0	70.0	
158	Coarse Tailings	25.92	0.16	2.0	28.9	57.7	
159	Coarse Tailings	26.08	0.16	2.0	17.6	35.2	
160	Coarse Tailings	26.25	0.16	2.0	32.7	65.4	

NECR TAILINGS IMPOUNDMENT SETTLEMENT ANALYSIS - CPT-26 Settlement

IMMEDIATE SETTLEMENT

CPT Profile Information

	Thickness (ft)	E (ksf)	ν	γ (psf)	
Erosion Protection (repository)	1.1			122.9	
Cover Fill (repository)	3.4			114.7	
Mine Spoils (repository)	8.5			116.4	
Radon Barrier (existing)	2.5	450	0.3	122.3	Hard, moist, sandy clay
Existing Fill (existing)	9.5	680	0.35	113.8	Silty sand, sandy clay w/ gravel
Coarse Tailings (existing)	13.0	150	0.3	108.1	Silty sand tailings
		McCarthy (1998)	McCarthy (1998)		

Total Fill Height 13.0 above radon barrier

Soil Properties (McCarthy, 1998):

Soil Type	E/N	E/qc
Silts, sand silts, slightly cohesive silt-sand mixtures	4	1.5
Clean, Fine to med, sands and slightly silty sands	7	2
Coarse sands and sands with little gravel	10.0	3
Sandy gravels and gravel	12.0	4

$$\delta v = (\Delta q) * B * (1-v^2)/Eu * I$$

NAVFAC (1989), section 7.1-211

Δq = 1515 psf
Δq = 1.51 ksf
B = 250 ft

Modulus of Elasticity, E (ksf)
Weighted average 381 by depth/thickness of layers

Poisson's Ratio, v
Weighted average 0.3 McCarthy (1998)

I = 0.64 From NAVFAC chart, assuming a circular (flexible) shape and rigidity, calculated on the edge

Influence Factor, I 0.64

Solution: δv = **0.6** ft

Estimate E:

Layer	Soil Description	z (ft)	Δz (ft)	E/qc	qc (ksf)	E (ksf)	Avg E (ksf) per layer
1	Ex. Cover	0.16404	0.16404	1.5	40.160	60.24	
2	Ex. Cover	0.32808	0.16404	1.5	56.980	85.47	
3	Ex. Cover	0.49212	0.16404	1.5	127.480	191.22	
4	Ex. Cover	0.65616	0.16404	1.5	129.520	194.28	
5	Ex. Cover	0.8202	0.16404	1.5	200.640	300.96	
6	Ex. Cover	0.98424	0.16404	1.5	414.920	622.38	
7	Ex. Cover	1.14828	0.16404	1.5	398.480	597.72	
8	Ex. Cover	1.31232	0.16404	1.5	333.220	499.83	363.9
9	Ex. Cover	1.47636	0.16404	1.5	273.820	410.73	
10	Ex. Cover	1.6404	0.16404	1.5	251.120	376.68	
11	Ex. Cover	1.80444	0.16404	1.5	270.620	405.93	
12	Ex. Cover	1.96848	0.16404	1.5	305.680	458.52	
13	Ex. Cover	2.13252	0.16404	1.5	318.040	477.06	
14	Ex. Cover	2.29656	0.16404	1.5	272.920	409.38	
15	Ex. Cover	2.4606	0.16404	1.5	245.140	367.71	
16	Ex. Fill	2.62464	0.16404	3.0	290.000	870	
17	Ex. Fill	2.78868	0.16404	3.0	365.980	1097.94	
18	Ex. Fill	2.95272	0.16404	3.0	375.280	1125.84	
19	Ex. Fill	3.11676	0.16404	3.0	383.700	1151.1	
20	Ex. Fill	3.2808	0.16404	3.0	386.240	1158.72	

21	Ex. Fill	3.44484	0.16404	3.0	336.140	1008.42	
22	Ex. Fill	3.60888	0.16404	3.0	330.920	992.76	
23	Ex. Fill	3.77292	0.16404	3.0	272.280	816.84	
24	Ex. Fill	3.93696	0.16404	3.0	225.760	677.28	
25	Ex. Fill	4.101	0.16404	3.0	216.060	648.18	
26	Ex. Fill	4.26504	0.16404	3.0	275.980	827.94	
27	Ex. Fill	4.42908	0.16404	3.0	454.200	1362.6	
28	Ex. Fill	4.59312	0.16404	3.0	589.960	1769.88	
29	Ex. Fill	4.75716	0.16404	3.0	559.740	1679.22	
30	Ex. Fill	4.9212	0.16404	3.0	470.260	1410.78	
31	Ex. Fill	5.08524	0.16404	3.0	361.140	1083.42	
32	Ex. Fill	5.24928	0.16404	3.0	252.520	757.56	
33	Ex. Fill	5.41332	0.16404	3.0	191.460	574.38	
34	Ex. Fill	5.57736	0.16404	3.0	225.240	675.72	
35	Ex. Fill	5.7414	0.16404	3.0	272.040	816.12	
36	Ex. Fill	5.90544	0.16404	3.0	346.740	1040.22	
37	Ex. Fill	6.06948	0.16404	3.0	353.620	1060.86	
38	Ex. Fill	6.23352	0.16404	3.0	427.300	1281.9	
39	Ex. Fill	6.39756	0.16404	3.0	464.140	1392.42	
40	Ex. Fill	6.5616	0.16404	3.0	440.160	1320.48	
41	Ex. Fill	6.72564	0.16404	3.0	371.200	1113.6	
42	Ex. Fill	6.88968	0.16404	3.0	319.960	959.88	
43	Ex. Fill	7.05372	0.16404	3.0	245.000	735	
44	Ex. Fill	7.21776	0.16404	3.0	195.040	585.12	679.7
45	Ex. Fill	7.3818	0.16404	3.0	187.900	563.7	
46	Ex. Fill	7.54584	0.16404	3.0	168.900	506.7	
47	Ex. Fill	7.70988	0.16404	3.0	186.360	559.08	
48	Ex. Fill	7.87392	0.16404	3.0	183.440	550.32	
49	Ex. Fill	8.03796	0.16404	3.0	163.540	490.62	
50	Ex. Fill	8.202	0.16404	3.0	164.560	493.68	
51	Ex. Fill	8.36604	0.16404	3.0	162.660	487.98	
52	Ex. Fill	8.53008	0.16404	3.0	149.400	448.2	
53	Ex. Fill	8.69412	0.16404	3.0	132.320	396.96	
54	Ex. Fill	8.85816	0.16404	3.0	115.240	345.72	
55	Ex. Fill	9.0222	0.16404	3.0	115.100	345.3	
56	Ex. Fill	9.18624	0.16404	3.0	106.820	320.46	
57	Ex. Fill	9.35028	0.16404	3.0	100.060	300.18	
58	Ex. Fill	9.51432	0.16404	3.0	100.700	302.1	
59	Ex. Fill	9.67836	0.16404	3.0	96.880	290.64	
60	Ex. Fill	9.8424	0.16404	3.0	90.640	271.92	
61	Ex. Fill	10.00644	0.16404	3.0	86.300	258.9	
62	Ex. Fill	10.17048	0.16404	3.0	95.980	287.94	
63	Ex. Fill	10.33452	0.16404	3.0	78.140	234.42	
64	Ex. Fill	10.49856	0.16404	3.0	69.980	209.94	
65	Ex. Fill	10.6626	0.16404	3.0	83.500	250.5	
66	Ex. Fill	10.82664	0.16404	3.0	88.600	265.8	
67	Ex. Fill	10.99068	0.16404	3.0	87.580	262.74	
68	Ex. Fill	11.15472	0.16404	3.0	74.580	223.74	
69	Ex. Fill	11.31876	0.16404	3.0	62.200	186.6	
70	Ex. Fill	11.4828	0.16404	3.0	54.680	164.04	
71	Ex. Fill	11.64684	0.16404	3.0	52.520	157.56	
72	Ex. Fill	11.81088	0.16404	3.0	47.420	142.26	
73	Ex. Fill	11.97492	0.16404	3.0	37.740	113.22	
74	Coarse Tailings	12.13896	0.16404	2.0	37.480	74.96	
75	Coarse Tailings	12.303	0.16404	2.0	38.620	77.24	
76	Coarse Tailings	12.46704	0.16404	2.0	43.600	87.2	
77	Coarse Tailings	12.63108	0.16404	2.0	42.840	85.68	
78	Coarse Tailings	12.79512	0.16404	2.0	37.860	75.72	
79	Coarse Tailings	12.95916	0.16404	2.0	52.900	105.8	

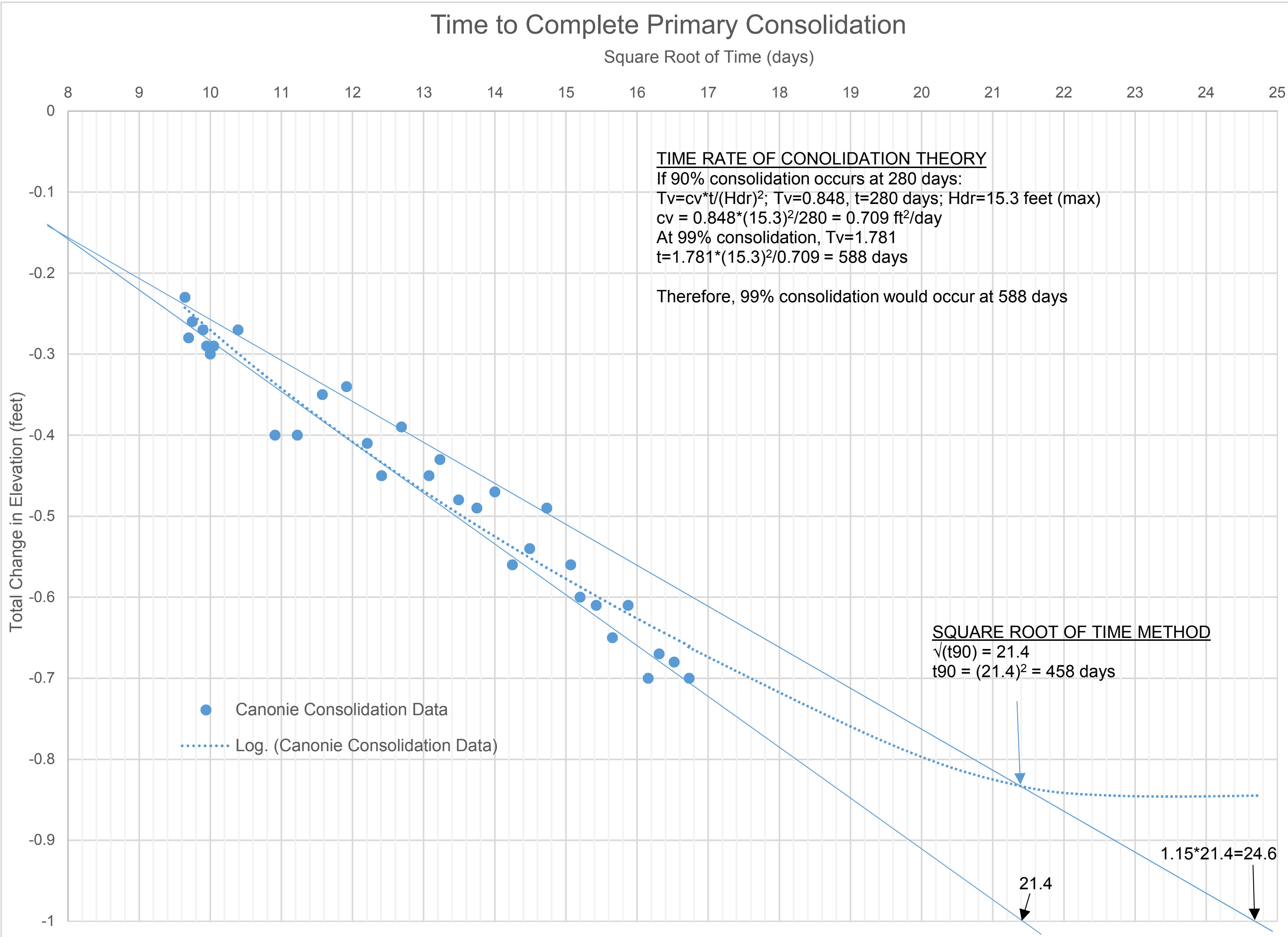
80	Coarse Tailings	13.1232	0.16404	2.0	174.260	348.52
81	Coarse Tailings	13.28724	0.16404	2.0	170.440	340.88
82	Coarse Tailings	13.45128	0.16404	2.0	230.720	461.44
83	Coarse Tailings	13.61532	0.16404	2.0	187.760	375.52
84	Coarse Tailings	13.77936	0.16404	2.0	94.340	188.68
85	Coarse Tailings	13.9434	0.16404	2.0	99.440	198.88
86	Coarse Tailings	14.10744	0.16404	2.0	62.980	125.96
87	Coarse Tailings	14.27148	0.16404	2.0	32.640	65.28
88	Coarse Tailings	14.43552	0.16404	2.0	25.120	50.24
89	Coarse Tailings	14.59956	0.16404	2.0	27.660	55.32
90	Coarse Tailings	14.7636	0.16404	2.0	52.400	104.8
91	Coarse Tailings	14.92764	0.16404	2.0	64.620	129.24
92	Coarse Tailings	15.09168	0.16404	2.0	70.500	141
93	Coarse Tailings	15.25572	0.16404	2.0	76.860	153.72
94	Coarse Tailings	15.41976	0.16404	2.0	81.200	162.4
95	Coarse Tailings	15.5838	0.16404	2.0	88.340	176.68
96	Coarse Tailings	15.74784	0.16404	2.0	97.140	194.28
97	Coarse Tailings	15.91188	0.16404	2.0	103.900	207.8
98	Coarse Tailings	16.07592	0.16404	2.0	106.320	212.64
99	Coarse Tailings	16.23996	0.16404	2.0	104.780	209.56
100	Coarse Tailings	16.404	0.16404	2.0	99.040	198.08
101	Coarse Tailings	16.56804	0.16404	2.0	92.680	185.36
102	Coarse Tailings	16.73208	0.16404	2.0	89.240	178.48
103	Coarse Tailings	16.89612	0.16404	2.0	87.320	174.64
104	Coarse Tailings	17.06016	0.16404	2.0	85.280	170.56
105	Coarse Tailings	17.2242	0.16404	2.0	84.000	168
106	Coarse Tailings	17.38824	0.16404	2.0	86.040	172.08
107	Coarse Tailings	17.55228	0.16404	2.0	85.020	170.04
108	Coarse Tailings	17.71632	0.16404	2.0	88.080	176.16
109	Coarse Tailings	17.88036	0.16404	2.0	88.080	176.16
110	Coarse Tailings	18.0444	0.16404	2.0	85.660	171.32
111	Coarse Tailings	18.20844	0.16404	2.0	89.240	178.48
112	Coarse Tailings	18.37248	0.16404	2.0	94.840	189.68
113	Coarse Tailings	18.53652	0.16404	2.0	90.260	180.52
114	Coarse Tailings	18.70056	0.16404	2.0	91.140	182.28
115	Coarse Tailings	18.8646	0.16404	2.0	90.640	181.28
116	Coarse Tailings	19.02864	0.16404	2.0	89.860	179.72
117	Coarse Tailings	19.19268	0.16404	2.0	87.320	174.64
118	Coarse Tailings	19.35672	0.16404	2.0	86.560	173.12
119	Coarse Tailings	19.52076	0.16404	2.0	82.980	165.96
120	Coarse Tailings	19.6848	0.16404	2.0	83.360	166.72
121	Coarse Tailings	19.84884	0.16404	2.0	79.680	159.36
122	Coarse Tailings	20.01288	0.16404	2.0	78.780	157.56
123	Coarse Tailings	20.17692	0.16404	2.0	79.420	158.84
124	Coarse Tailings	20.34096	0.16404	2.0	81.960	163.92
125	Coarse Tailings	20.505	0.16404	2.0	81.960	163.92
126	Coarse Tailings	20.66904	0.16404	2.0	84.900	169.8
127	Coarse Tailings	20.83308	0.16404	2.0	85.540	171.08
128	Coarse Tailings	20.99712	0.16404	2.0	83.760	167.52
129	Coarse Tailings	21.16116	0.16404	2.0	84.780	169.56
130	Coarse Tailings	21.3252	0.16404	2.0	82.600	165.2
131	Coarse Tailings	21.48924	0.16404	2.0	78.140	156.28
132	Coarse Tailings	21.65328	0.16404	2.0	72.920	145.84
133	Coarse Tailings	21.81732	0.16404	2.0	77.120	154.24
134	Coarse Tailings	21.98136	0.16404	2.0	77.240	154.48
135	Coarse Tailings	22.1454	0.16404	2.0	68.840	137.68
136	Coarse Tailings	22.30944	0.16404	2.0	57.100	114.2
137	Coarse Tailings	22.47348	0.16404	2.0	68.080	136.16
138	Coarse Tailings	22.63752	0.16404	2.0	82.600	165.2

158.4

139	Coarse Tailings	22.80156	0.16404	2.0	90.380	180.76	
140	Coarse Tailings	22.9656	0.16404	2.0	87.440	174.88	
141	Coarse Tailings	23.12964	0.16404	2.0	65.780	131.56	
142	Coarse Tailings	23.29368	0.16404	2.0	53.800	107.6	
143	Coarse Tailings	23.45772	0.16404	2.0	45.120	90.24	
144	Coarse Tailings	23.62176	0.16404	2.0	49.720	99.44	
145	Coarse Tailings	23.7858	0.16404	2.0	48.960	97.92	
146	Coarse Tailings	23.94984	0.16404	2.0	35.820	71.64	
147	Coarse Tailings	24.11388	0.16404	2.0	32.380	64.76	
148	Coarse Tailings	24.27792	0.16404	2.0	43.600	87.2	
149	Coarse Tailings	24.44196	0.16404	2.0	41.040	82.08	
150	Coarse Tailings	24.606	0.16404	2.0	48.320	96.64	
151	Coarse Tailings	24.77004	0.16404	2.0	58.120	116.24	
152	Coarse Tailings	24.93408	0.16404	2.0	72.920	145.84	
153	Coarse Tailings	25.09812	0.16404	2.0	95.100	190.2	

ATTACHMENT E

ESTIMATED TIME TO COMPLETE PRIMARY CONSOLIDATION



Time to Complete Primary Consolidation
Square Root of Time (days)
Total Change in Elevation (feet)
TIME RATE OF CONOLIDATION THEORY
If 90% consolidation occurs at 280 days:
Tv=cv*t/(Hdr)²; Tv=0.848, t=280 days; Hdr=15.3 feet (max)
cv = 0.848*(15.3)²/280 = 0.709 ft²/day
At 99% consolidation, Tv=1.781
t=1.781*(15.3)²/0.709 = 588 days
Therefore, 99% consolidation would occur at 588 days
SQUARE ROOT OF TIME METHOD
√(t90) = 21.4
t90 = (21.4)² = 458 days
21.4
1.15*21.4=24.6
Canonie Consolidation Data
Log. (Canonie Consolidation Data)

ATTACHMENT G.4
Repository Seismic Settlement Analysis

ATTACHMENT G.4: REPOSITORY SEISMIC SETTLEMENT ANALYSIS

Revisioning

Rev.	Date	Description	By	Checked	Date
0	*June 2016*	*Preliminary (30%) Design*	*S. McManus*	*N. Brink*	*27 May 2016*
1	*July 2017*	*95% Design*	*S. Downey*	*C. Weber*	*15 Sep 2017*
2	*Oct 2019*	*Update Cover Thickness*	*S. Downey*	*C. Weber*	*12 Nov 2019*

Location and Format

Electronic copies of these calculations are located on the Stantec internal project teamsite.

The following calculations were generated using the following software:

Microsoft Excel

Table of Contents

Objective

This calculation brief documents the inputs, assumptions, methods, results and conclusions of the seismic settlement analysis for the proposed Church Rock Mill Site (Mill Site) repository. This brief discusses settlement that may occur within the footprint of the proposed repository as a result of the design seismic event. Other components of settlement (immediate, primary, and secondary settlement) are discussed in Attachment G.3. Liquefaction induced settlement is discussed in Attachment G.6.

Background

This analysis has been performed as part of the design of the Removal Action (RA) at the Northeast Church Rock Mine Site (Mine Site) and the related Remedial Action (RA) at the Mill Site. The Mine Site and Mill Site are located in close proximity to one another, approximately 16 miles northeast of Gallup, in McKinley County, New Mexico. They are located on adjacent Sections approximately one-half mile apart. The sites are temporarily being treated as one facility for purposes of the RA. The combined site is referred to as the “Settlement Agreement Site” (SA Site).

Site History

The NECR mine is a historical uranium mine operated by United Nuclear Corporation (UNC). Mining development began in 1967 and ended in 1982. While the mine operated, it served as the principal mineral source for the UNC uranium mill. The uranium mill and its adjacent disposal cells make up the UNC Superfund Site (the “UNC Mill Site”). Remedial activities addressing source control and on-site surface reclamation are being implemented by UNC under the direction of the US Nuclear Regulatory Commission (NRC), pursuant to the UNC facility's NRC license, and integrated with the USEPA’s selected remedy for the groundwater.

The tailings disposal area (TDA) is an unlined facility bounded by an embankment and subdivided by cross-dikes into three cells, which are identified as the South Cell, Central Cell, and North Cell. An estimated 3.5 million tons of tailings were pumped as slurry from the UNC mill to the TDA.

Proposed Remedial Action

The proposed repository will be constructed on top of the existing TDA and will incorporate controlled placement of mine waste on top of the existing TDA cover/radon barrier and a final evapotranspirative (ET) cover placed over the mine waste. Improvements to the existing TDA cover/radon barrier within the footprint of the proposed repository will be completed prior to placement of mine waste. **Figure 1** shows the location and grading of the proposed repository.

The design for the selected repository alternative will be evaluated as part of a NRC license amendment request for the existing licensed facility. The repository features that affect the licensed facility will meet performance standards outlined in NRC regulations and areas of the existing facility affected by the repository construction will be evaluated for compliance. However, existing conditions of the facility not affected by the proposed repository were not evaluated as part of this analysis, as they are managed by the existing NRC license.

Site Description

The natural stratigraphy at the Mill Site is divided into two main components: the surficial unconsolidated deposits (alluvium) and the underlying consolidated bedrock units. The alluvium consists of a mixture of sand, silt, and clay with minor portions of gravel. Alluvial thicknesses at the site are usually around 50 feet, but exceed 120 feet in some locations. Generally, the uppermost bedrock unit at the site is the Upper Gallup Sandstone, though in some locations it is overlain by coal or the Mancos shale.

The TDA was constructed on top of the native alluvium and deposition of tailings via slurry within the TDA resulted in an interbedded accumulation of tailings. TDA closure construction began in 1989 and was completed in 1995. Closure construction included placement of an interim cover (general fill) from 1989 through 1991 followed by placement of the final cover (radon barrier and erosion protection layer) from 1993 through 1995.

Measurements taken in alluvial monitoring wells (see **Attachment E**) show an alluvial groundwater table in the vicinity of the TDA at approximately 6,867 feet above mean sea level (amsl), which indicates that the alluvium is unsaturated above this elevation. Additionally, subsurface investigations of the TDA indicate that there is not a consistent static water level within the tailings or the alluvium above approximately 6,867 feet amsl. However, localized perched zones of saturation exist within the low-permeability, fine-grained tailings. These zones of saturation do not appear to extend beyond the fine-grained tailings into the higher-permeability coarse-grained tailings.

Site Investigation

In 2013, MWH performed pre-design studies (PDS) at the Mill Site and Mine Site to supplement previous site investigations and collect pre-design data necessary to perform the Remedial Design (RD). Activities performed as part of the Mill Site PDS included: surveying, cone penetration tests (CPTs), drilling, standard penetration tests (SPTs), excavation and soil sampling, and subsequent laboratory testing. Geotechnical data collected during the PDS are presented in the PDS reports (MWH, 2014a and MWH, 2014b) and summarized in **Attachment A**. A list of the materials encountered within the TDA during the PDS is presented in the Assumptions section below. Geotechnical properties for these materials and discussion of one-dimensional stratigraphic profiles used in the seismic settlement analysis are also presented in the Assumptions section below.

Applicable Codes and Standards

Applicable regulatory guidance documents include the following:

- NUREG 1620, Section 2.3 (NRC, 2003)
- Naval Facilities Engineering Command (NAVFAC) Design Manual 7.01, Chapter 5, Sections 3 and 4 (NAVFAC, 1986)
- Technical Approach Document, Revision II, Section 6.3 (DOE, 1989).

Methods

General

The seismic settlement analysis evaluated the magnitude of potential settlement that may occur within the footprint of the proposed Mill Site repository as a result of the design seismic event. Analysis of one-dimensional stratigraphic profiles was performed according to the methods outlined in *Seismic Compression Analysis of As-Compacted Fill Soils with Variable Levels of Fines Content and Fines Plasticity* (Stewart et al., 2004). The design seismic event was characterized by the parameters presented in the UNC-NECR Seismic Hazard Analysis (see Appendix G to the Northeast Church Rock Mine Site Removal Action Design Report). The seismic settlement analysis used data collected during CPTs, hollow-stem auger (HSA) drilling, and laboratory testing to estimate the magnitude of potential seismic settlement within the footprint of the proposed Mill Site repository.

Six one-dimensional stratigraphic profiles were developed and analyzed as part of the seismic settlement analysis (see **Figure 2**). These stratigraphic profiles were developed based on conditions observed during the Mill Site PDS (MWH, 2014a) field investigation and modified to reflect proposed repository construction (placement of mine waste and the repository cover). During the Mill Site PDS field investigation, eight HSA boreholes were “paired” with, and drilled adjacent to, CPTs. Seven of these paired locations are located within the footprint of the proposed Mill Site repository and shear wave velocity measurements were recorded during CPTs at six of those locations. The information acquired

at these six locations was used to develop the aforementioned profiles. **Figure 1** presents the boreholes and CPTs drilled during the Mill Site PDS.

Subsurface materials considered in the seismic settlement analysis are identified in the Assumptions section below. Subsurface material properties relevant to the seismic settlement analysis and one-dimensional stratigraphic profiles evaluated in this analysis are also presented in the Assumptions section.

Analysis of One-Dimensional Profiles

The following equations were used to analyze the one-dimensional stratigraphic profiles for potential seismic settlement.

The stress reduction factor (r_d) and associated parameters are defined by the following equations (Stewart et al., 2004):

For z < 20m: $$r_d = \frac{\left[1 + \frac{a_1}{a_2(z)}\right]}{\left[1 + \frac{a_1}{a_3}\right]}$$

For z > 20m: $$r_d = \frac{\left[1 + \frac{a_1}{a_2(z=20)}\right]}{\left[1 + \frac{a_1}{a_3}\right]} - 0.0046 \cdot (z - 20)$$

$$a_1 = -23.013 - 2.949 \cdot \frac{PHA}{g} + 0.999 \cdot m + 0.0053 \cdot V_{s-12}$$

$$a_2(z) = 16.258 + 0.201 \cdot e^{0.341(-z + 0.0785 \cdot V_{s-12} + 7.586)}$$

$$a_3 = 16.258 + 0.201 \cdot e^{0.341(0.0785 \cdot V_{s-12} + 7.586)}$$

Where:

r_d: stress reduction factor, ratio of actual shear stress at depth vs. theoretical "rigid body" shear stress
PHA: peak horizontal acceleration
g: acceleration due to gravity
z: depth below ground surface (meters)
m: earthquake magnitude
V_{s-12}: average shear wave velocity in upper 12m of the site (meters/sec)
$a_2(z=20)$: $a_2(z)$ for z=20

The equivalent number of uniform strain cycles for the design seismic event is calculated as follows (Stewart et al., 2004):

$$N = \frac{\left[\dfrac{\exp(b_1 + b_2(m - m^*))}{10^{1.5m+16.05}}\right]^{-1/3}}{4.9 \cdot 10^6 \beta} + Sc_1 + rc_2$$

Where:

N: equivalent number of uniform strain cycles
b_1: 1.53 (Stewart et al., 2004)
b_2: 1.51 (Stewart et al., 2004)
c_1: 0.75 (Stewart et al., 2004)
c_2: 0.095 (Stewart et al., 2004)
β: 3.2 (Stewart et al., 2004)
m: 5.5 (Stewart et al., 2004)*
m: design earthquake magnitude
r: site-source distance (km)
S: 1.0 [equal to 0 if rock or shallow soil (<20m) underlies the fill and 1 if >20m soil underlies the fill (Stewart et al., 2004)]

Shear strain and related equations are as follows (Stewart et al., 2004):

$$\gamma = \frac{1 + g_1 \cdot e^{g_2 \cdot P}}{1 + g_1} P \cdot 100 \text{ (units of \%)}$$

$$\text{PI} \approx 0: \quad g_1 = 0.199 \cdot (\sigma'/p_a)^{0.231} \quad g_2 = 10850 \cdot (\sigma'/p_a)^{-0.410}$$

$$\text{PI} \approx 15: \quad g_1 = 0.194 \cdot (\sigma'/p_a)^{0.265} \quad g_2 = 7490 \cdot (\sigma'/p_a)^{-0.418}$$

$$\text{PI} \approx 30: \quad g_1 = 4.0 \quad g_2 = 1400$$

$$\gamma_{eff} \frac{G_{eff}}{G_{max}} = \frac{0.65 \cdot PHA \cdot \sigma_0 \cdot r_d}{g \cdot G_{max}} \equiv P$$

Where:

γ: shear strain
γ_{eff}: effective shear strain
PI: plasticity index
σ': effective stress
σ_0: total overburden pressure
p_a : atmospheric pressure (calculated for an average elevation of 5,600 feet for the site)
G_{eff}: effective shear modulus
G_{max}: small strain shear modulus

G_{max} is defined by the following equation (Robertson and Cabal, 2012):

$$G_{max} = \rho \cdot V_s^2$$

Where:

ρ: mass density of soil (γ/g)
V_s: shear wave velocity of the soil

The volumetric strain and associated parameters were calculated using the following equations (Stewart et al., 2004):

$$\varepsilon_v = \varepsilon_{v,N=15} \cdot C_N \cdot 2$$

$$\varepsilon_{v,N=15} = a(\gamma_c - \gamma_{tv})^b$$

$$C_N = R\ln(N) + c$$

$$c = 1 - \ln(15) \times R$$

Where:

ε_v: volumetric strain for design seismic event
C_N: normalized vertical strain
$\varepsilon_{v,\ N=15}$: volumetric strain at 15 cycles
a: material-specific constant (estimated based on relative compaction, soil type, fines content, and plasticity using Figures 6.5 – 6.7 in Stewart et. al, 2004. See Table 1.)
b: material-specific constant (estimated based on relative compaction, soil type, fines content, and plasticity using Figures 6.5 – 6.7 in Stewart et. al, 2004 See Table 1.)
γ_{tv}: threshold shear strain (estimated based on relative compaction, soil type, fines content, and plasticity using Figures 6.5 – 6.7 in Stewart et. al, 2004 See Table 1.)
γ_c: shear strain (same as shear strain, γ, listed above)
R: slope parameter (estimated as 0.36, 0.32, and 0.34 for soils with non-plastic fines, soils with low-plasticity fines, and soils with medium plasticity fines, respectively, as presented in Stewart et al., 2004 pages 86 through 89 See Table 1.)
c: slope parameter estimated from equation listed above

The vertical seismic settlement of a given layer of soil is the product of the volumetric strain for the design seismic event (ε_v) and the thickness of the soil layer (h):

$$\Delta_i = \varepsilon_v \cdot h$$

Material Properties

Subsurface Materials

Material strength parameters used for the settlement analysis were based on data from laboratory testing of materials at the site during the PDS. The laboratory test results are located in Table 3-4 of the Mill Site PDS Report (MWH, 2014a). The parameters used as a base-case scenario for each material are discussed in the main text of Appendix G, Section G.6 and are also summarized in **Table 1** included in this document. Properties for each material were estimated by averaging the results of laboratory tests performed on samples collected during the Mine Site and Mill Site PDS.

A sensitivity analysis was conducted to identify which material property most influences the results and evaluate the effects of varying this property on the total calculated settlement at each location analyzed. The material index properties (dry density and water content) were varied from the base case (average) to the 30th percentile values on individual materials and combined materials. When evaluating the 30th percentile index properties, the results of the seismic settlement analysis were found to be more sensitive to variation in the properties of the tailings materials (coarse, fine, and coarse/fine) than other materials, The 30th percentile material properties for the tailings used in the sensitivity analysis are summarized in **Table 2**.

The seismic settlement coefficients used in the settlement calculations were obtained from equations and figures in Stewart et al. (2004), as discussed previously in the Methods section. The coefficients ("a", "b", and γ_{tv}) for each material were based on the plasticity index of the material (low, moderate, or high plasticity), and varying the index properties to the 30th percentile values did not alter the plasticity of the material or the coefficients, as defined in Stewart et al. (2004). The coefficients were also based on the relative compaction (RC) and saturation (S) for each material. The coefficients and assumptions are discussed below.

Cover and Fill Materials

The cover soil, erosion protection material, and mine spoils are assumed to have similar fines content and plasticity based on the material index properties. The borrow sources that will be used for the cover soil were investigated during the PDS and samples obtained from the investigation were classified as clayey and silty sands and low plasticity clays. Fines content ranged from 38 to 78 percent and plasticity index ranged from 3 to 23. For the purpose of estimating the coefficients, it was assumed that the erosion protection and cover soil materials have moderate plasticity with a relative compaction of approximately 90 percent and an unknown saturation. This results in coefficients a and b of 2.0 and 0.65, respectively and a strain threshold value of 0.03 percent. It was assumed that the mine spoils would also have moderate plasticity with a RC of approximately 90 percent and a S of 90 percent, resulting in coefficients a and b of 1.0 and 0.75, respectively, and a strain threshold value of 0.02 percent.

It has been assumed that the long-term moisture content of the Radon Barrier will be equal to the average of the results of laboratory testing on the Radon Barrier samples (9.3 percent). The saturated moisture content of the Radon Barrier material is 16.1 percent (calculated from laboratory testing results). For the purpose of estimating the coefficients, it was conservatively assumed that the Radon Barrier will have a long-term degree of saturation of 70 percent. Assuming the radon barrier is a moderate plasticity soil with a saturation of 70 percent and a RC of approximately 90 percent, the coefficients a and b were assumed to be 0.65 and 0.75, respectively, with a strain threshold value of 0.02 percent.

The existing fill was encountered during the PDS investigation and was found to be a sandy and low-plasticity clay with fines contents ranging from 35 to 72 percent and PIs ranging from 17 to 20. As defined in Stewart et al. (2004), this material is classified as a moderate plasticity soil, and it was assumed to have a RC of approximately 90 percent with a S of 60 percent, resulting in coefficients a and b of 1.7 and 0.75, respectively, and a threshold strain value of 0.02 percent.

Tailings

Tailings produced by the UNC uranium mill were deposited in the TDA. They range from silty and clayey sands to sandy clays and high plasticity clays. The fines content of tailings samples analyzed during the Mill Site PDS ranged from 7 to 97 percent and the fine-grained particles ranged from non-plastic to a PI of 61. Due to this wide range of material properties, the tailings have been subdivided into three categories for the seismic settlement analysis: coarse tailings, fine tailings, and coarse/fine tailings. The coefficients selected for each material are discussed below.

The coefficients a and b for the coarse tailings were interpolated from values presented in Figures 6.4 and 6.5 of Stewart et al (2004) for soils with varying contents of non-plastic fines. This interpolation assumed that the fines content is equal to the average fines content from laboratory testing of coarse tailings (21 percent), a relative density of 60 percent, a relative compaction of 87 percent, and a saturation of 30 percent. This resulted in coefficients for a and b of 1.79 and 1.00, respectively, and a threshold strain value of 0.01 percent.

For the purpose of estimating coefficients for the fine tailings, it has been conservatively assumed that the fine tailings are high plasticity, 90 percent saturated (or more) and have a low relative compaction (87 percent). The coefficients were assumed to be 0.90 and 0.75 for a and b, respectively, and a threshold strain value of 0.06 percent.

Tailings samples identified as coarse/fine tailings were generally near 100 percent saturation (83 to 99 percent) and were assumed to be moderately plastic. For the purpose of estimating coefficients and the threshold strain value, it has been conservatively assumed that the coarse/fine tailings have a low relative compaction (84 percent) which is applicable to

any saturation value. This resulted in coefficients a and b of 2.00 and 0.65, respectively, and a threshold strain value of 0.03 percent.

Alluvium

The fines content of alluvium samples analyzed during the Mill Site PDS ranged from 17 to 91 percent and the fine-grained particles ranged from non-plastic to a PI of 31. Due to this wide range of material properties, the alluvium has been subdivided into two categories for the seismic settlement analysis: coarse alluvium and fine alluvium.

The coefficients for the coarse alluvium were interpolated from values presented in Tables 6.4 and 6.5 of Stewart et al. (2004) for soils with varying contents of non-plastic fines. This interpolation assumed that the fines content is equal to the average fines content from laboratory testing of coarse alluvium (36 percent) and a relative density of 60 percent. This resulted in coefficients a and b of 2.00 and 1.00, respectively, and a threshold strain value of 0.01 percent.

For the purpose of estimating coefficients of the fine alluvium, it has been assumed that the fine alluvium is highly plastic, has a degree of saturation of 90 percent (or more), and has a lower relative compaction (87 percent). This resulted in coefficients a and b of 0.90 and 0.75, respectively, and a threshold strain value of 0.06 percent.

Shear Wave Velocities

Shear wave velocities used in this analysis were estimated using the following assumptions:

- Shear wave velocities within existing soils are equal to those measured during the Mill Site PDS (MWH, 2014a) subsurface investigation (see **Attachment B**).
- The shear wave velocity for proposed repository fill is equal to 866 ft/sec. This is the average of the shear wave velocities measured in soil layers logged as general fill during the Mill Site PDS (MWH, 2014a) subsurface investigation (see **Table 3**).
- The average shear wave velocity in upper 12m of the site, $V_{s\text{-}12}$, is equal to 237 m/s. This is the average of the shear wave velocities measured in the upper 12m during the Mill Site PDS (MWH, 2014a) subsurface investigation.

General Assumptions

- The ground surface elevations for paired CPT and HSA boreholes have been estimated from the topographic survey using AutoCAD Civil3D.
- The design seismic event is the 10,000-year return period earthquake, which has a maximum peak ground acceleration (PGA) of 0.30g, a magnitude of 5.5, and a site-source distance of 20 km, as identified in the UNC-NECR Seismic Hazard Analysis (SHA; see Appendix G, Attachment G.1).
  Consolidation and the corresponding increase in saturation was not considered in the seismic settlement analysis. The majority of materials are tailings, and the coarse tailings material are not subject to consolidation since they are unsaturated (see Appendix G, Attachment G.3 for discussion on coarse tailings material). The effect of the increase in saturation in the fine tailings and fine/coarse tailings would be negligible due to the assumption in the analyses that these materials are near saturation (fine tailings are at least 90 percent saturated and coarse/fine tailings are at least 83 percent saturated). The saturation in Stewart et al. (2004) ranged from 60 to 90 percent for both high and moderate plasticity soils (fine tailings and coarse/fine tailings, respectively). As discussed previously, the fine tailings were assumed to have a 90 percent saturation value for selecting the coefficients, and the coarse/fine tailings were assumed to have a low relative compaction that applied to any saturation value for selecting the coefficients. This resulted in using the highest “a” value and lowest “b” value for each material. An increase in saturation (due to consolidation or otherwise) would not affect the selected a and b values for the tailings, thus no change in the results presented herein would be anticipated.

Stratigraphic Profiles

During the Mill Site PDS, eight CPTs were paired with boreholes to correlate CPT results with direct observation of the materials encountered. The borehole logs are presented in **Attachment C** and plots of the CPT measurements are presented in **Attachment D**. Seven of these "paired" CPT locations are within the footprint of the proposed Mill Site repository and shear wave velocity measurements were recorded during CPTs at six of those locations. The CPT data combined with the profiles from the borehole logs were used to define the thickness and texture of the soil layers, as well as the location of the contact between the tailings and underlying alluvium. The relationships used to define the tailings-alluvium contact are described in the Mill Site PDS (MWH, 2014a). These subsurface profiles were modified using the proposed repository design to reflect proposed repository construction (placement of mine waste and the repository cover). The final one-dimensional profiles (**Figure 2**) and associated shear wave velocity and CPT results (**Attachments B and D**) were used in the seismic settlement analysis.

Groundwater

Groundwater was encountered during drilling in two of the boreholes (TI-B10 and TI-B11) within the footprint of the proposed repository. In both of these boreholes the groundwater elevation was approximately 6,885 feet amsl. Groundwater was also encountered at about 6,903 feet amsl while drilling in boring B3 (drilled through the dam). In addition, alluvial wells 509D and EPA 23 (measured on 1/4/2016) show an alluvial ground water elevation of approximately 6,867 feet amsl. These elevations are below the bottom of the tailings and exceed the depth at which seismic settlement is likely to occur. Therefore, the seismic settlement analysis did not assume the presence of a consistent static water level within the TDA or the underlying alluvium. Water level measurements taken in the vicinity of the TDA are presented in **Attachment E**.

For the purpose of this analysis, it is assumed that localized perched zones of saturated tailings are present above the water levels in the alluvial wells and encountered while drilling. Saturated tailings are comprised mostly of the fine-grained tailings that exhibit a low hydraulic conductivity. It is assumed that hydrostatic conditions do not exist in the alluvium, above the static water levels observed while drilling the HSA boreholes or the nearby alluvial monitoring wells.

In some cases, the laboratory data does not support the assumption of saturation within the fine tailings. However, for the purposes of this analysis, it has been conservatively assumed that hydrostatic conditions are present in tailings at or above 85 percent saturation.

It is also assumed that pore pressure dissipation tests performed in the tailings were unable to reach equilibrium due to the low hydraulic conductivity of the tailings deposited in the TDA. Therefore, results of the pore pressure dissipation tests are likely to be artificially elevated and are poor indicators of saturation. Assumptions regarding perched zones of saturated tailings at each of the paired CPT/boreholes are based on the results of CPTs, observations during HSA drilling and sampling, and subsequent laboratory testing. These assumptions are presented below.

CPT-01 and TI-B1

- It is assumed that saturated tailings do not exist at this location.
- Dynamic pore pressures recorded by the CPT in the tailings at CPT-01 were not elevated, indicating that these tailings are unsaturated.
- Eight tailings samples from TI-B1 were analyzed for water contents. All but one of these samples had degrees of saturation below 85 percent (1 percent to 63 percent saturation).
- One tailings sample (from approximately 31.25 ft to 31.5 ft below ground surface [bgs]) was nearly saturated (94 percent saturation). However, it is assumed that this sample is not indicative of the soils in this area and was collected from a discontinuous layer of interbedded fine tailings for the following reasons:
    - Three samples from the approximately 1.25 ft of immediately overlying soil (30 ft to 31.25 ft bgs) did not exhibit this level of saturation (1 percent to 47 percent saturation).
    - Analysis of a soil sample from approximately one foot below this sample (32 ft to 33 ft bgs) did not exhibit this level of saturation (63 percent saturation).

- The boring log for TI-B1 indicated that the soils from 18.5 ft to 34.3 ft bgs are coarse tailings, an observation that is supported by laboratory analysis (other samples in this layer had fines contents of 7 percent, 9 percent and 53 percent). However, the sample in question had a fines content of 69 percent and was identified as fine tailings.

CPT-02 and TI-B2

- It has been assumed that saturated tailings do not exist at this location.
- Dynamic pore pressures recorded by the CPT in this zone were not elevated, indicating that this zone is unsaturated.
- This assumption is supported by the degree of saturation calculated from laboratory testing results (77 percent saturation).

CPT-08 and TI-B8

- It has been assumed for this analysis that there are three localized perched zones of saturation (hydrostatic conditions) within the tailings at this location.
- These zones of saturation correspond to the layers of fine tailings observed during HSA drilling:
  - 26.3 ft to 31.0 ft bgs
  - 32.5 ft to 35.0 ft bgs
  - 38.6 ft to 44.5 ft bgs
- The uppermost zone that is assumed to be saturated (26.3 ft to 31.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 26.9 ft to 31.5 ft bgs during the CPT.
  - A sample from this layer was submitted for laboratory analysis, the results of which indicate that the material is fully saturated (100 percent saturation).
- The middle zone of assumed saturation (32.5 ft to 35.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 32.8 ft to 35.1 ft bgs during the CPT.
- The lowermost zone that is assumed to be saturated (38.6 ft to 44.5 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured in this layer during the CPT.
  - Samples from this layer were submitted for laboratory analysis, the results of which indicate that the material is 93 percent to 99 percent saturated.
- Laboratory analysis of samples of the coarse tailings and coarse/fine tailings between the layers of fine tailings at TI-B8 indicated that these soils are unsaturated (44 percent to 67 percent saturation).
- The dynamic pore pressure measurements taken during CPT-08 also support this pattern of nearly-saturated layers of fine tailings, interbedded with layers of coarser unsaturated tailings.
- The pore pressure dissipation test performed at 31.7 ft bgs did not reach zero, which may indicate saturated conditions; however, the material is classified as a CH (USCS) and has a fines content of 91 percent. It is likely that dynamic pore pressures generated by the CPT probe shearing the soils were very slow to dissipate, resulting in misleading measurements during the pore pressure dissipation test.

CPT-10 and TI-B10

- At this location, it has been assumed for this analysis that free-draining layers of coarse tailings separate three perched zones of saturated tailings:
  - 18.9 ft to 24.4 ft bgs
  - 25.7 ft to 31.0 ft bgs

  - 33.2 ft to 44.6 ft bgs
- The uppermost zone that is assumed to be saturated (18.9 ft to 24.4 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B10. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 17.7 ft to 24.3 ft bgs during the CPT.
  - A sample from this layer was submitted for laboratory analysis, the results of which indicate that the material is 89 percent saturated.
- The uppermost and middle zones of assumed saturation are separated by a layer of unsaturated coarse tailings (24.4 ft to 25.7 ft bgs) identified during HSA drilling.
- The middle zone of assumed saturation (25.7 ft to 31.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B10. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured in this layer during the CPT.
  - Samples from this layer were submitted for laboratory analysis, the results of which indicate that the material is 95 percent to 96 percent saturated.
- The middle and lowermost zones of assumed saturation are separated by a layer of unsaturated coarse tailings (31.0 ft to 33.2 ft bgs) identified during HSA drilling. A sample of this layer was submitted for laboratory analysis, the results of which indicate that the material is unsaturated (62 percent saturation).
- The lowermost zone of assumed saturation (33.2 ft to 44.6 ft bgs) spans two layers of fine tailings (33.2 ft to 36.3 ft bgs and 37.8 ft to 44.6 ft bgs) and the layer of coarse/fine tailings by which they are separated. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured during the CPT at this location to a depth of 43.8 ft bgs.
  - Laboratory analysis of samples of these tailings indicated that these soils are 95 percent to 100 percent saturated.

CPT-11 and TI-B11

- It has been assumed that there is a localized perched zone of saturation (hydrostatic conditions) within the tailings at this location (44.5 ft to 53.9 ft bgs).
- This assumption corresponds to a layer of fine tailings observed during HSA drilling at TI-B11 and is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 43.5 ft to 54.8 ft bgs during the CPT.
  - Laboratory analysis of samples of the fine tailings at TI-B11 indicated that these soils are 95 percent to 100 percent saturated.

CPT-15 and TI-B15

- It has been assumed that there are no saturated tailings at this location. This assumption is based on the following:
  - The tailings at this location are of a coarse nature and therefore have a higher hydraulic conductivity than fine-grained tailings.
  - Multiple samples of tailings from this location were submitted for laboratory analysis. Laboratory analysis indicated that the samples were unsaturated (22 percent to 58 percent saturation).

Other Stratigraphic Assumptions

- The 4.5-foot-thick ET cover will consist of two layers: (1) an erosion protection layer (14-31.5 inches thick) on top of (2) a layer of cover soil (22.5-34 inches thick).
- The top of the ET cover will be the same as the finished grade of the proposed repository grading plan (as shown in **Figure 1**).

- Improvement and reconditioning of the existing TDA cover and radon barrier within the footprint of the proposed repository will result in a minimum 18-inch-thick radon barrier. The existing erosion protection material will be removed from within the proposed repository footprint during this process. The finished grade of the improved radon barrier will be equal to existing grade.
- Mine waste will be placed from the top of the radon barrier (existing grade) to the bottom of the ET cover (4.5 ft below finished grade).

Calculations

Attachment F presents the seismic settlement analysis calculations.

Results

The seismic settlement analysis evaluated the magnitude of potential settlement that could occur within the footprint of the proposed Mill Site repository as a result of the design seismic event. Analysis of one-dimensional stratigraphic profiles was performed according to the methods outlined in *Seismic Compression Analysis of As-Compacted Fill Soils with Variable Levels of Fines Content and Fines Plasticity* (Stewart et al., 2004). The settlement ranged from 0.08 to 0.14 feet, by location. The results of the seismic settlement analysis are presented in **Table 4** and also included on **Figure 1**.

The sensitivity analysis conducted on the seismic settlement resulted in a slight increase in settlement values when using the 30th percentile values for dry density and water content for the evaluated materials, as compared to using the base case average values. The settlement ranged from 0.09 to 0.15 feet, by location. The results show that varying the material properties to the 30th percentile values had little effect on the calculated seismic settlement values. The settlement values at each location resulting from the sensitivity analysis are summarized in **Table 5**.

Conclusions

The results presented here are based on the current conditions of existing soils, anticipated conditions of repository fill placement, and the design seismic event. The estimated seismic settlements resulting from the design earthquake are small and future densification of existing soils caused by the repository construction may mitigate these effects, reducing the potential seismic settlement that could occur during an earthquake. The potential seismic settlement results are considered within the tolerable limits (6 to 12 inches) of seismic deformation for tailings impoundments described in NUREG-1620 (NRC, 2003).

Attachments

Figures

- Figure 1 – Borehole and CPT Locations for Seismic Settlement Analysis
- Figure 2 – One-Dimensional Stratigraphic Profiles

Attachments

- Attachment A – Laboratory Results from Pre-Design Studies (MWH, 2014a and MWH, 2014b)
- Attachment B – Measured Shear Wave Velocities in TDA and Underlying Alluvium (MWH, 2014a)
- Attachment C – Tailings Disposal Area Borehole Logs (MWH, 2014a)
- Attachment D – Tailings Disposal Area Cone Penetration Test Results (MWH, 2014a)
- Attachment E – Recorded Water Levels at the Church Rock Site (Chester Engineers, 2016)
- Attachment F – Seismic Settlement Analysis Calculations

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TABLES

Table 1: Material Properties Used in Seismic Settlement Analysis

Material Identification	Moist Unit Weight, γ_m (pcf)	Relative Compaction, C_r (% of Standard Proctor)	Fines Content, FC (%)	Plasticity Index, PI	a [2]	b [2]	γ_{tv} [2]	R [2]
Erosion Protection	122.9 [1]	90 [1]	37 [1]	12 [4]	2.00	0.65	0.03%	0.34
Cover Soil	114.7	90	53	12	2.00	0.65	0.03%	0.34
Mine Spoils	116.4	90 [1]	53 [4]	12 [4]	1.18	0.75	0.02%	0.34
Radon Barrier	122.3	95 [1]	59	16	0.65	0.75	0.02%	0.34
Existing Fill	113.8	90	48	19	1.70	0.75	0.02%	0.34
Coarse Tailings	108.1	N/A	21	0	1.79	1.00	0.01%	0.36
Coarse/Fine Tailings	116.0	N/A	52	20	2.00	0.65	0.03%	0.34
Fine Tailings	107.6 [3]	N/A	83	43	0.90	0.75	0.06%	0.25
Coarse Alluvium	111.0	N/A	36	0	2.00	1.00	0.01%	0.36
Fine Alluvium	120.7	N/A	76	22	0.90	0.75	0.06%	0.25

Notes:

All values are the average of laboratory testing results, unless otherwise noted.

[1] Assumed

[2] From Stewart et al., 2004 (pages 84 – 90).

[3] Assumes material is fully saturated

[4] Assumed to be the same as cover soil from the proposed borrow areas

Table 2: Material Properties Used in the Seismic Settlement Sensitivity Analysis

Material Identification	Water content (by mass, %)	Dry density (pcf)	Calculated Moist Unit Wt (pcf)
Coarse Tailings	6.8	91.7	97.9
Coarse/Fine Tailings	27.6	85.7	109.4
Fine Tailings	41.6	66.8	94.6

Table 3: Shear Wave Velocities Measured in General Fill at the Tailings Disposal Area

Borehole	Depth below Finished Ground Surface at Time of CPT (ft)	Soil Layer Thickness (ft)	Average Shear Wave Velocity, V_s (ft/sec)	Wave Travel Time Through Soil Layer (ms)
TI-B1/CPT-01	2.0 - 13.0	11.0	777.0	14.2
TI-B1/CPT-01	14.0 - 18.5	4.5	731.6	6.2
TI-B2/CPT-02	2.0 - 12.8	10.8	849.9	12.7
TI-B8/CPT-08	2.0 - 7.0	5.0	1177.0	4.2
TI-B8/CPT-08	18.0 - 20.7	2.7	786.4	3.4
TI-B10/CPT-10	2.0 - 6.8	4.8	926.0	5.2
TI-B11/CPT-11	2.0 - 44.5	42.5	890.5	47.7
TI-B15/CPT-15	2.0 - 3.0	1.0	680.0	1.5
Total Travel Time (ms):				**95.1**
Overall Average Shear Wave Velocity, Vs (ft/sec):				**866**

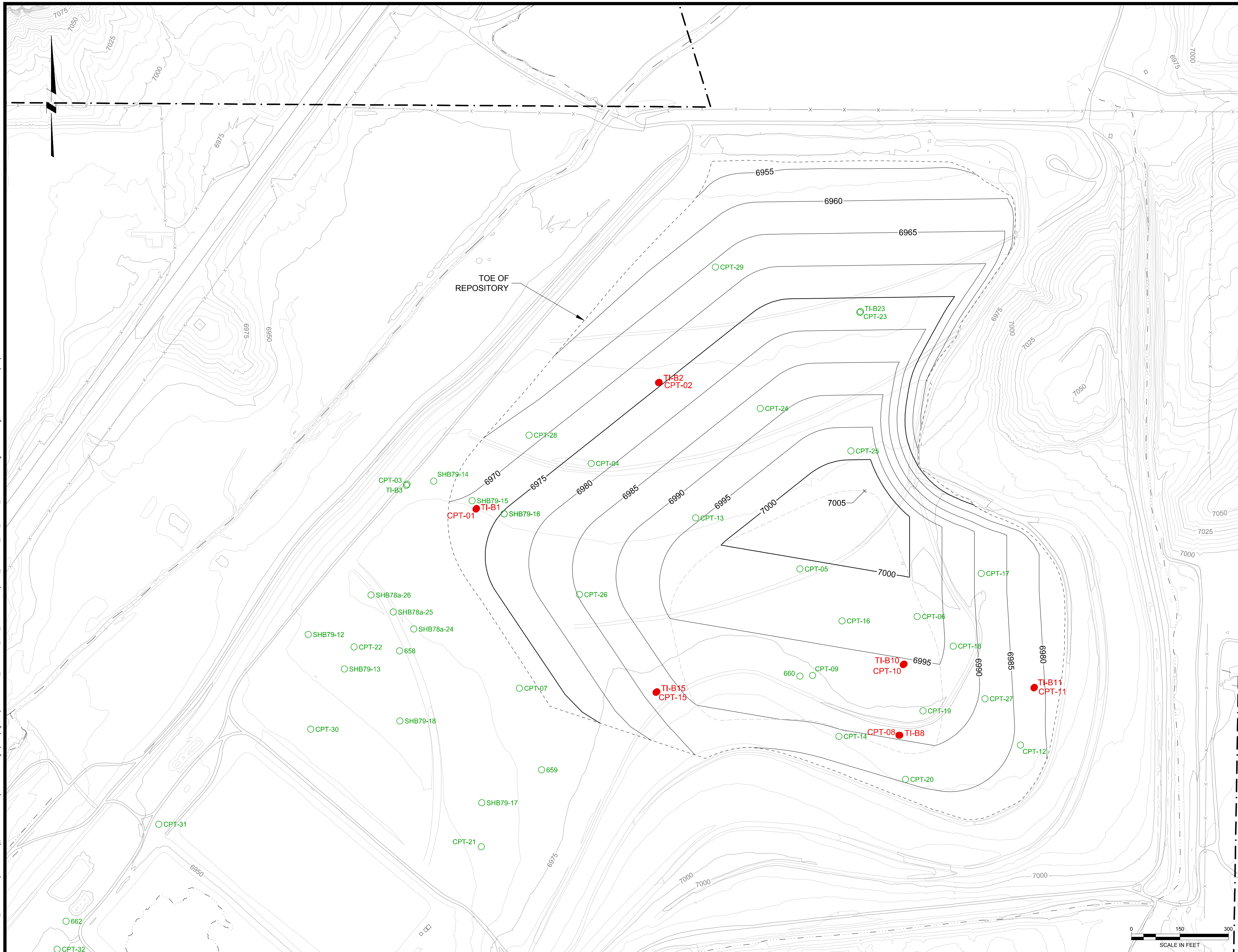
Table 4: Potential Seismic Settlement Caused by the Design Seismic Event

Borehole ID	Depth of Seismic Settlement (ft)
TI-B1/CPT-01	0.08
TI-B2/CPT-02	0.12
TI-B8/CPT-08	0.08
TI-B10/CPT-10	0.12
TI-B11/CPT-11	0.14
TI-B15/CPT-15	0.09

Table 5: Potential Seismic Settlement Sensitivity Results

Borehole ID	Depth of Seismic Settlement (ft)
TI-B1/CPT-01	0.09
TI-B2/CPT-02	0.13
TI-B8/CPT-08	0.09
TI-B10/CPT-10	0.15
TI-B11/CPT-11	0.13
TI-B15/CPT-15	0.12

FIGURES



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- EXISTING ROAD
- EXISTING DRAINAGE
- FENCE
- BOUNDARY OF REPOSITORY
- ● PAIRED BOREHOLES AND CPT LOCATIONS USED FOR SEISMIC SETTLEMENT ANALYSIS
- ○ OTHER BOREHOLES, WELLS, OR CPT LOCATIONS

LOCATION	SETTLEMENT (FT)
CPT-01 / TI-B1	0.07
CPT-02 / TI-B2	0.12
CPT-08 / TI-B8	0.08
CPT-10 / TI-B10	0.12
CPT-11 / TI-B11	0.13
CPT-15 / TI-B15	0.09

DESIGNED S DOWNEY
CHECKED C WEBER
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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

BOREHOLE AND CPT LOCATIONS
FOR SEISMIC SETTLEMENT ANALYSIS

FIGURE
1
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TI-B1/CPT-01		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 2.1	Cover Soil
0.0 - 2.0	2.1 - 4.1	Radon Barrier
2.0 - 13.0	4.1 - 15.1	General Fill
13.0 - 15.0	15.1 - 16.1	Coarse Tailings
15.0 - 18.5	16.1 - 20.6	General Fill
18.5 - 34.3	20.6 - 36.4	Coarse Tailings
34.3 - 41.1	36.4 - 43.2	Coarse Alluvium
41.1 - 45.0	43.2 - 47.1	Fine Alluvium
45.0 - 54.0	47.1 - 56.1	Coarse Alluvium
54.0 - 68.2	56.1 - 70.3	Fine Alluvium
68.2 - 70.0	70.3 - 72.1	Coarse Alluvium

TI-B2/CPT-02		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 14.3	Mine Spoils
0.0 - 2.0	14.3 - 16.3	Radon Barrier
2.0 - 12.8	16.3 - 27.1	General Fill
12.8 - 15.0	27.1 - 29.3	Fine Tailings
15.0 - 25.7	29.3 - 40.0	Coarse Alluvium
25.7 - 33.5	40.0 - 47.8	Fine Alluvium

TI-B8/CPT-08		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 14.2	Mine Spoils
0.0 - 2.0	14.2 - 16.2	Radon Barrier
2.0 - 7.0	16.2 - 21.2	General Fill
7.0 - 18.0	21.2 - 32.2	Coarse Tailings
18.0 - 20.7	32.2 - 34.9	General Fill
20.7 - 26.3	34.9 - 40.5	Coarse Tailings
26.3 - 31.1	40.5 - 45.3	Fine Tailings
31.1 - 32.5	45.3 - 46.7	Coarse Tailings
32.5 - 35.0	46.7 - 49.2	Fine Tailings
35.0 - 38.6	49.2 - 52.8	Coarse/Fine Tailings
38.6 - 44.5	52.8 - 58.7	Fine Tailings
44.5+	58.7+	Coarse Alluvium

TI-B10/CPT-10		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 21.0	Mine Spoils
0.0 - 2.0	21.0 - 23.0	Radon Barrier
2.0 - 6.8	23.0 - 27.8	General Fill
6.8 - 18.9	27.8 - 39.9	Coarse Tailings
18.9 - 24.4	39.9 - 45.4	Fine Tailings
24.4 - 25.7	45.4 - 46.7	Coarse Tailings
25.7 - 31.0	46.7 - 52.0	Fine Tailings
31.0 - 33.2	52.0 - 54.2	Coarse Tailings
33.2 - 44.6	54.2 - 65.6	Fine Tailings
44.6+	65.6+	Coarse Alluvium

TI-B11/CPT-11		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 4.3	Mine Spoils
0.0 - 2.0	4.3 - 6.3	Radon Barrier
2.0 - 44.5	6.3 - 48.8	General Fill
44.5 - 53.9	48.8 - 58.2	Fine Tailings
53.9 - 55.0	58.2 - 59.3	Fine Alluvium
55.0 - 77.5	59.3 -81.8	Coarse Alluvium

TI-B15/CPT-15		
Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 5.1	Mine Spoils
0.0 - 2.0	5.1 - 7.1	Radon Barrier
2.0 - 3.0	7.1 - 8.1	General Fill
3.0 - 30.0	8.1 - 35.1	Coarse Tailings
30.0 - 38.0	35.1 - 43.1	Fine Alluvium
38.0 - 45.0	43.1 - 50.1	Coarse Alluvium
45.0 - 50.0	50.1 - 55.1	Fine Alluvium
50.0 - 52.0	55.1 - 57.1	Coarse Alluvium
52.0 - 65.0	57.1 - 70.1	Fine Alluvium

PROJECT UNITED NULEAR CORPERATION AND NORTHEAST CHURCH ROCK MINE

TITLE ONE-DIMENSIONAL STRATIGRAPHIC PROFILES

MWH

DATE May 2016

FIGURE 2

FILENAME Figure_2

ATTACHMENT A

LABORATORY RESULTS FROM PRE-DESIGN STUDIES (MWH, 2014A AND MWH, 2014B)

Table 3-1 Summary of Geotechnical Laboratory Data - Cover Samples

Cover Layer	Sample	Sample Type [1]	Sample Depth Interval (in)		Material Description [2]	USCS [2]	USDA Classification [3]	Water Content (by mass) (%)	Specific Gravity	Standard Proctor (max. dd@opt. w.c.) (pcf @ %)	Atterberg Limits (%) [5] LL	PL	PI	USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	L.A. Abrasion [6] (% loss)	Sodium Soundness [7] (% loss)	Absorption [8] (%)	Pinhole Dispersion [9]	Remolded Saturated Hydraulic Conductivity (cm/sec) [10] 90%	95%	100%	Confining Stress (psi)	SWCC: -5 bar Water Content (by mass) (%) [10]	SWCC: Saturated Water Content (by mass) (%) [11]
Admix. (Gravel/ Soil Mixture)	TI - CS01 - 02A	Bulk	0	11	Clayey Gravel with Sand		Loam							33.3	23.4	43.3	28.0	15.3										
	TI - CS02 - 02A	Bulk	0	10	Clayey Gravel with Sand		Clay Loam		2.81 [4]					36.9	17.0	46.1	28.8	17.3	3.8	0.37	1.06							
	TI - CS03 - 02A	Bulk	0	6	Clayey Gravel with Sand		Loam							53.6	18.7	27.7	18.1	9.6										
	TI - CS04 - 02A	Bulk	0	10	Clayey Gravel with Sand		Loam							53.6	18.2	28.2	18.0	10.2										
	TI - CS05 - 02A	Bulk	0	9	Sandy Lean Clay		Loam							13.9	34.4	51.7	31.2	20.5										
	TI - CS06 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam		2.77 [4]					48.4	18.5	33.1	23.4	9.7	5.7	0.14	1.91							
	TI - CS07 - 02A	Bulk	0	20	Sandy Lean Clay	CL	Loam	7.8			28	13	15	1.1	41.0	60.9	42.4	18.5										
	TI - CS08 - 02A	Bulk	0	8	Clayey Gravel with Sand		Loam							56.7	18.5	24.8	17.2	7.6										
	TI - CS09 - 02A	Bulk	0	9	Clayey Gravel		Loam		2.78 [4]					53.6	14.2	32.2	21.2	11.0	5.1	1.17	1.55							
	TI - CS10 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam							41.4	19.7	38.9	26.1	12.8										
	TI - CS11 - 02A	Bulk	0	9	Clayey Gravel with Sand		Sandy Loam							30.7	30.1	39.2	26.1	13.1										
	TI - CS12 - 02A	Bulk	0	14	Sandy Lean Clay	CL	Loam	9.1			33	13	20	1.3	28.8	69.9	43.5	26.4										
Radon barrier (clay layer)	TI - CS03 - 04A	Bulk	6	24	Sandy Lean Clay	CL	Loam	6.0			28	14	14	6.3	38.7	55.0	36.1	18.9										
	TI - CS06 - 04A	Bulk	7	24	Sandy Lean Clay	CL	Loam	11.0			30	13	17	6.7	34.2	59.1	40.2	18.9										
	TI - CS10 - 04A	Bulk	7	25	Sandy Lean Clay	CL	Loam	7.7			29	14	15	2.3	39.5	58.2	36.9	21.3										
	TI - CS08 - 04A	Bulk	8	28	Sandy Lean Clay	CL	Loam	8.1	2.67	119.4 @ 11.9	27	12	15	11.3	35.0	53.7	36.7	17.0					9.1E-06	1.1E-05	1.5E-06	24		
	TI - CS05 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Loam	9.6			29	12	17	1.3	37.3	61.4	42.0	19.4										
	TI - CS09 - 04A	Bulk	9	26	Sandy Lean Clay	CL	Loam	7.7			28	13	15	4.0	38.1	57.9	40.0	17.9										
	TI - CS11 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Clay Loam	8.6	2.68	115.0 @ 14.9	32	13	19	5.1	28.4	66.5	40.7	25.8					7.6E-08	1.4E-07	1.0E-07	24		
	TI - CS02 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Sandy Clay Loam	11.4			28	12	16	3.6	44.7	51.7	30.4	21.3										
	TI - CS04 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Clay Loam	15.0	2.68	113.5 @ 15.0	35	15	20	0.9	35.0	68.2	37.2	26.9					4.6E-06	6.2E-06	2.3E-07	8		
	TI - CS01 - 04A	Bulk	11	24	Sandy Lean Clay	CL	Loam	9.2	2.68	117.3 @ 13.0	29	15	14	2.0	39.8	58.2	39.0	19.2				ND3	3.0E-04	4.6E-05	7.8E-07	8	8.6 / 9.6	21.7 / 19.0

Notes: 1. Sample Types: Bulk = bucket/grab sample
2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay
3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.
4. Bulk saturated surface dry (SSD) specific gravity of the gravel fraction, average of three results (ASTM C127).
5. LL = liquid limit, PL = plastic limit, PI = plasticity index
6. L.A. abrasion results are percent loss, by mass, for 100 revolutions.
7. Weighted percent loss for the 3/4-inch to 3/8-inch size range
8. Average of three results for the gravel fraction of the cover gravel/soil mixture samples
9. Pinhole dispersion test (ASTM method A) conducted on a specimen remolded to approximately 95% of the maximum standard Proctor density at optimum water content. ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head.
10. Flexible wall permeameter tests conducted on specimens remolded to approximately 90, 95 and 100% of the maximum standard Proctor density and tested at the confining stresses shown in the table.
11. SWCC test conducted on material passing the No. 10 sieve, remolded to approximately 95% of the maximum standard Proctor density and optimum water content. SWCC tests performed with pairs of specimens for each test.

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment

Area	Boring	Sample Type [9]	Sample Depth Interval (ft.)		Material Description [1]		USCS [1]	Water content (by mass, %) 110C	Water content (by mass, %) 60C	saturation (%)	SWCC - Saturated water content (by mass, %) [2]	SWCC - Specimen dry density (pcf) [2]	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) [3]	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) [7]	Collapse potential (%) (inundation load (psf))	Triaxial [12] (peak friction angle (ϕ) (degrees), cohesion (psf), where applicable)
CENTRAL	TI-B1	CA	36	36.5	Alluvium Clayey Sand	coarse		21.0	19.9	76%	36.3 / 33.2	85.2 / 88.0	97.3		2.73					0.0	62.5	37.5	32.8	4.7	1.7E-06	32	0.059		
CENTRAL	TI-B1	ST	45	46	Alluvium Clayey Sand	coarse		22	21.2				106.0														0.058		34.4
CENTRAL	TI-B10	CA	91	91.5	Alluvium Clayey Sand	coarse		18.6					105.6		2.66														
CENTRAL	TI-B15	CA	41	41.5	Alluvium Clayey Sand	coarse		11.4	10.1				87.1	88.1															
CENTRAL	TI-B15	CA	66	66.5	Alluvium Clayey Sand	coarse		12.7	11.8				100.7	101.5															
CENTRAL	TI-B11	CA	81	81.5	Alluvium Clayey Sand with Gravel	coarse		11.0					107.6		2.76					12.9	65.6	21.5	9.9	11.6					
CENTRAL	TI-B10	CA	46	46.5	Alluvium Silty Sand	coarse		9.9					95.4		2.74					0.0	65.8	34.2	23.4	10.8					
CENTRAL	TI-B10	ST	55	56	Alluvium Silty Sand	coarse		14.1			25.7 / 24.8	98.0 / 99.9	100.8												2.4E-05	72	0.139		
CENTRAL	TI-B10	CA	71	71.5	Alluvium Silty Sand	coarse		18.1					100.8																
CENTRAL	TI-B11	ST	56	57	Alluvium Silty Sand	coarse	SM	16.2			31.0 / 30.8	90.6 / 92.8	77.9		2.64		NP			0.0	60.4	39.6	31.9	7.7	5.6E-04	72	0.129		
CENTRAL	TI-B11	CA	66	66.5	Alluvium Silty Sand	coarse		14.2					96.2																
BORROW PIT 1	TI-B8	CA	56	56.5	Alluvium Silty Sand	coarse	SM	12.6					97.6		2.70		NP			0.0	57.0	43.0	30.9	12.1					
CENTRAL	TI-B15	CA (top)	31	31.5	Alluvium Silty Sand	coarse		22.3	21.3																				
CENTRAL	TI-B15	CA (bottom)	31	31.5	Alluvium Silty Sand	coarse	SM	17.1					101.8		2.71		NP			6.2	51.9	41.9	25.9	16.0					
NORTH CELL	TI-B2	CA	15	15.5	Alluvium Silty Sand	coarse		6.9					90.4		2.68														
NORTH CELL	TI-B2	CA	21	21.5	Alluvium Silty Sand	coarse		7.0					91.4		2.74					0.0	82.9	17.1	11.5	5.6					
CENTRAL	TI-B10	CA	66	66.5	Alluvium Silty Sand / Sandy Silt	coarse	SM/ML	13.8					94.5				NP			0.0	50.1	49.9	33.4	16.5					
NORTH CELL	TI-B23	ST	26	27	Alluvium Lean Clay	fine	CL	21.6					101.7		2.73		49	18	31	0.0	8.8	91.2	43.8	47.5			0.046		
DAM	TI-B3	ST	56	57	Alluvium Lean Clay	fine	CL	22.1	21.1				105.3	106.2	2.72		43	14	29	0.0	11.7	88.3	48.4	39.9				-1.5 (7,204)	22.2, 494
CENTRAL	TI-B1	CA	41	41.5	Alluvium Lean Clay with Sand	fine	CL	26.7					98.6				31	15	16	0.0	18.2	81.8	54.7	27.1	1.2E-07	35			
BORROW PIT 1	TI-B8	CA	46	46.5	Alluvium Lean Clay with Sand	fine	CL	21.9					95.2		2.72		30	16	14	0.0	27.9	72.1	55.6	16.5					
NORTH CELL	TI-B2	CA	26	26.5	Alluvium Lean Clay with Sand	fine	CL	23.5					93.2				34	16	18	0.0	20.9	79.1	51.5	27.6					
CENTRAL	TI-B11	CA	61	61.5	Alluvium Sandy Clay	fine		16.0					95.4							0.0	38.7	61.3	44.1	17.2					
NORTH CELL	TI-B23	ST	17.25	17.5	Alluvium Sandy Clay	fine		22.5					101.9		2.73					0.0	31.1	68.9	46.5	22.5					
CENTRAL	TI-B15	CA (top)	46	46.5	Alluvium Sandy Silt	fine		25.8	24.0																				
CENTRAL	TI-B15	CA (bottom)	46	46.5	Alluvium Sandy Silt	fine	ML	17.3					99.3		2.81		NP			0.0	37.0	63.0	55.7	7.3					
CENTRAL	TI-B15	CA	56	56.5	Alluvium Silty Clay	fine		11.7	10.5				104.2	105.3															
DAM	TI-B3	CA	61	61.5	Alluvium Silty Clay	fine		25.8					99.0							0.0	22.0	78.0	54.9	23.1					
CENTRAL	TI-B10	ST (top)	10	11	Coarse Tailings			9.7	9.1				110	110.5	2.63	2.65													
CENTRAL	TI-B10	ST (bottom)	10	11	Coarse Tailings	Clayey Sand		9.0			20.7 / 21.5	102.6 / 101.2	96.8							0.2	71.9	27.9	16.6	11.3	4.3E-04	34	0.094		
CENTRAL	TI-B10	CC-AC [4] (top)	12.5	14	Coarse Tailings			6.7	6.3						2.61	2.64													
CENTRAL	TI-B10	CC-AC [4] (bot)	12.5	14	Coarse Tailings	Clayey Sand		7.5			31.3 / 31.4	85.0 / 85.0	99.1							0.7	71.5	27.8	18.9	8.9	6.7E-05	36			
CENTRAL	TI-B10	CA	15	15.5	Coarse Tailings			9.3					103.0																
CENTRAL	TI-B10	CA	16	16.5	Coarse Tailings	Silty Sand	SM	6.5					100.0		2.65		NP			2.4	82.3	15.3	10.2	5.1					
CENTRAL	TI-B10	ST	32	32.5	Coarse Tailings		SM	15.4					100.1		2.67		NP			0.0	83.1	16.9	12.6	4.3					
CENTRAL	TI-B1	CA	20.5	21	Coarse Tailings			6.1	5.7																				
CENTRAL	TI-B1	CA	21	21.5	Coarse Tailings	Poorly Graded Sand w/ Clay		7.5			21.9 / 19.8	96.5 / 99.6	105.5							0.0	90.7	9.3	5.5	3.8	3.7E-04	18	0.024		
CENTRAL	TI-B1	ST	27	27.5	Coarse Tailings		SP	4.0					97.6		2.67		NP			0.0	92.7	7.3	5.2	2.1	2.9E-03	14			34.9
CENTRAL	TI-B1	CA	30	30.5	Coarse Tailings			13.9	13.5																				
CENTRAL	TI-B1	CA	30.5	31	Coarse Tailings			14.6			29.6 / 33.8	84.2 / 83.6	91.6												3.0E-07	25	0.092		
CENTRAL	TI-B1	CA (top)	31	31.5	Coarse Tailings			0.8	0.4																				
CENTRAL	TI-B8	CA	25	25.5	Coarse Tailings			9.0	8.4				103.7	104.2	2.72	2.72													
CENTRAL	TI-B8	CA [5]	25.5	26	Coarse Tailings			6.2			25.7	94.6	99.6							0.0	87.9	12.7	7.9	4.8	3.6E-04	46			
CENTRAL	TI-B8	CA [5]	26	26.5	Coarse Tailings	Silty Sand	SM	16.8			27.0	94.8	91.7				NP			0.0	76.0	24.0	19.0	5.0					
CENTRAL	TI-B8	ST (top)	35	36	Coarse Tailings			14.3	13.6				90.9	91.4	2.66	2.67													
CENTRAL	TI-B8	ST (bottom)	35	36	Coarse Tailings			16.5			31.2 / 39.3	89.3 / 82.3	89.6		2.67										1.6E-05	43			
CENTRAL	TI-B15	CA	6	6.5	Coarse Tailings			5.4					101.1							0.0	87.5	12.5	9.8	2.7					
CENTRAL	TI-B15	CA	11	11.5	Coarse Tailings			6.8					93.8																
CENTRAL	TI-B15	CC-AC	13.5	14	Coarse Tailings		SM	19.0	18.4						2.68		NP			0.0	69.6	30.4	22.6	7.8					
CENTRAL	TI-B15	ST	15.5	16	Coarse Tailings		SM	14.2					90.4		2.66		NP			0.0	54.9	15.1	10.1	5.0	8.3E-04	38	0.126		
CENTRAL	TI-B15	CA	21	21.5	Coarse Tailings		SM	12.7					99.8		2.68		NP			0.0	80.6	19.4	13.3	6.1					
CENTRAL	TI-B15	CC-AC	28.5	29.5	Coarse Tailings		SM	19.3							2.66		NP			0.0	65.4	34.6	24.4	10.2					
NORTH CELL	TI-B23	ST	15.5	15.75	Coarse Tailings			20.7	19.6				87.7		2.77					0.0	62.8	37.2	34.1	3.1					
CENTRAL	TI-B10	ST	21.5	22.5	Coarse/Fine Tailings		CL	28.1	*26.7*				91.9	*92.9*			43	19	24	0.0	43.0	57.0	51.4	5.6			0.111		
CENTRAL	TI-B1	CC-AC	32	33	Coarse/Fine Tailings		CL	29.3	*27.8*								33	16	17	0.0	46.7	53.3	37.4	15.9					
CENTRAL	TI-B10	CA	36	36.5	Coarse/Fine Tailings	Clayey Sand / Sandy Clay	SC/CL	33.9	*32.2*	94%			86.7	*87.8*	2.68	*2.72*	36	16	20	0.0	50.6	49.4	31.1	18.3					
CENTRAL	TI-B8	ST (bottom)	41	42	Coarse/Fine Tailings	Clayey Sand / Sandy Clay	SC/CL	35.6	34.3		33.1 / 31.6	88.7 / 90.7	82.8	83.6			35	16	19	0.0	51.2	48.8	40.7	8.1	1.3E-07	53	0.262		
CENTRAL	TI-B8	CC-AC (top)	43.5	44.5	Coarse/Fine Tailings			31.2	29.3				91.0	92.3															
DAM	TI-B3	ST (top)	35	36	Dam Clayey Sand (dam)			10.5	10.2																				
DAM	TI-B3	ST (bottom)	35	36	Dam Clayey Sand (dam)		SC	14.7					102.2		2.67		23	14	9	2.1	50.2	47.7	30.9	16.8				-0.7 (4,608)	33.7, 135
DAM	TI-B3	ST	21	22	Dam Sandy Clay (dam)		CL	16.0					111.1				30	12	18	0.0	32.8	67.2	41.7	25.5				-0.03 (2,709)	32.2, 195
DAM	TI-B3	CA	26	26.5	Dam Sandy Clay (dam)			12.0					106.8				25	13	12										
DAM	TI-B3	CA	31	31.5	Dam Sandy Clay (dam)			16.1					108.4																
DAM	TI-B3	CA	11	11.5	Dam Silty Sand (dam)			5.1					108.4		2.64					5.4	74.7	19.9	13.5	6.4					
DAM	TI-B3	CA	16	16.5	Dam Silty Sand (dam)			4.7					105.3															-2.8 (2,236)	
DAM	TI-B3	CA	41	41.5	Dam Sandy Clay (dam)			21.5					90.6							0.0	33.8	66.2	41.7	24.5					
DAM	TI-B3	CA	45.5	46	Dam Sandy Clay (dam)			17.0	17.7				110.1	109.4															29.3, 293
DAM	TI-B3	CA	46	46.5	Dam Sandy Clay (dam)			18.0					104.8				28	13	15										
CENTRAL	TI-B11	ST	15	16	Fill Clayey Sand (Fill)			8.2			16.0 / 16.3	117.7 / 116.6	110.4		2.67					3.9	57.6	38.5	24.6	13.9	2.5E-05	38	0.085		
NORTH CELL	TI-B2	CA	11	11.5	Fill Clayey Sand (fill)			24.5					75.9		2.73					0.0	65.4	34.6	30.3	4.3					
CENTRAL	TI-B1	CA	16	16.5	Fill Lean Clay with Sand (Fill)		CL	16.2					104.7				33	13	20	0.3	27.2	72.5	42.9	29.6					
CENTRAL	TI-B11	CA	6	6.5	Fill Sandy Clay (Fill)			8.6					93.5																
CENTRAL	TI-B11	CA	21	21.5	Fill Sandy Clay (Fill)			12.3					107.6																
CENTRAL	TI-B11	ST	30.5	31.5	Fill Sandy Clay (Fill)		CL	13.7					112.4				30	13	17	7.1	41.3	51.6	33.9	17.7	9.0E-07	51	0.059		
NORTH CELL	TI-B2	CA	6	6.5	Fill Silty Sand with Gravel (Fill)			7.7					100.4		2.68					26.9	29.9	43.2	30.7	12.5					
CENTRAL	TI-B10	CA	25.75	26	Fine Tailings			43.7	41.0																				

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment **(continued)**

Area	Boring	Sample Type [9]	Sample Depth Interval (ft.)		Material Description [1]		USCS [1]	Water content (by mass, %) 110C	Water content (by mass, %) 60C	saturation (%)	SWCC - Saturated water content (by mass, %) [2]	SWCC - Specimen dry density (pcf) [2]	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) [3]	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) [7]	Collapse potential (%) (inundation load (psf))	Triaxial [12] (peak friction angle (φ') (degrees), cohesion (psf), where applicable)
CENTRAL	TI-B10	CA	26	26.5	Fine Tailings	Fat Clay	CH	60.4	*57.4*				63.1	*64.3*	2.71	*2.80*	74	27	47	0.0	10.0	90.0	82.6	7.4					
CENTRAL	TI-B10	ST	30.3	30.7	Fine Tailings		CH	47.7	*45.3*	92%			72.2	*73.4*	2.71	*2.78*	57	22	35	0.0	24.3	75.7	68.4	7.3					
CENTRAL	TI-B10	ST (top)	40	41	Fine Tailings	Fat Clay with Sand		47.3	45.7				70.5	73.7	2.54	2.56													
CENTRAL	TI-B10	ST (bottom)	40	41	Fine Tailings	Fat Clay with Sand	CH	49.7	*47.2*		47.7 / 55.7	75.3 / 67.9	73.3	*74.5*			61	21	40	0.0	20.7	79.3	46.5	32.9	2.9E-08	58	0.315		
CENTRAL	TI-B11	ST	51.5	52.5	Fine Tailings		CH	63.0	*59.9*	95%			62.5	*63.7*	2.75	*2.84*	91	30	61	0.0	2.7	97.3	90	7.3	3.1E-08	67	0.482		
CENTRAL	TI-B1	CA (bottom)	31	31.5	Fine Tailings		CL		41.6	94%				76.5	2.68	*2.69*	44	17	27	0.0	30.9	69.1	54.6	14.5					33.3
CENTRAL	TI-B10	CA	35	35.5	Fine Tailings			50.2	*47.7*				71.3	*72.5*															
CENTRAL	TI-B10	CA	35.5	36	Fine Tailings			54.2	51.4																				
CENTRAL	TI-B11	CA	45.5	46	Fine Tailings			117.2	88.7																				
CENTRAL	TI-B8	ST	30	31	Fine Tailings		CH	65.1	*61.8*				61.5	*62.7*			74	25	49	0.0	9.2	90.8	81.2	9.6			0.426		
CENTRAL	TI-B8	ST	31	31.5	Fine Tailings			44.3	41.4																				
CENTRAL	TI-B8	ST (top)	41	42	Fine Tailings			41.8	*39.7*	**100%**			79.2	*80.4*	2.60	2.63													
CENTRAL	TI-B8	CC-AC [6] (bot)	43.5	44.5	Fine Tailings			45.6	*43.3*	96%	47.9 / 49.0	74.4 / 73.6	73.6	*74.8*						0.0	14.5	85.5	74.7	10.8	3.0E-08	61			
BORROW PIT 1	TI-B8	CC-AC	44.5	45	Fine Tailings										2.59	2.60													
NORTH CELL	TI-B2	CC-AC	13.5	14.5	Fine Tailings	Sandy Clay		41.7	*39.6*											0.0	23.1	76.9	49.2	27.7					
CENTRAL	TI-B10	CC	106.9	107.3	Sandstone			14.2					109.1												1.4E-07	115			
CENTRAL	TI-B11	CA	100	100.2	Sandstone			21.1					103.9												1.3E-05	112			
NORTH CELL	TI-B23	CA	45.2	45.7	Sandstone			13.8					108.7												2.4E-07	43			
NORTH CELL	TI-B2	BULK	38.4	38.7	Sandstone			13.5					X																
BORROW PIT 1	TI-B8	BULK	63.5	64	Shale			X					X												X	X			
NORTH CELL	TI-B23	CA [8]	65.5	66	Shale			10.2					103.0												9.7E-08	62			

Notes: 1. Material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available.

2. SWCC tests conducted with pairs of specimens for each test.

3. Flexible wall permeameter tests conducted at confining pressures representing confining stresses for the proposed design fill. Confining stresses were estimated as the existing overburden stress on the specimens (depth times total unit weight of material above) plus the maximum anticipated fill height for the location times the estimated unit weight of fill.

4. Specimen remolded to the in-situ water content and density of the Shelby tube sample from 10-12.5 for the SWCC.

5. Remolded SWCC and permeability tests conducted on a 50-50 mixture of the materials from these two specimens, remolded to the average measured density of the two CA samples.

6. SWCC specimen remolded to the in-situ water content and density of the Shelby tube sample from 41-42 feet.

7. Compression indices estimated using the maximum anticipated loading during fill placement and the range of loading during testing. Initial void ratios are calculated using the average specific gravity for all samples of 2.70.

8. Shale sample had multiple horizontal fractures and was likely disturbed during sampling.

9. Sample Types: CC = continuous core, CC-AC = continuous core in acrylic liner, top/bottom indicates the specimen was taken from the top or bottom of the sample interval

10. Values in italics were calculated based on the relationship (WC60=0.951(WC110)-.0611) between the water content results measured for 15 tailings samples at the two oven temperatures.*

11. Shaded cells are alluvium.

12. Consolidated undrained (CU) triaxial shear, staged loading of one specimen with pore pressure measurements

ST = 3" diam. Shelby tube, CA = California sample

R = remolded, nc = Cc not calculated, because fill will not be placed in this location

X = testing not possible due to sample disturbance

LL = liquid limit, PL = plastic limit, PI = plasticity index

Table 3-5 Summary of Geotechnical Laboratory Data - Borrow Areas

Area	Sample	Sample Type [1]	Sample Depth Interval (ft)		Material Description [2]	USCS [2]	USDA Classification [3]	Water Content (by mass, %)	Dry Density (pcf)	Porosity	Specific Gravity	Standard Proctor (max. dd@opt. w.c.), (pcf @ %)	Atterberg Limits (%) [4]			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	Pinhole Dispersion [5,6]	Remolded Saturated Hydraulic Conductivity [7] (cm/sec)			SWCC: -5 bar Water Content (by mass, %) [8]	SWCC: Saturated Water Content (by mass, %) [8]
													LL	PL	PI							80%	85%	90%		
West Borrow	WB-B1-01A	CA	3.0	3.5	Clayey Sand			3.8	88.8	46.7	2.67															
	WB-B1-03A	CA	11.0	11.5	Clayey Sand	SC	Sandy Loam	6.4	111.0	33.3	2.67		28	18	10	2.8	48.6	48.6	32.8	15.8						
	WB-B1-06	Bulk	5.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.64	112.5 @ 13.7	26	20	6	0.8	52.3	46.9	31.0	15.9	ND3	7.2E-04	5.8E-04	2.1E-04	6.6 / 6.2	31.7 / 32.4
	WB-B2-02A	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	5.6	87.1	47.8	2.67					8.6	53.5	37.9	23.8	14.1						
	WB-B2-05	Bulk	10.0	20.0	Clayey Sand	SC	Sandy Loam						26	17	9	9.9	46.3	43.8	27.7	16.1	ND3	8.5E-05	1.2E-04	6.4E-05	6.4 / 6.7	30.9 / 33.7
	WB-B5-001B	CA	3.0	3.5	Clayey Sand			3.7	92.5	44.3	2.66															
	WB-B5-002A	CA	6.0	6.5	Silty, Clayey Sand	SC-SM	Sandy Loam	5.1	86.9	47.7	2.66		24	17	7	0.0	56.3	43.7	27.8	15.9						
	WB-B5-005	Bulk	0.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam					117.3 @ 12.7				0.0	61.6	38.4	22.8	15.6						
East Borrow	EB-B2-001A	CA	3.0	3.5	Weath. Sandstone			5.8	107.1	35.8	2.67															
	EB-B3-003B	CA	10.5	11.0	Sandy Lean Clay	CL	Sandy Loam	6.0	83.1	50.7	2.70		26	15	11	0.0	46.3	53.7	34.9	18.8						
	EB-B4-02A	CA	6.0	6.5	Sandy Lean Clay	CL	Sandy Loam	5.4	80.7	51.2	2.65					0.0	48.5	51.5	33.9	17.6						
	EB-B4-06	Bulk	10.0	20.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.67	117.1 @ 12.9	23	17	6	0.0	50.5	49.5	32.0	17.5	ND3	8.7E-04	9.0E-04	4.4E-04	4.6 / 4.2	30.8 / 29.8
	EB-B5-02B	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	6.7	93.8	44.4	2.71		27	15	12	8.8	45.7	45.5	28.8	16.7						
	EB-B6-01B	CA	3.0	3.5	Sandy Clay			7.6	91.2	46.1	2.71															
	EB-B6-03	Bulk	0.0	10.0	Lean Clay with Sand	CL	Clay Loam					114.8 @ 14.1				0.0	26.6	73.4	44.3	29.1	ND3	2.3E-04	3.6E-05	2.9E-05	9.4 / 9.3	32.8 / 32.2
	EB-B6-04A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	8.6	95.2	43.3	2.69		31	13	18	0.0	31.1	68.9	43.8	25.1						
South Borrow	SB-B1-01A	CA	3.5	4.0	Sandy Lean Clay	CL	Sandy Loam	7.1	91.4	49.3	2.89					0.0	43.1	56.9	39.2	17.7						
	SB-B1-03A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	6.6	82.6	50.7	2.69		31	15	16	0.0	46.7	53.3	32.9	20.4						
	SB-B1-04	Bulk	0.0	25.0	Sandy Lean Clay	CL	Sandy Clay Loam				2.70	115.5 @ 14.2	33	14	19	0.0	42.6	57.4	30.7	26.7	ND1	2.3E-04	5.7E-05	1.4E-04	6.4 / 5.9	31.9 / 30.3
	SB-B2-02B	CA	5.5	6.0	Sandy Lean Clay	CL	Loam	7.7	80.1	52.6	2.70		36	15	21	0.0	29.8	70.2	45.4	24.8						
	SB-B3-02A	CA	6.0	6.5	Lean Clay with Sand	CL	Clay Loam	10.2	84.3	49.7	2.69		40	17	23	0.0	21.6	78.4	46.2	32.2						
	SB-B4-01	Bulk	0.0	15.0	Sandy Lean Clay	CL	Sandy Clay Loam	7.1			2.67	114.1 @ 14.4	33	15	18	0.8	39.6	59.6	35.7	23.9	ND3	3.4E-04	2.0E-04	7.4E-05	9.1 / 8.6	29.6 / 33.5
North Borrow	NB-B1-03B	CA	10.5	11.0	Silty Sand	SM	Sandy Loam	5.4	84.4	49.5	2.68		25	22	3	0.0	55.6	44.4	30.3	14.1						
	NB-B2-01B	CA	3.0	3.5	Silty Sand	SM	Sandy Loam	4.9	81.9	50.3	2.64		27	23	4	0.0	51.2	48.8	33.9	15.0						
	NB-B2-04	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam					113.9 @ 14.5	26	19	7	0.0	49.0	51.0	32.5	18.5	ND3	4.0E-04	2.7E-04	7.5E-05	4.9 / 4.7	29.5 / 29.9
Dilco Hill	DH-B1-01B	CA	3.0	3.5	Silty Sand			3.5	88.8	46.6	2.66															
	DH-B1-03	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam	5.4			2.67	117.5 @ 13.8	25	19	6	2.0	47.4	50.6	35.0	15.6	ND4	6.3E-04	7.1E-04	2.5E-04	4.2 / 4.1	39.6 / 35.0
	DH-B1-10	Bulk	35.0	45.0	Lean Clay with Sand	CL	Loam	10.3			2.38					1.5	20.9	77.6	60.9	16.7	ND3	1.6E-04	2.5E-05	3.2E-06	5.8 / 6.0	25.7 / 24.5
	DH-B2-03	CA	15.0	15.5	Silty Clay with Sand	CL-ML	Sandy Loam	10.5	96.7	39.2	2.55		29	24	5	0.0	27.7	72.3	66.9	5.4						
	DH-B3-05	Bulk	20.0	30.0	Sandy Lean Clay	CL	Loam	7.3			2.66	116.3 @ 13.0	29	18	11	2.5	34.6	62.9	45.5	17.4						

Notes: 1. Sample Types: CA = California sample, Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. With the exception of DH-B1-03, which was tested at a density based on the natural in-situ density measured from the CA samples, specimens were remolded to approximately 85% of standard Proctor density and between the estimated natural and optimum water contents for the soil.

6. ND1 = nondispersive clay with very slight to no colloidal erosion under 15-inch or 40-inch head; ND4, ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head (ASTM test method A)

7. Specimens remolded to approximately 80%, 85%, and 90% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil.

8. Specimens remolded to approximately 85% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil. SWCC tests performed with pairs of speciments for each test.

Table 3-6 Summary of Geotechnical Laboratory Data - Site Stockpiles

Area	Sample	Sample Type [1]	Material Description	USCS [2]	Specific Gravity	Atterberg Limits (%) [4]			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	L.A. Abrasion (% loss) [5]	Sodium Sulfate Soundness (% loss) [6]	Absorption (%) [7]	Unconfined Compressive Strength (psi) [8]	Splitting Tensile Strength (psi) [8]
						LL	PL	PI								
Stockpiles	Topsoil-01	Bulk	Sandy Clay	CL	2.68	33	10	23	2.6	32.4	65.0					
	Topsoil-02	Bulk	Sandy Clay	CL	2.71	39	12	27	0.5	26.8	72.7					
	TI-SP1-01	Bulk	Crusher Fines						1.9	80.8	17.3					
	TI-SP2-01A	Bulk	Erosion Protection Gravel		2.78 [3]				93.0	6.3	0.7	5.7	8.26	1.868		
	TI-SP2-01C	Bulk	Erosion Protection Gravel						83.3	4.9	11.8					
	TI-SP3-01A	Bulk	Road Base (gravel with sand)						67.4	24.6	8.0					
	TI-SP4-01A	Bulk	Erosion Protection Gravel		2.75 [3]				98.0	1.2	0.8	6.1	10.47	2.091		
	TI-SP6 (56A)	Bulk	9-inch riprap												20,780 and 23,630	1,320 and 1,400
	TI-SP6 (56B)	Bulk	9-inch riprap												19,100 and 14,440	1,530 and 1,720

Notes: 1. Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available.
USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. Average of three bulk saturated surface dry (SSD) specific gravity results for the rock samples (ASTM C127)

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. L.A. Abrasion results are percent loss, by mass, for 100 revolutions.

6. Weighted percentage loss for 0.75 to 1.5-inch size range

7. Average of three absorption results

8. Specimens were collected from the 9-inch stockpile and cored for strength testing.

Table 3-6 Geotechnical Test Results

Sample ID[1]	Sample Location	Sample Type	Sample Depth Interval		Gravimetric Water content	Dry Density	Specific gravity	Standard Proctor	
		Units:	top (ft bgs)	bottom (ft bgs)	(% by mass)	(pcf)	(g/cm[3])	max. dry density (pcf)[3]	optimum water content (%)
NECR1-CC01	NECR-1	Bulk	10	20			2.68	120.7	11.9
NECR1-CC17		CA[2]	5.5	6	4.9	92.3			
NECR1-CC17		CA	10.5	11	6.2	96.5			
NECR1-CC17		CA	15.5	16	2	106.7			
NECR1-CC17		CA	20.5	21	19.1	95.8			
NECR1-CC17		Bulk	0	10				120.3	11.3
NECR1-CC17		Bulk	10	20				125.1	10
NECR2-CC05	NECR-2	Bulk	0	10				118.8	11.9
NECR2-CC07		Bulk	0	10			2.71	117.8	11.6
NECR2-CC05		CA	2.5	3	8.1	93.7			
NECR2-CC05		CA	5	5.5	10	D[3]			
NECR2-CC06		CA	3.5	4	4.7	101.1			
NECR2-CC07		CA	6	6.5	2.7	101			
NECR2-CC07		CA	5.5	6	4.5	101.3			
NECR2-CC07		CA	10	10.5	4.1	97.1			
NECR2-CC01		CA	5.5	6	7.4	99.1			
NECR2-CC06		CA	3	3.5	5	103.4			
N2D-CC01	NECR-2 Drainage	Bulk	0	10				115.6	13.4
N2D-CC01		CA	3.5	4	8.6	91.2			
N2D-CC01		CA	6	6.5	4.7	87.2			
N2D-CC01		CA	11	11.5	4	91.8			
NMSA-CC02	NEMSA	CA	3	3.5	8.1	110.6			
NMSA-CC02		CA	6	6.5	20	97.5			
NMSA-CC02		CA	10.5	11	15	86.6			
NMSA-CC04		Bulk	0	15			2.66	125.2	9.8
P2-CC04	Pond 2	Bulk	0	3			2.66	102.0	20.6
P3-CC07	Pond 3	Bulk	0	5			2.63	109.7	13.7
SF2-CC01	Sandfill 2	Bulk	0	10			2.65	121.5	10.5
SF3-CC01	Sandfill 3	Bulk	0	10			2.68	121.7	11.1
SF3-CC01		CA	3.5	4	17	99.3			
SF3-CC01		CA	6	6.5	10.5	96.4			
SF3-CC01		CA	11	11.5	8.2	83.5			
SP-CC13	Sediment Pad	CA	5.5	6	10.2	101.4			
SP-CC13		CA	11	11.5	3.5	100.8			
SP-CC13		CA	15.5	16	6.9	97.5			
SP-CC13		Bulk	0	15			2.62	120.6	11.5

Notes:

pcf=pounds per cubic foot

1. Samples collected October-December 2013 during the Pre-Design Studies
2. CA = 2-inch diameter California sample, Bulk = 5-gallon bucket sample
3. Maximum dry density listed includes rock correction
4. D = Disturbed, moisture content only

ATTACHMENT B

MEASURED SHEAR WAVE VELOCITIES IN TDA AND UNDERLYING ALLUVIUM (MWH, 2014A)

CONETEC

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-01
Location Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	6.36	230	2.10	754	6.9
15.09	14.44	14.51	5.04	6.12	251	3.62	824	11.9
20.01	19.36	19.41	4.90	6.81	219	5.15	720	16.9
25.10	24.44	24.49	5.07	7.19	215	6.67	705	21.9
30.02	29.36	29.40	4.91	7.68	195	8.20	639	26.9
40.03	39.37	39.40	10.00	13.12	232	10.47	762	34.4
45.11	44.46	44.48	5.08	6.58	235	12.77	772	41.9
50.03	49.38	49.40	4.92	6.19	242	14.30	794	46.9
55.12	54.46	54.48	5.08	6.72	231	15.82	757	51.9
60.04	59.38	59.40	4.92	7.42	202	17.35	663	56.9
65.12	64.47	64.49	5.08	7.64	203	18.87	666	61.9
70.05	69.39	69.41	4.92	6.65	225	20.40	740	66.9
75.13	74.47	74.49	5.08	5.30	292	21.92	959	71.9
79.72	79.07	79.08	4.59	5.17	271	23.40	888	76.8
85.14	84.48	84.49	5.41	5.95	277	24.92	910	81.8

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-02
Location Church Rock Mill Site TSF
Date: November 5, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
4.43	3.77	4.06						
10.99	10.33	10.44	6.38	6.82	285	2.15	936	7.1
15.09	14.44	14.51	4.07	7.31	170	3.77	557	12.4
20.01	19.36	19.41	4.90	4.91	304	5.15	998	16.9
25.10	24.44	24.49	5.07	5.67	273	6.67	894	21.9
30.02	29.36	29.40	4.91	5.69	263	8.20	864	26.9
33.96	33.30	33.33	3.93	3.09	389	9.55	1275	31.3

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-08
Location Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	4.07	359	2.10	1177	6.9
15.09	14.44	14.51	5.04	5.91	260	3.62	853	11.9
20.01	19.36	19.41	4.90	6.06	247	5.15	809	16.9
25.10	24.44	24.49	5.07	6.67	232	6.67	761	21.9
30.02	29.36	29.40	4.91	8.27	181	8.20	594	26.9
35.10	34.45	34.48	5.08	8.65	179	9.72	587	31.9
40.35	39.70	39.73	5.25	8.20	195	11.30	639	37.1
46.26	45.60	45.63	5.90	8.61	209	13.00	685	42.7
50.03	49.38	49.40	3.77	2.97	388	14.47	1272	47.5
55.12	54.46	54.48	5.08	4.17	372	15.82	1220	51.9
60.04	59.38	59.40	4.92	3.79	396	17.35	1298	56.9

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-10
Location Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	5.18	282	2.10	926	6.9
15.09	14.44	14.51	5.04	6.94	222	3.62	727	11.9
20.01	19.36	19.41	4.90	8.32	180	5.15	589	16.9
25.10	24.44	24.49	5.07	10.81	143	6.67	469	21.9
30.02	29.36	29.40	4.91	9.68	155	8.20	508	26.9
35.27	34.61	34.65	5.24	10.72	149	9.75	489	32.0
40.03	39.37	39.40	4.75	9.45	153	11.27	503	37.0
46.26	45.60	45.63	6.23	9.24	206	12.95	674	42.5
50.03	49.38	49.40	3.77	3.16	364	14.47	1194	47.5
55.12	54.46	54.48	5.08	3.37	459	15.82	1507	51.9
60.04	59.38	59.40	4.92	2.69	558	17.35	1829	56.9
63.16	62.50	62.52	3.12	2.06	461	18.57	1514	60.9

CONETEC

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-11
Location Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	5.03	291	2.10	953	6.9
15.26	14.60	14.68	5.21	6.35	250	3.65	821	12.0
20.01	19.36	19.41	4.74	5.65	255	5.17	838	17.0
25.10	24.44	24.49	5.07	5.95	260	6.67	853	21.9
30.02	29.36	29.40	4.91	5.48	273	8.20	897	26.9
35.10	34.45	34.48	5.08	5.15	301	9.72	987	31.9
40.03	39.37	39.40	4.92	5.36	280	11.25	918	36.9
45.11	44.46	44.48	5.08	6.13	253	12.77	829	41.9
50.03	49.38	49.40	4.92	7.59	197	14.30	648	46.9
55.12	54.46	54.48	5.08	7.94	195	15.82	640	51.9
60.04	59.38	59.40	4.92	4.00	375	17.35	1229	56.9
65.29	64.63	64.65	5.25	4.81	332	18.90	1091	62.0
70.21	69.55	69.57	4.92	4.64	323	20.45	1060	67.1
75.13	74.47	74.49	4.92	4.90	306	21.95	1003	72.0
80.05	79.40	79.41	4.92	4.90	306	23.45	1005	76.9
85.14	84.48	84.49	5.08	4.12	376	24.97	1235	81.9
90.06	89.40	89.42	4.92	4.84	310	26.50	1016	86.9
95.14	94.49	94.50	5.08	3.11	499	28.02	1637	91.9

ConeTec

Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-15
Location Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	7.05	207	2.10	680	6.9
15.09	14.44	14.51	5.04	8.31	185	3.62	607	11.9
20.01	19.36	19.41	4.90	8.07	185	5.15	607	16.9
25.10	24.44	24.49	5.07	8.24	188	6.67	616	21.9
30.02	29.36	29.40	4.91	7.72	194	8.20	636	26.9
35.10	34.45	34.48	5.08	6.35	244	9.72	801	31.9
40.03	39.37	39.40	4.92	4.49	334	11.25	1095	36.9
45.93	45.28	45.30	5.90	5.41	333	12.90	1092	42.3
50.03	49.38	49.40	4.10	3.40	367	14.42	1206	47.3
55.12	54.46	54.48	5.08	4.45	348	15.82	1142	51.9

ATTACHMENT C

TAILINGS DISPOSAL AREA BOREHOLE LOGS (MWH, 2014A)

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/21/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6969.7	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	14"				NA	(0' - 8") SILTY CLAY (FILL) - Light brown, soft, moist silty clay, trace to few very fine to fine sand.												
						(8" - 12") ROCK - 1/2" to 3" crushed basalt.												
1						(1' - 18.5') SILTY CLAY WITH SAND (FILL) - Dark brown, firm to hard, slightly moist silty clay, little to some very fine to fine sand, occasional coarse sand and gravel (upper ~5' may be compacted radon barrier).												
3						[0 - 5' Core not retained.]												
5	24"	CA 18"	1C	8														
			1B	9														
6			1A	11														
		AC	2															
10	30"	CA 18"	3C	10		[Below ~10', occasional elevated rad readings indicating possible sand tailings mixed with silty clay fill.]												
			3B	12														
11			3A	14		(~11' - ~11.5') 1/2" to 1" gravel observed.												
		AC	4															

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	AC	4		NA													
14						(~13 - ~14') - Sand Tailings - see description below, slightly elevated rad readings.]												
15	32"	CA 18"	5C	5														
			5B	6														
16			5A	10			CL		16.2	104.7		33/13/20	0.3	27.2	72.5			
		AC	6															
17																		
18																		
19						(18.5' - 34.3') SAND TAILINGS - Pale gray, dense, moist, fine to medium sand tailings, slightly elevated rad levels.												
20	36"	CA 18"	7C	19														
			7B	22					6.1									
21			7A	24					7.5	105.5			0.0	90.7	9.3	3.7E-4		
22		AC	8															
23																		
24																		
25	30"	ST 28"	9															
26																		
27									4.0	97.6	2.67	NP	0.0	92.7	7.3	2.9E-3		34.9
		AC	10															

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH	CLIENT: GE / UNC	BORING LOG	BOREHOLE ID: TI-B1
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	30"	AC	10		NA													
29																		
						(29.6' - 34.3') Very fine grained sand tailings, abundant clayey zones.												
30	36"	CA 18"	11C	5					13.9									
			11B	5					14.6	91.6						3.0E-7	0.092	
31			11A	4														
							CL		41.6	76.5	2.69	44/17/27	0.0	30.9	69.1			33.3
32		AC	12				CL		27.8			33/16/17	0.0	46.7	53.3			
33																		
34																		
						(34.3' - ~41') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, increasing clay content with depth.												
35	40"	CA 18"	13C	7														
			13B	20														
36			13A	22		(35' - 36.5') High blow counts due to rock in CA shoe.			21.0	97.3	2.73		0.0	62.5	37.5	1.7E-6	0.059	
		AC	14B															
37																		
		AC	14A															
38																		
39																		
40	42"	CA 18"	15C	3														
			15B	5														
41			15A	5		(~41' - ~45') SANDY CLAY - Very moist to wet sandy clay, sand is very fine-grained.	CL		26.7	98.6		31/15/16	0.0	18.2	81.8	1.2E-7		
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
42.5	42"	AC	16		NA													
45	40"	ST 30"	17			(~45' - 54') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, decreasing clay content with depth.			22.0	106.0							.058	34.4
50	42"	CA 18"	18C	4														
			18B	5														
			18A	7														
54						(54' - 68.2') SILTY CLAY - Dark brown, firm, very moist to wet silty clay, trace to few very fine sand.												
55	60"	CA 18"		6														
			19B	7														
			19A	10														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	60"				NA													
58																		
59																		
60	60"	CA 18"		5														
			20B	8														
61			20A	12														
62																		
63																		
64																		
65	60"	CA 18"		5														
			21B	7														
66			21A	11														
67																		
68						(68.2' - E.O.B.) SILTY SAND - Brown, silty, moist very fine to fine sand.												
69																		
70						E.O.B. at 70.0'												
71																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/20/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6959.9	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 33.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 38.7	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	8"					(0" - 3") SILTY CLAY - Brown, soft, silty clay, dry, trace few very fine to fine sand.												
						(3" - 6") ROCK - 1/2" to 3" crushed basalt.												
1		CA 17"	1B	13 11		(6" - ~2.5') SILTY CLAY - Dark brown, hard, slightly moist silty clay, few to little very fine sand, occasional coarse sand.												
2			1A	18		[0' - 5' Core not retained.]												
3						(~2.5' - 7.3') SILTY SAND WITH GRAVEL - Pale yellow, dense, dry to slightly moist silty very fine to medium sand with coarse sand and gravel.												
5	42"	CA 15"	2B	23 22														
6			2A	18					7.7	100.4	2.68		26.9	29.9	43.2			
		AC	3															
		AC	4			(7.3' - 12.8') CLAYEY SAND - Predominantly brown, medium dense, slightly moist to moist clayey fine to medium sand, abundant clay "pockets" throughout. May be sand tailings mixed with site soils.												
10	40"	CA 18"	5C	6														
			5B	7														
11			5A	7					24.5	75.9	2.73		0.0	65.4	34.6			
		AC	6															
		AC	7															
13						(12.8' - 15') SAND TAILINGS - Pale gray, moist sand												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	40"	AC	7			tailings, very fine silty sand from 12.8' to 13.2', fine to medium sand from 13.2' to 15'.			39.6				0.0	23.1	76.9			
14																		
15	42"	CA 18"	8C	5		(15' - 25.7') SILTY SAND - Brown, medium dense, moist silty very fine to fine sand, occasional roots. Appears to be natural "alluvium." Occasional dark brown clay lenses. Rad levels ~ background.			6.9	90.4	2.68							
			8B	5														
16			8A	7														
		AC	9															
17																		
		AC	10															
18																		
19																		
20	42"	CA 18"	11C	4														
			11B	4														
21			11A	6					7.0	91.4	2.74		0.0	82.9	17.1			
		AC	12															
22																		
		AC	13															
23																		
24																		
25	48"	CA 18"	14C	5														
			14B	6		(25.7' - 33.5') SILTY CLAY - Dark brown, moist, firm to hard, silty clay, trace to few very fine to fine sand, occasional coarse sand.												
26			14A	6			CL		23.5	93.2		34/16/18	0.0	20.9	79.1			
27																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	48"																	
30	54"	CA 18"	15C	6														
			15B	11														
31			15A	12														
32						(32' - 33.5') Softer (soft to firm).												
33.5						(33.5' - 38.7') WEATHERED SANDSTONE - Mottled pale yellow and reddish orange, moist, fissile, lightly cemented, very fine to fine sand.												
35	48"	NR		50/ 1"														
38.5					16	Bag sample of SS Core.			13.5	X								
38.7						E.O.B. = 38.7' (Practical Auger Refusal)												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B8

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/3/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.1	FINISH: 12/4/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 60.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 65.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0–7						(0' - ~7') SANDY CLAY - Dark brown, slightly moist sandy clay, silty, sand is very fine to fine-grained, occasional coarse sand and fine gravel. (0' - 20' No sampling. Material descriptions based on cuttings and should be considered approximate.)												
7–13						(~7' - ~18') SAND TAILINGS - Predominantly pale yellowish brown, fine to medium grained, slightly moist, some clayey material.												

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
14																	
15																	
16																	
17																	
18						(~18' - 20.7') SANDY CLAY - Dark brown, firm to hard, slighly moist sandy clay, very fine to fine sand, few to little coarse sand and fine gravel.											
19																	
20	36"					Begin sampling at 20'											
20.5		AC	8														
21						(20.7' - 26.3') SAND TAILINGS - Pale yellow, medium dense, slightly moist to moist, fine to medium sand tailings, silty.											
22																	
23																	
24																	
25	54"	CA 18"	2C	7				9.0	103.7	2.72							
25.5			2B	7				6.2	99.6			0.0	87.9	12.7	3.6E-4		
26			2A	10			SM	16.8	91.7		NP	0.0	76.0	24.0			
26.5		AC	3B			(26.3' - ~31') FINE TAILINGS - Soft to firm, moist. (26.3' - 28.8') - Pale yellowish brown, few to little very fine sand.											
27																	
27.5		AC	3A														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
28	54"	AC	3A															
29						(28.8' - 31') Pale gray, no sand.												
30	24"	ST 23"	4				CH		61.8	62.7		74/25/49	0.0	9.2	90.8		0.43	
31						(~31' - ~32.5') SAND TAILINGS - Pale yellowish brown, medium dense, moist, fine to medium sand, trace silt.			41.4									
32		AC	5			(~32.5' - 35') FINE TAILINGS WITH SAND - Pale gray, soft, moist, very fine to fine sand.												
33																		
34																		
35	30"	ST 28"	6			(35' - 38.6') CLAYEY/SILTY SAND TAILINGS - Pale yellowish gray, soft, moist, very fine to fine sand.			14.3	90.9	2.66							
									16.5	89.6	2.67					1.6E-5		
36																		
37		AC	7															
38						(38.6' - 44.5') FINE TAILINGS - Pale gray, firm, moist, trace to few very fine sand.												
39																		
40	37"	ST 27"	8															
41									39.7	80.4	2.63							
							SC / CL		34.3	83.6		35/16/19	0.0	51.2	48.8	1.3E-7	0.262	
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE / UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	37"	AC	9			(42.5' - 43.7') More sand (little to some).												
43																		
									29.3	92.3								
44									43.3	74.8			0.0	14.5	85.5	3.0E-8		
						(44.5' - 60.5') SILTY/CLAYEY SAND - Predominantly yellowish brown, medium dense, moist silty/clayey very fine to fine sand with abundant clay zones (as shown), occasional coarse sand throughout.					2.60							
45	48"	CA 18"	10C	6														
			10B	9		(44.5' - 47.5') Silty clay with sand.												
46			10A	10			CL		21.9	95.2	2.72	30/16/14	0.0	27.9	72.1			
47																		
48																		
49						(49' - 50') Reddish brown.												
50	40"	CA 18"		9														
			11B	10														
51			11A	12														
52																		
53																		
						(53.4' - 55') Silty clay with sand.												
54																		
55	42"	CA 18"	12C	8														
			12B	8														
56			12A	8			SM		12.6	97.6	2.70	NP	0.0	57.0	43.0			
57																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
58																		
59						(58.7' - 59.5') Silty clay with sand.												
						(59.5' - 60') Reddish brown, fine to medium sand.												
60	48"	CA 18"	13C	16														
			13B	22		(60.5' - 61') COAL - sandy.												
61			13A	50/ 4"		(61' - E.O.B.) SHALE - Dark grayish brown, hard to very hard, moist, silty, trace very fine sand.												
62																		
63					14	(bagged core)												
64	12"					At 64' - becomes fissile, very hard, brittle, more sand (few to little).												
65		CA 2"	15	50/ 2"		65.2' E.O.B. (Practical Auger Refusal at 65.0')												
66																		
67																		
68																		
69																		
70																		
71																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/26/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6973.3	FINISH: 11/27/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 105.0	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 108.2	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	21"					(0' - 0.6') SANDY CLAY - Light brown, soft, very moist sandy clay, very fine sand, some roots, silty.												
						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt.												
1						(0.9' - 6.8') SANDY CLAY - Dark brown, hard, slighly moist to moist sandy clay, very fine to fine sand, occasional coarse sand to fine gravel, silty.												
5	45"	CA 17"		12														
			1B	13														
6			1A	19														
7						(6.8' - 18.9') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium, silty sand tailings, occasional more clayey/silty zones.												
10	33"	ST 27.5"	2						9.7	110.0	2.63							
									9.0	96.8			0.2	71.9	27.9	4.3E-4	0.094	
		AC	3						6.7		2.61							
13									7.5	99.1			0.7	71.5	27.8	6.7E-5		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
13.3	33"	AC	3														
15	42"	CA 18"	4C	5				9.3	103.0								
15.5			4B	5													
16			4A	5			SM	6.5	100.0	2.65	NP	2.4	82.3	15.3			
16.5		AC	5B														
17.5		AC	5A														
18.9						(18.9' - 24.4') FINE TAILINGS - Pale gray, soft, moist, trace to few fine to medium sand.											
20	36"	ST 30"	6														
21.5							CL	26.7	92.9		43/19/24	0.0	43.0	57.0		0.111	
22.5		AC	7														
24.4						(24.4' - 25.7') SAND TAILINGS - Pale yellowish gray, loose, moist to very moist, fine to medium sand.											
25	42"	CA 18"	8C	2													
25.5			8B	2													
25.7						(25.7' - ~31') FINE TAILINGS - Pale gray, soft, moist to very moist, trace to few fine to medium sand.		41.0									
26			8A	3			CH	57.4	64.3	2.80	74/27/47	0.0	10.0	90.0			
26.5		AC	9B														
27.5		AC	9A														

LEGEND:
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- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	42"	AC	9A														
30	42"	ST 27"	10				CH	45.3	73.4	2.78	57/22/35	0.0	24.3	75.7			
31						(~31' - 33.2') SAND TAILINGS - See description for 24.4' - 25.7'.											
32							SM	15.4	100.1	2.67	NP	0.0	83.1	16.9			
		AC	11														
33.2						(33.2' - 44.6') FINE TAILINGS - Pale gray, soft, moist to very moist.											
35	48"	CA 18"	12C	2				47.7	72.5								
			12B	2				51.4									
36			12A	2			SC / CL	32.2	87.8	2.72	36/16/20	0.0	50.6	49.4			
		AC	13B			(36.3' - 37.8') Some very fine to fine sand.											
		AC	13A														
40	30"	ST 30"	14					45.7	73.7	2.56							
							CH	47.2	74.5		61/21/40	0.0	20.7	79.3	2.9E-8	0.315	

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
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- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	ST 30" AC	14 / 15															
43																		
44						(44.3' - 44.6') Appears finer grained (clayey), lighter gray, more moist.												
						(44.6' - 85.5') SILTY SAND - Light brown, medium dense, moist, silty very fine to fine sand, occasional coarse sand and fine gravel.												
45	42"	CA 17"		12														
			16B	12														
46			16A	14					9.9	95.4	2.74		0.0	65.8	34.2			
47																		
48																		
49																		
50	48"	CA 18"	17B	10														
			17A	11														
51				14														
52																		
53																		
54																		
55	42"	ST 17"	18						14.1	100.8						2.4E-5	0.139	
56						(~56' - 57.5') Gravelly.												
						(Shelby Tube refusal at 56.5')												
57																		

LEGEND:
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- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
58																		
59																		
60	39"	CA 18"		11														
			19B	11														
61			19A	14														
62																		
						(62.5' - 65.2') Weathered Sandstone (?) - Hard, moist, gravelly.												
63																		
64																		
65	48"	CA 18"		14														
			20B	14														
66			20A	15			SM / ML		13.8	94.5		NP	0.0	50.1	49.9			
67																		
68																		
69																		
70	30"	CA 18"		4														
			21B	6		(70.5' - 71.5') Moist to very moist, increased clay.												
71			21A	10					18.1	100.8								

LEGEND:
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- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	30"																	
75	42"	CA 18"	22B	5 / 7														
76			22A	11														
80	36"	CA 18"	23B	9 / 14		(80' - 82') Gravelly (sandstone fragments)												
81			23A	17														
82						(82' - 85.5') Weathered Sandstone - Mottled red/gray/brown, moist, fine to medium weathered sandstone.												
84	NA	3"	24	50/ 3"														
85	50"																	
85.5						(85.5' - 105') CLAYEY SAND - Dark brown, firm, very moist to wet, fine to medium clayey sand, occasional sandstone fragments.												

LEGEND:
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- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	50"																	
87																		
88																		
89																		
90	40"	CA 18"		7		[CA sampler wet 11/26/13.] [Water measured at approximately 90.2' bgs at 9:30 11/27/13.]												
			25B	12														
91			25A	10					18.6	105.6	2.66							
92																		
						[Core barrel wet 11/27/13.]												
93																		
94																		
95	52"	NR		1														
				5														
96				8														
97																		
						[Core barrel wet.]												
98																		
99																		
100	44"																	
101																		

LEGEND:
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- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B10

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	44"																	
102						[Core barrel wet.]												
103																		
104																		
105	36"					(105' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, very moist, very fine to fine sandstone, some cemented zones.												
106						[Core barrel wet.]												
107					26	(106.9' - 107.3') Bagged core sample.			14.2	109.1						1.4E-7		
108		1"		50/ 1.5"	27	(107.9' - 108') Bagged core sample. (108') CA sample not retained. E.O.B. = 108.2 ft at 9:00 on 11/27/13 (practical auger refusal)												
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
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- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
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NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B11
PROJ. LOC.: GALLUP, NM			

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/2/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6977.3	FINISH: 12/3/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 96.9	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 103.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	19"					(0' - 0.6') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very fine to fine sand, roots, silty.												
0.6						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt, silty clay in voids.												
0.9						(0.9' - 10.3') SANDY CLAY - Dark brown, hard, slightly moist sandy clay, very fine to fine sand, occasional coarse sand and gravel up to 1.5".												
5	30"	CA 17"	1C	12														
			1B	16														
6			1A	15					8.6	93.5								
10	42"	CA 18"	2C	7														
10.3			2B	7		(10.3' - 12') SILTY SAND - Light brown, medium dense, slightly moist, silty very fine to fine sand.												
11			2A	8														
12						(12' - 15') SANDY CLAY - Dark brown, firm to hard, slightly moist sandy clay, very fine to fine sand, occasional gravel up to 3" size.												

LEGEND:
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NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																
15	45"	ST 13"	3			(15' - 18') CLAYEY SAND - Light yellowish brown, medium dense, slightly moist, fine to medium clayey sand, occasional gravel up to 1".		8.2	110.4	2.67		3.9	57.6	38.5	2.5E-5	0.09	
18						(18' - 32.9') SANDY CLAY - Predominantly dark brown, hard, slighly moist sandy clay, silty, very fine to medium sand, few to little coarse sand and gravel up to ~1" size.											
19						(19.2' - 19.4') Sand, very fine to fine.											
20	48"	CA 18"	4C	4													
			4B	7													
21			4A	10				12.3	107.6								
25	56"	CA 18"	5C	7													
			5B	8													
26			5A	13													

LEGEND:
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- CC = CONTINUOUS CORE
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NOTES:
Hole backfilled with cement/bentonite grout.

	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B11
MWH PROJ. LOC.: GALLUP, NM			

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	56"																	
29																		
30	47"	ST 21"	6				CL		13.7	112.4		30/13/17	7.1	41.3	51.6	9.0E-7	0.06	
31																		
32																		
33						(32.9' - 34') SAND (TAILINGS?) - Pale yellowish gray, slightly moist, fine to medium sand.												
34	NA					(34' - 45.5') SANDY CLAY WITH GRAVEL - Dark brown, firm to hard, moist sandy clay with very fine to coarse sand and gravel up to ~3", some metallic and fibrous debris.												
35						[34' - 38' Drilling through metallic debris (appers to be metal siding). Center bit required to penetrate debris. No core collected. CA sample attempted at 34' and 35' - no penetration or recovery.]												
36																		
37																		
38																		
39																		
40	51"	CA 3"		25		[Metallic debris in CA shoe - no sample.]												
				27														
41				22														
42																		

LEGEND:
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NOTES:
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PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	51"																	
43																		
44																		
45	60"	CA 18"	7C	7		(Photo 310 at 46'.)												
			7B	7		(45.5' - 53.9') FINE TAILINGS - Mottled orange and dark greenish gray (to 50'), pale yellowish gray (50' - 53.9'), firm, moist tailings.			88.7									
46			7A	8		[Photo 311 at 46.5'.]												
47																		
48																		
49																		
50	43"	ST 28"	8															
51																		
							CH		59.9	63.7	2.84	91/30/61	0.0	2.7	97.3	3.1E-8	0.48	
52																		
		AC	9			[Photo 312 at 52.5']												
53																		
54						(53.9' - 55') SILTY CLAY - Dark brown, hard, moist silty clay, trace very fine sand.												
55	48"	ST 25"	10			(55' - 77.5') SILTY SAND - Yellowish brown, medium dense, slighly moist to moist, silty, very fine to fine sand.												
56							SM		16.2	77.9	2.64	NP	0.0	60.4	39.6	5.6E-4	0.129	
57																		

LEGEND:
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NOTES:
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PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	48"	AC	11															
58																		
59																		
60	48"	CA 17"		9														
			12B	11														
61			12A	12		(61.1' - 62.1') Sandy clay.			16.0	95.4			0.0	38.7	61.3			
62																		
63						(63.1' - 64') Sandy clay.												
64																		
65	49"	CA 18"	13C	7														
			13B	7														
66			13A	12					14.2	96.2								
67																		
68																		
69																		
70	44"	CA 18"	14C	7														
			14B	9														
71			14A	10														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
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NOTES:
Hole backfilled with cement/bentonite grout.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	44"					(71.5' - 73.5') Abundant clayey sand zones.												
75	38"	CA 18"	15C	7														
			15B	8														
76			15A	11														
77.5					16	(77.5' - 78') WEATHERED SANDSTONE - Rusty red, moist, fine to medium grained. (Sample #16 is bagged core.)												
78						(78' - 96.9') GRAVELLY SAND - Mottled rusty red/brown/yellow, dense, moist fine to medium sand, silty throughout, some clayey zones, abundant coarse material from coarse sand up to 3" gravel comprised of cemented sandstone.												
80	42"	CA 18"	17C	16														
			17B	21														
81			17A	21					11.0	107.6	2.76		12.9	65.6	21.5			
85	36"	CA 17"	18C	18														
			18B	21														
86			18A	19														

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	36"					(~86.7' - 87.2) Clayey.												
87																		
88																		
89																		
90	48"	NR		3		(~90' to 96.9') Becomes very moist to wet.												
				5														
91				6														
92						(92' - 92.5') Clayey.												
						[Core barrel is wet.]												
93																		
94																		
95	55"	CA 14"	19B	13														
			19A	20														
96				18														
97						(96.9' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, moist to very moist, fissile, fine-grained, weakly cemented.												
98					21	(98' - 98.3') Bagged core sample.												
99																		
100		CA 2"	20A	50/ 2"					21.1	103.9						1.3E-5		
101																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH PROJ. LOC.: GALLUP, NM	CLIENT: GE / UNC — NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B11

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
102						(102.5' - 103') Reddish brown, strongly cemented sandstone.												
103						E.O.B. at 103.0' at 10:00 (practical auger refusal)												
104																		
105																		
106																		
107																		
108																		
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/5/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.8	FINISH: 12/5/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 71.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	18"					(0' - 0.5') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very find sand, roots.												
0.5						(0.5' - 0.8') ROCK - Crushed basalt, up to 3" size, sandy clay in voids.												
0.8						(0.8' - ~3') SANDY CLAY - Dark yellowish brown, hard, moist sandy clay, very fine to fine sand.												
3						(~3' - 30') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium sand.												
5	30"	CA 18"	1C	10														
5.5			1B	11														
6			1A	12					5.4	101.1			0.0	87.5	12.5			
6.5		AC	2															
10	30"	CA 18"		3														
10.5			3B	3														
11			3A	3					6.8	93.8								
11.5		AC	4															

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
~13.5	30"	AC	4			(13.5' - 13.8') Silty sand tailings.	SM		19.0		2.68	NP	0.0	69.6	30.4			
15	32"	ST 27"	5															
~15.5							SM		14.2	90.4	2.66	NP	0.0	54.9	15.1	8.3E-4	0.126	
~17.5		AC	6															
~19.5						(~19.5' to ~25') Becomes slightly finer grained (very fine to medium sand), slightly clayey.												
20	28"	CA 18"	7C	3														
~20.5			7B	2														
21			7A	4			SM		12.7	99.8	2.68	NP	0.0	80.6	19.4			
~21.5		AC	8															
25	27"	ST 23"	9															
27		AC	10			(~27' and below) Becomes clayey.												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	27"	AC	10															
						(~28.5' - 30') Very fine to fine sand	SM		19.3		2.66	NP	0.0	65.4	34.6			
29																		
30	36"	CA 18"	11C	6		(30' - ~32') SILTY SAND - Dark brown, medium dense, moist silty sand, very fine to fine sand.												
			11B	7														
31			11A	10					22.3									
							SM		17.1	101.8	2.71	NP	6.2	51.9	41.9			
32		AC	12			(~32' - 38') SILTY CLAY - Dark brown, firm to hard, moist silty clay, trace to few very fine to fine sand.												
33																		
34																		
35	40"	CA 18"	13C	8														
			13B	12														
36			13A	15														
37																		
38						(38' - 45') CLAYEY SAND - Yellowish brown, medium dense, moist clayey very fine to fine sand, silty, occasional 1-6" sandy clay zones.												
39																		
40	48"	CA 18"		10														
			14B	9														
41			14A	12					11.4	87.1								
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	48"																	
43																		
44																		
45	26"	CA 18"	15C	13		(45' - 50') SANDY SILT - Dark yellowish brown, hard, moist, very fine to fine sand, occasional clayey sand zones.												
			15B	25														
46			15A	26					25.8									
									17.3	99.3	2.81	NP	0.0	37.0	63.0			
47																		
48																		
49																		
50	24"	CA 18"	16C	6		(50' - 52') CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine sand, silty.												
			16B	8														
51			16A	11														
52						(52' - 65') SILTY CLAY - Dark yellowish brown, firm to hard, moist silty clay, trace to few very fine to fine sand, occasional thin (1-6") clayey sand zones.												
53						(~53' - 55') Very hard, very dense clay.												
54																		
55	18"	CA 18"	17C	10														
			17B	11														
56			17A	12					11.7	104.2								
57																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	18"																	
58																		
59																		
60	60"	CA 18"	18C	8														
			18B	11														
61			18A	15														
62																		
63																		
64																		
65	40"	CA 18"		6		(65' - E.O.B.) CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine clayey sand, silty, occasional 1-3" zones of sandy clay.												
			19B	8														
66			19A	10					12.7	100.7								
67																		
68																		
69																		
70		CA 18"		7														
			20B	6														
71			20A	9														
						E.O.B. 71.5' at 14:30												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

ATTACHMENT D

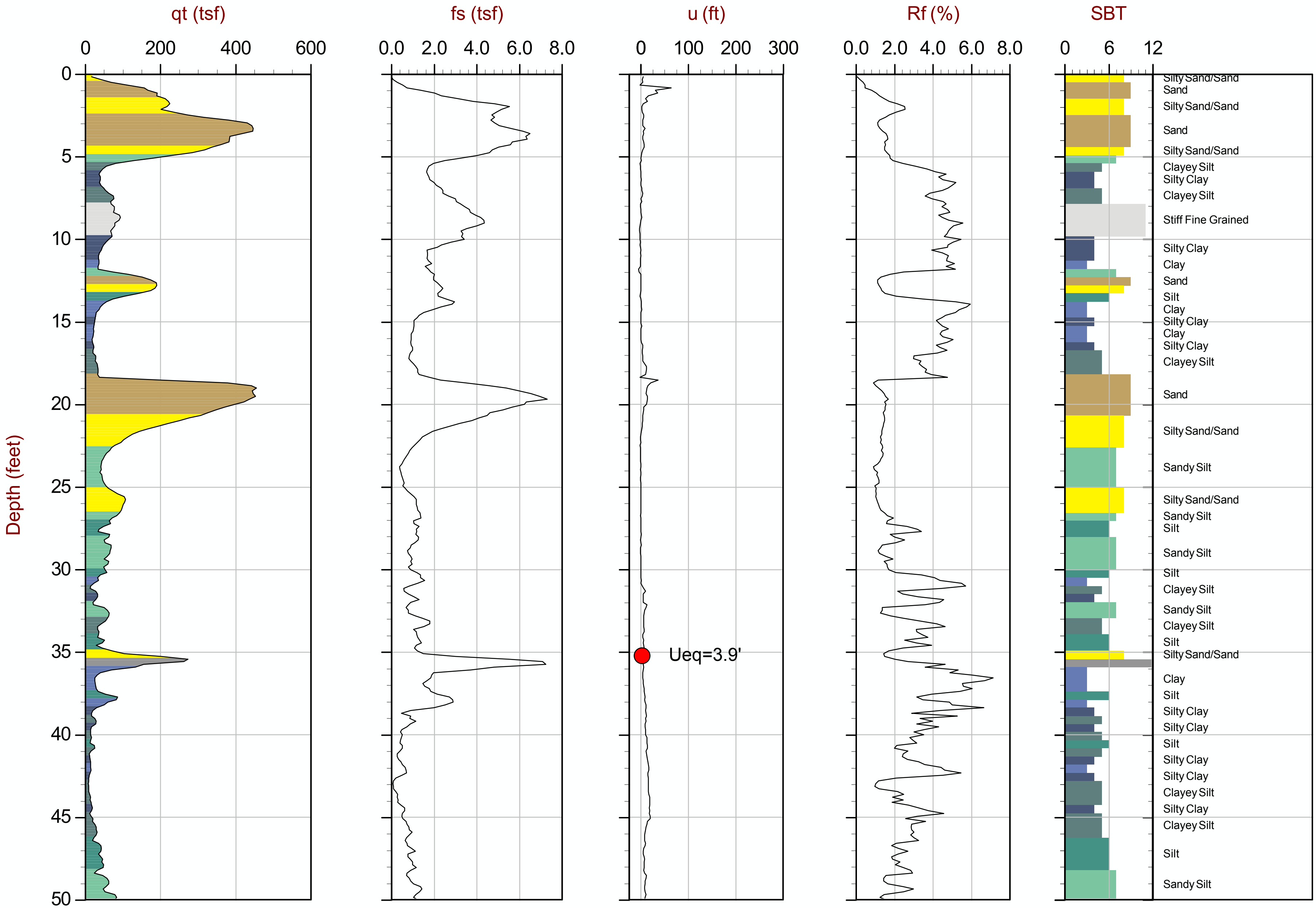
TAILINGS DISPOSAL AREA CONE PENETRATION TEST RESULTS (MWH, 2014A)

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 15:36
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01
Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

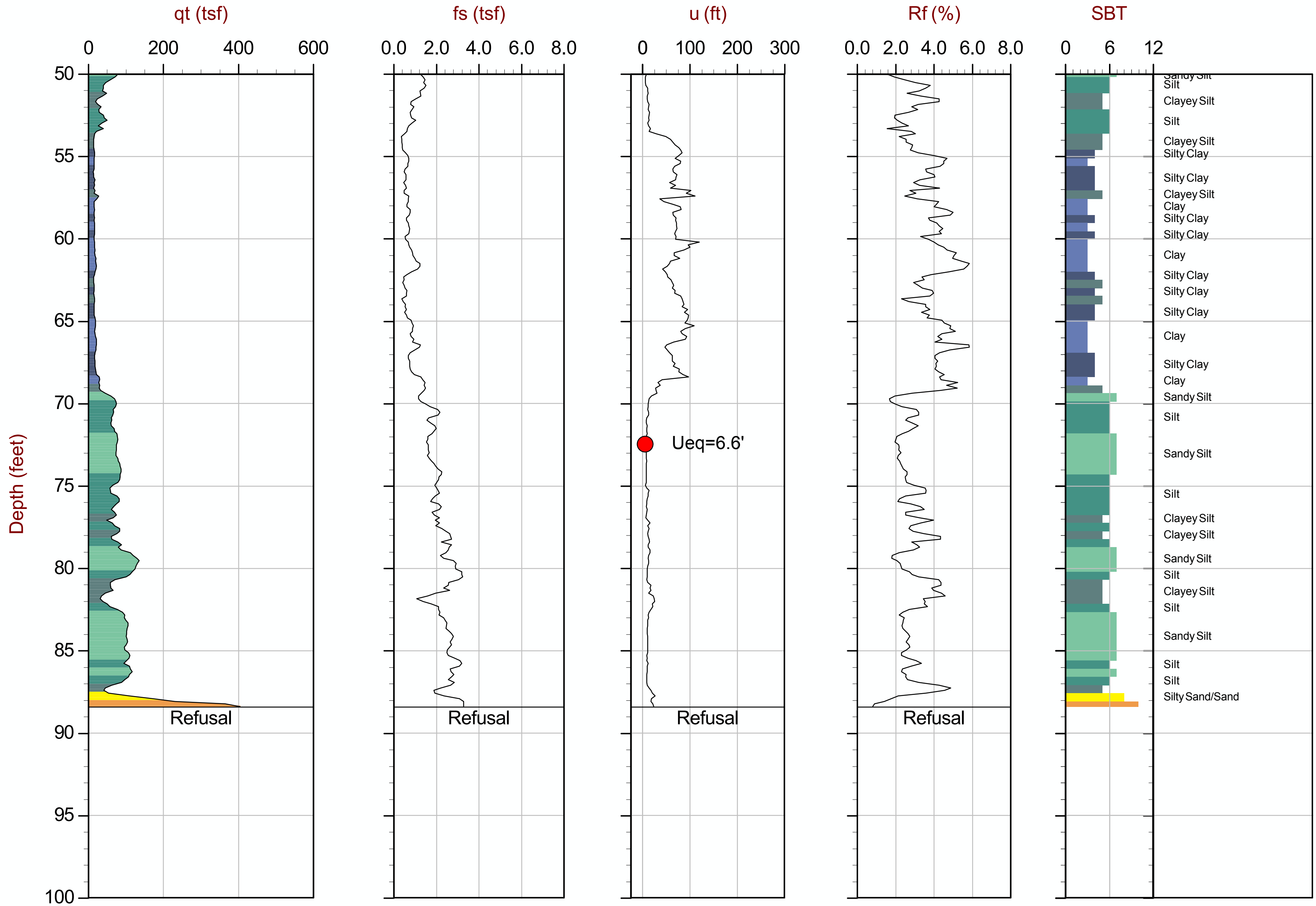
File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 15:36
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-01
Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

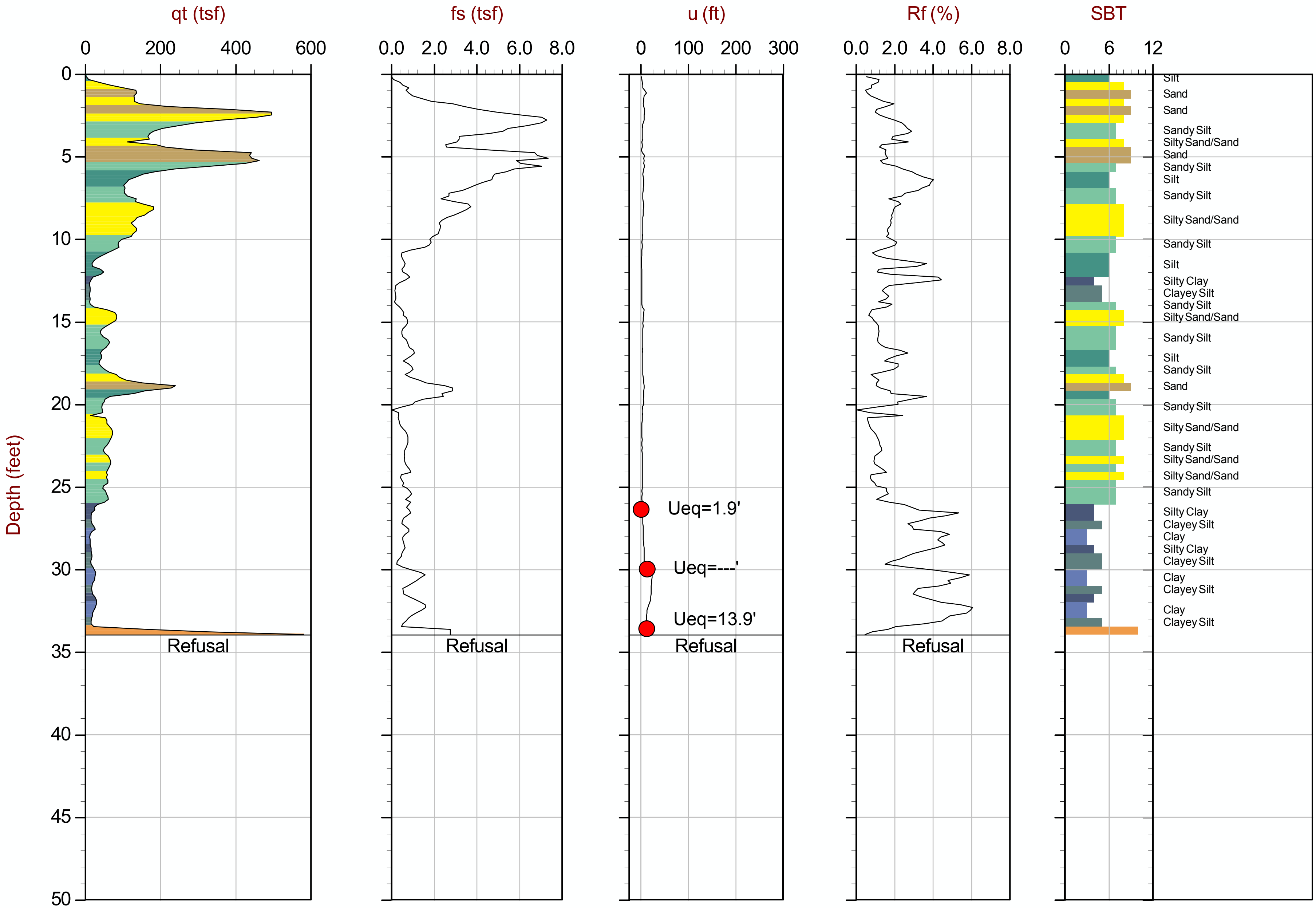
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:05:13 13:37
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02
Cone: 155:T1500F15U500



Max Depth: 10.350 m / 33.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP02.COR
Unit Wt: SBT Chart Soil Zones

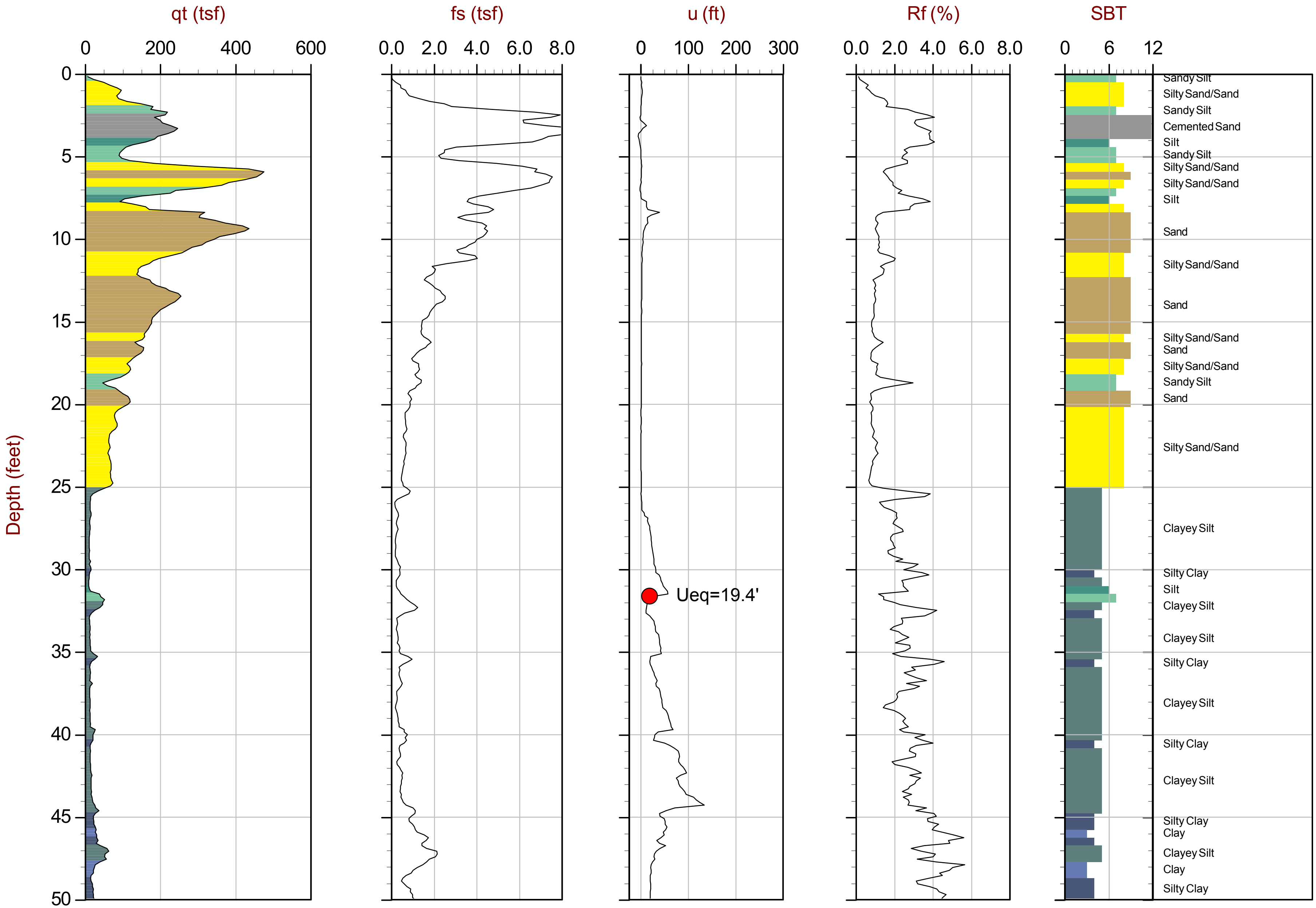
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650200 Long: -108.499750
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:07:13 08:21
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08
Cone: 155:T1500F15U500



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

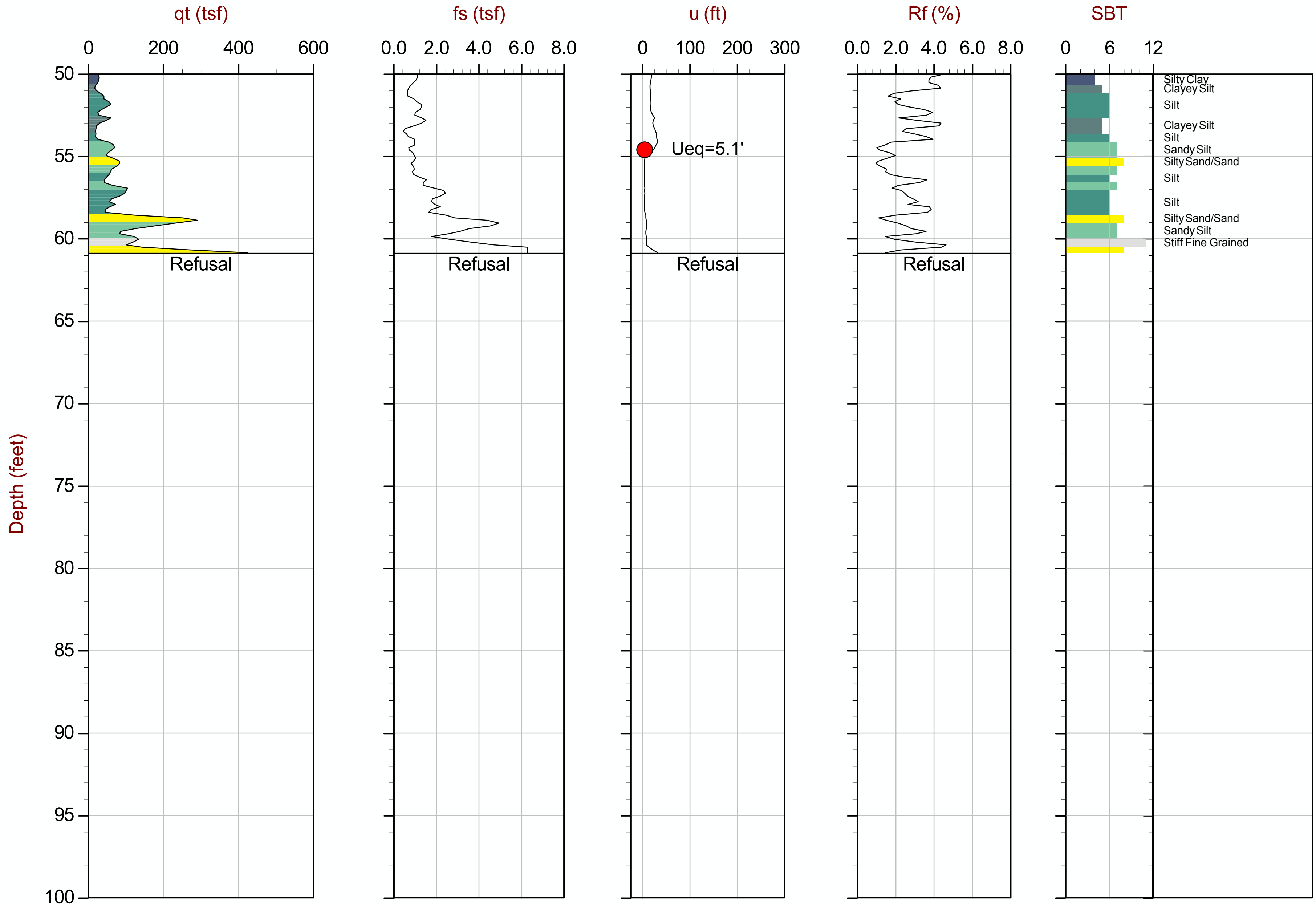
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 08:21
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08
Cone: 155:T1500F15U500



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

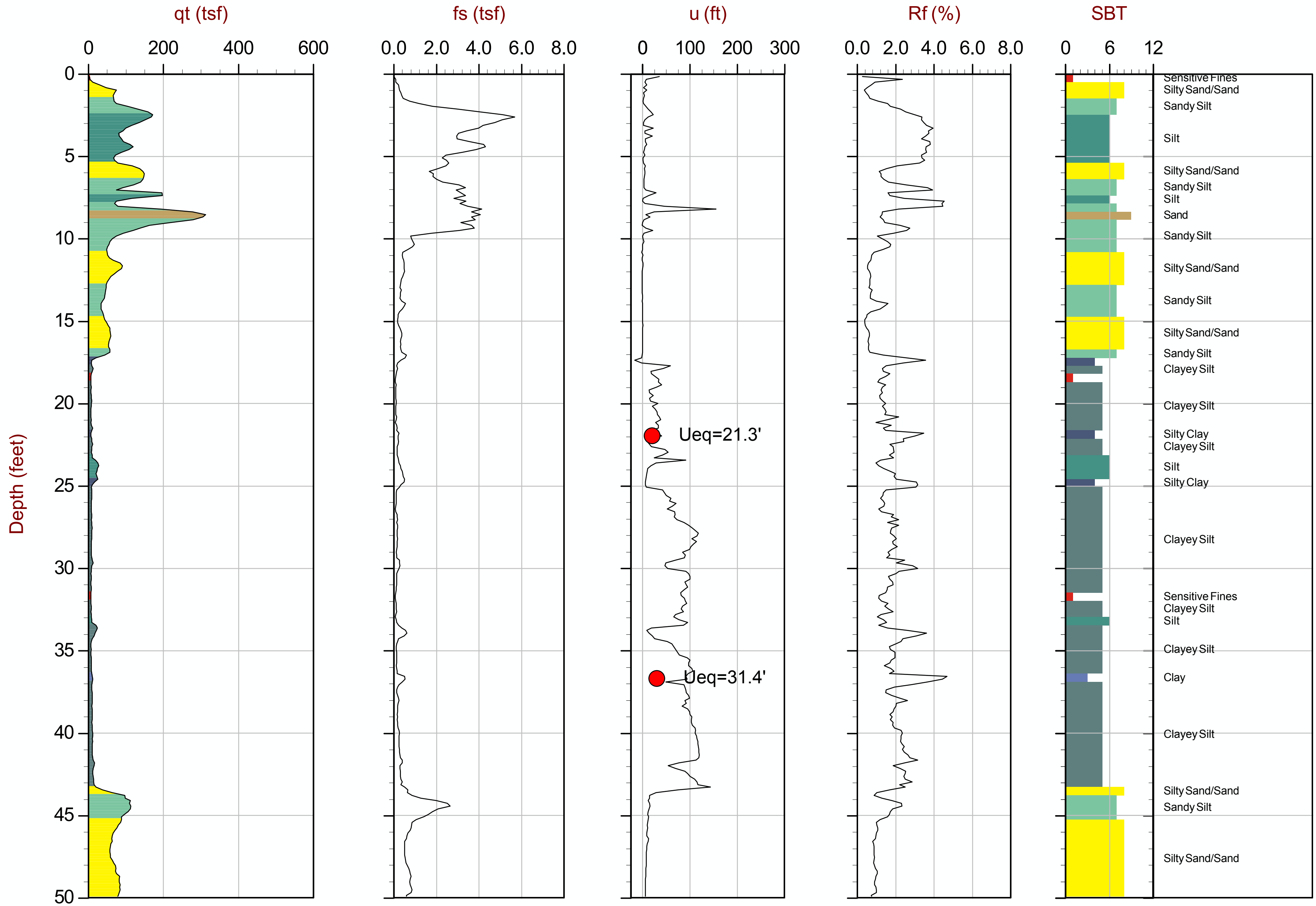
File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:06:13 10:23
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-10
Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

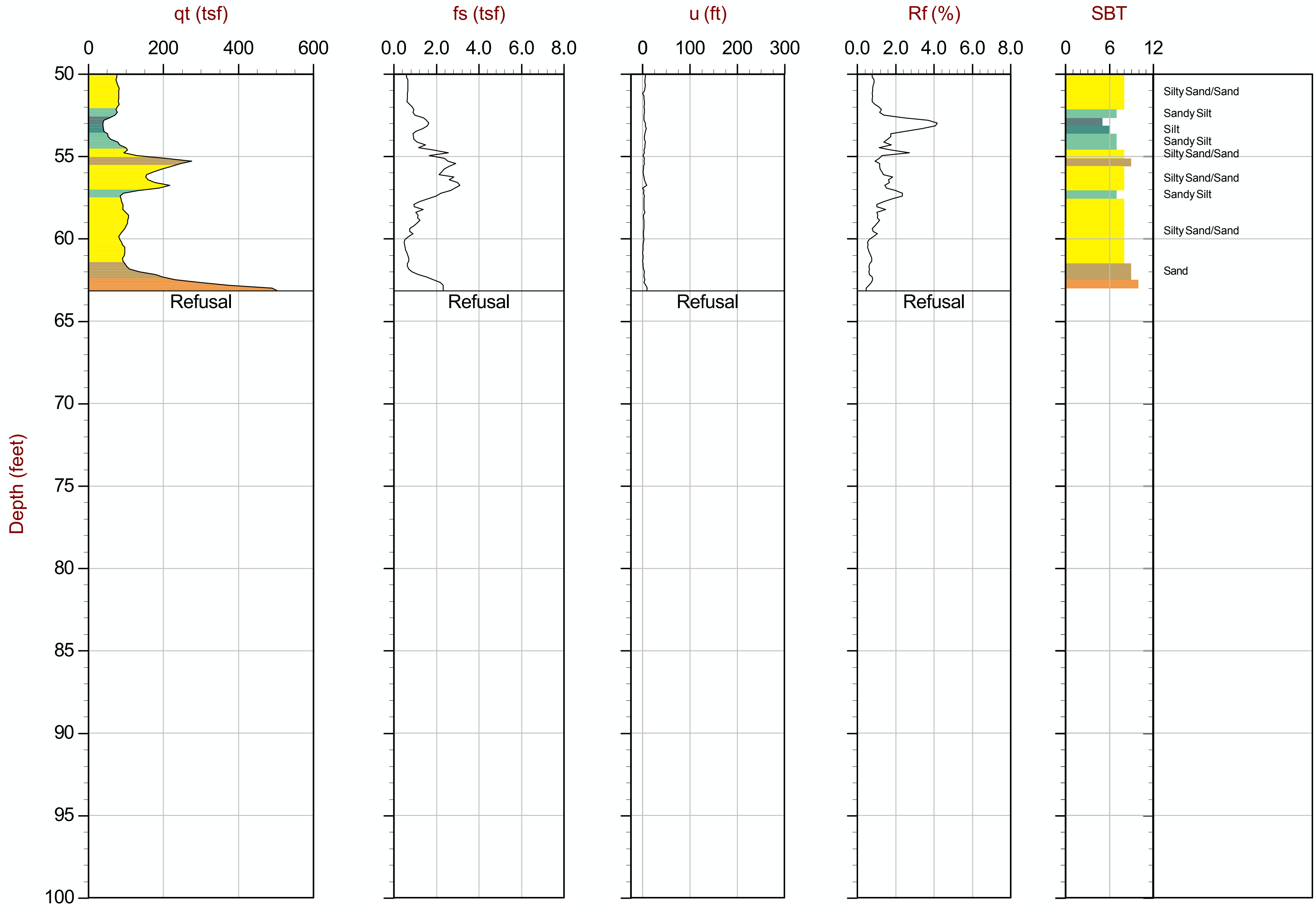
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:06:13 10:23
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10
Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

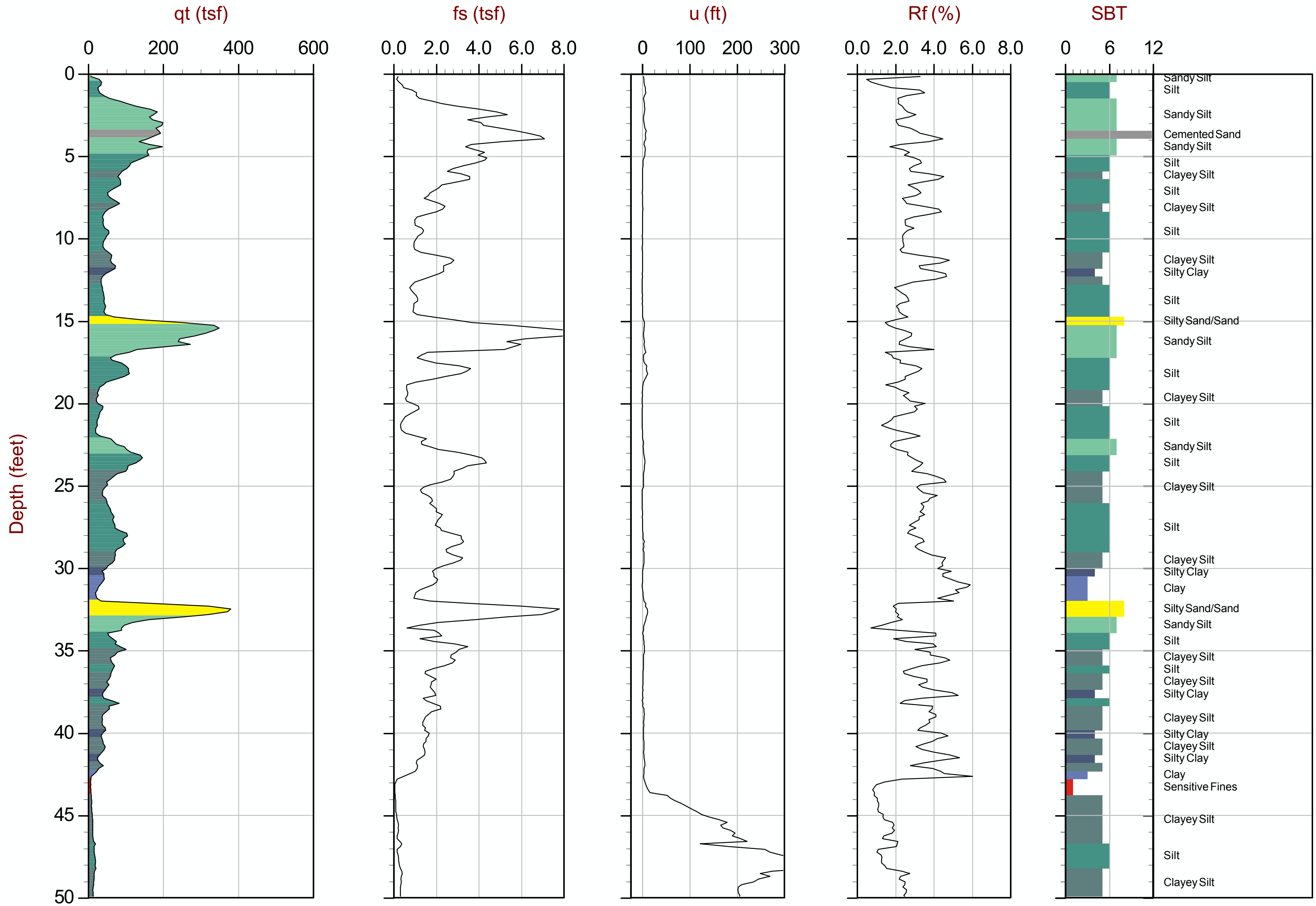
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 12:13
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11
Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

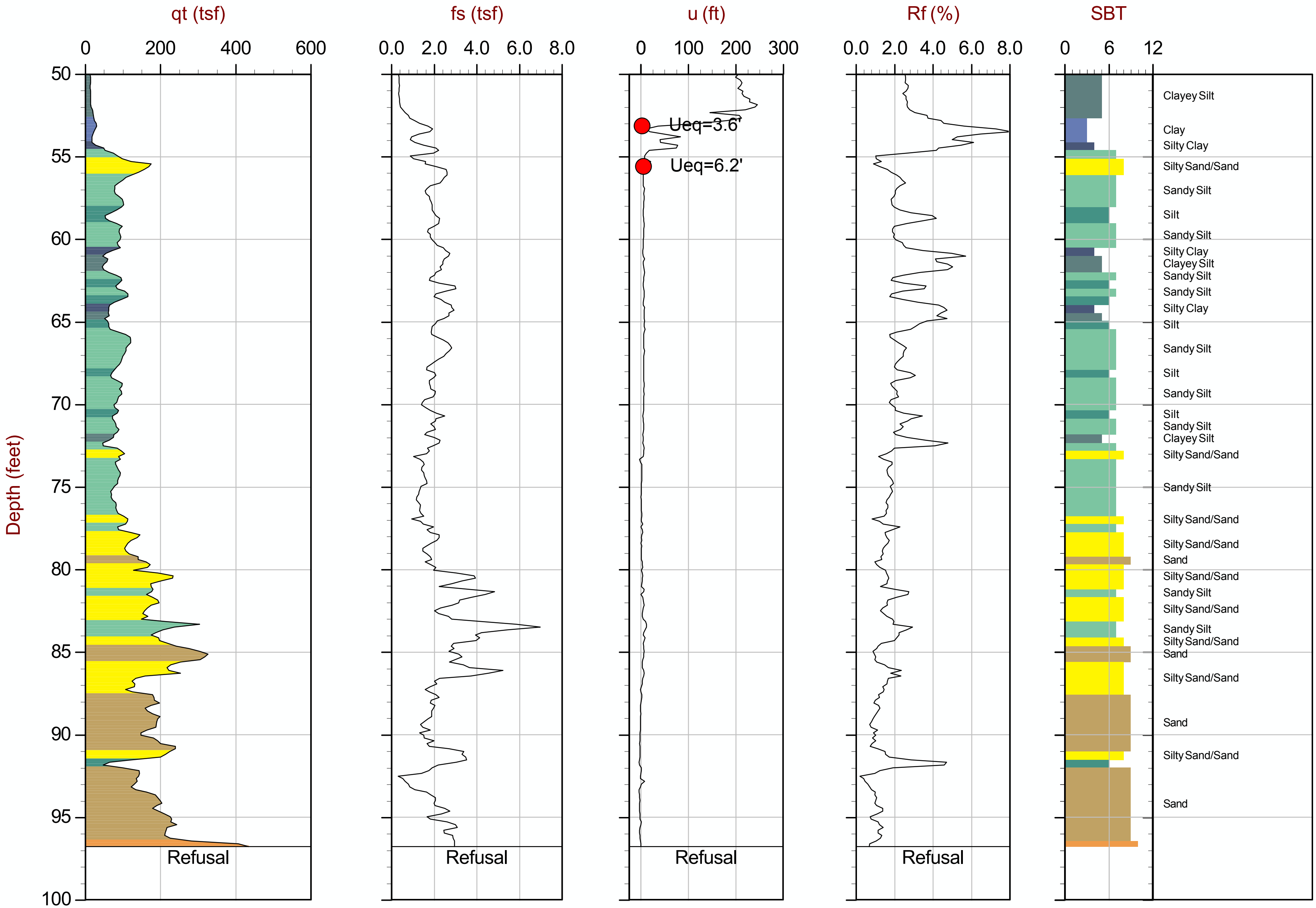
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 12:13
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11
Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

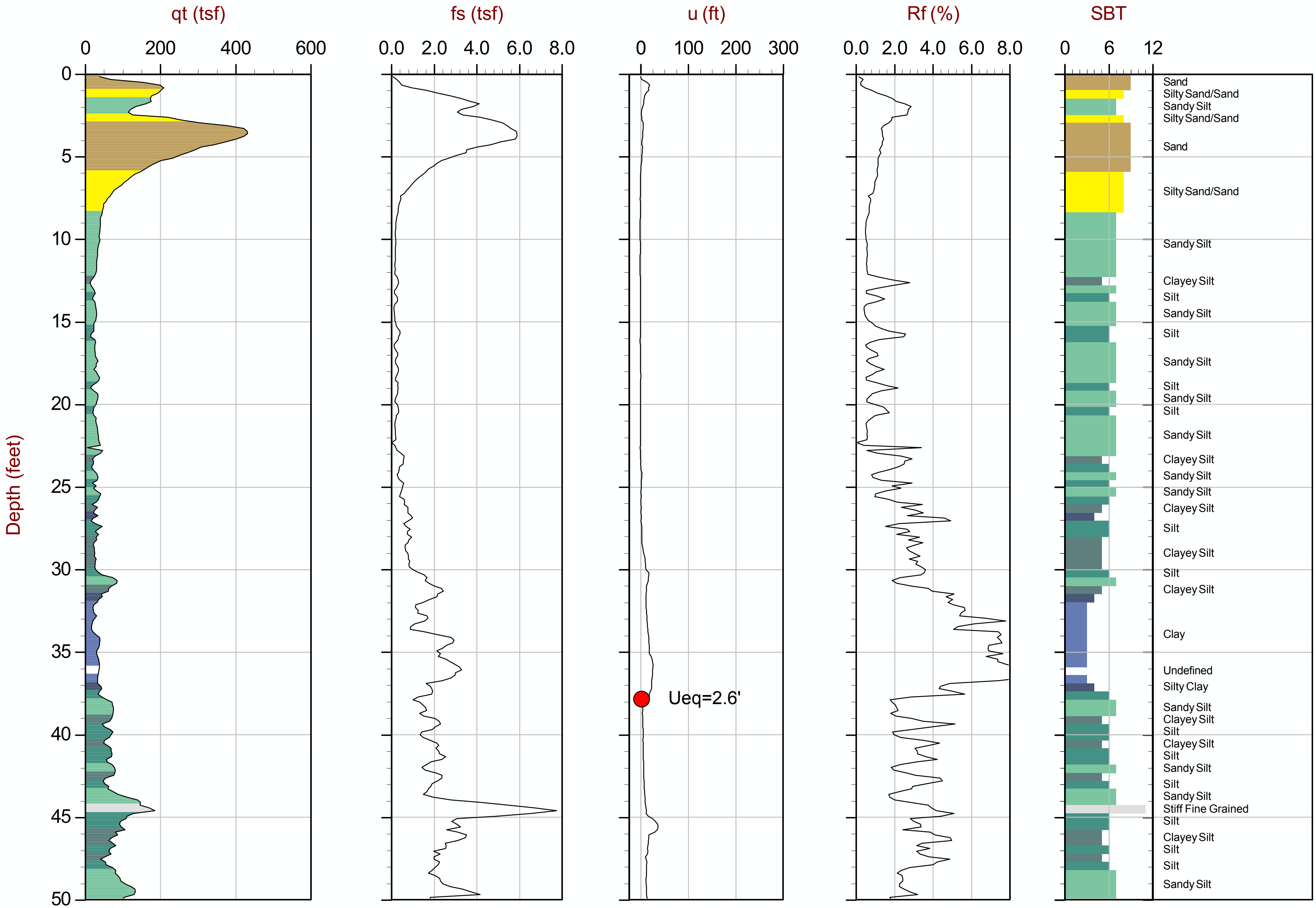
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:06:13 16:32
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15
Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

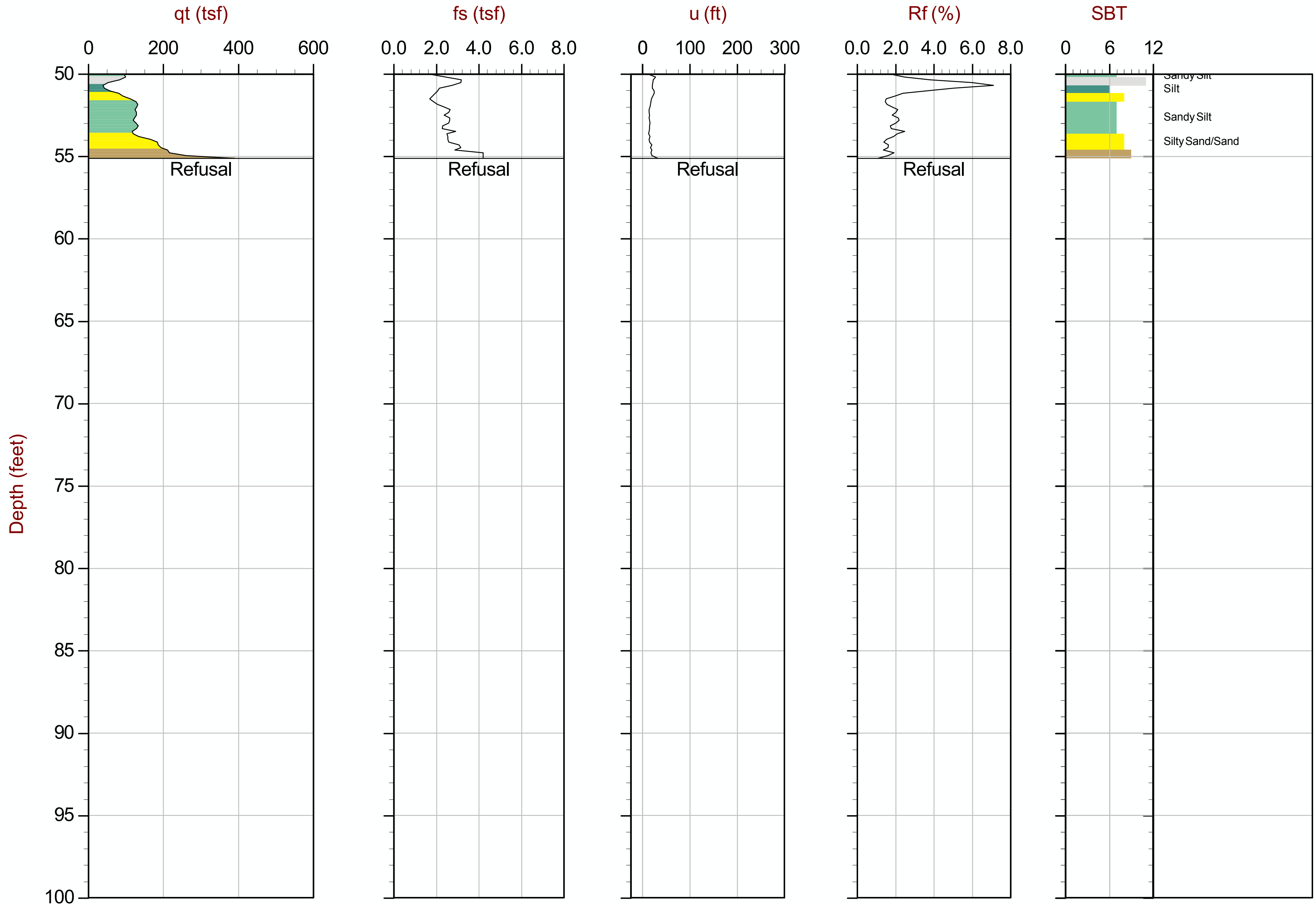
File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:06:13 16:32
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-15
Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation

ATTACHMENT E

RECORDED WATER LEVELS AT THE CHURCH ROCK SITE

Well ID	Measurement Date	Measurement Time	Historical Reference Elev	Water Level Depth	Water Level Elev
0509 D	1/4/2016	8:37	6949.44	82.89	6866.55
EPA 23	1/4/2016	9:30	6926.31	59.52	6866.79
GW 1	1/4/2016	14:20	6916.46	65.01	6851.45
GW 2	7/6/2015	14:25	6912.88	58.96	6853.92
GW 3	7/7/2015	10:50	6910.04	56	6854.04
632	1/4/2016	12:35	6903.49	48.05	6855.44
EPA 25	1/5/2016	10:35	6903.38	56.62	6846.76
EPA 27	1/12/1999		6910.95	55.45	6855.5
EPA 28	1/4/2016	15:20	6917.86	65.83	6852.03
624	1/4/2016	16:35	6898.57	53.61	6844.96

Note: Water levels provided by email from Chester Engineers, on April 20, 2016.

ATTACHMENT F

SEISMIC SETTLEMENT ANALYSIS CALCULATIONS

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-01

Data File: 13-52118_RP01-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP02-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend	Legend
Erosion Protection	Coarse Tailings
Cover Soil	Coarse/Fine Tailings
Mine Spoils	Fine Tailings
Radon Barrier	Coarse Alluvium
General Fill	Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Parameter
0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.001%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.55	866	1.8E-03	1.3E+03	1121	0.9974	1.8E-05	12	0.129	0.118	4	0.120	23525	16487	1400	17895	0.002%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.64	866	1.8E-03	1.4E+03	1087	0.9969	2.2E-05	12	0.136	0.125	4	0.127	21433	14994	1400	16282	0.002%	1.18	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6969.80	16.2	0.010	16.1	5.1	2.20	0.06%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	1610	0.06%	0.3	59%	0.17	0.000	0.17
0.328	6969.63	42.1	0.084	42.1	3.5	1.53	0.20%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	2097	0.20%	0.5	59%	0.18	0.000	0.18
0.492	6969.47	69.1	0.265	69.0	4.0	1.75	0.38%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	2294	0.38%	0.8	59%	0.19	0.000	0.19
0.656	6969.30	112.7	0.532	112.8	-1.5	-0.65	0.47%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	2809	0.47%	0.9	59%	0.20	0.000	0.20
0.820	6969.14	156.8	0.733	156.4	63.7	27.59	0.47%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	3126	0.47%	0.9	59%	0.21	0.000	0.21
0.984	6968.98	167.1	1.370	166.9	30.9	13.40	0.82%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	2776	0.82%	1.1	59%	0.22	0.000	0.22
1.148	6968.81	191.0	2.019	190.8	35.7	15.47	1.06%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	2720	1.06%	1.2	59%	0.23	0.000	0.23
1.312	6968.65	190.2	2.339	190.1	15.5	6.73	1.23%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	2369	1.23%	1.3	59%	0.24	0.000	0.24
1.476	6968.48	212.1	3.122	212.1	9.7	4.19	1.47%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	2349	1.47%	1.4	59%	0.25	0.000	0.25
1.640	6968.32	221.1	3.843	221.0	13.9	6.02	1.74%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	2204	1.74%	1.5	59%	0.26	0.000	0.26
1.804	6968.16	224.7	4.838	224.7	4.7	2.03	2.15%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	2036	2.15%	1.6	59%	0.27	0.000	0.27
1.968	6967.99	217.7	5.537	217.7	2.0	0.88	2.54%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1808	2.55%	1.6	59%	0.28	0.000	0.28
2.133	6967.83	201.2	5.163	201.2	2.1	0.89	2.57%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1550	2.57%	1.7	48%	0.28	0.000	0.28
2.297	6967.66	234.6	4.924	234.6	2.7	1.16	2.10%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1686	2.10%	1.6	48%	0.29	0.000	0.29
2.461	6967.50	272.0	4.716	272.0	5.6	2.44	1.73%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1832	1.73%	1.5	48%	0.30	0.000	0.30
2.625	6967.34	314.3	4.833	314.2	6.3	2.75	1.54%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1991	1.54%	1.4	48%	0.31	0.000	0.31
2.789	6967.17	380.9	4.667	380.8	3.6	1.55	1.23%	General Fill	0.057	113.8	0.17	0.000	0.17	0	2279	1.23%	1.3	48%	0.32	0.000	0.32
2.953	6967.01	430.6	4.848	430.6	3.9	1.67	1.13%	General Fill	0.057	113.8	0.18	0.000	0.18	0	2440	1.13%	1.3	48%	0.33	0.000	0.33
3.117	6966.84	443.0	5.051	443.0	3.7	1.59	1.14%	General Fill	0.057	113.8	0.19	0.000	0.19	0	2384	1.14%	1.3	48%	0.34	0.000	0.34
3.281	6966.68	446.4	5.599	446.4	9.0	3.90	1.25%	General Fill	0.057	113.8	0.20	0.000	0.20	0	2288	1.25%	1.3	48%	0.35	0.000	0.35
3.445	6966.52	445.2	6.173	445.2	4.8	2.09	1.39%	General Fill	0.057	113.8	0.20	0.000	0.20	0	2177	1.39%	1.4	48%	0.36	0.000	0.36
3.609	6966.35	418.4	6.499	418.4	5.9	2.56	1.55%	General Fill	0.057	113.8	0.21	0.000	0.21	0	1957	1.55%	1.4	48%	0.37	0.000	0.37
3.773	6966.19	384.7	6.314	384.7	3.9	1.69	1.64%	General Fill	0.057	113.8	0.22	0.000	0.22	0	1724	1.64%	1.5	48%	0.38	0.000	0.38
3.937	6966.02	383.8	6.364	383.8	4.0	1.75	1.66%	General Fill	0.057	113.8	0.23	0.000	0.23	0	1651	1.66%	1.5	48%	0.39	0.000	0.39
4.101	6965.86	382.3	5.669	382.3	6.3	2.73	1.48%	General Fill	0.057	113.8	0.24	0.000	0.24	0	1581	1.48%	1.4	48%	0.40	0.000	0.40
4.265	6965.70	359.7	5.575	359.7	6.8	2.93	1.55%	General Fill	0.057	113.8	0.25	0.000	0.25	0	1432	1.55%	1.4	48%	0.41	0.000	0.41
4.429	6965.53	337.4	5.041	337.4	7.1	3.09	1.49%	General Fill	0.057	113.8	0.26	0.000	0.26	0	1295	1.50%	1.4	48%	0.42	0.000	0.42
4.593	6965.37	317.8	4.730	317.7	4.5	1.95	1.49%	General Fill	0.057	113.8	0.27	0.000	0.27	0	1177	1.49%	1.4	48%	0.42	0.000	0.42
4.757	6965.20	284.3	4.604	284.3	2.4	1.02	1.62%	General Fill	0.057	113.8	0.28	0.000	0.28	0	1018	1.62%	1.5	48%	0.43	0.000	0.43
4.921	6965.04	230.5	4.034	230.5	0.8	0.36	1.75%	General Fill	0.057	113.8	0.29	0.000	0.29	0	798	1.75%	1.6	48%	0.44	0.000	0.44
5.085	6964.88	179.6	3.217	179.6	-0.2	-0.10	1.79%	General Fill	0.057	113.8	0.30	0.000	0.30	0	602	1.79%	1.6	48%	0.45	0.000	0.45
5.249	6964.71	129.2	2.502	129.2	0.9	0.39	1.94%	General Fill	0.057	113.8	0.31	0.000	0.31	0	420	1.94%	1.7	48%	0.46	0.000	0.46
5.413	6964.55	81.8	1.983	81.8	-1.4	-0.61	2.43%	General Fill	0.057	113.8	0.32	0.000	0.32	0	257	2.43%	1.9	48%	0.47	0.000	0.47
5.577	6964.38	56.9	1.757	56.9	-1.3	-0.57	3.09%	General Fill	0.057	113.8	0.33	0.000	0.33	0	174	3.10%	2.1	48%	0.48	0.000	0.48
5.741	6964.22	46.0	1.697	46.0	-0.7	-0.30	3.69%	General Fill	0.057	113.8	0.34	0.000	0.34	0	136	3.71%	2.2	48%	0.49	0.000	0.49
5.905	6964.06	39.7	1.645	39.7	0.1	0.02	4.14%	General Fill	0.057	113.8	0.34	0.000	0.34	0	114	4.18%	2.3	48%	0.50	0.000	0.50
6.069	6963.89	36.1	1.690	36.1	-0.2	-0.08	4.68%	General Fill	0.057	113.8	0.35	0.000	0.35	0	101	4.73%	2.4	48%	0.51	0.000	0.51
6.234	6963.73	40.7	1.753	40.7	0.4	0.18	4.30%	General Fill	0.057	113.8	0.36	0.000	0.36	0	111	4.34%	2.3	48%	0.52	0.000	0.52
6.398	6963.56	40.1	1.814	40.1	0.6	0.26	4.52%	General Fill	0.057	113.8	0.37	0.000	0.37	0	107	4.57%	2.4	48%	0.53	0.000	0.53
6.562	6963.40	38.3	1.996	38.3	0.2	0.10	5.21%	General Fill	0.057	113.8	0.38	0.000	0.38	0	99	5.26%	2.4	48%	0.54	0.000	0.54
6.726	6963.23	42.1	2.110	42.1	-0.1	-0.06	5.02%	General Fill	0.057	113.8	0.39	0.000	0.39	0	107	5.06%	2.4	48%	0.55	0.000	0.55
6.890	6963.07	48.4	2.317	48.4	2.3	0.98	4.79%	General Fill	0.057	113.8	0.40	0.000	0.40	0	120	4.83%	2.4	48%	0.56	0.000	0.56
7.054	6962.91	53.7	2.416	53.7	2.4	1.06	4.50%	General Fill	0.057	113.8	0.41	0.000	0.41	0	130	4.53%	2.3	48%	0.56	0.000	0.56
7.218	6962.74	63.1	2.420	63.1	4.3	1.85	3.83%	General Fill	0.057	113.8	0.42	0.000	0.42	0	150	3.86%	2.2	48%	0.57	0.000	0.57
7.382	6962.58	74.5	2.677	74.5	3.5	1.53	3.59%	General Fill	0.057	113.8	0.43	0.000	0.43	0	173	3.62%	2.2	48%	0.58	0.000	0.58
7.546	6962.41	76.0	3.010	76.0	0.5	0.20	3.96%	General Fill	0.057	113.8	0.44	0.000	0.44	0	173	3.98%	2.2	48%	0.59	0.000	0.59
7.710	6962.25	67.3	3.053	67.2	1.9	0.83	4.54%	General Fill	0.057	113.8	0.45	0.000	0.45	0	149	4.57%	2.3	48%	0.60	0.000	0.60
7.874	6962.09	69.1	3.249	69.1	-0.9	-0.41	4.70%	General Fill	0.057	113.8	0.46	0.000	0.46	0	150	4.73%	2.3	48%	0.61	0.000	0.61
8.038	6961.92	76.9	3.433	76.9	-0.5	-0.20	4.46%	General Fill	0.057	113.8	0.47	0.000	0.47	0	164	4.49%	2.3	48%	0.62	0.000	0.62
8.202	6961.76	76.9	3.662	76.9	-0.2	-0.08	4.76%	General Fill	0.057	113.8	0.48	0.000	0.48	0	161	4.79%	2.3	48%	0.63	0.000	0.63
8.366	6961.59	75.6	3.700	75.6	0.4	0.18	4.89%	General Fill	0.057	113.8	0.48	0.000	0.48	0	155	4.93%	2.3	48%	0.64	0.000	0.64
8.530	6961.43	91.7	3.940	91.7	0.8	0.33	4.30%	General Fill	0.057	113.8	0.49	0.000	0.49	0	185	4.32%	2.2	48%	0.65	0.000	0.65
8.694	6961.27	93.1	4.178	93.1	1.6	0.71	4.49%	General Fill	0.057	113.8	0.50	0.000	0.50	0	184	4.51%	2.2	48%	0.66	0.000	0.66
8.858	6961.10	89.5	4.338	89.5	0.2	0.08	4.85%	General Fill	0.057	113.8	0.51	0.000	0.51	0	174	4.88%	2.3	48%	0.67	0.000	0.67
9.022	6960.94	78.4	4.367	78.4	-1.2	-0.53	5.57%	General Fill	0.057	113.8	0.52	0.000	0.52	0	149	5.61%	2.4	48%	0.68	0.000	0.68
9.186	6960.77	79.0	4.004	79.0	-1.8	-0.79	5.07%	General Fill	0.057	113.8	0.53	0.000	0.53	0	148	5.11%	2.3	48%	0.69	0.000	0.69
9.350	6960.61	72.1	3.530	72.1	-2.6	-1.14	4.90%	General Fill	0.057	113.8	0.54	0.000	0.54	0	132	4.93%	2.3	48%	0.70	0.000	0.70
9.514	6960.45	68.0	3.272	68.0	-3.1	-1.36	4.81%	General Fill	0.057	113.8	0.55	0.000	0.55	0	123	4.85%	2.4	48%	0.70	0.000	0.70
9.678	6960.28	70.6	3.353	70.6	-2.2	-0.96	4.75%	General Fill	0.057	113.8	0.56	0.000	0.56	0	125	4.79%	2.3	48%	0.71	0.000	0.71
9.842	6960.12	71.4	3.285	71.5	-2.2	-0.94	4.60%	General Fill	0.057	113.8	0.57	0.000	0.57	0	125	4.64%	2.3	48%	0.72	0.000	0.72
10.006	6959.95	62.4	3.418	62.4	-2.0	-0.85	5.48%	General Fill	0.057	113.8	0.58	0.000	0.58	0	107	5.53%	2.4	48%	0.73	0.000	0.73
10.170	6959.79	55.6	2.815	55.6	-0.7	-0.30	5.06%	General Fill	0.057	113.8	0.59	0.000	0.59	0	94	5.11%	2.4	48%	0.74	0.000	0.74
10.335	6959.63	49.2	2.360	49.2	-1.9	-0.83	4.80%	General Fill	0.057	113.8	0.60	0.000	0.60	0	81	4.86%	2.5	48%	0.75	0.000	0.75

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.0788

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
								0	15	30		0	15	30											
0.69	754	1.9E-03	1.1E+03	1069	0.9966	3.0E-05	16	0.138	0.127	4	0.385	20890	14606	1400	13726	0.003%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.74	754	1.9E-03	1.1E+03	1051	0.9964	3.2E-05	16	0.139	0.129	4	0.387	20391	14251	1400	13394	0.004%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.79	754	1.9E-03	1.1E+03	1034	0.9961	3.3E-05	16	0.141	0.131	4	0.389	19931	13923	1400	13088	0.004%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.84	754	1.9E-03	1.1E+03	1017	0.9958	3.5E-05	16	0.143	0.133	4	0.391	19505	13620	1400	12805	0.004%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.89	754	1.9E-03	1.1E+03	1000	0.9955	3.7E-05	16	0.145	0.135	4	0.392	19109	13338	1400	12542	0.004%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.94	754	1.9E-03	1.1E+03	983	0.9952	3.9E-05	16	0.146	0.136	4	0.394	18739	13075	1400	12296	0.005%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.99	754	1.9E-03	1.1E+03	967	0.9949	4.1E-05	16	0.148	0.138	4	0.395	18393	12828	1400	12066	0.005%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.04	754	1.9E-03	1.1E+03	951	0.9946	4.2E-05	16	0.149	0.140	4	0.397	18067	12597	1400	11850	0.005%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.09	754	1.9E-03	1.1E+03	935	0.9943	4.4E-05	16	0.151	0.141	4	0.398	17761	12379	1400	11647	0.005%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.14	754	1.9E-03	1.1E+03	919	0.9940	4.6E-05	16	0.152	0.143	4	0.400	17472	12174	1400	11455	0.005%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.19	754	1.9E-03	1.1E+03	904	0.9937	4.8E-05	16	0.154	0.144	4	0.401	17198	11979	1400	11274	0.006%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.24	754	1.9E-03	1.1E+03	889	0.9933	4.9E-05	16	0.155	0.145	4	0.402	16939	11795	1400	11102	0.006%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.29	754	1.8E-03	1.0E+03	874	0.9930	5.5E-05	19	0.156	0.147	4	1.174	16707	11631	1400	8903	0.007%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.34	754	1.8E-03	1.0E+03	860	0.9927	5.7E-05	19	0.157	0.148	4	1.175	16488	11476	1400	8789	0.008%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.39	754	1.8E-03	1.0E+03	846	0.9923	5.8E-05	19	0.158	0.149	4	1.176	16279	11327	1400	8680	0.008%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.44	754	1.8E-03	1.0E+03	832	0.9920	6.0E-05	19	0.159	0.150	4	1.177	16078	11184	1400	8575	0.008%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.49	754	1.8E-03	1.0E+03	818	0.9916	6.2E-05	19	0.161	0.152	4	1.178	15885	11048	1400	8475	0.009%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.54	754	1.8E-03	1.0E+03	804	0.9913	6.4E-05	19	0.162	0.153	4	1.179	15700	10917	1400	8379	0.009%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.59	754	1.8E-03	1.0E+03	791	0.9909	6.6E-05	19	0.163	0.154	4	1.180	15523	10791	1400	8287	0.009%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.64	754	1.8E-03	1.0E+03	778	0.9905	6.7E-05	19	0.164	0.155	4	1.180	15352	10670	1400	8198	0.009%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.69	754	1.8E-03	1.0E+03	765	0.9902	6.9E-05	19	0.165	0.156	4	1.181	15187	10553	1400	8112	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.74	754	1.8E-03	1.0E+03	752	0.9898	7.1E-05	19	0.166	0.157	4	1.182	15029	10441	1400	8030	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.79	754	1.8E-03	1.0E+03	740	0.9894	7.3E-05	19	0.167	0.158	4	1.183	14876	10332	1400	7950	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.84	754	1.8E-03	1.0E+03	728	0.9890	7.4E-05	19	0.168	0.159	4	1.183	14728	10228	1400	7874	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.89	754	1.8E-03	1.0E+03	716	0.9886	7.6E-05	19	0.168	0.160	4	1.184	14585	10126	1400	7799	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.94	754	1.8E-03	1.0E+03	704	0.9882	7.8E-05	19	0.169	0.161	4	1.185	14446	10029	1400	7728	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.99	754	1.8E-03	1.0E+03	692	0.9878	8.0E-05	19	0.170	0.162	4	1.186	14313	9934	1400	7658	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.04	754	1.8E-03	1.0E+03	681	0.9873	8.1E-05	19	0.171	0.163	4	1.186	14183	9842	1400	7591	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.09	754	1.8E-03	1.0E+03	669	0.9869	8.3E-05	19	0.172	0.164	4	1.187	14057	9753	1400	7526	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.14	754	1.8E-03	1.0E+03	658	0.9865	8.5E-05	19	0.173	0.165	4	1.188	13935	9667	1400	7462	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.19	754	1.8E-03	1.0E+03	648	0.9860	8.7E-05	19	0.174	0.166	4	1.188	13817	9583	1400	7401	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.24	754	1.8E-03	1.0E+03	637	0.9856	8.8E-05	19	0.174	0.167	4	1.189	13702	9502	1400	7341	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.29	754	1.8E-03	1.0E+03	626	0.9851	9.0E-05	19	0.175	0.168	4	1.190	13590	9423	1400	7283	0.014%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.34	754	1.8E-03	1.0E+03	616	0.9847	9.2E-05	19	0.176	0.169	4	1.190	13481	9346	1400	7227	0.014%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.39	754	1.8E-03	1.0E+03	606	0.9842	9.4E-05	19	0.177	0.169	4	1.191	13375	9271	1400	7172	0.014%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.44	754	1.8E-03	1.0E+03	596	0.9837	9.5E-05	19	0.178	0.170	4	1.192	13272	9198	1400	7119	0.015%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.49	754	1.8E-03	1.0E+03	586	0.9832	9.7E-05	19	0.178	0.171	4	1.192	13172	9127	1400	7067	0.015%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.54	754	1.8E-03	1.0E+03	577	0.9827	9.9E-05	19	0.179	0.172	4	1.193	13074	9058	1400	7016	0.015%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.59	754	1.8E-03	1.0E+03	567	0.9822	1.0E-04	19	0.180	0.173	4	1.193	12978	8991	1400	6966	0.016%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.64	754	1.8E-03	1.0E+03	558	0.9817	1.0E-04	19	0.181	0.174	4	1.194	12885	8925	1400	6918	0.016%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.69	754	1.8E-03	1.0E+03	549	0.9812	1.0E-04	19	0.181	0.174	4	1.195	12795	8861	1400	6871	0.016%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.74	754	1.8E-03	1.0E+03	540	0.9807	1.1E-04	19	0.182	0.175	4	1.195	12706	8798	1400	6825	0.017%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.79	754	1.8E-03	1.0E+03	531	0.9801	1.1E-04	19	0.183	0.176	4	1.196	12620	8737	1400	6781	0.017%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.84	754	1.8E-03	1.0E+03	522	0.9796	1.1E-04	19	0.183	0.177	4	1.196	12535	8678	1400	6737	0.017%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.89	754	1.8E-03	1.0E+03	514	0.9790	1.1E-04	19	0.184	0.177	4	1.197	12453	8619	1400	6694	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.94	754	1.8E-03	1.0E+03	505	0.9785	1.1E-04	19	0.185	0.178	4	1.197	12372	8562	1400	6652	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.99	754	1.8E-03	1.0E+03	497	0.9779	1.1E-04	19	0.185	0.179	4	1.198	12293	8507	1400	6612	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.04	754	1.8E-03	1.0E+03	489	0.9773	1.2E-04	19	0.186	0.180	4	1.198	12216	8452	1400	6572	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.09	754	1.8E-03	1.0E+03	481	0.9767	1.2E-04	19	0.187	0.180	4	1.199	12140	8399	1400	6533	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.14	754	1.8E-03	1.0E+03	473	0.9761	1.2E-04	19	0.187	0.181	4	1.199	12066	8347	1400	6494	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.19	754	1.8E-03	1.0E+03	465	0.9755	1.2E-04	19	0.188	0.182	4	1.200	11994	8296	1400	6457	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.24	754	1.8E-03	1.0E+03	458	0.9749	1.2E-04	19	0.189	0.183	4	1.201	11923	8246	1400	6420	0.020%	1.70	0.75	0.02%	0.000128	0.34	0.079	0.797	0.02%	0.0000
3.29	754	1.8E-03	1.0E+03	450	0.9743	1.2E-04	19	0.189	0.183	4	1.201	11853	8197	1400	6384	0.021%	1.70	0.75	0.02%	0.000230	0.34	0.079	0.797	0.04%	0.0001
3.34	754	1.8E-03	1.0E+03	443	0.9736	1.3E-04	19	0.190	0.184	4	1.202	11785	8148	1400	6349	0.021%	1.70	0.75	0.02%	0.000318	0.34	0.079	0.797	0.05%	0.0001
3.39	754	1.8E-03	1.0E+03	436	0.9730	1.3E-04	19	0.191	0.185	4	1.202	11718	8101	1400	6314	0.021%	1.70	0.75	0.02%	0.000400	0.34	0.079	0.797	0.06%	0.0001
3.44	754	1.8E-03	1.0E+03	429	0.9723	1.3E-04	19	0.191	0.185	4	1.203	11652	8055	1400	6280	0.022%	1.70	0.75	0.02%	0.000476	0.34	0.079	0.797	0.08%	0.0001
3.49	754	1.8E-03	1.0E+03	422	0.9716	1.3E-04	19	0.192	0.186	4	1.203	11588	8010	1400	6247	0.022%	1.70	0.75	0.02%	0.000549	0.34	0.079	0.797	0.09%	0.0001
3.54	824	1.8E-03	1.2E+03	415	0.9710	1.1E-04	19	0.192	0.187	4	1.203	11525	7965	1400	6214	0.017%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.59	824	1.8E-03	1.2E+03	408	0.9703	1.1E-04	19	0.193	0.187	4	1.204	11463	7922	1400	6182	0.017%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.64	824	1.8E-03	1.2E+03	401	0.9696	1.1E-04	19	0.194	0.188	4	1.204	11402	7879	1400	6151	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.69	824	1.8E-03	1.2E+03	395	0.9688	1.2E-04	19	0.194	0.189	4	1.205	11342	7837	1400	6120	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.74	824	1.8E-03	1.2E+03	388	0.9681	1.2E-04	19	0.195	0.189	4	1.205	11284	7795	1400	6090	0.018%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.79	824	1.8E-03	1.2E+03	382	0.9674	1.2E-04	19	0.195	0.190	4	1.206	11226	7754	1400	6060	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

10.499	6959.46	45.0	2.147	45.0	-0.8	-0.36	4.77%	General Fill	0.057	113.8	0.61	0.000	0.61	0	73	4.84%	2.5	48%	0.76	0.000	0.76
10.663	6959.30	42.4	1.673	42.4	-0.2	-0.08	3.95%	General Fill	0.057	113.8	0.62	0.000	0.62	0	68	4.00%	2.5	48%	0.77	0.000	0.77
10.827	6959.13	37.6	1.695	37.6	-0.8	-0.36	4.51%	General Fill	0.057	113.8	0.62	0.000	0.62	0	59	4.58%	2.5	48%	0.78	0.000	0.78
10.991	6958.97	35.2	1.694	35.3	-0.1	-0.04	4.81%	General Fill	0.057	113.8	0.63	0.000	0.63	0	55	4.89%	2.6	48%	0.79	0.000	0.79
11.155	6958.81	35.4	1.677	35.4	-0.9	-0.41	4.74%	General Fill	0.057	113.8	0.64	0.000	0.64	0	54	4.83%	2.6	48%	0.80	0.000	0.80
11.319	6958.64	36.7	1.729	36.7	-0.7	-0.29	4.71%	General Fill	0.057	113.8	0.65	0.000	0.65	0	55	4.80%	2.6	48%	0.81	0.000	0.81
11.483	6958.48	37.0	1.894	37.0	-0.7	-0.29	5.12%	General Fill	0.057	113.8	0.66	0.000	0.66	0	55	5.21%	2.6	48%	0.82	0.000	0.82
11.647	6958.31	34.0	1.595	34.0	-0.8	-0.36	4.69%	General Fill	0.057	113.8	0.67	0.000	0.67	0	50	4.78%	2.6	48%	0.83	0.000	0.83
11.811	6958.15	33.6	1.739	33.7	-4.6	-1.97	5.17%	General Fill	0.057	113.8	0.68	0.000	0.68	0	48	5.28%	2.6	48%	0.84	0.000	0.84
11.975	6957.99	74.4	1.842	74.4	-3.9	-1.71	2.48%	General Fill	0.057	113.8	0.69	0.000	0.69	0	107	2.50%	2.2	48%	0.84	0.000	0.84
12.139	6957.82	114.3	2.031	114.3	0.4	0.18	1.78%	General Fill	0.057	113.8	0.70	0.000	0.70	0	162	1.79%	1.9	48%	0.85	0.000	0.85
12.303	6957.66	152.5	1.987	152.5	0.4	0.18	1.30%	General Fill	0.057	113.8	0.71	0.000	0.71	0	214	1.31%	1.8	48%	0.86	0.000	0.86
12.467	6957.49	174.4	1.981	174.4	0.1	0.04	1.14%	General Fill	0.057	113.8	0.72	0.000	0.72	0	242	1.14%	1.7	48%	0.87	0.000	0.87
12.631	6957.33	188.8	2.144	188.8	0.0	0.00	1.14%	General Fill	0.057	113.8	0.73	0.000	0.73	0	259	1.14%	1.7	48%	0.88	0.000	0.88
12.795	6957.17	190.8	2.281	190.8	0.0	0.00	1.20%	General Fill	0.057	113.8	0.74	0.000	0.74	0	258	1.20%	1.7	48%	0.89	0.000	0.89
12.959	6957.00	185.8	2.421	185.8	0.0	0.00	1.30%	General Fill	0.057	113.8	0.75	0.000	0.75	0	248	1.31%	1.7	48%	0.90	0.000	0.90
13.123	6956.84	173.6	2.319	173.6	-0.2	-0.08	1.34%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	229	1.34%	1.7	21%	0.91	0.000	0.91
13.287	6956.67	141.9	2.166	141.9	-0.6	-0.26	1.53%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	185	1.53%	1.9	21%	0.92	0.000	0.92
13.451	6956.51	104.4	2.194	104.4	-1.4	-0.61	2.10%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	134	2.12%	2.0	21%	0.93	0.000	0.93
13.615	6956.35	74.1	2.570	74.1	-0.1	-0.06	3.47%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	94	3.50%	2.3	21%	0.94	0.000	0.94
13.779	6956.18	56.9	2.954	56.9	0.8	0.36	5.20%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	71	5.27%	2.5	21%	0.95	0.000	0.95
13.943	6956.02	48.2	2.863	48.2	1.1	0.47	5.94%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	59	6.04%	2.6	21%	0.95	0.000	0.95
14.107	6955.85	40.4	2.323	40.4	0.9	0.39	5.76%	General Fill	0.057	113.8	0.81	0.000	0.81	0	49	5.87%	2.7	48%	0.96	0.000	0.96
14.271	6955.69	36.0	1.938	36.0	1.9	0.81	5.38%	General Fill	0.057	113.8	0.82	0.000	0.82	0	43	5.50%	2.7	48%	0.97	0.000	0.97
14.436	6955.52	29.2	1.513	29.2	-0.2	-0.08	5.18%	General Fill	0.057	113.8	0.83	0.000	0.83	0	34	5.33%	2.7	48%	0.98	0.000	0.98
14.600	6955.36	27.8	1.299	27.9	-0.2	-0.08	4.66%	General Fill	0.057	113.8	0.84	0.000	0.84	0	32	4.81%	2.7	48%	0.99	0.000	0.99
14.764	6955.20	27.1	1.213	27.1	0.4	0.16	4.48%	General Fill	0.057	113.8	0.85	0.000	0.85	0	31	4.62%	2.7	48%	1.00	0.000	1.00
14.928	6955.03	25.5	1.069	25.5	0.4	0.16	4.19%	General Fill	0.057	113.8	0.85	0.000	0.85	0	29	4.34%	2.7	48%	1.01	0.000	1.01
15.092	6954.87	24.5	1.064	24.5	0.3	0.14	4.34%	General Fill	0.057	113.8	0.86	0.000	0.86	0	27	4.49%	2.8	48%	1.02	0.000	1.02
15.256	6954.70	23.5	1.058	23.5	1.7	0.75	4.51%	General Fill	0.057	113.8	0.87	0.000	0.87	0	26	4.68%	2.8	48%	1.03	0.000	1.03
15.420	6954.54	21.4	1.032	21.4	0.4	0.18	4.82%	General Fill	0.057	113.8	0.88	0.000	0.88	0	23	5.02%	2.8	48%	1.04	0.000	1.04
15.584	6954.38	22.6	1.012	22.6	0.1	0.06	4.47%	General Fill	0.057	113.8	0.89	0.000	0.89	0	24	4.66%	2.8	48%	1.05	0.000	1.05
15.748	6954.21	21.4	0.937	21.4	0.0	0.00	4.37%	General Fill	0.057	113.8	0.90	0.000	0.90	0	23	4.57%	2.8	48%	1.06	0.000	1.06
15.912	6954.05	20.8	0.939	20.8	-0.1	-0.02	4.52%	General Fill	0.057	113.8	0.91	0.000	0.91	0	22	4.73%	2.9	48%	1.07	0.000	1.07
16.076	6953.88	18.4	0.930	18.4	-0.3	-0.12	5.07%	General Fill	0.057	113.8	0.92	0.000	0.92	0	19	5.33%	2.9	48%	1.08	0.000	1.08
16.240	6953.72	19.2	0.909	19.2	0.7	0.30	4.74%	General Fill	0.057	113.8	0.93	0.000	0.93	0	20	4.98%	2.9	48%	1.08	0.000	1.08
16.404	6953.56	22.2	0.927	22.2	3.8	1.63	4.18%	General Fill	0.057	113.8	0.94	0.000	0.94	0	23	4.36%	2.8	48%	1.09	0.000	1.09
16.568	6953.39	22.7	0.989	22.6	4.0	1.75	4.37%	General Fill	0.057	113.8	0.95	0.000	0.95	0	23	4.56%	2.8	48%	1.10	0.000	1.10
16.732	6953.23	21.1	0.996	21.0	3.3	1.42	4.73%	General Fill	0.057	113.8	0.96	0.000	0.96	0	21	4.96%	2.9	48%	1.11	0.000	1.11
16.896	6953.06	20.9	0.885	20.9	2.6	1.12	4.23%	General Fill	0.057	113.8	0.97	0.000	0.97	0	21	4.43%	2.9	48%	1.12	0.000	1.12
17.060	6952.90	28.3	0.852	28.3	3.9	1.71	3.01%	General Fill	0.057	113.8	0.98	0.000	0.98	0	28	3.12%	2.7	48%	1.13	0.000	1.13
17.224	6952.74	27.8	0.830	27.7	4.2	1.83	2.99%	General Fill	0.057	113.8	0.99	0.000	0.99	0	27	3.10%	2.7	48%	1.14	0.000	1.14
17.388	6952.57	26.6	0.901	26.6	4.3	1.87	3.39%	General Fill	0.057	113.8	0.99	0.000	0.99	0	26	3.52%	2.7	48%	1.15	0.000	1.15
17.552	6952.41	31.5	1.032	31.4	8.3	3.60	3.28%	General Fill	0.057	113.8	1.00	0.000	1.00	0	30	3.39%	2.6	48%	1.16	0.000	1.16
17.716	6952.24	33.0	1.144	33.0	12.4	5.37	3.46%	General Fill	0.057	113.8	1.01	0.000	1.01	0	32	3.57%	2.7	48%	1.17	0.000	1.17
17.880	6952.08	34.0	1.245	33.9	12.0	5.19	3.66%	General Fill	0.057	113.8	1.02	0.000	1.02	0	32	3.78%	2.7	48%	1.18	0.000	1.18
18.044	6951.92	34.1	1.228	34.0	11.0	4.78	3.60%	General Fill	0.057	113.8	1.03	0.000	1.03	0	32	3.71%	2.7	48%	1.19	0.000	1.19
18.208	6951.75	33.1	1.298	33.1	9.7	4.19	3.92%	General Fill	0.057	113.8	1.04	0.000	1.04	0	31	4.04%	2.7	48%	1.20	0.000	1.20
18.372	6951.59	37.5	1.786	37.5	-1.7	-0.73	4.76%	General Fill	0.057	113.8	1.05	0.000	1.05	0	35	4.90%	2.7	48%	1.21	0.000	1.21
18.537	6951.42	202.7	2.310	202.4	37.0	16.02	1.14%	Coarse Tailings	0.054	108.1	1.06	0.000	1.06	0	190	1.15%	1.7	21%	1.22	0.000	1.22
18.701	6951.26	378.5	3.479	378.3	20.7	8.97	0.92%	Coarse Tailings	0.054	108.1	1.07	0.000	1.07	0	353	0.92%	1.5	21%	1.22	0.000	1.22
18.865	6951.10	441.9	4.569	441.8	14.7	6.39	1.03%	Coarse Tailings	0.054	108.1	1.08	0.000	1.08	0	409	1.04%	1.5	21%	1.23	0.000	1.23
19.029	6950.93	455.6	5.386	455.5	13.0	5.63	1.18%	Coarse Tailings	0.054	108.1	1.09	0.000	1.09	0	418	1.19%	1.5	21%	1.24	0.000	1.24
19.193	6950.77	444.3	5.970	444.2	12.2	5.29	1.34%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0	405	1.35%	1.6	21%	1.25	0.000	1.25
19.357	6950.60	447.3	6.547	447.2	11.4	4.94	1.46%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0	404	1.47%	1.6	21%	1.26	0.000	1.26
19.521	6950.44	453.3	6.951	453.2	14.3	6.20	1.53%	Coarse Tailings	0.054	108.1	1.11	0.000	1.11	0	406	1.54%	1.6	21%	1.27	0.000	1.27
19.685	6950.28	436.4	7.310	436.3	14.0	6.06	1.68%	Coarse Tailings	0.054	108.1	1.12	0.000	1.12	0	388	1.68%	1.7	21%	1.28	0.000	1.28
19.849	6950.11	422.3	6.337	422.2	13.0	5.63	1.50%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0	372	1.50%	1.7	21%	1.29	0.000	1.29
20.013	6949.95	398.5	6.234	398.4	11.5	4.96	1.56%	Coarse Tailings	0.054	108.1	1.14	0.000	1.14	0	349	1.57%	1.7	21%	1.29	0.000	1.29
20.177	6949.78	371.7	5.676	371.7	6.4	2.79	1.53%	Coarse Tailings	0.054	108.1	1.15	0.000	1.15	0	323	1.53%	1.7	21%	1.30	0.000	1.30
20.341	6949.62	347.5	5.235	347.4	5.6	2.42	1.51%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0	299	1.51%	1.7	21%	1.31	0.000	1.31
20.505	6949.46	327.3	4.619	327.2	5.1	2.22	1.41%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0	280	1.42%	1.7	21%	1.32	0.000	1.32
20.669	6949.29	307.4	4.488	307.4	4.5	1.95	1.46%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	261	1.47%	1.7	21%	1.33	0.000	1.33
20.833	6949.13	276.6	4.116	276.6	4.5	1.95	1.49%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	233	1.49%	1.8	21%	1.34	0.000	1.34
20.997	6948.96	250.8	3.769	250.8	3.9	1.69	1.50%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0	209	1.51%	1.8	21%	1.35	0.000	1.35
21.161	6948.80	220.8	3.195	220.8	3.1	1.32	1.45%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0	183	1.45%	1.8	21%	1.36	0.000	1.36
21.325	6948.64	194.2	2.742	194.1	2.7	1.18	1.41%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	159	1.42%	1.9	21%	1.37	0.000	1.37
21.489	6948.47	165.8	2.280	165.8	1.8	0.77	1.38%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	135	1.39%	1.9	21%	1.37	0.000	1.37
21.653	6948.31	144.1	1.934	144.1	0.9	0.39	1.34%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0	116	1.35%	1.9	21%	1.38	0.000	1.38
21.817	6948.14	126.1	1.695	126.1	0.5	0.23	1.34%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0	101	1.36%	2.0	21%	1.39	0.000	1.39
21.981	6947.98	113.3	1.453	113.3	-0.4	-0.16	1.28%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	90	1.30%	2.0	21%	1.40	0.000	1.40
22.145	6947.82	102.3	1.353	102.3	-0.4	-0.18	1.32%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	81	1.34%	2.1	21%	1.41	0.000	1.41
22.309	6947.65	95.2	1.213	95.2	-0.3	-0.12	1.27%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0	74	1.29%	2.1	21%	1.42	0.000	1.42
22.473	6947.49	78.6	1.079	78.6	-1.5	-0.63	1.37%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0	61	1.40%	2.2	21%	1.43	0.000	1.43
22.638	6947.32	70.0	0.980	70.0	-1.0	-0.45	1.40%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	54	1.43%	2.2	21%	1.44	0.000	1.44
22.802	6947.16	65.0	0.861	65.0	-0.9	-0.39	1.32%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	49	1.35%	2.2	21%	1.45	0.000	1.45
22.966	6946.99	56.3	0.793	56.3	-0.8	-0.36	1.41%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	42	1.44%	2.3	21%	1.45	0.000	1.45
23.130	6946.83	51.3	0.713	51.3	-0.5	-0.23	1.39%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0	38	1.43%	2.3	21%	1.46	0.000	1.46
23.294	6946.67	47.5	0.618	47.5	-0.6	-0.26	1.30%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0	35	1.34%	2.3	21%	1.47	0.000	1.47

3.84	824	1.8E-03	1.2E+03	376	0.9666	1.2E-04	19	0.196	0.190	4	1.206	11169	7715	1400	6031	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.89	824	1.8E-03	1.2E+03	370	0.9659	1.2E-04	19	0.196	0.191	4	1.207	11113	7675	1400	6002	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.94	824	1.8E-03	1.2E+03	364	0.9651	1.2E-04	19	0.197	0.192	4	1.207	11059	7637	1400	5974	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.99	824	1.8E-03	1.2E+03	358	0.9643	1.2E-04	19	0.197	0.192	4	1.208	11005	7599	1400	5946	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.04	824	1.8E-03	1.2E+03	352	0.9635	1.3E-04	19	0.198	0.193	4	1.208	10952	7562	1400	5919	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.09	824	1.8E-03	1.2E+03	347	0.9627	1.3E-04	19	0.198	0.193	4	1.209	10900	7525	1400	5892	0.020%	1.70	0.75	0.02%	0.000117	0.34	0.079	0.797	0.02%	0.0000
4.14	824	1.8E-03	1.2E+03	341	0.9619	1.3E-04	19	0.199	0.194	4	1.209	10849	7489	1400	5865	0.021%	1.70	0.75	0.02%	0.000197	0.34	0.079	0.797	0.03%	0.0001
4.19	824	1.8E-03	1.2E+03	335	0.9610	1.3E-04	19	0.200	0.195	4	1.209	10798	7454	1400	5839	0.021%	1.70	0.75	0.02%	0.000268	0.34	0.079	0.797	0.04%	0.0001
4.24	824	1.8E-03	1.2E+03	330	0.9602	1.3E-04	19	0.200	0.195	4	1.210	10749	7419	1400	5814	0.021%	1.70	0.75	0.02%	0.000333	0.34	0.079	0.797	0.05%	0.0001
4.29	824	1.8E-03	1.2E+03	325	0.9593	1.3E-04	19	0.201	0.196	4	1.210	10700	7384	1400	5788	0.021%	1.70	0.75	0.02%	0.000395	0.34	0.079	0.797	0.06%	0.0001
4.34	824	1.8E-03	1.2E+03	320	0.9585	1.3E-04	19	0.201	0.196	4	1.211	10652	7350	1400	5764	0.022%	1.70	0.75	0.02%	0.000453	0.34	0.079	0.797	0.07%	0.0001
4.39	824	1.8E-03	1.2E+03	314	0.9576	1.3E-04	19	0.202	0.197	4	1.211	10604	7317	1400	5739	0.022%	1.70	0.75	0.02%	0.000509	0.34	0.079	0.797	0.08%	0.0001
4.44	824	1.8E-03	1.2E+03	309	0.9567	1.4E-04	19	0.202	0.197	4	1.211	10558	7284	1400	5715	0.022%	1.70	0.75	0.02%	0.000563	0.34	0.079	0.797	0.09%	0.0001
4.49	824	1.8E-03	1.2E+03	304	0.9558	1.4E-04	19	0.203	0.198	4	1.212	10512	7252	1400	5691	0.023%	1.70	0.75	0.02%	0.000615	0.34	0.079	0.797	0.10%	0.0002
4.54	824	1.8E-03	1.2E+03	300	0.9548	1.4E-04	19	0.203	0.199	4	1.212	10467	7220	1400	5668	0.023%	1.70	0.75	0.02%	0.000666	0.34	0.079	0.797	0.11%	0.0002
4.59	824	1.8E-03	1.2E+03	295	0.9539	1.4E-04	19	0.204	0.199	4	1.213	10422	7189	1400	5645	0.023%	1.70	0.75	0.02%	0.000716	0.34	0.079	0.797	0.11%	0.0002
4.64	824	1.7E-03	1.1E+03	290	0.9529	1.5E-04	0	0.204	0.200	4	0.204	10380	7159	1400	10380	0.024%	1.79	1.00	0.01%	0.000251	0.36	0.025	0.785	0.04%	0.0001
4.69	824	1.7E-03	1.1E+03	285	0.9520	1.5E-04	0	0.204	0.200	4	0.204	10339	7131	1400	10339	0.024%	1.79	1.00	0.01%	0.000257	0.36	0.025	0.785	0.04%	0.0001
4.74	824	1.7E-03	1.1E+03	281	0.9510	1.5E-04	0	0.205	0.201	4	0.205	10298	7102	1400	10298	0.025%	1.79	1.00	0.01%	0.000262	0.36	0.025	0.785	0.04%	0.0001
4.79	824	1.7E-03	1.1E+03	276	0.9500	1.5E-04	0	0.205	0.201	4	0.205	10258	7074	1400	10258	0.025%	1.79	1.00	0.01%	0.000268	0.36	0.025	0.785	0.04%	0.0001
4.84	824	1.7E-03	1.1E+03	272	0.9490	1.5E-04	0	0.206	0.202	4	0.206	10219	7046	1400	10219	0.025%	1.79	1.00	0.01%	0.000274	0.36	0.025	0.785	0.04%	0.0001
4.89	824	1.7E-03	1.1E+03	268	0.9479	1.5E-04	0	0.206	0.202	4	0.206	10180	7018	1400	10180	0.026%	1.79	1.00	0.01%	0.000279	0.36	0.025	0.785	0.04%	0.0001
4.94	824	1.8E-03	1.2E+03	263	0.9469	1.5E-04	19	0.207	0.203	4	1.215	10139	6990	1400	5499	0.025%	1.70	0.75	0.02%	0.001023	0.34	0.079	0.797	0.16%	0.0003
4.99	824	1.8E-03	1.2E+03	259	0.9458	1.5E-04	19	0.207	0.203	4	1.216	10099	6962	1400	5479	0.025%	1.70	0.75	0.02%	0.001066	0.34	0.079	0.797	0.17%	0.0003
5.04	824	1.8E-03	1.2E+03	255	0.9447	1.5E-04	19	0.208	0.204	4	1.216	10059	6934	1400	5458	0.026%	1.70	0.75	0.02%	0.001109	0.34	0.079	0.797	0.18%	0.0003
5.09	720	1.8E-03	9.2E+02	251	0.9436	2.0E-04	19	0.208	0.204	4	1.216	10020	6907	1400	5438	0.041%	1.70	0.75	0.02%	0.002995	0.34	0.079	0.797	0.48%	0.0008
5.14	720	1.8E-03	9.2E+02	247	0.9425	2.0E-04	19	0.209	0.205	4	1.217	9982	6880	1400	5418	0.042%	1.70	0.75	0.02%	0.003048	0.34	0.079	0.797	0.49%	0.0008
5.19	720	1.8E-03	9.2E+02	243	0.9414	2.0E-04	19	0.209	0.205	4	1.217	9944	6853	1400	5399	0.042%	1.70	0.75	0.02%	0.003100	0.34	0.079	0.797	0.49%	0.0008
5.24	720	1.8E-03	9.2E+02	239	0.9402	2.0E-04	19	0.209	0.206	4	1.218	9907	6827	1400	5380	0.043%	1.70	0.75	0.02%	0.003153	0.34	0.079	0.797	0.50%	0.0008
5.29	720	1.8E-03	9.2E+02	236	0.9391	2.1E-04	19	0.210	0.206	4	1.218	9870	6801	1400	5361	0.043%	1.70	0.75	0.02%	0.003205	0.34	0.079	0.797	0.51%	0.0008
5.34	720	1.8E-03	9.2E+02	232	0.9379	2.1E-04	19	0.210	0.207	4	1.218	9833	6775	1400	5342	0.044%	1.70	0.75	0.02%	0.003257	0.34	0.079	0.797	0.52%	0.0009
5.39	720	1.8E-03	9.2E+02	228	0.9367	2.1E-04	19	0.211	0.207	4	1.219	9797	6750	1400	5323	0.044%	1.70	0.75	0.02%	0.003308	0.34	0.079	0.797	0.53%	0.0009
5.44	720	1.8E-03	9.2E+02	225	0.9355	2.1E-04	19	0.211	0.208	4	1.219	9762	6725	1400	5305	0.045%	1.70	0.75	0.02%	0.003359	0.34	0.079	0.797	0.54%	0.0009
5.49	720	1.8E-03	9.2E+02	221	0.9343	2.1E-04	19	0.212	0.208	4	1.219	9727	6700	1400	5287	0.045%	1.70	0.75	0.02%	0.003410	0.34	0.079	0.797	0.54%	0.0009
5.54	720	1.8E-03	9.2E+02	218	0.9330	2.1E-04	19	0.212	0.209	4	1.220	9692	6676	1400	5269	0.046%	1.70	0.75	0.02%	0.003460	0.34	0.079	0.797	0.55%	0.0009
5.59	720	1.8E-03	9.2E+02	214	0.9317	2.2E-04	19	0.212	0.209	4	1.220	9658	6652	1400	5251	0.046%	1.70	0.75	0.02%	0.003510	0.34	0.079	0.797	0.56%	0.0009
5.64	720	1.8E-03	9.2E+02	211	0.9304	2.2E-04	19	0.213	0.210	4	1.220	9624	6628	1400	5234	0.047%	1.70	0.75	0.02%	0.003560	0.34	0.079	0.797	0.57%	0.0009
5.69	720	1.8E-03	9.2E+02	208	0.9291	2.2E-04	19	0.213	0.210	4	1.221	9590	6605	1400	5217	0.047%	1.70	0.75	0.02%	0.003610	0.34	0.079	0.797	0.58%	0.0009
5.74	720	1.8E-03	9.2E+02	204	0.9278	2.2E-04	19	0.214	0.211	4	1.221	9557	6581	1400	5200	0.048%	1.70	0.75	0.02%	0.003659	0.34	0.079	0.797	0.58%	0.0010
5.79	720	1.8E-03	9.2E+02	201	0.9265	2.2E-04	19	0.214	0.211	4	1.221	9525	6558	1400	5183	0.048%	1.70	0.75	0.02%	0.003707	0.34	0.079	0.797	0.59%	0.0010
5.84	720	1.8E-03	9.2E+02	198	0.9251	2.2E-04	19	0.215	0.212	4	1.222	9492	6536	1400	5166	0.049%	1.70	0.75	0.02%	0.003756	0.34	0.079	0.797	0.60%	0.0010
5.89	720	1.8E-03	9.2E+02	195	0.9237	2.2E-04	19	0.215	0.212	4	1.222	9460	6513	1400	5150	0.049%	1.70	0.75	0.02%	0.003804	0.34	0.079	0.797	0.61%	0.0010
5.94	720	1.8E-03	9.2E+02	192	0.9223	2.3E-04	19	0.215	0.212	4	1.222	9429	6491	1400	5134	0.050%	1.70	0.75	0.02%	0.003851	0.34	0.079	0.797	0.61%	0.0010
5.99	720	1.8E-03	9.2E+02	189	0.9209	2.3E-04	19	0.216	0.213	4	1.223	9398	6469	1400	5118	0.050%	1.70	0.75	0.02%	0.003899	0.34	0.079	0.797	0.62%	0.0010
6.04	720	1.8E-03	9.2E+02	186	0.9194	2.3E-04	19	0.216	0.213	4	1.223	9367	6448	1400	5102	0.051%	1.70	0.75	0.02%	0.003945	0.34	0.079	0.797	0.63%	0.0010
6.09	720	1.8E-03	9.2E+02	183	0.9180	2.3E-04	19	0.217	0.214	4	1.223	9336	6426	1400	5086	0.051%	1.70	0.75	0.02%	0.003992	0.34	0.079	0.797	0.64%	0.0010
6.14	720	1.8E-03	9.2E+02	180	0.9165	2.3E-04	19	0.217	0.214	4	1.224	9306	6405	1400	5070	0.052%	1.70	0.75	0.02%	0.004038	0.34	0.079	0.797	0.64%	0.0011
6.19	720	1.8E-03	9.2E+02	178	0.9150	2.3E-04	19	0.217	0.215	4	1.224	9276	6384	1400	5055	0.052%	1.70	0.75	0.02%	0.004084	0.34	0.079	0.797	0.65%	0.0011
6.24	720	1.8E-03	9.2E+02	175	0.9135	2.3E-04	19	0.218	0.215	4	1.224	9247	6364	1400	5040	0.053%	1.70	0.75	0.02%	0.004129	0.34	0.079	0.797	0.66%	0.0011
6.29	720	1.7E-03	8.7E+02	172	0.9119	2.5E-04	0	0.218	0.216	4	0.218	9219	6344	1400	9219	0.064%	1.79	1.00	0.01%	0.000970	0.36	0.025	0.785	0.15%	0.0003
6.34	720	1.7E-03	8.7E+02	170	0.9103	2.5E-04	0	0.218	0.216	4	0.218	9192	6325	1400	9192	0.065%	1.79	1.00	0.01%	0.000982	0.36	0.025	0.785	0.15%	0.0003
6.39	720	1.7E-03	8.7E+02	167	0.9087	2.5E-04	0	0.219	0.216	4	0.219	9164	6306	1400	9164	0.066%	1.79	1.00	0.01%	0.000994	0.36	0.025	0.785	0.16%	0.0003
6.44	720	1.7E-03	8.7E+02	164	0.9071	2.5E-04	0	0.219	0.217	4	0.219	9138	6287	1400	9138	0.066%	1.79	1.00	0.01%	0.001006	0.36	0.025	0.785	0.16%	0.0003
6.49	720	1.7E-03	8.7E+02	162	0.9055	2.5E-04	0	0.220	0.217	4	0.220	9111	6268	1400	9111	0.067%	1.79	1.00	0.01%	0.001018	0.36	0.025	0.785	0.16%	0.0003
6.54	720	1.7E-03	8.7E+02	159	0.9038	2.6E-04	0	0.220	0.218	4	0.220	9085	6250	1400	9085	0.068%	1.79	1.00	0.01%	0.001030	0.36	0.025	0.785	0.16%	0.0003
6.59	705	1.7E-03	8.3E+02	157	0.9022	2.7E-04	0	0.220	0.218	4	0.220	9059	6231	1400	9059	0.076%	1.79	1.00	0.01%	0.001186	0.36	0.025	0.785	0.19%	0.0003
6.64	705	1.7E-03	8.3E+02	155	0.9005	2.7E-04	0	0.221	0.218	4	0.221	9033	6213	1400	9033	0.077%	1.79	1.00	0.01%	0.001200	0.36	0.025	0.785	0.19%	0.0003
6.69	705	1.7E-03	8.3E+02	152	0.8987	2.7E-04	0	0.221	0.219	4	0.221	9007	6195	1400	9007	0.078%	1.79	1.00	0.01%	0.001213	0.36	0.025	0.785	0.19%	0.0003
6.74	705	1.7E-03	8.3E+02	150	0.8970	2.7E-04	0	0.221	0.219	4	0.221	8982	6177	1400	8982	0.079%	1.79	1.00	0.01%	0.001226	0.36	0.025	0.785	0.19%	0.0003
6.79	705	1.7E-03	8.3E+02	148	0.8952	2.7E-04	0	0.222	0.220	4	0.222	8957	6160	1400	8957	0.079%	1.79	1.00	0.01%	0.001239	0.36	0.025	0.785	0.19%	0.0003
6.84	705	1.7E-03	8.3E+02	146	0.8934	2.7E-04	0	0.222	0.220	4	0.222	8932	6142	1400	8932	0.080%	1.79	1.00	0.01%	0.001252	0.36	0.025	0.785	0.20%	0.0003
6.89	705	1.7E-03	8.3E+02	143	0.8916	2.8E-04	0	0.222	0.220	4	0.222	8907	6125	1400	8907	0.081%	1.79	1.00	0.01%	0.001265	0.36	0.025	0.785	0.20%	0.0003
6.94	705	1.7E-03	8.3E+02	141	0.8897	2.8E-04	0	0.223	0.221	4	0.223	8883	6108	1400	8883	0.081%	1.79	1.00	0.01%	0.001278	0.36	0.025	0.785	0.20%	0.0003
6.99	705	1.7E-03	8.3E+02	139	0.8879	2.8E-04	0	0.223	0.221	4	0.223	8859	6091	1400	8859	0.082%	1.79	1.00	0.01%	0.001290	0.36	0.025	0.785	0.20%	0.0003
7.04	705	1.7E-03	8.3E+02	137	0.8860	2.8E-04	0	0.223	0.222	4	0.223	8835	6074	1400	8835	0.083%	1.79	1.00	0.01%	0.001303	0.36	0.025	0.785	0.20%	0.0003
7.09	705	1.7E-03	8.3E+02	135	0.8841	2.8E-04	0	0.224	0.222	4	0.224	8811	6058	1400	8811	0.083%	1.79	1.00	0.01%	0.001315	0.36	0.025	0.785	0.21%	0.0003
7.14	705	1.7E-03	8.3E+02	133	0.8821	2.8E-04	0	0.224	0.222	4	0.224	8787	6041	1400	8787	0.084%	1.79	1.00	0.01%	0.001327	0.36	0.025	0.785	0.21%	0.0003
7.19	705	1.7E-03	8.3E+02	131	0.8801	2.8E-04	0	0.224	0.223	4	0.224	8764	6025	1400	8764	0.085%	1.79	1.00	0.01%	0.001339	0.36	0.025	0.785	0.21%	0.0003
7.24	705	1.7E-03	8.3E+02	129	0.8782	2.8E-04	0	0.225	0.223	4	0.225	8741	6009	1400	8741	0.085%	1.79	1.00	0.01%	0.001351	0.36	0.025	0.785	0.21%	0.0003
7.29	705	1.7E-03	8.3E+02	127	0.8761	2.9E-04	0	0.225	0.223	4	0.225	8718	5993	1400	8718	0.086%	1.79	1.00	0.01%	0.001363	0.36	0.025	0.785	0.21%	0.0004
7.34	705	1.7E-03	8.3E+02	125	0.8741	2.9E-04	0	0.225	0.224	4	0.225	8696	5977	1400	8696	0.087%	1.79	1.00	0.01%	0.001374	0.36	0.025	0.785	0.22%	0.0004
7.39	705	1.7E-03	8.3E+02	123	0.8720	2.9E-04	0	0.226	0.224	4	0.226	8673	5961	1400	8673	0.087%	1.79	1.00	0.01%	0.001385	0.36	0.025	0.785	0.22%	0.0004
7.44	705	1.7E-03	8.3E+02	122	0.8699	2.9E-04	0	0.226	0.225	4	0.226	8651	5946	1400	8651	0.088%	1.79	1.00	0.01%	0.001396	0.36	0.025	0.785	0.22%	0.0004
7.49	705	1.7E-03	8.3E+02	120	0.8678	2.9E-04	0	0.226	0.225	4	0.226	8629	5930	1400	8629	0.089%	1.79	1.00	0.01%	0.001407	0.36	0.025	0.785	0.22%	0.0004
7.54	705	1.7E-03	8.3E+02	118	0.8656	2.9E-04	0	0.227	0.225	4	0.227	8607	5915	1400	8607	0.089%	1.79	1.00	0.01%	0.001418	0.36	0.025	0.785	0.22%	0.0004
7.59	705	1.7E-03	8.3E+02	116	0.8634	2.9E-04	0	0.227	0.226	4	0.227	8585	5899	1400	8585	0.090%	1.79	1.00	0.01%	0.001428	0.36	0.025	0.785	0.22%	0.0004
7.64	705	1.7E-03	8.3E+02	115	0.8612	2.9E-04	0	0.227	0.226	4	0.227	8564	5884	1400	8564	0.090%	1.79	1.00	0.01%	0.001438	0.36	0.025	0.785	0.23%	0.0004
7.69	705	1.7E-03	8.3E+02	113	0.8590	2.9E-04	0	0.228	0.226	4	0.228	8542	5870	1400	8542	0.091%	1.79	1.00	0.01%	0.001448	0.36	0.025	0.785	0.23%	0.0004
7.74	705	1.7E-03	8.3E+02	111	0.8568	2.9E-04	0	0.228	0.227	4	0.228	8521	5855	1400	8521	0.091%	1.79	1.00	0.01%	0.001458	0.36	0.025	0.785	0.23%	0.0004

23.458	6946.50	44.5	0.554	44.5	-0.5	-0.23	1.25%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	33	1.28%	2.4	21%	1.48	0.000	1.48
23.622	6946.34	43.1	0.488	43.1	-0.3	-0.14	1.13%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	31	1.17%	2.4	21%	1.49	0.000	1.49
23.786	6946.17	41.2	0.375	41.2	-0.1	-0.04	0.91%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0	30	0.94%	2.3	21%	1.50	0.000	1.50
23.950	6946.01	42.3	0.401	42.3	-0.5	-0.20	0.95%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0	30	0.98%	2.3	21%	1.51	0.000	1.51
24.114	6945.85	39.3	0.439	39.3	-0.1	-0.02	1.12%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	28	1.16%	2.4	21%	1.52	0.000	1.52
24.278	6945.68	43.9	0.477	43.9	-0.2	-0.10	1.09%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	31	1.12%	2.4	21%	1.53	0.000	1.53
24.442	6945.52	45.2	0.519	45.2	-0.4	-0.18	1.15%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	32	1.18%	2.4	21%	1.53	0.000	1.53
24.606	6945.35	45.9	0.556	46.0	-0.5	-0.23	1.21%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	32	1.25%	2.4	21%	1.54	0.000	1.54
24.770	6945.19	50.0	0.600	50.0	-0.1	-0.02	1.20%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	35	1.23%	2.3	21%	1.55	0.000	1.55
24.934	6945.03	54.6	0.540	54.6	0.4	0.18	0.99%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	38	1.02%	2.3	21%	1.56	0.000	1.56
25.098	6944.86	61.3	0.648	61.3	-0.1	-0.04	1.06%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	42	1.08%	2.2	21%	1.57	0.000	1.57
25.262	6944.70	74.3	0.758	74.3	0.1	0.04	1.02%	Coarse Tailings	0.054	108.1	1.42	0.000	1.42	0	51	1.04%	2.2	21%	1.58	0.000	1.58
25.426	6944.53	86.5	0.916	86.5	0.2	0.08	1.06%	Coarse Tailings	0.054	108.1	1.43	0.000	1.43	0	59	1.08%	2.1	21%	1.59	0.000	1.59
25.590	6944.37	103.5	1.055	103.5	0.1	0.02	1.02%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0	71	1.03%	2.0	21%	1.60	0.000	1.60
25.754	6944.21	107.1	1.159	107.1	0.1	0.06	1.08%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0	73	1.10%	2.0	21%	1.61	0.000	1.61
25.918	6944.04	104.7	1.177	104.7	-0.3	-0.14	1.12%	Coarse Tailings	0.054	108.1	1.46	0.000	1.46	0	71	1.14%	2.1	21%	1.61	0.000	1.61
26.082	6943.88	101.2	1.179	101.2	-0.2	-0.08	1.16%	Coarse Tailings	0.054	108.1	1.47	0.000	1.47	0	68	1.18%	2.1	21%	1.62	0.000	1.62
26.246	6943.71	98.4	1.211	98.4	-0.1	-0.06	1.23%	Coarse Tailings	0.054	108.1	1.48	0.000	1.48	0	66	1.25%	2.1	21%	1.63	0.000	1.63
26.410	6943.55	96.0	1.245	96.0	-0.3	-0.12	1.30%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0	64	1.32%	2.1	21%	1.64	0.000	1.64
26.574	6943.39	90.8	1.350	90.8	-0.3	-0.14	1.49%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0	60	1.51%	2.2	21%	1.65	0.000	1.65
26.739	6943.22	83.7	1.366	83.7	-0.4	-0.16	1.63%	Coarse Tailings	0.054	108.1	1.50	0.000	1.50	0	55	1.66%	2.3	21%	1.66	0.000	1.66
26.903	6943.06	71.4	1.393	71.4	-0.2	-0.08	1.95%	Coarse Tailings	0.054	108.1	1.51	0.000	1.51	0	46	1.99%	2.4	21%	1.67	0.000	1.67
27.067	6942.89	63.3	1.043	63.3	-0.3	-0.12	1.65%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0	41	1.69%	2.4	21%	1.68	0.000	1.68
27.231	6942.73	67.0	1.061	67.0	0.1	0.04	1.58%	Coarse Tailings	0.054	108.1	1.53	0.000	1.53	0	43	1.62%	2.3	21%	1.69	0.000	1.69
27.395	6942.57	49.0	1.302	49.0	0.1	0.02	2.66%	Coarse Tailings	0.054	108.1	1.54	0.000	1.54	0	31	2.74%	2.6	21%	1.69	0.000	1.69
27.559	6942.40	37.0	1.179	37.0	-0.2	-0.10	3.19%	Coarse Tailings	0.054	108.1	1.55	0.000	1.55	0	23	3.33%	2.7	21%	1.70	0.000	1.70
27.723	6942.24	34.6	1.181	34.6	0.0	0.00	3.41%	Coarse Tailings	0.054	108.1	1.56	0.000	1.56	0	21	3.57%	2.8	21%	1.71	0.000	1.71
27.887	6942.07	64.8	1.158	64.8	0.8	0.36	1.79%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0	40	1.83%	2.4	21%	1.72	0.000	1.72
28.051	6941.91	63.2	1.272	63.2	0.2	0.08	2.01%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0	39	2.07%	2.4	21%	1.73	0.000	1.73
28.215	6941.75	49.8	1.258	49.8	-0.4	-0.16	2.52%	Coarse Tailings	0.054	108.1	1.58	0.000	1.58	0	30	2.61%	2.6	21%	1.74	0.000	1.74
28.379	6941.58	52.7	1.094	52.7	0.0	0.00	2.08%	Coarse Tailings	0.054	108.1	1.59	0.000	1.59	0	32	2.14%	2.5	21%	1.75	0.000	1.75
28.543	6941.42	68.3	0.939	68.3	0.7	0.30	1.38%	Coarse Tailings	0.054	108.1	1.60	0.000	1.60	0	42	1.41%	2.3	21%	1.76	0.000	1.76
28.707	6941.25	68.8	0.877	68.8	-0.5	-0.20	1.28%	Coarse Tailings	0.054	108.1	1.61	0.000	1.61	0	42	1.31%	2.3	21%	1.76	0.000	1.76
28.871	6941.09	66.0	0.760	66.0	-0.6	-0.24	1.15%	Coarse Tailings	0.054	108.1	1.62	0.000	1.62	0	40	1.18%	2.3	21%	1.77	0.000	1.77
29.035	6940.93	65.4	0.806	65.4	-0.4	-0.18	1.23%	Coarse Tailings	0.054	108.1	1.63	0.000	1.63	0	39	1.26%	2.3	21%	1.78	0.000	1.78
29.199	6940.76	58.3	0.903	58.3	-0.1	-0.02	1.55%	Coarse Tailings	0.054	108.1	1.64	0.000	1.64	0	35	1.59%	2.4	21%	1.79	0.000	1.79
29.363	6940.60	50.3	0.969	50.3	-0.2	-0.10	1.93%	Coarse Tailings	0.054	108.1	1.65	0.000	1.65	0	30	1.99%	2.5	21%	1.80	0.000	1.80
29.527	6940.43	62.7	0.917	62.7	0.3	0.12	1.46%	Coarse Tailings	0.054	108.1	1.65	0.000	1.65	0	37	1.50%	2.4	21%	1.81	0.000	1.81
29.691	6940.27	60.0	0.965	60.0	-0.3	-0.12	1.61%	Coarse Tailings	0.054	108.1	1.66	0.000	1.66	0	35	1.65%	2.4	21%	1.82	0.000	1.82
29.855	6940.11	48.8	0.798	48.8	0.1	0.04	1.63%	Coarse Tailings	0.054	108.1	1.67	0.000	1.67	0	28	1.69%	2.5	21%	1.83	0.000	1.83
30.019	6939.94	53.0	0.910	53.0	0.2	0.10	1.72%	Coarse Tailings	0.054	108.1	1.68	0.000	1.68	0	31	1.77%	2.5	21%	1.84	0.000	1.84
30.183	6939.78	57.5	1.186	57.6	-0.1	-0.06	2.06%	Coarse Tailings	0.054	108.1	1.69	0.000	1.69	0	33	2.12%	2.5	21%	1.84	0.000	1.84
30.347	6939.61	40.1	1.361	40.1	-0.3	-0.12	3.40%	Coarse Tailings	0.054	108.1	1.70	0.000	1.70	0	23	3.55%	2.8	21%	1.85	0.000	1.85
30.511	6939.45	33.4	1.365	33.4	0.2	0.08	4.09%	Coarse Tailings	0.054	108.1	1.71	0.000	1.71	0	19	4.31%	2.9	21%	1.86	0.000	1.86
30.675	6939.29	35.9	1.566	35.9	1.0	0.45	4.36%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	20	4.58%	2.9	21%	1.87	0.000	1.87
30.840	6939.12	22.7	1.245	22.7	0.1	0.06	5.49%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	12	5.94%	3.1	21%	1.88	0.000	1.88
31.004	6938.96	14.7	0.838	14.7	3.1	1.32	5.71%	Coarse Tailings	0.054	108.1	1.73	0.000	1.73	0	7	6.47%	3.3	21%	1.89	0.000	1.89
31.168	6938.79	13.2	0.590	13.1	6.0	2.60	4.48%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	7	5.16%	3.3	21%	1.90	0.000	1.90
31.332	6938.63	27.5	0.596	27.5	9.6	4.17	2.16%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	15	2.31%	2.8	21%	1.91	0.000	1.91
31.496	6938.46	32.9	0.804	32.9	5.4	2.32	2.44%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	18	2.58%	2.8	21%	1.92	0.000	1.92
31.660	6938.30	32.8	1.061	32.8	5.4	2.36	3.24%	Coarse Tailings	0.054	108.1	1.77	0.000	1.77	0	18	3.42%	2.8	21%	1.92	0.000	1.92
31.824	6938.14	28.3	1.290	28.2	5.1	2.20	4.56%	Coarse Tailings	0.054	108.1	1.78	0.000	1.78	0	15	4.87%	3.0	21%	1.93	0.000	1.93
31.988	6937.97	20.8	0.904	20.8	5.2	2.24	4.34%	Coarse Tailings	0.054	108.1	1.79	0.000	1.79	0	11	4.75%	3.1	21%	1.94	0.000	1.94
32.152	6937.81	22.0	0.794	21.9	13.0	5.61	3.61%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0	11	3.93%	3.0	21%	1.95	0.000	1.95
32.316	6937.64	50.1	0.684	50.0	11.0	4.78	1.37%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0	27	1.42%	2.5	21%	1.96	0.000	1.96
32.480	6937.48	59.0	0.805	59.0	7.6	3.28	1.36%	Coarse Tailings	0.054	108.1	1.81	0.000	1.81	0	32	1.41%	2.4	21%	1.97	0.000	1.97
32.644	6937.32	63.3	0.808	63.3	6.8	2.93	1.28%	Coarse Tailings	0.054	108.1	1.82	0.000	1.82	0	34	1.31%	2.4	21%	1.98	0.000	1.98
32.808	6937.15	63.0	1.132	63.0	6.3	2.75	1.80%	Coarse Tailings	0.054	108.1	1.83	0.000	1.83	0	33	1.85%	2.4	21%	1.99	0.000	1.99
32.972	6936.99	59.3	1.460	59.3	6.0	2.58	2.46%	Coarse Tailings	0.054	108.1	1.84	0.000	1.84	0	31	2.54%	2.6	21%	2.00	0.000	2.00
33.136	6936.82	54.3	1.805	54.3	6.3	2.75	3.32%	Coarse Tailings	0.054	108.1	1.85	0.000	1.85	0	28	3.44%	2.7	21%	2.00	0.000	2.00
33.300	6936.66	42.7	1.793	42.7	5.8	2.50	4.20%	Coarse Tailings	0.054	108.1	1.86	0.000	1.86	0	22	4.39%	2.8	21%	2.01	0.000	2.01
33.464	6936.50	32.7	1.516	32.6	5.8	2.52	4.64%	Coarse Tailings	0.054	108.1	1.87	0.000	1.87	0	16	4.92%	3.0	21%	2.02	0.000	2.02
33.628	6936.33	33.3	1.044	33.2	7.4	3.19	3.14%	Coarse Tailings	0.054	108.1	1.88	0.000	1.88	0	17	3.33%	2.8	21%	2.03	0.000	2.03
33.792	6936.17	36.9	1.171	36.8	6.5	2.83	3.18%	Coarse Tailings	0.054	108.1	1.88	0.000	1.88	0	19	3.35%	2.8	21%	2.04	0.000	2.04
33.956	6936.00	34.8	1.193	34.8	4.0	1.73	3.43%	Coarse Tailings	0.054	108.1	1.89	0.000	1.89	0	17	3.62%	2.9	21%	2.05	0.000	2.05
34.120	6935.84	33.1	1.240	33.1	4.3	1.85	3.75%	Coarse Tailings	0.054	108.1	1.90	0.000	1.90	0	16	3.97%	2.9	21%	2.06	0.000	2.06
34.284	6935.68	52.1	1.317	52.0	6.4	2.76	2.53%	Coarse Tailings	0.054	108.1	1.91	0.000	1.91	0	26	2.63%	2.6	21%	2.07	0.000	2.07
34.448	6935.51	44.6	1.402	44.6	4.7	2.03	3.14%	Coarse Alluvium	0.056	111.0	1.92	0.000	1.92	0	22	3.28%	2.7	36%	2.08	0.000	2.08
34.612	6935.35	29.7	1.175	29.7	5.8	2.50	3.95%	Coarse Alluvium	0.056	111.0	1.93	0.000	1.93	0	14	4.23%	3.0	36%	2.08	0.000	2.08
34.776	6935.18	44.7	1.089	44.7	7.5	3.23	2.43%	Coarse Alluvium	0.056	111.0	1.94	0.000	1.94	0	22	2.55%	2.7	36%	2.09	0.000	2.09
34.941	6935.02	71.4	1.222	71.3	6.3	2.75	1.71%	Coarse Alluvium	0.056	111.0	1.95	0.000	1.95	0	36	1.76%	2.4	36%	2.10	0.000	2.10
35.105	6934.86	104.1	1.507	104.1	6.1	2.62	1.45%	Coarse Alluvium	0.056	111.0	1.96	0.000	1.96	0	52	1.48%	2.2	36%	2.11	0.000	2.11
35.269	6934.69	202.3	2.997	202.2	8.8	3.82	1.48%	Coarse Alluvium	0.056	111.0	1.97	0.000	1.97	0	102	1.50%	2.0	36%	2.12	0.000	2.12
35.433	6934.53	273.6	5.524	273.6	8.1	3.50	2.02%	Coarse Alluvium	0.056	111.0	1.97	0.000	1.97	0	138	2.03%	2.0	36%	2.13	0.000	2.13
35.597	6934.36	262.5	7.086	262.5	6.9	2.97	2.70%	Coarse Alluvium	0.056	111.0	1.98	0.000	1.98	0	131	2.72%	2.1	36%	2.14	0.000	2.14
35.761	6934.20	155.8	7.241	155.8	5.1	2.20	4.65%	Coarse Alluvium	0.056	111.0	1.99	0.000	1.99	0	77	4.71%	2.5	36%	2.15	0.000	2.15
35.925	6934.04	133.2	4.810	133.2	6.4	2.76	3.61%	Coarse Alluvium	0.056	111.0	2.00	0.000	2.00	0	66	3.67%	2.4	36%	2.16	0.000	2.16
36.089	6933.87	70.0	3.734	70.0	5.4	2.32	5.33%	Coarse Alluvium	0.056	111.0	2.01	0.000	2.01	0	34	5.49%	2.8	36%	2.17	0.000	2.17
36.253	6933.71	40.6	1.978	40.5	4.4	1.91	4.88%	Coarse Alluvium	0.056	111.0	2.02	0.000	2.02	0	19	5.13%	2.9	36%	2.18	0.000	2.18

7.79	705	1.7E-03	8.3E+02	110	0.8545	3.0E-04	0	0.228	0.227	4	0.228	8500	5840	1400	8500	0.092%	1.79	1.00	0.01%	0.001467	0.36	0.025	0.785	0.23%	0.0004
7.84	705	1.7E-03	8.3E+02	108	0.8521	3.0E-04	0	0.229	0.228	4	0.229	8479	5825	1400	8479	0.092%	1.79	1.00	0.01%	0.001476	0.36	0.025	0.785	0.23%	0.0004
7.89	705	1.7E-03	8.3E+02	107	0.8498	3.0E-04	0	0.229	0.228	4	0.229	8459	5811	1400	8459	0.093%	1.79	1.00	0.01%	0.001485	0.36	0.025	0.785	0.23%	0.0004
7.94	705	1.7E-03	8.3E+02	105	0.8474	3.0E-04	0	0.229	0.228	4	0.229	8438	5797	1400	8438	0.093%	1.79	1.00	0.01%	0.001493	0.36	0.025	0.785	0.23%	0.0004
7.99	705	1.7E-03	8.3E+02	104	0.8450	3.0E-04	0	0.230	0.229	4	0.230	8418	5783	1400	8418	0.094%	1.79	1.00	0.01%	0.001502	0.36	0.025	0.785	0.24%	0.0004
8.04	705	1.7E-03	8.3E+02	102	0.8426	3.0E-04	0	0.230	0.229	4	0.230	8398	5768	1400	8398	0.094%	1.79	1.00	0.01%	0.001510	0.36	0.025	0.785	0.24%	0.0004
8.09	705	1.7E-03	8.3E+02	101	0.8402	3.0E-04	0	0.230	0.229	4	0.230	8378	5755	1400	8378	0.095%	1.79	1.00	0.01%	0.001517	0.36	0.025	0.785	0.24%	0.0004
8.14	639	1.7E-03	6.9E+02	99	0.8377	3.7E-04	0	0.231	0.230	4	0.231	8358	5741	1400	8358	0.179%	1.79	1.00	0.01%	0.003020	0.36	0.025	0.785	0.47%	0.0008
8.19	639	1.7E-03	6.9E+02	98	0.8352	3.7E-04	0	0.231	0.230	4	0.231	8339	5727	1400	8339	0.180%	1.79	1.00	0.01%	0.003034	0.36	0.025	0.785	0.48%	0.0008
8.24	639	1.7E-03	6.9E+02	96	0.8326	3.7E-04	0	0.231	0.230	4	0.231	8319	5713	1400	8319	0.180%	1.79	1.00	0.01%	0.003048	0.36	0.025	0.785	0.48%	0.0008
8.29	639	1.7E-03	6.9E+02	95	0.8301	3.7E-04	0	0.231	0.231	4	0.231	8300	5700	1400	8300	0.181%	1.79	1.00	0.01%	0.003061	0.36	0.025	0.785	0.48%	0.0008
8.34	639	1.7E-03	6.9E+02	94	0.8275	3.7E-04	0	0.232	0.231	4	0.232	8281	5686	1400	8281	0.182%	1.79	1.00	0.01%	0.003074	0.36	0.025	0.785	0.48%	0.0008
8.39	639	1.7E-03	6.9E+02	92	0.8248	3.7E-04	0	0.232	0.231	4	0.232	8262	5673	1400	8262	0.182%	1.79	1.00	0.01%	0.003085	0.36	0.025	0.785	0.48%	0.0008
8.44	639	1.7E-03	6.9E+02	91	0.8222	3.7E-04	0	0.232	0.232	4	0.232	8243	5660	1400	8243	0.183%	1.79	1.00	0.01%	0.003096	0.36	0.025	0.785	0.49%	0.0008
8.49	639	1.7E-03	6.9E+02	90	0.8195	3.7E-04	0	0.233	0.232	4	0.233	8224	5647	1400	8224	0.184%	1.79	1.00	0.01%	0.003106	0.36	0.025	0.785	0.49%	0.0008
8.54	639	1.7E-03	6.9E+02	89	0.8168	3.7E-04	0	0.233	0.232	4	0.233	8206	5634	1400	8206	0.184%	1.79	1.00	0.01%	0.003116	0.36	0.025	0.785	0.49%	0.0008
8.59	639	1.7E-03	6.9E+02	87	0.8140	3.8E-04	0	0.233	0.233	4	0.233	8187	5621	1400	8187	0.185%	1.79	1.00	0.01%	0.003124	0.36	0.025	0.785	0.49%	0.0008
8.64	639	1.7E-03	6.9E+02	86	0.8112	3.8E-04	0	0.234	0.233	4	0.234	8169	5608	1400	8169	0.185%	1.79	1.00	0.01%	0.003132	0.36	0.025	0.785	0.49%	0.0008
8.69	639	1.7E-03	6.9E+02	85	0.8084	3.8E-04	0	0.234	0.233	4	0.234	8151	5595	1400	8151	0.185%	1.79	1.00	0.01%	0.003139	0.36	0.025	0.785	0.49%	0.0008
8.74	639	1.7E-03	6.9E+02	84	0.8056	3.8E-04	0	0.234	0.234	4	0.234	8133	5583	1400	8133	0.186%	1.79	1.00	0.01%	0.003145	0.36	0.025	0.785	0.49%	0.0008
8.79	639	1.7E-03	6.9E+02	83	0.8027	3.8E-04	0	0.234	0.234	4	0.234	8115	5570	1400	8115	0.186%	1.79	1.00	0.01%	0.003150	0.36	0.025	0.785	0.49%	0.0008
8.84	639	1.7E-03	6.9E+02	82	0.7998	3.8E-04	0	0.235	0.234	4	0.235	8097	5558	1400	8097	0.186%	1.79	1.00	0.01%	0.003154	0.36	0.025	0.785	0.50%	0.0008
8.89	639	1.7E-03	6.9E+02	81	0.7969	3.8E-04	0	0.235	0.235	4	0.235	8080	5546	1400	8080	0.186%	1.79	1.00	0.01%	0.003158	0.36	0.025	0.785	0.50%	0.0008
8.94	639	1.7E-03	6.9E+02	79	0.7940	3.8E-04	0	0.235	0.235	4	0.235	8062	5533	1400	8062	0.187%	1.79	1.00	0.01%	0.003161	0.36	0.025	0.785	0.50%	0.0008
8.99	639	1.7E-03	6.9E+02	78	0.7910	3.8E-04	0	0.236	0.235	4	0.236	8045	5521	1400	8045	0.187%	1.79	1.00	0.01%	0.003163	0.36	0.025	0.785	0.50%	0.0008
9.04	639	1.7E-03	6.9E+02	77	0.7880	3.8E-04	0	0.236	0.236	4	0.236	8028	5509	1400	8028	0.187%	1.79	1.00	0.01%	0.003164	0.36	0.025	0.785	0.50%	0.0008
9.09	639	1.7E-03	6.9E+02	76	0.7849	3.8E-04	0	0.236	0.236	4	0.236	8011	5497	1400	8011	0.187%	1.79	1.00	0.01%	0.003164	0.36	0.025	0.785	0.50%	0.0008
9.14	639	1.7E-03	6.9E+02	75	0.7818	3.8E-04	0	0.236	0.236	4	0.236	7994	5485	1400	7994	0.187%	1.79	1.00	0.01%	0.003163	0.36	0.025	0.785	0.50%	0.0008
9.19	639	1.7E-03	6.9E+02	74	0.7787	3.8E-04	0	0.237	0.237	4	0.237	7977	5474	1400	7977	0.187%	1.79	1.00	0.01%	0.003161	0.36	0.025	0.785	0.50%	0.0008
9.24	639	1.7E-03	6.9E+02	73	0.7756	3.8E-04	0	0.237	0.237	4	0.237	7960	5462	1400	7960	0.186%	1.79	1.00	0.01%	0.003159	0.36	0.025	0.785	0.50%	0.0008
9.29	639	1.7E-03	6.9E+02	72	0.7724	3.8E-04	0	0.237	0.237	4	0.237	7944	5450	1400	7944	0.186%	1.79	1.00	0.01%	0.003156	0.36	0.025	0.785	0.50%	0.0008
9.34	639	1.7E-03	6.9E+02	71	0.7693	3.8E-04	0	0.237	0.238	4	0.237	7927	5439	1400	7927	0.186%	1.79	1.00	0.01%	0.003151	0.36	0.025	0.785	0.49%	0.0008
9.39	639	1.7E-03	6.9E+02	70	0.7660	3.8E-04	0	0.238	0.238	4	0.238	7911	5427	1400	7911	0.186%	1.79	1.00	0.01%	0.003146	0.36	0.025	0.785	0.49%	0.0008
9.44	639	1.7E-03	6.9E+02	70	0.7628	3.8E-04	0	0.238	0.238	4	0.238	7894	5416	1400	7894	0.185%	1.79	1.00	0.01%	0.003140	0.36	0.025	0.785	0.49%	0.0008
9.49	639	1.7E-03	6.9E+02	69	0.7595	3.9E-04	0	0.238	0.239	4	0.238	7878	5405	1400	7878	0.185%	1.79	1.00	0.01%	0.003134	0.36	0.025	0.785	0.49%	0.0008
9.54	639	1.7E-03	6.9E+02	68	0.7562	3.9E-04	0	0.239	0.239	4	0.239	7862	5394	1400	7862	0.185%	1.79	1.00	0.01%	0.003126	0.36	0.025	0.785	0.49%	0.0008
9.59	639	1.7E-03	6.9E+02	67	0.7529	3.9E-04	0	0.239	0.239	4	0.239	7846	5382	1400	7846	0.184%	1.79	1.00	0.01%	0.003117	0.36	0.025	0.785	0.49%	0.0008
9.64	762	1.7E-03	9.7E+02	66	0.7495	2.7E-04	0	0.239	0.240	4	0.239	7831	5371	1400	7831	0.066%	1.79	1.00	0.01%	0.000996	0.36	0.025	0.785	0.16%	0.0003
9.69	762	1.7E-03	9.7E+02	65	0.7461	2.7E-04	0	0.239	0.240	4	0.239	7815	5360	1400	7815	0.066%	1.79	1.00	0.01%	0.000994	0.36	0.025	0.785	0.16%	0.0003
9.74	762	1.7E-03	9.7E+02	64	0.7427	2.7E-04	0	0.240	0.240	4	0.240	7799	5350	1400	7799	0.065%	1.79	1.00	0.01%	0.000993	0.36	0.025	0.785	0.16%	0.0003
9.79	762	1.7E-03	9.7E+02	64	0.7392	2.7E-04	0	0.240	0.240	4	0.240	7784	5339	1400	7784	0.065%	1.79	1.00	0.01%	0.000990	0.36	0.025	0.785	0.16%	0.0003
9.84	762	1.7E-03	9.7E+02	63	0.7357	2.7E-04	0	0.240	0.241	4	0.240	7769	5328	1400	7769	0.065%	1.79	1.00	0.01%	0.000988	0.36	0.025	0.785	0.16%	0.0003
9.89	762	1.7E-03	9.7E+02	62	0.7322	2.7E-04	0	0.240	0.241	4	0.240	7753	5317	1400	7753	0.065%	1.79	1.00	0.01%	0.000985	0.36	0.025	0.785	0.15%	0.0003
9.94	762	1.7E-03	9.7E+02	61	0.7287	2.7E-04	0	0.241	0.241	4	0.241	7738	5307	1400	7738	0.065%	1.79	1.00	0.01%	0.000983	0.36	0.025	0.785	0.15%	0.0003
9.99	762	1.7E-03	9.7E+02	60	0.7251	2.7E-04	0	0.241	0.242	4	0.241	7723	5296	1400	7723	0.065%	1.79	1.00	0.01%	0.000980	0.36	0.025	0.785	0.15%	0.0003
10.04	762	1.7E-03	9.7E+02	60	0.7215	2.7E-04	0	0.241	0.242	4	0.241	7708	5286	1400	7708	0.065%	1.79	1.00	0.01%	0.000976	0.36	0.025	0.785	0.15%	0.0003
10.09	762	1.7E-03	9.7E+02	59	0.7178	2.7E-04	0	0.242	0.242	4	0.242	7693	5275	1400	7693	0.064%	1.79	1.00	0.01%	0.000973	0.36	0.025	0.785	0.15%	0.0003
10.14	762	1.7E-03	9.7E+02	58	0.7142	2.7E-04	0	0.242	0.243	4	0.242	7678	5265	1400	7678	0.064%	1.79	1.00	0.01%	0.000969	0.36	0.025	0.785	0.15%	0.0002
10.19	762	1.7E-03	9.7E+02	58	0.7105	2.7E-04	0	0.242	0.243	4	0.242	7664	5255	1400	7664	0.064%	1.79	1.00	0.01%	0.000966	0.36	0.025	0.785	0.15%	0.0002
10.24	762	1.7E-03	9.7E+02	57	0.7068	2.7E-04	0	0.242	0.243	4	0.242	7649	5245	1400	7649	0.064%	1.79	1.00	0.01%	0.000962	0.36	0.025	0.785	0.15%	0.0002
10.29	762	1.7E-03	9.7E+02	56	0.7030	2.7E-04	0	0.243	0.243	4	0.243	7635	5234	1400	7635	0.063%	1.79	1.00	0.01%	0.000957	0.36	0.025	0.785	0.15%	0.0002
10.34	762	1.7E-03	9.7E+02	55	0.6993	2.7E-04	0	0.243	0.244	4	0.243	7620	5224	1400	7620	0.063%	1.79	1.00	0.01%	0.000953	0.36	0.025	0.785	0.15%	0.0002
10.39	762	1.7E-03	9.7E+02	55	0.6955	2.7E-04	0	0.243	0.244	4	0.243	7606	5214	1400	7606	0.063%	1.79	1.00	0.01%	0.000948	0.36	0.025	0.785	0.15%	0.0002
10.44	762	1.7E-03	9.7E+02	54	0.6917	2.7E-04	0	0.243	0.244	4	0.243	7592	5204	1400	7592	0.063%	1.79	1.00	0.01%	0.000944	0.36	0.025	0.785	0.15%	0.0002
10.49	762	1.7E-03	9.7E+02	54	0.6878	2.7E-04	0	0.244	0.245	4	0.244	7578	5195	1400	7578	0.062%	1.79	1.00	0.01%	0.000939	0.36	0.025	0.785	0.15%	0.0002
10.54	762	1.7E-03	9.7E+02	53	0.6839	2.7E-04	0	0.244	0.245	4	0.244	7564	5185	1400	7564	0.062%	1.79	1.00	0.01%	0.000933	0.36	0.025	0.785	0.15%	0.0002
10.59	762	1.7E-03	9.7E+02	52	0.6801	2.7E-04	0	0.244	0.245	4	0.244	7550	5175	1400	7550	0.062%	1.79	1.00	0.01%	0.000928	0.36	0.025	0.785	0.15%	0.0002
10.64	762	1.7E-03	9.7E+02	52	0.6761	2.7E-04	0	0.244	0.246	4	0.244	7536	5165	1400	7536	0.062%	1.79	1.00	0.01%	0.000923	0.36	0.025	0.785	0.14%	0.0002
10.69	762	1.7E-03	9.7E+02	51	0.6722	2.7E-04	0	0.245	0.246	4	0.245	7522	5156	1400	7522	0.061%	1.79	1.00	0.01%	0.000917	0.36	0.025	0.785	0.14%	0.0002
10.74	762	1.7E-03	9.7E+02	50	0.6682	2.7E-04	0	0.245	0.246	4	0.245	7509	5146	1400	7509	0.061%	1.79	1.00	0.01%	0.000911	0.36	0.025	0.785	0.14%	0.0002
10.79	762	1.7E-03	9.7E+02	50	0.6642	2.7E-04	0	0.245	0.246	4	0.245	7495	5137	1400	7495	0.061%	1.79	1.00	0.01%	0.000905	0.36	0.025	0.785	0.14%	0.0002
10.84	762	1.7E-03	9.7E+02	49	0.6602	2.7E-04	0	0.245	0.247	4	0.245	7482	5127	1400	7482	0.060%	1.79	1.00	0.01%	0.000899	0.36	0.025	0.785	0.14%	0.0002
10.89	762	1.7E-03	9.7E+02	49	0.6562	2.7E-04	0	0.246	0.247	4	0.246	7468	5118	1400	7468	0.060%	1.79	1.00	0.01%	0.000893	0.36	0.025	0.785	0.14%	0.0002
10.94	762	1.7E-03	9.7E+02	48	0.6521	2.7E-04	0	0.246	0.247	4	0.246	7455	5109	1400	7455	0.060%	1.79	1.00	0.01%	0.000886	0.36	0.025	0.785	0.14%	0.0002
10.99	762	1.7E-03	9.7E+02	48	0.6480	2.7E-04	0	0.246	0.248	4	0.246	7442	5099	1400	7442	0.059%	1.79	1.00	0.01%	0.000879	0.36	0.025	0.785	0.14%	0.0002
11.04	762	1.7E-03	9.7E+02	47	0.6439	2.6E-04	0	0.246	0.248	4	0.246	7428	5090	1400	7428	0.059%	1.79	1.00	0.01%	0.000873	0.36	0.025	0.785	0.14%	0.0002
11.09	762	1.7E-03	9.7E+02	47	0.6398	2.6E-04	0	0.247	0.248	4	0.247	7415	5081	1400	7415	0.058%	1.79	1.00	0.01%	0.000866	0.36	0.025	0.785	0.14%	0.0002
11.14	762	1.7E-03	1.0E+03	46	0.6356	2.6E-04	0	0.247	0.248	4	0.247	7402	5072	1400	7402	0.055%	2.00	1.00	0.01%	0.000893	0.36	0.025	0.785	0.14%	0.0002
11.19	762	1.7E-03	1.0E+03	46	0.6314	2.6E-04	0	0.247	0.249	4	0.247	7389	5063	1400	7389	0.054%	2.00	1.00	0.01%	0.000886	0.36	0.025	0.785	0.14%	0.0002
11.24	762	1.7E-03	1.0E+03	45	0.6272	2.6E-04	0	0.247	0.249	4	0.247	7376	5053	1400	7376	0.054%	2.00	1.00	0.01%	0.000878	0.36	0.025	0.785	0.14%	0.0002
11.29	762	1.7E-03	1.0E+03	45	0.6230	2.6E-04	0	0.248	0.249	4	0.248	7362	5044	1400	7362	0.054%	2.00	1.00	0.01%	0.000871	0.36	0.025	0.785	0.14%	0.0002
11.34	762	1.7E-03	1.0E+03	44	0.6188	2.5E-04	0	0.248	0.250	4	0.248	7349	5035	1400	7349	0.053%	2.00	1.00	0.01%	0.000864	0.36	0.025	0.785	0.14%	0.0002
11.39	762	1.7E-03	1.0E+03	44	0.6145	2.5E-04	0	0.248	0.250	4	0.248	7336	5026	1400	7336	0.053%	2.00	1.00	0.01%	0.000856	0.36	0.025	0.785	0.13%	0.0002
11.44	762	1.7E-03	1.0E+03	43	0.6103	2.5E-04	0	0.248	0.250	4	0.248	7323	5017	1400	7323	0.052%	2.00	1.00	0.01%	0.000848	0.36	0.025	0.785	0.13%	0.0002
11.49	762	1.7E-03	1.0E+03	43	0.6060	2.5E-04	0	0.249	0.250	4	0.249	7311	5008	1400	7311	0.052%	2.00	1.00	0.01%	0.000840	0.36	0.025	0.785	0.13%	0.0002
11.54	762	1.7E-03	1.0E+03	42	0.6017	2.5E-04	0	0.249	0.251	4	0.249	7298	4999	1400	7298	0.052%	2.00	1.00	0.01%	0.000832	0.36	0.025	0.785	0.13%	0.0002
11.59	762	1.7E-03	1.0E+03	42	0.5973	2.5E-04	0	0.249	0.251	4	0.249	7285	4990	1400	7285	0.051%	2.00	1.00	0.01%	0.000824	0.36	0.025	0.785	0.13%	0.0002
11.64	762	1.7E-03	1.0E+03	41	0.5930	2.5E-04	0	0.249	0.251	4	0.249	7273	4982	1400	7273	0.051%	2.00	1.00	0.01%	0.000816	0.36	0.025	0.785	0.13%	0.0002
11.69	762	1.7E-03	1.0E+03	41	0.5886	2.5E-04	0	0.250	0.252	4	0.250	7260	4973	1400	7260	0.050%	2.00	1.00	0.01%	0.000808	0.36	0.025	0.785	0.13%	0.0002

36.417	6933.54	31.4	1.901	31.4	4.3	1.85	6.05%	Coarse Alluvium	0.056	111.0	2.03	0.000	2.03	0	14	6.46%	3.1	36%	2.18	0.000	2.18
36.581	6933.38	25.8	1.845	25.8	4.4	1.89	7.14%	Coarse Alluvium	0.056	111.0	2.04	0.000	2.04	0	12	7.75%	3.2	36%	2.19	0.000	2.19
36.745	6933.22	25.0	1.678	25.0	5.1	2.22	6.71%	Coarse Alluvium	0.056	111.0	2.05	0.000	2.05	0	11	7.31%	3.2	36%	2.20	0.000	2.20
36.909	6933.05	26.5	1.469	26.5	5.5	2.38	5.53%	Coarse Alluvium	0.056	111.0	2.06	0.000	2.06	0	12	6.00%	3.1	36%	2.21	0.000	2.21
37.073	6932.89	27.8	1.554	27.8	5.7	2.46	5.58%	Coarse Alluvium	0.056	111.0	2.07	0.000	2.07	0	12	6.03%	3.1	36%	2.22	0.000	2.22
37.237	6932.72	29.5	1.787	29.5	6.8	2.95	6.06%	Coarse Alluvium	0.056	111.0	2.08	0.000	2.08	0	13	6.52%	3.1	36%	2.23	0.000	2.23
37.401	6932.56	34.2	1.855	34.2	7.1	3.09	5.42%	Coarse Alluvium	0.056	111.0	2.08	0.000	2.08	0	15	5.78%	3.0	36%	2.24	0.000	2.24
37.565	6932.40	54.5	2.149	54.4	7.8	3.40	3.94%	Coarse Alluvium	0.056	111.0	2.09	0.000	2.09	0	25	4.10%	2.8	36%	2.25	0.000	2.25
37.729	6932.23	86.0	2.718	86.0	9.0	3.88	3.16%	Coarse Alluvium	0.056	111.0	2.10	0.000	2.10	0	40	3.24%	2.5	36%	2.26	0.000	2.26
37.893	6932.07	83.0	2.883	82.9	8.3	3.58	3.47%	Coarse Alluvium	0.056	111.0	2.11	0.000	2.11	0	38	3.57%	2.6	36%	2.27	0.000	2.27
38.057	6931.90	59.6	2.894	59.5	9.2	3.99	4.86%	Coarse Alluvium	0.056	111.0	2.12	0.000	2.12	0	27	5.04%	2.8	36%	2.28	0.000	2.28
38.221	6931.74	50.5	2.527	50.4	10.8	4.68	5.01%	Coarse Alluvium	0.056	111.0	2.13	0.000	2.13	0	23	5.23%	2.9	36%	2.28	0.000	2.28
38.385	6931.58	30.0	1.994	29.9	10.5	4.55	6.66%	Coarse Alluvium	0.056	111.0	2.14	0.000	2.14	0	13	7.17%	3.1	36%	2.29	0.000	2.29
38.549	6931.41	20.8	0.913	20.7	10.1	4.39	4.40%	Coarse Alluvium	0.056	111.0	2.15	0.000	2.15	0	9	4.90%	3.2	36%	2.30	0.000	2.30
38.713	6931.25	16.1	0.467	16.1	10.6	4.58	2.90%	Coarse Alluvium	0.056	111.0	2.16	0.000	2.16	0	6	3.34%	3.2	36%	2.31	0.000	2.31
38.877	6931.08	17.2	0.909	17.2	11.5	4.96	5.28%	Coarse Alluvium	0.056	111.0	2.17	0.000	2.17	0	7	6.04%	3.3	36%	2.32	0.000	2.32
39.042	6930.92	25.8	0.860	25.8	10.0	4.31	3.33%	Coarse Alluvium	0.056	111.0	2.18	0.000	2.18	0	11	3.64%	3.0	36%	2.33	0.000	2.33
39.206	6930.75	28.7	1.144	28.7	10.8	4.66	3.98%	Coarse Alluvium	0.056	111.0	2.18	0.000	2.18	0	12	4.31%	3.0	36%	2.34	0.000	2.34
39.370	6930.59	28.0	0.889	28.0	9.1	3.93	3.17%	Coarse Alluvium	0.056	111.0	2.19	0.000	2.19	0	12	3.44%	3.0	36%	2.35	0.000	2.35
39.534	6930.43	17.1	0.734	17.0	9.1	3.94	4.30%	Coarse Alluvium	0.056	111.0	2.20	0.000	2.20	0	7	4.93%	3.3	36%	2.36	0.000	2.36
39.698	6930.26	13.8	0.491	13.8	9.9	4.29	3.55%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	5	4.23%	3.3	36%	2.37	0.000	2.37
39.862	6930.10	13.8	0.419	13.8	10.0	4.35	3.03%	Coarse Alluvium	0.056	111.0	2.22	0.000	2.22	0	5	3.61%	3.3	36%	2.38	0.000	2.38
40.026	6929.93	14.7	0.519	14.6	10.3	4.47	3.54%	Coarse Alluvium	0.056	111.0	2.23	0.000	2.23	0	6	4.17%	3.3	36%	2.39	0.000	2.39
40.190	6929.77	17.1	0.478	17.0	12.7	5.51	2.80%	Coarse Alluvium	0.056	111.0	2.24	0.000	2.24	0	7	3.22%	3.2	36%	2.39	0.000	2.39
40.354	6929.61	14.2	0.422	14.2	12.9	5.59	2.97%	Coarse Alluvium	0.056	111.0	2.25	0.000	2.25	0	5	3.52%	3.3	36%	2.40	0.000	2.40
40.518	6929.44	13.0	0.410	12.9	12.9	5.57	3.17%	Coarse Alluvium	0.056	111.0	2.26	0.000	2.26	0	5	3.83%	3.3	36%	2.41	0.000	2.41
40.682	6929.28	23.9	0.504	23.8	14.0	6.06	2.11%	Coarse Alluvium	0.056	111.0	2.27	0.000	2.27	0	10	2.33%	3.0	36%	2.42	0.000	2.42
40.846	6929.11	25.6	0.512	25.5	13.5	5.86	2.00%	Coarse Alluvium	0.056	111.0	2.28	0.000	2.28	0	10	2.20%	2.9	36%	2.43	0.000	2.43
41.010	6928.95	15.1	0.406	15.0	11.3	4.88	2.70%	Fine Alluvium	0.060	120.7	2.29	0.000	2.29	0	6	3.18%	3.2	76%	2.44	0.000	2.44
41.174	6928.79	11.0	0.271	10.9	12.3	5.35	2.47%	Fine Alluvium	0.060	120.7	2.30	0.000	2.30	0	4	3.12%	3.4	76%	2.45	0.000	2.45
41.338	6928.62	11.6	0.279	11.5	13.2	5.72	2.40%	Fine Alluvium	0.060	120.7	2.31	0.000	2.31	0	4	2.99%	3.3	76%	2.46	0.000	2.46
41.502	6928.46	12.9	0.347	12.8	14.3	6.18	2.69%	Fine Alluvium	0.060	120.7	2.32	0.000	2.32	0	5	3.28%	3.3	76%	2.47	0.000	2.47
41.666	6928.29	13.9	0.451	13.8	15.0	6.49	3.25%	Fine Alluvium	0.060	120.7	2.32	0.000	2.32	0	5	3.91%	3.3	76%	2.48	0.000	2.48
41.830	6928.13	14.2	0.509	14.2	15.6	6.77	3.57%	Fine Alluvium	0.060	120.7	2.33	0.000	2.33	0	5	4.27%	3.3	76%	2.49	0.000	2.49
41.994	6927.97	14.6	0.644	14.5	16.5	7.16	4.42%	Fine Alluvium	0.060	120.7	2.34	0.000	2.34	0	5	5.27%	3.4	76%	2.50	0.000	2.50
42.158	6927.80	15.0	0.690	14.9	16.4	7.10	4.61%	Fine Alluvium	0.060	120.7	2.35	0.000	2.35	0	5	5.48%	3.4	76%	2.51	0.000	2.51
42.322	6927.64	13.0	0.710	12.9	15.2	6.59	5.48%	Fine Alluvium	0.060	120.7	2.36	0.000	2.36	0	4	6.70%	3.5	76%	2.52	0.000	2.52
42.486	6927.47	10.7	0.483	10.6	14.9	6.45	4.53%	Fine Alluvium	0.060	120.7	2.37	0.000	2.37	0	3	5.82%	3.5	76%	2.53	0.000	2.53
42.650	6927.31	9.8	0.207	9.8	15.4	6.67	2.10%	Fine Alluvium	0.060	120.7	2.38	0.000	2.38	0	3	2.77%	3.4	76%	2.54	0.000	2.54
42.814	6927.15	9.2	0.109	9.1	15.4	6.67	1.18%	Fine Alluvium	0.060	120.7	2.39	0.000	2.39	0	3	1.60%	3.3	76%	2.55	0.000	2.55
42.978	6926.98	8.4	0.087	8.4	15.4	6.69	1.03%	Fine Alluvium	0.060	120.7	2.40	0.000	2.40	0	3	1.44%	3.4	76%	2.56	0.000	2.56
43.143	6926.82	9.1	0.090	9.0	16.1	6.96	0.99%	Fine Alluvium	0.060	120.7	2.41	0.000	2.41	0	3	1.35%	3.3	76%	2.57	0.000	2.57
43.307	6926.65	8.8	0.107	8.7	16.2	7.04	1.21%	Fine Alluvium	0.060	120.7	2.42	0.000	2.42	0	3	1.67%	3.4	76%	2.58	0.000	2.58
43.471	6926.49	9.7	0.210	9.6	16.2	7.04	2.16%	Fine Alluvium	0.060	120.7	2.43	0.000	2.43	0	3	2.88%	3.4	76%	2.59	0.000	2.59
43.635	6926.33	11.7	0.290	11.6	16.9	7.32	2.48%	Fine Alluvium	0.060	120.7	2.44	0.000	2.44	0	4	3.13%	3.4	76%	2.60	0.000	2.60
43.799	6926.16	13.8	0.263	13.6	18.5	8.01	1.91%	Fine Alluvium	0.060	120.7	2.45	0.000	2.45	0	5	2.33%	3.2	76%	2.61	0.000	2.61
43.963	6926.00	12.9	0.317	12.8	19.0	8.24	2.46%	Fine Alluvium	0.060	120.7	2.46	0.000	2.46	0	4	3.05%	3.3	76%	2.62	0.000	2.62
44.127	6925.83	15.4	0.290	15.2	19.3	8.36	1.89%	Fine Alluvium	0.060	120.7	2.47	0.000	2.47	0	5	2.25%	3.2	76%	2.63	0.000	2.63
44.291	6925.67	16.2	0.444	16.1	18.7	8.09	2.73%	Fine Alluvium	0.060	120.7	2.48	0.000	2.48	0	6	3.23%	3.2	76%	2.64	0.000	2.64
44.455	6925.51	19.0	0.619	18.9	17.9	7.75	3.25%	Fine Alluvium	0.060	120.7	2.49	0.000	2.49	0	7	3.74%	3.2	76%	2.65	0.000	2.65
44.619	6925.34	16.5	0.622	16.4	18.4	7.95	3.77%	Fine Alluvium	0.060	120.7	2.50	0.000	2.50	0	6	4.45%	3.3	76%	2.66	0.000	2.66
44.783	6925.18	11.3	0.514	11.2	18.1	7.85	4.56%	Fine Alluvium	0.060	120.7	2.51	0.000	2.51	0	3	5.87%	3.5	76%	2.67	0.000	2.67
44.947	6925.01	15.2	0.482	15.0	19.7	8.52	3.18%	Fine Alluvium	0.060	120.7	2.52	0.000	2.52	0	5	3.81%	3.3	76%	2.68	0.000	2.68
45.111	6924.85	21.0	0.542	20.8	19.9	8.62	2.59%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	7	2.94%	3.1	36%	2.69	0.000	2.69
45.275	6924.69	18.8	0.680	18.7	14.4	6.22	3.62%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0	6	4.19%	3.2	36%	2.70	0.000	2.70
45.439	6924.52	25.5	0.737	25.4	13.2	5.73	2.90%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0	9	3.22%	3.1	36%	2.71	0.000	2.71
45.603	6924.36	28.9	0.830	28.9	10.9	4.72	2.87%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0	10	3.15%	3.0	36%	2.71	0.000	2.71
45.767	6924.19	28.9	0.839	28.8	9.7	4.19	2.91%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0	10	3.19%	3.0	36%	2.72	0.000	2.72
45.931	6924.03	32.1	0.965	32.0	8.5	3.70	3.01%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0	11	3.27%	3.0	36%	2.73	0.000	2.73
46.095	6923.87	29.2	0.831	29.1	7.6	3.29	2.85%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0	10	3.13%	3.0	36%	2.74	0.000	2.74
46.259	6923.70	23.2	0.704	23.2	7.7	3.32	3.03%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	8	3.41%	3.1	36%	2.75	0.000	2.75
46.423	6923.54	19.5	0.636	19.5	7.7	3.34	3.25%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	7	3.75%	3.2	36%	2.76	0.000	2.76
46.587	6923.37	34.9	0.734	34.9	10.2	4.43	2.10%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0	12	2.27%	2.9	36%	2.77	0.000	2.77
46.751	6923.21	41.4	0.764	41.3	8.5	3.68	1.85%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0	15	1.97%	2.8	36%	2.78	0.000	2.78
46.915	6923.05	43.4	0.957	43.3	6.5	2.81	2.21%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	15	2.35%	2.8	36%	2.79	0.000	2.79
47.079	6922.88	41.7	1.129	41.7	4.8	2.09	2.71%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0	15	2.89%	2.8	36%	2.80	0.000	2.80
47.244	6922.72	35.5	0.778	35.5	5.5	2.38	2.19%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0	12	2.37%	2.9	36%	2.81	0.000	2.81
47.408	6922.55	41.5	0.774	41.4	7.2	3.13	1.87%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0	15	1.99%	2.8	36%	2.81	0.000	2.81
47.572	6922.39	47.0	0.889	46.9	8.0	3.48	1.89%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0	17	2.01%	2.7	36%	2.82	0.000	2.82
47.736	6922.22	43.7	1.000	43.7	6.9	2.97	2.29%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0	15	2.44%	2.8	36%	2.83	0.000	2.83
47.900	6922.06	48.6	0.997	48.6	7.0	3.01	2.05%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0	17	2.17%	2.7	36%	2.84	0.000	2.84
48.064	6921.90	47.7	1.174	47.6	6.9	2.97	2.46%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	17	2.61%	2.8	36%	2.85	0.000	2.85
48.228	6921.73	32.1	0.918	32.1	5.9	2.56	2.86%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	11	3.12%	3.0	36%	2.86	0.000	2.86
48.392	6921.57	24.6	0.727	24.5	7.5	3.25	2.96%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	8	3.32%	3.1	36%	2.87	0.000	2.87
48.556	6921.40	46.0	0.716	46.0	11.7	5.08	1.56%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0	16	1.65%	2.7	36%	2.88	0.000	2.88
48.720	6921.24	58.0	0.836	57.9	10.5	4.55	1.44%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	20	1.51%	2.6	36%	2.89	0.000	2.89
48.884	6921.08	62.6	0.904	62.5	9.3	4.03	1.44%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0	22	1.51%	2.5	36%	2.90	0.000	2.90
49.048	6920.91	62.1	1.028	62.0	8.8	3.80	1.66%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	22	1.73%	2.6	36%	2.91	0.000	2.91
49.212	6920.75	55.8	1.366	55.7	8.1	3.52	2.45%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	19	2.58%	2.7	36%	2.91	0.000	2.91

11.74	762	1.7E-03	1.0E+03	41	0.5843	2.5E-04	0	0.250	0.252	4	0.250	7248	4964	1400	7248	0.050%	2.00	1.00	0.01%	0.000800	0.36	0.025	0.785	0.13%	0.0002
11.79	762	1.7E-03	1.0E+03	40	0.5799	2.5E-04	0	0.250	0.252	4	0.250	7235	4955	1400	7235	0.050%	2.00	1.00	0.01%	0.000791	0.36	0.025	0.785	0.12%	0.0002
11.84	762	1.7E-03	1.0E+03	40	0.5755	2.5E-04	0	0.250	0.252	4	0.250	7223	4947	1400	7223	0.049%	2.00	1.00	0.01%	0.000783	0.36	0.025	0.785	0.12%	0.0002
11.89	762	1.7E-03	1.0E+03	39	0.5711	2.5E-04	0	0.251	0.253	4	0.251	7211	4938	1400	7211	0.049%	2.00	1.00	0.01%	0.000774	0.36	0.025	0.785	0.12%	0.0002
11.94	762	1.7E-03	1.0E+03	39	0.5666	2.5E-04	0	0.251	0.253	4	0.251	7199	4930	1400	7199	0.048%	2.00	1.00	0.01%	0.000765	0.36	0.025	0.785	0.12%	0.0002
11.99	762	1.7E-03	1.0E+03	39	0.5622	2.4E-04	0	0.251	0.253	4	0.251	7187	4921	1400	7187	0.048%	2.00	1.00	0.01%	0.000757	0.36	0.025	0.785	0.12%	0.0002
12.04	762	1.7E-03	1.0E+03	38	0.5577	2.4E-04	0	0.251	0.253	4	0.251	7175	4913	1400	7175	0.047%	2.00	1.00	0.01%	0.000748	0.36	0.025	0.785	0.12%	0.0002
12.09	762	1.7E-03	1.0E+03	38	0.5533	2.4E-04	0	0.251	0.254	4	0.251	7163	4905	1400	7163	0.047%	2.00	1.00	0.01%	0.000739	0.36	0.025	0.785	0.12%	0.0002
12.14	762	1.7E-03	1.0E+03	37	0.5488	2.4E-04	0	0.252	0.254	4	0.252	7151	4897	1400	7151	0.047%	2.00	1.00	0.01%	0.000730	0.36	0.025	0.785	0.11%	0.0002
12.19	762	1.7E-03	1.0E+03	37	0.5443	2.4E-04	0	0.252	0.254	4	0.252	7139	4888	1400	7139	0.046%	2.00	1.00	0.01%	0.000721	0.36	0.025	0.785	0.11%	0.0002
12.24	762	1.7E-03	1.0E+03	37	0.5398	2.4E-04	0	0.252	0.255	4	0.252	7127	4880	1400	7127	0.046%	2.00	1.00	0.01%	0.000712	0.36	0.025	0.785	0.11%	0.0002
12.29	762	1.7E-03	1.0E+03	36	0.5353	2.4E-04	0	0.252	0.255	4	0.252	7116	4872	1400	7116	0.045%	2.00	1.00	0.01%	0.000703	0.36	0.025	0.785	0.11%	0.0002
12.34	762	1.7E-03	1.0E+03	36	0.5308	2.4E-04	0	0.253	0.255	4	0.253	7104	4864	1400	7104	0.045%	2.00	1.00	0.01%	0.000694	0.36	0.025	0.785	0.11%	0.0002
12.39	762	1.7E-03	1.0E+03	36	0.5263	2.4E-04	0	0.253	0.255	4	0.253	7093	4856	1400	7093	0.044%	2.00	1.00	0.01%	0.000685	0.36	0.025	0.785	0.11%	0.0002
12.44	762	1.7E-03	1.0E+03	35	0.5218	2.3E-04	0	0.253	0.256	4	0.253	7081	4848	1400	7081	0.044%	2.00	1.00	0.01%	0.000676	0.36	0.025	0.785	0.11%	0.0002
12.49	762	1.7E-03	1.0E+03	35	0.5172	2.3E-04	0	0.253	0.256	4	0.253	7070	4840	1400	7070	0.043%	2.00	1.00	0.01%	0.000666	0.36	0.025	0.785	0.10%	0.0002
12.54	762	1.7E-03	1.0E+03	35	0.5127	2.3E-04	0	0.254	0.256	4	0.254	7058	4832	1400	7058	0.043%	2.00	1.00	0.01%	0.000657	0.36	0.025	0.785	0.10%	0.0002
12.59	762	1.7E-03	1.0E+03	34	0.5081	2.3E-04	0	0.254	0.256	4	0.254	7047	4824	1400	7047	0.042%	2.00	1.00	0.01%	0.000648	0.36	0.025	0.785	0.10%	0.0002
12.64	762	1.7E-03	1.0E+03	34	0.5036	2.3E-04	0	0.254	0.257	4	0.254	7036	4816	1400	7036	0.042%	2.00	1.00	0.01%	0.000639	0.36	0.025	0.785	0.10%	0.0002
12.69	772	1.7E-03	1.0E+03	34	0.4990	2.2E-04	0	0.254	0.257	4	0.254	7025	4808	1400	7025	0.040%	2.00	1.00	0.01%	0.000590	0.36	0.025	0.785	0.09%	0.0002
12.74	772	1.7E-03	1.0E+03	34	0.4945	2.2E-04	0	0.254	0.257	4	0.254	7014	4801	1400	7014	0.039%	2.00	1.00	0.01%	0.000581	0.36	0.025	0.785	0.09%	0.0001
12.79	772	1.7E-03	1.0E+03	33	0.4899	2.2E-04	0	0.255	0.257	4	0.255	7003	4793	1400	7003	0.039%	2.00	1.00	0.01%	0.000573	0.36	0.025	0.785	0.09%	0.0001
12.84	772	1.7E-03	1.0E+03	33	0.4854	2.2E-04	0	0.255	0.258	4	0.255	6992	4785	1400	6992	0.038%	2.00	1.00	0.01%	0.000564	0.36	0.025	0.785	0.09%	0.0001
12.89	772	1.7E-03	1.0E+03	33	0.4808	2.2E-04	0	0.255	0.258	4	0.255	6981	4778	1400	6981	0.038%	2.00	1.00	0.01%	0.000556	0.36	0.025	0.785	0.09%	0.0001
12.94	772	1.7E-03	1.0E+03	32	0.4763	2.2E-04	0	0.255	0.258	4	0.255	6970	4770	1400	6970	0.037%	2.00	1.00	0.01%	0.000547	0.36	0.025	0.785	0.09%	0.0001
12.99	772	1.7E-03	1.0E+03	32	0.4717	2.2E-04	0	0.256	0.259	4	0.256	6959	4763	1400	6959	0.037%	2.00	1.00	0.01%	0.000539	0.36	0.025	0.785	0.08%	0.0001
13.04	772	1.7E-03	1.0E+03	32	0.4671	2.1E-04	0	0.256	0.259	4	0.256	6948	4755	1400	6948	0.037%	2.00	1.00	0.01%	0.000530	0.36	0.025	0.785	0.08%	0.0001
13.09	772	1.7E-03	1.0E+03	32	0.4626	2.1E-04	0	0.256	0.259	4	0.256	6938	4748	1400	6938	0.036%	2.00	1.00	0.01%	0.000521	0.36	0.025	0.785	0.08%	0.0001
13.14	772	1.9E-03	1.1E+03	31	0.4580	2.0E-04	22	0.256	0.259	4	2.005	6926	4740	1400	3181	0.031%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.19	772	1.9E-03	1.1E+03	31	0.4535	1.9E-04	22	0.257	0.260	4	2.005	6915	4732	1400	3177	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.24	772	1.9E-03	1.1E+03	31	0.4489	1.9E-04	22	0.257	0.260	4	2.005	6903	4724	1400	3173	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.29	772	1.9E-03	1.1E+03	31	0.4444	1.9E-04	22	0.257	0.260	4	2.005	6892	4716	1400	3168	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.34	772	1.9E-03	1.1E+03	30	0.4398	1.9E-04	22	0.257	0.260	4	2.006	6881	4708	1400	3164	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.39	772	1.9E-03	1.1E+03	30	0.4353	1.9E-04	22	0.257	0.261	4	2.006	6869	4700	1400	3160	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.44	772	1.9E-03	1.1E+03	30	0.4308	1.9E-04	22	0.258	0.261	4	2.006	6858	4692	1400	3156	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.49	772	1.9E-03	1.1E+03	30	0.4263	1.9E-04	22	0.258	0.261	4	2.006	6847	4684	1400	3152	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.54	772	1.9E-03	1.1E+03	29	0.4218	1.9E-04	22	0.258	0.261	4	2.006	6836	4677	1400	3148	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.59	772	1.9E-03	1.1E+03	29	0.4172	1.8E-04	22	0.258	0.262	4	2.006	6825	4669	1400	3144	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.64	772	1.9E-03	1.1E+03	29	0.4128	1.8E-04	22	0.259	0.262	4	2.006	6814	4662	1400	3139	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.69	772	1.9E-03	1.1E+03	29	0.4083	1.8E-04	22	0.259	0.262	4	2.007	6803	4654	1400	3135	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.74	772	1.9E-03	1.1E+03	29	0.4038	1.8E-04	22	0.259	0.263	4	2.007	6793	4646	1400	3131	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.79	772	1.9E-03	1.1E+03	28	0.3993	1.8E-04	22	0.259	0.263	4	2.007	6782	4639	1400	3127	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.84	772	1.9E-03	1.1E+03	28	0.3948	1.8E-04	22	0.260	0.263	4	2.007	6771	4631	1400	3123	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.89	772	1.9E-03	1.1E+03	28	0.3904	1.8E-04	22	0.260	0.263	4	2.007	6760	4624	1400	3119	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.94	772	1.9E-03	1.1E+03	28	0.3860	1.8E-04	22	0.260	0.264	4	2.007	6750	4617	1400	3116	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.99	772	1.9E-03	1.1E+03	28	0.3815	1.7E-04	22	0.260	0.264	4	2.007	6739	4609	1400	3112	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.04	772	1.9E-03	1.1E+03	27	0.3771	1.7E-04	22	0.260	0.264	4	2.008	6729	4602	1400	3108	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.09	772	1.9E-03	1.1E+03	27	0.3728	1.7E-04	22	0.261	0.264	4	2.008	6719	4595	1400	3104	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.14	772	1.9E-03	1.1E+03	27	0.3684	1.7E-04	22	0.261	0.265	4	2.008	6708	4588	1400	3100	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.19	772	1.9E-03	1.1E+03	27	0.3640	1.7E-04	22	0.261	0.265	4	2.008	6698	4580	1400	3096	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.24	794	1.9E-03	1.2E+03	27	0.3597	1.6E-04	22	0.261	0.265	4	2.008	6688	4573	1400	3092	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.29	794	1.9E-03	1.2E+03	26	0.3553	1.6E-04	22	0.262	0.265	4	2.008	6677	4566	1400	3089	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.34	794	1.9E-03	1.2E+03	26	0.3510	1.6E-04	22	0.262	0.266	4	2.008	6667	4559	1400	3085	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.39	794	1.7E-03	1.1E+03	26	0.3467	1.7E-04	0	0.262	0.266	4	0.262	6658	4553	1400	6658	0.024%	2.00	1.00	0.01%	0.000276	0.36	0.025	0.785	0.04%	0.0001
14.44	794	1.7E-03	1.1E+03	26	0.3425	1.7E-04	0	0.262	0.266	4	0.262	6649	4546	1400	6649	0.023%	2.00	1.00	0.01%	0.000269	0.36	0.025	0.785	0.04%	0.0001
14.49	794	1.7E-03	1.1E+03	26	0.3382	1.6E-04	0	0.262	0.266	4	0.262	6640	4540	1400	6640	0.023%	2.00	1.00	0.01%	0.000263	0.36	0.025	0.785	0.04%	0.0001
14.54	794	1.7E-03	1.1E+03	26	0.3340	1.6E-04	0	0.263	0.267	4	0.263	6631	4533	1400	6631	0.023%	2.00	1.00	0.01%	0.000256	0.36	0.025	0.785	0.04%	0.0001
14.59	794	1.7E-03	1.1E+03	25	0.3297	1.6E-04	0	0.263	0.267	4	0.263	6621	4527	1400	6621	0.023%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
14.64	794	1.7E-03	1.1E+03	25	0.3255	1.6E-04	0	0.263	0.267	4	0.263	6612	4521	1400	6612	0.022%	2.00	1.00	0.01%	0.000243	0.36	0.025	0.785	0.04%	0.0001
14.69	794	1.7E-03	1.1E+03	25	0.3214	1.6E-04	0	0.263	0.267	4	0.263	6603	4514	1400	6603	0.022%	2.00	1.00	0.01%	0.000237	0.36	0.025	0.785	0.04%	0.0001
14.74	794	1.7E-03	1.1E+03	25	0.3172	1.6E-04	0	0.263	0.268	4	0.263	6594	4508	1400	6594	0.022%	2.00	1.00	0.01%	0.000231	0.36	0.025	0.785	0.04%	0.0001
14.79	794	1.7E-03	1.1E+03	25	0.3131	1.6E-04	0	0.264	0.268	4	0.264	6585	4502	1400	6585	0.021%	2.00	1.00	0.01%	0.000225	0.36	0.025	0.785	0.04%	0.0001
14.84	794	1.7E-03	1.1E+03	25	0.3090	1.5E-04	0	0.264	0.268	4	0.264	6577	4496	1400	6577	0.021%	2.00	1.00	0.01%	0.000219	0.36	0.025	0.785	0.03%	0.0001
14.89	794	1.7E-03	1.1E+03	25	0.3049	1.5E-04	0	0.264	0.268	4	0.264	6568	4490	1400	6568	0.021%	2.00	1.00	0.01%	0.000212	0.36	0.025	0.785	0.03%	0.0001
14.94	794	1.7E-03	1.1E+03	24	0.3008	1.5E-04	0	0.264	0.269	4	0.264	6559	4484	1400	6559	0.020%	2.00	1.00	0.01%	0.000206	0.36	0.025	0.785	0.03%	0.0001
14.99	794	1.7E-03	1.1E+03	24	0.2967	1.5E-04	0	0.264	0.269	4	0.264	6550	4477	1400	6550	0.020%	2.00	1.00	0.01%	0.000200	0.36	0.025	0.785	0.03%	0.0001
15.04	794	1.7E-03	1.1E+03	24	0.2927	1.5E-04	0	0.265	0.269	4	0.265	6541	4471	1400	6541	0.020%	2.00	1.00	0.01%	0.000194	0.36	0.025	0.785	0.03%	0.0001
15.09	794	1.7E-03	1.1E+03	24	0.2887	1.5E-04	0	0.265	0.269	4	0.265	6533	4465	1400	6533	0.019%	2.00	1.00	0.01%	0.000189	0.36	0.025	0.785	0.03%	0.0000
15.14	794	1.7E-03	1.1E+03	24	0.2847	1.4E-04	0	0.265	0.270	4	0.265	6524	4459	1400	6524	0.019%	2.00	1.00	0.01%	0.000183	0.36	0.025	0.785	0.03%	0.0000
15.19	794	1.7E-03	1.1E+03	24	0.2808	1.4E-04	0	0.265	0.270	4	0.265	6515	4453	1400	6515	0.019%	2.00	1.00	0.01%	0.000177	0.36	0.025	0.785	0.03%	0.0000
15.24	794	1.7E-03	1.1E+03	24	0.2768	1.4E-04	0	0.265	0.270	4	0.265	6507	4447	1400	6507	0.019%	2.00	1.00	0.01%	0.000171	0.36	0.025	0.785	0.03%	0.0000
15.29	794	1.7E-03	1.1E+03	24	0.2729	1.4E-04	0	0.266	0.270	4	0.266	6498	4441	1400	6498	0.018%	2.00	1.00	0.01%	0.000166	0.36	0.025	0.785	0.03%	0.0000
15.34	794	1.7E-03	1.1E+03	23	0.2691	1.4E-04	0	0.266	0.270	4	0.266	6490	4435	1400	6490	0.018%	2.00	1.00	0.01%	0.000160	0.36	0.025	0.785	0.03%	0.0000
15.39	794	1.7E-03	1.1E+03	23	0.2652	1.4E-04	0	0.266	0.271	4	0.266	6481	4430	1400	6481	0.018%	2.00	1.00	0.01%	0.000154	0.36	0.025	0.785	0.02%	0.0000
15.44	794	1.7E-03	1.1E+03	23	0.2614	1.3E-04	0	0.266	0.271	4	0.266	6473	4424	1400	6473	0.017%	2.00	1.00	0.01%	0.000149	0.36	0.025	0.785	0.02%	0.0000
15.49	794	1.7E-03	1.1E+03	23	0.2576	1.3E-04	0	0.266	0.271	4	0.266	6465	4418	1400	6465	0.017%	2.00	1.00	0.01%	0.000144	0.36	0.025	0.785	0.02%	0.0000
15.54	794	1.7E-03	1.1E+03	23	0.2538	1.3E-04	0	0.267	0.271	4	0.267	6456	4412	1400	6456	0.017%	2.00	1.00	0.01%	0.000138	0.36	0.025	0.785	0.02%	0.0000
15.59	794	1.7E-03	1.1E+03	23	0.2501	1.3E-04	0	0.267	0.272	4	0.267	6448	4406	1400	6448	0.017%	2.00	1.00	0.01%	0.000133	0.36	0.025	0.785	0.02%	0.0000
15.64	794	1.7E-03	1.1E+03	23	0.2464	1.3E-04	0	0.267	0.272	4	0.267	6440	4400	1400	6440	0.016%	2.00	1.00	0.01%	0.000128	0.36	0.025	0.785	0.02%	0.0000

49.376	6920.58	47.5	1.425	47.4	7.9	3.41	3.00%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	16	3.19%	2.8	36%	2.92	0.000	2.92
49.540	6920.42	52.9	1.319	52.8	9.3	4.05	2.49%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	18	2.63%	2.8	36%	2.93	0.000	2.93
49.704	6920.26	79.2	1.156	79.1	11.2	4.84	1.46%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	27	1.51%	2.5	36%	2.94	0.000	2.94
49.868	6920.09	84.1	1.040	84.0	9.0	3.88	1.24%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	29	1.28%	2.4	36%	2.95	0.000	2.95
50.032	6919.93	78.1	1.275	78.0	8.2	3.56	1.63%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	27	1.69%	2.5	36%	2.96	0.000	2.96
50.196	6919.76	71.0	1.386	70.9	6.5	2.81	1.95%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	24	2.03%	2.6	36%	2.97	0.000	2.97
50.360	6919.60	58.9	1.466	58.8	5.6	2.42	2.49%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	20	2.62%	2.7	36%	2.98	0.000	2.98
50.524	6919.44	46.0	1.404	46.0	6.0	2.58	3.05%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	15	3.25%	2.9	36%	2.99	0.000	2.99
50.688	6919.27	39.8	1.521	39.8	7.5	3.23	3.82%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	13	4.11%	3.0	36%	3.00	0.000	3.00
50.852	6919.11	39.8	1.421	39.8	10.9	4.74	3.57%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	13	3.84%	3.0	36%	3.01	0.000	3.01
51.016	6918.94	38.2	1.237	38.2	10.5	4.54	3.23%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	12	3.50%	3.0	36%	3.02	0.000	3.02
51.180	6918.78	48.6	1.265	48.6	11.5	5.00	2.60%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	16	2.76%	2.8	36%	3.02	0.000	3.02
51.345	6918.62	38.1	1.273	38.0	10.0	4.33	3.35%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	12	3.62%	3.0	36%	3.03	0.000	3.03
51.509	6918.45	24.4	1.043	24.4	9.6	4.17	4.27%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	7	4.85%	3.2	36%	3.04	0.000	3.04
51.673	6918.29	18.9	0.809	18.9	11.0	4.76	4.27%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	6	5.04%	3.3	36%	3.05	0.000	3.05
51.837	6918.12	25.2	0.801	25.1	13.9	6.04	3.18%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	8	3.59%	3.1	36%	3.06	0.000	3.06
52.001	6917.96	33.6	0.957	33.5	13.3	5.75	2.85%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	11	3.12%	3.0	36%	3.07	0.000	3.07
52.165	6917.80	27.5	0.873	27.5	12.3	5.35	3.17%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	8	3.55%	3.1	36%	3.08	0.000	3.08
52.329	6917.63	28.7	0.771	28.6	14.6	6.31	2.69%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	9	2.99%	3.0	36%	3.09	0.000	3.09
52.493	6917.47	40.7	0.801	40.6	14.3	6.20	1.97%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	13	2.12%	2.8	36%	3.10	0.000	3.10
52.657	6917.30	42.7	0.837	42.6	13.0	5.61	1.96%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	13	2.11%	2.8	36%	3.11	0.000	3.11
52.821	6917.14	49.9	1.040	49.8	13.7	5.92	2.09%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	16	2.22%	2.8	36%	3.12	0.000	3.12
52.985	6916.98	36.6	0.853	36.5	11.4	4.94	2.33%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	11	2.54%	2.9	36%	3.12	0.000	3.12
53.149	6916.81	26.6	0.712	26.5	13.3	5.78	2.68%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	8	3.02%	3.1	36%	3.13	0.000	3.13
53.313	6916.65	40.8	0.641	40.7	17.1	7.40	1.57%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	13	1.69%	2.8	36%	3.14	0.000	3.14
53.477	6916.48	22.2	0.629	22.1	14.2	6.16	2.83%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	6	3.27%	3.2	36%	3.15	0.000	3.15
53.641	6916.32	17.0	0.519	16.8	28.5	12.36	3.05%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	5	3.71%	3.3	36%	3.16	0.000	3.16
53.805	6916.16	16.1	0.351	15.7	49.7	21.54	2.19%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	4	2.69%	3.3	36%	3.17	0.000	3.17
53.969	6915.99	14.7	0.375	14.3	59.4	25.74	2.55%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	4	3.21%	3.4	36%	3.18	0.000	3.18
54.133	6915.83	14.9	0.382	14.5	64.3	27.88	2.57%	Fine Alluvium	0.060	120.7	3.03	0.000	3.03	0	4	3.23%	3.4	76%	3.19	0.000	3.19
54.297	6915.66	13.7	0.398	13.3	68.7	29.75	2.89%	Fine Alluvium	0.060	120.7	3.04	0.000	3.04	0	4	3.72%	3.4	76%	3.20	0.000	3.20
54.461	6915.50	14.4	0.410	14.0	76.7	33.25	2.84%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	4	3.60%	3.4	76%	3.21	0.000	3.21
54.625	6915.34	15.7	0.436	15.2	81.0	35.10	2.77%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	4	3.44%	3.4	76%	3.22	0.000	3.22
54.789	6915.17	17.2	0.548	16.6	83.5	36.18	3.19%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	5	3.89%	3.3	76%	3.23	0.000	3.23
54.953	6915.01	16.3	0.656	15.9	76.6	33.19	4.01%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	4	4.95%	3.4	76%	3.24	0.000	3.24
55.117	6914.84	15.2	0.713	14.8	69.0	29.91	4.68%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	4	5.88%	3.5	76%	3.25	0.000	3.25
55.281	6914.68	15.5	0.701	15.0	80.6	34.92	4.53%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	4	5.66%	3.5	76%	3.26	0.000	3.26
55.446	6914.51	15.0	0.675	14.5	79.8	34.59	4.51%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	4	5.69%	3.5	76%	3.27	0.000	3.27
55.610	6914.35	15.3	0.663	14.9	68.4	29.65	4.32%	Fine Alluvium	0.060	120.7	3.12	0.000	3.12	0	4	5.43%	3.5	76%	3.28	0.000	3.28
55.774	6914.19	14.9	0.533	14.5	63.7	27.59	3.57%	Fine Alluvium	0.060	120.7	3.13	0.000	3.13	0	4	4.52%	3.4	76%	3.29	0.000	3.29
55.938	6914.02	13.6	0.493	13.2	65.5	28.37	3.63%	Fine Alluvium	0.060	120.7	3.14	0.000	3.14	0	3	4.71%	3.5	76%	3.30	0.000	3.30
56.102	6913.86	14.4	0.578	14.0	73.3	31.76	4.01%	Fine Alluvium	0.060	120.7	3.15	0.000	3.15	0	4	5.13%	3.5	76%	3.31	0.000	3.31
56.266	6913.69	14.5	0.590	14.1	71.2	30.85	4.06%	Fine Alluvium	0.060	120.7	3.16	0.000	3.16	0	4	5.19%	3.5	76%	3.32	0.000	3.32
56.430	6913.53	17.5	0.577	17.1	69.8	30.24	3.29%	Fine Alluvium	0.060	120.7	3.17	0.000	3.17	0	5	4.02%	3.4	76%	3.33	0.000	3.33
56.594	6913.37	15.9	0.466	15.5	57.7	25.01	2.94%	Fine Alluvium	0.060	120.7	3.18	0.000	3.18	0	4	3.68%	3.4	76%	3.34	0.000	3.34
56.758	6913.20	16.8	0.549	16.4	70.4	30.50	3.26%	Fine Alluvium	0.060	120.7	3.19	0.000	3.19	0	4	4.03%	3.4	76%	3.35	0.000	3.35
56.922	6913.04	14.0	0.604	13.6	59.7	25.85	4.31%	Fine Alluvium	0.060	120.7	3.20	0.000	3.20	0	3	5.59%	3.5	76%	3.36	0.000	3.36
57.086	6912.87	17.9	0.493	17.3	102.7	44.52	2.75%	Fine Alluvium	0.060	120.7	3.21	0.000	3.21	0	5	3.35%	3.3	76%	3.37	0.000	3.37
57.250	6912.71	15.9	0.489	15.4	92.2	39.96	3.07%	Fine Alluvium	0.060	120.7	3.22	0.000	3.22	0	4	3.85%	3.4	76%	3.38	0.000	3.38
57.414	6912.55	28.5	0.706	27.8	111.8	48.44	2.48%	Fine Alluvium	0.060	120.7	3.23	0.000	3.23	0	8	2.80%	3.1	76%	3.39	0.000	3.39
57.578	6912.38	22.3	0.699	22.1	36.5	15.80	3.13%	Fine Alluvium	0.060	120.7	3.24	0.000	3.24	0	6	3.66%	3.2	76%	3.40	0.000	3.40
57.742	6912.22	16.0	0.681	15.7	45.5	19.70	4.27%	Fine Alluvium	0.060	120.7	3.25	0.000	3.25	0	4	5.36%	3.5	76%	3.41	0.000	3.41
57.906	6912.05	15.3	0.630	14.9	65.0	28.15	4.13%	Fine Alluvium	0.060	120.7	3.26	0.000	3.26	0	4	5.25%	3.5	76%	3.42	0.000	3.42
58.070	6911.89	15.4	0.616	14.9	80.3	34.79	4.01%	Fine Alluvium	0.060	120.7	3.27	0.000	3.27	0	4	5.10%	3.5	76%	3.43	0.000	3.43
58.234	6911.73	16.6	0.775	16.1	81.9	35.49	4.66%	Fine Alluvium	0.060	120.7	3.28	0.000	3.28	0	4	5.80%	3.5	76%	3.44	0.000	3.44
58.398	6911.56	15.7	0.785	15.3	64.2	27.82	5.00%	Fine Alluvium	0.060	120.7	3.29	0.000	3.29	0	4	6.33%	3.5	76%	3.45	0.000	3.45
58.562	6911.40	15.1	0.734	14.7	65.1	28.21	4.87%	Fine Alluvium	0.060	120.7	3.30	0.000	3.30	0	4	6.24%	3.5	76%	3.46	0.000	3.46
58.726	6911.23	16.1	0.599	15.7	70.8	30.67	3.72%	Fine Alluvium	0.060	120.7	3.31	0.000	3.31	0	4	4.68%	3.4	76%	3.47	0.000	3.47
58.890	6911.07	15.8	0.601	15.4	70.5	30.55	3.80%	Fine Alluvium	0.060	120.7	3.32	0.000	3.32	0	4	4.82%	3.5	76%	3.48	0.000	3.48
59.054	6910.91	16.4	0.683	15.9	72.4	31.38	4.17%	Fine Alluvium	0.060	120.7	3.33	0.000	3.33	0	4	5.23%	3.5	76%	3.49	0.000	3.49
59.218	6910.74	16.6	0.710	16.2	71.7	31.05	4.27%	Fine Alluvium	0.060	120.7	3.34	0.000	3.34	0	4	5.34%	3.5	76%	3.50	0.000	3.50
59.382	6910.58	16.9	0.755	16.4	72.6	31.44	4.47%	Fine Alluvium	0.060	120.7	3.35	0.000	3.35	0	4	5.58%	3.5	76%	3.51	0.000	3.51
59.547	6910.41	17.2	0.736	16.8	70.0	30.32	4.28%	Fine Alluvium	0.060	120.7	3.36	0.000	3.36	0	4	5.32%	3.5	76%	3.52	0.000	3.52
59.711	6910.25	16.2	0.713	15.8	67.6	29.30	4.39%	Fine Alluvium	0.060	120.7	3.37	0.000	3.37	0	4	5.54%	3.5	76%	3.53	0.000	3.53
59.875	6910.09	16.1	0.530	15.6	70.7	30.65	3.30%	Fine Alluvium	0.060	120.7	3.38	0.000	3.38	0	4	4.18%	3.4	76%	3.54	0.000	3.54
60.039	6909.92	15.1	0.563	14.7	70.2	30.42	3.73%	Fine Alluvium	0.060	120.7	3.39	0.000	3.39	0	3	4.81%	3.5	76%	3.55	0.000	3.55
60.203	6909.76	17.0	0.683	16.3	120.8	52.33	4.02%	Fine Alluvium	0.060	120.7	3.40	0.000	3.40	0	4	5.02%	3.5	76%	3.56	0.000	3.56
60.367	6909.59	16.6	0.702	16.0	97.1	42.08	4.23%	Fine Alluvium	0.060	120.7	3.41	0.000	3.41	0	4	5.32%	3.5	76%	3.57	0.000	3.57
60.531	6909.43	16.9	0.765	16.3	100.8	43.66	4.53%	Fine Alluvium	0.060	120.7	3.42	0.000	3.42	0	4	5.68%	3.5	76%	3.57	0.000	3.57
60.695	6909.27	17.8	0.836	17.3	87.3	37.84	4.69%	Fine Alluvium	0.060	120.7	3.43	0.000	3.43	0	4	5.81%	3.5	76%	3.58	0.000	3.58
60.859	6909.10	17.1	0.886	16.7	67.4	29.20	5.17%	Fine Alluvium	0.060	120.7	3.44	0.000	3.44	0	4	6.48%	3.5	76%	3.59	0.000	3.59
61.023	6908.94	17.8	0.901	17.4	67.5	29.24	5.06%	Fine Alluvium	0.060	120.7	3.45	0.000	3.45	0	4	6.27%	3.5	76%	3.60	0.000	3.60
61.187	6908.77	20.0	0.996	19.5	79.2	34.31	4.98%	Fine Alluvium	0.060	120.7	3.46	0.000	3.46	0	5	6.02%	3.4	76%	3.61	0.000	3.61
61.351	6908.61	19.7	1.070	19.3	59.3	25.71	5.44%	Fine Alluvium	0.060	120.7	3.47	0.000	3.47	0	5	6.60%	3.5	76%	3.62	0.000	3.62
61.515	6908.45	20.9	1.228	20.6	57.4	24.89	5.86%	Fine Alluvium	0.060	120.7	3.48	0.000	3.48	0	5	7.03%	3.5	76%	3.63	0.000	3.63
61.679	6908.28	21.4	1.231	21.1	52.6	22.80	5.74%	Fine Alluvium	0.060	120.7	3.49	0.000	3.49	0	5	6.86%	3.4	76%	3.64	0.000	3.64
61.843	6908.12	20.1	1.115	19.8	42.1	18.22	5.55%	Fine Alluvium	0.060	120.7	3.50	0.000	3.50	0	5	6.72%	3.5	76%	3.65	0.000	3.65
62.007	6907.95	17.8	0.850	17.5	48.8	21.13	4.78%	Fine Alluvium	0.060	120.7	3.51	0.000	3.51	0	4	5.96%	3.5	76%	3.66	0.000	3.66
62.171	6907.79	16.3	0.630	16.0	52.5	22.74	3.86%	Fine Alluvium	0.060	120.7	3.52	0.000	3.52	0	4	4.92%	3.5	76%	3.67	0.000	3.67
62.335	6907.63	13.9	0.470	13.6	53.7	23.27	3.38%	Fine Alluvium	0.060	120.7	3.53	0.000	3.53	0	3	4.53%	3.5	76%	3.68	0.000	3.68

15.69	794	1.7E-03	1.1E+03	23	0.2427	1.3E-04	0	0.267	0.272	4	0.267	6431	4395	1400	6431	0.016%	2.00	1.00	0.01%	0.000122	0.36	0.025	0.785	0.02%	0.0000
15.74	757	1.7E-03	9.9E+02	22	0.2390	1.4E-04	0	0.267	0.272	4	0.267	6423	4389	1400	6423	0.018%	2.00	1.00	0.01%	0.000160	0.36	0.025	0.785	0.03%	0.0000
15.79	757	1.7E-03	9.9E+02	22	0.2354	1.4E-04	0	0.268	0.272	4	0.268	6415	4383	1400	6415	0.018%	2.00	1.00	0.01%	0.000154	0.36	0.025	0.785	0.02%	0.0000
15.84	757	1.7E-03	9.9E+02	22	0.2318	1.3E-04	0	0.268	0.273	4	0.268	6407	4378	1400	6407	0.017%	2.00	1.00	0.01%	0.000148	0.36	0.025	0.785	0.02%	0.0000
15.89	757	1.7E-03	9.9E+02	22	0.2282	1.3E-04	0	0.268	0.273	4	0.268	6399	4372	1400	6399	0.017%	2.00	1.00	0.01%	0.000142	0.36	0.025	0.785	0.02%	0.0000
15.94	757	1.7E-03	9.9E+02	22	0.2246	1.3E-04	0	0.268	0.273	4	0.268	6391	4366	1400	6391	0.017%	2.00	1.00	0.01%	0.000137	0.36	0.025	0.785	0.02%	0.0000
15.99	757	1.7E-03	9.9E+02	22	0.2211	1.3E-04	0	0.268	0.273	4	0.268	6383	4361	1400	6383	0.017%	2.00	1.00	0.01%	0.000131	0.36	0.025	0.785	0.02%	0.0000
16.04	757	1.7E-03	9.9E+02	22	0.2176	1.3E-04	0	0.269	0.274	4	0.269	6375	4355	1400	6375	0.016%	2.00	1.00	0.01%	0.000125	0.36	0.025	0.785	0.02%	0.0000
16.09	757	1.7E-03	9.9E+02	22	0.2141	1.3E-04	0	0.269	0.274	4	0.269	6367	4350	1400	6367	0.016%	2.00	1.00	0.01%	0.000120	0.36	0.025	0.785	0.02%	0.0000
16.14	757	1.7E-03	9.9E+02	22	0.2107	1.2E-04	0	0.269	0.274	4	0.269	6359	4344	1400	6359	0.016%	2.00	1.00	0.01%	0.000114	0.36	0.025	0.785	0.02%	0.0000
16.19	757	1.7E-03	9.9E+02	22	0.2073	1.2E-04	0	0.269	0.274	4	0.269	6351	4339	1400	6351	0.015%	2.00	1.00	0.01%	0.000109	0.36	0.025	0.785	0.02%	0.0000
16.24	757	1.7E-03	9.9E+02	22	0.2039	1.2E-04	0	0.269	0.274	4	0.269	6343	4333	1400	6343	0.015%	2.00	1.00	0.01%	0.000103	0.36	0.025	0.785	0.02%	0.0000
16.29	757	1.7E-03	9.9E+02	21	0.2006	1.2E-04	0	0.269	0.275	4	0.269	6335	4328	1400	6335	0.015%	2.00	1.00	0.01%	0.000098	0.36	0.025	0.785	0.02%	0.0000
16.34	757	1.7E-03	9.9E+02	21	0.1972	1.2E-04	0	0.270	0.275	4	0.270	6328	4322	1400	6328	0.015%	2.00	1.00	0.01%	0.000093	0.36	0.025	0.785	0.01%	0.0000
16.39	757	1.7E-03	9.9E+02	21	0.1939	1.2E-04	0	0.270	0.275	4	0.270	6320	4317	1400	6320	0.014%	2.00	1.00	0.01%	0.000088	0.36	0.025	0.785	0.01%	0.0000
16.44	757	1.7E-03	9.9E+02	21	0.1907	1.2E-04	0	0.270	0.275	4	0.270	6312	4312	1400	6312	0.014%	2.00	1.00	0.01%	0.000083	0.36	0.025	0.785	0.01%	0.0000
16.49	757	1.7E-03	9.9E+02	21	0.1875	1.1E-04	0	0.270	0.276	4	0.270	6304	4306	1400	6304	0.014%	2.00	1.00	0.01%	0.000078	0.36	0.025	0.785	0.01%	0.0000
16.54	757	1.7E-03	9.9E+02	21	0.1843	1.1E-04	0	0.270	0.276	4	0.270	6297	4301	1400	6297	0.014%	2.00	1.00	0.01%	0.000073	0.36	0.025	0.785	0.01%	0.0000
16.59	757	1.7E-03	9.9E+02	21	0.1811	1.1E-04	0	0.271	0.276	4	0.271	6289	4296	1400	6289	0.013%	2.00	1.00	0.01%	0.000068	0.36	0.025	0.785	0.01%	0.0000
16.64	757	1.7E-03	9.9E+02	21	0.1779	1.1E-04	0	0.271	0.276	4	0.271	6282	4290	1400	6282	0.013%	2.00	1.00	0.01%	0.000063	0.36	0.025	0.785	0.01%	0.0000
16.69	757	1.7E-03	9.9E+02	21	0.1748	1.1E-04	0	0.271	0.276	4	0.271	6274	4285	1400	6274	0.013%	2.00	1.00	0.01%	0.000058	0.36	0.025	0.785	0.01%	0.0000
16.74	757	1.7E-03	9.9E+02	21	0.1718	1.1E-04	0	0.271	0.277	4	0.271	6267	4280	1400	6267	0.013%	2.00	1.00	0.01%	0.000053	0.36	0.025	0.785	0.01%	0.0000
16.79	757	1.7E-03	9.9E+02	21	0.1687	1.0E-04	0	0.271	0.277	4	0.271	6259	4275	1400	6259	0.012%	2.00	1.00	0.01%	0.000049	0.36	0.025	0.785	0.01%	0.0000
16.84	757	1.7E-03	9.9E+02	21	0.1657	1.0E-04	0	0.271	0.277	4	0.271	6252	4269	1400	6252	0.012%	2.00	1.00	0.01%	0.000044	0.36	0.025	0.785	0.01%	0.0000
16.89	757	1.7E-03	9.9E+02	20	0.1627	1.0E-04	0	0.272	0.277	4	0.272	6244	4264	1400	6244	0.012%	2.00	1.00	0.01%	0.000040	0.36	0.025	0.785	0.01%	0.0000
16.94	757	1.7E-03	9.9E+02	20	0.1597	9.9E-05	0	0.272	0.277	4	0.272	6237	4259	1400	6237	0.012%	2.00	1.00	0.01%	0.000035	0.36	0.025	0.785	0.01%	0.0000
16.99	757	1.7E-03	9.9E+02	20	0.1568	9.8E-05	0	0.272	0.278	4	0.272	6229	4254	1400	6229	0.012%	2.00	1.00	0.01%	0.000031	0.36	0.025	0.785	0.00%	0.0000
17.04	757	1.7E-03	9.9E+02	20	0.1539	9.6E-05	0	0.272	0.278	4	0.272	6222	4249	1400	6222	0.011%	2.00	1.00	0.01%	0.000026	0.36	0.025	0.785	0.00%	0.0000
17.09	757	1.7E-03	9.9E+02	20	0.1510	9.5E-05	0	0.272	0.278	4	0.272	6215	4244	1400	6215	0.011%	2.00	1.00	0.01%	0.000022	0.36	0.025	0.785	0.00%	0.0000
17.14	757	1.9E-03	1.1E+03	20	0.1482	8.6E-05	22	0.273	0.278	4	2.015	6207	4238	1400	2914	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.19	757	1.9E-03	1.1E+03	20	0.1454	8.4E-05	22	0.273	0.279	4	2.015	6199	4233	1400	2911	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.24	757	1.9E-03	1.1E+03	20	0.1426	8.3E-05	22	0.273	0.279	4	2.015	6191	4227	1400	2908	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.29	663	1.9E-03	8.2E+02	20	0.1398	1.1E-04	22	0.273	0.279	4	2.015	6183	4222	1400	2905	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.34	663	1.9E-03	8.2E+02	20	0.1371	1.0E-04	22	0.273	0.279	4	2.016	6176	4216	1400	2902	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.39	663	1.9E-03	8.2E+02	20	0.1344	1.0E-04	22	0.274	0.279	4	2.016	6168	4211	1400	2899	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.44	663	1.9E-03	8.2E+02	20	0.1318	1.0E-04	22	0.274	0.280	4	2.016	6160	4206	1400	2896	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.49	663	1.9E-03	8.2E+02	20	0.1291	1.0E-04	22	0.274	0.280	4	2.016	6152	4200	1400	2894	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.54	663	1.9E-03	8.2E+02	20	0.1265	9.8E-05	22	0.274	0.280	4	2.016	6145	4195	1400	2891	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.59	663	1.9E-03	8.2E+02	20	0.1239	9.6E-05	22	0.274	0.280	4	2.016	6137	4190	1400	2888	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.64	663	1.9E-03	8.2E+02	20	0.1214	9.4E-05	22	0.275	0.281	4	2.016	6129	4184	1400	2885	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.69	663	1.9E-03	8.2E+02	19	0.1189	9.3E-05	22	0.275	0.281	4	2.016	6122	4179	1400	2882	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.74	663	1.9E-03	8.2E+02	19	0.1164	9.1E-05	22	0.275	0.281	4	2.017	6114	4174	1400	2879	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.79	663	1.9E-03	8.2E+02	19	0.1139	8.9E-05	22	0.275	0.281	4	2.017	6107	4169	1400	2877	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.84	663	1.9E-03	8.2E+02	19	0.1115	8.8E-05	22	0.275	0.281	4	2.017	6099	4164	1400	2874	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.89	663	1.9E-03	8.2E+02	19	0.1091	8.6E-05	22	0.275	0.282	4	2.017	6092	4158	1400	2871	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.94	663	1.9E-03	8.2E+02	19	0.1067	8.5E-05	22	0.276	0.282	4	2.017	6085	4153	1400	2868	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.99	663	1.9E-03	8.2E+02	19	0.1043	8.3E-05	22	0.276	0.282	4	2.017	6077	4148	1400	2866	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.04	663	1.9E-03	8.2E+02	19	0.1020	8.1E-05	22	0.276	0.282	4	2.017	6070	4143	1400	2863	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.09	663	1.9E-03	8.2E+02	19	0.0997	8.0E-05	22	0.276	0.283	4	2.017	6063	4138	1400	2860	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.14	663	1.9E-03	8.2E+02	19	0.0975	7.8E-05	22	0.276	0.283	4	2.018	6055	4133	1400	2858	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.19	663	1.9E-03	8.2E+02	19	0.0952	7.7E-05	22	0.277	0.283	4	2.018	6048	4128	1400	2855	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.24	663	1.9E-03	8.2E+02	19	0.0930	7.5E-05	22	0.277	0.283	4	2.018	6041	4123	1400	2852	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.29	663	1.9E-03	8.2E+02	19	0.0908	7.3E-05	22	0.277	0.283	4	2.018	6034	4118	1400	2850	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.34	663	1.9E-03	8.2E+02	19	0.0887	7.2E-05	22	0.277	0.284	4	2.018	6027	4113	1400	2847	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.39	663	1.9E-03	8.2E+02	19	0.0865	7.0E-05	22	0.277	0.284	4	2.018	6020	4108	1400	2844	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.44	663	1.9E-03	8.2E+02	19	0.0844	6.9E-05	22	0.278	0.284	4	2.018	6012	4103	1400	2842	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.49	663	1.9E-03	8.2E+02	19	0.0823	6.7E-05	22	0.278	0.284	4	2.018	6005	4098	1400	2839	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.54	663	1.9E-03	8.2E+02	19	0.0803	6.6E-05	22	0.278	0.285	4	2.018	5998	4093	1400	2836	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.59	663	1.9E-03	8.2E+02	19	0.0783	6.4E-05	22	0.278	0.285	4	2.019	5991	4088	1400	2834	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.64	663	1.9E-03	8.2E+02	19	0.0763	6.3E-05	22	0.278	0.285	4	2.019	5984	4083	1400	2831	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.69	663	1.9E-03	8.2E+02	19	0.0743	6.1E-05	22	0.278	0.285	4	2.019	5977	4079	1400	2829	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.74	663	1.9E-03	8.2E+02	18	0.0723	6.0E-05	22	0.279	0.285	4	2.019	5970	4074	1400	2826	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.79	666	1.9E-03	8.3E+02	18	0.0704	5.8E-05	22	0.279	0.286	4	2.019	5964	4069	1400	2823	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.84	666	1.9E-03	8.3E+02	18	0.0685	5.7E-05	22	0.279	0.286	4	2.019	5957	4064	1400	2821	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.89	666	1.9E-03	8.3E+02	18	0.0666	5.5E-05	22	0.279	0.286	4	2.019	5950	4059	1400	2818	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.94	666	1.9E-03	8.3E+02	18	0.0648	5.4E-05	22	0.279	0.286	4	2.019	5943	4055	1400	2816	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.99	666	1.9E-03	8.3E+02	18	0.0629	5.3E-05	22	0.280	0.286	4	2.019	5936	4050	1400	2813	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.04	666	1.9E-03	8.3E+02	18	0.0611	5.1E-05	22	0.280	0.287	4	2.020	5929	4045	1400	2811	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.09	666	1.9E-03	8.3E+02	18	0.0594	5.0E-05	22	0.280	0.287	4	2.020	5923	4041	1400	2808	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.14	666	1.9E-03	8.3E+02	18	0.0576	4.8E-05	22	0.280	0.287	4	2.020	5916	4036	1400	2806	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.19	666	1.9E-03	8.3E+02	18	0.0559	4.7E-05	22	0.280	0.287	4	2.020	5909	4031	1400	2803	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.24	666	1.9E-03	8.3E+02	18	0.0542	4.6E-05	22	0.280	0.288	4	2.020	5903	4027	1400	2801	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.29	666	1.9E-03	8.3E+02	18	0.0525	4.5E-05	22	0.281	0.288	4	2.020	5896	4022	1400	2798	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.34	666	1.9E-03	8.3E+02	18	0.0508	4.3E-05	22	0.281	0.288	4	2.020	5889	4017	1400	2796	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.39	666	1.9E-03	8.3E+02	18	0.0492	4.2E-05	22	0.281	0.288	4	2.020	5883	4013	1400	2794	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.44	666	1.9E-03	8.3E+02	18	0.0475	4.1E-05	22	0.281	0.288	4	2.020	5876	4008	1400	2791	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.49	666	1.9E-03	8.3E+02	18	0.0460	3.9E-05	22	0.281	0.289	4	2.021	5870	4004	1400	2789	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.54	666	1.9E-03	8.3E+02	18	0.0444	3.8E-05	22	0.281	0.289	4	2.021	5863	3999	1400	2786	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.59	666	1.9E-03	8.3E+02	18	0.0428	3.7E-05	22	0.282	0.289	4	2.021	5857	3995	1400	2784	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.64	666	1.9E-03	8.3E+02	18	0.0413	3.6E-05	22	0.282	0.289	4	2.021	5850	3990	1400	2781	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000

62.499	6907.46	14.0	0.488	13.6	60.4	26.15	3.50%	Fine Alluvium	0.060	120.7	3.54	0.000	3.54	0	3	4.68%	3.5	76%	3.69	0.000	3.69
62.663	6907.30	14.7	0.435	14.3	62.7	27.19	2.95%	Fine Alluvium	0.060	120.7	3.55	0.000	3.55	0	3	3.89%	3.5	76%	3.70	0.000	3.70
62.827	6907.13	15.5	0.494	15.1	65.6	28.43	3.18%	Fine Alluvium	0.060	120.7	3.56	0.000	3.56	0	3	4.13%	3.5	76%	3.71	0.000	3.71
62.991	6906.97	15.4	0.525	15.0	63.5	27.50	3.40%	Fine Alluvium	0.060	120.7	3.57	0.000	3.57	0	3	4.42%	3.5	76%	3.72	0.000	3.72
63.155	6906.81	15.9	0.619	15.4	69.0	29.89	3.91%	Fine Alluvium	0.060	120.7	3.58	0.000	3.58	0	3	5.04%	3.5	76%	3.73	0.000	3.73
63.319	6906.64	14.8	0.592	14.4	67.8	29.36	3.99%	Fine Alluvium	0.060	120.7	3.59	0.000	3.59	0	3	5.27%	3.6	76%	3.74	0.000	3.74
63.483	6906.48	15.7	0.596	15.2	80.7	34.98	3.80%	Fine Alluvium	0.060	120.7	3.60	0.000	3.60	0	3	4.94%	3.5	76%	3.75	0.000	3.75
63.648	6906.31	16.7	0.386	16.1	83.7	36.26	2.32%	Fine Alluvium	0.060	120.7	3.61	0.000	3.61	0	4	2.96%	3.4	76%	3.76	0.000	3.76
63.812	6906.15	16.6	0.447	16.1	86.2	37.34	2.69%	Fine Alluvium	0.060	120.7	3.62	0.000	3.62	0	4	3.44%	3.4	76%	3.77	0.000	3.77
63.976	6905.98	15.6	0.557	15.0	87.4	37.89	3.57%	Fine Alluvium	0.060	120.7	3.63	0.000	3.63	0	3	4.66%	3.5	76%	3.78	0.000	3.78
64.140	6905.82	15.2	0.546	14.7	83.5	36.18	3.58%	Fine Alluvium	0.060	120.7	3.64	0.000	3.64	0	3	4.71%	3.5	76%	3.79	0.000	3.79
64.304	6905.66	16.0	0.606	15.4	95.2	41.26	3.80%	Fine Alluvium	0.060	120.7	3.65	0.000	3.65	0	3	4.92%	3.5	76%	3.80	0.000	3.80
64.468	6905.49	15.3	0.515	14.8	88.8	38.50	3.36%	Fine Alluvium	0.060	120.7	3.66	0.000	3.66	0	3	4.41%	3.5	76%	3.81	0.000	3.81
64.632	6905.33	15.8	0.598	15.2	97.1	42.09	3.78%	Fine Alluvium	0.060	120.7	3.67	0.000	3.67	0	3	4.91%	3.5	76%	3.82	0.000	3.82
64.796	6905.16	17.5	0.637	16.9	96.8	41.95	3.64%	Fine Alluvium	0.060	120.7	3.68	0.000	3.68	0	4	4.61%	3.5	76%	3.83	0.000	3.83
64.960	6905.00	18.6	0.824	18.0	95.1	41.20	4.42%	Fine Alluvium	0.060	120.7	3.69	0.000	3.69	0	4	5.51%	3.5	76%	3.84	0.000	3.84
65.124	6904.84	18.8	0.855	18.3	89.3	38.68	4.54%	Fine Alluvium	0.060	120.7	3.70	0.000	3.70	0	4	5.64%	3.5	76%	3.85	0.000	3.85
65.288	6904.67	19.2	0.934	18.5	109.3	47.38	4.87%	Fine Alluvium	0.060	120.7	3.71	0.000	3.71	0	4	6.04%	3.5	76%	3.86	0.000	3.86
65.452	6904.51	18.2	0.883	17.7	90.4	39.16	4.85%	Fine Alluvium	0.060	120.7	3.72	0.000	3.72	0	4	6.09%	3.5	76%	3.87	0.000	3.87
65.616	6904.34	17.3	0.887	16.8	80.4	34.84	5.14%	Fine Alluvium	0.060	120.7	3.73	0.000	3.73	0	4	6.55%	3.6	76%	3.88	0.000	3.88
65.780	6904.18	17.6	0.780	17.1	83.5	36.20	4.43%	Fine Alluvium	0.060	120.7	3.74	0.000	3.74	0	4	5.63%	3.5	76%	3.89	0.000	3.89
65.944	6904.02	19.6	0.823	19.0	94.1	40.79	4.20%	Fine Alluvium	0.060	120.7	3.75	0.000	3.75	0	4	5.20%	3.4	76%	3.90	0.000	3.90
66.108	6903.85	21.3	0.943	20.7	90.9	39.37	4.43%	Fine Alluvium	0.060	120.7	3.76	0.000	3.76	0	5	5.38%	3.4	76%	3.91	0.000	3.91
66.272	6903.69	21.7	0.880	21.3	66.0	28.59	4.05%	Fine Alluvium	0.060	120.7	3.77	0.000	3.77	0	5	4.91%	3.4	76%	3.92	0.000	3.92
66.436	6903.52	21.3	1.246	21.0	50.9	22.07	5.84%	Fine Alluvium	0.060	120.7	3.78	0.000	3.78	0	5	7.09%	3.5	76%	3.93	0.000	3.93
66.600	6903.36	20.6	1.207	20.3	46.9	20.34	5.85%	Fine Alluvium	0.060	120.7	3.79	0.000	3.79	0	4	7.17%	3.5	76%	3.94	0.000	3.94
66.764	6903.20	20.8	1.003	20.5	52.3	22.68	4.83%	Fine Alluvium	0.060	120.7	3.80	0.000	3.80	0	4	5.90%	3.5	76%	3.95	0.000	3.95
66.928	6903.03	17.8	0.767	17.5	57.5	24.91	4.30%	Fine Alluvium	0.060	120.7	3.81	0.000	3.81	0	4	5.47%	3.5	76%	3.96	0.000	3.96
67.092	6902.87	17.0	0.693	16.6	63.1	27.35	4.07%	Fine Alluvium	0.060	120.7	3.82	0.000	3.82	0	3	5.24%	3.5	76%	3.97	0.000	3.97
67.256	6902.70	16.8	0.684	16.4	63.0	27.31	4.06%	Fine Alluvium	0.060	120.7	3.83	0.000	3.83	0	3	5.26%	3.5	76%	3.98	0.000	3.98
67.420	6902.54	17.7	0.747	17.3	63.5	27.50	4.21%	Fine Alluvium	0.060	120.7	3.84	0.000	3.84	0	4	5.37%	3.5	76%	3.99	0.000	3.99
67.584	6902.38	18.2	0.750	17.8	69.5	30.10	4.12%	Fine Alluvium	0.060	120.7	3.85	0.000	3.85	0	4	5.22%	3.5	76%	4.00	0.000	4.00
67.749	6902.21	18.0	0.744	17.6	65.0	28.18	4.13%	Fine Alluvium	0.060	120.7	3.86	0.000	3.86	0	4	5.26%	3.5	76%	4.01	0.000	4.01
67.913	6902.05	19.2	0.778	18.7	78.4	33.96	4.06%	Fine Alluvium	0.060	120.7	3.87	0.000	3.87	0	4	5.09%	3.5	76%	4.02	0.000	4.02
68.077	6901.88	20.0	0.848	19.5	76.5	33.17	4.24%	Fine Alluvium	0.060	120.7	3.88	0.000	3.88	0	4	5.27%	3.4	76%	4.03	0.000	4.03
68.241	6901.72	21.3	0.970	20.8	85.3	36.97	4.55%	Coarse Alluvium	0.056	111.0	3.88	0.000	3.88	0	4	5.57%	3.4	36%	4.04	0.000	4.04
68.405	6901.56	29.4	1.269	28.8	97.4	42.22	4.31%	Coarse Alluvium	0.056	111.0	3.89	0.000	3.89	0	7	4.97%	3.3	36%	4.05	0.000	4.05
68.569	6901.39	31.0	1.356	30.7	41.3	17.91	4.38%	Coarse Alluvium	0.056	111.0	3.90	0.000	3.90	0	7	5.01%	3.3	36%	4.06	0.000	4.06
68.733	6901.23	28.3	1.485	28.1	32.4	14.03	5.25%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	6	6.09%	3.3	36%	4.07	0.000	4.07
68.897	6901.06	30.7	1.435	30.5	37.7	16.35	4.67%	Coarse Alluvium	0.056	111.0	3.92	0.000	3.92	0	7	5.36%	3.3	36%	4.08	0.000	4.08
69.061	6900.90	28.6	1.493	28.4	27.3	11.83	5.22%	Coarse Alluvium	0.056	111.0	3.93	0.000	3.93	0	6	6.05%	3.3	36%	4.08	0.000	4.08
69.225	6900.74	32.7	1.426	32.5	28.4	12.32	4.36%	Coarse Alluvium	0.056	111.0	3.94	0.000	3.94	0	7	4.96%	3.2	36%	4.09	0.000	4.09
69.389	6900.57	45.3	1.300	45.1	30.4	13.18	2.87%	Coarse Alluvium	0.056	111.0	3.95	0.000	3.95	0	10	3.15%	3.0	36%	4.10	0.000	4.10
69.553	6900.41	59.5	1.179	59.4	19.2	8.30	1.98%	Coarse Alluvium	0.056	111.0	3.96	0.000	3.96	0	14	2.12%	2.8	36%	4.11	0.000	4.11
69.717	6900.24	69.4	1.177	69.4	14.2	6.16	1.70%	Coarse Alluvium	0.056	111.0	3.97	0.000	3.97	0	17	1.80%	2.7	36%	4.12	0.000	4.12
69.881	6900.08	73.4	1.272	73.3	13.3	5.75	1.73%	Coarse Alluvium	0.056	111.0	3.98	0.000	3.98	0	17	1.83%	2.7	36%	4.13	0.000	4.13

19.69	666	1.9E-03	8.3E+02	18	0.0398	3.4E-05	22	0.282	0.289	4	2.021	5844	3986	1400	2779	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.74	666	1.9E-03	8.3E+02	18	0.0383	3.3E-05	22	0.282	0.290	4	2.021	5838	3981	1400	2777	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.79	666	1.9E-03	8.3E+02	18	0.0368	3.2E-05	22	0.282	0.290	4	2.021	5831	3977	1400	2774	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.84	666	1.9E-03	8.3E+02	18	0.0354	3.1E-05	22	0.283	0.290	4	2.021	5825	3972	1400	2772	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.89	666	1.9E-03	8.3E+02	18	0.0339	3.0E-05	22	0.283	0.290	4	2.021	5818	3968	1400	2770	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.94	666	1.9E-03	8.3E+02	18	0.0325	2.9E-05	22	0.283	0.290	4	2.022	5812	3964	1400	2767	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.99	666	1.9E-03	8.3E+02	18	0.0311	2.7E-05	22	0.283	0.291	4	2.022	5806	3959	1400	2765	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.04	666	1.9E-03	8.3E+02	18	0.0307	2.7E-05	22	0.283	0.291	4	2.022	5800	3955	1400	2763	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.09	666	1.9E-03	8.3E+02	18	0.0304	2.7E-05	22	0.283	0.291	4	2.022	5793	3951	1400	2760	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.14	666	1.9E-03	8.3E+02	18	0.0302	2.7E-05	22	0.284	0.291	4	2.022	5787	3946	1400	2758	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.19	666	1.9E-03	8.3E+02	18	0.0300	2.7E-05	22	0.284	0.291	4	2.022	5781	3942	1400	2756	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.24	666	1.9E-03	8.3E+02	18	0.0297	2.7E-05	22	0.284	0.292	4	2.022	5775	3938	1400	2753	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.29	666	1.9E-03	8.3E+02	18	0.0295	2.6E-05	22	0.284	0.292	4	2.022	5769	3933	1400	2751	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.34	740	1.9E-03	1.0E+03	18	0.0293	2.1E-05	22	0.284	0.292	4	2.022	5762	3929	1400	2749	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.39	740	1.9E-03	1.0E+03	18	0.0290	2.1E-05	22	0.284	0.292	4	2.023	5756	3925	1400	2747	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.44	740	1.9E-03	1.0E+03	18	0.0288	2.1E-05	22	0.285	0.292	4	2.023	5750	3921	1400	2744	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.49	740	1.9E-03	1.0E+03	17	0.0286	2.1E-05	22	0.285	0.293	4	2.023	5744	3916	1400	2742	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.54	740	1.9E-03	1.0E+03	17	0.0284	2.1E-05	22	0.285	0.293	4	2.023	5738	3912	1400	2740	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.59	740	1.9E-03	1.0E+03	17	0.0281	2.1E-05	22	0.285	0.293	4	2.023	5732	3908	1400	2738	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.64	740	1.9E-03	1.0E+03	17	0.0279	2.1E-05	22	0.285	0.293	4	2.023	5726	3904	1400	2735	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.69	740	1.9E-03	1.0E+03	17	0.0277	2.0E-05	22	0.285	0.293	4	2.023	5720	3900	1400	2733	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.74	740	1.9E-03	1.0E+03	17	0.0274	2.0E-05	22	0.286	0.294	4	2.023	5714	3896	1400	2731	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.79	740	1.9E-03	1.0E+03	17	0.0272	2.0E-05	22	0.286	0.294	4	2.023	5708	3891	1400	2729	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.84	740	1.9E-03	1.0E+03	17	0.0270	2.0E-05	22	0.286	0.294	4	2.023	5702	3887	1400	2727	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.89	740	1.9E-03	1.0E+03	17	0.0267	2.0E-05	22	0.286	0.294	4	2.024	5696	3883	1400	2724	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.94	740	1.9E-03	1.0E+03	17	0.0265	2.0E-05	22	0.286	0.294	4	2.024	5691	3879	1400	2722	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.99	740	1.9E-03	1.0E+03	17	0.0263	2.0E-05	22	0.286	0.295	4	2.024	5685	3875	1400	2720	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.04	740	1.9E-03	1.0E+03	17	0.0261	2.0E-05	22	0.287	0.295	4	2.024	5679	3871	1400	2718	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.09	740	1.9E-03	1.0E+03	17	0.0258	1.9E-05	22	0.287	0.295	4	2.024	5673	3867	1400	2716	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.14	740	1.9E-03	1.0E+03	17	0.0256	1.9E-05	22	0.287	0.295	4	2.024	5667	3863	1400	2714	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.19	740	1.9E-03	1.0E+03	17	0.0254	1.9E-05	22	0.287	0.295	4	2.024	5662	3859	1400	2711	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.24	740	1.9E-03	1.0E+03	17	0.0251	1.9E-05	22	0.287	0.296	4	2.024	5656	3855	1400	2709	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.29	740	1.9E-03	1.0E+03	17	0.0249	1.9E-05	22	0.287	0.296	4	2.024	5650	3851	1400	2707	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.34	740	1.9E-03	1.0E+03	17	0.0247	1.9E-05	22	0.288	0.296	4	2.025	5644	3847	1400	2705	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.39	740	1.9E-03	1.0E+03	17	0.0244	1.9E-05	22	0.288	0.296	4	2.025	5639	3843	1400	2703	0.002%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
21.44	740	1.7E-03	9.4E+02	17	0.0242	2.0E-05	0	0.288	0.296	4	0.288	5633	3839	1400	5633	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.49	740	1.7E-03	9.4E+02	17	0.0240	2.0E-05	0	0.288	0.297	4	0.288	5628	3836	1400	5628	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.54	740	1.7E-03	9.4E+02	17	0.0238	2.0E-05	0	0.288	0.297	4	0.288	5623	3832	1400	5623	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.59	740	1.7E-03	9.4E+02	17	0.0235	2.0E-05	0	0.288	0.297	4	0.288	5618	3829	1400	5618	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.64	740	1.7E-03	9.4E+02	17	0.0233	2.0E-05	0	0.288	0.297	4	0.288	5613	3825	1400	5613	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.69	740	1.7E-03	9.4E+02	17	0.0231	1.9E-05	0	0.289	0.297	4	0.289	5608	3822	1400	5608	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.74	740	1.7E-03	9.4E+02	17	0.0228	1.9E-05	0	0.289	0.297	4	0.289	5603	3818	1400	5603	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.79	740	1.7E-03	9.4E+02	17	0.0226	1.9E-05	0	0.289	0.298	4	0.289	5597	3814	1400	5597	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.84	959	1.7E-03	1.6E+03	17	0.0224	1.1E-05	0	0.289	0.298	4	0.289	5592	3811	1400	5592	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.89	959	1.7E-03	1.6E+03	17	0.0221	1.1E-05	0	0.289	0.298	4	0.289	5587	3807	1400	5587	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.94	959	1.7E-03	1.6E+03	17	0.0219	1.1E-05	0	0.289	0.298	4	0.289	5582	3804	1400	5582	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000

Proposed Repositor	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer (tsf)	Total Stress at Midpoint of Layer (tsf)	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint of Layer (tsf)	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint of Layer (tsf)
Erosion Protection	6972.1	6971.3	6970.6	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6970.6	6970.3	6970.0	1.1	0.057	114.7	0.155	0.124	0.00	0.00	0.155	0.124
Mine Spoils	6970.0	6970.0	6970.0	0.0	0.058	116.4	0.155	0.155	0.00	0.00	0.155	0.155

6969.96	Ground Surface Elevation at time of CPT (ft amsl)
6972.06	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
2.50	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

0.16	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6954.95	Elevation of bottom of tailings (ft amsl)

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-02

Data File: 13-52118_RP02-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP02-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.001%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.91	866	1.8E-03	1.3E+03	992	0.9954	2.6E-05	12	0.140	0.130	4	0.132	20256	14154	1400	15375	0.003%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.86	866	1.8E-03	1.4E+03	518	0.9793	7.7E-05	12	0.182	0.175	4	0.176	12772	8845	1400	9630	0.009%	1.18	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil. Pore Pressure at time of CPT, (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6960.00	2.6	0.014	2.6	0.8	0.35	0.55%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	254	0.55%	1.4	59%	0.84	0.000	0.84
0.328	6959.83	8.7	0.105	8.7	1.8	0.77	1.21%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	432	1.21%	1.5	59%	0.85	0.000	0.85
0.492	6959.67	36.0	0.414	36.0	3.4	1.46	1.15%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1196	1.15%	1.3	59%	0.86	0.000	0.86
0.656	6959.50	66.4	0.539	66.4	4.5	1.95	0.81%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1655	0.81%	1.2	59%	0.87	0.000	0.87
0.820	6959.34	102.2	0.826	102.2	3.9	1.67	0.81%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	2036	0.81%	1.1	59%	0.88	0.000	0.88
0.984	6959.18	135.1	0.687	135.1	7.5	3.25	0.51%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	2244	0.51%	0.9	59%	0.89	0.000	0.89
1.148	6959.01	136.4	0.823	136.3	11.6	5.04	0.60%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1941	0.60%	1.0	59%	0.90	0.000	0.90
1.312	6958.85	130.0	0.996	130.0	7.5	3.23	0.77%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1619	0.77%	1.1	59%	0.91	0.000	0.91
1.476	6958.68	130.4	1.428	130.3	6.1	2.62	1.10%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1443	1.10%	1.3	59%	0.92	0.000	0.92
1.640	6958.52	131.0	1.889	130.9	5.7	2.48	1.44%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1304	1.44%	1.4	59%	0.93	0.000	0.93
1.804	6958.36	145.6	2.873	145.6	5.4	2.34	1.97%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1319	1.97%	1.6	59%	0.94	0.000	0.94
1.968	6958.19	219.5	3.426	219.5	6.1	2.62	1.56%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1822	1.56%	1.4	59%	0.95	0.000	0.95
2.133	6958.03	381.6	4.079	381.5	7.7	3.34	1.07%	General Fill	0.057	113.8	0.13	0.000	0.13	0	2941	1.07%	1.2	48%	0.96	0.000	0.96
2.297	6957.86	494.8	4.928	494.8	7.8	3.38	1.00%	General Fill	0.057	113.8	0.14	0.000	0.14	0	3558	1.00%	1.2	48%	0.97	0.000	0.97
2.461	6957.70	497.1	6.052	497.0	7.5	3.23	1.22%	General Fill	0.057	113.8	0.15	0.000	0.15	0	3349	1.22%	1.3	48%	0.98	0.000	0.98
2.625	6957.54	455.8	7.051	455.8	7.3	3.15	1.55%	General Fill	0.057	113.8	0.16	0.000	0.16	0	2889	1.55%	1.4	48%	0.99	0.000	0.99
2.789	6957.37	364.3	7.294	364.3	6.8	2.93	2.00%	General Fill	0.057	113.8	0.17	0.000	0.17	0	2180	2.00%	1.5	48%	1.00	0.000	1.00
2.953	6957.21	294.3	7.021	294.3	5.4	2.32	2.39%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1668	2.39%	1.6	48%	1.01	0.000	1.01
3.117	6957.04	248.5	6.372	248.5	3.4	1.49	2.56%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1337	2.57%	1.7	48%	1.02	0.000	1.02
3.281	6956.88	205.2	5.484	205.2	3.6	1.55	2.67%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1051	2.68%	1.7	48%	1.03	0.000	1.03
3.445	6956.72	181.5	5.238	181.5	3.9	1.69	2.89%	General Fill	0.057	113.8	0.20	0.000	0.20	0	887	2.89%	1.8	48%	1.04	0.000	1.04
3.609	6956.55	171.3	4.579	171.3	3.8	1.65	2.67%	General Fill	0.057	113.8	0.21	0.000	0.21	0	800	2.68%	1.7	48%	1.05	0.000	1.05
3.773	6956.39	166.3	3.191	166.3	3.9	1.67	1.92%	General Fill	0.057	113.8	0.22	0.000	0.22	0	745	1.92%	1.6	48%	1.06	0.000	1.06
3.937	6956.22	170.8	3.177	170.8	4.2	1.81	1.86%	General Fill	0.057	113.8	0.23	0.000	0.23	0	734	1.86%	1.6	48%	1.07	0.000	1.07
4.101	6956.06	112.6	3.066	112.6	2.4	1.04	2.72%	General Fill	0.057	113.8	0.24	0.000	0.24	0	465	2.73%	1.8	48%	1.07	0.000	1.07
4.265	6955.89	188.5	2.546	188.5	2.9	1.26	1.35%	General Fill	0.057	113.8	0.25	0.000	0.25	0	750	1.35%	1.5	48%	1.08	0.000	1.08
4.429	6955.73	212.3	2.596	212.2	3.0	1.28	1.22%	General Fill	0.057	113.8	0.26	0.000	0.26	0	814	1.22%	1.4	48%	1.09	0.000	1.09
4.593	6955.57	287.2	4.504	287.2	1.4	0.59	1.57%	General Fill	0.057	113.8	0.27	0.000	0.27	0	1064	1.57%	1.5	48%	1.10	0.000	1.10
4.757	6955.40	441.5	6.718	441.4	3.4	1.49	1.52%	General Fill	0.057	113.8	0.28	0.000	0.28	0	1581	1.52%	1.4	48%	1.11	0.000	1.11
4.921	6955.24	436.9	6.855	436.9	7.7	3.32	1.57%	General Fill	0.057	113.8	0.29	0.000	0.29	0	1514	1.57%	1.4	48%	1.12	0.000	1.12
5.085	6955.07	442.6	7.358	442.5	5.8	2.50	1.66%	General Fill	0.057	113.8	0.30	0.000	0.30	0	1486	1.66%	1.5	48%	1.13	0.000	1.13
5.249	6954.91	463.0	5.871	463.0	6.7	2.89	1.27%	General Fill	0.057	113.8	0.31	0.000	0.31	0	1507	1.27%	1.4	48%	1.14	0.000	1.14
5.413	6954.75	426.1	6.056	426.0	6.5	2.81	1.42%	General Fill	0.057	113.8	0.32	0.000	0.32	0	1346	1.42%	1.4	48%	1.15	0.000	1.15
5.577	6954.58	334.4	7.047	334.4	8.1	3.52	2.11%	General Fill	0.057	113.8	0.33	0.000	0.33	0	1026	2.11%	1.6	48%	1.16	0.000	1.16
5.741	6954.42	237.6	5.766	237.6	6.2	2.68	2.43%	General Fill	0.057	113.8	0.34	0.000	0.34	0	708	2.43%	1.7	48%	1.17	0.000	1.17
5.905	6954.25	185.2	5.396	185.2	5.0	2.15	2.91%	General Fill	0.057	113.8	0.34	0.000	0.34	0	537	2.92%	1.8	48%	1.18	0.000	1.18
6.069	6954.09	154.1	4.847	154.1	4.4	1.91	3.15%	General Fill	0.057	113.8	0.35	0.000	0.35	0	435	3.15%	1.9	48%	1.19	0.000	1.19
6.234	6953.93	135.8	4.745	135.8	5.4	2.32	3.49%	General Fill	0.057	113.8	0.36	0.000	0.36	0	373	3.50%	2.0	48%	1.20	0.000	1.20
6.398	6953.76	116.2	4.702	116.1	6.3	2.75	4.05%	General Fill	0.057	113.8	0.37	0.000	0.37	0	311	4.06%	2.1	48%	1.21	0.000	1.21
6.562	6953.60	110.1	4.281	110.1	6.3	2.73	3.89%	General Fill	0.057	113.8	0.38	0.000	0.38	0	287	3.90%	2.1	48%	1.21	0.000	1.21
6.726	6953.43	102.3	3.917	102.2	5.8	2.50	3.83%	General Fill	0.057	113.8	0.39	0.000	0.39	0	261	3.84%	2.1	48%	1.22	0.000	1.22
6.890	6953.27	105.4	3.620	105.4	4.8	2.09	3.43%	General Fill	0.057	113.8	0.40	0.000	0.40	0	262	3.45%	2.0	48%	1.23	0.000	1.23
7.054	6953.11	103.2	3.330	103.2	4.7	2.05	3.23%	General Fill	0.057	113.8	0.41	0.000	0.41	0	251	3.24%	2.0	48%	1.24	0.000	1.24
7.218	6952.94	105.1	2.699	105.0	4.5	1.95	2.57%	General Fill	0.057	113.8	0.42	0.000	0.42	0	250	2.58%	2.0	48%	1.25	0.000	1.25
7.382	6952.78	112.8	2.702	112.8	4.4	1.89	2.40%	General Fill	0.057	113.8	0.43	0.000	0.43	0	262	2.41%	1.9	48%	1.26	0.000	1.26
7.546	6952.61	135.7	2.332	135.7	4.4	1.91	1.72%	General Fill	0.057	113.8	0.44	0.000	0.44	0	309	1.72%	1.8	48%	1.27	0.000	1.27
7.710	6952.45	133.8	2.944	133.8	4.6	1.97	2.20%	General Fill	0.057	113.8	0.45	0.000	0.45	0	298	2.21%	1.9	48%	1.28	0.000	1.28
7.874	6952.29	153.1	3.594	153.0	6.1	2.62	2.35%	General Fill	0.057	113.8	0.46	0.000	0.46	0	334	2.36%	1.9	48%	1.29	0.000	1.29
8.038	6952.12	181.7	3.731	181.7	6.4	2.79	2.05%	General Fill	0.057	113.8	0.47	0.000	0.47	0	389	2.06%	1.8	48%	1.30	0.000	1.30
8.202	6951.96	181.3	3.527	181.3	5.5	2.38	1.95%	General Fill	0.057	113.8	0.48	0.000	0.48	0	381	1.95%	1.8	48%	1.31	0.000	1.31
8.366	6951.79	168.3	3.251	168.3	5.1	2.20	1.93%	General Fill	0.057	113.8	0.48	0.000	0.48	0	346	1.94%	1.8	48%	1.32	0.000	1.32
8.530	6951.63	158.6	2.935	158.6	4.7	2.02	1.85%	General Fill	0.057	113.8	0.49	0.000	0.49	0	320	1.86%	1.8	48%	1.33	0.000	1.33
8.694	6951.47	138.6	2.606	138.6	4.3	1.85	1.88%	General Fill	0.057	113.8	0.50	0.000	0.50	0	274	1.89%	1.8	48%	1.34	0.000	1.34
8.858	6951.30	131.7	2.363	131.7	4.2	1.83	1.79%	General Fill	0.057	113.8	0.51	0.000	0.51	0	256	1.80%	1.8	48%	1.35	0.000	1.35
9.022	6951.14	121.8	2.239	121.7	4.0	1.73	1.84%	General Fill	0.057	113.8	0.52	0.000	0.52	0	232	1.85%	1.9	48%	1.35	0.000	1.35
9.186	6950.97	129.2	2.304	129.2	3.9	1.67	1.78%	General Fill	0.057	113.8	0.53	0.000	0.53	0	242	1.79%	1.8	48%	1.36	0.000	1.36
9.350	6950.81	136.6	2.274	136.6	4.0	1.73	1.66%	General Fill	0.057	113.8	0.54	0.000	0.54	0	252	1.67%	1.8	48%	1.37	0.000	1.37
9.514	6950.65	135.7	2.236	135.6	3.6	1.56	1.65%	General Fill	0.057	113.8	0.55	0.000	0.55	0	246	1.66%	1.8	48%	1.38	0.000	1.38
9.678	6950.48	127.5	2.186	127.5	3.9	1.67	1.71%	General Fill	0.057	113.8	0.56	0.000	0.56	0	227	1.72%	1.8	48%	1.39	0.000	1.39
9.842	6950.32	121.6	1.937	121.6	3.4	1.49	1.59%	General Fill	0.057	113.8	0.57	0.000	0.57	0	213	1.60%	1.8	48%	1.40	0.000	1.40
10.006	6950.15	97.7	1.808	97.7	3.3	1.44	1.85%	General Fill	0.057	113.8	0.58	0.000	0.58	0	168	1.86%	1.9	48%	1.41	0.000	1.41
10.170	6949.99	88.7	1.876	88.7	2.5	1.08	2.12%	General Fill	0.057	113.8	0.59	0.000	0.59	0	150	2.13%	2.0	48%	1.42	0.000	1.42
10.335	6949.83	87.7	1.791	87.7	3.3	1.44	2.04%	General Fill	0.057	113.8	0.60	0.000	0.60	0	146	2.06%	2.0	48%	1.43	0.000	1.43
10.499	6949.66	89.8	1.559	89.7	3.4	1.46	1.74%	General Fill	0.057	113.8	0.61	0.000	0.61	0	147	1.75%	2.0	48%	1.44	0.000	1.44

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.1222

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0 (0)	g_1 for PI = 15 (15)	g_1 for PI = 30 (30)	g_1	g_2 for PI = 0 (0)	g_2 for PI = 15 (15)	g_2 for PI = 30 (30)	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
4.40	936	1.9E-03	1.7E+03	313	0.9574	9.5E-05	16	0.200	0.196	4	0.449	10708	7390	1400	6991	0.012%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.45	936	1.9E-03	1.7E+03	308	0.9564	9.6E-05	16	0.201	0.196	5	0.517	10657	7354	1401	6957	0.013%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.50	936	1.9E-03	1.7E+03	303	0.9555	9.7E-05	16	0.202	0.197	6	0.584	10606	7318	1402	6924	0.013%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.55	936	1.9E-03	1.7E+03	298	0.9546	9.8E-05	16	0.202	0.197	7	0.651	10556	7283	1403	6891	0.013%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.60	936	1.9E-03	1.7E+03	294	0.9537	9.9E-05	16	0.203	0.198	8	0.718	10506	7248	1404	6859	0.014%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.65	936	1.9E-03	1.7E+03	289	0.9527	1.0E-04	16	0.203	0.199	9	0.785	10458	7214	1405	6827	0.014%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.70	936	1.9E-03	1.7E+03	284	0.9517	1.0E-04	16	0.204	0.199	10	0.853	10410	7180	1406	6795	0.015%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.75	936	1.9E-03	1.7E+03	280	0.9507	1.0E-04	16	0.204	0.200	11	0.920	10363	7147	1407	6765	0.015%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.80	936	1.9E-03	1.7E+03	275	0.9497	1.0E-04	16	0.205	0.200	12	0.987	10317	7115	1408	6734	0.015%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.85	936	1.9E-03	1.7E+03	271	0.9487	1.0E-04	16	0.205	0.201	13	1.054	10271	7083	1409	6704	0.016%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.90	936	1.9E-03	1.7E+03	267	0.9477	1.0E-04	16	0.206	0.202	14	1.121	10226	7051	1410	6675	0.016%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.95	936	1.9E-03	1.7E+03	262	0.9466	1.1E-04	16	0.206	0.202	15	1.189	10182	7020	1411	6646	0.016%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.00	936	1.8E-03	1.5E+03	258	0.9455	1.1E-04	19	0.207	0.203	16	4.415	10141	6992	1412	5504	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.05	936	1.8E-03	1.5E+03	254	0.9445	1.2E-04	19	0.207	0.203	17	4.682	10101	6963	1413	5483	0.020%	1.70	0.75	0.02%	0.000008	0.34	0.079	0.797	0.00%	0.0000
5.10	936	1.8E-03	1.5E+03	250	0.9434	1.2E-04	19	0.208	0.204	18	4.949	10062	6936	1414	5463	0.020%	1.70	0.75	0.02%	0.000127	0.34	0.079	0.797	0.02%	0.0000
5.15	936	1.8E-03	1.5E+03	246	0.9422	1.2E-04	19	0.208	0.204	19	5.216	10023	6908	1415	5443	0.021%	1.70	0.75	0.02%	0.000210	0.34	0.079	0.797	0.03%	0.0001
5.20	936	1.8E-03	1.5E+03	242	0.9411	1.2E-04	19	0.209	0.205	20	5.483	9984	6881	1416	5424	0.021%	1.70	0.75	0.02%	0.000281	0.34	0.079	0.797	0.04%	0.0001
5.25	936	1.8E-03	1.5E+03	238	0.9400	1.2E-04	19	0.209	0.205	21	5.750	9946	6855	1417	5405	0.021%	1.70	0.75	0.02%	0.000347	0.34	0.079	0.797	0.06%	0.0001
5.30	936	1.8E-03	1.5E+03	235	0.9388	1.2E-04	19	0.209	0.206	22	6.018	9909	6828	1418	5386	0.021%	1.70	0.75	0.02%	0.000407	0.34	0.079	0.797	0.06%	0.0001
5.35	936	1.8E-03	1.5E+03	231	0.9376	1.2E-04	19	0.210	0.206	23	6.285	9872	6802	1419	5367	0.022%	1.70	0.75	0.02%	0.000464	0.34	0.079	0.797	0.07%	0.0001
5.40	936	1.8E-03	1.5E+03	227	0.9364	1.2E-04	19	0.210	0.207	24	6.552	9835	6777	1420	5348	0.022%	1.70	0.75	0.02%	0.000519	0.34	0.079	0.797	0.08%	0.0001
5.45	936	1.8E-03	1.5E+03	224	0.9352	1.2E-04	19	0.211	0.207	25	6.819	9799	6751	1421	5330	0.022%	1.70	0.75	0.02%	0.000570	0.34	0.079	0.797	0.09%	0.0001
5.50	936	1.8E-03	1.5E+03	220	0.9339	1.2E-04	19	0.211	0.208	26	7.086	9764	6726	1422	5312	0.023%	1.70	0.75	0.02%	0.000620	0.34	0.079	0.797	0.10%	0.0002
5.55	936	1.8E-03	1.5E+03	217	0.9327	1.3E-04	19	0.212	0.208	27	7.353	9729	6702	1423	5294	0.023%	1.70	0.75	0.02%	0.000668	0.34	0.079	0.797	0.11%	0.0002
5.60	936	1.8E-03	1.5E+03	213	0.9314	1.3E-04	19	0.212	0.209	28	7.620	9694	6677	1424	5276	0.023%	1.70	0.75	0.02%	0.000715	0.34	0.079	0.797	0.11%	0.0002
5.65	936	1.8E-03	1.5E+03	210	0.9301	1.3E-04	19	0.212	0.209	29	7.887	9660	6653	1425	5259	0.023%	1.70	0.75	0.02%	0.000760	0.34	0.079	0.797	0.12%	0.0002
5.70	936	1.8E-03	1.5E+03	207	0.9288	1.3E-04	19	0.213	0.210	30	8.154	9626	6629	1426	5242	0.024%	1.70	0.75	0.02%	0.000804	0.34	0.079	0.797	0.13%	0.0002
5.75	936	1.8E-03	1.5E+03	204	0.9275	1.3E-04	19	0.213	0.210	31	8.421	9592	6606	1427	5225	0.024%	1.70	0.75	0.02%	0.000847	0.34	0.079	0.797	0.14%	0.0002
5.80	936	1.8E-03	1.5E+03	200	0.9261	1.3E-04	19	0.214	0.211	32	8.688	9559	6583	1428	5208	0.024%	1.70	0.75	0.02%	0.000889	0.34	0.079	0.797	0.14%	0.0002
5.85	936	1.8E-03	1.5E+03	197	0.9248	1.3E-04	19	0.214	0.211	33	8.955	9527	6560	1429	5192	0.024%	1.70	0.75	0.02%	0.000930	0.34	0.079	0.797	0.15%	0.0002
5.90	936	1.8E-03	1.5E+03	194	0.9234	1.3E-04	19	0.215	0.211	34	9.222	9494	6537	1430	5175	0.025%	1.70	0.75	0.02%	0.000970	0.34	0.079	0.797	0.15%	0.0003
5.95	936	1.8E-03	1.5E+03	191	0.9220	1.3E-04	19	0.215	0.212	35	9.489	9462	6515	1431	5159	0.025%	1.70	0.75	0.02%	0.001009	0.34	0.079	0.797	0.16%	0.0003
6.00	936	1.8E-03	1.5E+03	188	0.9205	1.3E-04	19	0.215	0.212	36	9.756	9431	6492	1432	5143	0.025%	1.70	0.75	0.02%	0.001047	0.34	0.079	0.797	0.17%	0.0003
6.05	936	1.8E-03	1.5E+03	185	0.9191	1.3E-04	19	0.216	0.213	37	10.023	9399	6471	1433	5127	0.025%	1.70	0.75	0.02%	0.001084	0.34	0.079	0.797	0.17%	0.0003
6.10	936	1.8E-03	1.5E+03	183	0.9176	1.4E-04	19	0.216	0.213	38	10.290	9369	6449	1434	5112	0.026%	1.70	0.75	0.02%	0.001121	0.34	0.079	0.797	0.18%	0.0003
6.15	936	1.8E-03	1.5E+03	180	0.9161	1.4E-04	19	0.217	0.214	39	10.557	9338	6427	1435	5096	0.026%	1.70	0.75	0.02%	0.001157	0.34	0.079	0.797	0.18%	0.0003
6.20	936	1.8E-03	1.5E+03	177	0.9146	1.4E-04	19	0.217	0.214	40	10.824	9308	6406	1436	5081	0.026%	1.70	0.75	0.02%	0.001193	0.34	0.079	0.797	0.19%	0.0003
6.25	936	1.8E-03	1.5E+03	174	0.9131	1.4E-04	19	0.217	0.215	41	11.091	9278	6385	1437	5066	0.026%	1.70	0.75	0.02%	0.001228	0.34	0.079	0.797	0.20%	0.0003
6.30	936	1.8E-03	1.5E+03	172	0.9115	1.4E-04	19	0.218	0.215	42	11.358	9249	6365	1438	5051	0.027%	1.70	0.75	0.02%	0.001262	0.34	0.079	0.797	0.20%	0.0003
6.35	936	1.8E-03	1.5E+03	169	0.9099	1.4E-04	19	0.218	0.216	43	11.625	9219	6344	1439	5036	0.027%	1.70	0.75	0.02%	0.001295	0.34	0.079	0.797	0.21%	0.0003
6.40	936	1.8E-03	1.5E+03	166	0.9084	1.4E-04	19	0.219	0.216	44	11.892	9190	6324	1440	5022	0.027%	1.70	0.75	0.02%	0.001328	0.34	0.079	0.797	0.21%	0.0003
6.45	936	1.8E-03	1.5E+03	164	0.9067	1.4E-04	19	0.219	0.216	45	12.159	9162	6304	1441	5007	0.027%	1.70	0.75	0.02%	0.001361	0.34	0.079	0.797	0.22%	0.0004
6.50	936	1.8E-03	1.5E+03	161	0.9051	1.4E-04	19	0.219	0.217	46	12.426	9134	6284	1442	4993	0.028%	1.70	0.75	0.02%	0.001393	0.34	0.079	0.797	0.22%	0.0004
6.55	936	1.8E-03	1.5E+03	159	0.9034	1.4E-04	19	0.220	0.217	47	12.693	9106	6264	1443	4979	0.028%	1.70	0.75	0.02%	0.001424	0.34	0.079	0.797	0.23%	0.0004
6.60	936	1.8E-03	1.5E+03	156	0.9017	1.4E-04	19	0.220	0.218	48	12.960	9078	6245	1444	4965	0.028%	1.70	0.75	0.02%	0.001455	0.34	0.079	0.797	0.23%	0.0004
6.65	936	1.8E-03	1.5E+03	154	0.9000	1.4E-04	19	0.220	0.218	49	13.227	9051	6226	1445	4951	0.028%	1.70	0.75	0.02%	0.001485	0.34	0.079	0.797	0.24%	0.0004
6.70	936	1.8E-03	1.5E+03	152	0.8983	1.4E-04	19	0.221	0.219	50	13.494	9023	6207	1446	4937	0.029%	1.70	0.75	0.02%	0.001515	0.34	0.079	0.797	0.24%	0.0004
6.75	936	1.8E-03	1.5E+03	149	0.8965	1.5E-04	19	0.221	0.219	51	13.761	8997	6188	1447	4924	0.029%	1.70	0.75	0.02%	0.001544	0.34	0.079	0.797	0.25%	0.0004
6.80	936	1.8E-03	1.5E+03	147	0.8948	1.5E-04	19	0.222	0.219	52	14.028	8970	6169	1448	4910	0.029%	1.70	0.75	0.02%	0.001573	0.34	0.079	0.797	0.25%	0.0004
6.85	936	1.8E-03	1.5E+03	145	0.8930	1.5E-04	19	0.222	0.220	53	14.295	8944	6151	1449	4897	0.029%	1.70	0.75	0.02%	0.001602	0.34	0.079	0.797	0.26%	0.0004
6.90	936	1.8E-03	1.5E+03	143	0.8911	1.5E-04	19	0.222	0.220	54	14.561	8918	6133	1450	4884	0.029%	1.70	0.75	0.02%	0.001629	0.34	0.079	0.797	0.26%	0.0004
6.95	936	1.8E-03	1.5E+03	141	0.8893	1.5E-04	19	0.223	0.221	55	14.828	8892	6115	1451	4871	0.030%	1.70	0.75	0.02%	0.001657	0.34	0.079	0.797	0.26%	0.0004
7.00	936	1.8E-03	1.5E+03	139	0.8874	1.5E-04	19	0.223	0.221	56	15.095	8866	6097	1452	4858	0.030%	1.70	0.75	0.02%	0.001684	0.34	0.079	0.797	0.27%	0.0004
7.05	936	1.8E-03	1.5E+03	137	0.8855	1.5E-04	19	0.223	0.221	57	15.362	8841	6079	1453	4845	0.030%	1.70	0.75	0.02%	0.001710	0.34	0.079	0.797	0.27%	0.0004
7.10	936	1.8E-03	1.5E+03	135	0.8836	1.5E-04	19	0.224	0.222	58	15.629	8816	6061	1454	4833	0.030%	1.70	0.75	0.02%	0.001736	0.34	0.079	0.797	0.28%	0.0005
7.15	936	1.8E-03	1.5E+03	133	0.8816	1.5E-04	19	0.224	0.222	59	15.896	8791	6044	1455	4820	0.030%	1.70	0.75	0.02%	0.001761	0.34	0.079	0.797	0.28%	0.0005
7.20	936	1.8E-03	1.5E+03	131	0.8796	1.5E-04	19	0.224	0.223	60	16.163	8767	6027	1456	4808	0.031%	1.70	0.75	0.02%	0.001786	0.34	0.079	0.797	0.28%	0.0005
7.25	936	1.8E-03	1.5E+03	129	0.8776	1.5E-04	19	0.225	0.223	61	16.430	8743	6010	1457	4796	0.031%	1.70	0.75	0.02%	0.001811	0.34	0.079	0.797	0.29%	0.0005
7.30	936	1.8E-03	1.5E+03	127	0.8756	1.5E-04	19	0.225	0.223	62	16.697	8718	5993	1458	4784	0.031%	1.70	0.75	0.02%	0.001835	0.34	0.079	0.797	0.29%	0.0005
7.35	936	1.8E-03	1.5E+03	125	0.8736	1.5E-04	19	0.225	0.224	63	16.964	8695	5976	1459	4772	0.031%	1.70	0.75	0.02%	0.001858	0.34	0.079	0.797	0.30%	0.0005
7.40	936	1.8E-03	1.5E+03	123	0.8715	1.5E-04	19	0.226	0.224	64	17.231	8671	5960	1460	4760	0.031%	1.70	0.75	0.02%	0.001881	0.34	0.079	0.797	0.30%	0.0005
7.45	936	1.8E-03	1.5E+03	121	0.8694	1.6E-04	19	0.226	0.225	65	17.498	8648	5943	1461	4748	0.032%	1.70	0.75	0.02%	0.001904	0.34	0.079	0.797	0.30%	0.0005
7.50	936	1.8E-03	1.5E+03	119	0.8672	1.6E-04	19	0.226	0.225	66	17.765	8624	5927	1462	4736	0.032%	1.70	0.75	0.02%	0.001926	0.34	0.079	0.797	0.31%	0.0005
7.55	557	1.8E-03	5.5E+02	118	0.8651	4.4E-04	19	0.227	0.225	67	18.032	8601	5911	1463	4725	0.342%	1.70	0.75	0.02%	0.022991	0.34	0.079	0.797	3.66%	0.0060

10.663	6949.50	74.8	0.915	74.8	2.5	1.10	1.22%	General Fill	0.057	113.8	0.62	0.000	0.62	0	121	1.23%	1.9	48%	1.45	0.000	1.45
10.827	6949.33	58.3	0.502	58.3	2.1	0.91	0.86%	General Fill	0.057	113.8	0.62	0.000	0.62	0	92	0.87%	1.9	48%	1.46	0.000	1.46
10.991	6949.17	43.9	0.468	43.9	2.1	0.89	1.07%	General Fill	0.057	113.8	0.63	0.000	0.63	0	68	1.08%	2.1	48%	1.47	0.000	1.47
11.155	6949.01	30.7	0.504	30.7	1.2	0.51	1.64%	General Fill	0.057	113.8	0.64	0.000	0.64	0	47	1.68%	2.3	48%	1.48	0.000	1.48
11.319	6948.84	22.6	0.588	22.6	1.1	0.47	2.61%	General Fill	0.057	113.8	0.65	0.000	0.65	0	34	2.68%	2.5	48%	1.49	0.000	1.49
11.483	6948.68	17.4	0.639	17.4	1.3	0.57	3.67%	General Fill	0.057	113.8	0.66	0.000	0.66	0	25	3.82%	2.7	48%	1.49	0.000	1.49
11.647	6948.51	19.0	0.599	19.0	1.4	0.59	3.15%	General Fill	0.057	113.8	0.67	0.000	0.67	0	27	3.27%	2.7	48%	1.50	0.000	1.50
11.811	6948.35	40.7	0.487	40.7	1.8	0.79	1.20%	General Fill	0.057	113.8	0.68	0.000	0.68	0	59	1.22%	2.1	48%	1.51	0.000	1.51
11.975	6948.19	49.0	0.546	49.0	2.3	0.98	1.11%	General Fill	0.057	113.8	0.69	0.000	0.69	0	70	1.13%	2.1	48%	1.52	0.000	1.52
12.139	6948.02	41.0	0.743	41.0	2.0	0.85	1.81%	General Fill	0.057	113.8	0.70	0.000	0.70	0	58	1.84%	2.3	48%	1.53	0.000	1.53
12.303	6947.86	20.4	0.871	20.4	1.8	0.77	4.27%	General Fill	0.057	113.8	0.71	0.000	0.71	0	28	4.42%	2.8	48%	1.54	0.000	1.54
12.467	6947.69	14.9	0.663	14.9	1.8	0.79	4.44%	General Fill	0.057	113.8	0.72	0.000	0.72	0	20	4.67%	2.9	48%	1.55	0.000	1.55
12.631	6947.53	12.1	0.383	12.1	1.9	0.81	3.16%	General Fill	0.057	113.8	0.73	0.000	0.73	0	16	3.36%	2.9	48%	1.56	0.000	1.56
12.795	6947.36	12.4	0.214	12.4	2.0	0.88	1.73%	General Fill	0.057	113.8	0.74	0.000	0.74	0	16	1.84%	2.7	48%	1.57	0.000	1.57
12.959	6947.20	12.5	0.185	12.5	1.9	0.83	1.48%	Fine Tailings	0.054	107.6	0.75	0.000	0.75	0	16	1.57%	2.7	83%	1.58	0.000	1.58
13.123	6947.04	12.6	0.173	12.6	2.3	0.98	1.38%	Fine Tailings	0.054	107.6	0.75	0.000	0.75	0	16	1.46%	2.7	83%	1.59	0.000	1.59
13.287	6946.87	12.3	0.189	12.3	2.3	0.98	1.53%	Fine Tailings	0.054	107.6	0.76	0.000	0.76	0	15	1.64%	2.7	83%	1.60	0.000	1.60
13.451	6946.71	12.4	0.213	12.4	2.2	0.96	1.72%	Fine Tailings	0.054	107.6	0.77	0.000	0.77	0	15	1.83%	2.7	83%	1.60	0.000	1.60
13.615	6946.54	13.0	0.203	13.0	2.3	1.00	1.56%	Fine Tailings	0.054	107.6	0.78	0.000	0.78	0	16	1.66%	2.7	83%	1.61	0.000	1.61
13.779	6946.38	12.0	0.140	12.0	2.4	1.06	1.17%	Fine Tailings	0.054	107.6	0.79	0.000	0.79	0	14	1.25%	2.7	83%	1.62	0.000	1.62
13.943	6946.22	12.7	0.238	12.7	2.4	1.04	1.87%	Fine Tailings	0.054	107.6	0.80	0.000	0.80	0	15	2.00%	2.8	83%	1.63	0.000	1.63
14.107	6946.05	23.4	0.375	23.4	2.8	1.22	1.60%	Fine Tailings	0.054	107.6	0.81	0.000	0.81	0	28	1.66%	2.5	83%	1.64	0.000	1.64
14.271	6945.89	57.4	0.484	57.4	7.2	3.13	0.84%	Fine Tailings	0.054	107.6	0.82	0.000	0.82	0	69	0.86%	2.0	83%	1.65	0.000	1.65
14.436	6945.72	78.4	0.581	78.3	5.7	2.46	0.74%	Fine Tailings	0.054	107.6	0.82	0.000	0.82	0	94	0.75%	1.9	83%	1.66	0.000	1.66
14.600	6945.56	84.1	0.551	84.1	5.5	2.40	0.66%	Fine Tailings	0.054	107.6	0.83	0.000	0.83	0	100	0.66%	1.8	83%	1.67	0.000	1.67
14.764	6945.40	84.2	0.709	84.2	5.0	2.18	0.84%	Fine Tailings	0.054	107.6	0.84	0.000	0.84	0	99	0.85%	1.9	83%	1.68	0.000	1.68
14.928	6945.23	81.7	0.753	81.7	4.7	2.02	0.92%	Fine Tailings	0.054	107.6	0.85	0.000	0.85	0	95	0.93%	1.9	83%	1.68	0.000	1.68
15.092	6945.07	69.2	0.752	69.2	4.5	1.93	1.09%	Coarse Alluvium	0.056	111.0	0.86	0.000	0.86	0	79	1.10%	2.0	36%	1.69	0.000	1.69
15.256	6944.90	56.2	0.660	56.2	4.7	2.02	1.17%	Coarse Alluvium	0.056	111.0	0.87	0.000	0.87	0	64	1.19%	2.1	36%	1.70	0.000	1.70
15.420	6944.74	45.7	0.543	45.7	4.2	1.81	1.19%	Coarse Alluvium	0.056	111.0	0.88	0.000	0.88	0	51	1.21%	2.2	36%	1.71	0.000	1.71
15.584	6944.58	40.1	0.482	40.1	4.1	1.79	1.20%	Coarse Alluvium	0.056	111.0	0.89	0.000	0.89	0	44	1.23%	2.2	36%	1.72	0.000	1.72
15.748	6944.41	40.9	0.485	40.9	3.9	1.69	1.18%	Coarse Alluvium	0.056	111.0	0.90	0.000	0.90	0	45	1.21%	2.2	36%	1.73	0.000	1.73
15.912	6944.25	47.8	0.545	47.7	4.2	1.81	1.14%	Coarse Alluvium	0.056	111.0	0.91	0.000	0.91	0	52	1.16%	2.2	36%	1.74	0.000	1.74
16.076	6944.08	60.3	0.678	60.3	4.0	1.75	1.12%	Coarse Alluvium	0.056	111.0	0.91	0.000	0.91	0	65	1.14%	2.1	36%	1.75	0.000	1.75
16.240	6943.92	65.7	0.763	65.7	4.1	1.79	1.16%	Coarse Alluvium	0.056	111.0	0.92	0.000	0.92	0	70	1.18%	2.1	36%	1.76	0.000	1.76
16.404	6943.76	59.7	0.795	59.7	3.9	1.67	1.33%	Coarse Alluvium	0.056	111.0	0.93	0.000	0.93	0	63	1.35%	2.1	36%	1.77	0.000	1.77
16.568	6943.59	55.2	0.846	55.1	3.8	1.63	1.53%	Coarse Alluvium	0.056	111.0	0.94	0.000	0.94	0	58	1.56%	2.2	36%	1.78	0.000	1.78
16.732	6943.43	45.3	1.038	45.3	3.5	1.53	2.29%	Coarse Alluvium	0.056	111.0	0.95	0.000	0.95	0	47	2.34%	2.4	36%	1.78	0.000	1.78
16.896	6943.26	40.1	1.080	40.0	3.7	1.61	2.70%	Coarse Alluvium	0.056	111.0	0.96	0.000	0.96	0	41	2.76%	2.5	36%	1.79	0.000	1.79
17.060	6943.10	44.2	0.931	44.2	3.9	1.71	2.11%	Coarse Alluvium	0.056	111.0	0.97	0.000	0.97	0	45	2.15%	2.4	36%	1.80	0.000	1.80
17.224	6942.94	42.7	0.725	42.6	4.0	1.73	1.70%	Coarse Alluvium	0.056	111.0	0.98	0.000	0.98	0	43	1.74%	2.3	36%	1.81	0.000	1.81
17.388	6942.77	37.4	0.560	37.4	3.9	1.67	1.50%	Coarse Alluvium	0.056	111.0	0.99	0.000	0.99	0	37	1.54%	2.4	36%	1.82	0.000	1.82
17.552	6942.61	36.6	0.802	36.6	3.8	1.63	2.19%	Coarse Alluvium	0.056	111.0	1.00	0.000	1.00	0	36	2.25%	2.5	36%	1.83	0.000	1.83
17.716	6942.44	43.3	0.955	43.3	4.1	1.77	2.21%	Coarse Alluvium	0.056	111.0	1.01	0.000	1.01	0	42	2.26%	2.4	36%	1.84	0.000	1.84
17.880	6942.28	51.8	1.013	51.8	3.8	1.65	1.95%	Coarse Alluvium	0.056	111.0	1.02	0.000	1.02	0	50	1.99%	2.3	36%	1.85	0.000	1.85
18.044	6942.12	64.4	0.865	64.4	4.1	1.77	1.34%	Coarse Alluvium	0.056	111.0	1.02	0.000	1.02	0	62	1.36%	2.2	36%	1.86	0.000	1.86
18.208	6941.95	82.3	0.654	82.3	4.0	1.73	0.79%	Coarse Alluvium	0.056	111.0	1.03	0.000	1.03	0	79	0.80%	1.9	36%	1.87	0.000	1.87
18.372	6941.79	91.4	0.887	91.3	4.6	1.97	0.97%	Coarse Alluvium	0.056	111.0	1.04	0.000	1.04	0	87	0.98%	2.0	36%	1.88	0.000	1.88
18.537	6941.62	108.0	1.309	108.0	5.8	2.50	1.21%	Coarse Alluvium	0.056	111.0	1.05	0.000	1.05	0	102	1.22%	2.0	36%	1.88	0.000	1.88
18.701	6941.46	151.4	1.637	151.4	6.1	2.64	1.08%	Coarse Alluvium	0.056	111.0	1.06	0.000	1.06	0	142	1.09%	1.8	36%	1.89	0.000	1.89
18.865	6941.30	239.6	2.499	239.6	7.0	3.01	1.04%	Coarse Alluvium	0.056	111.0	1.07	0.000	1.07	0	223	1.05%	1.7	36%	1.90	0.000	1.90
19.029	6941.13	228.4	2.883	228.3	6.7	2.91	1.26%	Coarse Alluvium	0.056	111.0	1.08	0.000	1.08	0	211	1.27%	1.8	36%	1.91	0.000	1.91
19.193	6940.97	159.8	2.866	159.7	6.2	2.70	1.79%	Coarse Alluvium	0.056	111.0	1.09	0.000	1.09	0	146	1.81%	2.0	36%	1.92	0.000	1.92
19.357	6940.80	128.9	2.367	128.8	6.4	2.79	1.84%	Coarse Alluvium	0.056	111.0	1.10	0.000	1.10	0	116	1.85%	2.0	36%	1.93	0.000	1.93
19.521	6940.64	66.7	2.447	66.7	6.1	2.64	3.67%	Coarse Alluvium	0.056	111.0	1.11	0.000	1.11	0	59	3.73%	2.5	36%	1.94	0.000	1.94
19.685	6940.48	52.5	1.507	52.5	5.5	2.38	2.87%	Coarse Alluvium	0.056	111.0	1.12	0.000	1.12	0	46	2.93%	2.5	36%	1.95	0.000	1.95
19.849	6940.31	50.6	1.096	50.5	6.0	2.60	2.17%	Coarse Alluvium	0.056	111.0	1.12	0.000	1.12	0	44	2.22%	2.4	36%	1.96	0.000	1.96
20.013	6940.15	45.5	1.003	45.5	5.9	2.56	2.20%	Coarse Alluvium	0.056	111.0	1.13	0.000	1.13	0	39	2.26%	2.4	36%	1.97	0.000	1.97
20.177	6939.98	43.8	0.460	43.8	3.5	1.50	1.05%	Coarse Alluvium	0.056	111.0	1.14	0.000	1.14	0	37	1.08%	2.3	36%	1.98	0.000	1.98
20.341	6939.82	45.0	0.031	45.0	3.7	1.61	0.07%	Coarse Alluvium	0.056	111.0	1.15	0.000	1.15	0	38	0.07%	1.9	36%	1.98	0.000	1.98
20.505	6939.66	46.0	0.340	46.0	3.6	1.56	0.74%	Coarse Alluvium	0.056	111.0	1.16	0.000	1.16	0	39	0.76%	2.2	36%	1.99	0.000	1.99
20.669	6939.49	14.2	0.345	14.2	2.6	1.12	2.43%	Coarse Alluvium	0.056	111.0	1.17	0.000	1.17	0	11	2.64%	2.9	36%	2.00	0.000	2.00
20.833	6939.33	54.3	0.327	54.2	3.4	1.49	0.60%	Coarse Alluvium	0.056	111.0	1.18	0.000	1.18	0	45	0.62%	2.1	36%	2.01	0.000	2.01
20.997	6939.16	57.5	0.354	57.5	3.3	1.42	0.62%	Coarse Alluvium	0.056	111.0	1.19	0.000	1.19	0	47	0.63%	2.1	36%	2.02	0.000	2.02
21.161	6939.00	57.1	0.386	57.1	2.4	1.06	0.68%	Coarse Alluvium	0.056	111.0	1.20	0.000	1.20	0	47	0.69%	2.1	36%	2.03	0.000	2.03
21.325	6938.83	63.6	0.459	63.6	2.5	1.08	0.72%	Coarse Alluvium	0.056	111.0	1.21	0.000	1.21	0	52	0.74%	2.1	36%	2.04	0.000	2.04
21.489	6938.67	69.9	0.558	69.9	2.2	0.96	0.80%	Coarse Alluvium	0.056	111.0	1.22	0.000	1.22	0	56	0.81%	2.1	36%	2.05	0.000	2.05
21.653	6938.51	72.3	0.660	72.3	2.4	1.02	0.91%	Coarse Alluvium	0.056	111.0	1.22	0.000	1.22	0	58	0.93%	2.1	36%	2.06	0.000	2.06
21.817	6938.34	72.1	0.742	72.1	2.4	1.06	1.03%	Coarse Alluvium	0.056	111.0	1.23	0.000	1.23	0	57	1.05%	2.1	36%	2.07	0.000	2.07
21.981	6938.18	70.6	0.775	70.6	2.5	1.10	1.10%	Coarse Alluvium	0.056	111.0	1.24	0.000	1.24	0	56	1.12%	2.1	36%	2.08	0.000	2.08
22.145	6938.01	66.7	0.780	66.7	2.6	1.12	1.17%	Coarse Alluvium	0.056	111.0	1.25	0.000	1.25	0	52	1.19%	2.2	36%	2.09	0.000	2.09
22.309	6937.85	63.1	0.774	63.0	2.5	1.10	1.23%	Coarse Alluvium	0.056	111.0	1.26	0.000	1.26	0	49	1.25%	2.2	36%	2.09	0.000	2.09
22.473	6937.69	57.6	0.726	57.6	2.3	1.00	1.26%	Coarse Alluvium	0.056	111.0	1.27	0.000	1.27	0	44	1.29%	2.3	36%	2.10	0.000	2.10
22.638	6937.52	51.5	0.678	51.5	2.6	1.14	1.32%	Coarse Alluvium	0.056	111.0	1.28	0.000	1.28	0	39	1.35%	2.3	36%	2.11	0.000	2.11
22.802	6937.36	47.3	0.632	47.3	2.5	1.10	1.34%	Coarse Alluvium	0.056	111.0	1.29	0.000	1.29	0	36	1.37%	2.3	36%	2.12	0.000	2.12
22.966	6937.19	53.0	0.619	53.0	2.8	1.20	1.17%	Coarse Alluvium	0.056	111.0	1.30	0.000	1.30	0	40	1.20%	2.3	36%	2.13	0.000	2.13
23.130	6937.03	61.3	0.607	61.3	2.9	1.24	0.99%	Coarse Alluvium	0.056	111.0	1.31	0.000	1.31	0	46	1.01%	2.2	36%	2.14	0.000	2.14
23.294	6936.87	65.0	0.622	65.0	2.9	1.24	0.96%	Coarse Alluvium	0.056	111.0	1.32	0.000	1.32	0	48	0.98%	2.2	36%	2.15	0.000	2.15
23.458	6936.70	67.0	0.632	67.0	2.7	1.16	0.94%	Coarse Alluvium	0.056	111.0	1.32	0.000	1.32	0	50	0.96%	2.1	36%	2.16	0.000	2.16
23.622	6936.54	67.4	0.658	67.4	3.0	1.28	0.98%	Coarse Alluvium	0.056	111.0	1.33	0.000	1.33	0	50	1.00%	2.2	36%	2.17	0.000	2.17

7.60	557	1.8E-03	5.5E+02	116	0.8629	4.4E-04	19	0.227	0.226	68	18.299	8579	5895	1464	4713	0.345%	1.70	0.75	0.02%	0.023134	0.34	0.079	0.797	3.69%	0.0060
7.65	557	1.8E-03	5.5E+02	114	0.8607	4.5E-04	19	0.227	0.226	69	18.566	8556	5879	1465	4702	0.347%	1.70	0.75	0.02%	0.023273	0.34	0.079	0.797	3.71%	0.0061
7.70	557	1.8E-03	5.5E+02	113	0.8585	4.5E-04	19	0.228	0.227	70	18.833	8534	5863	1466	4691	0.350%	1.70	0.75	0.02%	0.023408	0.34	0.079	0.797	3.73%	0.0061
7.75	557	1.8E-03	5.5E+02	111	0.8562	4.5E-04	19	0.228	0.227	71	19.100	8512	5848	1467	4680	0.353%	1.70	0.75	0.02%	0.023541	0.34	0.079	0.797	3.75%	0.0062
7.80	557	1.8E-03	5.5E+02	109	0.8539	4.5E-04	19	0.228	0.227	72	19.367	8490	5833	1468	4669	0.355%	1.70	0.75	0.02%	0.023669	0.34	0.079	0.797	3.77%	0.0062
7.85	557	1.8E-03	5.5E+02	108	0.8516	4.5E-04	19	0.229	0.228	73	19.634	8468	5817	1469	4658	0.357%	1.70	0.75	0.02%	0.023794	0.34	0.079	0.797	3.79%	0.0062
7.90	557	1.8E-03	5.5E+02	106	0.8492	4.5E-04	19	0.229	0.228	74	19.901	8446	5802	1470	4647	0.360%	1.70	0.75	0.02%	0.023916	0.34	0.079	0.797	3.81%	0.0063
7.95	557	1.8E-03	5.5E+02	105	0.8468	4.6E-04	19	0.229	0.228	75	20.168	8425	5787	1471	4636	0.362%	1.70	0.75	0.02%	0.024034	0.34	0.079	0.797	3.83%	0.0063
8.00	557	1.8E-03	5.5E+02	103	0.8444	4.6E-04	19	0.230	0.229	76	20.434	8404	5772	1472	4626	0.364%	1.70	0.75	0.02%	0.024148	0.34	0.079	0.797	3.85%	0.0063
8.05	557	1.8E-03	5.5E+02	102	0.8420	4.6E-04	19	0.230	0.229	77	20.701	8383	5758	1473	4615	0.366%	1.70	0.75	0.02%	0.024258	0.34	0.079	0.797	3.87%	0.0063
8.10	557	1.8E-03	5.5E+02	100	0.8395	4.6E-04	19	0.230	0.230	78	20.968	8362	5743	1474	4605	0.368%	1.70	0.75	0.02%	0.024364	0.34	0.079	0.797	3.88%	0.0064
8.15	557	1.8E-03	5.5E+02	99	0.8370	4.6E-04	19	0.231	0.230	79	21.235	8341	5729	1475	4594	0.370%	1.70	0.75	0.02%	0.024466	0.34	0.079	0.797	3.90%	0.0064
8.20	557	1.8E-03	5.5E+02	98	0.8345	4.6E-04	19	0.231	0.230	80	21.502	8321	5714	1476	4584	0.372%	1.70	0.75	0.02%	0.024565	0.34	0.079	0.797	3.92%	0.0064
8.25	557	1.8E-03	5.5E+02	96	0.8320	4.6E-04	19	0.231	0.231	81	21.769	8300	5700	1477	4574	0.374%	1.70	0.75	0.02%	0.024659	0.34	0.079	0.797	3.93%	0.0064
8.30	557	1.7E-03	5.2E+02	95	0.8294	4.9E-04	43	0.232	0.231	82	82.000	8281	5687	1478	1478	0.101%	0.90	0.75	0.06%	0.002608	0.25	0.323	0.851	0.44%	0.0007
8.35	557	1.7E-03	5.2E+02	93	0.8268	4.9E-04	43	0.232	0.231	83	83.000	8262	5673	1479	1479	0.102%	0.90	0.75	0.06%	0.002630	0.25	0.323	0.851	0.45%	0.0007
8.40	557	1.7E-03	5.2E+02	92	0.8242	4.9E-04	43	0.232	0.232	84	84.000	8244	5660	1480	1480	0.102%	0.90	0.75	0.06%	0.002653	0.25	0.323	0.851	0.45%	0.0007
8.45	557	1.7E-03	5.2E+02	91	0.8215	5.0E-04	43	0.233	0.232	85	85.000	8225	5647	1481	1481	0.103%	0.90	0.75	0.06%	0.002674	0.25	0.323	0.851	0.46%	0.0007
8.50	557	1.7E-03	5.2E+02	90	0.8188	5.0E-04	43	0.233	0.232	86	86.000	8206	5634	1482	1482	0.103%	0.90	0.75	0.06%	0.002695	0.25	0.323	0.851	0.46%	0.0008
8.55	557	1.7E-03	5.2E+02	88	0.8161	5.0E-04	43	0.233	0.233	87	87.000	8188	5621	1483	1483	0.104%	0.90	0.75	0.06%	0.002716	0.25	0.323	0.851	0.46%	0.0008
8.60	557	1.7E-03	5.2E+02	87	0.8133	5.0E-04	43	0.233	0.233	88	88.000	8170	5609	1484	1484	0.104%	0.90	0.75	0.06%	0.002736	0.25	0.323	0.851	0.47%	0.0008
8.65	557	1.7E-03	5.2E+02	86	0.8105	5.0E-04	43	0.234	0.233	89	89.000	8152	5596	1485	1485	0.104%	0.90	0.75	0.06%	0.002755	0.25	0.323	0.851	0.47%	0.0008
8.70	557	1.7E-03	5.2E+02	85	0.8077	5.0E-04	43	0.234	0.234	90	90.000	8134	5584	1486	1486	0.105%	0.90	0.75	0.06%	0.002774	0.25	0.323	0.851	0.47%	0.0008
8.75	557	1.7E-03	5.2E+02	84	0.8049	5.0E-04	43	0.234	0.234	91	91.000	8116	5571	1487	1487	0.105%	0.90	0.75	0.06%	0.002792	0.25	0.323	0.851	0.48%	0.0008
8.80	998	1.7E-03	1.7E+03	82	0.8020	1.6E-04	43	0.235	0.234	92	92.000	8099	5559	1488	1488	0.020%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
8.85	998	1.7E-03	1.7E+03	81	0.7991	1.6E-04	43	0.235	0.235	93	93.000	8081	5547	1489	1489	0.020%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
8.90	998	1.7E-03	1.7E+03	80	0.7962	1.6E-04	43	0.235	0.235	94	94.000	8064	5534	1490	1490	0.020%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
8.95	998	1.7E-03	1.7E+03	79	0.7932	1.5E-04	0	0.236	0.235	95	0.236	8046	5522	1491	8046	0.022%	2.00	1.00	0.01%	0.000245	0.36	0.025	0.785	0.04%	0.0001
9.00	998	1.7E-03	1.7E+03	78	0.7902	1.5E-04	0	0.236	0.236	96	0.236	8028	5510	1492	8028	0.022%	2.00	1.00	0.01%	0.000246	0.36	0.025	0.785	0.04%	0.0001
9.05	998	1.7E-03	1.7E+03	77	0.7872	1.5E-04	0	0.236	0.236	97	0.236	8011	5497	1493	8011	0.022%	2.00	1.00	0.01%	0.000246	0.36	0.025	0.785	0.04%	0.0001
9.10	998	1.7E-03	1.7E+03	76	0.7842	1.5E-04	0	0.236	0.236	98	0.236	7993	5485	1494	7993	0.022%	2.00	1.00	0.01%	0.000247	0.36	0.025	0.785	0.04%	0.0001
9.15	998	1.7E-03	1.7E+03	75	0.7811	1.5E-04	0	0.237	0.237	99	0.237	7976	5473	1495	7976	0.022%	2.00	1.00	0.01%	0.000248	0.36	0.025	0.785	0.04%	0.0001
9.20	998	1.7E-03	1.7E+03	74	0.7780	1.5E-04	0	0.237	0.237	100	0.237	7959	5461	1496	7959	0.022%	2.00	1.00	0.01%	0.000248	0.36	0.025	0.785	0.04%	0.0001
9.25	998	1.7E-03	1.7E+03	73	0.7748	1.5E-04	0	0.237	0.237	101	0.237	7942	5449	1497	7942	0.022%	2.00	1.00	0.01%	0.000248	0.36	0.025	0.785	0.04%	0.0001
9.30	998	1.7E-03	1.7E+03	72	0.7717	1.5E-04	0	0.238	0.238	102	0.238	7925	5437	1498	7925	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
9.35	998	1.7E-03	1.7E+03	71	0.7685	1.5E-04	0	0.238	0.238	103	0.238	7908	5426	1499	7908	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
9.40	998	1.7E-03	1.7E+03	70	0.7652	1.5E-04	0	0.238	0.238	104	0.238	7891	5414	1500	7891	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
9.45	998	1.7E-03	1.7E+03	69	0.7620	1.5E-04	0	0.238	0.239	105	0.238	7875	5402	1501	7875	0.022%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.50	998	1.7E-03	1.7E+03	68	0.7587	1.5E-04	0	0.239	0.239	106	0.239	7858	5391	1502	7858	0.022%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.55	998	1.7E-03	1.7E+03	68	0.7554	1.5E-04	0	0.239	0.239	107	0.239	7842	5379	1503	7842	0.023%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.60	998	1.7E-03	1.7E+03	67	0.7520	1.5E-04	0	0.239	0.240	108	0.239	7826	5368	1504	7826	0.023%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.65	998	1.7E-03	1.7E+03	66	0.7486	1.5E-04	0	0.239	0.240	109	0.239	7810	5357	1505	7810	0.023%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.70	998	1.7E-03	1.7E+03	65	0.7452	1.5E-04	0	0.240	0.240	110	0.240	7794	5346	1506	7794	0.023%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.75	998	1.7E-03	1.7E+03	64	0.7418	1.5E-04	0	0.240	0.241	111	0.240	7778	5335	1507	7778	0.022%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.80	998	1.7E-03	1.7E+03	63	0.7383	1.5E-04	0	0.240	0.241	112	0.240	7762	5324	1508	7762	0.022%	2.00	1.00	0.01%	0.000250	0.36	0.025	0.785	0.04%	0.0001
9.85	998	1.7E-03	1.7E+03	63	0.7348	1.5E-04	0	0.241	0.241	113	0.241	7747	5313	1509	7747	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
9.90	998	1.7E-03	1.7E+03	62	0.7313	1.5E-04	0	0.241	0.242	114	0.241	7731	5302	1510	7731	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
9.95	998	1.7E-03	1.7E+03	61	0.7278	1.5E-04	0	0.241	0.242	115	0.241	7716	5291	1511	7716	0.022%	2.00	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
10.00	998	1.7E-03	1.7E+03	60	0.7242	1.5E-04	0	0.241	0.242	116	0.241	7700	5280	1512	7700	0.022%	2.00	1.00	0.01%	0.000248	0.36	0.025	0.785	0.04%	0.0001
10.05	998	1.7E-03	1.7E+03	60	0.7206	1.5E-04	0	0.242	0.242	117	0.242	7685	5270	1513	7685	0.022%	2.00	1.00	0.01%	0.000248	0.36	0.025	0.785	0.04%	0.0001
10.10	998	1.7E-03	1.7E+03	59	0.7169	1.5E-04	0	0.242	0.243	118	0.242	7670	5259	1514	7670	0.022%	2.00	1.00	0.01%	0.000247	0.36	0.025	0.785	0.04%	0.0001
10.15	998	1.7E-03	1.7E+03	58	0.7133	1.5E-04	0	0.242	0.243	119	0.242	7655	5249	1515	7655	0.022%	2.00	1.00	0.01%	0.000247	0.36	0.025	0.785	0.04%	0.0001
10.20	998	1.7E-03	1.7E+03	57	0.7096	1.5E-04	0	0.242	0.243	120	0.242	7640	5238	1516	7640	0.022%	2.00	1.00	0.01%	0.000246	0.36	0.025	0.785	0.04%	0.0001
10.25	998	1.7E-03	1.7E+03	57	0.7059	1.5E-04	0	0.243	0.244	121	0.243	7625	5228	1517	7625	0.022%	2.00	1.00	0.01%	0.000245	0.36	0.025	0.785	0.04%	0.0001
10.30	894	1.7E-03	1.4E+03	56	0.7021	1.9E-04	0	0.243	0.244	122	0.243	7611	5218	1518	7611	0.032%	2.00	1.00	0.01%	0.000436	0.36	0.025	0.785	0.07%	0.0001
10.35	894	1.7E-03	1.4E+03	55	0.6983	1.9E-04	0	0.243	0.244	123	0.243	7596	5207	1519	7596	0.032%	2.00	1.00	0.01%	0.000435	0.36	0.025	0.785	0.07%	0.0001
10.40	894	1.7E-03	1.4E+03	55	0.6945	1.9E-04	0	0.244	0.245	124	0.244	7582	5197	1520	7582	0.032%	2.00	1.00	0.01%	0.000433	0.36	0.025	0.785	0.07%	0.0001
10.45	894	1.7E-03	1.4E+03	54	0.6907	1.9E-04	0	0.244	0.245	125	0.244	7567	5187	1521	7567	0.032%	2.00	1.00	0.01%	0.000431	0.36	0.025	0.785	0.07%	0.0001
10.50	894	1.7E-03	1.4E+03	53	0.6869	1.9E-04	0	0.244	0.245	126	0.244	7553	5177	1522	7553	0.031%	2.00	1.00	0.01%	0.000430	0.36	0.025	0.785	0.07%	0.0001
10.55	894	1.7E-03	1.4E+03	53	0.6830	1.9E-04	0	0.244	0.245	127	0.244	7539	5167	1523	7539	0.031%	2.00	1.00	0.01%	0.000428	0.36	0.025	0.785	0.07%	0.0001
10.60	894	1.7E-03	1.4E+03	52	0.6791	1.9E-04	0	0.245	0.246	128	0.245	7524	5157	1524	7524	0.031%	2.00	1.00	0.01%	0.000426	0.36	0.025	0.785	0.07%	0.0001
10.65	894	1.7E-03	1.4E+03	52	0.6751	1.9E-04	0	0.245	0.246	129	0.245	7510	5148	1525	7510	0.031%	2.00	1.00	0.01%	0.000424	0.36	0.025	0.785	0.07%	0.0001
10.70	894	1.7E-03	1.4E+03	51	0.6712	1.9E-04	0	0.245	0.246	130	0.245	7496	5138	1526	7496	0.031%	2.00	1.00	0.01%	0.000422	0.36	0.025	0.785	0.07%	0.0001
10.75	894	1.7E-03	1.4E+03	50	0.6672	1.9E-04	0	0.245	0.247	131	0.245	7483	5128	1527	7483	0.031%	2.00	1.00	0.01%	0.000420	0.36	0.025	0.785	0.07%	0.0001
10.80	894	1.7E-03	1.4E+03	50	0.6632	1.9E-04	0	0.246	0.247	132	0.246	7469	5118	1528	7469	0.031%	2.00	1.00	0.01%	0.000417	0.36	0.025	0.785	0.07%	0.0001
10.85	894	1.7E-03	1.4E+03	49	0.6592	1.9E-04	0	0.246	0.247	133	0.246	7455	5109	1529	7455	0.031%	2.00	1.00	0.01%	0.000415	0.36	0.025	0.785	0.07%	0.0001
10.90	894	1.7E-03	1.4E+03	49	0.6551	1.9E-04	0	0.246	0.248	134	0.246	7442	5099	1530	7442	0.031%	2.00	1.00	0.01%	0.000413	0.36	0.025	0.785	0.06%	0.0001
10.95	894	1.7E-03	1.4E+03	48	0.6511	1.9E-04	0	0.246	0.248	135	0.246	7428	5090	1531	7428	0.031%	2.00	1.00	0.01%	0.000410	0.36	0.025	0.785	0.06%	0.0001
11.00	894	1.7E-03	1.4E+03	48	0.6470	1.9E-04	0	0.247	0.248	136	0.247	7415	5081	1532	7415	0.030%	2.00	1.00	0.01%	0.000408	0.36	0.025	0.785	0.06%	0.0001
11.05	894	1.7E-03	1.4E+03	47	0.6429	1.9E-04	0	0.247	0.248	137	0.247	7401	5071	1533	7401	0.030%	2.00	1.00	0.01%	0.000405	0.36	0.025	0.785	0.06%	0.0001
11.10	894	1.7E-03	1.4E+03	46	0.6387	1.9E-04	0	0.247	0.249	138	0.247	7388	5062	1534	7388	0.030%	2.00	1.00	0.01%	0.000402	0.36	0.025	0.785	0.06%	0.0001
11.15	894	1.7E-03	1.4E+03	46	0.6346	1.9E-04	0	0.247	0.249	139	0.247	7375	5053	1535	7375	0.030%	2.00	1.00	0.01%	0.000400	0.36	0.025	0.785	0.06%	0.0001
11.20	894	1.7E-03	1.4E+03	45	0.6304	1.9E-04	0	0.248	0.249	140	0.248	7362	5044	1536	7362	0.030%	2.00	1.00	0.01%	0.000397	0.36	0.025	0.785	0.06%	0.0001
11.25	894	1.7E-03	1.4E+03	45	0.6262	1.9E-04	0	0.248	0.250	141	0.248	7349	5034	1537	7349	0.030%	2.00	1.00	0.01%	0.000394	0.36	0.025	0.785	0.06%	0.0001
11.30	894	1.7E-03	1.4E+03	44	0.6220	1.9E-04	0	0.248	0.250	142	0.248	7336	5025	1538	7336	0.030%	2.00	1.00	0.01%	0.000391	0.36	0.025	0.785	0.06%	0.0001
11.35	894	1.7E-03	1.4E+03	44	0.6177	1.9E-04	0	0.248	0.250	143	0.248	7323	5016	1539	7323	0.029%	2.00	1.00	0.01%	0.000388	0.36	0.025	0.785	0.06%	0.0001
11.40	894	1.7E-03	1.4E+03	44	0.6135	1.9E-04	0	0.249	0.250	144	0.249	7310	5008	1540	7310	0.029%	2.00	1.00	0.01%	0.000385	0.36	0.025	0.785	0.06%	0.0001
11.45	894	1.7E-03	1.4E+03	43	0.6092	1.9E-04	0	0.249	0.251	145	0.249	7297	4999	1541	7297	0.029%	2.00	1.00	0.01%	0.000382	0.36	0.025	0.785	0.06%	0.0001
11.50	894	1.7E-03	1.4E+03	43	0.6049	1.8E-04	0	0.249	0.251	146	0.249	7285	4990	1542	7285	0.029%	2.00	1.00	0.01%	0.000378	0.36	0.025	0.785	0.06%	0.0001
11.55	894	1.7E-03	1.4E+03	42	0.6006	1.8E-04	0	0.249	0.251	147	0.249	7272	4981	1543	7272	0.029%	2.00	1.00	0.01%	0.000375	0.36	0.025	0.785	0.06%	0.0001

23.786	6936.37	63.8	0.763	63.8	3.1	1.36	1.20%	Coarse Alluvium	0.056	111.0	1.34	0.000	1.34	0	47	1.22%	2.2	36%	2.18	0.000	2.18
23.950	6936.21	60.6	0.864	60.6	3.0	1.28	1.43%	Coarse Alluvium	0.056	111.0	1.35	0.000	1.35	0	44	1.46%	2.3	36%	2.19	0.000	2.19
24.114	6936.05	56.6	0.899	56.6	3.1	1.36	1.59%	Coarse Alluvium	0.056	111.0	1.36	0.000	1.36	0	41	1.63%	2.3	36%	2.19	0.000	2.19
24.278	6935.88	58.4	0.463	58.4	3.0	1.30	0.79%	Coarse Alluvium	0.056	111.0	1.37	0.000	1.37	0	42	0.81%	2.2	36%	2.20	0.000	2.20
24.442	6935.72	56.5	0.419	56.5	2.9	1.24	0.74%	Coarse Alluvium	0.056	111.0	1.38	0.000	1.38	0	40	0.76%	2.2	36%	2.21	0.000	2.21
24.606	6935.55	59.6	0.491	59.6	3.4	1.49	0.82%	Coarse Alluvium	0.056	111.0	1.39	0.000	1.39	0	42	0.84%	2.2	36%	2.22	0.000	2.22
24.770	6935.39	59.6	0.584	59.6	3.5	1.50	0.98%	Coarse Alluvium	0.056	111.0	1.40	0.000	1.40	0	42	1.00%	2.2	36%	2.23	0.000	2.23
24.934	6935.23	48.5	0.515	48.4	3.4	1.46	1.06%	Coarse Alluvium	0.056	111.0	1.41	0.000	1.41	0	33	1.09%	2.3	36%	2.24	0.000	2.24
25.098	6935.06	46.2	0.732	46.2	3.4	1.46	1.59%	Coarse Alluvium	0.056	111.0	1.42	0.000	1.42	0	32	1.64%	2.4	36%	2.25	0.000	2.25
25.262	6934.90	54.3	0.862	54.3	2.5	1.10	1.59%	Coarse Alluvium	0.056	111.0	1.42	0.000	1.42	0	37	1.63%	2.4	36%	2.26	0.000	2.26
25.426	6934.73	57.0	0.957	57.0	2.9	1.26	1.68%	Coarse Alluvium	0.056	111.0	1.43	0.000	1.43	0	39	1.72%	2.4	36%	2.27	0.000	2.27
25.590	6934.57	60.2	0.831	60.2	2.5	1.08	1.38%	Coarse Alluvium	0.056	111.0	1.44	0.000	1.44	0	41	1.41%	2.3	36%	2.28	0.000	2.28
25.754	6934.41	61.6	0.658	61.6	2.5	1.10	1.07%	Fine Alluvium	0.060	120.7	1.45	0.000	1.45	0	41	1.09%	2.2	76%	2.29	0.000	2.29
25.918	6934.24	52.0	0.903	52.0	2.6	1.14	1.74%	Fine Alluvium	0.060	120.7	1.46	0.000	1.46	0	35	1.79%	2.4	76%	2.30	0.000	2.30
26.082	6934.08	32.6	0.823	32.6	2.5	1.08	2.52%	Fine Alluvium	0.060	120.7	1.47	0.000	1.47	0	21	2.64%	2.7	76%	2.31	0.000	2.31
26.246	6933.91	24.2	0.702	24.2	2.7	1.18	2.90%	Fine Alluvium	0.060	120.7	1.48	0.000	1.48	0	15	3.09%	2.9	76%	2.32	0.000	2.32
26.410	6933.75	25.5	0.836	25.4	3.7	1.59	3.28%	Fine Alluvium	0.060	120.7	1.49	0.000	1.49	0	16	3.49%	2.9	76%	2.33	0.000	2.33
26.574	6933.59	16.9	0.905	16.9	2.4	1.02	5.35%	Fine Alluvium	0.060	120.7	1.50	0.000	1.50	0	10	5.88%	3.2	76%	2.34	0.000	2.34
26.739	6933.42	15.7	0.736	15.7	3.1	1.32	4.69%	Fine Alluvium	0.060	120.7	1.51	0.000	1.51	0	9	5.19%	3.2	76%	2.35	0.000	2.35
26.903	6933.26	15.0	0.577	15.0	3.9	1.71	3.85%	Fine Alluvium	0.060	120.7	1.52	0.000	1.52	0	9	4.28%	3.1	76%	2.36	0.000	2.36
27.067	6933.09	15.1	0.503	15.1	4.2	1.81	3.32%	Fine Alluvium	0.060	120.7	1.53	0.000	1.53	0	9	3.70%	3.1	76%	2.37	0.000	2.37
27.231	6932.93	18.4	0.498	18.4	4.4	1.91	2.70%	Fine Alluvium	0.060	120.7	1.54	0.000	1.54	0	11	2.95%	3.0	76%	2.38	0.000	2.38
27.395	6932.77	23.2	0.676	23.2	4.6	1.99	2.91%	Fine Alluvium	0.060	120.7	1.55	0.000	1.55	0	14	3.12%	2.9	76%	2.39	0.000	2.39
27.559	6932.60	27.1	0.811	27.0	5.3	2.30	3.00%	Fine Alluvium	0.060	120.7	1.56	0.000	1.56	0	16	3.18%	2.8	76%	2.40	0.000	2.40
27.723	6932.44	18.4	0.811	18.4	4.9	2.14	4.41%	Fine Alluvium	0.060	120.7	1.57	0.000	1.57	0	11	4.82%	3.1	76%	2.41	0.000	2.41
27.887	6932.27	13.3	0.646	13.3	4.7	2.03	4.86%	Fine Alluvium	0.060	120.7	1.58	0.000	1.58	0	7	5.52%	3.3	76%	2.41	0.000	2.41
28.051	6932.11	12.3	0.540	12.2	5.0	2.15	4.40%	Fine Alluvium	0.060	120.7	1.59	0.000	1.59	0	7	5.06%	3.3	76%	2.42	0.000	2.42
28.215	6931.95	12.7	0.537	12.6	5.4	2.34	4.24%	Fine Alluvium	0.060	120.7	1.60	0.000	1.60	0	7	4.86%	3.2	76%	2.43	0.000	2.43
28.379	6931.78	13.1	0.588	13.1	5.8	2.52	4.49%	Fine Alluvium	0.060	120.7	1.61	0.000	1.61	0	7	5.12%	3.3	76%	2.44	0.000	2.44
28.543	6931.62	13.2	0.612	13.2	6.2	2.67	4.63%	Fine Alluvium	0.060	120.7	1.62	0.000	1.62	0	7	5.27%	3.3	76%	2.45	0.000	2.45
28.707	6931.45	15.5	0.641	15.4	6.5	2.83	4.15%	Fine Alluvium	0.060	120.7	1.63	0.000	1.63	0	8	4.64%	3.2	76%	2.46	0.000	2.46
28.871	6931.29	15.3	0.550	15.3	6.7	2.91	3.58%	Fine Alluvium	0.060	120.7	1.64	0.000	1.64	0	8	4.01%	3.1	76%	2.47	0.000	2.47
29.035	6931.12	16.7	0.500	16.7	6.8	2.95	2.99%	Fine Alluvium	0.060	120.7	1.65	0.000	1.65	0	9	3.31%	3.1	76%	2.48	0.000	2.48
29.199	6930.96	18.1	0.478	18.1	7.1	3.07	2.63%	Fine Alluvium	0.060	120.7	1.66	0.000	1.66	0	10	2.90%	3.0	76%	2.49	0.000	2.49
29.363	6930.80	16.2	0.371	16.1	7.3	3.17	2.29%	Fine Alluvium	0.060	120.7	1.67	0.000	1.67	0	9	2.56%	3.0	76%	2.50	0.000	2.50
29.527	6930.63	14.7	0.269	14.7	7.3	3.17	1.83%	Fine Alluvium	0.060	120.7	1.68	0.000	1.68	0	8	2.07%	3.0	76%	2.51	0.000	2.51
29.691	6930.47	16.1	0.245	16.1	7.7	3.32	1.52%	Fine Alluvium	0.060	120.7	1.69	0.000	1.69	0	9	1.70%	2.9	76%	2.52	0.000	2.52
29.855	6930.30	20.1	0.520	20.1	8.1	3.52	2.58%	Fine Alluvium	0.060	120.7	1.70	0.000	1.70	0	11	2.82%	3.0	76%	2.53	0.000	2.53
30.019	6930.14	23.8	0.935	23.7	9.2	3.97	3.93%	Fine Alluvium	0.060	120.7	1.71	0.000	1.71	0	13	4.24%	3.0	76%	2.54	0.000	2.54
30.183	6929.98	27.4	1.385	27.2	24.5	10.60	5.06%	Fine Alluvium	0.060	120.7	1.72	0.000	1.72	0	15	5.40%	3.0	76%	2.55	0.000	2.55
30.347	6929.81	26.9	1.592	26.8	23.7	10.27	5.91%	Fine Alluvium	0.060	120.7	1.73	0.000	1.73	0	15	6.32%	3.1	76%	2.56	0.000	2.56
30.511	6929.65	25.0	1.361	24.9	23.3	10.09	5.44%	Fine Alluvium	0.060	120.7	1.74	0.000	1.74	0	13	5.85%	3.1	76%	2.57	0.000	2.57
30.675	6929.48	24.7	1.184	24.6	23.0	9.95	4.79%	Fine Alluvium	0.060	120.7	1.75	0.000	1.75	0	13	5.15%	3.0	76%	2.58	0.000	2.58
30.840	6929.32	19.5	0.964	19.4	22.3	9.66	4.94%	Fine Alluvium	0.060	120.7	1.76	0.000	1.76	0	10	5.43%	3.1	76%	2.59	0.000	2.59
31.004	6929.16	17.6	0.759	17.5	22.0	9.52	4.31%	Fine Alluvium	0.060	120.7	1.77	0.000	1.77	0	9	4.80%	3.2	76%	2.60	0.000	2.60
31.168	6928.99	16.6	0.537	16.4	21.6	9.36	3.24%	Fine Alluvium	0.060	120.7	1.78	0.000	1.78	0	8	3.63%	3.1	76%	2.61	0.000	2.61
31.332	6928.83	17.7	0.547	17.6	21.9	9.50	3.09%	Fine Alluvium	0.060	120.7	1.79	0.000	1.79	0	9	3.43%	3.1	76%	2.62	0.000	2.62
31.496	6928.66	19.8	0.587	19.7	22.2	9.64	2.96%	Fine Alluvium	0.060	120.7	1.80	0.000	1.80	0	10	3.26%	3.0	76%	2.63	0.000	2.63
31.660	6928.50	24.8	0.838	24.7	21.1	9.13	3.38%	Fine Alluvium	0.060	120.7	1.81	0.000	1.81	0	13	3.64%	3.0	76%	2.64	0.000	2.64
31.824	6928.34	28.9	1.130	28.8	20.7	8.97	3.91%	Fine Alluvium	0.060	120.7	1.82	0.000	1.82	0	15	4.18%	2.9	76%	2.65	0.000	2.65
31.988	6928.17	30.9	1.378	30.8	19.2	8.34	4.46%	Fine Alluvium	0.060	120.7	1.83	0.000	1.83	0	16	4.74%	3.0	76%	2.66	0.000	2.66
32.152	6928.01	29.1	1.583	29.0	17.1	7.42	5.44%	Fine Alluvium	0.060	120.7	1.84	0.000	1.84	0	15	5.81%	3.0	76%	2.67	0.000	2.67
32.316	6927.84	26.4	1.602	26.3	15.2	6.57	6.06%	Fine Alluvium	0.060	120.7	1.85	0.000	1.85	0	13	6.52%	3.1	76%	2.68	0.000	2.68
32.480	6927.68	23.5	1.399	23.4	13.3	5.78	5.96%	Fine Alluvium	0.060	120.7	1.86	0.000	1.86	0	12	6.47%	3.1	76%	2.69	0.000	2.69
32.644	6927.52	19.8	1.138	19.7	12.5	5.41	5.76%	Fine Alluvium	0.060	120.7	1.87	0.000	1.87	0	10	6.36%	3.2	76%	2.70	0.000	2.70
32.808	6927.35	19.0	0.927	18.9	12.1	5.25	4.88%	Fine Alluvium	0.060	120.7	1.88	0.000	1.88	0	9	5.41%	3.2	76%	2.71	0.000	2.71
32.972	6927.19	17.2	0.805	17.1	11.9	5.14	4.69%	Fine Alluvium	0.060	120.7	1.89	0.000	1.89	0	8	5.27%	3.2	76%	2.72	0.000	2.72
33.136	6927.02	15.3	0.683	15.2	11.7	5.08	4.46%	Fine Alluvium	0.060	120.7	1.90	0.000	1.90	0	7	5.10%	3.3	76%	2.73	0.000	2.73
33.300	6926.86	15.2	0.540	15.2	11.8	5.10	3.54%	Fine Alluvium	0.060	120.7	1.91	0.000	1.91	0	7	4.05%	3.2	76%	2.74	0.000	2.74
33.464	6926.70	22.4	0.463	22.3	11.9	5.14	2.07%	Fine Alluvium	0.060	120.7	1.92	0.000	1.92	0	11	2.26%	2.9	76%	2.75	0.000	2.75
33.628	6926.53	166.5	2.761	166.4	16.2	7.04	1.66%	Weath. Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
33.792	6926.37	319.0	2.761	318.9	18.4	7.97	0.87%	Weath. Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
33.956	6926.20	581.2	2.761	581.1	14.3	6.20	0.48%	Weath. Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-

11.60	894	1.7E-03	1.4E+03	42	0.5963	1.8E-04	0	0.250	0.252	148	0.250	7260	4972	1544	7260	0.029%	2.00	1.00	0.01%	0.000372	0.36	0.025	0.785	0.06%	0.0001
11.65	894	1.7E-03	1.4E+03	41	0.5919	1.8E-04	0	0.250	0.252	149	0.250	7247	4964	1545	7247	0.028%	2.00	1.00	0.01%	0.000368	0.36	0.025	0.785	0.06%	0.0001
11.70	894	1.7E-03	1.4E+03	41	0.5875	1.8E-04	0	0.250	0.252	150	0.250	7235	4955	1546	7235	0.028%	2.00	1.00	0.01%	0.000365	0.36	0.025	0.785	0.06%	0.0001
11.75	894	1.7E-03	1.4E+03	40	0.5832	1.8E-04	0	0.250	0.252	151	0.250	7223	4946	1547	7223	0.028%	2.00	1.00	0.01%	0.000361	0.36	0.025	0.785	0.06%	0.0001
11.80	894	1.7E-03	1.4E+03	40	0.5788	1.8E-04	0	0.251	0.253	152	0.251	7210	4938	1548	7210	0.028%	2.00	1.00	0.01%	0.000358	0.36	0.025	0.785	0.06%	0.0001
11.85	864	1.7E-03	1.3E+03	40	0.5744	1.9E-04	0	0.251	0.253	153	0.251	7198	4929	1549	7198	0.031%	2.00	1.00	0.01%	0.000420	0.36	0.025	0.785	0.07%	0.0001
11.90	864	1.7E-03	1.3E+03	39	0.5700	1.9E-04	0	0.251	0.253	154	0.251	7186	4921	1550	7186	0.031%	2.00	1.00	0.01%	0.000416	0.36	0.025	0.785	0.07%	0.0001
11.95	864	1.7E-03	1.3E+03	39	0.5655	1.9E-04	0	0.251	0.253	155	0.251	7174	4913	1551	7174	0.031%	2.00	1.00	0.01%	0.000412	0.36	0.025	0.785	0.06%	0.0001
12.00	864	1.7E-03	1.3E+03	38	0.5611	1.9E-04	0	0.251	0.254	156	0.251	7162	4904	1552	7162	0.030%	2.00	1.00	0.01%	0.000407	0.36	0.025	0.785	0.06%	0.0001
12.05	864	1.7E-03	1.3E+03	38	0.5566	1.9E-04	0	0.252	0.254	157	0.252	7150	4896	1553	7150	0.030%	2.00	1.00	0.01%	0.000403	0.36	0.025	0.785	0.06%	0.0001
12.10	864	1.7E-03	1.3E+03	38	0.5522	1.9E-04	0	0.252	0.254	158	0.252	7139	4888	1554	7139	0.030%	2.00	1.00	0.01%	0.000398	0.36	0.025	0.785	0.06%	0.0001
12.15	864	1.7E-03	1.3E+03	37	0.5477	1.9E-04	0	0.252	0.255	159	0.252	7127	4880	1555	7127	0.030%	2.00	1.00	0.01%	0.000394	0.36	0.025	0.785	0.06%	0.0001
12.20	864	1.9E-03	1.4E+03	37	0.5432	1.7E-04	22	0.252	0.255	160	74.803	7114	4871	1556	3324	0.031%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.25	864	1.9E-03	1.4E+03	37	0.5387	1.7E-04	22	0.253	0.255	161	75.269	7102	4862	1557	3320	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.30	864	1.9E-03	1.4E+03	36	0.5342	1.7E-04	22	0.253	0.255	162	75.736	7089	4853	1558	3315	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.35	864	1.9E-03	1.4E+03	36	0.5297	1.7E-04	22	0.253	0.256	163	76.203	7077	4845	1559	3311	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.40	864	1.9E-03	1.4E+03	36	0.5252	1.7E-04	22	0.253	0.256	164	76.670	7064	4836	1560	3307	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.45	864	1.9E-03	1.4E+03	35	0.5206	1.7E-04	22	0.254	0.256	165	77.137	7052	4827	1561	3303	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.50	864	1.9E-03	1.4E+03	35	0.5161	1.7E-04	22	0.254	0.257	166	77.604	7040	4819	1562	3299	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.55	864	1.9E-03	1.4E+03	35	0.5116	1.7E-04	22	0.254	0.257	167	78.070	7028	4810	1563	3295	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.60	864	1.9E-03	1.4E+03	34	0.5070	1.7E-04	22	0.254	0.257	168	78.537	7016	4802	1564	3291	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.65	864	1.9E-03	1.4E+03	34	0.5025	1.7E-04	22	0.255	0.257	169	79.004	7004	4794	1565	3287	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.70	864	1.9E-03	1.4E+03	34	0.4979	1.7E-04	22	0.255	0.258	170	79.471	6992	4785	1566	3283	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.75	864	1.9E-03	1.4E+03	33	0.4934	1.6E-04	22	0.255	0.258	171	79.938	6980	4777	1567	3279	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.80	864	1.9E-03	1.4E+03	33	0.4888	1.6E-04	22	0.255	0.258	172	80.404	6968	4769	1568	3275	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.85	864	1.9E-03	1.4E+03	33	0.4842	1.6E-04	22	0.256	0.259	173	80.871	6956	4761	1569	3271	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.90	864	1.9E-03	1.4E+03	33	0.4797	1.6E-04	22	0.256	0.259	174	81.338	6945	4752	1570	3267	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.95	864	1.9E-03	1.4E+03	32	0.4751	1.6E-04	22	0.256	0.259	175	81.805	6933	4744	1571	3263	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.00	864	1.9E-03	1.4E+03	32	0.4706	1.6E-04	22	0.256	0.259	176	82.272	6921	4736	1572	3260	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.05	864	1.9E-03	1.4E+03	32	0.4660	1.6E-04	22	0.257	0.260	177	82.739	6910	4728	1573	3256	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.10	864	1.9E-03	1.4E+03	32	0.4614	1.6E-04	22	0.257	0.260	178	83.205	6899	4720	1574	3252	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.15	864	1.9E-03	1.4E+03	31	0.4569	1.6E-04	22	0.257	0.260	179	83.672	6887	4712	1575	3248	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.20	864	1.9E-03	1.4E+03	31	0.4523	1.6E-04	22	0.257	0.261	180	84.139	6876	4705	1576	3245	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.25	864	1.9E-03	1.4E+03	31	0.4478	1.6E-04	22	0.258	0.261	181	84.606	6865	4697	1577	3241	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.30	864	1.9E-03	1.4E+03	31	0.4432	1.5E-04	22	0.258	0.261	182	85.073	6854	4689	1578	3237	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.35	1275	1.9E-03	3.0E+03	30	0.4387	7.1E-05	22	0.258	0.261	183	85.539	6843	4681	1579	3234	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.40	1275	1.9E-03	3.0E+03	30	0.4342	7.0E-05	22	0.258	0.262	184	86.006	6832	4674	1580	3230	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.45	1275	1.9E-03	3.0E+03	30	0.4296	7.0E-05	22	0.258	0.262	185	86.473	6821	4666	1581	3226	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.50	1275	1.9E-03	3.0E+03	30	0.4251	6.9E-05	22	0.259	0.262	186	86.940	6810	4658	1582	3223	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.55	1275	1.9E-03	3.0E+03	29	0.4206	6.9E-05	22	0.259	0.262	187	87.407	6799	4651	1583	3219	0.009%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.60	1275	1.9E-03	3.0E+03	29	0.4161	6.8E-05	22	0.259	0.263	188	87.873	6788	4643	1584	3216	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.65	1275	1.9E-03	3.0E+03	29	0.4116	6.8E-05	22	0.259	0.263	189	88.340	6777	4636	1585	3212	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.70	1275	1.9E-03	3.0E+03	29	0.4071	6.7E-05	22	0.260	0.263	190	88.807	6767	4628	1586	3209	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.75	1275	1.9E-03	3.0E+03	29	0.4027	6.7E-05	22	0.260	0.263	191	89.274	6756	4621	1587	3205	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.80	1275	1.9E-03	3.0E+03	28	0.3982	6.6E-05	22	0.260	0.264	192	89.741	6746	4614	1588	3202	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.85	1275	1.9E-03	3.0E+03	28	0.3937	6.6E-05	22	0.260	0.264	193	90.207	6735	4606	1589	3198	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.90	1275	1.9E-03	3.0E+03	28	0.3893	6.5E-05	22	0.261	0.264	194	90.674	6725	4599	1590	3195	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.95	1275	1.9E-03	3.0E+03	28	0.3849	6.5E-05	22	0.261	0.265	195	91.141	6714	4592	1591	3191	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.00	1275	1.9E-03	3.0E+03	28	0.3805	6.4E-05	22	0.261	0.265	196	91.608	6704	4585	1592	3188	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.05	1275	1.9E-03	3.0E+03	27	0.3761	6.4E-05	22	0.261	0.265	197	92.075	6694	4577	1593	3185	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.10	1275	1.9E-03	3.0E+03	27	0.3717	6.3E-05	22	0.261	0.265	198	92.542	6684	4570	1594	3181	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.15	1275	1.9E-03	3.0E+03	27	0.3673	6.3E-05	22	0.262	0.266	199	93.008	6673	4563	1595	3178	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.20	1275	1.9E-03	3.0E+03	27	0.3629	6.2E-05	22	0.262	0.266	200	93.475	6663	4556	1596	3175	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.25	1275	1.9E-03	3.0E+03	27	0.3586	6.2E-05	22	0.262	0.266	201	93.942	6653	4549	1597	3172	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.30	1275	1.9E-03	3.0E+03	26	0.3543	6.1E-05	22	0.262	0.266	202	94.409	6643	4542	1598	3168	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.35	1275	1.9E-03	3.0E+03	26	0.3500	6.1E-05	22	0.263	0.267	203	94.876	6633	4535	1599	3165	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.40	1275	1.9E-03	3.0E+03	26	0.3457	6.0E-05	22	0.263	0.267	204	95.342	6623	4528	1600	3162	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.45	1275	1.9E-03	3.0E+03	26	0.3414	6.0E-05	22	0.263	0.267	205	95.809	6614	4522	1601	3159	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.50	1275	1.9E-03	3.0E+03	26	0.3371	5.9E-05	22	0.263	0.267	206	96.276	6604	4515	1602	3155	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.55	1275	1.9E-03	3.0E+03	26	0.3329	5.9E-05	22	0.263	0.268	207	96.743	6594	4508	1603	3152	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Proposed Repository	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer (tsf)	Total Stress at Midpoint of Layer (tsf)	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint of Layer (tsf)	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint of Layer (tsf)
Erosion Protection	6974.4	6973.7	6972.9	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6972.9	6971.4	6969.9	3.0	0.057	114.7	0.264	0.178	0.00	0.00	0.264	0.178
Mine Spoils	6969.9	6965.1	6960.2	9.8	0.058	116.4	0.833	0.549	0.00	0.00	0.833	0.549

6960.16	Ground Surface Elevation at time of CPT (ft amsl)
6974.44	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

0.83	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6945.15	Elevation of bottom of tailings (ft amsl)

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-08

Data File: 13-52118_RP08-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS

Cells Requiring User Input/Manipulation

http://projects.mwhglobal.com/.../13-52118_RP08-BSC-CPT.XLS

Erosion Protection	Coarse Tailings
Cover Soil	Coarse/Fine Tailings
Mine Spoils	Fine Tailings
Radon Barrier	Coarse Alluvium
General Fill	Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

2013 CPT Data from ConeTec									CPT Data Interpretations										Conditions at t_1		
Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil. Pore Pressure at time of CPT, (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6975.88	6.9	0.010	6.9	0.1	0.06	0.15%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	685	0.15%	0.7	59%	0.84	0.000	0.84
0.328	6975.71	23.1	0.045	23.1	0.3	0.14	0.19%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1152	0.19%	0.7	59%	0.85	0.000	0.85
0.492	6975.55	48.4	0.210	48.4	1.8	0.79	0.43%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1607	0.43%	0.9	59%	0.86	0.000	0.86
0.656	6975.38	65.4	0.422	65.4	1.5	0.65	0.65%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1629	0.65%	1.1	59%	0.87	0.000	0.87
0.820	6975.22	84.7	0.445	84.7	2.4	1.06	0.53%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	1688	0.53%	1.0	59%	0.88	0.000	0.88
0.984	6975.06	95.9	0.656	95.9	2.9	1.24	0.68%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1593	0.68%	1.1	59%	0.89	0.000	0.89
1.148	6974.89	91.0	0.730	91.0	3.5	1.53	0.80%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1296	0.80%	1.2	59%	0.90	0.000	0.90
1.312	6974.73	83.7	0.845	83.7	1.8	0.77	1.01%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1042	1.01%	1.3	59%	0.91	0.000	0.91
1.476	6974.56	88.8	1.305	88.8	0.9	0.39	1.47%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	983	1.47%	1.5	59%	0.92	0.000	0.92
1.640	6974.40	111.4	1.803	111.4	1.2	0.51	1.62%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1109	1.62%	1.5	59%	0.93	0.000	0.93
1.804	6974.24	148.7	2.483	148.7	0.8	0.35	1.67%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1347	1.67%	1.5	59%	0.94	0.000	0.94
1.968	6974.07	180.4	2.837	180.4	0.4	0.16	1.57%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1497	1.57%	1.4	59%	0.95	0.000	0.95
2.133	6973.91	174.5	4.657	174.5	0.1	0.02	2.67%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1344	2.67%	1.7	48%	0.96	0.000	0.96
2.297	6973.74	218.5	6.727	218.5	-0.2	-0.08	3.08%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1570	3.08%	1.7	48%	0.97	0.000	0.97
2.461	6973.58	212.8	7.916	212.8	0.2	0.08	3.72%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1433	3.72%	1.8	48%	0.98	0.000	0.98
2.625	6973.42	184.0	7.494	184.0	-1.9	-0.81	4.07%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1166	4.08%	1.9	48%	0.99	0.000	0.99
2.789	6973.25	198.4	6.167	198.4	-1.0	-0.45	3.11%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1187	3.11%	1.8	48%	1.00	0.000	1.00
2.953	6973.09	204.8	6.219	204.8	5.8	2.52	3.04%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1160	3.04%	1.8	48%	1.01	0.000	1.01
3.117	6972.92	227.6	7.252	227.5	12.3	5.35	3.19%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1224	3.19%	1.8	48%	1.02	0.000	1.02
3.281	6972.76	245.8	8.737	245.8	3.9	1.67	3.55%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1259	3.56%	1.8	48%	1.02	0.000	1.02
3.445	6972.60	236.6	9.263	236.6	0.0	0.00	3.92%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1157	3.92%	1.9	48%	1.03	0.000	1.03
3.609	6972.43	220.6	8.373	220.6	-4.4	-1.91	3.80%	General Fill	0.057	113.8	0.21	0.000	0.21	0	1031	3.80%	1.9	48%	1.04	0.000	1.04
3.773	6972.27	192.2	7.383	192.2	-6.0	-2.58	3.84%	General Fill	0.057	113.8	0.22	0.000	0.22	0	861	3.85%	1.9	48%	1.05	0.000	1.05
3.937	6972.10	183.7	7.063	183.7	-4.0	-1.75	3.85%	General Fill	0.057	113.8	0.23	0.000	0.23	0	789	3.85%	1.9	48%	1.06	0.000	1.06
4.101	6971.94	162.2	6.620	162.2	-2.6	-1.12	4.08%	General Fill	0.057	113.8	0.24	0.000	0.24	0	670	4.09%	1.9	48%	1.07	0.000	1.07
4.265	6971.77	127.4	4.743	127.4	-2.1	-0.91	3.72%	General Fill	0.057	113.8	0.25	0.000	0.25	0	506	3.73%	1.9	48%	1.08	0.000	1.08
4.429	6971.61	108.7	3.056	108.7	-0.6	-0.24	2.81%	General Fill	0.057	113.8	0.26	0.000	0.26	0	417	2.82%	1.9	48%	1.09	0.000	1.09
4.593	6971.45	99.5	2.493	99.5	0.1	0.02	2.51%	General Fill	0.057	113.8	0.27	0.000	0.27	0	368	2.51%	1.9	48%	1.10	0.000	1.10
4.757	6971.28	92.4	2.478	92.4	-0.1	-0.02	2.68%	General Fill	0.057	113.8	0.28	0.000	0.28	0	330	2.69%	1.9	48%	1.11	0.000	1.11
4.921	6971.12	90.1	2.219	90.1	0.1	0.04	2.46%	General Fill	0.057	113.8	0.29	0.000	0.29	0	311	2.47%	1.9	48%	1.12	0.000	1.12
5.085	6970.95	96.8	2.321	96.8	0.1	0.02	2.40%	General Fill	0.057	113.8	0.30	0.000	0.30	0	324	2.40%	1.9	48%	1.13	0.000	1.13
5.249	6970.79	118.6	3.164	118.6	0.9	0.39	2.67%	General Fill	0.057	113.8	0.31	0.000	0.31	0	385	2.67%	1.9	48%	1.14	0.000	1.14
5.413	6970.63	183.5	4.921	183.5	1.2	0.51	2.68%	General Fill	0.057	113.8	0.32	0.000	0.32	0	579	2.69%	1.8	48%	1.15	0.000	1.15
5.577	6970.46	294.0	6.122	294.0	1.6	0.71	2.08%	General Fill	0.057	113.8	0.33	0.000	0.33	0	902	2.08%	1.6	48%	1.16	0.000	1.16
5.741	6970.30	434.2	6.829	434.2	0.7	0.30	1.57%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1295	1.57%	1.5	48%	1.16	0.000	1.16
5.905	6970.13	475.3	6.720	475.3	0.8	0.36	1.41%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1379	1.41%	1.4	48%	1.17	0.000	1.17
6.069	6969.97	468.2	7.237	468.2	0.7	0.30	1.55%	General Fill	0.057	113.8	0.35	0.000	0.35	0	1323	1.55%	1.5	48%	1.18	0.000	1.18
6.234	6969.81	455.7	7.556	455.7	0.9	0.39	1.66%	General Fill	0.057	113.8	0.36	0.000	0.36	0	1254	1.66%	1.5	48%	1.19	0.000	1.19
6.398	6969.64	424.2	7.443	424.2	0.6	0.24	1.75%	General Fill	0.057	113.8	0.37	0.000	0.37	0	1138	1.76%	1.5	48%	1.20	0.000	1.20
6.562	6969.48	382.1	7.390	382.1	0.6	0.26	1.93%	General Fill	0.057	113.8	0.38	0.000	0.38	0	1000	1.94%	1.6	48%	1.21	0.000	1.21
6.726	6969.31	362.3	7.001	362.3	-0.4	-0.16	1.93%	General Fill	0.057	113.8	0.39	0.000	0.39	0	925	1.93%	1.6	48%	1.22	0.000	1.22
6.890	6969.15	310.0	6.544	310.0	-1.9	-0.83	2.11%	General Fill	0.057	113.8	0.40	0.000	0.40	0	773	2.11%	1.7	48%	1.23	0.000	1.23
7.054	6968.99	241.5	5.781	241.5	-1.4	-0.61	2.39%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	589	2.40%	1.7	21%	1.24	0.000	1.24
7.218	6968.82	226.4	4.982	226.4	0.1	0.06	2.20%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	540	2.20%	1.7	21%	1.25	0.000	1.25
7.382	6968.66	150.1	4.120	150.1	-0.1	-0.04	2.74%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	351	2.75%	1.9	21%	1.26	0.000	1.26
7.546	6968.49	104.5	3.636	104.5	0.8	0.33	3.48%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	239	3.49%	2.1	21%	1.27	0.000	1.27
7.710	6968.33	92.0	3.561	92.0	12.0	5.19	3.87%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	206	3.89%	2.1	21%	1.27	0.000	1.27
7.874	6968.17	125.7	3.834	125.6	11.7	5.07	3.05%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	276	3.06%	2.0	21%	1.28	0.000	1.28
8.038	6968.00	160.9	4.546	160.8	11.5	4.96	2.83%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	347	2.83%	1.9	21%	1.29	0.000	1.29
8.202	6967.84	171.0	4.787	170.9	15.0	6.49	2.80%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	362	2.81%	1.9	21%	1.30	0.000	1.30
8.366	6967.67	318.5	4.550	318.3	39.6	17.14	1.43%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	662	1.43%	1.5	21%	1.31	0.000	1.31
8.530	6967.51	305.5	3.463	305.4	22.2	9.62	1.13%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	624	1.14%	1.4	21%	1.32	0.000	1.32
8.694	6967.35	303.3	3.117	303.3	14.4	6.22	1.03%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	608	1.03%	1.4	21%	1.33	0.000	1.33
8.858	6967.18	344.4	3.532	344.3	13.9	6.04	1.03%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	679	1.03%	1.4	21%	1.34	0.000	1.34
9.022	6967.02	373.0	4.256	372.9	14.6	6.31	1.14%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	722	1.14%	1.4	21%	1.35	0.000	1.35
9.186	6966.85	418.1	4.463	418.0	10.2	4.41	1.07%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	796	1.07%	1.4	21%	1.35	0.000	1.35
9.350	6966.69	435.2	4.356	435.1	7.9	3.41	1.00%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	815	1.00%	1.3	21%	1.36	0.000	1.36
9.514	6966.53	425.0	4.519	425.0	6.5	2.81	1.06%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	783	1.06%	1.4	21%	1.37	0.000	1.37
9.678	6966.36	395.7	4.420	395.7	5.0	2.15	1.12%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	717	1.12%	1.4	21%	1.38	0.000	1.38
9.842	6966.20	358.2	4.302	358.1	4.7	2.05	1.20%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	639	1.20%	1.5	21%	1.39	0.000	1.39
10.006	6966.03	343.0	4.019	343.0	4.3	1.85	1.17%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	602	1.17%	1.5	21%	1.40	0.000	1.40
10.170	6965.87	321.1	3.920	321.1	4.7	2.05	1.22%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	555	1.22%	1.5	21%	1.41	0.000	1.41
10.335	6965.71	310.1	3.631	310.1	3.8	1.65	1.17%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	528	1.17%	1.5	21%	1.42	0.000	1.42
10.499	6965.54	284.3	3.480	284.3	3.1	1.32	1.22%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	476	1.23%	1.5	21%	1.43	0.000	1.43
10.663	6965.38	270.7	3.081	270.7	2.8	1.20	1.14%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	447	1.14%	1.5	21%	1.43	0.000	1.43
10.827	6965.21	257.8	3.174	257.8	2.4	1.04	1.23%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	419	1.23%	1.6	21%	1.44	0.000	1.44

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.001%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.91	866	1.8E-03	1.3E+03	992	0.9954	2.6E-05	12	0.140	0.130	4	0.132	20256	14154	1400	15375	0.003%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.85	866	1.8E-03	1.4E+03	520	0.9794	7.7E-05	12	0.181	0.174	4	0.176	12788	8856	1400	9643	0.009%	1.18	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.0765

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
								0	15	30		0	15	30											
4.38	1177	1.9E-03	2.6E+03	315	0.9577	6.0E-05	16	0.200	0.195	4	0.449	10727	7403	1400	7003	0.007%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.43	1177	1.9E-03	2.6E+03	310	0.9568	6.0E-05	16	0.201	0.196	5	0.516	10675	7367	1401	6969	0.007%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.48	1177	1.9E-03	2.6E+03	305	0.9559	6.1E-05	16	0.201	0.197	6	0.584	10623	7330	1402	6935	0.007%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.53	1177	1.9E-03	2.6E+03	300	0.9549	6.2E-05	16	0.202	0.197	7	0.651	10573	7295	1403	6902	0.007%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.58	1177	1.9E-03	2.6E+03	295	0.9540	6.2E-05	16	0.202	0.198	8	0.718	10523	7260	1404	6870	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.63	1177	1.9E-03	2.6E+03	291	0.9530	6.3E-05	16	0.203	0.198	9	0.785	10474	7226	1405	6838	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.68	1177	1.9E-03	2.6E+03	286	0.9521	6.4E-05	16	0.204	0.199	10	0.852	10426	7192	1406	6806	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.73	1177	1.9E-03	2.6E+03	281	0.9511	6.4E-05	16	0.204	0.200	11	0.920	10379	7159	1407	6775	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.78	1177	1.9E-03	2.6E+03	277	0.9501	6.5E-05	16	0.205	0.200	12	0.987	10333	7126	1408	6745	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.83	1177	1.9E-03	2.6E+03	273	0.9491	6.5E-05	16	0.205	0.201	13	1.054	10287	7094	1409	6715	0.008%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.88	1177	1.9E-03	2.6E+03	268	0.9480	6.6E-05	16	0.206	0.201	14	1.121	10242	7062	1410	6685	0.009%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.93	1177	1.9E-03	2.6E+03	264	0.9470	6.7E-05	16	0.206	0.202	15	1.188	10197	7031	1411	6656	0.009%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.98	1177	1.8E-03	2.4E+03	260	0.9459	7.2E-05	19	0.207	0.202	16	4.415	10156	7002	1412	5511	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.03	1177	1.8E-03	2.4E+03	256	0.9449	7.3E-05	19	0.207	0.203	17	4.682	10116	6974	1413	5491	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.08	1177	1.8E-03	2.4E+03	252	0.9438	7.4E-05	19	0.207	0.203	18	4.949	10076	6946	1414	5471	0.010%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.13	1177	1.8E-03	2.4E+03	248	0.9426	7.4E-05	19	0.208	0.204	19	5.216	10037	6918	1415	5451	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.18	1177	1.8E-03	2.4E+03	244	0.9415	7.5E-05	19	0.208	0.205	20	5.483	9999	6891	1416	5431	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.23	1177	1.8E-03	2.4E+03	240	0.9404	7.5E-05	19	0.209	0.205	21	5.750	9961	6865	1417	5412	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.28	1177	1.8E-03	2.4E+03	236	0.9392	7.6E-05	19	0.209	0.206	22	6.017	9923	6838	1418	5393	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.33	1177	1.8E-03	2.4E+03	232	0.9380	7.7E-05	19	0.210	0.206	23	6.284	9886	6812	1419	5374	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.38	1177	1.8E-03	2.4E+03	229	0.9368	7.7E-05	19	0.210	0.207	24	6.551	9849	6786	1420	5355	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.43	1177	1.8E-03	2.4E+03	225	0.9356	7.8E-05	19	0.211	0.207	25	6.818	9813	6761	1421	5337	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.48	1177	1.8E-03	2.4E+03	222	0.9344	7.8E-05	19	0.211	0.208	26	7.086	9777	6736	1422	5319	0.011%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.53	1177	1.8E-03	2.4E+03	218	0.9331	7.9E-05	19	0.211	0.208	27	7.353	9742	6711	1423	5301	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.58	1177	1.8E-03	2.4E+03	215	0.9319	8.0E-05	19	0.212	0.208	28	7.620	9707	6686	1424	5283	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.63	1177	1.8E-03	2.4E+03	211	0.9306	8.0E-05	19	0.212	0.209	29	7.887	9672	6662	1425	5266	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.68	1177	1.8E-03	2.4E+03	208	0.9293	8.1E-05	19	0.213	0.209	30	8.154	9638	6638	1426	5248	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.73	1177	1.8E-03	2.4E+03	205	0.9280	8.1E-05	19	0.213	0.210	31	8.421	9605	6615	1427	5231	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.78	1177	1.8E-03	2.4E+03	202	0.9266	8.2E-05	19	0.214	0.210	32	8.688	9572	6591	1428	5214	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.83	1177	1.8E-03	2.4E+03	198	0.9253	8.2E-05	19	0.214	0.211	33	8.955	9539	6568	1429	5198	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.88	1177	1.8E-03	2.4E+03	195	0.9239	8.3E-05	19	0.214	0.211	34	9.222	9506	6545	1430	5181	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.93	1177	1.8E-03	2.4E+03	192	0.9225	8.4E-05	19	0.215	0.212	35	9.489	9474	6523	1431	5165	0.012%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
5.98	1177	1.8E-03	2.4E+03	189	0.9211	8.4E-05	19	0.215	0.212	36	9.756	9442	6501	1432	5149	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.03	1177	1.8E-03	2.4E+03	186	0.9196	8.5E-05	19	0.216	0.213	37	10.023	9411	6479	1433	5133	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.08	1177	1.8E-03	2.4E+03	184	0.9182	8.5E-05	19	0.216	0.213	38	10.290	9380	6457	1434	5117	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.13	1177	1.8E-03	2.4E+03	181	0.9167	8.6E-05	19	0.216	0.214	39	10.557	9349	6435	1435	5102	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.18	1177	1.8E-03	2.4E+03	178	0.9152	8.6E-05	19	0.217	0.214	40	10.824	9319	6414	1436	5087	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.23	1177	1.8E-03	2.4E+03	175	0.9136	8.7E-05	19	0.217	0.214	41	11.091	9289	6393	1437	5072	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.28	1177	1.8E-03	2.4E+03	173	0.9121	8.7E-05	19	0.218	0.215	42	11.358	9260	6372	1438	5057	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.33	1177	1.8E-03	2.4E+03	170	0.9105	8.8E-05	19	0.218	0.215	43	11.625	9230	6352	1439	5042	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.38	1177	1.8E-03	2.4E+03	167	0.9089	8.8E-05	19	0.218	0.216	44	11.892	9201	6331	1440	5027	0.013%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.43	1177	1.8E-03	2.4E+03	165	0.9073	8.9E-05	19	0.219	0.216	45	12.159	9173	6311	1441	5013	0.014%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.48	1177	1.7E-03	2.3E+03	162	0.9057	9.4E-05	0	0.219	0.217	46	0.219	9146	6292	1442	9146	0.012%	1.79	1.00	0.01%	0.000031	0.36	0.025	0.785	0.00%	0.0000
6.53	1177	1.7E-03	2.3E+03	160	0.9040	9.5E-05	0	0.219	0.217	47	0.219	9119	6274	1443	9119	0.012%	1.79	1.00	0.01%	0.000032	0.36	0.025	0.785	0.01%	0.0000
6.58	1177	1.7E-03	2.3E+03	157	0.9024	9.5E-05	0	0.220	0.217	48	0.220	9092	6255	1444	9092	0.012%	1.79	1.00	0.01%	0.000033	0.36	0.025	0.785	0.01%	0.0000
6.63	1177	1.7E-03	2.3E+03	155	0.9007	9.6E-05	0	0.220	0.218	49	0.220	9066	6237	1445	9066	0.012%	1.79	1.00	0.01%	0.000035	0.36	0.025	0.785	0.01%	0.0000
6.68	1177	1.7E-03	2.3E+03	153	0.8989	9.6E-05	0	0.221	0.218	50	0.221	9040	6219	1446	9040	0.012%	1.79	1.00	0.01%	0.000036	0.36	0.025	0.785	0.01%	0.0000
6.73	1177	1.7E-03	2.3E+03	150	0.8972	9.7E-05	0	0.221	0.219	51	0.221	9015	6201	1447	9015	0.012%	1.79	1.00	0.01%	0.000037	0.36	0.025	0.785	0.01%	0.0000
6.78	1177	1.7E-03	2.3E+03	148	0.8954	9.7E-05	0	0.221	0.219	52	0.221	8989	6183	1448	8989	0.012%	1.79	1.00	0.01%	0.000038	0.36	0.025	0.785	0.01%	0.0000
6.83	1177	1.7E-03	2.3E+03	146	0.8936	9.7E-05	0	0.222	0.219	53	0.222	8964	6165	1449	8964	0.012%	1.79	1.00	0.01%	0.000040	0.36	0.025	0.785	0.01%	0.0000
6.88	1177	1.7E-03	2.3E+03	144	0.8918	9.8E-05	0	0.222	0.220	54	0.222	8939	6148	1450	8939	0.012%	1.79	1.00	0.01%	0.000041	0.36	0.025	0.785	0.01%	0.0000
6.93	1177	1.7E-03	2.3E+03	141	0.8900	9.8E-05	0	0.222	0.220	55	0.222	8914	6130	1451	8914	0.012%	1.79	1.00	0.01%	0.000042	0.36	0.025	0.785	0.01%	0.0000
6.98	1177	1.7E-03	2.3E+03	139	0.8881	9.9E-05	0	0.223	0.221	56	0.223	8890	6113	1452	8890	0.012%	1.79	1.00	0.01%	0.000043	0.36	0.025	0.785	0.01%	0.0000
7.03	1177	1.7E-03	2.3E+03	137	0.8862	9.9E-05	0	0.223	0.221	57	0.223	8866	6096	1453	8866	0.012%	1.79	1.00	0.01%	0.000044	0.36	0.025	0.785	0.01%	0.0000
7.08	1177	1.7E-03	2.3E+03	135	0.8843	1.0E-04	0	0.223	0.221	58	0.223	8842	6079	1454	8842	0.013%	1.79	1.00	0.01%	0.000046	0.36	0.025	0.785	0.01%	0.0000
7.13	1177	1.7E-03	2.3E+03	133	0.8823	1.0E-04	0	0.224	0.222	59	0.224	8818	6063	1455	8818	0.013%	1.79	1.00	0.01%	0.000047	0.36	0.025	0.785	0.01%	0.0000
7.18	1177	1.7E-03	2.3E+03	131	0.8804	1.0E-04	0	0.224	0.222	60	0.224	8794	6046	1456	8794	0.013%	1.79	1.00	0.01%	0.000048	0.36	0.025	0.785	0.01%	0.0000
7.23	853	1.7E-03	1.2E+03	129	0.8784	1.9E-04	0	0.224	0.223	61	0.224	8771	6030	1457	8771	0.035%	1.79	1.00	0.01%	0.000443	0.36	0.025	0.785	0.07%	0.0001
7.28	853	1.7E-03	1.2E+03	127	0.8764	1.9E-04	0	0.225	0.223	62	0.225	8748	6014	1458	8748	0.035%	1.79	1.00	0.01%	0.000447	0.36	0.025	0.785	0.07%	0.0001
7.33	853	1.7E-03	1.2E+03	126	0.8743	1.9E-04	0	0.225	0.223	63	0.225	8725	5997	1459	8725	0.035%	1.79	1.00	0.01%	0.000451	0.36	0.025	0.785	0.07%	0.0001
7.38	853	1.7E-03	1.2E+03	124	0.8722	1.9E-04	0	0.225	0.224	64	0.225	8702	5982	1460	8702	0.035%	1.79	1.00	0.01%	0.000454	0.36	0.025	0.785	0.07%	0.0001
7.43	853	1.7E-03	1.2E+03	122	0.8702	2.0E-04	0	0.226	0.224	65	0.226	8680	5966	1461	8680	0.036%	1.79	1.00	0.01%	0.000458	0.36	0.025	0.785	0.07%	0.0001
7.48	853	1.7E-03	1.2E+03	120	0.8680	2.0E-04	0	0.226	0.224	66	0.226	8657	5950	1462	8657	0.036%	1.79	1.00	0.01%	0.000462	0.36	0.025	0.785	0.07%	0.0001
7.53	853	1.7E-03	1.2E+03	118	0.8659	2.0E-04	0	0.226	0.225	67	0.226	8635	5935	1463	8635	0.036%	1.79	1.00	0.01%	0.000465	0.36	0.025	0.785	0.07%	0.0001
7.58	853	1.7E-03	1.2E+03	117	0.8637	2.0E-04	0	0.227	0.225	68	0.227	8613	5919	1464	8613	0.036%	1.79	1.00	0.01%	0.000468	0.36	0.025	0.785	0.07%	0.0001
7.63	853	1.7E-03	1.2E+03	115	0.8615	2.0E-04	0	0.227	0.226	69	0.227	8592	5904	1465	8592	0.036%	1.79	1.00	0.01%	0.000472	0.36	0.025	0.785	0.07%	0.0001

10.991	6965.05	228.0	3.932	228.0	2.4	1.02	1.72%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	366	1.73%	1.7	21%	1.45	0.000	1.45
11.155	6964.89	196.5	4.039	196.4	2.8	1.22	2.06%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	310	2.06%	1.8	21%	1.46	0.000	1.46
11.319	6964.72	180.6	3.584	180.6	3.1	1.32	1.98%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	281	1.99%	1.8	21%	1.47	0.000	1.47
11.483	6964.56	171.0	2.616	170.9	2.3	0.98	1.53%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	263	1.54%	1.8	21%	1.48	0.000	1.48
11.647	6964.39	149.9	1.910	149.9	1.9	0.83	1.27%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	227	1.28%	1.7	21%	1.49	0.000	1.49
11.811	6964.23	141.0	2.061	141.0	2.0	0.88	1.46%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	211	1.47%	1.8	21%	1.50	0.000	1.50
11.975	6964.07	141.3	2.024	141.3	1.7	0.73	1.43%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	208	1.44%	1.8	21%	1.51	0.000	1.51
12.139	6963.90	137.2	1.911	137.2	1.6	0.69	1.39%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	200	1.40%	1.8	21%	1.51	0.000	1.51
12.303	6963.74	148.3	1.655	148.3	1.6	0.71	1.12%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	213	1.12%	1.7	21%	1.52	0.000	1.52
12.467	6963.57	171.9	1.533	171.9	1.8	0.79	0.89%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	244	0.90%	1.6	21%	1.53	0.000	1.53
12.631	6963.41	177.1	1.749	177.1	1.9	0.81	0.99%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	248	0.99%	1.6	21%	1.54	0.000	1.54
12.795	6963.24	188.7	1.928	188.7	2.1	0.89	1.02%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	261	1.03%	1.6	21%	1.55	0.000	1.55
12.959	6963.08	214.1	2.066	214.1	1.9	0.81	0.96%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	293	0.97%	1.6	21%	1.56	0.000	1.56
13.123	6962.92	223.6	2.279	223.6	2.0	0.88	1.02%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	302	1.02%	1.6	21%	1.57	0.000	1.57
13.287	6962.75	247.1	2.375	247.1	1.8	0.79	0.96%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	330	0.96%	1.5	21%	1.58	0.000	1.58
13.451	6962.59	254.8	2.530	254.8	1.6	0.71	0.99%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	336	1.00%	1.5	21%	1.58	0.000	1.58
13.615	6962.42	246.9	2.534	246.9	1.8	0.77	1.03%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	322	1.03%	1.6	21%	1.59	0.000	1.59
13.779	6962.26	238.6	2.398	238.6	1.5	0.63	1.01%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	308	1.01%	1.6	21%	1.60	0.000	1.60
13.943	6962.10	226.5	2.107	226.5	1.5	0.63	0.93%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	289	0.93%	1.6	21%	1.61	0.000	1.61
14.107	6961.93	214.2	2.003	214.2	1.5	0.63	0.93%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	270	0.94%	1.6	21%	1.62	0.000	1.62
14.271	6961.77	200.1	1.891	200.1	2.1	0.89	0.95%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	249	0.95%	1.6	21%	1.63	0.000	1.63
14.436	6961.60	192.5	1.806	192.5	2.3	0.98	0.94%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	237	0.94%	1.6	21%	1.64	0.000	1.64
14.600	6961.44	184.8	1.764	184.8	1.6	0.67	0.95%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	225	0.96%	1.6	21%	1.65	0.000	1.65
14.764	6961.28	179.0	1.664	179.0	1.1	0.49	0.93%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	216	0.93%	1.6	21%	1.66	0.000	1.66
14.928	6961.11	176.7	1.460	176.7	1.3	0.55	0.83%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	211	0.83%	1.6	21%	1.66	0.000	1.66
15.092	6960.95	176.2	1.439	176.2	1.2	0.53	0.82%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0	208	0.82%	1.6	21%	1.67	0.000	1.67
15.256	6960.78	172.2	1.406	172.2	1.1	0.49	0.82%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0	201	0.82%	1.6	21%	1.68	0.000	1.68
15.420	6960.62	168.5	1.435	168.5	1.2	0.51	0.85%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0	195	0.86%	1.6	21%	1.69	0.000	1.69
15.584	6960.46	163.4	1.381	163.4	1.1	0.47	0.85%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	187	0.85%	1.7	21%	1.70	0.000	1.70
15.748	6960.29	157.3	1.412	157.3	0.8	0.33	0.90%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	178	0.90%	1.7	21%	1.71	0.000	1.71
15.912	6960.13	157.8	1.527	157.8	0.8	0.36	0.97%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	177	0.97%	1.7	21%	1.72	0.000	1.72
16.076	6959.96	152.3	1.727	152.3	0.8	0.35	1.13%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	169	1.14%	1.8	21%	1.73	0.000	1.73
16.240	6959.80	132.3	1.869	132.3	0.6	0.26	1.41%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	145	1.42%	1.9	21%	1.74	0.000	1.74
16.404	6959.64	141.8	1.704	141.8	0.7	0.30	1.20%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	154	1.21%	1.8	21%	1.74	0.000	1.74
16.568	6959.47	155.5	1.609	155.5	0.8	0.35	1.03%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0	167	1.04%	1.8	21%	1.75	0.000	1.75
16.732	6959.31	154.0	1.336	154.0	0.9	0.39	0.87%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0	164	0.87%	1.7	21%	1.76	0.000	1.76
16.896	6959.14	148.4	1.184	148.4	0.8	0.36	0.80%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0	157	0.80%	1.7	21%	1.77	0.000	1.77
17.060	6958.98	135.6	1.078	135.6	0.8	0.35	0.79%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0	142	0.80%	1.7	21%	1.78	0.000	1.78
17.224	6958.82	126.4	0.950	126.4	0.8	0.33	0.75%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0	131	0.76%	1.7	21%	1.79	0.000	1.79
17.388	6958.65	119.8	1.008	119.8	0.7	0.29	0.84%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	123	0.85%	1.8	21%	1.80	0.000	1.80
17.552	6958.49	110.9	1.285	110.9	1.6	0.69	1.16%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0	113	1.17%	1.9	21%	1.81	0.000	1.81
17.716	6958.32	118.1	1.269	118.1	1.5	0.63	1.07%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	119	1.08%	1.9	21%	1.82	0.000	1.82
17.880	6958.16	121.2	1.323	121.2	1.5	0.65	1.09%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	121	1.10%	1.9	21%	1.82	0.000	1.82
18.044	6958.00	116.3	1.228	116.3	1.4	0.61	1.06%	General Fill	0.057	113.8	1.00	0.000	1.00	0	115	1.07%	1.9	48%	1.83	0.000	1.83
18.208	6957.83	107.6	1.104	107.6	1.2	0.53	1.03%	General Fill	0.057	113.8	1.01	0.000	1.01	0	105	1.04%	1.9	48%	1.84	0.000	1.84
18.372	6957.67	93.3	1.182	93.3	0.7	0.29	1.27%	General Fill	0.057	113.8	1.02	0.000	1.02	0	90	1.28%	2.0	48%	1.85	0.000	1.85
18.537	6957.50	67.8	1.399	67.8	0.8	0.35	2.06%	General Fill	0.057	113.8	1.03	0.000	1.03	0	65	2.09%	2.3	48%	1.86	0.000	1.86
18.701	6957.34	46.5	1.379	46.5	0.7	0.29	2.97%	General Fill	0.057	113.8	1.04	0.000	1.04	0	44	3.04%	2.5	48%	1.87	0.000	1.87
18.865	6957.18	58.5	1.191	58.5	0.8	0.36	2.04%	General Fill	0.057	113.8	1.05	0.000	1.05	0	55	2.07%	2.3	48%	1.88	0.000	1.88
19.029	6957.01	80.6	1.132	80.6	1.2	0.51	1.41%	General Fill	0.057	113.8	1.06	0.000	1.06	0	75	1.42%	2.1	48%	1.89	0.000	1.89
19.193	6956.85	90.3	0.855	90.3	0.6	0.26	0.95%	General Fill	0.057	113.8	1.07	0.000	1.07	0	83	0.96%	2.0	48%	1.90	0.000	1.90
19.357	6956.68	99.8	0.770	99.8	0.9	0.39	0.77%	General Fill	0.057	113.8	1.08	0.000	1.08	0	92	0.78%	1.9	48%	1.91	0.000	1.91
19.521	6956.52	113.2	0.883	113.2	0.7	0.30	0.78%	General Fill	0.057	113.8	1.09	0.000	1.09	0	103	0.79%	1.8	48%	1.92	0.000	1.92
19.685	6956.36	118.4	0.957	118.4	0.7	0.29	0.81%	General Fill	0.057	113.8	1.10	0.000	1.10	0	107	0.82%	1.8	48%	1.93	0.000	1.93
19.849	6956.19	119.3	0.860	119.3	1.0	0.43	0.72%	General Fill	0.057	113.8	1.11	0.000	1.11	0	107	0.73%	1.8	48%	1.94	0.000	1.94
20.013	6956.03	113.5	0.881	113.5	0.7	0.29	0.78%	General Fill	0.057	113.8	1.12	0.000	1.12	0	101	0.78%	1.8	48%	1.95	0.000	1.95
20.177	6955.86	99.2	0.867	99.2	0.8	0.35	0.87%	General Fill	0.057	113.8	1.13	0.000	1.13	0	87	0.88%	1.9	48%	1.95	0.000	1.95
20.341	6955.70	87.3	0.774	87.3	0.4	0.18	0.89%	General Fill	0.057	113.8	1.13	0.000	1.13	0	76	0.90%	2.0	48%	1.96	0.000	1.96
20.505	6955.54	80.4	0.637	80.4	0.4	0.18	0.79%	General Fill	0.057	113.8	1.14	0.000	1.14	0	69	0.80%	2.0	48%	1.97	0.000	1.97
20.669	6955.37	77.8	0.635	77.8	0.4	0.18	0.82%	General Fill	0.057	113.8	1.15	0.000	1.15	0	66	0.83%	2.0	48%	1.98	0.000	1.98
20.833	6955.21	78.7	0.644	78.7	0.9	0.39	0.82%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0	67	0.83%	2.0	21%	1.99	0.000	1.99
20.997	6955.04	81.7	0.665	81.7	0.7	0.30	0.81%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0	69	0.83%	2.0	21%	2.00	0.000	2.00
21.161	6954.88	84.4	0.673	84.4	0.9	0.39	0.80%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	71	0.81%	2.0	21%	2.01	0.000	2.01
21.325	6954.71	84.5	0.697	84.5	0.5	0.23	0.83%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0	70	0.84%	2.0	21%	2.02	0.000	2.02
21.489	6954.55	79.7	0.727	79.7	0.3	0.12	0.91%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0	66	0.93%	2.0	21%	2.03	0.000	2.03
21.653	6954.39	70.9	0.684	70.9	0.8	0.35	0.96%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	58	0.98%	2.1	21%	2.04	0.000	2.04
21.817	6954.22	65.1	0.587	65.1	0.4	0.16	0.90%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	53	0.92%	2.1	21%	2.05	0.000	2.05
21.981	6954.06	63.6	0.555	63.6	0.6	0.24	0.87%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	51	0.89%	2.1	21%	2.05	0.000	2.05
22.145	6953.89	62.2	0.623	62.2	0.4	0.16	1.00%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0	49	1.02%	2.2	21%	2.06	0.000	2.06
22.309	6953.73	62.3	0.698	62.3	0.2	0.10	1.12%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0	49	1.14%	2.2	21%	2.07	0.000	2.07
22.473	6953.57	65.2	0.684	65.2	0.2	0.10	1.05%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	51	1.07%	2.2	21%	2.08	0.000	2.08
22.638	6953.40	65.7	0.667	65.7	0.3	0.14	1.02%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0	51	1.03%	2.2	21%	2.09	0.000	2.09
22.802	6953.24	62.8	0.665	62.8	0.1	0.06	1.06%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0	49	1.08%	2.2	21%	2.10	0.000	2.10
22.966	6953.07	60.4	0.692	60.4	0.1	0.02	1.15%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	46	1.17%	2.2	21%	2.11	0.000	2.11
23.130	6952.91	64.0	0.653	64.0	0.1	0.04	1.02%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	49	1.04%	2.2	21%	2.12	0.000	2.12
23.294	6952.75	65.5	0.613	65.5	0.4	0.16	0.94%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	50	0.96%	2.1	21%	2.12	0.000	2.12
23.458	6952.58	67.5	0.578	67.5	0.5	0.20	0.86%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	51	0.87%	2.1	21%	2.13	0.000	2.13
23.622	6952.42	68.5	0.607	68.5	0.1	0.06	0.89%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0	51	0.90%	2.1	21%	2.14	0.000	2.14
23.786	6952.25	68.5	0.554	68.5	0.2	0.08	0.81%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0	51	0.83%	2.1	21%	2.15	0.000	2.15
23.950	6952.09	68.7	0.540	68.7	0.4	0.16	0.79%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	51	0.80%	2.1	21%	2.16	0.000	2.16
24.114	6951.93	66.6	0.509	66.6	1.0	0.45	0.76%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0	49	0.78%	2.1	21%	2.17	0.000	2.17
24.278	6951.76	67.3	0.501	67.3	0.8	0.35	0.74%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0	49	0.76%	2.1	21%	2.18	0.000	2.18

7.68	853	1.7E-03	1.2E+03	113	0.8593	2.0E-04	0	0.227	0.226	70	0.227	8570	5889	1466	8570	0.037%	1.79	1.00	0.01%	0.000475	0.36	0.025	0.785	0.07%	0.0001
7.73	853	1.7E-03	1.2E+03	112	0.8570	2.0E-04	0	0.228	0.226	71	0.228	8549	5874	1467	8549	0.037%	1.79	1.00	0.01%	0.000478	0.36	0.025	0.785	0.08%	0.0001
7.78	853	1.7E-03	1.2E+03	110	0.8547	2.0E-04	0	0.228	0.227	72	0.228	8527	5859	1468	8527	0.037%	1.79	1.00	0.01%	0.000481	0.36	0.025	0.785	0.08%	0.0001
7.83	853	1.7E-03	1.2E+03	108	0.8524	2.0E-04	0	0.228	0.227	73	0.228	8506	5844	1469	8506	0.037%	1.79	1.00	0.01%	0.000484	0.36	0.025	0.785	0.08%	0.0001
7.88	853	1.7E-03	1.2E+03	107	0.8501	2.0E-04	0	0.229	0.227	74	0.229	8486	5830	1470	8486	0.037%	1.79	1.00	0.01%	0.000487	0.36	0.025	0.785	0.08%	0.0001
7.93	853	1.7E-03	1.2E+03	105	0.8477	2.0E-04	0	0.229	0.228	75	0.229	8465	5815	1471	8465	0.037%	1.79	1.00	0.01%	0.000490	0.36	0.025	0.785	0.08%	0.0001
7.98	853	1.7E-03	1.2E+03	104	0.8453	2.0E-04	0	0.229	0.228	76	0.229	8444	5801	1472	8444	0.038%	1.79	1.00	0.01%	0.000493	0.36	0.025	0.785	0.08%	0.0001
8.03	853	1.7E-03	1.2E+03	102	0.8429	2.0E-04	0	0.229	0.228	77	0.229	8424	5787	1473	8424	0.038%	1.79	1.00	0.01%	0.000496	0.36	0.025	0.785	0.08%	0.0001
8.08	853	1.7E-03	1.2E+03	101	0.8404	2.0E-04	0	0.230	0.229	78	0.230	8404	5773	1474	8404	0.038%	1.79	1.00	0.01%	0.000499	0.36	0.025	0.785	0.08%	0.0001
8.13	853	1.7E-03	1.2E+03	99	0.8380	2.0E-04	0	0.230	0.229	79	0.230	8384	5759	1475	8384	0.038%	1.79	1.00	0.01%	0.000501	0.36	0.025	0.785	0.08%	0.0001
8.18	853	1.7E-03	1.2E+03	98	0.8355	2.1E-04	0	0.230	0.230	80	0.230	8364	5745	1476	8364	0.038%	1.79	1.00	0.01%	0.000504	0.36	0.025	0.785	0.08%	0.0001
8.23	853	1.7E-03	1.2E+03	97	0.8329	2.1E-04	0	0.231	0.230	81	0.231	8345	5731	1477	8345	0.038%	1.79	1.00	0.01%	0.000506	0.36	0.025	0.785	0.08%	0.0001
8.28	853	1.7E-03	1.2E+03	95	0.8303	2.1E-04	0	0.231	0.230	82	0.231	8325	5717	1478	8325	0.038%	1.79	1.00	0.01%	0.000508	0.36	0.025	0.785	0.08%	0.0001
8.33	853	1.7E-03	1.2E+03	94	0.8278	2.1E-04	0	0.231	0.231	83	0.231	8306	5704	1479	8306	0.039%	1.79	1.00	0.01%	0.000511	0.36	0.025	0.785	0.08%	0.0001
8.38	853	1.7E-03	1.2E+03	93	0.8251	2.1E-04	0	0.232	0.231	84	0.232	8286	5690	1480	8286	0.039%	1.79	1.00	0.01%	0.000513	0.36	0.025	0.785	0.08%	0.0001
8.43	853	1.7E-03	1.2E+03	91	0.8225	2.1E-04	0	0.232	0.231	85	0.232	8267	5677	1481	8267	0.039%	1.79	1.00	0.01%	0.000515	0.36	0.025	0.785	0.08%	0.0001
8.48	853	1.7E-03	1.2E+03	90	0.8198	2.1E-04	0	0.232	0.232	86	0.232	8249	5664	1482	8249	0.039%	1.79	1.00	0.01%	0.000517	0.36	0.025	0.785	0.08%	0.0001
8.53	853	1.7E-03	1.2E+03	89	0.8171	2.1E-04	0	0.233	0.232	87	0.233	8230	5651	1483	8230	0.039%	1.79	1.00	0.01%	0.000519	0.36	0.025	0.785	0.08%	0.0001
8.58	853	1.7E-03	1.2E+03	88	0.8143	2.1E-04	0	0.233	0.232	88	0.233	8211	5638	1484	8211	0.039%	1.79	1.00	0.01%	0.000520	0.36	0.025	0.785	0.08%	0.0001
8.63	853	1.7E-03	1.2E+03	86	0.8116	2.1E-04	0	0.233	0.233	89	0.233	8193	5625	1485	8193	0.039%	1.79	1.00	0.01%	0.000522	0.36	0.025	0.785	0.08%	0.0001
8.68	853	1.7E-03	1.2E+03	85	0.8088	2.1E-04	0	0.233	0.233	90	0.233	8174	5612	1486	8174	0.039%	1.79	1.00	0.01%	0.000524	0.36	0.025	0.785	0.08%	0.0001
8.73	853	1.7E-03	1.2E+03	84	0.8059	2.1E-04	0	0.234	0.233	91	0.234	8156	5599	1487	8156	0.039%	1.79	1.00	0.01%	0.000525	0.36	0.025	0.785	0.08%	0.0001
8.78	809	1.7E-03	1.1E+03	83	0.8031	2.3E-04	0	0.234	0.234	92	0.234	8138	5587	1488	8138	0.049%	1.79	1.00	0.01%	0.000699	0.36	0.025	0.785	0.11%	0.0002
8.83	809	1.7E-03	1.1E+03	82	0.8002	2.4E-04	0	0.234	0.234	93	0.234	8120	5574	1489	8120	0.049%	1.79	1.00	0.01%	0.000701	0.36	0.025	0.785	0.11%	0.0002
8.88	809	1.7E-03	1.1E+03	81	0.7973	2.4E-04	0	0.235	0.234	94	0.235	8103	5562	1490	8103	0.049%	1.79	1.00	0.01%	0.000702	0.36	0.025	0.785	0.11%	0.0002
8.93	809	1.7E-03	1.1E+03	80	0.7943	2.4E-04	0	0.235	0.235	95	0.235	8085	5549	1491	8085	0.049%	1.79	1.00	0.01%	0.000704	0.36	0.025	0.785	0.11%	0.0002
8.98	809	1.7E-03	1.1E+03	79	0.7913	2.4E-04	0	0.235	0.235	96	0.235	8067	5537	1492	8067	0.049%	1.79	1.00	0.01%	0.000705	0.36	0.025	0.785	0.11%	0.0002
9.03	809	1.7E-03	1.1E+03	77	0.7883	2.4E-04	0	0.235	0.235	97	0.235	8050	5525	1493	8050	0.049%	1.79	1.00	0.01%	0.000706	0.36	0.025	0.785	0.11%	0.0002
9.08	809	1.7E-03	1.1E+03	76	0.7853	2.4E-04	0	0.236	0.236	98	0.236	8033	5513	1494	8033	0.049%	1.79	1.00	0.01%	0.000707	0.36	0.025	0.785	0.11%	0.0002
9.13	809	1.7E-03	1.1E+03	75	0.7822	2.4E-04	0	0.236	0.236	99	0.236	8016	5501	1495	8016	0.050%	1.79	1.00	0.01%	0.000707	0.36	0.025	0.785	0.11%	0.0002
9.18	809	1.7E-03	1.1E+03	74	0.7791	2.4E-04	0	0.236	0.236	100	0.236	7999	5489	1496	7999	0.050%	1.79	1.00	0.01%	0.000708	0.36	0.025	0.785	0.11%	0.0002
9.23	809	1.7E-03	1.1E+03	73	0.7760	2.4E-04	0	0.237	0.237	101	0.237	7982	5477	1497	7982	0.050%	1.79	1.00	0.01%	0.000708	0.36	0.025	0.785	0.11%	0.0002
9.28	809	1.7E-03	1.1E+03	72	0.7728	2.4E-04	0	0.237	0.237	102	0.237	7965	5465	1498	7965	0.050%	1.79	1.00	0.01%	0.000709	0.36	0.025	0.785	0.11%	0.0002
9.33	809	1.7E-03	1.1E+03	72	0.7696	2.4E-04	0	0.237	0.237	103	0.237	7948	5454	1499	7948	0.050%	1.79	1.00	0.01%	0.000709	0.36	0.025	0.785	0.11%	0.0002
9.38	809	1.7E-03	1.1E+03	71	0.7664	2.4E-04	0	0.237	0.238	104	0.237	7932	5442	1500	7932	0.050%	1.79	1.00	0.01%	0.000709	0.36	0.025	0.785	0.11%	0.0002
9.43	809	1.7E-03	1.1E+03	70	0.7632	2.4E-04	0	0.238	0.238	105	0.238	7916	5431	1501	7916	0.050%	1.79	1.00	0.01%	0.000709	0.36	0.025	0.785	0.11%	0.0002
9.48	809	1.7E-03	1.1E+03	69	0.7599	2.4E-04	0	0.238	0.238	106	0.238	7899	5419	1502	7899	0.050%	1.79	1.00	0.01%	0.000708	0.36	0.025	0.785	0.11%	0.0002
9.53	809	1.7E-03	1.1E+03	68	0.7566	2.4E-04	0	0.238	0.238	107	0.238	7883	5408	1503	7883	0.050%	1.79	1.00	0.01%	0.000708	0.36	0.025	0.785	0.11%	0.0002
9.58	809	1.7E-03	1.1E+03	67	0.7532	2.4E-04	0	0.239	0.239	108	0.239	7867	5397	1504	7867	0.050%	1.79	1.00	0.01%	0.000707	0.36	0.025	0.785	0.11%	0.0002
9.63	809	1.7E-03	1.1E+03	66	0.7499	2.4E-04	0	0.239	0.239	109	0.239	7851	5386	1505	7851	0.049%	1.79	1.00	0.01%	0.000706	0.36	0.025	0.785	0.11%	0.0002
9.68	809	1.7E-03	1.1E+03	65	0.7465	2.4E-04	0	0.239	0.239	110	0.239	7835	5375	1506	7835	0.049%	1.79	1.00	0.01%	0.000706	0.36	0.025	0.785	0.11%	0.0002
9.73	809	1.7E-03	1.1E+03	64	0.7430	2.4E-04	0	0.239	0.240	111	0.239	7820	5364	1507	7820	0.049%	1.79	1.00	0.01%	0.000705	0.36	0.025	0.785	0.11%	0.0002
9.78	809	1.7E-03	1.1E+03	64	0.7396	2.4E-04	0	0.240	0.240	112	0.240	7804	5353	1508	7804	0.049%	1.79	1.00	0.01%	0.000703	0.36	0.025	0.785	0.11%	0.0002
9.83	809	1.8E-03	1.2E+03	63	0.7361	2.3E-04	19	0.240	0.240	113	30.310	7788	5341	1509	4319	0.060%	1.70	0.75	0.02%	0.004773	0.34	0.079	0.797	0.76%	0.0012
9.88	809	1.8E-03	1.2E+03	62	0.7326	2.3E-04	19	0.240	0.241	114	30.577	7771	5330	1510	4311	0.060%	1.70	0.75	0.02%	0.004768	0.34	0.079	0.797	0.76%	0.0012
9.93	809	1.8E-03	1.2E+03	61	0.7291	2.3E-04	19	0.240	0.241	115	30.843	7755	5319	1511	4303	0.059%	1.70	0.75	0.02%	0.004761	0.34	0.079	0.797	0.76%	0.0012
9.98	809	1.8E-03	1.2E+03	61	0.7255	2.3E-04	19	0.241	0.241	116	31.110	7739	5308	1512	4295	0.059%	1.70	0.75	0.02%	0.004754	0.34	0.079	0.797	0.76%	0.0012
10.03	809	1.8E-03	1.2E+03	60	0.7219	2.3E-04	19	0.241	0.242	117	31.377	7724	5297	1513	4288	0.059%	1.70	0.75	0.02%	0.004745	0.34	0.079	0.797	0.76%	0.0012
10.08	809	1.8E-03	1.2E+03	59	0.7183	2.3E-04	19	0.241	0.242	118	31.644	7708	5286	1514	4280	0.059%	1.70	0.75	0.02%	0.004736	0.34	0.079	0.797	0.75%	0.0012
10.13	809	1.8E-03	1.2E+03	58	0.7146	2.3E-04	19	0.242	0.242	119	31.911	7692	5275	1515	4272	0.059%	1.70	0.75	0.02%	0.004726	0.34	0.079	0.797	0.75%	0.0012
10.18	809	1.8E-03	1.2E+03	58	0.7109	2.3E-04	19	0.242	0.243	120	32.178	7677	5264	1516	4264	0.059%	1.70	0.75	0.02%	0.004715	0.34	0.079	0.797	0.75%	0.0012
10.23	809	1.8E-03	1.2E+03	57	0.7072	2.3E-04	19	0.242	0.243	121	32.445	7661	5253	1517	4257	0.059%	1.70	0.75	0.02%	0.004703	0.34	0.079	0.797	0.75%	0.0012
10.28	761	1.8E-03	1.0E+03	56	0.7035	2.6E-04	19	0.242	0.243	122	32.712	7646	5242	1518	4249	0.075%	1.70	0.75	0.02%	0.006116	0.34	0.079	0.797	0.97%	0.0016
10.33	761	1.8E-03	1.0E+03	56	0.6997	2.6E-04	19	0.243	0.244	123	32.979	7631	5232	1519	4242	0.075%	1.70	0.75	0.02%	0.006099	0.34	0.079	0.797	0.97%	0.0016
10.38	761	1.8E-03	1.0E+03	55	0.6959	2.6E-04	19	0.243	0.244	124	33.246	7616	5221	1520	4234	0.075%	1.70	0.75	0.02%	0.006080	0.34	0.079	0.797	0.97%	0.0016
10.43	761	1.8E-03	1.0E+03	54	0.6921	2.6E-04	19	0.243	0.244	125	33.512	7601	5211	1521	4227	0.074%	1.70	0.75	0.02%	0.006060	0.34	0.079	0.797	0.97%	0.0016
10.48	761	1.8E-03	1.0E+03	54	0.6883	2.6E-04	19	0.243	0.244	126	33.779	7586	5200	1522	4219	0.074%	1.70	0.75	0.02%	0.006040	0.34	0.079	0.797	0.96%	0.0016
10.53	761	1.8E-03	1.0E+03	53	0.6844	2.6E-04	19	0.244	0.245	127	34.046	7571	5190	1523	4212	0.074%	1.70	0.75	0.02%	0.006018	0.34	0.079	0.797	0.96%	0.0016
10.58	761	1.8E-03	1.0E+03	52	0.6805	2.6E-04	19	0.244	0.245	128	34.313	7556	5180	1524	4205	0.074%	1.70	0.75	0.02%	0.005995	0.34	0.079	0.797	0.96%	0.0016
10.63	761	1.8E-03	1.0E+03	52	0.6766	2.6E-04	19	0.244	0.245	129	34.580	7542	5169	1525	4198	0.073%	1.70	0.75	0.02%	0.005971	0.34	0.079	0.797	0.95%	0.0016
10.68	761	1.7E-03	9.7E+02	51	0.6726	2.7E-04	0	0.245	0.246	130	0.245	7528	5160	1526	7528	0.061%	1.79	1.00	0.01%	0.000922	0.36	0.025	0.785	0.14%	0.0002
10.73	761	1.7E-03	9.7E+02	51	0.6687	2.7E-04	0	0.245	0.246	131	0.245	7514	5150	1527	7514	0.061%	1.79	1.00	0.01%	0.000916	0.36	0.025	0.785	0.14%	0.0002
10.78	761	1.7E-03	9.7E+02	50	0.6647	2.7E-04	0	0.245	0.246	132	0.245	7501	5141	1528	7501	0.061%	1.79	1.00	0.01%	0.000910	0.36	0.025	0.785	0.14%	0.0002
10.83	761	1.7E-03	9.7E+02	49	0.6607	2.7E-04	0	0.245	0.247	133	0.245	7487	5131	1529	7487	0.060%	1.79	1.00	0.01%	0.000904	0.36	0.025	0.785	0.14%	0.0002
10.88	761	1.7E-03	9.7E+02	49	0.6566	2.7E-04	0	0.246	0.247	134	0.246	7474	5122	1530	7474	0.060%	1.79	1.00	0.01%	0.000897	0.36	0.025	0.785	0.14%	0.0002
10.93	761	1.7E-03	9.7E+02	48	0.6526	2.7E-04	0	0.246	0.247	135	0.246	7460	5112	1531	7460	0.060%	1.79	1.00	0.01%	0.000891	0.36	0.025	0.785	0.14%	0.0002
10.98	761	1.7E-03	9.7E+02	48	0.6485	2.7E-04	0	0.246	0.247	136	0.246	7447	5103	1532	7447	0.059%	1.79	1.00	0.01%	0.000884	0.36	0.025	0.785	0.14%	0.0002
11.03	761	1.7E-03	9.7E+02	47	0.6444	2.7E-04	0	0.246	0.248	137	0.246	7434	5094	1533	7434	0.059%	1.79	1.00	0.01%	0.000877	0.36	0.025	0.785	0.14%	0.0002
11.08	761	1.7E-03	9.7E+02	47	0.6402	2.6E-04	0	0.246	0.248	138	0.246	7421	5085	1534	7421	0.059%	1.79	1.00	0.01%	0.000870	0.36	0.025	0.785	0.14%	0.0002
11.13	761	1.7E-03	9.7E+02	46	0.6361	2.6E-04	0	0.247	0.248	139	0.247	7408	5076	1535	7408	0.058%	1.79	1.00	0.01%	0.000863	0.36	0.025	0.785	0.14%	0.0002
11.18	761	1.7E-03	9.7E+02	46	0.6319	2.6E-04	0	0.247	0.249	140	0.247	7395	5067	1536	7395	0.058%	1.79	1.00	0.01%	0.000856	0.36	0.025	0.785	0.13%	0.0002
11.23	761	1.7E-03	9.7E+02	45	0.6277	2.6E-04	0	0.247	0.249	141	0.247	7382	5058	1537	7382	0.057%	1.79	1.00	0.01%	0.000849	0.36	0.025	0.785	0.13%	0.0002
11.28	761	1.7E-03	9.7E+02	45	0.6235	2.6E-04	0	0.247	0.249	142	0.247	7369	5049	1538	7369	0.057%	1.79	1.00	0.01%	0.000841	0.36	0.025	0.785	0.13%	0.0002
11.33	761	1.7E-03	9.7E+02	44	0.6193	2.6E-04	0	0.248	0.249	143	0.248	7356	5040	1539	7356	0.057%	1.79	1.00	0.01%	0.000834	0.36	0.025	0.785	0.13%	0.0002
11.38	761	1.7E-03	9.7E+02	44	0.6150	2.6E-04	0	0.248	0.250	144	0.248	7344	5031	1540	7344	0.056%	1.79	1.00	0.01%	0.000826	0.36	0.025	0.785	0.13%	0.0002
11.43	761	1.7E-03	9.7E+02	43	0.6108	2.6E-04	0	0.248	0.250	145	0.248	7331	5022	1541	7331	0.056%	1.79	1.00	0.01%	0.000818	0.36	0.025	0.785	0.13%	0.0002
11.48	761	1.7E-03	9.7E+02	43	0.6065	2.6E-04	0	0.248	0.250	146	0.248	7318	5013	1542	7318	0.055%	1.79	1.00	0.01%	0.000811	0.36	0.025	0.785	0.13%	0.0002
11.53	761	1.7E-03	9.7E+02	42	0.6022	2.6E-04	0	0.249	0.251	147	0.249	7306	5005	1543	7306	0.055%	1.79	1.00	0.01%	0.000803	0.36	0.025	0.785	0.13%	0.0002
11.58	761	1.7E-03	9.7E+02	42	0.5978	2.6E-04	0	0.249	0.251	148	0.249	7294	4996	1544	7294	0.054%	1.79	1.00	0.01%	0.000795	0.36	0.025	0.785	0.12%	0.0002
11.63	761	1.7E-03	9.7E+02	41	0.5935	2.6E-04	0	0.249	0.251	149	0.249	7281	4988	1545	7281	0.054%	1.79	1.00	0.01%	0.000786	0.36	0.025	0.785	0.12%	0.0002
11.68	761	1.7E-03	9.7E+02	41	0.5891	2.6E-04	0	0.249	0.251	150	0.249	7269	4979	1546	7269	0.053%	1.79	1.00	0.01%	0.000778	0.36	0.025	0.785	0.12%	0.0002
11.73	761	1.7E-03	9.7E+02	41	0.5848	2.6E-04	0	0.250	0.252	151	0.250	7257	4970	1547	7257	0.053%	1.79	1.00	0.01%	0.000770	0.36	0.025	0.785	0.12%	0.0002

24.442	6951.60	67.6	0.479	67.6	0.9	0.39	0.71%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	49	0.72%	2.1	21%	2.19	0.000	2.19
24.606	6951.43	69.7	0.468	69.7	0.7	0.30	0.67%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	50	0.69%	2.1	21%	2.20	0.000	2.20
24.770	6951.27	73.4	0.534	73.4	0.8	0.35	0.73%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	52	0.74%	2.1	21%	2.20	0.000	2.20
24.934	6951.11	67.6	0.558	67.6	0.8	0.33	0.83%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	48	0.84%	2.1	21%	2.21	0.000	2.21
25.098	6950.94	51.9	0.730	51.9	0.8	0.33	1.41%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	36	1.45%	2.4	21%	2.22	0.000	2.22
25.262	6950.78	33.5	0.875	33.5	0.7	0.30	2.61%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	23	2.72%	2.7	21%	2.23	0.000	2.23
25.426	6950.61	21.0	0.814	21.0	0.3	0.12	3.87%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	14	4.15%	3.0	21%	2.24	0.000	2.24
25.590	6950.45	14.9	0.530	14.9	0.9	0.41	3.57%	Coarse Tailings	0.054	108.1	1.42	0.000	1.42	0	9	3.94%	3.1	21%	2.25	0.000	2.25
25.754	6950.29	13.7	0.284	13.7	1.5	0.65	2.07%	Coarse Tailings	0.054	108.1	1.43	0.000	1.43	0	9	2.31%	3.0	21%	2.26	0.000	2.26
25.918	6950.12	13.1	0.160	13.1	1.6	0.69	1.22%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0	8	1.37%	2.9	21%	2.27	0.000	2.27
26.082	6949.96	12.9	0.169	12.9	1.7	0.73	1.31%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0	8	1.48%	2.9	21%	2.28	0.000	2.28
26.246	6949.79	13.2	0.194	13.2	1.9	0.83	1.47%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0	8	1.65%	2.9	21%	2.28	0.000	2.28
26.410	6949.63	13.5	0.250	13.5	2.5	1.08	1.86%	Fine Tailings	0.054	107.6	1.46	0.003	1.46	1	8	2.08%	3.0	83%	2.29	0.003	2.29
26.574	6949.47	15.1	0.321	15.0	6.5	2.83	2.13%	Fine Tailings	0.054	107.6	1.47	0.009	1.46	1	9	2.36%	3.0	83%	2.30	0.009	2.29
26.739	6949.30	15.7	0.328	15.6	8.2	3.56	2.09%	Fine Tailings	0.054	107.6	1.48	0.014	1.47	1	10	2.31%	2.9	83%	2.31	0.014	2.30
26.903	6949.14	13.4	0.287	13.3	14.4	6.24	2.14%	Fine Tailings	0.054	107.6	1.49	0.019	1.47	1	8	2.41%	3.0	83%	2.32	0.019	2.30
27.067	6948.97	12.1	0.242	12.0	14.3	6.20	2.01%	Fine Tailings	0.054	107.6	1.50	0.024	1.47	1	7	2.29%	3.1	83%	2.33	0.024	2.30
27.231	6948.81	12.3	0.235	12.2	15.7	6.79	1.92%	Fine Tailings	0.054	107.6	1.51	0.029	1.48	1	7	2.18%	3.0	83%	2.34	0.029	2.31
27.395	6948.65	12.9	0.282	12.8	18.8	8.13	2.18%	Fine Tailings	0.054	107.6	1.52	0.034	1.48	1	8	2.47%	3.0	83%	2.35	0.034	2.31
27.559	6948.48	13.0	0.314	12.9	19.3	8.36	2.42%	Fine Tailings	0.054	107.6	1.53	0.039	1.49	1	8	2.74%	3.1	83%	2.36	0.039	2.32
27.723	6948.32	11.5	0.282	11.4	19.8	8.58	2.46%	Fine Tailings	0.054	107.6	1.53	0.044	1.49	1	7	2.84%	3.1	83%	2.36	0.044	2.32
27.887	6948.15	11.4	0.219	11.3	20.6	8.93	1.92%	Fine Tailings	0.054	107.6	1.54	0.050	1.49	1	7	2.22%	3.1	83%	2.37	0.050	2.32
28.051	6947.99	10.9	0.198	10.8	21.4	9.25	1.82%	Fine Tailings	0.054	107.6	1.55	0.055	1.50	1	6	2.12%	3.1	83%	2.38	0.055	2.33
28.215	6947.83	10.5	0.189	10.3	22.1	9.56	1.81%	Fine Tailings	0.054	107.6	1.56	0.060	1.50	1	6	2.12%	3.1	83%	2.39	0.060	2.33
28.379	6947.66	10.0	0.193	9.9	22.6	9.78	1.93%	Fine Tailings	0.054	107.6	1.57	0.065	1.50	1	6	2.28%	3.1	83%	2.40	0.065	2.33
28.543	6947.50	10.3	0.200	10.1	23.1	10.01	1.95%	Fine Tailings	0.054	107.6	1.58	0.070	1.51	1	6	2.30%	3.1	83%	2.41	0.070	2.34
28.707	6947.33	10.5	0.214	10.3	24.2	10.50	2.04%	Fine Tailings	0.054	107.6	1.59	0.075	1.51	1	6	2.41%	3.1	83%	2.42	0.075	2.34
28.871	6947.17	11.2	0.187	11.0	24.5	10.62	1.67%	Fine Tailings	0.054	107.6	1.60	0.080	1.52	1	6	1.95%	3.1	83%	2.43	0.080	2.35
29.035	6947.00	10.7	0.180	10.6	26.0	11.25	1.68%	Fine Tailings	0.054	107.6	1.60	0.085	1.52	1	6	1.97%	3.1	83%	2.43	0.085	2.35
29.199	6946.84	10.1	0.196	9.9	26.4	11.45	1.94%	Fine Tailings	0.054	107.6	1.61	0.090	1.52	1	6	2.31%	3.2	83%	2.44	0.090	2.35
29.363	6946.68	10.6	0.258	10.5	27.5	11.90	2.43%	Fine Tailings	0.054	107.6	1.62	0.096	1.53	1	6	2.87%	3.2	83%	2.45	0.096	2.36
29.527	6946.51	14.1	0.293	13.9	27.8	12.06	2.08%	Fine Tailings	0.054	107.6	1.63	0.101	1.53	1	8	2.36%	3.0	83%	2.46	0.101	2.36
29.691	6946.35	10.8	0.347	10.6	27.8	12.04	3.23%	Fine Tailings	0.054	107.6	1.64	0.106	1.53	1	6	3.81%	3.2	83%	2.47	0.106	2.36
29.855	6946.18	14.4	0.429	14.2	30.4	13.18	2.98%	Fine Tailings	0.054	107.6	1.65	0.111	1.54	1	8	3.36%	3.1	83%	2.48	0.111	2.37
30.019	6946.02	15.7	0.393	15.6	31.8	13.77	2.50%	Fine Tailings	0.054	107.6	1.66	0.116	1.54	1	9	2.79%	3.0	83%	2.49	0.116	2.37
30.183	6945.86	11.7	0.400	11.5	31.3	13.54	3.43%	Fine Tailings	0.054	107.6	1.67	0.121	1.55	1	6	4.00%	3.2	83%	2.50	0.121	2.38
30.347	6945.69	10.7	0.406	10.5	38.2	16.55	3.80%	Fine Tailings	0.054	107.6	1.68	0.126	1.55	1	6	4.50%	3.3	83%	2.51	0.126	2.38
30.511	6945.53	10.1	0.309	9.8	41.9	18.16	3.06%	Fine Tailings	0.054	107.6	1.68	0.131	1.55	1	5	3.68%	3.3	83%	2.51	0.131	2.38
30.675	6945.36	9.8	0.235	9.6	42.4	18.36	2.39%	Fine Tailings	0.054	107.6	1.69	0.137	1.56	1	5	2.89%	3.2	83%	2.52	0.137	2.39
30.840	6945.20	9.7	0.240	9.4	45.6	19.76	2.47%	Fine Tailings	0.054	107.6	1.70	0.142	1.56	1	5	3.00%	3.2	83%	2.53	0.142	2.39
31.004	6945.04	9.4	0.231	9.1	47.8	20.70	2.46%	Fine Tailings	0.054	107.6	1.71	0.000	1.71	0	4	3.00%	3.3	83%	2.54	0.000	2.54
31.168	6944.87	10.6	0.274	10.3	51.4	22.27	2.59%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	5	3.09%	3.2	21%	2.55	0.000	2.55
31.332	6944.71	13.9	0.381	13.6	56.1	24.30	2.74%	Coarse Tailings	0.054	108.1	1.73	0.000	1.73	0	7	3.12%	3.1	21%	2.56	0.000	2.56
31.496	6944.54	37.6	0.447	37.3	57.6	24.97	1.19%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	21	1.24%	2.5	21%	2.57	0.000	2.57
31.660	6944.38	40.9	0.592	40.8	21.0	9.09	1.45%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	22	1.51%	2.5	21%	2.58	0.000	2.58
31.824	6944.22	51.5	0.738	51.4	15.0	6.49	1.43%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	28	1.48%	2.5	21%	2.58	0.000	2.58
31.988	6944.05	46.1	0.915	46.0	13.3	5.78	1.98%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	25	2.06%	2.6	21%	2.59	0.000	2.59
32.152	6943.89	46.6	1.079	46.5	12.5	5.41	2.32%	Coarse Tailings	0.054	108.1	1.77	0.000	1.77	0	25	2.41%	2.6	21%	2.60	0.000	2.60
32.316	6943.72	39.5	1.239	39.5	11.8	5.10	3.13%	Coarse Tailings	0.054	108.1	1.78	0.000	1.78	0	21	3.28%	2.8	21%	2.61	0.000	2.61
32.480	6943.56	25.6	1.078	25.6	11.2	4.84	4.21%	Coarse Tailings	0.054	108.1	1.79	0.000	1.79	0	13	4.52%	3.0	21%	2.62	0.000	2.62
32.644	6943.40	16.2	0.633	16.1	11.0	4.78	3.91%	Fine Tailings	0.054	107.6	1.80	0.004	1.79	1	8	4.40%	3.2	83%	2.63	0.004	2.62
32.808	6943.23	11.5	0.409	11.4	19.1	8.28	3.57%	Fine Tailings	0.054	107.6	1.81	0.010	1.80	1	5	4.23%	3.3	83%	2.64	0.010	2.63
32.972	6943.07	11.0	0.260	10.8	22.6	9.80	2.37%	Fine Tailings	0.054	107.6	1.82	0.015	1.80	1	5	2.84%	3.2	83%	2.65	0.015	2.63
33.136	6942.90	11.5	0.280	11.4	27.6	11.98	2.43%	Fine Tailings	0.054	107.6	1.83	0.020	1.81	1	5	2.89%	3.2	83%	2.66	0.020	2.64
33.300	6942.74	11.8	0.287	11.7	28.7	12.45	2.42%	Fine Tailings	0.054	107.6	1.83	0.025	1.81	1	6	2.87%	3.2	83%	2.66	0.025	2.64
33.464	6942.58	12.5	0.246	12.3	30.7	13.30	1.97%	Fine Tailings	0.054	107.6	1.84	0.030	1.81	1	6	2.31%	3.1	83%	2.67	0.030	2.64
33.628	6942.41	12.8	0.229	12.6	30.8	13.34	1.79%	Fine Tailings	0.054	107.6	1.85	0.035	1.82	1	6	2.09%	3.1	83%	2.68	0.035	2.65
33.792	6942.25	12.2	0.273	12.1	32.0	13.85	2.23%	Fine Tailings	0.054	107.6	1.86	0.040	1.82	1	6	2.63%	3.2	83%	2.69	0.040	2.65
33.956	6942.08	12.5	0.301	12.3	37.7	16.35	2.40%	Fine Tailings	0.054	107.6	1.87	0.045	1.82	1	6	2.82%	3.2	83%	2.70	0.045	2.65
34.120	6941.92	11.6	0.320	11.4	38.6	16.74	2.76%	Fine Tailings	0.054	107.6	1.88	0.051	1.83	1	5	3.29%	3.2	83%	2.71	0.051	2.66
34.284	6941.76	12.9	0.312	12.7	39.4	17.08	2.41%	Fine Tailings	0.054	107.6	1.89	0.056	1.83	1	6	2.83%	3.2	83%	2.72	0.056	2.66
34.448	6941.59	13.6	0.278	13.3	39.8	17.23	2.05%	Fine Tailings	0.054	107.6	1.90	0.061	1.84	1	6	2.38%	3.1	83%	2.73	0.061	2.67
34.612	6941.43	13.2	0.371	12.9	40.6	17.61	2.81%	Fine Tailings	0.054	107.6	1.91	0.066	1.84	1	6	3.29%	3.2	83%	2.74	0.066	2.67
34.776	6941.26	14.3	0.403	14.0	42.1	18.26	2.82%	Fine Tailings	0.054	107.6	1.91	0.071	1.84	1	7	3.26%	3.2	83%	2.74	0.071	2.67
34.941	6941.10	14.1	0.363	13.9	41.3	17.91	2.57%	Fine Tailings	0.054	107.6	1.92	0.076	1.85	1	7	2.97%	3.1	83%	2.75	0.076	2.68
35.105	6940.94	21.9	0.416	21.7	43.3	18.77	1.90%	Coarse/Fine Tailin	0.058	116.0	1.93	0.000	1.93	0	10	2.08%	2.9	52%	2.76	0.000	2.76
35.269	6940.77	32.9	0.772	32.8	21.2	9.17	2.35%	Coarse/Fine Tailin	0.058	116.0	1.94	0.000	1.94	0	16	2.49%	2.8	52%	2.77	0.000	2.77
35.433	6940.61	25.4	0.980	25.3	19.7	8.54	3.85%	Coarse/Fine Tailin	0.058	116.0	1.95	0.000	1.95	0	12	4.18%	3.0	52%	2.78	0.000	2.78
35.597	6940.44	17.2	0.791	17.1	18.4	7.99	4.60%	Coarse/Fine Tailin	0.058	116.0	1.96	0.000	1.96	0	8	5.19%	3.2	52%	2.79	0.000	2.79
35.761	6940.28	13.1	0.531	12.9	19.9	8.62	4.06%	Coarse/Fine Tailin	0.058	116.0	1.97	0.000	1.97	0	6	4.79%	3.3	52%	2.80	0.000	2.80
35.925	6940.12	12.3	0.358	12.2	22.7	9.84	2.91%	Coarse/Fine Tailin	0.058	116.0	1.98	0.000	1.98	0	5	3.47%	3.3	52%	2.81	0.000	2.81
36.089	6939.95	12.8	0.396	12.6	24.8	10.76	3.10%	Coarse/Fine Tailin	0.058	116.0	1.99	0.000	1.99	0	5	3.67%	3.3	52%	2.82	0.000	2.82
36.253	6939.79	14.1	0.352	13.9	27.8	12.04	2.50%	Coarse/Fine Tailin	0.058	116.0	2.00	0.000	2.00	0	6	2.92%	3.2	52%	2.83	0.000	2.83
36.417	6939.62	12.7	0.353	12.5	29.1	12.59	2.79%	Coarse/Fine Tailin	0.058	116.0	2.01	0.000	2.01	0	5	3.31%	3.2	52%	2.84	0.000	2.84
36.581	6939.46	12.6	0.400	12.4	32.0	13.87	3.17%	Coarse/Fine Tailin	0.058	116.0	2.02	0.000	2.02	0	5	3.77%	3.3	52%	2.85	0.000	2.85
36.745	6939.30	12.3	0.452	12.1	35.1	15.19	3.68%	Coarse/Fine Tailin	0.058	116.0	2.03	0.000	2.03	0	5	4.41%	3.3	52%	2.86	0.000	2.86
36.909	6939.13	19.1	0.504	18.9	31.6	13.71	2.63%	Coarse/Fine Tailin	0.058	116.0	2.04	0.000	2.04	0	8	2.95%	3.1	52%	2.87	0.000	2.87
37.073	6938.97	13.3	0.439	13.1	32.7	14.15	3.31%	Coarse/Fine Tailin	0.058	116.0	2.05	0.000	2.05	0	5	3.91%	3.3	52%	2.88	0.000	2.88
37.237	6938.80	11.7	0.354	11.5	38.2	16.53	3.02%	Coarse/Fine Tailin	0.058	116.0	2.06	0.000	2.06	0	5	3.67%	3.3	52%	2.89	0.000	2.89
37.401	6938.64	11.4	0.255	11.2	40.2	17.41	2.24%	Coarse/Fine Tailin	0.058	116.0	2.07	0.000	2.07	0	5	2.73%	3.3	52%	2.90	0.000	2.90
37.565	6938.47	12.1	0.256	11.9	41.8	18.10	2.11%	Coarse/Fine Tailin	0.058	116.0	2.08	0.000	2.08	0	5	2.55%	3.2	52%	2.90	0.000	2.90
37.729	6938.31	12.4	0.269	12.1	42.7	18.49	2.17%	Coarse/Fine Tailin	0.058	116.0	2.08	0.000	2.08	0	5	2.61%	3.2	52%	2.91	0.000	2.91

11.78	761	1.7E-03	9.7E+02	40	0.5804	2.5E-04	0	0.250	0.252	152	0.250	7245	4962	1548	7245	0.053%	1.79	1.00	0.01%	0.000761	0.36	0.025	0.785	0.12%	0.0002
11.83	594	1.7E-03	5.9E+02	40	0.5760	4.2E-04	0	0.250	0.252	153	0.250	7233	4954	1549	7233	0.202%	1.79	1.00	0.01%	0.003445	0.36	0.025	0.785	0.54%	0.0009
11.88	594	1.7E-03	5.9E+02	39	0.5716	4.1E-04	0	0.250	0.252	154	0.250	7221	4945	1550	7221	0.199%	1.79	1.00	0.01%	0.003386	0.36	0.025	0.785	0.53%	0.0009
11.93	594	1.7E-03	5.9E+02	39	0.5671	4.1E-04	0	0.251	0.253	155	0.251	7209	4937	1551	7209	0.196%	1.79	1.00	0.01%	0.003327	0.36	0.025	0.785	0.52%	0.0009
11.98	594	1.7E-03	5.9E+02	39	0.5627	4.1E-04	0	0.251	0.253	156	0.251	7197	4929	1552	7197	0.193%	1.79	1.00	0.01%	0.003268	0.36	0.025	0.785	0.51%	0.0008
12.03	594	1.7E-03	5.9E+02	38	0.5583	4.1E-04	0	0.251	0.253	157	0.251	7186	4921	1553	7186	0.189%	1.79	1.00	0.01%	0.003210	0.36	0.025	0.785	0.50%	0.0008
12.08	594	1.7E-03	5.9E+02	38	0.5538	4.1E-04	0	0.251	0.253	158	0.251	7174	4912	1554	7174	0.186%	1.79	1.00	0.01%	0.003152	0.36	0.025	0.785	0.49%	0.0008
12.13	594	1.7E-03	5.9E+02	38	0.5493	4.1E-04	0	0.251	0.254	159	0.251	7162	4904	1555	7162	0.183%	1.79	1.00	0.01%	0.003094	0.36	0.025	0.785	0.49%	0.0008
12.18	594	1.7E-03	5.9E+02	37	0.5448	4.0E-04	0	0.252	0.254	160	0.252	7151	4896	1556	7151	0.180%	1.79	1.00	0.01%	0.003037	0.36	0.025	0.785	0.48%	0.0008
12.23	594	1.7E-03	5.9E+02	37	0.5403	4.0E-04	0	0.252	0.254	161	0.252	7139	4888	1557	7139	0.176%	1.79	1.00	0.01%	0.002980	0.36	0.025	0.785	0.47%	0.0008
12.28	594	1.7E-03	5.9E+02	36	0.5358	4.0E-04	0	0.252	0.255	162	0.252	7128	4880	1558	7128	0.173%	1.79	1.00	0.01%	0.002923	0.36	0.025	0.785	0.46%	0.0008
12.33	594	1.7E-03	5.9E+02	36	0.5313	4.0E-04	0	0.252	0.255	163	0.252	7116	4872	1559	7116	0.170%	1.79	1.00	0.01%	0.002867	0.36	0.025	0.785	0.45%	0.0007
12.38	594	1.7E-03	5.9E+02	36	0.5268	4.0E-04	43	0.253	0.255	164	164.000	7110	4868	1560	1560	0.074%	0.90	0.75	0.06%	0.001177	0.25	0.323	0.851	0.20%	0.0003
12.43	594	1.7E-03	5.9E+02	35	0.5223	4.0E-04	43	0.253	0.255	165	165.000	7105	4864	1561	1561	0.074%	0.90	0.75	0.06%	0.001144	0.25	0.323	0.851	0.19%	0.0003
12.48	594	1.7E-03	5.9E+02	35	0.5178	4.0E-04	43	0.253	0.255	166	166.000	7100	4861	1562	1562	0.073%	0.90	0.75	0.06%	0.001109	0.25	0.323	0.851	0.19%	0.0003
12.53	594	1.7E-03	5.9E+02	35	0.5132	3.9E-04	43	0.253	0.255	167	167.000	7095	4858	1563	1563	0.073%	0.90	0.75	0.06%	0.001074	0.25	0.323	0.851	0.18%	0.0003
12.58	594	1.7E-03	5.9E+02	34	0.5087	3.9E-04	43	0.253	0.255	168	168.000	7091	4854	1564	1564	0.072%	0.90	0.75	0.06%	0.001038	0.25	0.323	0.851	0.18%	0.0003
12.63	594	1.7E-03	5.9E+02	34	0.5041	3.9E-04	43	0.253	0.255	169	169.000	7086	4851	1565	1565	0.072%	0.90	0.75	0.06%	0.001001	0.25	0.323	0.851	0.17%	0.0003
12.68	594	1.7E-03	5.9E+02	34	0.4996	3.9E-04	43	0.253	0.256	170	170.000	7081	4848	1566	1566	0.071%	0.90	0.75	0.06%	0.000963	0.25	0.323	0.851	0.16%	0.0003
12.73	594	1.7E-03	5.9E+02	34	0.4950	3.9E-04	43	0.253	0.256	171	171.000	7077	4845	1567	1567	0.070%	0.90	0.75	0.06%	0.000924	0.25	0.323	0.851	0.16%	0.0003
12.78	594	1.7E-03	5.9E+02	33	0.4905	3.8E-04	43	0.253	0.256	172	172.000	7072	4841	1568	1568	0.070%	0.90	0.75	0.06%	0.000884	0.25	0.323	0.851	0.15%	0.0002
12.83	594	1.7E-03	5.9E+02	33	0.4859	3.8E-04	43	0.253	0.256	173	173.000	7067	4838	1569	1569	0.069%	0.90	0.75	0.06%	0.000844	0.25	0.323	0.851	0.14%	0.0002
12.88	594	1.7E-03	5.9E+02	33	0.4813	3.8E-04	43	0.253	0.256	174	174.000	7063	4835	1570	1570	0.069%	0.90	0.75	0.06%	0.000802	0.25	0.323	0.851	0.14%	0.0002
12.93	594	1.7E-03	5.9E+02	32	0.4768	3.8E-04	43	0.254	0.256	175	175.000	7058	4832	1571	1571	0.068%	0.90	0.75	0.06%	0.000759	0.25	0.323	0.851	0.13%	0.0002
12.98	594	1.7E-03	5.9E+02	32	0.4722	3.7E-04	43	0.254	0.256	176	176.000	7054	4829	1572	1572	0.067%	0.90	0.75	0.06%	0.000715	0.25	0.323	0.851	0.12%	0.0002
13.03	594	1.7E-03	5.9E+02	32	0.4677	3.7E-04	43	0.254	0.256	177	177.000	7049	4825	1573	1573	0.067%	0.90	0.75	0.06%	0.000670	0.25	0.323	0.851	0.11%	0.0002
13.08	594	1.7E-03	5.9E+02	32	0.4631	3.7E-04	43	0.254	0.256	178	178.000	7044	4822	1574	1574	0.066%	0.90	0.75	0.06%	0.000623	0.25	0.323	0.851	0.11%	0.0002
13.13	594	1.7E-03	5.9E+02	31	0.4586	3.7E-04	43	0.254	0.257	179	179.000	7040	4819	1575	1575	0.065%	0.90	0.75	0.06%	0.000575	0.25	0.323	0.851	0.10%	0.0002
13.18	594	1.7E-03	5.9E+02	31	0.4540	3.7E-04	43	0.254	0.257	180	180.000	7035	4816	1576	1576	0.065%	0.90	0.75	0.06%	0.000525	0.25	0.323	0.851	0.09%	0.0001
13.23	594	1.7E-03	5.9E+02	31	0.4494	3.6E-04	43	0.254	0.257	181	181.000	7031	4813	1577	1577	0.064%	0.90	0.75	0.06%	0.000473	0.25	0.323	0.851	0.08%	0.0001
13.28	594	1.7E-03	5.9E+02	31	0.4449	3.6E-04	43	0.254	0.257	182	182.000	7026	4809	1578	1578	0.064%	0.90	0.75	0.06%	0.000419	0.25	0.323	0.851	0.07%	0.0001
13.33	587	1.7E-03	5.8E+02	30	0.4404	3.7E-04	43	0.254	0.257	183	183.000	7022	4806	1579	1579	0.065%	0.90	0.75	0.06%	0.000564	0.25	0.323	0.851	0.10%	0.0002
13.38	587	1.7E-03	5.8E+02	30	0.4358	3.6E-04	43	0.254	0.257	184	184.000	7017	4803	1580	1580	0.065%	0.90	0.75	0.06%	0.000510	0.25	0.323	0.851	0.09%	0.0001
13.43	587	1.7E-03	5.8E+02	30	0.4313	3.6E-04	43	0.254	0.257	185	185.000	7013	4800	1581	1581	0.064%	0.90	0.75	0.06%	0.000454	0.25	0.323	0.851	0.08%	0.0001
13.48	587	1.7E-03	5.8E+02	30	0.4268	3.6E-04	43	0.255	0.257	186	186.000	7008	4797	1582	1582	0.063%	0.90	0.75	0.06%	0.000396	0.25	0.323	0.851	0.07%	0.0001
13.53	587	1.7E-03	5.8E+02	29	0.4223	3.6E-04	43	0.255	0.257	187	187.000	7004	4794	1583	1583	0.063%	0.90	0.75	0.06%	0.000334	0.25	0.323	0.851	0.06%	0.0001
13.58	587	1.7E-03	5.8E+02	29	0.4178	3.5E-04	43	0.255	0.258	188	188.000	6999	4791	1584	1584	0.062%	0.90	0.75	0.06%	0.000268	0.25	0.323	0.851	0.05%	0.0001
13.63	587	1.7E-03	5.8E+02	29	0.4133	3.5E-04	43	0.255	0.258	189	189.000	6995	4787	1585	1585	0.061%	0.90	0.75	0.06%	0.000196	0.25	0.323	0.851	0.03%	0.0001
13.68	587	1.7E-03	5.8E+02	29	0.4088	3.5E-04	43	0.255	0.258	190	190.000	6990	4784	1586	1586	0.061%	0.90	0.75	0.06%	0.000113	0.25	0.323	0.851	0.02%	0.0000
13.73	587	1.7E-03	5.8E+02	29	0.4043	3.5E-04	43	0.255	0.258	191	191.000	6986	4781	1587	1587	0.060%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.78	587	1.7E-03	5.8E+02	28	0.3998	3.4E-04	43	0.259	0.262	192	192.000	6813	4661	1588	1588	0.059%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.83	587	1.7E-03	5.8E+02	28	0.3954	3.4E-04	0	0.259	0.262	193	0.259	6803	4654	1589	6803	0.097%	1.79	1.00	0.01%	0.001565	0.36	0.025	0.785	0.25%	0.0004
13.88	587	1.7E-03	5.8E+02	28	0.3909	3.4E-04	0	0.259	0.263	194	0.259	6794	4647	1590	6794	0.095%	1.79	1.00	0.01%	0.001526	0.36	0.025	0.785	0.24%	0.0004
13.93	587	1.7E-03	5.8E+02	28	0.3865	3.3E-04	0	0.259	0.263	195	0.259	6784	4641	1591	6784	0.093%	1.79	1.00	0.01%	0.001488	0.36	0.025	0.785	0.23%	0.0004
13.98	587	1.7E-03	5.8E+02	28	0.3821	3.3E-04	0	0.259	0.263	196	0.259	6775	4634	1592	6775	0.091%	1.79	1.00	0.01%	0.001450	0.36	0.025	0.785	0.23%	0.0004
14.03	587	1.7E-03	5.8E+02	27	0.3777	3.3E-04	0	0.260	0.263	197	0.260	6765	4627	1593	6765	0.089%	1.79	1.00	0.01%	0.001413	0.36	0.025	0.785	0.22%	0.0004
14.08	587	1.7E-03	5.8E+02	27	0.3733	3.3E-04	0	0.260	0.264	198	0.260	6756	4621	1594	6756	0.087%	1.79	1.00	0.01%	0.001377	0.36	0.025	0.785	0.22%	0.0004
14.13	587	1.7E-03	5.8E+02	27	0.3689	3.2E-04	0	0.260	0.264	199	0.260	6746	4614	1595	6746	0.085%	1.79	1.00	0.01%	0.001341	0.36	0.025	0.785	0.21%	0.0003
14.18	587	1.7E-03	5.8E+02	27	0.3645	3.2E-04	0	0.260	0.264	200	0.260	6737	4607	1596	6737	0.083%	1.79	1.00	0.01%	0.001307	0.36	0.025	0.785	0.21%	0.0003
14.23	587	1.7E-03	5.8E+02	27	0.3602	3.2E-04	0	0.261	0.264	201	0.261	6727	4601	1597	6727	0.081%	1.79	1.00	0.01%	0.001273	0.36	0.025	0.785	0.20%	0.0003
14.28	587	1.7E-03	5.8E+02	26	0.3558	3.2E-04	43	0.261	0.264	202	202.000	6723	4598	1598	1598	0.052%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.33	587	1.7E-03	5.8E+02	26	0.3515	3.1E-04	43	0.261	0.264	203	203.000	6719	4595	1599	1599	0.052%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.38	587	1.7E-03	5.8E+02	26	0.3472	3.1E-04	43	0.261	0.265	204	204.000	6715	4592	1600	1600	0.051%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.43	587	1.7E-03	5.8E+02	26	0.3430	3.1E-04	43	0.261	0.265	205	205.000	6711	4590	1601	1601	0.050%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.48	587	1.7E-03	5.8E+02	26	0.3387	3.1E-04	43	0.261	0.265	206	206.000	6707	4587	1602	1602	0.050%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.53	587	1.7E-03	5.8E+02	26	0.3345	3.0E-04	43	0.261	0.265	207	207.000	6703	4584	1603	1603	0.049%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.58	587	1.7E-03	5.8E+02	25	0.3302	3.0E-04	43	0.261	0.265	208	208.000	6700	4582	1604	1604	0.048%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.63	587	1.7E-03	5.8E+02	25	0.3260	3.0E-04	43	0.261	0.265	209	209.000	6696	4579	1605	1605	0.048%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.68	587	1.7E-03	5.8E+02	25	0.3218	2.9E-04	43	0.261	0.265	210	210.000	6692	4576	1606	1606	0.047%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.73	587	1.7E-03	5.8E+02	25	0.3177	2.9E-04	43	0.261	0.265	211	211.000	6688	4574	1607	1607	0.046%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.78	587	1.7E-03	5.8E+02	25	0.3135	2.9E-04	43	0.261	0.265	212	212.000	6684	4571	1608	1608	0.046%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.83	587	1.7E-03	5.8E+02	25	0.3094	2.9E-04	43	0.262	0.265	213	213.000	6680	4568	1609	1609	0.045%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.88	639	1.7E-03	6.8E+02	25	0.3053	2.4E-04	43	0.262	0.266	214	214.000	6677	4566	1610	1610	0.035%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.93	639	1.7E-03	6.8E+02	24	0.3013	2.4E-04	43	0.262	0.266	215	215.000	6673	4563	1611	1611	0.035%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
14.98	639	1.7E-03	6.8E+02	24	0.2972	2.3E-04	43	0.262	0.266	216	216.000	6669	4560	1612	1612	0.034%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.03	639	1.8E-03	7.4E+02	24	0.2932	2.1E-04	20	0.264	0.268	217	72.512	6583	4501	1613	3538	0.046%	2.00	0.65	0.03%	0.006704	0.34	0.079	0.797	1.07%	0.0018
15.08	639	1.8E-03	7.4E+02	24	0.2892	2.1E-04	20	0.264	0.268	218	72.845	6574	4494	1614	3534	0.045%	2.00	0.65	0.03%	0.006464	0.34	0.079	0.797	1.03%	0.0017
15.13	639	1.8E-03	7.4E+02	24	0.2852	2.1E-04	20	0.264	0.268	219	73.179	6565	4488	1615	3530	0.044%	2.00	0.65	0.03%	0.006222	0.34	0.079	0.797	0.99%	0.0016
15.18	639	1.8E-03	7.4E+02	24	0.2812	2.1E-04	20	0.264	0.269	220	73.512	6556	4481	1616	3526	0.043%	2.00	0.65	0.03%	0.005978	0.34	0.079	0.797	0.95%	0.0016
15.23	639	1.8E-03	7.4E+02	24	0.2773	2.1E-04	20	0.265	0.269	221	73.846	6547	4475	1617	3522	0.042%	2.00	0.65	0.03%	0.005731	0.34	0.079	0.797	0.91%	0.0015
15.28	639	1.8E-03	7.4E+02	24	0.2734	2.0E-04	20	0.265	0.269	222	74.179	6537	4469	1618	3518	0.041%	2.00	0.65	0.03%	0.005483	0.34	0.079	0.797	0.87%	0.0014
15.33	639	1.8E-03	7.4E+02	23	0.2695	2.0E-04	20	0.265	0.269	223	74.513	6528	4462	1619	3515	0.041%	2.00	0.65	0.03%	0.005232	0.34	0.079	0.797	0.83%	0.0014
15.38	639	1.8E-03	7.4E+02	23	0.2657	2.0E-04	20	0.265	0.270	224	74.846	6519	4456	1620	3511	0.040%	2.00	0.65	0.03%	0.004978	0.34	0.079	0.797	0.79%	0.0013
15.43	639	1.8E-03	7.4E+02	23	0.2618	2.0E-04	20	0.265	0.270	225	75.180	6510	4450	1621	3507	0.039%	2.00	0.65	0.03%	0.004720	0.34	0.079	0.797	0.75%	0.0012
15.48	639	1.8E-03	7.4E+02	23	0.2580	1.9E-04	20	0.266	0.270	226	75.513	6502	4444	1622	3503	0.038%	2.00	0.65	0.03%	0.004459	0.34	0.079	0.797	0.71%	0.0012
15.53	639	1.8E-03	7.4E+02	23	0.2543	1.9E-04	20	0.266	0.270	227	75.847	6493	4437	1623	3499	0.038%	2.00	0.65	0.03%	0.004193	0.34	0.079	0.797	0.67%	0.0011
15.58	639	1.8E-03	7.4E+02	23	0.2505	1.9E-04	20	0.266	0.271	228	76.180	6484	4431	1624	3495	0.037%	2.00	0.65	0.03%	0.003922	0.34	0.079	0.797	0.63%	0.0010
15.63	639	1.8E-03	7.4E+02	23	0.2468	1.9E-04	20	0.266	0.271	229	76.514	6475	4425	1625	3492	0.036%	2.00	0.65	0.03%	0.003644	0.34	0.079	0.797	0.58%	0.0010
15.68	639	1.8E-03	7.4E+02	23	0.2431	1.9E-04	20	0.266	0.271	230	76.847	6466	4419	1626	3488	0.035%	2.00	0.65	0.03%	0.003359	0.34	0.079	0.797	0.54%	0.0009
15.73	639	1.8E-03	7.4E+02	22	0.2394	1.8E-04	20	0.267	0.271	231	77.181	6458	4413	1627	3484	0.035%	2.00	0.65	0.03%	0.003066	0.34	0.079	0.797	0.49%	0.0008
15.78	639	1.8E-03	7.4E+02	22	0.2358	1.8E-04	20	0.267	0.272	232	77.514	6449	4407	1628	3481	0.034%	2.00	0.65	0.03%	0.002760	0.34	0.079	0.797	0.44%	0.0007
15.83	639	1.8E-03	7.4E+02	22	0.2322	1.8E-04	20	0.267	0.272	233	77.848	6440	4401	1629	3477	0.033%	2.00	0.65	0.03%	0.002441	0.34	0.079	0.797	0.39%	0.0006

37.893	6938.15	12.7	0.266	12.4	44.0	19.08	2.09%	Coarse/Fine Tailin	0.058	116.0	2.09	0.000	2.09	0	5	2.51%	3.2	52%	2.92	0.000	2.92
38.057	6937.98	13.1	0.256	12.9	44.4	19.24	1.95%	Coarse/Fine Tailin	0.058	116.0	2.10	0.000	2.10	0	5	2.32%	3.2	52%	2.93	0.000	2.93
38.221	6937.82	13.4	0.205	13.1	45.1	19.54	1.54%	Coarse/Fine Tailin	0.058	116.0	2.11	0.000	2.11	0	5	1.82%	3.1	52%	2.94	0.000	2.94
38.385	6937.65	12.6	0.178	12.3	46.5	20.13	1.41%	Coarse/Fine Tailin	0.058	116.0	2.12	0.000	2.12	0	5	1.70%	3.1	52%	2.95	0.000	2.95
38.549	6937.49	12.0	0.236	11.7	52.9	22.92	1.97%	Coarse/Fine Tailin	0.058	116.0	2.13	0.000	2.13	0	5	2.39%	3.2	52%	2.96	0.000	2.96
38.713	6937.33	12.4	0.281	12.1	56.4	24.42	2.27%	Fine Tailings	0.054	107.6	2.14	0.004	2.14	1	5	2.74%	3.2	83%	2.97	0.004	2.97
38.877	6937.16	12.4	0.304	12.1	58.1	25.18	2.45%	Fine Tailings	0.054	107.6	2.15	0.009	2.14	1	5	2.96%	3.3	83%	2.98	0.009	2.97
39.042	6937.00	12.5	0.323	12.1	59.5	25.79	2.59%	Fine Tailings	0.054	107.6	2.16	0.014	2.14	1	5	3.13%	3.3	83%	2.99	0.014	2.97
39.206	6936.83	13.0	0.317	12.6	60.8	26.36	2.44%	Fine Tailings	0.054	107.6	2.17	0.019	2.15	1	5	2.93%	3.2	83%	3.00	0.019	2.98
39.370	6936.67	13.9	0.354	13.5	63.3	27.43	2.55%	Fine Tailings	0.054	107.6	2.18	0.024	2.15	1	5	3.02%	3.2	83%	3.01	0.024	2.98
39.534	6936.51	13.2	0.359	12.8	63.9	27.68	2.72%	Fine Tailings	0.054	107.6	2.19	0.029	2.16	1	5	3.26%	3.3	83%	3.01	0.029	2.99
39.698	6936.34	26.5	0.601	26.1	67.9	29.43	2.27%	Fine Tailings	0.054	107.6	2.19	0.034	2.16	1	11	2.47%	2.9	83%	3.02	0.034	2.99
39.862	6936.18	24.6	0.611	24.4	36.8	15.93	2.48%	Fine Tailings	0.054	107.6	2.20	0.039	2.16	1	10	2.72%	3.0	83%	3.03	0.039	2.99
40.026	6936.01	20.7	0.747	20.5	30.1	13.03	3.61%	Fine Tailings	0.054	107.6	2.21	0.044	2.17	1	9	4.04%	3.1	83%	3.04	0.044	3.00
40.190	6935.85	20.7	0.634	20.5	28.6	12.41	3.06%	Fine Tailings	0.054	107.6	2.22	0.050	2.17	1	9	3.43%	3.1	83%	3.05	0.050	3.00
40.354	6935.69	20.7	0.720	20.5	26.8	11.59	3.48%	Fine Tailings	0.054	107.6	2.23	0.055	2.17	1	8	3.90%	3.1	83%	3.06	0.055	3.00
40.518	6935.52	15.0	0.602	14.7	50.2	21.76	4.02%	Fine Tailings	0.054	107.6	2.24	0.060	2.18	1	6	4.73%	3.3	83%	3.07	0.060	3.01
40.682	6935.36	13.1	0.409	12.7	60.9	26.39	3.13%	Fine Tailings	0.054	107.6	2.25	0.065	2.18	1	5	3.78%	3.3	83%	3.08	0.065	3.01
40.846	6935.19	13.1	0.370	12.7	71.3	30.89	2.82%	Fine Tailings	0.054	107.6	2.26	0.070	2.19	1	5	3.40%	3.3	83%	3.09	0.070	3.02
41.010	6935.03	13.8	0.383	13.3	79.0	34.25	2.78%	Fine Tailings	0.054	107.6	2.26	0.075	2.19	1	5	3.33%	3.3	83%	3.09	0.075	3.02
41.174	6934.87	13.5	0.420	13.0	81.1	35.14	3.11%	Fine Tailings	0.054	107.6	2.27	0.080	2.19	1	5	3.74%	3.3	83%	3.10	0.080	3.02
41.338	6934.70	13.5	0.417	12.9	81.7	35.40	3.10%	Fine Tailings	0.054	107.6	2.28	0.085	2.20	1	5	3.73%	3.3	83%	3.11	0.085	3.03
41.502	6934.54	13.1	0.315	12.6	80.2	34.75	2.41%	Fine Tailings	0.054	107.6	2.29	0.091	2.20	1	5	2.92%	3.3	83%	3.12	0.091	3.03
41.666	6934.37	13.1	0.247	12.6	80.3	34.78	1.88%	Fine Tailings	0.054	107.6	2.30	0.096	2.20	1	5	2.28%	3.2	83%	3.13	0.096	3.03
41.830	6934.21	13.8	0.279	13.3	84.1	36.42	2.02%	Fine Tailings	0.054	107.6	2.31	0.101	2.21	1	5	2.42%	3.2	83%	3.14	0.101	3.04
41.994	6934.05	14.1	0.381	13.6	90.1	39.04	2.69%	Fine Tailings	0.054	107.6	2.32	0.106	2.21	1	5	3.22%	3.2	83%	3.15	0.106	3.04
42.158	6933.88	14.4	0.449	13.8	94.1	40.77	3.11%	Fine Tailings	0.054	107.6	2.33	0.111	2.22	1	5	3.71%	3.3	83%	3.16	0.111	3.05
42.322	6933.72	15.6	0.532	15.0	97.1	42.08	3.40%	Fine Tailings	0.054	107.6	2.34	0.116	2.22	1	6	4.00%	3.3	83%	3.16	0.116	3.05
42.486	6933.55	17.9	0.500	17.3	84.3	36.52	2.80%	Fine Tailings	0.054	107.6	2.34	0.121	2.22	1	7	3.22%	3.1	83%	3.17	0.121	3.05
42.650	6933.39	15.3	0.515	14.9	74.9	32.47	3.36%	Fine Tailings	0.054	107.6	2.35	0.126	2.23	1	6	3.97%	3.3	83%	3.18	0.126	3.06
42.814	6933.23	15.2	0.477	14.7	78.7	34.10	3.15%	Fine Tailings	0.054	107.6	2.36	0.131	2.23	1	6	3.73%	3.2	83%	3.19	0.131	3.06
42.978	6933.06	15.3	0.468	14.8	80.3	34.81	3.06%	Fine Tailings	0.054	107.6	2.37	0.137	2.23	1	6	3.62%	3.2	83%	3.20	0.137	3.06
43.143	6932.90	15.0	0.419	14.5	82.5	35.75	2.80%	Fine Tailings	0.054	107.6	2.38	0.142	2.24	1	6	3.32%	3.2	83%	3.21	0.142	3.07
43.307	6932.73	15.3	0.417	14.8	87.5	37.93	2.72%	Fine Tailings	0.054	107.6	2.39	0.147	2.24	1	6	3.22%	3.2	83%	3.22	0.147	3.07
43.471	6932.57	16.5	0.398	15.9	92.2	39.96	2.41%	Fine Tailings	0.054	107.6	2.40	0.152	2.25	1	6	2.82%	3.2	83%	3.23	0.152	3.07
43.635	6932.41	16.1	0.465	15.5	95.5	41.38	2.89%	Fine Tailings	0.054	107.6	2.41	0.157	2.25	1	6	3.40%	3.2	83%	3.24	0.157	3.08
43.799	6932.24	18.1	0.444	17.4	111.2	48.17	2.45%	Fine Tailings	0.054	107.6	2.41	0.162	2.25	1	7	2.83%	3.1	83%	3.24	0.162	3.08
43.963	6932.08	19.0	0.520	18.3	117.4	50.86	2.73%	Fine Tailings	0.054	107.6	2.42	0.167	2.26	1	7	3.13%	3.1	83%	3.25	0.167	3.09
44.127	6931.91	20.2	0.560	19.4	124.0	53.73	2.78%	Fine Tailings	0.054	107.6	2.43	0.172	2.26	1	8	3.16%	3.1	83%	3.26	0.172	3.09
44.291	6931.75	25.6	0.692	24.7	134.5	58.30	2.71%	Fine Tailings	0.054	107.6	2.44	0.178	2.26	1	10	2.99%	3.0	83%	3.27	0.178	3.09
44.455	6931.59	27.8	1.020	27.3	71.6	31.03	3.67%	Fine Tailings	0.054	107.6	2.45	0.183	2.27	1	11	4.03%	3.0	83%	3.28	0.183	3.10
44.619	6931.42	36.0	1.122	35.6	53.2	23.04	3.12%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0	14	3.35%	2.9	36%	3.29	0.000	3.29
44.783	6931.26	27.3	1.106	27.0	39.9	17.29	4.06%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0	10	4.46%	3.1	36%	3.30	0.000	3.30
44.947	6931.09	22.2	0.929	21.9	40.7	17.65	4.19%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0	8	4.71%	3.2	36%	3.31	0.000	3.31
45.111	6930.93	21.9	0.815	21.6	49.3	21.35	3.72%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0	8	4.19%	3.2	36%	3.32	0.000	3.32
45.275	6930.76	22.5	0.843	22.2	50.9	22.07	3.75%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	8	4.21%	3.2	36%	3.33	0.000	3.33
45.439	6930.60	23.1	0.996	22.8	51.8	22.45	4.30%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	8	4.83%	3.2	36%	3.33	0.000	3.33
45.603	6930.44	26.7	1.087	26.3	54.9	23.77	4.08%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0	10	4.50%	3.1	36%	3.34	0.000	3.34
45.767	6930.27	28.6	1.134	28.3	52.8	22.86	3.96%	Coarse Alluvium	0.056	111.0	2.52	0.000	2.52	0	10	4.34%	3.1	36%	3.35	0.000	3.35
45.931	6930.11	27.1	1.214	26.8	47.3	20.48	4.48%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	10	4.94%	3.1	36%	3.36	0.000	3.36
46.095	6929.94	30.2	1.531	29.9	49.5	21.45	5.07%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0	11	5.54%	3.1	36%	3.37	0.000	3.37
46.259	6929.78	30.9	1.733	30.6	42.2	18.30	5.62%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0	11	6.12%	3.1	36%	3.38	0.000	3.38
46.423	6929.62	33.6	1.621	33.4	33.7	14.58	4.82%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0	12	5.22%	3.1	36%	3.39	0.000	3.39
46.587	6929.45	29.4	1.438	29.1	39.2	16.98	4.90%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0	10	5.36%	3.1	36%	3.40	0.000	3.40
46.751	6929.29	40.0	1.422	39.6	52.2	22.61	3.56%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0	15	3.80%	2.9	36%	3.41	0.000	3.41
46.915	6929.12	57.2	1.642	56.9	40.4	17.51	2.87%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0	21	3.01%	2.7	36%	3.42	0.000	3.42
47.079	6928.96	62.4	2.131	62.2	32.4	14.05	3.41%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	23	3.56%	2.8	36%	3.43	0.000	3.43
47.244	6928.80	52.1	2.149	52.0	28.2	12.22	4.12%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	19	4.34%	2.9	36%	3.43	0.000	3.43
47.408	6928.63	51.7	2.070	51.6	27.9	12.08	4.00%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0	19	4.21%	2.9	36%	3.44	0.000	3.44
47.572	6928.47	56.0	1.792	55.8	29.9	12.94	3.20%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0	20	3.36%	2.8	36%	3.45	0.000	3.45
47.736	6928.30	39.6	1.655	39.5	25.1	10.86	4.18%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	14	4.48%	3.0	36%	3.46	0.000	3.46
47.900	6928.14	26.1	1.478	26.0	22.1	9.56	5.65%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0	9	6.29%	3.2	36%	3.47	0.000	3.47
48.064	6927.98	23.9	1.204	23.8	21.3	9.21	5.04%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0	8	5.67%	3.2	36%	3.48	0.000	3.48
48.228	6927.81	21.1	1.026	21.0	21.4	9.27	4.86%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0	7	5.56%	3.3	36%	3.49	0.000	3.49
48.392	6927.65	21.3	0.929	21.2	21.8	9.46	4.36%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0	7	4.99%	3.3	36%	3.50	0.000	3.50
48.556	6927.48	15.5	0.698	15.4	20.2	8.74	4.49%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0	5	5.42%	3.4	36%	3.51	0.000	3.51
48.720	6927.32	14.1	0.535	14.0	19.4	8.42	3.80%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0	4	4.70%	3.4	36%	3.52	0.000	3.52
48.884	6927.16	15.1	0.474	15.0	19.6	8.48	3.14%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	5	3.82%	3.3	36%	3.53	0.000	3.53
49.048	6926.99	18.7	0.603	18.6	20.5	8.89	3.22%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	6	3.76%	3.2	36%	3.53	0.000	3.53
49.212	6926.83	19.1	0.732	18.9	20.7	8.97	3.84%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	6	4.48%	3.3	36%	3.54	0.000	3.54
49.376	6926.66	21.5	0.901	21.4	20.3	8.81	4.20%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0	7	4.80%	3.2	36%	3.55	0.000	3.55
49.540	6926.50	20.7	0.896	20.6	19.8	8.56	4.33%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	7	4.98%	3.3	36%	3.56	0.000	3.56
49.704	6926.34	21.3	0.999	21.2	19.9	8.62	4.69%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0	7	5.39%	3.3	36%	3.57	0.000	3.57
49.868	6926.17	21.9	0.987	21.7	20.1	8.71	4.52%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	7	5.17%	3.3	36%	3.58	0.000	3.58
50.032	6926.01	24.9	1.093	24.7	19.8	8.58	4.40%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	8	4.95%	3.2	36%	3.59	0.000	3.59
50.196	6925.84	29.3	1.131	29.2	19.3	8.36	3.86%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	10	4.26%	3.1	36%	3.60	0.000	3.60
50.360	6925.68	28.4	1.061	28.3	18.3	7.91	3.73%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	9	4.14%	3.1	36%	3.61	0.000	3.61
50.524	6925.52	24.9	0.932	24.8	17.3	7.48	3.74%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	8	4.22%	3.2	36%	3.62	0.000	3.62
50.688	6925.35	18.7	0.792	18.6	16.3	7.08	4.25%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	6	5.00%	3.3	36%	3.63	0.000	3.63
50.852	6925.19	16.3	0.711	16.3	15.7	6.81	4.35%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	5	5.25%	3.4	36%	3.63	0.000	3.63
51.016	6925.02	22.7	0.636	22.6	16.4	7.10	2.81%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	7	3.20%	3.1	36%	3.64	0.000	3.64
51.180	6924.86	32.8	0.634	32.7	16.9	7.34	1.93%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	11	2.11%	2.9	36%	3.65	0.000	3.65

15.88	639	1.8E-03	7.4E+02	22	0.2286	1.8E-04	20	0.267	0.272	234	78.181	6432	4395	1630	3473	0.033%	2.00	0.65	0.03%	0.002103	0.34	0.079	0.797	0.34%	0.0005
15.93	639	1.8E-03	7.4E+02	22	0.2250	1.8E-04	20	0.267	0.272	235	78.515	6423	4389	1631	3470	0.032%	2.00	0.65	0.03%	0.001739	0.34	0.079	0.797	0.28%	0.0005
15.98	639	1.8E-03	7.4E+02	22	0.2215	1.7E-04	20	0.268	0.272	236	78.848	6415	4383	1632	3466	0.031%	2.00	0.65	0.03%	0.001334	0.34	0.079	0.797	0.21%	0.0003
16.03	639	1.8E-03	7.4E+02	22	0.2180	1.7E-04	20	0.268	0.273	237	79.182	6406	4377	1633	3462	0.031%	2.00	0.65	0.03%	0.000855	0.34	0.079	0.797	0.14%	0.0002
16.08	639	1.8E-03	7.4E+02	22	0.2145	1.7E-04	20	0.268	0.273	238	79.515	6398	4371	1634	3459	0.030%	2.00	0.65	0.03%	0.000096	0.34	0.079	0.797	0.02%	0.0000
16.13	639	1.7E-03	6.8E+02	22	0.2111	1.8E-04	43	0.268	0.273	239	239.000	6393	4368	1635	1635	0.024%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.18	639	1.7E-03	6.8E+02	22	0.2077	1.8E-04	43	0.268	0.273	240	240.000	6390	4366	1636	1636	0.024%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.23	639	1.7E-03	6.8E+02	22	0.2043	1.7E-04	43	0.268	0.273	241	241.000	6386	4363	1637	1637	0.023%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.28	639	1.7E-03	6.8E+02	21	0.2009	1.7E-04	43	0.268	0.273	242	242.000	6383	4361	1638	1638	0.023%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.33	639	1.7E-03	6.8E+02	21	0.1976	1.7E-04	43	0.268	0.273	243	243.000	6380	4359	1639	1639	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.38	639	1.7E-03	6.8E+02	21	0.1943	1.7E-04	43	0.268	0.274	244	244.000	6377	4357	1640	1640	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.43	639	1.7E-03	6.8E+02	21	0.1911	1.7E-04	43	0.269	0.274	245	245.000	6373	4354	1641	1641	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.48	685	1.7E-03	7.8E+02	21	0.1878	1.4E-04	43	0.269	0.274	246	246.000	6370	4352	1642	1642	0.018%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.53	685	1.7E-03	7.8E+02	21	0.1846	1.4E-04	43	0.269	0.274	247	247.000	6367	4350	1643	1643	0.018%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.58	685	1.7E-03	7.8E+02	21	0.1815	1.4E-04	43	0.269	0.274	248	248.000	6364	4348	1644	1644	0.017%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.63	685	1.7E-03	7.8E+02	21	0.1783	1.4E-04	43	0.269	0.274	249	249.000	6360	4345	1645	1645	0.017%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.68	685	1.7E-03	7.8E+02	21	0.1752	1.3E-04	43	0.269	0.274	250	250.000	6357	4343	1646	1646	0.017%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.73	685	1.7E-03	7.8E+02	21	0.1721	1.3E-04	43	0.269	0.274	251	251.000	6354	4341	1647	1647	0.016%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.78	685	1.7E-03	7.8E+02	21	0.1691	1.3E-04	43	0.269	0.274	252	252.000	6351	4339	1648	1648	0.016%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.83	685	1.7E-03	7.8E+02	21	0.1660	1.3E-04	43	0.269	0.274	253	253.000	6348	4336	1649	1649	0.016%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.88	685	1.7E-03	7.8E+02	20	0.1630	1.3E-04	43	0.269	0.274	254	254.000	6344	4334	1650	1650	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.93	685	1.7E-03	7.8E+02	20	0.1601	1.2E-04	43	0.269	0.275	255	255.000	6341	4332	1651	1651	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.98	685	1.7E-03	7.8E+02	20	0.1571	1.2E-04	43	0.269	0.275	256	256.000	6338	4330	1652	1652	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.03	685	1.7E-03	7.8E+02	20	0.1542	1.2E-04	43	0.269	0.275	257	257.000	6335	4327	1653	1653	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.08	685	1.7E-03	7.8E+02	20	0.1514	1.2E-04	43	0.270	0.275	258	258.000	6332	4325	1654	1654	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.13	685	1.7E-03	7.8E+02	20	0.1485	1.2E-04	43	0.270	0.275	259	259.000	6329	4323	1655	1655	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.18	685	1.7E-03	7.8E+02	20	0.1457	1.1E-04	43	0.270	0.275	260	260.000	6325	4321	1656	1656	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.23	685	1.7E-03	7.8E+02	20	0.1429	1.1E-04	43	0.270	0.275	261	261.000	6322	4319	1657	1657	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.28	685	1.7E-03	7.8E+02	20	0.1402	1.1E-04	43	0.270	0.275	262	262.000	6319	4316	1658	1658	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.33	685	1.7E-03	7.8E+02	20	0.1374	1.1E-04	43	0.270	0.275	263	263.000	6316	4314	1659	1659	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.38	685	1.7E-03	7.8E+02	20	0.1347	1.1E-04	43	0.270	0.275	264	264.000	6313	4312	1660	1660	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.43	685	1.7E-03	7.8E+02	20	0.1321	1.1E-04	43	0.270	0.275	265	265.000	6310	4310	1661	1661	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.48	685	1.7E-03	7.8E+02	20	0.1294	1.0E-04	43	0.270	0.275	266	266.000	6307	4308	1662	1662	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.53	685	1.7E-03	7.8E+02	20	0.1268	1.0E-04	43	0.270	0.276	267	267.000	6303	4306	1663	1663	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.58	685	1.7E-03	7.8E+02	20	0.1242	1.0E-04	43	0.270	0.276	268	268.000	6300	4303	1664	1664	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.63	685	1.7E-03	7.8E+02	20	0.1217	9.8E-05	43	0.270	0.276	269	269.000	6297	4301	1665	1665	0.012%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.68	685	1.7E-03	7.8E+02	19	0.1192	9.6E-05	43	0.270	0.276	270	270.000	6294	4299	1666	1666	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.73	685	1.7E-03	7.8E+02	19	0.1167	9.4E-05	43	0.271	0.276	271	271.000	6291	4297	1667	1667	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.78	685	1.7E-03	7.8E+02	19	0.1142	9.3E-05	43	0.271	0.276	272	272.000	6288	4295	1668	1668	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.83	685	1.7E-03	7.8E+02	19	0.1118	9.1E-05	43	0.271	0.276	273	273.000	6285	4293	1669	1669	0.011%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.88	685	1.7E-03	7.8E+02	19	0.1093	8.9E-05	43	0.271	0.276	274	274.000	6282	4290	1670	1670	0.010%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.93	685	1.7E-03	8.1E+02	19	0.1070	8.5E-05	0	0.275	0.281	275	0.275	6129	4184	1671	6129	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.98	685	1.7E-03	8.1E+02	19	0.1046	8.3E-05	0	0.275	0.281	276	0.275	6122	4179	1672	6122	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.03	685	1.7E-03	8.1E+02	19	0.1023	8.2E-05	0	0.275	0.281	277	0.275	6115	4174	1673	6115	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.08	685	1.7E-03	8.1E+02	19	0.1000	8.0E-05	0	0.275	0.281	278	0.275	6108	4170	1674	6108	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.13	685	1.7E-03	8.1E+02	19	0.0977	7.8E-05	0	0.275	0.281	279	0.275	6101	4165	1675	6101	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.18	685	1.7E-03	8.1E+02	19	0.0955	7.7E-05	0	0.275	0.282	280	0.275	6094	4160	1676	6094	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.23	685	1.7E-03	8.1E+02	19	0.0933	7.5E-05	0	0.276	0.282	281	0.276	6088	4155	1677	6088	0.008%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.28	1272	1.7E-03	2.8E+03	19	0.0911	2.1E-05	0	0.276	0.282	282	0.276	6081	4151	1678	6081	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.33	1272	1.7E-03	2.8E+03	19	0.0889	2.1E-05	0	0.276	0.282	283	0.276	6074	4146	1679	6074	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.38	1272	1.7E-03	2.8E+03	19	0.0868	2.0E-05	0	0.276	0.282	284	0.276	6067	4141	1680	6067	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.43	1272	1.7E-03	2.8E+03	19	0.0847	2.0E-05	0	0.276	0.283	285	0.276	6061	4136	1681	6061	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.48	1272	1.7E-03	2.8E+03	19	0.0826	2.0E-05	0	0.276	0.283	286	0.276	6054	4132	1682	6054	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.53	1272	1.7E-03	2.8E+03	19	0.0805	1.9E-05	0	0.277	0.283	287	0.277	6047	4127	1683	6047	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.58	1272	1.7E-03	2.8E+03	19	0.0785	1.9E-05	0	0.277	0.283	288	0.277	6041	4123	1684	6041	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.63	1272	1.7E-03	2.8E+03	19	0.0765	1.8E-05	0	0.277	0.283	289	0.277	6034	4118	1685	6034	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.68	1272	1.7E-03	2.8E+03	19	0.0745	1.8E-05	0	0.277	0.284	290	0.277	6027	4113	1686	6027	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.73	1272	1.7E-03	2.8E+03	18	0.0726	1.7E-05	0	0.277	0.284	291	0.277	6021	4109	1687	6021	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.78	1272	1.7E-03	2.8E+03	18	0.0706	1.7E-05	0	0.277	0.284	292	0.277	6014	4104	1688	6014	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.83	1272	1.7E-03	2.8E+03	18	0.0687	1.7E-05	0	0.278	0.284	293	0.278	6008	4100	1689	6008	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.88	1272	1.7E-03	2.8E+03	18	0.0668	1.6E-05	0	0.278	0.284	294	0.278	6001	4095	1690	6001	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.93	1272	1.7E-03	2.8E+03	18	0.0650	1.6E-05	0	0.278	0.285	295	0.278	5995	4091	1691	5995	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.98	1272	1.7E-03	2.8E+03	18	0.0632	1.5E-05	0	0.278	0.285	296	0.278	5988	4086	1692	5988	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.03	1272	1.7E-03	2.8E+03	18	0.0613	1.5E-05	0	0.278	0.285	297	0.278	5982	4082	1693	5982	0.002%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.08	1272	1.7E-03	2.8E+03	18	0.0596	1.5E-05	0	0.278	0.285	298	0.278	5976	4077	1694	5976	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.13	1272	1.7E-03	2.8E+03	18	0.0578	1.4E-05	0	0.279	0.285	299	0.279	5969	4073	1695	5969	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.18	1272	1.7E-03	2.8E+03	18	0.0561	1.4E-05	0	0.279	0.286	300	0.279	5963	4069	1696	5963	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.23	1272	1.7E-03	2.8E+03	18	0.0544	1.3E-05	0	0.279	0.286	301	0.279	5957	4064	1697	5957	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.28	1272	1.7E-03	2.8E+03	18	0.0527	1.3E-05	0	0.279	0.286	302	0.279	5950	4060	1698	5950	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.33	1272	1.7E-03	2.8E+03	18	0.0510	1.3E-05	0	0.279	0.286	303	0.279	5944	4055	1699	5944	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.38	1272	1.7E-03	2.8E+03	18	0.0494	1.2E-05	0	0.279	0.286	304	0.279	5938	4051	1700	5938	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.43	1220	1.7E-03	2.6E+03	18	0.0477	1.3E-05	0	0.280	0.287	305	0.280	5932	4047	1701	5932	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.48	1220	1.7E-03	2.6E+03	18	0.0461	1.3E-05	0	0.280	0.287	306	0.280	5925	4042	1702	5925	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.53	1220	1.7E-03	2.6E+03	18	0.0446	1.2E-05	0	0.280	0.287	307	0.280	5919	4038	1703	5919	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.58	1220	1.7E-03	2.6E+03	18	0.0430	1.2E-05	0	0.280	0.287	308	0.280	5913	4034	1704	5913	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.63	1220	1.7E-03	2.6E+03	18	0.0415	1.1E-05	0	0.280	0.287	309	0.280	5907	4030	1705	5907	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.68	1220	1.7E-03	2.6E+03	18	0.0400	1.1E-05	0	0.280	0.288	310	0.280	5901	4025	1706	5901	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.73	1220	1.7E-03	2.6E+03	18	0.0385	1.1E-05	0	0.281	0.288	311	0.281	5895	4021	1707	5895	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.78	1220	1.7E-03	2.6E+03	18	0.0370	1.0E-05	0	0.281	0.288	312	0.281	5889	4017	1708	5889	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.83	1220	1.7E-03	2.6E+03	18	0.0355	9.8E-06	0	0.281	0.288	313	0.281	5882	4013	1709	5882	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.88	1220	1.7E-03	2.6E+03	18	0.0341	9.4E-06	0	0.281	0.288	314	0.281	5876	4008	1710	5876	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.93	1220	1.7E-03	2.6E+03	18	0.0327	9.1E-06	0	0.281	0.289	315	0.281	5870	4004	1711	5870	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000

51.345	6924.70	41.1	0.665	41.0	16.7	7.24	1.62%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	14	1.74%	2.8	36%	3.66	0.000	3.66
51.509	6924.53	41.8	0.943	41.7	17.0	7.38	2.26%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	14	2.42%	2.8	36%	3.67	0.000	3.67
51.673	6924.37	55.4	1.092	55.3	17.4	7.52	1.97%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	18	2.08%	2.7	36%	3.68	0.000	3.68
51.837	6924.20	60.7	1.308	60.6	17.4	7.54	2.15%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	20	2.26%	2.7	36%	3.69	0.000	3.69
52.001	6924.04	48.7	1.307	48.6	16.9	7.32	2.68%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	16	2.85%	2.8	36%	3.70	0.000	3.70
52.165	6923.88	35.0	1.231	34.9	16.5	7.16	3.51%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	11	3.83%	3.0	36%	3.71	0.000	3.71
52.329	6923.71	25.8	1.019	25.7	18.4	7.97	3.95%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	8	4.45%	3.2	36%	3.72	0.000	3.72
52.493	6923.55	27.7	1.001	27.5	21.5	9.31	3.62%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	9	4.04%	3.1	36%	3.73	0.000	3.73
52.657	6923.38	60.6	1.317	60.5	25.5	11.06	2.17%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	20	2.28%	2.7	36%	3.74	0.000	3.74
52.821	6923.22	49.3	1.528	49.1	22.5	9.76	3.10%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	16	3.30%	2.9	36%	3.74	0.000	3.74
52.985	6923.06	30.4	1.330	30.3	21.5	9.31	4.37%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	9	4.84%	3.1	36%	3.75	0.000	3.75
53.149	6922.89	22.3	0.950	22.1	23.0	9.96	4.27%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	7	4.91%	3.3	36%	3.76	0.000	3.76
53.313	6922.73	20.4	0.525	20.3	25.7	11.15	2.57%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	6	3.00%	3.2	36%	3.77	0.000	3.77
53.477	6922.56	18.8	0.445	18.6	27.4	11.88	2.37%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	5	2.81%	3.2	36%	3.78	0.000	3.78
53.641	6922.40	19.9	0.592	19.7	29.5	12.77	2.98%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	6	3.50%	3.2	36%	3.79	0.000	3.79
53.805	6922.23	19.2	0.692	19.1	29.6	12.83	3.60%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	5	4.25%	3.3	36%	3.80	0.000	3.80
53.969	6922.07	25.0	0.992	24.8	30.4	13.16	3.97%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	7	4.51%	3.2	36%	3.81	0.000	3.81
54.133	6921.91	55.5	0.983	55.3	32.3	13.99	1.77%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	18	1.87%	2.7	36%	3.82	0.000	3.82
54.297	6921.74	67.1	0.985	66.9	28.4	12.32	1.47%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	21	1.54%	2.6	36%	3.83	0.000	3.83
54.461	6921.58	69.8	0.720	69.6	25.3	10.94	1.03%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	22	1.08%	2.5	36%	3.84	0.000	3.84
54.625	6921.41	62.1	0.726	62.0	22.7	9.82	1.17%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	20	1.23%	2.5	36%	3.84	0.000	3.84
54.789	6921.25	52.4	0.899	52.3	5.0	2.18	1.72%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	16	1.82%	2.7	36%	3.85	0.000	3.85
54.953	6921.09	48.3	0.966	48.3	5.0	2.15	2.00%	Coarse Alluvium	0.056	111.0	3.03	0.000	3.03	0	15	2.13%	2.8	36%	3.86	0.000	3.86
55.117	6920.92	67.2	1.039	67.1	5.4	2.36	1.55%	Coarse Alluvium	0.056	111.0	3.04	0.000	3.04	0	21	1.62%	2.6	36%	3.87	0.000	3.87
55.281	6920.76	84.1	0.932	84.1	4.3	1.85	1.11%	Coarse Alluvium	0.056	111.0	3.05	0.000	3.05	0	27	1.15%	2.4	36%	3.88	0.000	3.88
55.446	6920.59	83.1	0.812	83.1	4.3	1.85	0.98%	Coarse Alluvium	0.056	111.0	3.06	0.000	3.06	0	26	1.01%	2.4	36%	3.89	0.000	3.89
55.610	6920.43	75.9	0.925	75.9	4.4	1.91	1.22%	Coarse Alluvium	0.056	111.0	3.07	0.000	3.07	0	24	1.27%	2.5	36%	3.90	0.000	3.90
55.774	6920.27	62.9	0.964	62.9	4.0	1.73	1.53%	Coarse Alluvium	0.056	111.0	3.08	0.000	3.08	0	19	1.61%	2.6	36%	3.91	0.000	3.91
55.938	6920.10	59.2	0.890	59.2	4.0	1.73	1.50%	Coarse Alluvium	0.056	111.0	3.09	0.000	3.09	0	18	1.59%	2.6	36%	3.92	0.000	3.92
56.102	6919.94	55.0	0.960	54.9	4.1	1.77	1.75%	Coarse Alluvium	0.056	111.0	3.10	0.000	3.10	0	17	1.85%	2.7	36%	3.93	0.000	3.93
56.266	6919.77	49.2	1.187	49.2	3.9	1.71	2.41%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	15	2.57%	2.8	36%	3.94	0.000	3.94
56.430	6919.61	42.4	1.546	42.4	3.9	1.71	3.64%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	13	3.93%	3.0	36%	3.94	0.000	3.94
56.594	6919.45	42.7	1.380	42.7	4.0	1.73	3.23%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	13	3.48%	3.0	36%	3.95	0.000	3.95
56.758	6919.28	65.0	1.396	65.0	4.0	1.75	2.15%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	20	2.26%	2.7	36%	3.96	0.000	3.96
56.922	6919.12	104.5	1.907	104.5	4.8	2.08	1.82%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	32	1.88%	2.5	36%	3.97	0.000	3.97
57.086	6918.95	101.6	2.343	101.6	4.4	1.89	2.31%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	31	2.38%	2.5	36%	3.98	0.000	3.98
57.250	6918.79	97.9	2.432	97.9	4.6	1.97	2.48%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	30	2.57%	2.6	36%	3.99	0.000	3.99
57.414	6918.63	83.6	2.203	83.6	4.3	1.87	2.64%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	25	2.74%	2.6	36%	4.00	0.000	4.00
57.578	6918.46	62.2	1.815	62.2	3.7	1.59	2.92%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	19	3.07%	2.8	36%	4.01	0.000	4.01
57.742	6918.30	56.2	1.789	56.2	3.9	1.67	3.18%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	17	3.38%	2.8	36%	4.02	0.000	4.02
57.906	6918.13	72.6	1.932	72.6	4.2	1.81	2.66%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	22	2.78%	2.7	36%	4.03	0.000	4.03
58.070	6917.97	58.2	2.197	58.1	4.3	1.85	3.78%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	17	4.00%	2.9	36%	4.04	0.000	4.04
58.234	6917.81	45.7	1.766	45.6	4.1	1.77	3.87%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	13	4.16%	3.0	36%	4.04	0.000	4.04
58.398	6917.64	44.7	1.643	44.7	4.9	2.14	3.67%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	13	3.96%	3.0	36%	4.05	0.000	4.05
58.562	6917.48	121.5	2.456	121.5	6.8	2.95	2.02%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	37	2.08%	2.4	36%	4.06	0.000	4.06
58.726	6917.31	252.7	2.868	252.7	7.4	3.21	1.13%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	77	1.15%	2.0	36%	4.07	0.000	4.07
58.890	6917.15	290.8	4.380	290.8	8.2	3.54	1.51%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	88	1.52%	2.1	36%	4.08	0.000	4.08
59.054	6916.99	233.5	4.940	233.5	8.2	3.54	2.12%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	71	2.15%	2.2	36%	4.09	0.000	4.09
59.218	6916.82	179.0	4.573	178.9	7.9	3.44	2.56%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	54	2.60%	2.4	36%	4.10	0.000	4.10
59.382	6916.66	125.7	3.556	125.7	7.6	3.28	2.83%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	37	2.90%	2.5	36%	4.11	0.000	4.11
59.547	6916.49	86.3	3.115	86.3	7.2	3.13	3.61%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	25	3.75%	2.7	36%	4.12	0.000	4.12
59.711	6916.33	83.3	2.586	83.3	7.5	3.23	3.10%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	24	3.23%	2.7	36%	4.13	0.000	4.13
59.875	6916.17	121.5	1.784	121.5	8.1	3.52	1.47%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	36	1.51%	2.4	36%	4.14	0.000	4.14
60.039	6916.00	134.5	2.632	134.4	8.2	3.54	1.96%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	40	2.01%	2.4	36%	4.14	0.000	4.14
60.203	6915.84	119.0	3.618	119.0	7.9	3.44	3.04%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	35	3.13%	2.6	36%	4.15	0.000	4.15
60.367	6915.67	101.5	4.702	101.5	8.0	3.48	4.63%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	29	4.79%	2.8	36%	4.16	0.000	4.16
60.531	6915.51	143.1	6.286	143.0	14.4	6.22	4.39%	Coal	-	-	-	-	-	-	-	-	-	-	-	-	-
60.695	6915.35	273.4	6.286	273.3	21.3	9.23	2.30%	Coal	-	-	-	-	-	-	-	-	-	-	-	-	-
60.859	6915.18	426.4	6.286	426.2	32.6	14.14	1.47%	Coal	-	-	-	-	-	-	-	-	-	-	-	-	-

19.98	1220	1.7E-03	2.6E+03	18	0.0313	8.7E-06	0	0.281	0.289	316	0.281	5864	4000	1712	5864	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.03	1220	1.7E-03	2.6E+03	18	0.0307	8.6E-06	0	0.282	0.289	317	0.282	5858	3996	1713	5858	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.08	1220	1.7E-03	2.6E+03	18	0.0305	8.5E-06	0	0.282	0.289	318	0.282	5853	3992	1714	5853	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.13	1220	1.7E-03	2.6E+03	18	0.0302	8.5E-06	0	0.282	0.289	319	0.282	5847	3988	1715	5847	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.18	1220	1.7E-03	2.6E+03	18	0.0300	8.4E-06	0	0.282	0.289	320	0.282	5841	3984	1716	5841	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.23	1220	1.7E-03	2.6E+03	18	0.0298	8.4E-06	0	0.282	0.290	321	0.282	5835	3979	1717	5835	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.28	1220	1.7E-03	2.6E+03	18	0.0295	8.3E-06	0	0.282	0.290	322	0.282	5829	3975	1718	5829	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.33	1220	1.7E-03	2.6E+03	18	0.0293	8.3E-06	0	0.283	0.290	323	0.283	5823	3971	1719	5823	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.38	1220	1.7E-03	2.6E+03	18	0.0291	8.3E-06	0	0.283	0.290	324	0.283	5817	3967	1720	5817	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.43	1220	1.7E-03	2.6E+03	18	0.0288	8.2E-06	0	0.283	0.290	325	0.283	5811	3963	1721	5811	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.48	1220	1.7E-03	2.6E+03	17	0.0286	8.2E-06	0	0.283	0.291	326	0.283	5806	3959	1722	5806	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.53	1220	1.7E-03	2.6E+03	17	0.0284	8.1E-06	0	0.283	0.291	327	0.283	5800	3955	1723	5800	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.58	1220	1.7E-03	2.6E+03	17	0.0282	8.1E-06	0	0.283	0.291	328	0.283	5794	3951	1724	5794	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.63	1220	1.7E-03	2.6E+03	17	0.0279	8.0E-06	0	0.284	0.291	329	0.284	5788	3947	1725	5788	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.68	1220	1.7E-03	2.6E+03	17	0.0277	8.0E-06	0	0.284	0.291	330	0.284	5783	3943	1726	5783	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.73	1220	1.7E-03	2.6E+03	17	0.0275	7.9E-06	0	0.284	0.292	331	0.284	5777	3939	1727	5777	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.78	1220	1.7E-03	2.6E+03	17	0.0272	7.9E-06	0	0.284	0.292	332	0.284	5771	3935	1728	5771	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.83	1220	1.7E-03	2.6E+03	17	0.0270	7.8E-06	0	0.284	0.292	333	0.284	5766	3931	1729	5766	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.88	1220	1.7E-03	2.6E+03	17	0.0268	7.8E-06	0	0.284	0.292	334	0.284	5760	3928	1730	5760	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.93	1220	1.7E-03	2.6E+03	17	0.0265	7.7E-06	0	0.284	0.292	335	0.284	5754	3924	1731	5754	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.98	1298	1.7E-03	2.9E+03	17	0.0263	6.8E-06	0	0.285	0.292	336	0.285	5749	3920	1732	5749	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.03	1298	1.7E-03	2.9E+03	17	0.0261	6.7E-06	0	0.285	0.293	337	0.285	5743	3916	1733	5743	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.08	1298	1.7E-03	2.9E+03	17	0.0259	6.7E-06	0	0.285	0.293	338	0.285	5738	3912	1734	5738	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.13	1298	1.7E-03	2.9E+03	17	0.0256	6.7E-06	0	0.285	0.293	339	0.285	5732	3908	1735	5732	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.18	1298	1.7E-03	2.9E+03	17	0.0254	6.6E-06	0	0.285	0.293	340	0.285	5727	3904	1736	5727	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.23	1298	1.7E-03	2.9E+03	17	0.0252	6.6E-06	0	0.285	0.293	341	0.285	5721	3900	1737	5721	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.28	1298	1.7E-03	2.9E+03	17	0.0249	6.5E-06	0	0.286	0.294	342	0.286	5716	3897	1738	5716	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.33	1298	1.7E-03	2.9E+03	17	0.0247	6.5E-06	0	0.286	0.294	343	0.286	5710	3893	1739	5710	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.38	1298	1.7E-03	2.9E+03	17	0.0245	6.4E-06	0	0.286	0.294	344	0.286	5705	3889	1740	5705	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.43	1298	1.7E-03	2.9E+03	17	0.0242	6.4E-06	0	0.286	0.294	345	0.286	5699	3885	1741	5699	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.48	1298	1.7E-03	2.9E+03	17	0.0240	6.3E-06	0	0.286	0.294	346	0.286	5694	3882	1742	5694	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.53	1298	1.7E-03	2.9E+03	17	0.0238	6.3E-06	0	0.286	0.294	347	0.286	5689	3878	1743	5689	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.58	1298	1.7E-03	2.9E+03	17	0.0236	6.3E-06	0	0.286	0.295	348	0.286	5683	3874	1744	5683	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.63	1298	1.7E-03	2.9E+03	17	0.0233	6.2E-06	0	0.287	0.295	349	0.287	5678	3870	1745	5678	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.68	1298	1.7E-03	2.9E+03	17	0.0231	6.2E-06	0	0.287	0.295	350	0.287	5672	3867	1746	5672	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.73	1298	1.7E-03	2.9E+03	17	0.0229	6.1E-06	0	0.287	0.295	351	0.287	5667	3863	1747	5667	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.78	1298	1.7E-03	2.9E+03	17	0.0226	6.1E-06	0	0.287	0.295	352	0.287	5662	3859	1748	5662	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.83	1298	1.7E-03	2.9E+03	17	0.0224	6.0E-06	0	0.287	0.296	353	0.287	5657	3856	1749	5657	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.88	1298	1.7E-03	2.9E+03	17	0.0222	6.0E-06	0	0.287	0.296	354	0.287	5651	3852	1750	5651	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.93	1298	1.7E-03	2.9E+03	17	0.0219	5.9E-06	0	0.288	0.296	355	0.288	5646	3848	1751	5646	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.98	1298	1.7E-03	2.9E+03	17	0.0217	5.9E-06	0	0.288	0.296	356	0.288	5641	3845	1752	5641	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.03	1298	1.7E-03	2.9E+03	17	0.0215	5.8E-06	0	0.288	0.296	357	0.288	5636	3841	1753	5636	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.08	1298	1.7E-03	2.9E+03	17	0.0213	5.8E-06	0	0.288	0.296	358	0.288	5630	3837	1754	5630	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.13	1298	1.7E-03	2.9E+03	17	0.0210	5.7E-06	0	0.288	0.297	359	0.288	5625	3834	1755	5625	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.18	1298	1.7E-03	2.9E+03	17	0.0208	5.7E-06	0	0.288	0.297	360	0.288	5620	3830	1756	5620	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.23	1298	1.7E-03	2.9E+03	17	0.0206	5.6E-06	0	0.288	0.297	361	0.288	5615	3827	1757	5615	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.28	1298	1.7E-03	2.9E+03	17	0.0203	5.6E-06	0	0.289	0.297	362	0.289	5610	3823	1758	5610	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.33	1298	1.7E-03	2.9E+03	17	0.0201	5.5E-06	0	0.289	0.297	363	0.289	5605	3819	1759	5605	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.38	1298	1.7E-03	2.9E+03	17	0.0199	5.5E-06	0	0.289	0.297	364	0.289	5599	3816	1760	5599	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.43	1298	1.7E-03	2.9E+03	17	0.0196	5.4E-06	0	0.289	0.298	365	0.289	5594	3812	1761	5594	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Proposed Repositor	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer (tsf)	Total Stress at Midpoint of Layer (tsf)	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint of Layer (tsf)	Effective Stress at Bottom of Layer (tsf)	Effectiv e Stress at Midpoin t of Layer
Erosion Protection	6990.3	6989.5	6988.8	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6988.8	6987.3	6985.8	3.0	0.057	114.7	0.264	0.178	0.00	0.00	0.264	0.178
Mine Spoils	6985.8	6980.9	6976.0	9.7	0.058	116.4	0.830	0.547	0.00	0.00	0.830	0.547

6976.04	Ground Surface Elevation at time of CPT (ft amsl)
6990.26	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

0.83	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6931.50	Elevation of bottom of tailings (ft amsl)

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-10

Data File: 13-52118_RP10-BSC-CPT

Location: UNC-NECR 2013 Mill Site PDS

Cells Requiring User Input/Manipulation

http://projects.mwhglobal.com/.../13-52118_RP10-BSC-CPT.XLS

Legend	Legend
Erosion Protection	Coarse Tailings
Cover Soil	Coarse/Fine Tailings
Mine Spoils	Fine Tailings
Radon Barrier	Coarse Alluvium
General Fill	Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69

Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Parameter
6883.40	Water surface elevation during CPT investigation (ft amsl)
6883.40	Water surface elevation at t_0 (ft amsl)
6883.40	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.001%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.91	866	1.8E-03	1.3E+03	992	0.9954	2.6E-05	12	0.140	0.130	4	0.132	20256	14154	1400	15375	0.003%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.89	866	1.8E-03	1.4E+03	370	0.9659	1.0E-04	12	0.195	0.189	4	0.190	11271	7787	1400	8484	0.013%	1.18	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil. Pore Pressure at time of CPT, (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6973.44	3.5	0.010	3.3	35.8	15.52	0.29%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	345	0.29%	1.2	59%	1.23	0.000	1.23
0.328	6973.27	4.6	0.108	4.5	8.5	3.66	2.36%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	227	2.37%	1.9	59%	1.24	0.000	1.24
0.492	6973.11	11.3	0.106	11.3	5.3	2.28	0.94%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	375	0.94%	1.5	59%	1.25	0.000	1.25
0.656	6972.94	30.1	0.223	30.0	9.0	3.90	0.74%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	749	0.74%	1.2	59%	1.26	0.000	1.26
0.820	6972.78	48.2	0.257	48.2	1.7	0.73	0.53%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	960	0.53%	1.1	59%	1.27	0.000	1.27
0.984	6972.62	75.1	0.280	75.0	8.6	3.74	0.37%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1246	0.37%	0.9	59%	1.28	0.000	1.28
1.148	6972.45	70.6	0.336	70.6	2.4	1.02	0.48%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1005	0.48%	1.0	59%	1.29	0.000	1.29
1.312	6972.29	66.8	0.393	66.8	3.9	1.69	0.59%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	832	0.59%	1.1	59%	1.30	0.000	1.30
1.476	6972.12	68.0	0.456	68.0	1.7	0.75	0.67%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	752	0.67%	1.2	59%	1.31	0.000	1.31
1.640	6971.96	68.8	0.760	68.8	0.9	0.41	1.11%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	685	1.11%	1.4	59%	1.32	0.000	1.32
1.804	6971.80	75.0	1.185	75.0	2.1	0.89	1.58%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	679	1.58%	1.6	59%	1.33	0.000	1.33
1.968	6971.63	105.1	1.817	105.1	7.3	3.17	1.73%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	872	1.73%	1.6	59%	1.34	0.000	1.34
2.133	6971.47	132.3	3.007	132.2	11.7	5.08	2.27%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1019	2.28%	1.6	48%	1.35	0.000	1.35
2.297	6971.30	159.7	4.044	159.6	17.5	7.57	2.53%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1148	2.53%	1.7	48%	1.36	0.000	1.36
2.461	6971.14	171.5	5.127	171.4	23.0	9.95	2.99%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1155	2.99%	1.7	48%	1.37	0.000	1.37
2.625	6970.98	168.1	5.694	168.1	11.6	5.02	3.39%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1065	3.39%	1.8	48%	1.38	0.000	1.38
2.789	6970.81	152.4	5.098	152.3	5.4	2.36	3.35%	General Fill	0.057	113.8	0.17	0.000	0.17	0	911	3.35%	1.8	48%	1.39	0.000	1.39
2.953	6970.65	136.3	4.745	136.3	2.2	0.94	3.48%	General Fill	0.057	113.8	0.18	0.000	0.18	0	772	3.49%	1.9	48%	1.40	0.000	1.40
3.117	6970.48	116.0	4.208	115.9	1.7	0.73	3.63%	General Fill	0.057	113.8	0.19	0.000	0.19	0	623	3.63%	1.9	48%	1.41	0.000	1.41
3.281	6970.32	100.2	3.982	100.1	22.8	9.86	3.97%	General Fill	0.057	113.8	0.20	0.000	0.20	0	513	3.98%	2.0	48%	1.42	0.000	1.42
3.445	6970.16	91.8	3.420	91.7	5.0	2.15	3.73%	General Fill	0.057	113.8	0.20	0.000	0.20	0	448	3.74%	2.0	48%	1.43	0.000	1.43
3.609	6969.99	81.4	3.048	81.4	5.0	2.18	3.74%	General Fill	0.057	113.8	0.21	0.000	0.21	0	380	3.75%	2.0	48%	1.44	0.000	1.44
3.773	6969.83	82.5	2.961	82.4	20.8	9.01	3.59%	General Fill	0.057	113.8	0.22	0.000	0.22	0	369	3.60%	2.0	48%	1.45	0.000	1.45
3.937	6969.66	88.9	2.980	88.9	6.2	2.70	3.35%	General Fill	0.057	113.8	0.23	0.000	0.23	0	382	3.36%	2.0	48%	1.46	0.000	1.46
4.101	6969.50	94.1	3.569	94.1	6.1	2.64	3.79%	General Fill	0.057	113.8	0.24	0.000	0.24	0	388	3.80%	2.0	48%	1.47	0.000	1.47
4.265	6969.33	110.6	4.227	110.6	8.8	3.80	3.82%	General Fill	0.057	113.8	0.25	0.000	0.25	0	440	3.83%	2.0	48%	1.48	0.000	1.48
4.429	6969.17	119.7	4.319	119.6	5.1	2.22	3.61%	General Fill	0.057	113.8	0.26	0.000	0.26	0	459	3.62%	2.0	48%	1.48	0.000	1.48
4.593	6969.01	108.1	3.869	108.0	4.5	1.93	3.58%	General Fill	0.057	113.8	0.27	0.000	0.27	0	400	3.59%	2.0	48%	1.49	0.000	1.49
4.757	6968.84	88.7	3.214	88.7	1.7	0.75	3.62%	General Fill	0.057	113.8	0.28	0.000	0.28	0	317	3.64%	2.0	48%	1.50	0.000	1.50
4.921	6968.68	73.0	2.450	72.9	4.8	2.09	3.36%	General Fill	0.057	113.8	0.29	0.000	0.29	0	252	3.37%	2.0	48%	1.51	0.000	1.51
5.085	6968.51	67.2	2.274	67.2	1.4	0.61	3.38%	General Fill	0.057	113.8	0.30	0.000	0.30	0	225	3.40%	2.1	48%	1.52	0.000	1.52
5.249	6968.35	70.1	2.479	70.1	1.2	0.53	3.54%	General Fill	0.057	113.8	0.31	0.000	0.31	0	227	3.55%	2.1	48%	1.53	0.000	1.53
5.413	6968.19	79.2	2.592	79.2	2.5	1.10	3.27%	General Fill	0.057	113.8	0.32	0.000	0.32	0	249	3.28%	2.0	48%	1.54	0.000	1.54
5.577	6968.02	117.1	2.461	117.1	6.0	2.58	2.10%	General Fill	0.057	113.8	0.33	0.000	0.33	0	359	2.11%	1.8	48%	1.55	0.000	1.55
5.741	6967.86	136.7	2.097	136.7	4.2	1.83	1.53%	General Fill	0.057	113.8	0.34	0.000	0.34	0	407	1.54%	1.6	48%	1.56	0.000	1.56
5.905	6967.69	145.9	1.683	145.9	5.5	2.38	1.15%	General Fill	0.057	113.8	0.34	0.000	0.34	0	423	1.16%	1.5	48%	1.57	0.000	1.57
6.069	6967.53	149.2	1.876	149.2	5.4	2.34	1.26%	General Fill	0.057	113.8	0.35	0.000	0.35	0	421	1.26%	1.6	48%	1.58	0.000	1.58
6.234	6967.37	147.6	1.838	147.6	4.2	1.83	1.25%	General Fill	0.057	113.8	0.36	0.000	0.36	0	406	1.25%	1.6	48%	1.59	0.000	1.59
6.398	6967.20	145.8	2.024	145.8	3.0	1.30	1.39%	General Fill	0.057	113.8	0.37	0.000	0.37	0	391	1.39%	1.6	48%	1.60	0.000	1.60
6.562	6967.04	139.7	2.297	139.7	2.9	1.26	1.64%	General Fill	0.057	113.8	0.38	0.000	0.38	0	365	1.65%	1.7	48%	1.61	0.000	1.61
6.726	6966.87	120.4	3.073	120.4	2.8	1.22	2.55%	General Fill	0.057	113.8	0.39	0.000	0.39	0	307	2.56%	1.9	48%	1.62	0.000	1.62
6.890	6966.71	92.0	3.381	92.0	3.3	1.42	3.68%	Coarse Tailings	0.054	108.1	0.40	0.000	0.40	0	229	3.69%	2.1	21%	1.62	0.000	1.62
7.054	6966.55	74.6	2.934	74.6	7.3	3.15	3.93%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	182	3.95%	2.2	21%	1.63	0.000	1.63
7.218	6966.38	196.1	3.150	195.9	28.4	12.30	1.61%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	469	1.61%	1.6	21%	1.64	0.000	1.64
7.382	6966.22	197.9	3.377	197.8	12.8	5.53	1.71%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	463	1.71%	1.7	21%	1.65	0.000	1.65
7.546	6966.05	115.4	2.830	115.4	0.7	0.30	2.45%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	264	2.46%	1.9	21%	1.66	0.000	1.66
7.710	6965.89	74.5	3.389	74.5	0.1	0.06	4.55%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	167	4.58%	2.3	21%	1.67	0.000	1.67
7.874	6965.73	70.5	3.113	70.5	4.7	2.03	4.41%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	155	4.44%	2.3	21%	1.68	0.000	1.68
8.038	6965.56	78.3	3.495	78.0	46.7	20.25	4.46%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	168	4.49%	2.2	21%	1.69	0.000	1.69
8.202	6965.40	192.2	4.149	191.3	155.3	67.31	2.16%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	407	2.16%	1.8	21%	1.70	0.000	1.70
8.366	6965.23	278.0	3.670	277.8	25.1	10.88	1.32%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	578	1.32%	1.5	21%	1.70	0.000	1.70
8.530	6965.07	312.7	4.080	312.7	6.6	2.87	1.30%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	639	1.31%	1.5	21%	1.71	0.000	1.71
8.694	6964.91	305.6	3.655	305.5	16.0	6.93	1.20%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	613	1.20%	1.5	21%	1.72	0.000	1.72
8.858	6964.74	279.3	3.841	279.2	3.2	1.40	1.38%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	551	1.38%	1.5	21%	1.73	0.000	1.73
9.022	6964.58	219.5	3.165	219.5	0.0	0.00	1.44%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	425	1.45%	1.6	21%	1.74	0.000	1.74
9.186	6964.41	163.2	3.657	163.2	-0.9	-0.41	2.24%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	310	2.25%	1.9	21%	1.75	0.000	1.75
9.350	6964.25	138.1	3.792	138.1	7.2	3.13	2.75%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	258	2.76%	2.0	21%	1.76	0.000	1.76
9.514	6964.09	119.6	3.094	119.5	21.7	9.42	2.59%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	220	2.60%	2.0	21%	1.77	0.000	1.77
9.678	6963.92	93.6	1.788	93.6	2.6	1.12	1.91%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	169	1.92%	2.0	21%	1.77	0.000	1.77
9.842	6963.76	75.5	0.790	75.5	0.4	0.16	1.05%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	134	1.05%	1.8	21%	1.78	0.000	1.78
10.006	6963.59	64.4	0.843	64.4	1.4	0.59	1.31%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	112	1.32%	2.0	21%	1.79	0.000	1.79
10.170	6963.43	57.8	0.915	57.8	2.6	1.12	1.58%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	99	1.60%	2.0	21%	1.80	0.000	1.80
10.335	6963.27	55.1	0.973	55.1	0.5	0.23	1.76%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	93	1.78%	2.1	21%	1.81	0.000	1.81
10.499	6963.10	51.6	0.881	51.6	-0.1	-0.02	1.71%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	86	1.73%	2.1	21%	1.82	0.000	1.82
10.663	6962.94	49.0	0.661	49.0	0.4	0.18	1.35%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	80	1.37%	2.1	21%	1.83	0.000	1.83

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.1150

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0 (0)	g_1 for PI = 15 (15)	g_1 for PI = 30 (30)	g_1	g_2 for PI = 0 (0)	g_2 for PI = 15 (15)	g_2 for PI = 30 (30)	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
6.45	926	1.9E-03	1.6E+03	164	0.9068	1.3E-04	16	0.219	0.216	4	0.469	9160	6302	1400	5976	0.019%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.50	926	1.9E-03	1.6E+03	161	0.9051	1.3E-04	16	0.219	0.217	5	0.536	9130	6281	1401	5956	0.019%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.55	926	1.9E-03	1.6E+03	159	0.9035	1.4E-04	16	0.220	0.217	6	0.603	9100	6260	1402	5936	0.020%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
6.60	926	1.9E-03	1.6E+03	157	0.9018	1.4E-04	16	0.220	0.218	7	0.670	9070	6239	1403	5917	0.020%	0.65	0.75	0.02%	0.000065	0.34	0.079	0.797	0.01%	0.0000
6.65	926	1.9E-03	1.6E+03	154	0.9001	1.4E-04	16	0.221	0.218	8	0.737	9041	6219	1404	5898	0.021%	0.65	0.75	0.02%	0.000116	0.34	0.079	0.797	0.02%	0.0000
6.70	926	1.9E-03	1.6E+03	152	0.8984	1.4E-04	16	0.221	0.219	9	0.804	9011	6198	1405	5879	0.022%	0.65	0.75	0.02%	0.000159	0.34	0.079	0.797	0.03%	0.0000
6.75	926	1.9E-03	1.6E+03	150	0.8966	1.4E-04	16	0.221	0.219	10	0.871	8983	6178	1406	5860	0.022%	0.65	0.75	0.02%	0.000197	0.34	0.079	0.797	0.03%	0.0001
6.80	926	1.9E-03	1.6E+03	147	0.8948	1.4E-04	16	0.222	0.220	11	0.938	8954	6158	1407	5842	0.023%	0.65	0.75	0.02%	0.000231	0.34	0.079	0.797	0.04%	0.0001
6.85	926	1.9E-03	1.6E+03	145	0.8930	1.4E-04	16	0.222	0.220	12	1.005	8926	6139	1408	5823	0.023%	0.65	0.75	0.02%	0.000263	0.34	0.079	0.797	0.04%	0.0001
6.90	926	1.9E-03	1.6E+03	143	0.8912	1.4E-04	16	0.223	0.221	13	1.072	8899	6119	1409	5805	0.023%	0.65	0.75	0.02%	0.000292	0.34	0.079	0.797	0.05%	0.0001
6.95	926	1.9E-03	1.6E+03	141	0.8893	1.4E-04	16	0.223	0.221	14	1.140	8871	6100	1410	5787	0.024%	0.65	0.75	0.02%	0.000319	0.34	0.079	0.797	0.05%	0.0001
7.00	926	1.9E-03	1.6E+03	139	0.8875	1.4E-04	16	0.223	0.221	15	1.207	8844	6081	1411	5769	0.024%	0.65	0.75	0.02%	0.000345	0.34	0.079	0.797	0.05%	0.0001
7.05	926	1.8E-03	1.5E+03	137	0.8856	1.5E-04	19	0.224	0.222	16	4.429	8819	6063	1412	4823	0.029%	1.70	0.75	0.02%	0.001615	0.34	0.079	0.797	0.26%	0.0004
7.10	926	1.8E-03	1.5E+03	135	0.8836	1.6E-04	19	0.224	0.222	17	4.696	8794	6046	1413	4810	0.030%	1.70	0.75	0.02%	0.001658	0.34	0.079	0.797	0.26%	0.0004
7.15	926	1.8E-03	1.5E+03	133	0.8817	1.6E-04	19	0.224	0.223	18	4.963	8769	6029	1414	4798	0.030%	1.70	0.75	0.02%	0.001698	0.34	0.079	0.797	0.27%	0.0004
7.20	926	1.8E-03	1.5E+03	131	0.8797	1.6E-04	19	0.225	0.223	19	5.230	8745	6012	1415	4786	0.030%	1.70	0.75	0.02%	0.001736	0.34	0.079	0.797	0.28%	0.0005
7.25	926	1.8E-03	1.5E+03	129	0.8777	1.6E-04	19	0.225	0.223	20	5.497	8721	5995	1416	4774	0.031%	1.70	0.75	0.02%	0.001773	0.34	0.079	0.797	0.28%	0.0005
7.30	926	1.8E-03	1.5E+03	127	0.8757	1.6E-04	19	0.225	0.224	21	5.764	8697	5978	1417	4762	0.031%	1.70	0.75	0.02%	0.001808	0.34	0.079	0.797	0.29%	0.0005
7.35	926	1.8E-03	1.5E+03	125	0.8736	1.6E-04	19	0.226	0.224	22	6.031	8673	5961	1418	4750	0.031%	1.70	0.75	0.02%	0.001842	0.34	0.079	0.797	0.29%	0.0005
7.40	926	1.8E-03	1.5E+03	123	0.8716	1.6E-04	19	0.226	0.225	23	6.298	8650	5945	1419	4738	0.031%	1.70	0.75	0.02%	0.001875	0.34	0.079	0.797	0.30%	0.0005
7.45	926	1.8E-03	1.5E+03	121	0.8695	1.6E-04	19	0.226	0.225	24	6.565	8627	5929	1420	4726	0.032%	1.70	0.75	0.02%	0.001906	0.34	0.079	0.797	0.30%	0.0005
7.50	926	1.8E-03	1.5E+03	119	0.8673	1.6E-04	19	0.227	0.225	25	6.832	8604	5913	1421	4715	0.032%	1.70	0.75	0.02%	0.001936	0.34	0.079	0.797	0.31%	0.0005
7.55	926	1.8E-03	1.5E+03	118	0.8652	1.6E-04	19	0.227	0.226	26	7.099	8581	5897	1422	4703	0.032%	1.70	0.75	0.02%	0.001965	0.34	0.079	0.797	0.31%	0.0005
7.60	926	1.8E-03	1.5E+03	116	0.8630	1.6E-04	19	0.227	0.226	27	7.366	8558	5881	1423	4692	0.032%	1.70	0.75	0.02%	0.001993	0.34	0.079	0.797	0.32%	0.0005
7.65	926	1.8E-03	1.5E+03	114	0.8608	1.6E-04	19	0.228	0.227	28	7.633	8536	5865	1424	4681	0.033%	1.70	0.75	0.02%	0.002021	0.34	0.079	0.797	0.32%	0.0005
7.70	926	1.8E-03	1.5E+03	113	0.8585	1.6E-04	19	0.228	0.227	29	7.900	8514	5850	1425	4670	0.033%	1.70	0.75	0.02%	0.002047	0.34	0.079	0.797	0.33%	0.0005
7.75	926	1.8E-03	1.5E+03	111	0.8563	1.6E-04	19	0.228	0.227	30	8.167	8492	5834	1426	4659	0.033%	1.70	0.75	0.02%	0.002072	0.34	0.079	0.797	0.33%	0.0005
7.80	926	1.8E-03	1.5E+03	109	0.8540	1.6E-04	19	0.229	0.228	31	8.434	8470	5819	1427	4648	0.033%	1.70	0.75	0.02%	0.002097	0.34	0.079	0.797	0.33%	0.0005
7.85	926	1.8E-03	1.5E+03	108	0.8516	1.6E-04	19	0.229	0.228	32	8.701	8449	5804	1428	4637	0.033%	1.70	0.75	0.02%	0.002121	0.34	0.079	0.797	0.34%	0.0006
7.90	926	1.8E-03	1.5E+03	106	0.8493	1.7E-04	19	0.229	0.228	33	8.968	8427	5789	1429	4626	0.034%	1.70	0.75	0.02%	0.002144	0.34	0.079	0.797	0.34%	0.0006
7.95	926	1.8E-03	1.5E+03	105	0.8469	1.7E-04	19	0.230	0.229	34	9.234	8406	5774	1430	4616	0.034%	1.70	0.75	0.02%	0.002166	0.34	0.079	0.797	0.35%	0.0006
8.00	926	1.8E-03	1.5E+03	103	0.8445	1.7E-04	19	0.230	0.229	35	9.501	8385	5759	1431	4605	0.034%	1.70	0.75	0.02%	0.002187	0.34	0.079	0.797	0.35%	0.0006
8.05	926	1.8E-03	1.5E+03	102	0.8421	1.7E-04	19	0.230	0.230	36	9.768	8364	5745	1432	4595	0.034%	1.70	0.75	0.02%	0.002208	0.34	0.079	0.797	0.35%	0.0006
8.10	926	1.8E-03	1.5E+03	100	0.8396	1.7E-04	19	0.231	0.230	37	10.035	8343	5730	1433	4584	0.034%	1.70	0.75	0.02%	0.002228	0.34	0.079	0.797	0.36%	0.0006
8.15	926	1.8E-03	1.5E+03	99	0.8371	1.7E-04	19	0.231	0.230	38	10.302	8323	5716	1434	4574	0.035%	1.70	0.75	0.02%	0.002247	0.34	0.079	0.797	0.36%	0.0006
8.20	926	1.8E-03	1.5E+03	98	0.8346	1.7E-04	19	0.231	0.231	39	10.569	8302	5702	1435	4564	0.035%	1.70	0.75	0.02%	0.002266	0.34	0.079	0.797	0.36%	0.0006
8.25	926	1.8E-03	1.5E+03	96	0.8321	1.7E-04	19	0.232	0.231	40	10.836	8282	5687	1436	4554	0.035%	1.70	0.75	0.02%	0.002284	0.34	0.079	0.797	0.36%	0.0006
8.30	926	1.8E-03	1.5E+03	95	0.8295	1.7E-04	19	0.232	0.231	41	11.103	8262	5673	1437	4544	0.035%	1.70	0.75	0.02%	0.002301	0.34	0.079	0.797	0.37%	0.0006
8.35	926	1.8E-03	1.5E+03	94	0.8269	1.7E-04	19	0.232	0.232	42	11.370	8242	5660	1438	4534	0.035%	1.70	0.75	0.02%	0.002318	0.34	0.079	0.797	0.37%	0.0006
8.40	926	1.8E-03	1.5E+03	92	0.8243	1.7E-04	19	0.233	0.232	43	11.637	8223	5646	1439	4524	0.035%	1.70	0.75	0.02%	0.002334	0.34	0.079	0.797	0.37%	0.0006
8.45	926	1.8E-03	1.5E+03	91	0.8216	1.7E-04	19	0.233	0.232	44	11.904	8203	5632	1440	4514	0.035%	1.70	0.75	0.02%	0.002349	0.34	0.079	0.797	0.37%	0.0006
8.50	926	1.7E-03	1.4E+03	90	0.8189	1.8E-04	0	0.233	0.233	45	0.233	8185	5619	1441	8185	0.029%	1.79	1.00	0.01%	0.000349	0.36	0.025	0.785	0.05%	0.0001
8.55	926	1.7E-03	1.4E+03	88	0.8162	1.8E-04	0	0.234	0.233	46	0.234	8167	5606	1442	8167	0.030%	1.79	1.00	0.01%	0.000350	0.36	0.025	0.785	0.05%	0.0001
8.60	926	1.7E-03	1.4E+03	87	0.8134	1.8E-04	0	0.234	0.233	47	0.234	8148	5594	1443	8148	0.030%	1.79	1.00	0.01%	0.000351	0.36	0.025	0.785	0.06%	0.0001
8.65	926	1.7E-03	1.4E+03	86	0.8106	1.8E-04	0	0.234	0.234	48	0.234	8131	5581	1444	8131	0.030%	1.79	1.00	0.01%	0.000352	0.36	0.025	0.785	0.06%	0.0001
8.70	926	1.7E-03	1.4E+03	85	0.8078	1.8E-04	0	0.234	0.234	49	0.234	8113	5569	1445	8113	0.030%	1.79	1.00	0.01%	0.000354	0.36	0.025	0.785	0.06%	0.0001
8.75	926	1.7E-03	1.4E+03	84	0.8050	1.8E-04	0	0.235	0.234	50	0.235	8095	5556	1446	8095	0.030%	1.79	1.00	0.01%	0.000355	0.36	0.025	0.785	0.06%	0.0001
8.80	926	1.7E-03	1.4E+03	83	0.8021	1.8E-04	0	0.235	0.235	51	0.235	8077	5544	1447	8077	0.030%	1.79	1.00	0.01%	0.000356	0.36	0.025	0.785	0.06%	0.0001
8.85	926	1.7E-03	1.4E+03	81	0.7992	1.8E-04	0	0.235	0.235	52	0.235	8060	5532	1448	8060	0.030%	1.79	1.00	0.01%	0.000356	0.36	0.025	0.785	0.06%	0.0001
8.90	926	1.7E-03	1.4E+03	80	0.7963	1.8E-04	0	0.236	0.235	53	0.236	8043	5520	1449	8043	0.030%	1.79	1.00	0.01%	0.000357	0.36	0.025	0.785	0.06%	0.0001
8.95	926	1.7E-03	1.4E+03	79	0.7933	1.8E-04	0	0.236	0.236	54	0.236	8025	5508	1450	8025	0.030%	1.79	1.00	0.01%	0.000358	0.36	0.025	0.785	0.06%	0.0001
9.00	926	1.7E-03	1.4E+03	78	0.7903	1.8E-04	0	0.236	0.236	55	0.236	8008	5496	1451	8008	0.030%	1.79	1.00	0.01%	0.000359	0.36	0.025	0.785	0.06%	0.0001
9.05	926	1.7E-03	1.4E+03	77	0.7873	1.8E-04	0	0.236	0.236	56	0.236	7991	5484	1452	7991	0.030%	1.79	1.00	0.01%	0.000359	0.36	0.025	0.785	0.06%	0.0001
9.10	926	1.7E-03	1.4E+03	76	0.7843	1.8E-04	0	0.237	0.237	57	0.237	7975	5472	1453	7975	0.030%	1.79	1.00	0.01%	0.000360	0.36	0.025	0.785	0.06%	0.0001
9.15	926	1.7E-03	1.4E+03	75	0.7812	1.8E-04	0	0.237	0.237	58	0.237	7958	5460	1454	7958	0.030%	1.79	1.00	0.01%	0.000360	0.36	0.025	0.785	0.06%	0.0001
9.20	926	1.7E-03	1.4E+03	74	0.7781	1.8E-04	0	0.237	0.237	59	0.237	7941	5449	1455	7941	0.030%	1.79	1.00	0.01%	0.000361	0.36	0.025	0.785	0.06%	0.0001
9.25	926	1.7E-03	1.4E+03	73	0.7749	1.8E-04	0	0.238	0.238	60	0.238	7925	5437	1456	7925	0.030%	1.79	1.00	0.01%	0.000361	0.36	0.025	0.785	0.06%	0.0001
9.30	727	1.7E-03	8.9E+02	72	0.7718	3.0E-04	0	0.238	0.238	61	0.238	7909	5426	1457	7909	0.086%	1.79	1.00	0.01%	0.001354	0.36	0.025	0.785	0.21%	0.0003
9.35	727	1.7E-03	8.9E+02	71	0.7686	3.0E-04	0	0.238	0.238	62	0.238	7892	5415	1458	7892	0.086%	1.79	1.00	0.01%	0.001353	0.36	0.025	0.785	0.21%	0.0003
9.40	727	1.7E-03	8.9E+02	70	0.7653	3.0E-04	0	0.238	0.239	63	0.238	7876	5403	1459	7876	0.086%	1.79	1.00	0.01%	0.001352	0.36	0.025	0.785	0.21%	0.0003
9.45	727	1.7E-03	8.9E+02	69	0.7621	3.0E-04	0	0.239	0.239	64	0.239	7860	5392	1460	7860	0.085%	1.79	1.00	0.01%	0.001351	0.36	0.025	0.785	0.21%	0.0003
9.50	727	1.7E-03	8.9E+02	68	0.7588	3.0E-04	0	0.239	0.239	65	0.239	7844	5381	1461	7844	0.085%	1.79	1.00	0.01%	0.001349	0.36	0.025	0.785	0.21%	0.0003
9.55	727	1.7E-03	8.9E+02	68	0.7555	3.0E-04	0	0.239	0.240	66	0.239	7829	5370	1462	7829	0.085%	1.79	1.00	0.01%	0.001347	0.36	0.025	0.785	0.21%	0.0003
9.60	727	1.7E-03	8.9E+02	67	0.7521	3.0E-04	0	0.239	0.240	67	0.239	7813	5359	1463	7813	0.085%	1.79	1.00	0.01%	0.001344	0.36	0.025	0.785	0.21%	0.0003
9.65	727	1.7E-03	8.9E+02	66	0.7487	3.0E-04	0	0.240	0.240	68	0.240	7797	5348	1464	7797	0.085%	1.79	1.00	0.01%	0.001342	0.36	0.025	0.785	0.21%	0.0003

10.827	6962.77	50.0	0.437	50.0	-1.6	-0.67	0.87%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	81	0.88%	2.0	21%	1.84	0.000	1.84
10.991	6962.61	52.0	0.400	52.0	0.8	0.33	0.77%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	83	0.78%	1.9	21%	1.85	0.000	1.85
11.155	6962.45	56.5	0.416	56.5	-1.3	-0.55	0.74%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	89	0.74%	1.9	21%	1.85	0.000	1.85
11.319	6962.28	66.0	0.471	66.0	-0.7	-0.29	0.71%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	102	0.72%	1.8	21%	1.86	0.000	1.86
11.483	6962.12	84.8	0.502	84.8	0.6	0.26	0.59%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	130	0.60%	1.7	21%	1.87	0.000	1.87
11.647	6961.95	91.2	0.499	91.2	1.4	0.59	0.55%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	138	0.55%	1.6	21%	1.88	0.000	1.88
11.811	6961.79	88.1	0.486	88.1	-0.3	-0.12	0.55%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	131	0.56%	1.7	21%	1.89	0.000	1.89
11.975	6961.63	77.7	0.504	77.7	-1.0	-0.43	0.65%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	114	0.65%	1.8	21%	1.90	0.000	1.90
12.139	6961.46	69.6	0.473	69.6	-0.9	-0.41	0.68%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	101	0.69%	1.8	21%	1.91	0.000	1.91
12.303	6961.30	60.0	0.435	60.0	-1.2	-0.51	0.72%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	86	0.73%	1.9	21%	1.92	0.000	1.92
12.467	6961.13	54.6	0.370	54.6	-0.8	-0.36	0.68%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	77	0.69%	1.9	21%	1.93	0.000	1.93
12.631	6960.97	50.6	0.332	50.6	-0.9	-0.39	0.66%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	70	0.67%	1.9	21%	1.93	0.000	1.93
12.795	6960.80	48.2	0.317	48.3	-0.9	-0.39	0.66%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	66	0.67%	2.0	21%	1.94	0.000	1.94
12.959	6960.64	47.5	0.298	47.5	-0.9	-0.41	0.63%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	64	0.64%	2.0	21%	1.95	0.000	1.95
13.123	6960.48	46.3	0.361	46.3	-1.0	-0.43	0.78%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	62	0.79%	2.0	21%	1.96	0.000	1.96
13.287	6960.31	45.1	0.318	45.1	-0.4	-0.16	0.70%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	60	0.72%	2.0	21%	1.97	0.000	1.97
13.451	6960.15	44.2	0.310	44.2	0.2	0.08	0.70%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	58	0.71%	2.0	21%	1.98	0.000	1.98
13.615	6959.98	42.6	0.299	42.6	-0.3	-0.12	0.70%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	55	0.71%	2.0	21%	1.99	0.000	1.99
13.779	6959.82	37.7	0.382	37.7	-1.1	-0.49	1.01%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	48	1.03%	2.2	21%	2.00	0.000	2.00
13.943	6959.66	34.4	0.553	34.4	0.5	0.23	1.61%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	43	1.64%	2.3	21%	2.01	0.000	2.01
14.107	6959.49	34.0	0.484	34.0	0.5	0.23	1.42%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	42	1.46%	2.3	21%	2.01	0.000	2.01
14.271	6959.33	34.0	0.409	34.0	-0.2	-0.10	1.20%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	42	1.23%	2.3	21%	2.02	0.000	2.02
14.436	6959.16	37.3	0.267	37.3	0.1	0.06	0.72%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	45	0.73%	2.1	21%	2.03	0.000	2.03
14.600	6959.00	40.5	0.207	40.5	0.4	0.16	0.51%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	49	0.52%	2.0	21%	2.04	0.000	2.04
14.764	6958.84	42.1	0.212	42.1	0.2	0.08	0.50%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	50	0.51%	2.0	21%	2.05	0.000	2.05
14.928	6958.67	44.0	0.175	44.0	-0.1	-0.04	0.40%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	52	0.41%	1.9	21%	2.06	0.000	2.06
15.092	6958.51	48.6	0.191	48.6	0.3	0.14	0.39%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0	57	0.40%	1.9	21%	2.07	0.000	2.07
15.256	6958.34	53.3	0.228	53.3	0.7	0.30	0.43%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0	62	0.43%	1.9	21%	2.08	0.000	2.08
15.420	6958.18	57.4	0.286	57.4	0.4	0.16	0.50%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0	66	0.51%	1.9	21%	2.09	0.000	2.09
15.584	6958.02	58.2	0.349	58.2	0.1	0.06	0.60%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	66	0.61%	1.9	21%	2.09	0.000	2.09
15.748	6957.85	59.2	0.386	59.2	0.5	0.20	0.65%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	66	0.66%	1.9	21%	2.10	0.000	2.10
15.912	6957.69	59.6	0.376	59.6	0.0	0.00	0.63%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	66	0.64%	1.9	21%	2.11	0.000	2.11
16.076	6957.52	57.6	0.338	57.6	-0.2	-0.08	0.59%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	63	0.60%	1.9	21%	2.12	0.000	2.12
16.240	6957.36	55.6	0.319	55.6	-0.2	-0.10	0.57%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	60	0.58%	2.0	21%	2.13	0.000	2.13
16.404	6957.20	54.2	0.330	54.2	-0.3	-0.14	0.61%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	58	0.62%	2.0	21%	2.14	0.000	2.14
16.568	6957.03	54.3	0.324	54.3	-0.1	-0.02	0.60%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0	58	0.61%	2.0	21%	2.15	0.000	2.15
16.732	6956.87	57.8	0.349	57.8	0.1	0.04	0.60%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0	61	0.61%	2.0	21%	2.16	0.000	2.16
16.896	6956.70	58.1	0.381	58.1	0.1	0.06	0.66%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0	61	0.67%	2.0	21%	2.17	0.000	2.17
17.060	6956.54	43.5	0.597	43.5	-1.2	-0.53	1.37%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0	45	1.40%	2.3	21%	2.17	0.000	2.17
17.224	6956.38	20.6	0.532	20.7	-2.0	-0.85	2.58%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0	21	2.70%	2.7	21%	2.18	0.000	2.18
17.388	6956.21	9.2	0.329	9.3	-16.9	-7.32	3.57%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	9	3.99%	3.1	21%	2.19	0.000	2.19
17.552	6956.05	8.0	0.192	8.0	-1.9	-0.83	2.41%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0	7	2.75%	3.1	21%	2.20	0.000	2.20
17.716	6955.88	9.3	0.141	8.9	58.9	25.52	1.52%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	8	1.70%	2.9	21%	2.21	0.000	2.21
17.880	6955.72	13.1	0.175	12.9	43.8	18.99	1.33%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	12	1.44%	2.8	21%	2.22	0.000	2.22
18.044	6955.56	10.4	0.143	10.3	18.0	7.81	1.38%	Coarse Tailings	0.054	108.1	1.00	0.000	1.00	0	9	1.53%	2.9	21%	2.23	0.000	2.23
18.208	6955.39	7.6	0.129	7.5	18.8	8.16	1.70%	Coarse Tailings	0.054	108.1	1.01	0.000	1.01	0	6	1.96%	3.1	21%	2.24	0.000	2.24
18.372	6955.23	6.7	0.101	6.6	26.6	11.53	1.50%	Coarse Tailings	0.054	108.1	1.02	0.000	1.02	0	6	1.77%	3.1	21%	2.24	0.000	2.24
18.537	6955.06	6.8	0.080	6.6	34.8	15.07	1.18%	Coarse Tailings	0.054	108.1	1.03	0.000	1.03	0	6	1.39%	3.0	21%	2.25	0.000	2.25
18.701	6954.90	6.4	0.069	6.2	33.7	14.60	1.08%	Coarse Tailings	0.054	108.1	1.04	0.000	1.04	0	5	1.29%	3.1	21%	2.26	0.000	2.26
18.865	6954.74	7.3	0.110	7.1	40.7	17.65	1.50%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0	6	1.75%	3.1	21%	2.27	0.000	2.27
19.029	6954.57	8.2	0.108	8.0	30.0	13.01	1.31%	Fine Tailings	0.054	107.6	1.06	0.004	1.05	1	7	1.51%	3.0	83%	2.28	0.004	2.28
19.193	6954.41	7.2	0.091	7.1	13.6	5.88	1.26%	Fine Tailings	0.054	107.6	1.06	0.009	1.06	1	6	1.48%	3.0	83%	2.29	0.009	2.28
19.357	6954.24	7.2	0.094	7.1	15.2	6.59	1.31%	Fine Tailings	0.054	107.6	1.07	0.014	1.06	1	6	1.54%	3.1	83%	2.30	0.014	2.28
19.521	6954.08	7.7	0.091	7.6	22.9	9.90	1.18%	Fine Tailings	0.054	107.6	1.08	0.019	1.06	1	6	1.37%	3.0	83%	2.31	0.019	2.29
19.685	6953.92	8.6	0.102	8.5	14.6	6.32	1.19%	Fine Tailings	0.054	107.6	1.09	0.024	1.07	1	7	1.36%	3.0	83%	2.32	0.024	2.29
19.849	6953.75	9.0	0.122	8.9	16.9	7.30	1.35%	Fine Tailings	0.054	107.6	1.10	0.030	1.07	1	7	1.54%	3.0	83%	2.32	0.030	2.29
20.013	6953.59	8.5	0.126	8.3	32.8	14.21	1.48%	Fine Tailings	0.054	107.6	1.11	0.035	1.07	1	7	1.71%	3.0	83%	2.33	0.035	2.30
20.177	6953.42	7.8	0.103	7.7	20.8	9.03	1.32%	Fine Tailings	0.054	107.6	1.12	0.040	1.08	1	6	1.55%	3.0	83%	2.34	0.040	2.30
20.341	6953.26	6.9	0.100	6.8	26.5	11.47	1.44%	Fine Tailings	0.054	107.6	1.13	0.045	1.08	1	5	1.72%	3.1	83%	2.35	0.045	2.31
20.505	6953.10	6.5	0.098	6.3	30.6	13.24	1.51%	Fine Tailings	0.054	107.6	1.14	0.050	1.09	1	5	1.83%	3.1	83%	2.36	0.050	2.31
20.669	6952.93	6.3	0.091	6.1	31.2	13.52	1.44%	Fine Tailings	0.054	107.6	1.14	0.055	1.09	1	5	1.76%	3.2	83%	2.37	0.055	2.31
20.833	6952.77	6.3	0.137	6.1	35.9	15.56	2.18%	Fine Tailings	0.054	107.6	1.15	0.060	1.09	1	5	2.67%	3.2	83%	2.38	0.060	2.32
20.997	6952.60	7.8	0.124	7.5	39.0	16.88	1.60%	Fine Tailings	0.054	107.6	1.16	0.065	1.10	1	6	1.88%	3.1	83%	2.39	0.065	2.32
21.161	6952.44	7.3	0.071	7.1	27.6	11.98	0.97%	Fine Tailings	0.054	107.6	1.17	0.071	1.10	1	6	1.16%	3.0	83%	2.40	0.071	2.32
21.325	6952.27	7.6	0.135	7.4	33.1	14.36	1.78%	Fine Tailings	0.054	107.6	1.18	0.076	1.10	1	6	2.10%	3.1	83%	2.40	0.076	2.33
21.489	6952.11	11.5	0.156	11.3	33.2	14.38	1.36%	Fine Tailings	0.054	107.6	1.19	0.081	1.11	1	9	1.51%	2.9	83%	2.41	0.081	2.33
21.653	6951.95	9.0	0.134	8.9	18.5	8.03	1.48%	Fine Tailings	0.054	107.6	1.20	0.086	1.11	1	7	1.71%	3.0	83%	2.42	0.086	2.34
21.817	6951.78	7.3	0.253	7.1	32.2	13.97	3.48%	Fine Tailings	0.054	107.6	1.21	0.091	1.12	1	5	4.17%	3.3	83%	2.43	0.091	2.34
21.981	6951.62	6.9	0.209	6.7	40.8	17.69	3.01%	Fine Tailings	0.054	107.6	1.22	0.096	1.12	1	5	3.65%	3.3	83%	2.44	0.096	2.34
22.145	6951.45	8.7	0.210	8.7	6.2	2.67	2.41%	Fine Tailings	0.054	107.6	1.22	0.101	1.12	1	7	2.81%	3.1	83%	2.45	0.101	2.35
22.309	6951.29	9.4	0.231	9.4	10.4	4.52	2.45%	Fine Tailings	0.054	107.6	1.23	0.106	1.13	1	7	2.82%	3.1	83%	2.46	0.106	2.35
22.473	6951.13	11.6	0.199	11.5	14.6	6.34	1.71%	Fine Tailings	0.054	107.6	1.24	0.111	1.13	1	9	1.92%	2.9	83%	2.47	0.111	2.35
22.638	6950.96	9.2	0.173	9.1	19.2	8.34	1.87%	Fine Tailings	0.054	107.6	1.25	0.117	1.13	1	7	2.17%	3.0	83%	2.47	0.117	2.36
22.802	6950.80	9.0	0.171	8.7	47.4	20.52	1.89%	Fine Tailings	0.054	107.6	1.26	0.122	1.14	1	7	2.20%	3.1	83%	2.48	0.122	2.36
22.966	6950.63	8.5	0.164	8.2	54.3	23.55	1.93%	Fine Tailings	0.054	107.6	1.27	0.127	1.14	1	6	2.27%	3.1	83%	2.49	0.127	2.37
23.130	6950.47	10.1	0.170	9.9	42.1	18.22	1.68%	Fine Tailings	0.054	107.6	1.28	0.132	1.14	1	8	1.92%	3.0	83%	2.50	0.132	2.37
23.294	6950.31	11.0	0.208	10.8	25.2	10.90	1.89%	Fine Tailings	0.054	107.6	1.29	0.137	1.15	1	8	2.14%	3.0	83%	2.51	0.137	2.37
23.458	6950.14	18.7	0.228	18.2	91.8	39.80	1.22%	Fine Tailings	0.054	107.6	1.29	0.142	1.15	1	15	1.31%	2.7	83%	2.52	0.142	2.38
23.622	6949.98	25.0	0.246	24.8	28.4	12.30	0.99%	Fine Tailings	0.054	107.6	1.30	0.147	1.16	1	20	1.04%	2.5	83%	2.53	0.147	2.38
23.786	6949.81	27.6	0.308	27.5	17.4	7.52	1.12%	Fine Tailings	0.054	107.6	1.31	0.152	1.16	1	23	1.17%	2.5	83%	2.54	0.152	2.38

9.70	727	1.7E-03	8.9E+02	65	0.7453	3.0E-04	0	0.240	0.240	69	0.240	7782	5337	1465	7782	0.085%	1.79	1.00	0.01%	0.001339	0.36	0.025	0.785	0.21%	0.0003
9.75	727	1.7E-03	8.9E+02	64	0.7419	3.0E-04	0	0.240	0.241	70	0.240	7766	5327	1466	7766	0.085%	1.79	1.00	0.01%	0.001335	0.36	0.025	0.785	0.21%	0.0003
9.80	727	1.7E-03	8.9E+02	63	0.7384	3.0E-04	0	0.241	0.241	71	0.241	7751	5316	1467	7751	0.084%	1.79	1.00	0.01%	0.001332	0.36	0.025	0.785	0.21%	0.0003
9.85	727	1.7E-03	8.9E+02	63	0.7349	3.0E-04	0	0.241	0.241	72	0.241	7736	5305	1468	7736	0.084%	1.79	1.00	0.01%	0.001328	0.36	0.025	0.785	0.21%	0.0003
9.90	727	1.7E-03	8.9E+02	62	0.7314	3.0E-04	0	0.241	0.242	73	0.241	7721	5295	1469	7721	0.084%	1.79	1.00	0.01%	0.001324	0.36	0.025	0.785	0.21%	0.0003
9.95	727	1.7E-03	8.9E+02	61	0.7279	3.0E-04	0	0.241	0.242	74	0.241	7706	5284	1470	7706	0.084%	1.79	1.00	0.01%	0.001319	0.36	0.025	0.785	0.21%	0.0003
10.00	727	1.7E-03	8.9E+02	60	0.7243	3.0E-04	0	0.242	0.242	75	0.242	7691	5274	1471	7691	0.083%	1.79	1.00	0.01%	0.001314	0.36	0.025	0.785	0.21%	0.0003
10.05	727	1.7E-03	8.9E+02	60	0.7207	3.0E-04	0	0.242	0.243	76	0.242	7677	5264	1472	7677	0.083%	1.79	1.00	0.01%	0.001309	0.36	0.025	0.785	0.21%	0.0003
10.10	727	1.7E-03	8.9E+02	59	0.7171	3.0E-04	0	0.242	0.243	77	0.242	7662	5253	1473	7662	0.083%	1.79	1.00	0.01%	0.001304	0.36	0.025	0.785	0.20%	0.0003
10.15	727	1.7E-03	8.9E+02	58	0.7134	3.0E-04	0	0.242	0.243	78	0.242	7647	5243	1474	7647	0.083%	1.79	1.00	0.01%	0.001298	0.36	0.025	0.785	0.20%	0.0003
10.20	727	1.7E-03	8.9E+02	57	0.7097	3.0E-04	0	0.243	0.244	79	0.243	7633	5233	1475	7633	0.082%	1.79	1.00	0.01%	0.001292	0.36	0.025	0.785	0.20%	0.0003
10.25	727	1.7E-03	8.9E+02	57	0.7060	3.0E-04	0	0.243	0.244	80	0.243	7618	5223	1476	7618	0.082%	1.79	1.00	0.01%	0.001286	0.36	0.025	0.785	0.20%	0.0003
10.30	727	1.7E-03	8.9E+02	56	0.7022	3.0E-04	0	0.243	0.244	81	0.243	7604	5213	1477	7604	0.081%	1.79	1.00	0.01%	0.001280	0.36	0.025	0.785	0.20%	0.0003
10.35	727	1.7E-03	8.9E+02	55	0.6985	3.0E-04	0	0.243	0.244	82	0.243	7590	5203	1478	7590	0.081%	1.79	1.00	0.01%	0.001273	0.36	0.025	0.785	0.20%	0.0003
10.40	727	1.7E-03	8.9E+02	55	0.6947	3.0E-04	0	0.244	0.245	83	0.244	7576	5193	1479	7576	0.081%	1.79	1.00	0.01%	0.001266	0.36	0.025	0.785	0.20%	0.0003
10.45	727	1.7E-03	8.9E+02	54	0.6908	3.0E-04	0	0.244	0.245	84	0.244	7562	5184	1480	7562	0.080%	1.79	1.00	0.01%	0.001259	0.36	0.025	0.785	0.20%	0.0003
10.50	727	1.7E-03	8.9E+02	53	0.6870	3.0E-04	0	0.244	0.245	85	0.244	7548	5174	1481	7548	0.080%	1.79	1.00	0.01%	0.001251	0.36	0.025	0.785	0.20%	0.0003
10.55	727	1.7E-03	8.9E+02	53	0.6831	3.0E-04	0	0.244	0.246	86	0.244	7534	5164	1482	7534	0.079%	1.79	1.00	0.01%	0.001243	0.36	0.025	0.785	0.20%	0.0003
10.60	727	1.7E-03	8.9E+02	52	0.6792	3.0E-04	0	0.245	0.246	87	0.245	7520	5155	1483	7520	0.079%	1.79	1.00	0.01%	0.001235	0.36	0.025	0.785	0.19%	0.0003
10.65	727	1.7E-03	8.9E+02	52	0.6753	3.0E-04	0	0.245	0.246	88	0.245	7507	5145	1484	7507	0.079%	1.79	1.00	0.01%	0.001227	0.36	0.025	0.785	0.19%	0.0003
10.70	727	1.7E-03	8.9E+02	51	0.6713	3.0E-04	0	0.245	0.246	89	0.245	7493	5136	1485	7493	0.078%	1.79	1.00	0.01%	0.001219	0.36	0.025	0.785	0.19%	0.0003
10.75	727	1.7E-03	8.9E+02	50	0.6674	3.0E-04	0	0.245	0.247	90	0.245	7480	5126	1486	7480	0.078%	1.79	1.00	0.01%	0.001210	0.36	0.025	0.785	0.19%	0.0003
10.80	727	1.7E-03	8.9E+02	50	0.6634	3.0E-04	0	0.246	0.247	91	0.246	7466	5117	1487	7466	0.077%	1.79	1.00	0.01%	0.001201	0.36	0.025	0.785	0.19%	0.0003
10.85	589	1.7E-03	5.8E+02	49	0.6593	4.5E-04	0	0.246	0.247	92	0.246	7453	5107	1488	7453	0.291%	1.79	1.00	0.01%	0.005038	0.36	0.025	0.785	0.79%	0.0013
10.90	589	1.7E-03	5.8E+02	49	0.6553	4.5E-04	0	0.246	0.248	93	0.246	7440	5098	1489	7440	0.288%	1.79	1.00	0.01%	0.004978	0.36	0.025	0.785	0.78%	0.0013
10.95	589	1.7E-03	5.8E+02	48	0.6512	4.5E-04	0	0.246	0.248	94	0.246	7427	5089	1490	7427	0.285%	1.79	1.00	0.01%	0.004916	0.36	0.025	0.785	0.77%	0.0013
11.00	589	1.7E-03	5.8E+02	48	0.6471	4.5E-04	0	0.247	0.248	95	0.247	7414	5080	1491	7414	0.281%	1.79	1.00	0.01%	0.004854	0.36	0.025	0.785	0.76%	0.0013
11.05	589	1.7E-03	5.8E+02	47	0.6430	4.5E-04	0	0.247	0.248	96	0.247	7401	5071	1492	7401	0.278%	1.79	1.00	0.01%	0.004791	0.36	0.025	0.785	0.75%	0.0012
11.10	589	1.7E-03	5.8E+02	47	0.6389	4.5E-04	0	0.247	0.249	97	0.247	7388	5062	1493	7388	0.274%	1.79	1.00	0.01%	0.004728	0.36	0.025	0.785	0.74%	0.0012
11.15	589	1.7E-03	5.8E+02	46	0.6347	4.4E-04	0	0.247	0.249	98	0.247	7375	5053	1494	7375	0.271%	1.79	1.00	0.01%	0.004664	0.36	0.025	0.785	0.73%	0.0012
11.20	589	1.7E-03	5.8E+02	45	0.6305	4.4E-04	0	0.248	0.249	99	0.248	7362	5044	1495	7362	0.267%	1.79	1.00	0.01%	0.004599	0.36	0.025	0.785	0.72%	0.0012
11.25	589	1.7E-03	5.8E+02	45	0.6263	4.4E-04	0	0.248	0.250	100	0.248	7349	5035	1496	7349	0.263%	1.79	1.00	0.01%	0.004534	0.36	0.025	0.785	0.71%	0.0012
11.30	589	1.7E-03	5.8E+02	45	0.6221	4.4E-04	0	0.248	0.250	101	0.248	7337	5026	1497	7337	0.260%	1.79	1.00	0.01%	0.004469	0.36	0.025	0.785	0.70%	0.0012
11.35	589	1.7E-03	5.8E+02	44	0.6179	4.4E-04	0	0.248	0.250	102	0.248	7324	5017	1498	7324	0.256%	1.79	1.00	0.01%	0.004403	0.36	0.025	0.785	0.69%	0.0011
11.40	589	1.7E-03	5.8E+02	44	0.6136	4.4E-04	0	0.249	0.250	103	0.249	7312	5009	1499	7312	0.252%	1.79	1.00	0.01%	0.004337	0.36	0.025	0.785	0.68%	0.0011
11.45	589	1.7E-03	5.8E+02	43	0.6093	4.4E-04	0	0.249	0.251	104	0.249	7299	5000	1500	7299	0.249%	1.79	1.00	0.01%	0.004271	0.36	0.025	0.785	0.67%	0.0011
11.50	589	1.7E-03	5.8E+02	43	0.6050	4.4E-04	0	0.249	0.251	105	0.249	7287	4991	1501	7287	0.245%	1.79	1.00	0.01%	0.004205	0.36	0.025	0.785	0.66%	0.0011
11.55	589	1.7E-03	5.8E+02	42	0.6007	4.4E-04	0	0.249	0.251	106	0.249	7275	4983	1502	7275	0.241%	1.79	1.00	0.01%	0.004138	0.36	0.025	0.785	0.65%	0.0011
11.60	589	1.7E-03	5.8E+02	42	0.5964	4.3E-04	0	0.250	0.251	107	0.250	7263	4974	1503	7263	0.237%	1.79	1.00	0.01%	0.004072	0.36	0.025	0.785	0.64%	0.0010
11.65	589	1.7E-03	5.8E+02	41	0.5921	4.3E-04	0	0.250	0.252	108	0.250	7250	4966	1504	7250	0.234%	1.79	1.00	0.01%	0.004005	0.36	0.025	0.785	0.63%	0.0010
11.70	589	1.7E-03	5.8E+02	41	0.5877	4.3E-04	0	0.250	0.252	109	0.250	7238	4958	1505	7238	0.230%	1.79	1.00	0.01%	0.003938	0.36	0.025	0.785	0.62%	0.0010
11.75	589	1.7E-03	5.8E+02	40	0.5833	4.3E-04	0	0.250	0.252	110	0.250	7226	4949	1506	7226	0.226%	1.79	1.00	0.01%	0.003872	0.36	0.025	0.785	0.61%	0.0010
11.80	589	1.7E-03	5.8E+02	40	0.5789	4.3E-04	0	0.250	0.253	111	0.250	7215	4941	1507	7215	0.223%	1.79	1.00	0.01%	0.003805	0.36	0.025	0.785	0.60%	0.0010
11.85	589	1.7E-03	5.8E+02	40	0.5745	4.3E-04	0	0.251	0.253	112	0.251	7203	4933	1508	7203	0.219%	1.79	1.00	0.01%	0.003739	0.36	0.025	0.785	0.59%	0.0010
11.90	589	1.7E-03	5.8E+02	39	0.5701	4.3E-04	0	0.251	0.253	113	0.251	7191	4924	1509	7191	0.215%	1.79	1.00	0.01%	0.003673	0.36	0.025	0.785	0.58%	0.0009
11.95	589	1.7E-03	5.8E+02	39	0.5657	4.2E-04	0	0.251	0.253	114	0.251	7179	4916	1510	7179	0.212%	1.79	1.00	0.01%	0.003607	0.36	0.025	0.785	0.57%	0.0009
12.00	589	1.7E-03	5.8E+02	39	0.5612	4.2E-04	0	0.251	0.254	115	0.251	7168	4908	1511	7168	0.208%	1.79	1.00	0.01%	0.003542	0.36	0.025	0.785	0.56%	0.0009
12.05	589	1.7E-03	5.8E+02	38	0.5568	4.2E-04	0	0.252	0.254	116	0.252	7156	4900	1512	7156	0.204%	1.79	1.00	0.01%	0.003477	0.36	0.025	0.785	0.55%	0.0009
12.10	589	1.7E-03	5.8E+02	38	0.5523	4.2E-04	0	0.252	0.254	117	0.252	7144	4892	1513	7144	0.201%	1.79	1.00	0.01%	0.003412	0.36	0.025	0.785	0.54%	0.0009
12.15	589	1.7E-03	5.8E+02	37	0.5478	4.2E-04	0	0.252	0.254	118	0.252	7133	4884	1514	7133	0.197%	1.79	1.00	0.01%	0.003347	0.36	0.025	0.785	0.53%	0.0009
12.20	589	1.7E-03	5.8E+02	37	0.5433	4.2E-04	43	0.252	0.255	119	119.000	7127	4880	1515	1515	0.078%	0.90	0.75	0.06%	0.001402	0.25	0.323	0.851	0.24%	0.0004
12.25	589	1.7E-03	5.8E+02	37	0.5389	4.1E-04	43	0.252	0.255	120	120.000	7122	4876	1516	1516	0.078%	0.90	0.75	0.06%	0.001371	0.25	0.323	0.851	0.23%	0.0004
12.30	589	1.7E-03	5.8E+02	36	0.5343	4.1E-04	43	0.252	0.255	121	121.000	7117	4873	1517	1517	0.077%	0.90	0.75	0.06%	0.001339	0.25	0.323	0.851	0.23%	0.0004
12.35	469	1.7E-03	3.7E+02	36	0.5298	6.5E-04	43	0.252	0.255	122	122.000	7113	4870	1518	1518	0.173%	0.90	0.75	0.06%	0.005533	0.25	0.323	0.851	0.94%	0.0015
12.40	469	1.7E-03	3.7E+02	36	0.5253	6.5E-04	43	0.253	0.255	123	123.000	7108	4866	1519	1519	0.171%	0.90	0.75	0.06%	0.005477	0.25	0.323	0.851	0.93%	0.0015
12.45	469	1.7E-03	3.7E+02	35	0.5208	6.4E-04	43	0.253	0.255	124	124.000	7103	4863	1520	1520	0.170%	0.90	0.75	0.06%	0.005421	0.25	0.323	0.851	0.92%	0.0015
12.50	469	1.7E-03	3.7E+02	35	0.5162	6.4E-04	43	0.253	0.255	125	125.000	7098	4860	1521	1521	0.168%	0.90	0.75	0.06%	0.005364	0.25	0.323	0.851	0.91%	0.0015
12.55	469	1.7E-03	3.7E+02	35	0.5117	6.4E-04	43	0.253	0.255	126	126.000	7094	4857	1522	1522	0.167%	0.90	0.75	0.06%	0.005306	0.25	0.323	0.851	0.90%	0.0015
12.60	469	1.7E-03	3.7E+02	34	0.5072	6.3E-04	43	0.253	0.255	127	127.000	7089	4853	1523	1523	0.165%	0.90	0.75	0.06%	0.005248	0.25	0.323	0.851	0.89%	0.0015
12.65	469	1.7E-03	3.7E+02	34	0.5026	6.3E-04	43	0.253	0.256	128	128.000	7084	4850	1524	1524	0.163%	0.90	0.75	0.06%	0.005188	0.25	0.323	0.851	0.88%	0.0014
12.70	469	1.7E-03	3.7E+02	34	0.4981	6.3E-04	43	0.253	0.256	129	129.000	7080	4847	1525	1525	0.162%	0.90	0.75	0.06%	0.005128	0.25	0.323	0.851	0.87%	0.0014
12.75	469	1.7E-03	3.7E+02	33	0.4935	6.2E-04	43	0.253	0.256	130	130.000	7075	4844	1526	1526	0.160%	0.90	0.75	0.06%	0.005067	0.25	0.323	0.851	0.86%	0.0014
12.80	469	1.7E-03	3.7E+02	33	0.4890	6.2E-04	43	0.253	0.256	131	131.000	7070	4840	1527	1527	0.159%	0.90	0.75	0.06%	0.005005	0.25	0.323	0.851	0.85%	0.0014
12.85	469	1.7E-03	3.7E+02	33	0.4844	6.2E-04	43	0.253	0.256	132	132.000	7066	4837	1528	1528	0.157%	0.90	0.75	0.06%	0.004943	0.25	0.323	0.851	0.84%	0.0014
12.90	469	1.7E-03	3.7E+02	33	0.4798	6.1E-04	43	0.253	0.256	133	133.000	7061	4834	1529	1529	0.155%	0.90	0.75	0.06%	0.004880	0.25	0.323	0.851	0.83%	0.0014
12.95	469	1.7E-03	3.7E+02	32	0.4753	6.1E-04	43	0.254	0.256	134	134.000	7057	4831	1530	1530	0.154%	0.90	0.75	0.06%	0.004816	0.25	0.323	0.851	0.82%	0.0013
13.00	469	1.7E-03	3.7E+02	32	0.4707	6.0E-04	43	0.254	0.256	135	135.000	7052	4827	1531	1531	0.152%	0.90	0.75	0.06%	0.004752	0.25	0.323	0.851	0.81%	0.0013
13.05	469	1.7E-03	3.7E+02	32	0.4662	6.0E-04	43	0.254	0.256	136	136.000	7047	4824	1532	1532	0.150%	0.90	0.75	0.06%	0.004687	0.25	0.323	0.851	0.80%	0.0013
13.10	469	1.7E-03	3.7E+02	32	0.4616	6.0E-04	43	0.254	0.257	137	137.000	7043	4821	1533	1533	0.149%	0.90	0.75	0.06%	0.004621	0.25	0.323	0.851	0.79%	0.0013
13.15	469	1.7E-03	3.7E+02	31	0.4570	5.9E-04	43	0.254	0.257	138	138.000	7038	4818	1534	1534	0.147%	0.90	0.75	0.06%	0.004555	0.25	0.323	0.851	0.78%	0.0013
13.20	469	1.7E-03	3.7E+02	31	0.4525	5.9E-04	43	0.254	0.257	139	139.000	7034	4815	1535	1535	0.145%	0.90	0.75	0.06%	0.004488	0.25	0.323	0.851	0.76%	0.0013
13.25	469	1.7E-03	3.7E+02	31	0.4479	5.9E-04	43	0.254	0.257	140	140.000	7029	4811	1536	1536	0.144%	0.90	0.75	0.06%	0.004421	0.25	0.323	0.851	0.75%	0.0012
13.30	469	1.7E-03	3.7E+02	31	0.4434	5.8E-04	43	0.254	0.257	141	141.000	7025	4808	1537	1537	0.142%	0.90	0.75	0.06%	0.004353	0.25	0.323	0.851	0.74%	0.0012
13.35	469	1.7E-03	3.7E+02	30	0.4389	5.8E-04	43	0.254	0.257	142	142.000	7020	4805	1538	1538	0.140%	0.90	0.75	0.06%	0.004285	0.25	0.323	0.851	0.73%	0.0012
13.40	469	1.7E-03	3.7E+02	30	0.4343	5.7E-04	43	0.254	0.257	143	143.000	7016	4802	1539	1539	0.138%	0.90	0.75	0.06%	0.004216	0.25	0.323	0.851	0.72%	0.0012
13.45	469	1.7E-03	3.7E+02	30	0.4298	5.7E-04	43	0.255	0.257	144	144.000	7011	4799	1540	1540	0.137%	0.90	0.75	0.06%	0.004147	0.25	0.323	0.851	0.71%	0.0012
13.50	469	1.7E-03	3.7E+02	30	0.4253	5.7E-04	43	0.255	0.257	145	145.000	7007	4796	1541	1541	0.135%	0.90	0.75	0.06%	0.004077	0.25	0.323	0.851	0.69%	0.0011
13.55	469	1.7E-03	3.7E+02	29	0.4208	5.6E-04	43	0.255	0.257	146	146.000	7002	4793	1542	1542	0.133%	0.90	0.75	0.06%	0.004007	0.25	0.323	0.851	0.68%	0.0011
13.60	469	1.7E-03	3.7E+02	29	0.4163	5.6E-04	43	0.255	0.258	147	147.000	6998	4789	1543	1543	0.132%	0.90	0.75	0.06%	0.003937	0.25	0.323	0.851	0.67%	0.0011
13.65	469	1.7E-03	3.7E+02	29	0.4118	5.5E-04	43	0.255	0.258	148	148.000	6993	4786	1544	1544	0.130%	0.90	0.75	0.06%	0.003866	0.25	0.323	0.851	0.66%	0.0011

23.950	6949.65	24.2	0.338	24.2	11.4	4.94	1.39%	Fine Tailings	0.054	107.6	1.32	0.158	1.16	1	20	1.48%	2.6	83%	2.55	0.158	2.39
24.114	6949.49	22.9	0.395	22.8	9.9	4.29	1.73%	Fine Tailings	0.054	107.6	1.33	0.163	1.17	1	18	1.83%	2.7	83%	2.55	0.163	2.39
24.278	6949.32	20.9	0.416	20.8	8.9	3.84	1.99%	Fine Tailings	0.054	107.6	1.34	0.168	1.17	1	17	2.13%	2.7	83%	2.56	0.168	2.40
24.442	6949.16	23.1	0.444	23.0	7.7	3.34	1.93%	Fine Tailings	0.054	107.6	1.35	0.000	1.35	0	16	2.05%	2.7	83%	2.57	0.000	2.57
24.606	6948.99	25.3	0.519	25.2	7.0	3.03	2.05%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	18	2.17%	2.7	21%	2.58	0.000	2.58
24.770	6948.83	16.2	0.500	16.2	5.7	2.48	3.08%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	11	3.36%	3.0	21%	2.59	0.000	2.59
24.934	6948.67	10.7	0.338	10.6	5.8	2.52	3.17%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	7	3.63%	3.2	21%	2.60	0.000	2.60
25.098	6948.50	8.6	0.263	8.5	8.3	3.58	3.06%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	5	3.65%	3.3	21%	2.61	0.000	2.61
25.262	6948.34	9.6	0.146	9.4	42.8	18.53	1.52%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	6	1.77%	3.1	21%	2.62	0.000	2.62
25.426	6948.17	9.6	0.131	9.3	46.3	20.07	1.36%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	6	1.60%	3.1	21%	2.62	0.000	2.62
25.590	6948.01	9.2	0.124	8.9	50.5	21.90	1.34%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	6	1.58%	3.1	21%	2.63	0.000	2.63
25.754	6947.85	9.4	0.116	9.1	60.6	26.25	1.23%	Coarse Tailings	0.054	108.1	1.42	0.002	1.42	1	6	1.45%	3.0	21%	2.64	0.002	2.64
25.918	6947.68	8.3	0.114	7.9	57.1	24.73	1.38%	Fine Tailings	0.054	107.6	1.43	0.007	1.42	1	5	1.67%	3.1	83%	2.65	0.007	2.64
26.082	6947.52	7.7	0.112	7.3	71.0	30.77	1.45%	Fine Tailings	0.054	107.6	1.44	0.012	1.42	1	4	1.78%	3.2	83%	2.66	0.012	2.65
26.246	6947.35	7.7	0.108	7.3	63.1	27.35	1.40%	Fine Tailings	0.054	107.6	1.44	0.017	1.43	1	4	1.72%	3.2	83%	2.67	0.017	2.65
26.410	6947.19	7.5	0.085	7.1	52.0	22.53	1.14%	Fine Tailings	0.054	107.6	1.45	0.022	1.43	1	4	1.41%	3.2	83%	2.68	0.022	2.66
26.574	6947.03	8.0	0.101	7.6	67.8	29.36	1.26%	Fine Tailings	0.054	107.6	1.46	0.027	1.44	1	5	1.54%	3.1	83%	2.69	0.027	2.66
26.739	6946.86	8.8	0.168	8.4	69.2	30.00	1.91%	Fine Tailings	0.054	107.6	1.47	0.032	1.44	1	5	2.30%	3.2	83%	2.70	0.032	2.66
26.903	6946.70	9.5	0.168	9.1	67.4	29.20	1.77%	Fine Tailings	0.054	107.6	1.48	0.038	1.44	1	6	2.10%	3.1	83%	2.70	0.038	2.67
27.067	6946.53	8.1	0.176	7.7	72.9	31.60	2.17%	Fine Tailings	0.054	107.6	1.49	0.043	1.45	1	5	2.66%	3.3	83%	2.71	0.043	2.67
27.231	6946.37	9.1	0.146	8.6	87.3	37.83	1.60%	Fine Tailings	0.054	107.6	1.50	0.048	1.45	1	5	1.91%	3.1	83%	2.72	0.048	2.67
27.395	6946.21	8.9	0.194	8.3	97.2	42.14	2.18%	Fine Tailings	0.054	107.6	1.51	0.053	1.45	1	5	2.63%	3.2	83%	2.73	0.053	2.68
27.559	6946.04	10.1	0.182	9.4	105.1	45.53	1.80%	Fine Tailings	0.054	107.6	1.52	0.058	1.46	1	6	2.12%	3.1	83%	2.74	0.058	2.68
27.723	6945.88	9.1	0.160	8.4	111.3	48.23	1.76%	Fine Tailings	0.054	107.6	1.52	0.063	1.46	1	5	2.11%	3.2	83%	2.75	0.063	2.69
27.887	6945.71	9.0	0.156	8.3	118.2	51.21	1.73%	Fine Tailings	0.054	107.6	1.53	0.068	1.46	1	5	2.08%	3.2	83%	2.76	0.068	2.69
28.051	6945.55	9.0	0.173	8.3	114.9	49.78	1.92%	Fine Tailings	0.054	107.6	1.54	0.073	1.47	1	5	2.32%	3.2	83%	2.77	0.073	2.69
28.215	6945.39	8.7	0.177	8.0	104.5	45.29	2.04%	Fine Tailings	0.054	107.6	1.55	0.078	1.47	1	5	2.48%	3.2	83%	2.78	0.078	2.70
28.379	6945.22	8.4	0.157	7.7	114.3	49.54	1.86%	Fine Tailings	0.054	107.6	1.56	0.084	1.48	1	5	2.29%	3.2	83%	2.78	0.084	2.70
28.543	6945.06	8.3	0.157	7.7	108.9	47.20	1.88%	Fine Tailings	0.054	107.6	1.57	0.089	1.48	1	5	2.32%	3.2	83%	2.79	0.089	2.70
28.707	6944.89	7.6	0.159	7.0	102.2	44.29	2.10%	Fine Tailings	0.054	107.6	1.58	0.094	1.48	1	4	2.65%	3.3	83%	2.80	0.094	2.71
28.871	6944.73	7.6	0.138	7.0	99.8	43.23	1.81%	Fine Tailings	0.054	107.6	1.59	0.099	1.49	1	4	2.28%	3.3	83%	2.81	0.099	2.71
29.035	6944.56	8.0	0.129	7.5	84.9	36.77	1.60%	Fine Tailings	0.054	107.6	1.59	0.104	1.49	1	4	2.00%	3.2	83%	2.82	0.104	2.72
29.199	6944.40	7.9	0.135	7.3	90.8	39.35	1.71%	Fine Tailings	0.054	107.6	1.60	0.109	1.49	1	4	2.15%	3.2	83%	2.83	0.109	2.72
29.363	6944.24	8.7	0.135	8.2	88.4	38.29	1.55%	Fine Tailings	0.054	107.6	1.61	0.114	1.50	1	5	1.90%	3.2	83%	2.84	0.114	2.72
29.527	6944.07	11.1	0.278	10.7	69.6	30.14	2.49%	Fine Tailings	0.054	107.6	1.62	0.119	1.50	1	6	2.92%	3.2	83%	2.85	0.119	2.73
29.691	6943.91	13.1	0.268	12.8	49.5	21.43	2.05%	Fine Tailings	0.054	107.6	1.63	0.125	1.51	1	8	2.35%	3.0	83%	2.85	0.125	2.73
29.855	6943.74	9.9	0.285	9.6	47.3	20.50	2.89%	Fine Tailings	0.054	107.6	1.64	0.130	1.51	1	5	3.47%	3.3	83%	2.86	0.130	2.73
30.019	6943.58	8.2	0.258	7.8	53.8	23.30	3.16%	Fine Tailings	0.054	107.6	1.65	0.135	1.51	1	4	3.95%	3.4	83%	2.87	0.135	2.74
30.183	6943.42	8.3	0.182	7.7	91.8	39.80	2.20%	Fine Tailings	0.054	107.6	1.66	0.140	1.52	1	4	2.75%	3.3	83%	2.88	0.140	2.74
30.347	6943.25	7.2	0.145	6.6	97.3	42.18	2.02%	Fine Tailings	0.054	107.6	1.67	0.145	1.52	1	4	2.64%	3.3	83%	2.89	0.145	2.74
30.511	6943.09	8.1	0.132	7.5	100.3	43.48	1.63%	Fine Tailings	0.054	107.6	1.67	0.150	1.52	1	4	2.06%	3.2	83%	2.90	0.150	2.75
30.675	6942.92	8.0	0.136	7.3	100.8	43.66	1.71%	Fine Tailings	0.054	107.6	1.68	0.155	1.53	1	4	2.17%	3.3	83%	2.91	0.155	2.75
30.840	6942.76	7.3	0.135	6.7	90.1	39.03	1.86%	Fine Tailings	0.054	107.6	1.69	0.160	1.53	1	4	2.43%	3.3	83%	2.92	0.160	2.76
31.004	6942.60	7.3	0.136	6.7	92.9	40.24	1.87%	Coarse Tailings	0.054	108.1	1.70	0.000	1.70	0	3	2.44%	3.4	21%	2.93	0.000	2.93
31.168	6942.43	7.9	0.125	7.3	95.4	41.34	1.59%	Coarse Tailings	0.054	108.1	1.71	0.000	1.71	0	4	2.03%	3.3	21%	2.93	0.000	2.93
31.332	6942.27	7.6	0.119	7.0	87.5	37.90	1.57%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	3	2.04%	3.3	21%	2.94	0.000	2.94
31.496	6942.10	6.4	0.096	5.9	81.3	35.22	1.49%	Coarse Tailings	0.054	108.1	1.73	0.000	1.73	0	3	2.04%	3.4	21%	2.95	0.000	2.95
31.660	6941.94	7.3	0.083	6.8	81.4	35.28	1.14%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	3	1.50%	3.3	21%	2.96	0.000	2.96
31.824	6941.78	7.3	0.082	6.8	88.6	38.39	1.12%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	3	1.47%	3.3	21%	2.97	0.000	2.97
31.988	6941.61	7.2	0.092	6.6	90.8	39.33	1.28%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	3	1.69%	3.3	21%	2.98	0.000	2.98
32.152	6941.45	6.8	0.110	6.3	93.8	40.65	1.61%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	3	2.17%	3.4	21%	2.99	0.000	2.99
32.316	6941.28	7.8	0.112	7.3	84.7	36.69	1.44%	Coarse Tailings	0.054	108.1	1.77	0.000	1.77	0	3	1.86%	3.3	21%	3.00	0.000	3.00
32.480	6941.12	8.0	0.130	7.5	81.4	35.26	1.63%	Coarse Tailings	0.054	108.1	1.78	0.000	1.78	0	3	2.10%	3.3	21%	3.00	0.000	3.00
32.644	6940.96	7.2	0.134	6.6	87.1	37.74	1.87%	Coarse Tailings	0.054	108.1	1.79	0.000	1.79	0	3	2.49%	3.4	21%	3.01	0.000	3.01
32.808	6940.79	8.1	0.101	7.7	70.0	30.32	1.25%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0	3	1.61%	3.3	21%	3.02	0.000	3.02
32.972	6940.63	7.9	0.083	7.5	65.6	28.43	1.05%	Coarse Tailings	0.054	108.1	1.81	0.000	1.81	0	3	1.37%	3.2	21%	3.03	0.000	3.03
33.136	6940.46	9.0	0.122	8.5	77.4	33.54	1.36%	Coarse Tailings	0.054	108.1	1.82	0.000	1.82	0	4	1.71%	3.2	21%	3.04	0.000	3.04
33.300	6940.30	9.9	0.152	9.3	95.5	41.38	1.53%	Fine Tailings	0.054	107.6	1.83	0.003	1.82	1	4	1.88%	3.2	83%	3.05	0.003	3.05
33.464	6940.14	20.0	0.225	19.4	86.7	37.58	1.13%	Fine Tailings	0.054	107.6	1.83	0.008	1.83	1	10	1.24%	2.8	83%	3.06	0.008	3.05
33.628	6939.97	24.7	0.393	24.5	18.9	8.18	1.59%	Fine Tailings	0.054	107.6	1.84	0.013	1.83	1	12	1.72%	2.8	83%	3.07	0.013	3.05
33.792	6939.81	21.2	0.550	21.1	9.4	4.09	2.60%	Fine Tailings	0.054	107.6	1.85	0.018	1.83	1	11	2.85%	3.0	83%	3.08	0.018	3.06
33.956	6939.64	17.4	0.630	17.3	14.0	6.06	3.62%	Fine Tailings	0.054	107.6	1.86	0.024	1.84	1	8	4.05%	3.1	83%	3.08	0.024	3.06
34.120	6939.48	16.1	0.498	15.9	20.3	8.81	3.10%	Fine Tailings	0.054	107.6	1.87	0.029	1.84	1	8	3.51%	3.1	83%	3.09	0.029	3.06
34.284	6939.32	10.1	0.240	9.9	25.5	11.04	2.38%	Fine Tailings	0.054	107.6	1.88	0.034	1.84	1	4	2.92%	3.3	83%	3.10	0.034	3.07
34.448	6939.15	7.8	0.180	7.5	52.2	22.61	2.29%	Fine Tailings	0.054	107.6	1.89	0.039	1.85	1	3	3.02%	3.4	83%	3.11	0.039	3.07
34.612	6938.99	6.6	0.135	6.3	61.8	26.78	2.03%	Fine Tailings	0.054	107.6	1.90	0.044	1.85	1	3	2.85%	3.5	83%	3.12	0.044	3.08
34.776	6938.82	7.3	0.122	6.9	65.9	28.57	1.67%	Fine Tailings	0.054	107.6	1.90	0.049	1.86	1	3	2.26%	3.4	83%	3.13	0.049	3.08
34.941	6938.66	7.5	0.130	7.1	70.1	30.38	1.73%	Fine Tailings	0.054	107.6	1.91	0.054	1.86	1	3	2.32%	3.4	83%	3.14	0.054	3.08
35.105	6938.50	6.9	0.137	6.4	74.0	32.05	1.99%	Fine Tailings	0.054	107.6	1.92	0.059	1.86	1	3	2.75%	3.5	83%	3.15	0.059	3.09
35.269	6938.33	7.4	0.147	7.0	78.1	33.84	1.98%	Fine Tailings	0.054	107.6	1.93	0.065	1.87	1	3	2.67%	3.4	83%	3.16	0.065	3.09
35.433	6938.17	7.6	0.150	7.0	94.5	40.94	1.97%	Fine Tailings	0.054	107.6	1.94	0.070	1.87	1	3	2.65%	3.4	83%	3.16	0.070	3.09
35.597	6938.00	8.4	0.150	7.8	100.9	43.72	1.78%	Fine Tailings	0.054	107.6	1.95	0.075	1.87	1	3	2.32%	3.3	83%	3.17	0.075	3.10
35.761	6937.84	8.3	0.143	7.7	97.6	42.30	1.72%	Fine Tailings	0.054	107.6	1.96	0.080	1.88	1	3	2.25%	3.3	83%	3.18	0.080	3.10
35.925	6937.68	8.6	0.122	8.0	97.4	42.22	1.41%	Fine Tailings	0.054	107.6	1.97	0.085	1.88	1	4	1.83%	3.3	83%	3.19	0.085	3.11
36.089	6937.51	7.6	0.134	7.0	104.9	45.45	1.76%	Fine Tailings	0.054	107.6	1.98	0.090	1.88	1	3	2.38%	3.4	83%	3.20	0.090	3.11
36.253	6937.35	8.3	0.161	7.7	106.2	46.00	1.94%	Fine Tailings	0.054	107.6	1.98	0.095	1.89	1	3	2.54%	3.4	83%	3.21	0.095	3.11
36.417	6937.18	9.5	0.161	8.9	96.9	41.99	1.69%	Fine Tailings	0.054	107.6	1.99	0.100	1.89	1	4	2.14%	3.3	83%	3.22	0.100	3.12
36.581	6937.02	11.0	0.514	10.4	91.6	39.69	4.69%	Fine Tailings	0.054	107.6	2.00	0.105	1.90	1	5	5.74%	3.4	83%	3.23	0.105	3.12
36.745	6936.86	12.2	0.543	11.6	95.0	41.18	4.45%	Fine Tailings	0.054	107.6	2.01	0.111	1.90	1	5	5.33%	3.4	83%	3.23	0.111	3.12
36.909	6936.69	11.1	0.408	10.8	49.7	21.52	3.68%	Fine Tailings	0.054	107.6	2.02	0.116	1.90	1	5	4.50%	3.4	83%	3.24	0.116	3.13

13.70	469	1.7E-03	3.7E+02	29	0.4073	5.5E-04	43	0.255	0.258	149	149.000	6989	4783	1545	1545	0.128%	0.90	0.75	0.06%	0.003795	0.25	0.323	0.851	0.65%	0.0011
13.75	469	1.7E-03	3.7E+02	29	0.4028	5.5E-04	43	0.255	0.258	150	150.000	6984	4780	1546	1546	0.126%	0.90	0.75	0.06%	0.003723	0.25	0.323	0.851	0.63%	0.0010
13.80	469	1.7E-03	3.7E+02	28	0.3983	5.4E-04	43	0.255	0.258	151	151.000	6980	4777	1547	1547	0.125%	0.90	0.75	0.06%	0.003651	0.25	0.323	0.851	0.62%	0.0010
13.85	469	1.7E-03	3.7E+02	28	0.3939	5.4E-04	43	0.259	0.263	152	152.000	6779	4637	1548	1548	0.123%	0.90	0.75	0.06%	0.003579	0.25	0.323	0.851	0.61%	0.0010
13.90	508	1.7E-03	4.3E+02	28	0.3894	4.5E-04	0	0.260	0.263	153	0.260	6770	4630	1549	6770	0.235%	1.79	1.00	0.01%	0.004028	0.36	0.025	0.785	0.63%	0.0010
13.95	508	1.7E-03	4.3E+02	28	0.3850	4.5E-04	0	0.260	0.263	154	0.260	6760	4624	1550	6760	0.228%	1.79	1.00	0.01%	0.003897	0.36	0.025	0.785	0.61%	0.0010
14.00	508	1.7E-03	4.3E+02	28	0.3806	4.5E-04	0	0.260	0.264	155	0.260	6751	4617	1551	6751	0.221%	1.79	1.00	0.01%	0.003769	0.36	0.025	0.785	0.59%	0.0010
14.05	508	1.7E-03	4.3E+02	27	0.3762	4.4E-04	0	0.260	0.264	156	0.260	6741	4611	1552	6741	0.214%	1.79	1.00	0.01%	0.003645	0.36	0.025	0.785	0.57%	0.0009
14.10	508	1.7E-03	4.3E+02	27	0.3718	4.4E-04	0	0.260	0.264	157	0.260	6732	4604	1553	6732	0.207%	1.79	1.00	0.01%	0.003525	0.36	0.025	0.785	0.55%	0.0009
14.15	508	1.7E-03	4.3E+02	27	0.3674	4.3E-04	0	0.261	0.264	158	0.261	6722	4598	1554	6722	0.200%	1.79	1.00	0.01%	0.003409	0.36	0.025	0.785	0.54%	0.0009
14.20	508	1.7E-03	4.3E+02	27	0.3631	4.3E-04	0	0.261	0.265	159	0.261	6713	4591	1555	6713	0.194%	1.79	1.00	0.01%	0.003296	0.36	0.025	0.785	0.52%	0.0008
14.25	508	1.7E-03	4.3E+02	27	0.3587	4.3E-04	0	0.261	0.265	160	0.261	6706	4586	1556	6706	0.188%	1.79	1.00	0.01%	0.003189	0.36	0.025	0.785	0.50%	0.0008
14.30	508	1.7E-03	4.3E+02	26	0.3544	4.2E-04	43	0.261	0.265	161	161.000	6702	4583	1557	1557	0.082%	0.90	0.75	0.06%	0.001631	0.25	0.323	0.851	0.28%	0.0005
14.35	508	1.7E-03	4.3E+02	26	0.3501	4.2E-04	43	0.261	0.265	162	162.000	6698	4580	1558	1558	0.081%	0.90	0.75	0.06%	0.001566	0.25	0.323	0.851	0.27%	0.0004
14.40	508	1.7E-03	4.3E+02	26	0.3458	4.2E-04	43	0.261	0.265	163	163.000	6694	4578	1559	1559	0.080%	0.90	0.75	0.06%	0.001500	0.25	0.323	0.851	0.26%	0.0004
14.45	508	1.7E-03	4.3E+02	26	0.3415	4.1E-04	43	0.261	0.265	164	164.000	6690	4575	1560	1560	0.079%	0.90	0.75	0.06%	0.001434	0.25	0.323	0.851	0.24%	0.0004
14.50	508	1.7E-03	4.3E+02	26	0.3373	4.1E-04	43	0.261	0.265	165	165.000	6687	4572	1561	1561	0.077%	0.90	0.75	0.06%	0.001367	0.25	0.323	0.851	0.23%	0.0004
14.55	508	1.7E-03	4.3E+02	26	0.3331	4.1E-04	43	0.261	0.265	166	166.000	6683	4570	1562	1562	0.076%	0.90	0.75	0.06%	0.001299	0.25	0.323	0.851	0.22%	0.0004
14.60	508	1.7E-03	4.3E+02	25	0.3288	4.0E-04	43	0.262	0.265	167	167.000	6679	4567	1563	1563	0.075%	0.90	0.75	0.06%	0.001231	0.25	0.323	0.851	0.21%	0.0003
14.65	508	1.7E-03	4.3E+02	25	0.3246	4.0E-04	43	0.262	0.266	168	168.000	6675	4564	1564	1564	0.074%	0.90	0.75	0.06%	0.001161	0.25	0.323	0.851	0.20%	0.0003
14.70	508	1.7E-03	4.3E+02	25	0.3205	3.9E-04	43	0.262	0.266	169	169.000	6671	4562	1565	1565	0.073%	0.90	0.75	0.06%	0.001091	0.25	0.323	0.851	0.19%	0.0003
14.75	508	1.7E-03	4.3E+02	25	0.3163	3.9E-04	43	0.262	0.266	170	170.000	6667	4559	1566	1566	0.072%	0.90	0.75	0.06%	0.001020	0.25	0.323	0.851	0.17%	0.0003
14.80	508	1.7E-03	4.3E+02	25	0.3122	3.9E-04	43	0.262	0.266	171	171.000	6664	4557	1567	1567	0.071%	0.90	0.75	0.06%	0.000947	0.25	0.323	0.851	0.16%	0.0003
14.85	508	1.7E-03	4.3E+02	25	0.3081	3.8E-04	43	0.262	0.266	172	172.000	6660	4554	1568	1568	0.070%	0.90	0.75	0.06%	0.000873	0.25	0.323	0.851	0.15%	0.0002
14.90	508	1.7E-03	4.3E+02	25	0.3040	3.8E-04	43	0.262	0.266	173	173.000	6656	4551	1569	1569	0.069%	0.90	0.75	0.06%	0.000797	0.25	0.323	0.851	0.14%	0.0002
14.95	508	1.7E-03	4.3E+02	24	0.2999	3.8E-04	43	0.262	0.266	174	174.000	6652	4549	1570	1570	0.067%	0.90	0.75	0.06%	0.000720	0.25	0.323	0.851	0.12%	0.0002
15.00	508	1.7E-03	4.3E+02	24	0.2959	3.7E-04	43	0.262	0.266	175	175.000	6649	4546	1571	1571	0.066%	0.90	0.75	0.06%	0.000640	0.25	0.323	0.851	0.11%	0.0002
15.05	508	1.7E-03	4.3E+02	24	0.2918	3.7E-04	43	0.262	0.266	176	176.000	6645	4543	1572	1572	0.065%	0.90	0.75	0.06%	0.000558	0.25	0.323	0.851	0.09%	0.0002
15.10	508	1.7E-03	4.3E+02	24	0.2878	3.6E-04	43	0.262	0.266	177	177.000	6641	4541	1573	1573	0.064%	0.90	0.75	0.06%	0.000472	0.25	0.323	0.851	0.08%	0.0001
15.15	508	1.7E-03	4.3E+02	24	0.2839	3.6E-04	43	0.262	0.267	178	178.000	6637	4538	1574	1574	0.063%	0.90	0.75	0.06%	0.000381	0.25	0.323	0.851	0.06%	0.0001
15.20	508	1.7E-03	4.3E+02	24	0.2799	3.6E-04	43	0.263	0.267	179	179.000	6634	4536	1575	1575	0.062%	0.90	0.75	0.06%	0.000283	0.25	0.323	0.851	0.05%	0.0001
15.25	508	1.7E-03	4.3E+02	24	0.2760	3.5E-04	43	0.263	0.267	180	180.000	6630	4533	1576	1576	0.061%	0.90	0.75	0.06%	0.000173	0.25	0.323	0.851	0.03%	0.0000
15.30	508	1.7E-03	4.3E+02	23	0.2721	3.5E-04	43	0.263	0.267	181	181.000	6626	4530	1577	1577	0.060%	0.90	0.75	0.06%	0.000026	0.25	0.323	0.851	0.00%	0.0000
15.35	508	1.7E-03	4.3E+02	23	0.2682	3.4E-04	43	0.263	0.267	182	182.000	6623	4528	1578	1578	0.059%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.40	489	1.7E-03	4.0E+02	23	0.2644	3.7E-04	43	0.263	0.267	183	183.000	6619	4525	1579	1579	0.065%	0.90	0.75	0.06%	0.000567	0.25	0.323	0.851	0.10%	0.0002
15.45	489	1.7E-03	4.0E+02	23	0.2606	3.6E-04	43	0.263	0.267	184	184.000	6615	4523	1580	1580	0.064%	0.90	0.75	0.06%	0.000474	0.25	0.323	0.851	0.08%	0.0001
15.50	489	1.7E-03	4.0E+02	23	0.2568	3.6E-04	43	0.263	0.267	185	185.000	6612	4520	1581	1581	0.063%	0.90	0.75	0.06%	0.000375	0.25	0.323	0.851	0.06%	0.0001
15.55	489	1.7E-03	4.0E+02	23	0.2530	3.5E-04	43	0.263	0.267	186	186.000	6608	4518	1582	1582	0.062%	0.90	0.75	0.06%	0.000269	0.25	0.323	0.851	0.05%	0.0001
15.60	489	1.7E-03	4.0E+02	23	0.2493	3.5E-04	43	0.263	0.267	187	187.000	6604	4515	1583	1583	0.061%	0.90	0.75	0.06%	0.000146	0.25	0.323	0.851	0.02%	0.0000
15.65	489	1.7E-03	4.0E+02	23	0.2456	3.5E-04	43	0.263	0.267	188	188.000	6601	4513	1584	1584	0.060%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.70	489	1.7E-03	4.0E+02	23	0.2419	3.4E-04	43	0.263	0.268	189	189.000	6597	4510	1585	1585	0.059%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.75	489	1.7E-03	4.0E+02	22	0.2382	3.4E-04	43	0.263	0.268	190	190.000	6593	4507	1586	1586	0.058%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.80	489	1.7E-03	4.0E+02	22	0.2346	3.3E-04	43	0.264	0.268	191	191.000	6590	4505	1587	1587	0.057%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.85	489	1.7E-03	4.0E+02	22	0.2310	3.3E-04	0	0.267	0.272	192	0.267	6431	4394	1588	6431	0.083%	1.79	1.00	0.01%	0.001306	0.36	0.025	0.785	0.21%	0.0003
15.90	489	1.7E-03	4.0E+02	22	0.2274	3.2E-04	0	0.267	0.272	193	0.267	6423	4388	1589	6423	0.080%	1.79	1.00	0.01%	0.001259	0.36	0.025	0.785	0.20%	0.0003
15.95	489	1.7E-03	4.0E+02	22	0.2239	3.2E-04	0	0.268	0.272	194	0.268	6415	4383	1590	6415	0.078%	1.79	1.00	0.01%	0.001214	0.36	0.025	0.785	0.19%	0.0003
16.00	489	1.7E-03	4.0E+02	22	0.2203	3.2E-04	0	0.268	0.273	195	0.268	6407	4377	1591	6407	0.075%	1.79	1.00	0.01%	0.001171	0.36	0.025	0.785	0.18%	0.0003
16.05	489	1.7E-03	4.0E+02	22	0.2169	3.1E-04	0	0.268	0.273	196	0.268	6399	4372	1592	6399	0.073%	1.79	1.00	0.01%	0.001129	0.36	0.025	0.785	0.18%	0.0003
16.10	489	1.7E-03	4.0E+02	22	0.2134	3.1E-04	0	0.268	0.273	197	0.268	6391	4367	1593	6391	0.071%	1.79	1.00	0.01%	0.001088	0.36	0.025	0.785	0.17%	0.0003
16.15	489	1.7E-03	4.0E+02	22	0.2100	3.0E-04	0	0.268	0.273	198	0.268	6383	4361	1594	6383	0.069%	1.79	1.00	0.01%	0.001049	0.36	0.025	0.785	0.16%	0.0003
16.20	489	1.7E-03	4.0E+02	22	0.2066	3.0E-04	0	0.269	0.274	199	0.269	6375	4356	1595	6375	0.066%	1.79	1.00	0.01%	0.001011	0.36	0.025	0.785	0.16%	0.0003
16.25	489	1.7E-03	4.0E+02	21	0.2032	3.0E-04	0	0.269	0.274	200	0.269	6368	4350	1596	6368	0.064%	1.79	1.00	0.01%	0.000975	0.36	0.025	0.785	0.15%	0.0003
16.30	489	1.7E-03	4.0E+02	21	0.1998	2.9E-04	0	0.269	0.274	201	0.269	6360	4345	1597	6360	0.062%	1.79	1.00	0.01%	0.000939	0.36	0.025	0.785	0.15%	0.0002
16.35	489	1.7E-03	4.0E+02	21	0.1965	2.9E-04	0	0.269	0.274	202	0.269	6352	4340	1598	6352	0.061%	1.79	1.00	0.01%	0.000906	0.36	0.025	0.785	0.14%	0.0002
16.40	489	1.7E-03	4.0E+02	21	0.1932	2.8E-04	0	0.269	0.274	203	0.269	6345	4334	1599	6345	0.059%	1.79	1.00	0.01%	0.000873	0.36	0.025	0.785	0.14%	0.0002
16.45	489	1.7E-03	4.0E+02	21	0.1900	2.8E-04	0	0.269	0.275	204	0.269	6337	4329	1600	6337	0.057%	1.79	1.00	0.01%	0.000841	0.36	0.025	0.785	0.13%	0.0002
16.50	489	1.7E-03	4.0E+02	21	0.1868	2.8E-04	0	0.270	0.275	205	0.270	6329	4324	1601	6329	0.055%	1.79	1.00	0.01%	0.000810	0.36	0.025	0.785	0.13%	0.0002
16.55	489	1.7E-03	4.0E+02	21	0.1836	2.7E-04	43	0.270	0.275	206	206.000	6325	4320	1602	1602	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.60	489	1.7E-03	4.0E+02	21	0.1804	2.7E-04	43	0.270	0.275	207	207.000	6321	4318	1603	1603	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.65	489	1.7E-03	4.0E+02	21	0.1773	2.7E-04	43	0.270	0.275	208	208.000	6318	4316	1604	1604	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.70	489	1.7E-03	4.0E+02	21	0.1742	2.6E-04	43	0.270	0.275	209	209.000	6315	4314	1605	1605	0.040%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.75	489	1.7E-03	4.0E+02	21	0.1711	2.6E-04	43	0.270	0.275	210	210.000	6312	4311	1606	1606	0.039%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.80	489	1.7E-03	4.0E+02	21	0.1681	2.5E-04	43	0.270	0.275	211	211.000	6309	4309	1607	1607	0.038%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.85	489	1.7E-03	4.0E+02	21	0.1650	2.5E-04	43	0.270	0.276	212	212.000	6306	4307	1608	1608	0.037%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.90	489	1.7E-03	4.0E+02	20	0.1621	2.5E-04	43	0.270	0.276	213	213.000	6303	4305	1609	1609	0.036%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.95	489	1.7E-03	4.0E+02	20	0.1591	2.4E-04	43	0.270	0.276	214	214.000	6299	4303	1610	1610	0.036%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.00	503	1.7E-03	4.2E+02	20	0.1562	2.3E-04	43	0.270	0.276	215	215.000	6296	4301	1611	1611	0.032%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.05	503	1.7E-03	4.2E+02	20	0.1533	2.2E-04	43	0.270	0.276	216	216.000	6293	4298	1612	1612	0.032%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.10	503	1.7E-03	4.2E+02	20	0.1504	2.2E-04	43	0.271	0.276	217	217.000	6290	4296	1613	1613	0.031%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.15	503	1.7E-03	4.2E+02	20	0.1476	2.1E-04	43	0.271	0.276	218	218.000	6287	4294	1614	1614	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.20	503	1.7E-03	4.2E+02	20	0.1448	2.1E-04	43	0.271	0.276	219	219.000	6284	4292	1615	1615	0.030%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.25	503	1.7E-03	4.2E+02	20	0.1420	2.1E-04	43	0.271	0.276	220	220.000	6281	4290	1616	1616	0.029%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.30	503	1.7E-03	4.2E+02	20	0.1392	2.0E-04	43	0.271	0.276	221	221.000	6278	4288	1617	1617	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.35	503	1.7E-03	4.2E+02	20	0.1365	2.0E-04	43	0.271	0.276	222	222.000	6275	4286	1618	1618	0.028%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.40	503	1.7E-03	4.2E+02	20	0.1338	2.0E-04	43	0.271	0.276	223	223.000	6272	4283	1619	1619	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.45	503	1.7E-03	4.2E+02	20	0.1312	1.9E-04	43	0.271	0.277	224	224.000	6269	4281	1620	1620	0.027%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.50	503	1.7E-03	4.2E+02	20	0.1285	1.9E-04	43	0.271	0.277	225	225.000	6266	4279	1621	1621	0.026%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.55	503	1.7E-03	4.2E+02	20	0.1259	1.9E-04	43	0.271	0.277	226	226.000	6262	4277	1622	1622	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.60	503	1.7E-03	4.2E+02	20	0.1234	1.8E-04	43	0.271	0.277	227	227.000	6259	4275	1623	1623	0.025%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.65	503	1.7E-03	4.2E+02	19	0.1208	1.8E-04	43	0.271	0.277	228	228.000	6256	4273	1624	1624	0.024%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000

37.073	6936.53	9.1	0.257	8.6	87.9	38.11	2.81%	Fine Tailings	0.054	107.6	2.03	0.121	1.91	1	4	3.61%	3.4	83%	3.25	0.121	3.13
37.237	6936.36	9.5	0.185	8.9	90.0	39.00	1.95%	Fine Tailings	0.054	107.6	2.04	0.126	1.91	1	4	2.48%	3.3	83%	3.26	0.126	3.14
37.401	6936.20	9.2	0.138	8.6	91.6	39.68	1.50%	Fine Tailings	0.054	107.6	2.05	0.131	1.91	1	4	1.94%	3.3	83%	3.27	0.131	3.14
37.565	6936.03	9.9	0.149	9.4	92.3	39.98	1.50%	Fine Tailings	0.054	107.6	2.05	0.136	1.92	1	4	1.89%	3.2	83%	3.28	0.136	3.14
37.729	6935.87	10.3	0.186	9.7	98.0	42.48	1.81%	Fine Tailings	0.054	107.6	2.06	0.141	1.92	1	4	2.26%	3.2	83%	3.29	0.141	3.15
37.893	6935.71	10.4	0.235	9.8	99.4	43.09	2.25%	Fine Tailings	0.054	107.6	2.07	0.146	1.93	1	4	2.81%	3.3	83%	3.30	0.146	3.15
38.057	6935.54	9.9	0.261	9.4	90.1	39.04	2.63%	Fine Tailings	0.054	107.6	2.08	0.152	1.93	1	4	3.32%	3.3	83%	3.31	0.152	3.15
38.221	6935.38	10.1	0.207	9.5	92.4	40.02	2.05%	Fine Tailings	0.054	107.6	2.09	0.157	1.93	1	4	2.59%	3.3	83%	3.31	0.157	3.16
38.385	6935.21	9.3	0.187	8.7	83.9	36.34	2.02%	Fine Tailings	0.054	107.6	2.10	0.162	1.94	1	4	2.61%	3.3	83%	3.32	0.162	3.16
38.549	6935.05	10.0	0.192	9.4	96.0	41.59	1.93%	Fine Tailings	0.054	107.6	2.11	0.167	1.94	1	4	2.44%	3.3	83%	3.33	0.167	3.16
38.713	6934.89	10.1	0.189	9.5	99.9	43.29	1.87%	Fine Tailings	0.054	107.6	2.12	0.172	1.94	1	4	2.36%	3.3	83%	3.34	0.172	3.17
38.877	6934.72	10.1	0.174	9.5	100.2	43.44	1.72%	Fine Tailings	0.054	107.6	2.13	0.177	1.95	1	4	2.17%	3.3	83%	3.35	0.177	3.17
39.042	6934.56	10.2	0.185	9.5	104.2	45.14	1.82%	Fine Tailings	0.054	107.6	2.13	0.182	1.95	1	4	2.31%	3.3	83%	3.36	0.182	3.18
39.206	6934.39	10.0	0.172	9.3	103.9	45.02	1.73%	Fine Tailings	0.054	107.6	2.14	0.187	1.96	1	4	2.20%	3.3	83%	3.37	0.187	3.18
39.370	6934.23	9.6	0.179	8.9	103.1	44.66	1.87%	Fine Tailings	0.054	107.6	2.15	0.192	1.96	1	4	2.42%	3.3	83%	3.38	0.192	3.18
39.534	6934.07	10.1	0.186	9.4	105.8	45.86	1.84%	Fine Tailings	0.054	107.6	2.16	0.198	1.96	1	4	2.35%	3.3	83%	3.38	0.198	3.19
39.698	6933.90	11.1	0.218	10.5	111.9	48.48	1.96%	Fine Tailings	0.054	107.6	2.17	0.203	1.97	1	5	2.43%	3.2	83%	3.39	0.203	3.19
39.862	6933.74	10.9	0.250	10.2	112.4	48.69	2.29%	Fine Tailings	0.054	107.6	2.18	0.208	1.97	1	4	2.87%	3.3	83%	3.40	0.208	3.19
40.026	6933.57	11.2	0.266	10.5	111.8	48.46	2.37%	Fine Tailings	0.054	107.6	2.19	0.213	1.97	1	5	2.95%	3.3	83%	3.41	0.213	3.20
40.190	6933.41	11.4	0.259	10.6	114.6	49.64	2.28%	Fine Tailings	0.054	107.6	2.20	0.218	1.98	1	5	2.83%	3.3	83%	3.42	0.218	3.20
40.354	6933.25	11.1	0.254	10.4	115.1	49.89	2.29%	Fine Tailings	0.054	107.6	2.20	0.223	1.98	1	4	2.85%	3.3	83%	3.43	0.223	3.21
40.518	6933.08	11.2	0.254	10.5	117.1	50.74	2.27%	Fine Tailings	0.054	107.6	2.21	0.228	1.99	1	5	2.83%	3.3	83%	3.44	0.228	3.21
40.682	6932.92	11.0	0.256	10.3	117.2	50.80	2.33%	Fine Tailings	0.054	107.6	2.22	0.233	1.99	1	4	2.92%	3.3	83%	3.45	0.233	3.21
40.846	6932.75	10.5	0.259	9.8	118.3	51.25	2.47%	Fine Tailings	0.054	107.6	2.23	0.239	1.99	1	4	3.14%	3.3	83%	3.46	0.239	3.22
41.010	6932.59	11.1	0.263	10.4	119.3	51.69	2.36%	Fine Tailings	0.054	107.6	2.24	0.244	2.00	1	4	2.96%	3.3	83%	3.46	0.244	3.22
41.174	6932.43	11.1	0.273	10.3	119.3	51.69	2.47%	Fine Tailings	0.054	107.6	2.25	0.249	2.00	1	4	3.09%	3.3	83%	3.47	0.249	3.22
41.338	6932.26	11.1	0.294	10.3	120.1	52.04	2.65%	Fine Tailings	0.054	107.6	2.26	0.254	2.00	1	4	3.33%	3.3	83%	3.48	0.254	3.23
41.502	6932.10	11.8	0.323	11.0	119.6	51.81	2.74%	Fine Tailings	0.054	107.6	2.27	0.259	2.01	1	5	3.40%	3.3	83%	3.49	0.259	3.23
41.666	6931.93	12.6	0.398	11.9	113.1	49.01	3.17%	Fine Tailings	0.054	107.6	2.28	0.264	2.01	1	5	3.87%	3.3	83%	3.50	0.264	3.24
41.830	6931.77	16.4	0.408	15.9	76.9	33.33	2.49%	Fine Tailings	0.054	107.6	2.28	0.269	2.01	1	7	2.89%	3.1	83%	3.51	0.269	3.24
41.994	6931.61	15.4	0.291	15.1	54.3	23.55	1.88%	Fine Tailings	0.054	107.6	2.29	0.274	2.02	1	7	2.21%	3.1	83%	3.52	0.274	3.24
42.158	6931.44	13.6	0.304	13.1	70.5	30.56	2.24%	Fine Tailings	0.054	107.6	2.30	0.279	2.02	1	6	2.70%	3.2	83%	3.53	0.279	3.25
42.322	6931.28	12.3	0.310	11.7	90.1	39.03	2.52%	Fine Tailings	0.054	107.6	2.31	0.285	2.03	1	5	3.11%	3.3	83%	3.53	0.285	3.25
42.486	6931.11	12.2	0.307	11.6	95.9	41.57	2.52%	Fine Tailings	0.054	107.6	2.32	0.290	2.03	1	5	3.11%	3.3	83%	3.54	0.290	3.25
42.650	6930.95	12.5	0.307	11.9	100.1	43.38	2.45%	Fine Tailings	0.054	107.6	2.33	0.295	2.03	1	5	3.00%	3.2	83%	3.55	0.295	3.26
42.814	6930.79	13.9	0.349	13.3	110.2	47.75	2.50%	Fine Tailings	0.054	107.6	2.34	0.300	2.04	1	6	3.01%	3.2	83%	3.56	0.300	3.26
42.978	6930.62	13.8	0.399	13.1	115.0	49.84	2.88%	Fine Tailings	0.054	107.6	2.35	0.305	2.04	1	6	3.47%	3.2	83%	3.57	0.305	3.26
43.143	6930.46	15.0	0.333	14.3	117.8	51.04	2.22%	Fine Tailings	0.054	107.6	2.35	0.310	2.04	1	6	2.63%	3.1	83%	3.58	0.310	3.27
43.307	6930.29	21.0	0.524	20.1	144.2	62.47	2.50%	Fine Tailings	0.054	107.6	2.36	0.315	2.05	1	9	2.81%	3.0	83%	3.59	0.315	3.27
43.471	6930.13	38.1	0.656	37.7	75.7	32.82	1.72%	Fine Tailings	0.054	107.6	2.37	0.320	2.05	1	17	1.83%	2.7	83%	3.60	0.320	3.28
43.635	6929.97	63.5	0.655	63.4	29.0	12.55	1.03%	Fine Tailings	0.054	107.6	2.38	0.326	2.06	1	30	1.07%	2.4	83%	3.61	0.326	3.28
43.799	6929.80	97.7	0.867	97.6	14.8	6.40	0.89%	Fine Tailings	0.054	107.6	2.39	0.331	2.06	1	46	0.91%	2.2	83%	3.61	0.331	3.28
43.963	6929.64	98.3	1.272	98.2	14.9	6.45	1.29%	Fine Tailings	0.054	107.6	2.40	0.336	2.06	1	46	1.33%	2.2	83%	3.62	0.336	3.29
44.127	6929.47	112.0	2.010	111.9	12.3	5.31	1.79%	Fine Tailings	0.054	107.6	2.41	0.341	2.07	1	53	1.83%	2.3	83%	3.63	0.341	3.29
44.291	6929.31	109.6	2.524	109.5	15.0	6.49	2.30%	Fine Tailings	0.054	107.6	2.42	0.346	2.07	1	52	2.35%	2.4	83%	3.64	0.346	3.29
44.455	6929.15	113.0	2.656	112.9	16.0	6.93	2.35%	Fine Tailings	0.054	107.6	2.43	0.351	2.07	1	53	2.40%	2.4	83%	3.65	0.351	3.30
44.619	6928.98	111.7	2.084	111.6	14.1	6.12	1.87%	Coarse Alluvium	0.056	111.0	2.43	0.000	2.43	0	45	1.91%	2.4	36%	3.66	0.000	3.66
44.783	6928.82	105.8	1.834	105.7	12.0	5.20	1.73%	Coarse Alluvium	0.056	111.0	2.44	0.000	2.44	0	42	1.77%	2.4	36%	3.67	0.000	3.67
44.947	6928.65	95.7	1.621	95.6	11.1	4.82	1.69%	Coarse Alluvium	0.056	111.0	2.45	0.000	2.45	0	38	1.74%	2.4	36%	3.68	0.000	3.68
45.111	6928.49	89.1	1.414	89.0	12.7	5.49	1.59%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0	35	1.63%	2.4	36%	3.69	0.000	3.69
45.275	6928.32	88.3	1.068	88.2	11.6	5.04	1.21%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0	35	1.24%	2.3	36%	3.70	0.000	3.70
45.439	6928.16	85.7	0.869	85.6	10.8	4.68	1.01%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0	34	1.04%	2.3	36%	3.70	0.000	3.70
45.603	6928.00	80.0	0.831	79.9	10.2	4.41	1.04%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0	31	1.07%	2.3	36%	3.71	0.000	3.71
45.767	6927.83	76.4	0.827	76.3	10.8	4.66	1.08%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	30	1.12%	2.4	36%	3.72	0.000	3.72
45.931	6927.67	70.7	0.768	70.7	9.6	4.17	1.09%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0	27	1.13%	2.4	36%	3.73	0.000	3.73
46.095	6927.50	66.2	0.658	66.1	9.2	3.97	0.99%	Coarse Alluvium	0.056	111.0	2.52	0.000	2.52	0	25	1.03%	2.4	36%	3.74	0.000	3.74
46.259	6927.34	64.2	0.624	64.2	9.3	4.05	0.97%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	24	1.01%	2.4	36%	3.75	0.000	3.75
46.423	6927.18	63.2	0.598	63.1	12.7	5.51	0.95%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	24	0.99%	2.4	36%	3.76	0.000	3.76
46.587	6927.01	63.7	0.522	63.7	11.5	4.98	0.82%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0	24	0.85%	2.4	36%	3.77	0.000	3.77
46.751	6926.85	60.0	0.517	60.0	10.0	4.33	0.86%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0	23	0.90%	2.4	36%	3.78	0.000	3.78
46.915	6926.68	58.4	0.517	58.3	8.8	3.80	0.89%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0	22	0.93%	2.4	36%	3.79	0.000	3.79
47.079	6926.52	57.5	0.506	57.5	8.5	3.68	0.88%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0	21	0.92%	2.4	36%	3.80	0.000	3.80
47.244	6926.36	58.1	0.513	58.0	8.4	3.64	0.88%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0	22	0.92%	2.4	36%	3.80	0.000	3.80
47.408	6926.19	58.5	0.511	58.5	8.0	3.48	0.87%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0	22	0.91%	2.4	36%	3.81	0.000	3.81
47.572	6926.03	59.3	0.543	59.2	8.1	3.52	0.92%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	22	0.96%	2.4	36%	3.82	0.000	3.82
47.736	6925.86	63.7	0.567	63.7	8.1	3.50	0.89%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0	23	0.93%	2.4	36%	3.83	0.000	3.83
47.900	6925.70	67.9	0.588	67.8	7.7	3.34	0.87%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0	25	0.90%	2.4	36%	3.84	0.000	3.84
48.064	6925.54	72.3	0.652	72.3	7.6	3.29	0.90%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	27	0.94%	2.4	36%	3.85	0.000	3.85
48.228	6925.37	73.8	0.711	73.7	7.2	3.13	0.96%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	27	1.00%	2.4	36%	3.86	0.000	3.86
48.392	6925.21	72.5	0.758	72.4	6.7	2.91	1.05%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0	26	1.09%	2.4	36%	3.87	0.000	3.87
48.556	6925.04	74.7	0.785	74.6	7.2	3.11	1.05%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0	27	1.09%	2.4	36%	3.88	0.000	3.88
48.720	6924.88	83.5	0.818	83.4	6.8	2.93	0.98%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0	30	1.01%	2.3	36%	3.89	0.000	3.89
48.884	6924.72	82.2	0.779	82.2	6.3	2.73	0.95%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0	30	0.98%	2.3	36%	3.90	0.000	3.90
49.048	6924.55	82.3	0.757	82.3	6.2	2.70	0.92%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0	30	0.95%	2.3	36%	3.90	0.000	3.90
49.212	6924.39	85.3	0.769	85.3	6.0	2.60	0.90%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0	31	0.93%	2.3	36%	3.91	0.000	3.91
49.376	6924.22	84.0	0.824	83.9	6.0	2.58	0.98%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	30	1.01%	2.3	36%	3.92	0.000	3.92
49.540	6924.06	84.5	0.859	84.5	6.2	2.67	1.02%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	30	1.05%	2.3	36%	3.93	0.000	3.93
49.704	6923.90	82.6	0.825	82.6	6.1	2.64	1.00%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0	29	1.03%	2.4	36%	3.94	0.000	3.94
49.868	6923.73	80.2	0.595	80.1	5.7	2.46	0.74%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	28	0.77%	2.3	36%	3.95	0.000	3.95
50.032	6923.57	76.8	0.605	76.8	5.5	2.40	0.79%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	27	0.82%	2.3	36%	3.96	0.000	3.96

17.70	503	1.7E-03	4.2E+02	19	0.1183	1.8E-04	43	0.271	0.277	229	229.000	6253	4271	1625	1625	0.024%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.75	503	1.7E-03	4.2E+02	19	0.1158	1.7E-04	43	0.272	0.277	230	230.000	6250	4269	1626	1626	0.023%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.80	503	1.7E-03	4.2E+02	19	0.1134	1.7E-04	43	0.272	0.277	231	231.000	6247	4266	1627	1627	0.023%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.85	503	1.7E-03	4.2E+02	19	0.1110	1.7E-04	43	0.272	0.277	232	232.000	6244	4264	1628	1628	0.022%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.90	503	1.7E-03	4.2E+02	19	0.1086	1.6E-04	43	0.272	0.277	233	233.000	6241	4262	1629	1629	0.021%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.95	503	1.7E-03	4.2E+02	19	0.1062	1.6E-04	43	0.272	0.277	234	234.000	6238	4260	1630	1630	0.021%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.00	503	1.7E-03	4.2E+02	19	0.1038	1.6E-04	43	0.272	0.278	235	235.000	6235	4258	1631	1631	0.020%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.05	503	1.7E-03	4.2E+02	19	0.1015	1.6E-04	43	0.272	0.278	236	236.000	6232	4256	1632	1632	0.020%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.10	503	1.7E-03	4.2E+02	19	0.0992	1.5E-04	43	0.272	0.278	237	237.000	6229	4254	1633	1633	0.019%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.15	503	1.7E-03	4.2E+02	19	0.0970	1.5E-04	43	0.272	0.278	238	238.000	6226	4252	1634	1634	0.019%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.20	503	1.7E-03	4.2E+02	19	0.0947	1.5E-04	43	0.272	0.278	239	239.000	6223	4250	1635	1635	0.019%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.25	503	1.7E-03	4.2E+02	19	0.0925	1.4E-04	43	0.272	0.278	240	240.000	6220	4248	1636	1636	0.018%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.30	503	1.7E-03	4.2E+02	19	0.0903	1.4E-04	43	0.272	0.278	241	241.000	6217	4246	1637	1637	0.018%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.35	503	1.7E-03	4.2E+02	19	0.0882	1.4E-04	43	0.272	0.278	242	242.000	6214	4243	1638	1638	0.017%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.40	503	1.7E-03	4.2E+02	19	0.0861	1.3E-04	43	0.272	0.278	243	243.000	6211	4241	1639	1639	0.017%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.45	674	1.7E-03	7.6E+02	19	0.0840	7.3E-05	43	0.273	0.278	244	244.000	6208	4239	1640	1640	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.50	674	1.7E-03	7.6E+02	19	0.0819	7.1E-05	43	0.273	0.278	245	245.000	6205	4237	1641	1641	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.55	674	1.7E-03	7.6E+02	19	0.0798	7.0E-05	43	0.273	0.278	246	246.000	6202	4235	1642	1642	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.60	674	1.7E-03	7.6E+02	19	0.0778	6.8E-05	43	0.273	0.279	247	247.000	6199	4233	1643	1643	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.65	674	1.7E-03	7.6E+02	19	0.0758	6.7E-05	43	0.273	0.279	248	248.000	6197	4231	1644	1644	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.70	674	1.7E-03	7.6E+02	19	0.0739	6.5E-05	43	0.273	0.279	249	249.000	6194	4229	1645	1645	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.75	674	1.7E-03	7.6E+02	18	0.0719	6.3E-05	43	0.273	0.279	250	250.000	6191	4227	1646	1646	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.80	674	1.7E-03	7.6E+02	18	0.0700	6.2E-05	43	0.273	0.279	251	251.000	6188	4225	1647	1647	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.85	674	1.7E-03	7.6E+02	18	0.0681	6.0E-05	43	0.273	0.279	252	252.000	6185	4223	1648	1648	0.007%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.90	674	1.7E-03	7.6E+02	18	0.0662	5.9E-05	43	0.273	0.279	253	253.000	6182	4221	1649	1649	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.95	674	1.7E-03	7.6E+02	18	0.0644	5.7E-05	43	0.273	0.279	254	254.000	6179	4219	1650	1650	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.00	674	1.7E-03	7.6E+02	18	0.0626	5.6E-05	43	0.273	0.279	255	255.000	6176	4217	1651	1651	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.05	674	1.7E-03	7.6E+02	18	0.0608	5.4E-05	43	0.273	0.279	256	256.000	6173	4215	1652	1652	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.10	674	1.7E-03	7.6E+02	18	0.0590	5.3E-05	43	0.274	0.279	257	257.000	6170	4213	1653	1653	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.15	674	1.7E-03	7.6E+02	18	0.0572	5.2E-05	43	0.274	0.279	258	258.000	6167	4211	1654	1654	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.20	674	1.7E-03	7.6E+02	18	0.0555	5.0E-05	43	0.274	0.280	259	259.000	6164	4209	1655	1655	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.25	674	1.7E-03	7.6E+02	18	0.0538	4.9E-05	43	0.274	0.280	260	260.000	6162	4207	1656	1656	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.30	674	1.7E-03	7.6E+02	18	0.0521	4.7E-05	43	0.274	0.280	261	261.000	6159	4205	1657	1657	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.35	674	1.7E-03	7.6E+02	18	0.0505	4.6E-05	43	0.274	0.280	262	262.000	6156	4203	1658	1658	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.40	674	1.7E-03	7.6E+02	18	0.0488	4.5E-05	43	0.274	0.280	263	263.000	6153	4201	1659	1659	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.45	674	1.7E-03	7.6E+02	18	0.0472	4.3E-05	43	0.274	0.280	264	264.000	6150	4199	1660	1660	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.50	674	1.7E-03	7.6E+02	18	0.0456	4.2E-05	43	0.274	0.280	265	265.000	6147	4197	1661	1661	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.55	674	1.7E-03	7.6E+02	18	0.0440	4.0E-05	43	0.274	0.280	266	266.000	6144	4195	1662	1662	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.60	674	1.7E-03	7.6E+02	18	0.0425	3.9E-05	43	0.274	0.280	267	267.000	6141	4193	1663	1663	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.65	674	1.7E-03	7.6E+02	18	0.0410	3.8E-05	43	0.274	0.280	268	268.000	6139	4191	1664	1664	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.70	674	1.7E-03	7.6E+02	18	0.0395	3.7E-05	43	0.274	0.280	269	269.000	6136	4189	1665	1665	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.75	674	1.7E-03	7.6E+02	18	0.0380	3.5E-05	43	0.274	0.281	270	270.000	6133	4187	1666	1666	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.80	674	1.7E-03	7.6E+02	18	0.0365	3.4E-05	43	0.275	0.281	271	271.000	6130	4185	1667	1667	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.85	674	1.7E-03	7.6E+02	18	0.0351	3.3E-05	43	0.275	0.281	272	272.000	6127	4183	1668	1668	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.90	674	1.7E-03	7.6E+02	18	0.0336	3.1E-05	43	0.275	0.281	273	273.000	6124	4181	1669	1669	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
19.95	674	1.7E-03	7.6E+02	18	0.0322	3.0E-05	43	0.275	0.281	274	274.000	6122	4179	1670	1670	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
20.00	674	1.7E-03	7.8E+02	18	0.0308	2.8E-05	0	0.281	0.289	275	0.281	5867	4002	1671	5867	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.05	674	1.7E-03	7.8E+02	18	0.0306	2.8E-05	0	0.282	0.289	276	0.282	5861	3998	1672	5861	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.10	674	1.7E-03	7.8E+02	18	0.0304	2.8E-05	0	0.282	0.289	277	0.282	5855	3993	1673	5855	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.15	674	1.7E-03	7.8E+02	18	0.0301	2.8E-05	0	0.282	0.289	278	0.282	5849	3989	1674	5849	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.20	674	1.7E-03	7.8E+02	18	0.0299	2.8E-05	0	0.282	0.289	279	0.282	5843	3985	1675	5843	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.25	674	1.7E-03	7.8E+02	18	0.0297	2.7E-05	0	0.282	0.290	280	0.282	5837	3981	1676	5837	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.30	674	1.7E-03	7.8E+02	18	0.0295	2.7E-05	0	0.282	0.290	281	0.282	5831	3977	1677	5831	0.003%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.35	1194	1.7E-03	2.5E+03	18	0.0292	8.6E-06	0	0.283	0.290	282	0.283	5825	3973	1678	5825	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.40	1194	1.7E-03	2.5E+03	18	0.0290	8.6E-06	0	0.283	0.290	283	0.283	5820	3969	1679	5820	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.45	1194	1.7E-03	2.5E+03	18	0.0288	8.5E-06	0	0.283	0.290	284	0.283	5814	3965	1680	5814	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.50	1194	1.7E-03	2.5E+03	17	0.0285	8.5E-06	0	0.283	0.291	285	0.283	5808	3961	1681	5808	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.55	1194	1.7E-03	2.5E+03	17	0.0283	8.4E-06	0	0.283	0.291	286	0.283	5802	3957	1682	5802	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.60	1194	1.7E-03	2.5E+03	17	0.0281	8.4E-06	0	0.283	0.291	287	0.283	5796	3953	1683	5796	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.65	1194	1.7E-03	2.5E+03	17	0.0278	8.3E-06	0	0.283	0.291	288	0.283	5791	3949	1684	5791	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.70	1194	1.7E-03	2.5E+03	17	0.0276	8.3E-06	0	0.284	0.291	289	0.284	5785	3945	1685	5785	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.75	1194	1.7E-03	2.5E+03	17	0.0274	8.2E-06	0	0.284	0.291	290	0.284	5779	3941	1686	5779	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.80	1194	1.7E-03	2.5E+03	17	0.0272	8.2E-06	0	0.284	0.292	291	0.284	5774	3937	1687	5774	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.85	1194	1.7E-03	2.5E+03	17	0.0269	8.1E-06	0	0.284	0.292	292	0.284	5768	3933	1688	5768	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.90	1194	1.7E-03	2.5E+03	17	0.0267	8.1E-06	0	0.284	0.292	293	0.284	5762	3929	1689	5762	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.95	1194	1.7E-03	2.5E+03	17	0.0265	8.0E-06	0	0.284	0.292	294	0.284	5757	3925	1690	5757	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.00	1194	1.7E-03	2.5E+03	17	0.0262	8.0E-06	0	0.285	0.292	295	0.285	5751	3921	1691	5751	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.05	1194	1.7E-03	2.5E+03	17	0.0260	7.9E-06	0	0.285	0.293	296	0.285	5746	3917	1692	5746	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.10	1194	1.7E-03	2.5E+03	17	0.0258	7.9E-06	0	0.285	0.293	297	0.285	5740	3914	1693	5740	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.15	1194	1.7E-03	2.5E+03	17	0.0255	7.8E-06	0	0.285	0.293	298	0.285	5734	3910	1694	5734	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.20	1194	1.7E-03	2.5E+03	17	0.0253	7.8E-06	0	0.285	0.293	299	0.285	5729	3906	1695	5729	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.25	1194	1.7E-03	2.5E+03	17	0.0251	7.7E-06	0	0.285	0.293	300	0.285	5723	3902	1696	5723	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.30	1194	1.7E-03	2.5E+03	17	0.0249	7.7E-06	0	0.285	0.294	301	0.285	5718	3898	1697	5718	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.35	1194	1.7E-03	2.5E+03	17	0.0246	7.6E-06	0	0.286	0.294	302	0.286	5712	3894	1698	5712	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.40	1194	1.7E-03	2.5E+03	17	0.0244	7.6E-06	0	0.286	0.294	303	0.286	5707	3891	1699	5707	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.45	1194	1.7E-03	2.5E+03	17	0.0242	7.5E-06	0	0.286	0.294	304	0.286	5702	3887	1700	5702	0.001%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.50	1507	1.7E-03	3.9E+03	17	0.0239	4.7E-06	0	0.286	0.294	305	0.286	5696	3883	1701	5696	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.55	1507	1.7E-03	3.9E+03	17	0.0237	4.7E-06	0	0.286	0.294	306	0.286	5691	3879	1702	5691	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.60	1507	1.7E-03	3.9E+03	17	0.0235	4.6E-06	0	0.286	0.295	307	0.286	5685	3876	1703	5685	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.65	1507	1.7E-03	3.9E+03	17	0.0232	4.6E-06	0	0.287	0.295	308	0.287	5680	3872	1704	5680	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000

50.196	6923.40	76.5	0.611	76.4	5.6	2.44	0.80%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0	27	0.83%	2.3	36%	3.97	0.000	3.97
50.360	6923.24	73.7	0.656	73.7	4.8	2.09	0.89%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	26	0.92%	2.4	36%	3.98	0.000	3.98
50.524	6923.08	76.5	0.669	76.5	4.9	2.11	0.87%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	27	0.91%	2.4	36%	3.99	0.000	3.99
50.688	6922.91	79.2	0.663	79.2	5.6	2.42	0.84%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	28	0.87%	2.3	36%	4.00	0.000	4.00
50.852	6922.75	81.9	0.668	81.9	4.7	2.05	0.82%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	28	0.84%	2.3	36%	4.00	0.000	4.00
51.016	6922.58	81.3	0.656	81.3	3.8	1.63	0.81%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	28	0.84%	2.3	36%	4.01	0.000	4.01
51.180	6922.42	81.3	0.639	81.3	0.3	0.14	0.79%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	28	0.81%	2.3	36%	4.02	0.000	4.02
51.345	6922.26	80.6	0.649	80.6	3.3	1.42	0.81%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	28	0.83%	2.3	36%	4.03	0.000	4.03
51.509	6922.09	81.0	0.644	81.0	3.5	1.50	0.79%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	28	0.82%	2.3	36%	4.04	0.000	4.04
51.673	6921.93	80.1	0.626	80.1	3.6	1.55	0.78%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	27	0.81%	2.3	36%	4.05	0.000	4.05
51.837	6921.76	81.9	0.764	81.9	3.7	1.61	0.93%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	28	0.97%	2.4	36%	4.06	0.000	4.06
52.001	6921.60	77.2	0.870	77.2	3.5	1.53	1.13%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	26	1.17%	2.4	36%	4.07	0.000	4.07
52.165	6921.44	74.2	0.943	74.1	4.1	1.77	1.27%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	25	1.32%	2.5	36%	4.08	0.000	4.08
52.329	6921.27	77.0	0.912	76.9	3.9	1.67	1.19%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	26	1.23%	2.4	36%	4.09	0.000	4.09
52.493	6921.11	71.8	0.996	71.8	3.0	1.30	1.39%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	24	1.44%	2.5	36%	4.10	0.000	4.10
52.657	6920.94	56.5	1.402	56.5	2.6	1.14	2.48%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	19	2.61%	2.7	36%	4.10	0.000	4.10
52.821	6920.78	42.0	1.549	42.0	3.1	1.34	3.69%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	14	3.96%	3.0	36%	4.11	0.000	4.11
52.985	6920.62	39.3	1.641	39.3	5.6	2.42	4.18%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	13	4.51%	3.0	36%	4.12	0.000	4.12
53.149	6920.45	38.8	1.586	38.8	6.5	2.81	4.09%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	12	4.42%	3.0	36%	4.13	0.000	4.13
53.313	6920.29	40.7	1.370	40.6	8.2	3.54	3.37%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	13	3.63%	3.0	36%	4.14	0.000	4.14
53.477	6920.12	41.8	1.035	41.8	6.2	2.70	2.47%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	13	2.66%	2.9	36%	4.15	0.000	4.15
53.641	6919.96	52.0	0.917	52.0	4.9	2.11	1.76%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	17	1.87%	2.7	36%	4.16	0.000	4.16
53.805	6919.79	53.2	0.932	53.2	4.5	1.95	1.75%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	17	1.85%	2.7	36%	4.17	0.000	4.17
53.969	6919.63	60.2	0.957	60.2	4.5	1.95	1.59%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	19	1.67%	2.6	36%	4.18	0.000	4.18
54.133	6919.47	78.9	1.096	78.8	5.6	2.42	1.39%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	26	1.44%	2.5	36%	4.19	0.000	4.19
54.297	6919.30	84.2	1.495	84.2	5.4	2.34	1.77%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	27	1.84%	2.5	36%	4.20	0.000	4.20
54.461	6919.14	100.2	1.165	100.2	5.4	2.36	1.16%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	33	1.20%	2.3	36%	4.21	0.000	4.21
54.625	6918.97	105.0	1.871	105.0	2.6	1.14	1.78%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	34	1.83%	2.4	36%	4.21	0.000	4.21
54.789	6918.81	94.5	2.569	94.5	4.1	1.77	2.72%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	31	2.81%	2.6	36%	4.22	0.000	4.22
54.953	6918.65	130.0	1.676	130.0	0.9	0.41	1.29%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	42	1.32%	2.3	36%	4.23	0.000	4.23
55.117	6918.48	207.7	2.402	207.7	4.2	1.81	1.16%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	68	1.17%	2.1	36%	4.24	0.000	4.24
55.281	6918.32	275.5	2.556	275.5	3.2	1.40	0.93%	Coarse Alluvium	0.056	111.0	3.03	0.000	3.03	0	90	0.94%	1.9	36%	4.25	0.000	4.25
55.446	6918.15	247.8	2.916	247.8	4.2	1.83	1.18%	Coarse Alluvium	0.056	111.0	3.04	0.000	3.04	0	81	1.19%	2.0	36%	4.26	0.000	4.26
55.610	6917.99	223.1	2.610	223.1	2.5	1.10	1.17%	Coarse Alluvium	0.056	111.0	3.04	0.000	3.04	0	72	1.19%	2.1	36%	4.27	0.000	4.27
55.774	6917.83	196.9	2.377	196.9	2.4	1.02	1.21%	Coarse Alluvium	0.056	111.0	3.05	0.000	3.05	0	63	1.23%	2.1	36%	4.28	0.000	4.28
55.938	6917.66	173.9	2.254	173.9	1.5	0.65	1.30%	Coarse Alluvium	0.056	111.0	3.06	0.000	3.06	0	56	1.32%	2.2	36%	4.29	0.000	4.29
56.102	6917.50	155.8	2.130	155.8	2.5	1.10	1.37%	Coarse Alluvium	0.056	111.0	3.07	0.000	3.07	0	50	1.39%	2.2	36%	4.30	0.000	4.30
56.266	6917.33	152.5	2.824	152.5	3.2	1.40	1.85%	Coarse Alluvium	0.056	111.0	3.08	0.000	3.08	0	48	1.89%	2.3	36%	4.31	0.000	4.31
56.430	6917.17	159.2	2.616	159.2	4.3	1.85	1.64%	Coarse Alluvium	0.056	111.0	3.09	0.000	3.09	0	51	1.68%	2.3	36%	4.31	0.000	4.31
56.594	6917.01	178.1	2.995	178.0	6.2	2.70	1.68%	Coarse Alluvium	0.056	111.0	3.10	0.000	3.10	0	56	1.71%	2.3	36%	4.32	0.000	4.32
56.758	6916.84	217.7	3.115	217.6	9.2	4.00	1.43%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	69	1.45%	2.1	36%	4.33	0.000	4.33
56.922	6916.68	187.3	2.881	187.3	0.4	0.16	1.54%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	59	1.56%	2.2	36%	4.34	0.000	4.34
57.086	6916.51	134.1	2.669	134.1	3.1	1.34	1.99%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	42	2.04%	2.4	36%	4.35	0.000	4.35
57.250	6916.35	94.2	2.226	94.2	1.9	0.83	2.36%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	29	2.44%	2.6	36%	4.36	0.000	4.36
57.414	6916.19	84.5	2.004	84.5	3.7	1.59	2.37%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	26	2.46%	2.6	36%	4.37	0.000	4.37
57.578	6916.02	88.0	1.613	88.0	3.5	1.50	1.83%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	27	1.90%	2.5	36%	4.38	0.000	4.38
57.742	6915.86	88.0	1.218	88.0	3.0	1.28	1.38%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	27	1.44%	2.5	36%	4.39	0.000	4.39
57.906	6915.69	91.9	0.957	91.9	2.9	1.24	1.04%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	28	1.08%	2.4	36%	4.40	0.000	4.40
58.070	6915.53	92.6	0.962	92.6	2.8	1.20	1.04%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	28	1.08%	2.4	36%	4.41	0.000	4.41
58.234	6915.37	92.3	1.379	92.3	2.7	1.18	1.49%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	28	1.55%	2.5	36%	4.41	0.000	4.41
58.398	6915.20	99.2	1.033	99.2	4.6	1.97	1.04%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	30	1.08%	2.4	36%	4.42	0.000	4.42
58.562	6915.04	107.2	1.156	107.2	1.8	0.79	1.08%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	32	1.11%	2.3	36%	4.43	0.000	4.43
58.726	6914.87	106.8	1.129	106.8	2.0	0.85	1.06%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	32	1.09%	2.3	36%	4.44	0.000	4.44
58.890	6914.71	104.4	1.226	104.3	2.6	1.12	1.17%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	31	1.21%	2.4	36%	4.45	0.000	4.45
59.054	6914.55	104.5	1.098	104.5	3.0	1.30	1.05%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	31	1.08%	2.3	36%	4.46	0.000	4.46
59.218	6914.38	100.5	0.946	100.5	2.7	1.16	0.94%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	30	0.97%	2.3	36%	4.47	0.000	4.47
59.382	6914.22	96.8	0.760	96.8	2.6	1.14	0.78%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	29	0.81%	2.3	36%	4.48	0.000	4.48
59.547	6914.05	91.5	0.756	91.5	2.1	0.89	0.83%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	27	0.86%	2.3	36%	4.49	0.000	4.49
59.711	6913.89	86.1	0.908	86.1	2.2	0.96	1.06%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	25	1.10%	2.4	36%	4.50	0.000	4.50
59.875	6913.73	81.4	0.709	81.4	2.2	0.96	0.87%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	24	0.91%	2.4	36%	4.51	0.000	4.51
60.039	6913.56	83.4	0.536	83.4	2.6	1.14	0.64%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	24	0.67%	2.3	36%	4.51	0.000	4.51
60.203	6913.40	88.2	0.485	88.2	1.8	0.79	0.55%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	26	0.57%	2.3	36%	4.52	0.000	4.52
60.367	6913.23	90.8	0.512	90.8	1.2	0.51	0.56%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	26	0.58%	2.3	36%	4.53	0.000	4.53
60.531	6913.07	96.7	0.526	96.7	0.8	0.36	0.54%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	28	0.56%	2.2	36%	4.54	0.000	4.54
60.695	6912.91	96.9	0.567	96.9	0.7	0.29	0.58%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	28	0.61%	2.3	36%	4.55	0.000	4.55
60.859	6912.74	96.8	0.627	96.8	0.4	0.18	0.65%	Coarse Alluvium	0.056	111.0	3.34	0.000	3.34	0	28	0.67%	2.3	36%	4.56	0.000	4.56
61.023	6912.58	95.9	0.676	95.9	0.6	0.26	0.71%	Coarse Alluvium	0.056	111.0	3.35	0.000	3.35	0	28	0.73%	2.3	36%	4.57	0.000	4.57
61.187	6912.41	91.6	0.709	91.6	0.7	0.30	0.77%	Coarse Alluvium	0.056	111.0	3.35	0.000	3.35	0	26	0.80%	2.3	36%	4.58	0.000	4.58
61.351	6912.25	92.4	0.700	92.4	0.5	0.23	0.76%	Coarse Alluvium	0.056	111.0	3.36	0.000	3.36	0	26	0.79%	2.3	36%	4.59	0.000	4.59
61.515	6912.09	97.1	0.651	97.1	1.1	0.47	0.67%	Coarse Alluvium	0.056	111.0	3.37	0.000	3.37	0	28	0.69%	2.3	36%	4.60	0.000	4.60
61.679	6911.92	102.2	0.641	102.2	1.0	0.45	0.63%	Coarse Alluvium	0.056	111.0	3.38	0.000	3.38	0	29	0.65%	2.3	36%	4.61	0.000	4.61
61.843	6911.76	109.5	0.711	109.5	1.6	0.69	0.65%	Coarse Alluvium	0.056	111.0	3.39	0.000	3.39	0	31	0.67%	2.2	36%	4.61	0.000	4.61
62.007	6911.59	136.9	0.854	136.8	3.6	1.55	0.62%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	39	0.64%	2.1	36%	4.62	0.000	4.62
62.171	6911.43	180.0	1.173	179.9	3.3	1.42	0.65%	Coarse Alluvium	0.056	111.0	3.41	0.000	3.41	0	52	0.66%	2.0	36%	4.63	0.000	4.63
62.335	6911.26	197.5	1.539	197.5	3.0	1.30	0.78%	Coarse Alluvium	0.056	111.0	3.42	0.000	3.42	0	57	0.79%	2.0	36%	4.64	0.000	4.64
62.499	6911.10	231.8	1.879	231.8	4.8	2.08	0.81%	Coarse Alluvium	0.056	111.0	3.43	0.000	3.43	0	67	0.82%	2.0	36%	4.65	0.000	4.65
62.663	6910.94	299.8	2.207	299.8	3.1	1.36	0.74%	Coarse Alluvium	0.056	111.0	3.44	0.000	3.44	0	86	0.74%	1.9	36%	4.66	0.000	4.66
62.827	6910.77	375.2	2.317	375.2	6.9	2.97	0.62%	Coarse Alluvium	0.056	111.0	3.45	0.000	3.45	0	108	0.62%	1.8	36%	4.67	0.000	4.67
62.991	6910.61	490.4	2.317	490.4	9.6	4.15	0.47%	Coarse Alluvium	0.056	111.0	3.45	0.000	3.45	0	141	0.48%	1.6	36%	4.68	0.000	4.68
63.155	6910.44	502.6	2.317	502.5	8.6	3.72	0.46%	Coarse Alluvium	0.056	111.0	3.46	0.000	3.46	0	144	0.46%	1.6	36%	4.69	0.000	4.69

21.70	1507	1.7E-03	3.9E+03	17	0.0230	4.5E-06	0	0.287	0.295	309	0.287	5675	3868	1705	5675	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.75	1507	1.7E-03	3.9E+03	17	0.0228	4.5E-06	0	0.287	0.295	310	0.287	5669	3864	1706	5669	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.80	1507	1.7E-03	3.9E+03	17	0.0226	4.5E-06	0	0.287	0.295	311	0.287	5664	3861	1707	5664	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.85	1507	1.7E-03	3.9E+03	17	0.0223	4.4E-06	0	0.287	0.295	312	0.287	5659	3857	1708	5659	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.90	1507	1.7E-03	3.9E+03	17	0.0221	4.4E-06	0	0.287	0.296	313	0.287	5653	3853	1709	5653	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.95	1507	1.7E-03	3.9E+03	17	0.0219	4.4E-06	0	0.287	0.296	314	0.287	5648	3850	1710	5648	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.00	1507	1.7E-03	3.9E+03	17	0.0216	4.3E-06	0	0.288	0.296	315	0.288	5643	3846	1711	5643	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.05	1507	1.7E-03	3.9E+03	17	0.0214	4.3E-06	0	0.288	0.296	316	0.288	5638	3842	1712	5638	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.10	1507	1.7E-03	3.9E+03	17	0.0212	4.3E-06	0	0.288	0.296	317	0.288	5632	3839	1713	5632	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.15	1507	1.7E-03	3.9E+03	17	0.0209	4.2E-06	0	0.288	0.297	318	0.288	5627	3835	1714	5627	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.20	1507	1.7E-03	3.9E+03	17	0.0207	4.2E-06	0	0.288	0.297	319	0.288	5622	3832	1715	5622	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.25	1507	1.7E-03	3.9E+03	17	0.0205	4.2E-06	0	0.288	0.297	320	0.288	5617	3828	1716	5617	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.30	1507	1.7E-03	3.9E+03	17	0.0203	4.1E-06	0	0.289	0.297	321	0.289	5612	3824	1717	5612	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.35	1507	1.7E-03	3.9E+03	17	0.0200	4.1E-06	0	0.289	0.297	322	0.289	5607	3821	1718	5607	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.40	1507	1.7E-03	3.9E+03	17	0.0198	4.0E-06	0	0.289	0.297	323	0.289	5602	3817	1719	5602	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.45	1507	1.7E-03	3.9E+03	17	0.0196	4.0E-06	0	0.289	0.298	324	0.289	5596	3814	1720	5596	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.50	1507	1.7E-03	3.9E+03	17	0.0193	4.0E-06	0	0.289	0.298	325	0.289	5591	3810	1721	5591	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.55	1507	1.7E-03	3.9E+03	17	0.0191	3.9E-06	0	0.289	0.298	326	0.289	5586	3807	1722	5586	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.60	1507	1.7E-03	3.9E+03	17	0.0189	3.9E-06	0	0.289	0.298	327	0.289	5581	3803	1723	5581	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.65	1507	1.7E-03	3.9E+03	17	0.0186	3.8E-06	0	0.290	0.298	328	0.290	5576	3800	1724	5576	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.70	1507	1.7E-03	3.9E+03	17	0.0184	3.8E-06	0	0.290	0.298	329	0.290	5571	3796	1725	5571	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.75	1507	1.7E-03	3.9E+03	17	0.0182	3.8E-06	0	0.290	0.299	330	0.290	5566	3793	1726	5566	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.80	1507	1.7E-03	3.9E+03	17	0.0180	3.7E-06	0	0.290	0.299	331	0.290	5561	3789	1727	5561	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.85	1507	1.7E-03	3.9E+03	17	0.0177	3.7E-06	0	0.290	0.299	332	0.290	5556	3786	1728	5556	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.90	1507	1.7E-03	3.9E+03	17	0.0175	3.6E-06	0	0.290	0.299	333	0.290	5551	3782	1729	5551	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.95	1507	1.7E-03	3.9E+03	17	0.0173	3.6E-06	0	0.290	0.299	334	0.290	5546	3779	1730	5546	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.00	1507	1.7E-03	3.9E+03	17	0.0170	3.6E-06	0	0.291	0.300	335	0.291	5541	3776	1731	5541	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.05	1829	1.7E-03	5.8E+03	17	0.0168	2.4E-06	0	0.291	0.300	336	0.291	5536	3772	1732	5536	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.10	1829	1.7E-03	5.8E+03	17	0.0166	2.4E-06	0	0.291	0.300	337	0.291	5532	3769	1733	5532	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.15	1829	1.7E-03	5.8E+03	17	0.0163	2.3E-06	0	0.291	0.300	338	0.291	5527	3765	1734	5527	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.20	1829	1.7E-03	5.8E+03	17	0.0161	2.3E-06	0	0.291	0.300	339	0.291	5522	3762	1735	5522	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.25	1829	1.7E-03	5.8E+03	17	0.0159	2.3E-06	0	0.291	0.300	340	0.291	5517	3759	1736	5517	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.30	1829	1.7E-03	5.8E+03	17	0.0157	2.3E-06	0	0.291	0.301	341	0.291	5512	3755	1737	5512	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.35	1829	1.7E-03	5.8E+03	17	0.0154	2.2E-06	0	0.292	0.301	342	0.292	5507	3752	1738	5507	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.40	1829	1.7E-03	5.8E+03	17	0.0152	2.2E-06	0	0.292	0.301	343	0.292	5502	3748	1739	5502	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.45	1829	1.7E-03	5.8E+03	17	0.0150	2.2E-06	0	0.292	0.301	344	0.292	5498	3745	1740	5498	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.50	1829	1.7E-03	5.8E+03	17	0.0147	2.1E-06	0	0.292	0.301	345	0.292	5493	3742	1741	5493	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.55	1829	1.7E-03	5.8E+03	17	0.0145	2.1E-06	0	0.292	0.301	346	0.292	5488	3739	1742	5488	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.60	1829	1.7E-03	5.8E+03	17	0.0143	2.1E-06	0	0.292	0.302	347	0.292	5483	3735	1743	5483	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.65	1829	1.7E-03	5.8E+03	17	0.0140	2.1E-06	0	0.292	0.302	348	0.292	5479	3732	1744	5479	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.70	1829	1.7E-03	5.8E+03	17	0.0138	2.0E-06	0	0.293	0.302	349	0.293	5474	3729	1745	5474	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.75	1829	1.7E-03	5.8E+03	17	0.0136	2.0E-06	0	0.293	0.302	350	0.293	5469	3725	1746	5469	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.80	1829	1.7E-03	5.8E+03	17	0.0134	2.0E-06	0	0.293	0.302	351	0.293	5465	3722	1747	5465	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.85	1829	1.7E-03	5.8E+03	17	0.0131	1.9E-06	0	0.293	0.302	352	0.293	5460	3719	1748	5460	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.90	1829	1.7E-03	5.8E+03	17	0.0129	1.9E-06	0	0.293	0.303	353	0.293	5455	3716	1749	5455	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.95	1829	1.7E-03	5.8E+03	17	0.0127	1.9E-06	0	0.293	0.303	354	0.293	5451	3712	1750	5451	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.00	1829	1.7E-03	5.8E+03	17	0.0124	1.8E-06	0	0.293	0.303	355	0.293	5446	3709	1751	5446	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.05	1829	1.7E-03	5.8E+03	17	0.0122	1.8E-06	0	0.294	0.303	356	0.294	5441	3706	1752	5441	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.10	1829	1.7E-03	5.8E+03	17	0.0120	1.8E-06	0	0.294	0.303	357	0.294	5437	3703	1753	5437	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.15	1829	1.7E-03	5.8E+03	17	0.0117	1.8E-06	0	0.294	0.303	358	0.294	5432	3700	1754	5432	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.20	1829	1.7E-03	5.8E+03	17	0.0115	1.7E-06	0	0.294	0.304	359	0.294	5427	3696	1755	5427	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.25	1829	1.7E-03	5.8E+03	17	0.0113	1.7E-06	0	0.294	0.304	360	0.294	5423	3693	1756	5423	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.30	1829	1.7E-03	5.8E+03	17	0.0111	1.7E-06	0	0.294	0.304	361	0.294	5418	3690	1757	5418	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.35	1829	1.7E-03	5.8E+03	17	0.0108	1.6E-06	0	0.294	0.304	362	0.294	5414	3687	1758	5414	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.40	1829	1.7E-03	5.8E+03	17	0.0106	1.6E-06	0	0.295	0.304	363	0.295	5409	3684	1759	5409	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.45	1829	1.7E-03	5.8E+03	17	0.0104	1.6E-06	0	0.295	0.304	364	0.295	5405	3681	1760	5405	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.50	1829	1.7E-03	5.8E+03	17	0.0101	1.5E-06	0	0.295	0.305	365	0.295	5400	3677	1761	5400	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.55	1514	1.7E-03	4.0E+03	17	0.0099	2.2E-06	0	0.295	0.305	366	0.295	5396	3674	1762	5396	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.60	1514	1.7E-03	4.0E+03	17	0.0097	2.1E-06	0	0.295	0.305	367	0.295	5391	3671	1763	5391	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.65	1514	1.7E-03	4.0E+03	17	0.0094	2.1E-06	0	0.295	0.305	368	0.295	5387	3668	1764	5387	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.70	1514	1.7E-03	4.0E+03	17	0.0092	2.1E-06	0	0.295	0.305	369	0.295	5382	3665	1765	5382	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.75	1514	1.7E-03	4.0E+03	17	0.0090	2.0E-06	0	0.296	0.305	370	0.296	5378	3662	1766	5378	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.80	1514	1.7E-03	4.0E+03	17	0.0088	2.0E-06	0	0.296	0.306	371	0.296	5373	3659	1767	5373	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.85	1514	1.7E-03	4.0E+03	17	0.0085	1.9E-06	0	0.296	0.306	372	0.296	5369	3656	1768	5369	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.90	1514	1.7E-03	4.0E+03	17	0.0083	1.9E-06	0	0.296	0.306	373	0.296	5365	3653	1769	5365	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.95	1514	1.7E-03	4.0E+03	17	0.0081	1.8E-06	0	0.296	0.306	374	0.296	5360	3650	1770	5360	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.00	1514	1.7E-03	4.0E+03	17	0.0078	1.8E-06	0	0.296	0.306	375	0.296	5356	3647	1771	5356	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.05	1514	1.7E-03	4.0E+03	17	0.0076	1.7E-06	0	0.296	0.306	376	0.296	5351	3644	1772	5351	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.10	1514	1.7E-03	4.0E+03	17	0.0074	1.7E-06	0	0.296	0.307	377	0.296	5347	3641	1773	5347	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.15	1514	1.7E-03	4.0E+03	17	0.0071	1.6E-06	0	0.297	0.307	378	0.297	5343	3638	1774	5343	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.20	1514	1.7E-03	4.0E+03	17	0.0069	1.6E-06	0	0.297	0.307	379	0.297	5338	3635	1775	5338	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.25	1514	1.7E-03	4.0E+03	17	0.0067	1.5E-06	0	0.297	0.307	380	0.297	5334	3632	1776	5334	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.30	1514	1.7E-03	4.0E+03	16	0.0065	1.5E-06	0	0.297	0.307	381	0.297	5330	3629	1777	5330	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.35	1514	1.7E-03	4.0E+03	16	0.0062	1.4E-06	0	0.297	0.307	382	0.297	5325	3626	1778	5325	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.40	1514	1.7E-03	4.0E+03	16	0.0060	1.4E-06	0	0.297	0.307	383	0.297	5321	3623	1779	5321	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.45	1514	1.7E-03	4.0E+03	16	0.0058	1.3E-06	0	0.297	0.308	384	0.297	5317	3620	1780	5317	0.000%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Proposed Repository	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer	Total Stress at Midpoint of Layer	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint of Layer
Erosion Protection	6994.6	6993.9	6993.1	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6993.1	6991.6	6990.1	3.0	0.057	114.7	0.264	0.178	0.00	0.00	0.264	0.178
Mine Spoils	6990.1	6981.9	6973.6	16.5	0.058	116.4	1.224	0.744	0.00	0.00	1.224	0.744

6973.60	Ground Surface Elevation at time of CPT (ft amsl)
6994.60	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

1.22	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6929.06	Elevation of bottom of tailings (ft amsl)

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-11

Data File: 13-52118_RP11-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS — Cells Requiring User Input/Manipulation
http://projects.mwhglobal.com/.../13-52118_RP11-BSC-CPT.XLS

Legend		Legend	
	Erosion Protection		Coarse Tailings
	Cover Soil		Coarse/Fine Tailings
	Mine Spoils		Fine Tailings
	Radon Barrier		Coarse Alluvium
	General Fill		Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Description
6887.43	Water surface elevation during CPT investigation (ft amsl)
6887.43	Water surface elevation at t_0 (ft amsl)
6887.43	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

2013 CPT Data from ConeTec									CPT Data Interpretations										Conditions at t_1		
Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil Pore Pressure at time of CPT, (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6977.27	6.5	0.212	6.4	2.1	0.91	3.29%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	642	3.29%	1.9	59%	0.27	0.000	0.27
0.328	6977.10	29.7	0.150	29.7	3.2	1.40	0.50%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1480	0.51%	1.0	59%	0.28	0.000	0.28
0.492	6976.94	35.1	0.256	35.1	3.3	1.42	0.73%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1165	0.73%	1.2	59%	0.29	0.000	0.29
0.656	6976.77	33.5	0.409	33.5	3.6	1.55	1.22%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	833	1.22%	1.4	59%	0.30	0.000	0.30
0.820	6976.61	25.8	0.463	25.8	5.9	2.56	1.80%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	513	1.80%	1.7	59%	0.31	0.000	0.31
0.984	6976.45	26.6	0.869	26.6	5.8	2.50	3.26%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	441	3.27%	1.9	59%	0.32	0.000	0.32
1.148	6976.28	30.7	1.085	30.7	6.5	2.83	3.53%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	436	3.54%	2.0	59%	0.33	0.000	0.33
1.312	6976.12	41.4	1.070	41.4	4.0	1.75	2.58%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	515	2.59%	1.8	59%	0.34	0.000	0.34
1.476	6975.95	56.7	1.208	56.7	2.3	0.98	2.13%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	628	2.13%	1.7	59%	0.35	0.000	0.35
1.640	6975.79	84.8	1.832	84.8	2.7	1.16	2.16%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	844	2.16%	1.6	59%	0.36	0.000	0.36
1.804	6975.63	103.7	2.230	103.6	3.7	1.59	2.15%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	938	2.15%	1.6	59%	0.37	0.000	0.37
1.968	6975.46	128.1	3.024	128.1	4.4	1.89	2.36%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1063	2.36%	1.7	59%	0.38	0.000	0.38
2.133	6975.30	163.8	4.014	163.8	4.6	1.99	2.45%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1262	2.45%	1.7	48%	0.39	0.000	0.39
2.297	6975.13	183.5	4.842	183.5	4.1	1.77	2.64%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1319	2.64%	1.7	48%	0.40	0.000	0.40
2.461	6974.97	174.0	5.348	174.0	3.0	1.28	3.07%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1172	3.08%	1.8	48%	0.41	0.000	0.41
2.625	6974.81	163.0	4.389	163.0	1.8	0.79	2.69%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1032	2.70%	1.7	48%	0.42	0.000	0.42
2.789	6974.64	171.9	3.486	171.8	2.5	1.08	2.03%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1028	2.03%	1.6	48%	0.43	0.000	0.43
2.953	6974.48	198.9	4.100	198.9	3.4	1.49	2.06%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1127	2.06%	1.6	48%	0.44	0.000	0.44
3.117	6974.31	196.5	4.240	196.4	4.3	1.87	2.16%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1057	2.16%	1.6	48%	0.45	0.000	0.45
3.281	6974.15	180.5	5.026	180.5	5.1	2.20	2.78%	General Fill	0.057	113.8	0.20	0.000	0.20	0	925	2.79%	1.7	48%	0.46	0.000	0.46
3.445	6973.99	187.8	5.784	187.7	7.9	3.44	3.08%	General Fill	0.057	113.8	0.20	0.000	0.20	0	918	3.08%	1.8	48%	0.47	0.000	0.47
3.609	6973.82	192.6	6.317	192.6	6.3	2.73	3.28%	General Fill	0.057	113.8	0.21	0.000	0.21	0	900	3.28%	1.8	48%	0.48	0.000	0.48
3.773	6973.66	175.9	6.887	175.9	6.1	2.64	3.91%	General Fill	0.057	113.8	0.22	0.000	0.22	0	788	3.92%	1.9	48%	0.49	0.000	0.49
3.937	6973.49	158.4	7.100	158.4	6.5	2.83	4.48%	General Fill	0.057	113.8	0.23	0.000	0.23	0	681	4.49%	2.0	48%	0.50	0.000	0.50
4.101	6973.33	136.0	5.102	136.0	3.7	1.59	3.75%	General Fill	0.057	113.8	0.24	0.000	0.24	0	562	3.76%	1.9	48%	0.51	0.000	0.51
4.265	6973.16	162.5	3.670	162.5	3.3	1.42	2.26%	General Fill	0.057	113.8	0.25	0.000	0.25	0	646	2.26%	1.7	48%	0.52	0.000	0.52
4.429	6973.00	197.6	3.387	197.6	5.2	2.26	1.71%	General Fill	0.057	113.8	0.26	0.000	0.26	0	758	1.72%	1.6	48%	0.52	0.000	0.52
4.593	6972.84	159.1	3.789	159.1	5.5	2.40	2.38%	General Fill	0.057	113.8	0.27	0.000	0.27	0	589	2.39%	1.7	48%	0.53	0.000	0.53
4.757	6972.67	157.2	4.277	157.2	5.2	2.24	2.72%	General Fill	0.057	113.8	0.28	0.000	0.28	0	562	2.73%	1.8	48%	0.54	0.000	0.54
4.921	6972.51	161.7	3.962	161.6	4.7	2.03	2.45%	General Fill	0.057	113.8	0.29	0.000	0.29	0	560	2.46%	1.8	48%	0.55	0.000	0.55
5.085	6972.34	146.0	4.376	146.0	3.5	1.50	3.00%	General Fill	0.057	113.8	0.30	0.000	0.30	0	490	3.00%	1.9	48%	0.56	0.000	0.56
5.249	6972.18	130.3	4.272	130.3	1.5	0.63	3.28%	General Fill	0.057	113.8	0.31	0.000	0.31	0	424	3.29%	1.9	48%	0.57	0.000	0.57
5.413	6972.02	113.9	3.835	113.9	1.1	0.49	3.37%	General Fill	0.057	113.8	0.32	0.000	0.32	0	359	3.38%	2.0	48%	0.58	0.000	0.58
5.577	6971.85	109.6	3.261	109.6	1.2	0.51	2.98%	General Fill	0.057	113.8	0.33	0.000	0.33	0	335	2.99%	1.9	48%	0.59	0.000	0.59
5.741	6971.69	102.2	2.794	102.2	0.2	0.10	2.73%	General Fill	0.057	113.8	0.34	0.000	0.34	0	304	2.74%	1.9	48%	0.60	0.000	0.60
5.905	6971.52	90.4	2.521	90.4	0.1	0.04	2.79%	General Fill	0.057	113.8	0.34	0.000	0.34	0	261	2.80%	2.0	48%	0.61	0.000	0.61
6.069	6971.36	84.6	3.166	84.6	0.2	0.08	3.74%	General Fill	0.057	113.8	0.35	0.000	0.35	0	238	3.76%	2.1	48%	0.62	0.000	0.62
6.234	6971.20	79.1	3.569	79.1	0.1	0.06	4.51%	General Fill	0.057	113.8	0.36	0.000	0.36	0	217	4.53%	2.2	48%	0.63	0.000	0.63
6.398	6971.03	84.5	3.568	84.5	0.3	0.12	4.22%	General Fill	0.057	113.8	0.37	0.000	0.37	0	226	4.24%	2.2	48%	0.64	0.000	0.64
6.562	6970.87	86.3	2.929	86.3	0.6	0.24	3.39%	General Fill	0.057	113.8	0.38	0.000	0.38	0	225	3.41%	2.1	48%	0.65	0.000	0.65
6.726	6970.70	85.5	2.271	85.5	0.2	0.08	2.65%	General Fill	0.057	113.8	0.39	0.000	0.39	0	218	2.67%	2.0	48%	0.66	0.000	0.66
6.890	6970.54	72.2	2.136	72.2	0.2	0.10	2.96%	General Fill	0.057	113.8	0.40	0.000	0.40	0	179	2.97%	2.1	48%	0.66	0.000	0.66
7.054	6970.38	61.6	1.956	61.6	-0.1	-0.06	3.18%	General Fill	0.057	113.8	0.41	0.000	0.41	0	149	3.20%	2.2	48%	0.67	0.000	0.67
7.218	6970.21	51.9	1.726	52.0	-0.4	-0.16	3.32%	General Fill	0.057	113.8	0.42	0.000	0.42	0	123	3.35%	2.2	48%	0.68	0.000	0.68
7.382	6970.05	52.9	1.618	52.9	-0.3	-0.14	3.06%	General Fill	0.057	113.8	0.43	0.000	0.43	0	122	3.08%	2.2	48%	0.69	0.000	0.69
7.546	6969.88	61.3	1.441	61.3	0.4	0.18	2.35%	General Fill	0.057	113.8	0.44	0.000	0.44	0	139	2.37%	2.1	48%	0.70	0.000	0.70
7.710	6969.72	73.4	1.832	73.4	0.1	0.04	2.50%	General Fill	0.057	113.8	0.45	0.000	0.45	0	163	2.51%	2.1	48%	0.71	0.000	0.71
7.874	6969.56	83.7	2.162	83.7	0.3	0.14	2.58%	General Fill	0.057	113.8	0.46	0.000	0.46	0	182	2.60%	2.0	48%	0.72	0.000	0.72
8.038	6969.39	69.9	2.409	69.9	0.0	0.00	3.45%	General Fill	0.057	113.8	0.47	0.000	0.47	0	149	3.47%	2.2	48%	0.73	0.000	0.73
8.202	6969.23	54.0	2.303	54.0	0.7	0.29	4.27%	General Fill	0.057	113.8	0.48	0.000	0.48	0	113	4.30%	2.3	48%	0.74	0.000	0.74
8.366	6969.06	45.6	2.005	45.6	0.5	0.23	4.39%	General Fill	0.057	113.8	0.48	0.000	0.48	0	93	4.44%	2.4	48%	0.75	0.000	0.75
8.530	6968.90	40.8	1.495	40.8	-0.2	-0.08	3.67%	General Fill	0.057	113.8	0.49	0.000	0.49	0	82	3.71%	2.4	48%	0.76	0.000	0.76
8.694	6968.74	37.5	1.102	37.5	-0.1	-0.04	2.94%	General Fill	0.057	113.8	0.50	0.000	0.50	0	74	2.98%	2.3	48%	0.77	0.000	0.77
8.858	6968.57	39.9	1.002	39.9	-0.1	-0.02	2.51%	General Fill	0.057	113.8	0.51	0.000	0.51	0	77	2.54%	2.3	48%	0.78	0.000	0.78
9.022	6968.41	39.5	0.994	39.5	-0.2	-0.08	2.52%	General Fill	0.057	113.8	0.52	0.000	0.52	0	75	2.55%	2.3	48%	0.79	0.000	0.79
9.186	6968.24	40.3	1.022	40.3	-0.2	-0.08	2.54%	General Fill	0.057	113.8	0.53	0.000	0.53	0	75	2.57%	2.3	48%	0.80	0.000	0.80
9.350	6968.08	44.3	1.319	44.3	-0.2	-0.08	2.98%	General Fill	0.057	113.8	0.54	0.000	0.54	0	81	3.01%	2.3	48%	0.80	0.000	0.80
9.514	6967.92	53.5	1.414	53.5	0.2	0.10	2.64%	General Fill	0.057	113.8	0.55	0.000	0.55	0	96	2.67%	2.2	48%	0.81	0.000	0.81
9.678	6967.75	54.8	1.346	54.8	0.2	0.08	2.46%	General Fill	0.057	113.8	0.56	0.000	0.56	0	97	2.48%	2.2	48%	0.82	0.000	0.82
9.842	6967.59	48.8	1.158	48.8	-0.5	-0.23	2.38%	General Fill	0.057	113.8	0.57	0.000	0.57	0	85	2.40%	2.2	48%	0.83	0.000	0.83
10.006	6967.42	44.9	1.071	44.9	-0.3	-0.14	2.39%	General Fill	0.057	113.8	0.58	0.000	0.58	0	77	2.42%	2.3	48%	0.84	0.000	0.84
10.170	6967.26	40.7	0.971	40.7	0.0	0.00	2.38%	General Fill	0.057	113.8	0.59	0.000	0.59	0	68	2.42%	2.3	48%	0.85	0.000	0.85
10.335	6967.10	38.7	0.941	38.8	-0.3	-0.14	2.43%	General Fill	0.057	113.8	0.60	0.000	0.60	0	64	2.47%	2.3	48%	0.86	0.000	0.86
10.499	6966.93	39.2	0.954	39.2	-0.4	-0.16	2.43%	General Fill	0.057	113.8	0.61	0.000	0.61	0	64	2.47%	2.3	48%	0.87	0.000	0.87

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.00%	2.00	0.65	0.030%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.91	866	1.8E-03	1.3E+03	992	0.9954	2.6E-05	12	0.140	0.130	4	0.132	20256	14154	1400	15375	0.00%	2.00	0.65	0.030%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.34	866	1.8E-03	1.4E+03	860	0.9927	3.8E-05	12	0.153	0.144	4	0.146	17235	12005	1400	13051	0.00%	1.18	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.1361

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshhold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
								0	15	30		0	15	30											
1.35	953	1.9E-03	1.7E+03	856	0.9926	3.1E-05	16	0.155	0.145	4	0.402	16973	11820	1400	11125	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.40	953	1.9E-03	1.7E+03	841	0.9922	3.2E-05	16	0.156	0.147	4	0.404	16725	11644	1400	10961	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.45	953	1.9E-03	1.7E+03	828	0.9919	3.3E-05	16	0.157	0.148	5	0.471	16489	11476	1401	10804	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.50	953	1.9E-03	1.7E+03	814	0.9915	3.4E-05	16	0.158	0.149	6	0.539	16264	11316	1402	10655	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.55	953	1.9E-03	1.7E+03	800	0.9912	3.5E-05	16	0.160	0.151	7	0.607	16049	11164	1403	10513	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.60	953	1.9E-03	1.7E+03	787	0.9908	3.6E-05	16	0.161	0.152	8	0.675	15844	11018	1404	10377	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.65	953	1.9E-03	1.7E+03	774	0.9904	3.7E-05	16	0.162	0.153	9	0.743	15647	10879	1405	10247	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.70	953	1.9E-03	1.7E+03	761	0.9900	3.9E-05	16	0.163	0.154	10	0.811	15458	10745	1406	10123	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.75	953	1.9E-03	1.7E+03	749	0.9897	4.0E-05	16	0.164	0.156	11	0.878	15278	10617	1407	10003	0.00%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.80	953	1.9E-03	1.7E+03	736	0.9893	4.1E-05	16	0.165	0.157	12	0.946	15104	10494	1408	9888	0.01%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.85	953	1.9E-03	1.7E+03	724	0.9889	4.2E-05	16	0.166	0.158	13	1.014	14937	10376	1409	9778	0.01%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.90	953	1.9E-03	1.7E+03	712	0.9885	4.3E-05	16	0.167	0.159	14	1.082	14775	10262	1410	9671	0.01%	0.65	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.95	953	1.8E-03	1.6E+03	700	0.9881	4.7E-05	19	0.168	0.160	15	4.117	14631	10159	1411	7826	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.00	953	1.8E-03	1.6E+03	689	0.9876	4.8E-05	19	0.169	0.161	16	4.385	14491	10060	1412	7754	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.05	953	1.8E-03	1.6E+03	677	0.9872	4.9E-05	19	0.170	0.162	17	4.652	14356	9964	1413	7684	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.10	953	1.8E-03	1.6E+03	666	0.9868	5.1E-05	19	0.171	0.163	18	4.919	14225	9872	1414	7616	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.15	953	1.8E-03	1.6E+03	655	0.9864	5.2E-05	19	0.172	0.164	19	5.187	14098	9782	1415	7551	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.20	953	1.8E-03	1.6E+03	644	0.9859	5.3E-05	19	0.173	0.165	20	5.454	13974	9695	1416	7487	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.25	953	1.8E-03	1.6E+03	634	0.9855	5.4E-05	19	0.173	0.166	21	5.721	13855	9610	1417	7425	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.30	953	1.8E-03	1.6E+03	623	0.9850	5.5E-05	19	0.174	0.167	22	5.989	13739	9528	1418	7365	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.35	953	1.8E-03	1.6E+03	613	0.9845	5.6E-05	19	0.175	0.167	23	6.256	13626	9448	1419	7307	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.40	953	1.8E-03	1.6E+03	603	0.9841	5.7E-05	19	0.176	0.168	24	6.523	13516	9371	1420	7250	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.45	953	1.8E-03	1.6E+03	593	0.9836	5.8E-05	19	0.177	0.169	25	6.791	13409	9295	1421	7195	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.50	953	1.8E-03	1.6E+03	583	0.9831	5.9E-05	19	0.177	0.170	26	7.058	13305	9222	1422	7142	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.55	953	1.8E-03	1.6E+03	574	0.9826	6.0E-05	19	0.178	0.171	27	7.325	13204	9150	1423	7090	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.60	953	1.8E-03	1.6E+03	564	0.9821	6.1E-05	19	0.179	0.172	28	7.593	13106	9080	1424	7039	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.65	953	1.8E-03	1.6E+03	555	0.9816	6.3E-05	19	0.180	0.173	29	7.860	13009	9013	1425	6989	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.70	953	1.8E-03	1.6E+03	546	0.9810	6.4E-05	19	0.180	0.173	30	8.127	12916	8946	1426	6941	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.75	953	1.8E-03	1.6E+03	537	0.9805	6.5E-05	19	0.181	0.174	31	8.394	12825	8882	1427	6894	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.80	953	1.8E-03	1.6E+03	528	0.9800	6.6E-05	19	0.182	0.175	32	8.662	12735	8819	1428	6848	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.85	953	1.8E-03	1.6E+03	520	0.9794	6.7E-05	19	0.183	0.176	33	8.929	12648	8757	1429	6803	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.90	953	1.8E-03	1.6E+03	511	0.9789	6.8E-05	19	0.183	0.176	34	9.196	12563	8697	1430	6759	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.95	953	1.8E-03	1.6E+03	503	0.9783	6.9E-05	19	0.184	0.177	35	9.463	12479	8638	1431	6716	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.00	953	1.8E-03	1.6E+03	494	0.9777	7.0E-05	19	0.185	0.178	36	9.731	12398	8581	1432	6675	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.05	953	1.8E-03	1.6E+03	486	0.9771	7.1E-05	19	0.185	0.179	37	9.998	12319	8525	1433	6634	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.10	953	1.8E-03	1.6E+03	478	0.9765	7.2E-05	19	0.186	0.179	38	10.265	12241	8470	1434	6594	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.15	953	1.8E-03	1.6E+03	471	0.9759	7.3E-05	19	0.187	0.180	39	10.532	12165	8416	1435	6555	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.20	953	1.8E-03	1.6E+03	463	0.9753	7.4E-05	19	0.187	0.181	40	10.799	12090	8364	1436	6516	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.25	953	1.8E-03	1.6E+03	455	0.9747	7.5E-05	19	0.188	0.182	41	11.067	12017	8312	1437	6479	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.30	953	1.8E-03	1.6E+03	448	0.9741	7.6E-05	19	0.189	0.182	42	11.334	11946	8262	1438	6442	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.35	953	1.8E-03	1.6E+03	441	0.9734	7.7E-05	19	0.189	0.183	43	11.601	11876	8212	1439	6406	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.40	953	1.8E-03	1.6E+03	434	0.9728	7.9E-05	19	0.190	0.184	44	11.868	11807	8164	1440	6371	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.45	953	1.8E-03	1.6E+03	426	0.9721	8.0E-05	19	0.190	0.184	45	12.135	11740	8117	1441	6336	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.50	953	1.8E-03	1.6E+03	420	0.9714	8.1E-05	19	0.191	0.185	46	12.402	11674	8070	1442	6303	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.55	953	1.8E-03	1.6E+03	413	0.9708	8.2E-05	19	0.192	0.186	47	12.670	11609	8024	1443	6269	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.60	953	1.8E-03	1.6E+03	406	0.9701	8.3E-05	19	0.192	0.186	48	12.937	11545	7980	1444	6237	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.65	953	1.8E-03	1.6E+03	399	0.9693	8.4E-05	19	0.193	0.187	49	13.204	11483	7936	1445	6205	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.70	953	1.8E-03	1.6E+03	393	0.9686	8.5E-05	19	0.193	0.188	50	13.471	11422	7893	1446	6173	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.75	953	1.8E-03	1.6E+03	387	0.9679	8.6E-05	19	0.194	0.188	51	13.738	11362	7850	1447	6143	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.80	953	1.8E-03	1.6E+03	380	0.9672	8.7E-05	19	0.194	0.189	52	14.005	11302	7809	1448	6112	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.85	953	1.8E-03	1.6E+03	374	0.9664	8.8E-05	19	0.195	0.190	53	14.272	11245	7768	1449	6083	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.90	953	1.8E-03	1.6E+03	368	0.9656	8.9E-05	19	0.196	0.190	54	14.539	11188	7728	1450	6054	0.01%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
3.95	953	1.8E-03	1.6E+03	362	0.9649	9.0E-05	19	0.196	0.191	55	14.807	11132	7688	1451	6025	0.02%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.00	953	1.8E-03	1.6E+03	356	0.9641	9.1E-05	19	0.197	0.191	56	15.074	11076	7649	1452	5997	0.02%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.05	953	1.8E-03	1.6E+03	351	0.9633	9.2E-05	19	0.197	0.192	57	15.341	11022	7611	1453	5969	0.02%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.10	953	1.8E-03	1.6E+03	345	0.9625	9.3E-05	19	0.198	0.193	58	15.608	10969	7574	1454	5942	0.02%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.15	953	1.8E-03	1.6E+03	339	0.9616	9.4E-05	19	0.198	0.193	59	15.875	10917	7537	1455	5915	0.02%	1.70	0.75	0.020%	0.000000	0.34	0.079	0.797	0.00%	0.0000
4.20	821	1.8E-03	1.2E+03	334	0.9608	1.3E-04	19	0.199	0.194	60	16.142	10865	7501	1456	5889	0.03%	1.70	0.75	0.020%	0.001212	0.34	0.079	0.797	0.19%	0.0003
4.25	821	1.8E-03	1.2E+03	329	0.9600	1.3E-04	19	0.199	0.194	61	16.409	10815	7465	1457	5863	0.03%	1.70	0.75	0.020%	0.001271	0.34	0.079	0.797	0.20%	0.0003
4.30	821	1.8E-03	1.2E+03	323	0.9591	1.3E-04	19	0.200	0.195	62	16.676	10765	7430	1458	5837	0.03%	1.70	0.75	0.020%	0.001328	0.34	0.079	0.797	0.21%	0.0003
4.35	821	1.8E-03	1.2E+03	318	0.9582	1.3E-04	19	0.200	0.195	63	16.943	10716	7395	1459	5812	0.03%	1.70	0.75	0.020%	0.001385	0.34	0.079	0.797	0.22%	0.0004
4.40	821	1.8E-03	1.2E+03	313	0.9573	1.3E-04	19	0.201	0.196	64	17.211	10667	7361	1460	5788	0.03%	1.70	0.75	0.020%	0.001441	0.34	0.079	0.797	0.23%	0.0004
4.45	821	1.8E-03	1.2E+03	308	0.9564	1.3E-04	19	0.201	0.197	65	17.478	10620	7328	1461	5763	0.03%	1.70	0.75	0.020%	0.001497	0.34	0.079	0.797	0.24%	0.0004
4.50	821	1.8E-03	1.2E+03	303	0.9555	1.4E-04	19	0.202	0.197	66	17.745	10573	7295	1462	5740	0.03%	1.70	0.75	0.020%	0.001552	0.34	0.079	0.797	0.25%	0.0004

10.663	6966.77	44.1	0.988	44.1	-0.5	-0.20	2.24%	General Fill	0.057	113.8	0.62	0.000	0.62	0	71	2.27%	2.3	48%	0.88	0.000	0.88
10.827	6966.60	54.5	1.270	54.5	0.1	0.06	2.33%	General Fill	0.057	113.8	0.62	0.000	0.62	0	86	2.36%	2.2	48%	0.89	0.000	0.89
10.991	6966.44	62.1	1.974	62.1	0.3	0.12	3.18%	General Fill	0.057	113.8	0.63	0.000	0.63	0	97	3.21%	2.3	48%	0.90	0.000	0.90
11.155	6966.28	61.7	2.643	61.7	-0.1	-0.06	4.28%	General Fill	0.057	113.8	0.64	0.000	0.64	0	95	4.33%	2.4	48%	0.91	0.000	0.91
11.319	6966.11	58.6	2.825	58.6	0.3	0.12	4.82%	General Fill	0.057	113.8	0.65	0.000	0.65	0	89	4.87%	2.4	48%	0.92	0.000	0.92
11.483	6965.95	62.0	2.694	62.0	0.5	0.23	4.34%	General Fill	0.057	113.8	0.66	0.000	0.66	0	93	4.39%	2.4	48%	0.93	0.000	0.93
11.647	6965.78	72.6	2.346	72.6	0.2	0.08	3.23%	General Fill	0.057	113.8	0.67	0.000	0.67	0	107	3.26%	2.3	48%	0.94	0.000	0.94
11.811	6965.62	70.7	2.347	70.7	0.1	0.04	3.32%	General Fill	0.057	113.8	0.68	0.000	0.68	0	103	3.35%	2.3	48%	0.94	0.000	0.94
11.975	6965.46	57.0	2.344	57.0	-0.2	-0.10	4.11%	General Fill	0.057	113.8	0.69	0.000	0.69	0	82	4.16%	2.4	48%	0.95	0.000	0.95
12.139	6965.29	46.1	2.132	46.2	-0.4	-0.18	4.62%	General Fill	0.057	113.8	0.70	0.000	0.70	0	65	4.69%	2.5	48%	0.96	0.000	0.96
12.303	6965.13	38.0	1.770	38.0	-0.2	-0.10	4.66%	General Fill	0.057	113.8	0.71	0.000	0.71	0	53	4.75%	2.6	48%	0.97	0.000	0.97
12.467	6964.96	34.0	1.387	34.0	-0.6	-0.24	4.08%	General Fill	0.057	113.8	0.72	0.000	0.72	0	46	4.17%	2.6	48%	0.98	0.000	0.98
12.631	6964.80	33.8	0.990	33.8	-0.5	-0.20	2.93%	General Fill	0.057	113.8	0.73	0.000	0.73	0	45	3.00%	2.5	48%	0.99	0.000	0.99
12.795	6964.63	35.2	0.855	35.3	-0.5	-0.20	2.43%	General Fill	0.057	113.8	0.74	0.000	0.74	0	47	2.48%	2.4	48%	1.00	0.000	1.00
12.959	6964.47	38.4	0.748	38.4	-0.5	-0.23	1.95%	General Fill	0.057	113.8	0.75	0.000	0.75	0	50	1.99%	2.3	48%	1.01	0.000	1.01
13.123	6964.31	38.4	0.813	38.4	-0.4	-0.16	2.12%	General Fill	0.057	113.8	0.76	0.000	0.76	0	50	2.16%	2.4	48%	1.02	0.000	1.02
13.287	6964.14	40.0	0.924	40.0	-0.4	-0.18	2.31%	General Fill	0.057	113.8	0.76	0.000	0.76	0	51	2.36%	2.4	48%	1.03	0.000	1.03
13.451	6963.98	41.2	1.059	41.2	-0.2	-0.10	2.57%	General Fill	0.057	113.8	0.77	0.000	0.77	0	52	2.62%	2.4	48%	1.04	0.000	1.04
13.615	6963.81	42.6	1.130	42.6	-0.4	-0.16	2.65%	General Fill	0.057	113.8	0.78	0.000	0.78	0	53	2.70%	2.4	48%	1.05	0.000	1.05
13.779	6963.65	42.1	1.133	42.1	-0.3	-0.12	2.69%	General Fill	0.057	113.8	0.79	0.000	0.79	0	52	2.74%	2.4	48%	1.06	0.000	1.06
13.943	6963.49	42.6	0.951	42.6	-0.6	-0.26	2.23%	General Fill	0.057	113.8	0.80	0.000	0.80	0	52	2.28%	2.4	48%	1.07	0.000	1.07
14.107	6963.32	46.4	0.948	46.4	-0.1	-0.04	2.04%	General Fill	0.057	113.8	0.81	0.000	0.81	0	56	2.08%	2.3	48%	1.08	0.000	1.08
14.271	6963.16	43.4	0.939	43.4	-0.3	-0.12	2.16%	General Fill	0.057	113.8	0.82	0.000	0.82	0	52	2.20%	2.4	48%	1.08	0.000	1.08
14.436	6962.99	41.3	0.907	41.3	-0.1	-0.06	2.20%	General Fill	0.057	113.8	0.83	0.000	0.83	0	49	2.24%	2.4	48%	1.09	0.000	1.09
14.600	6962.83	46.0	1.104	46.0	0.1	0.02	2.40%	General Fill	0.057	113.8	0.84	0.000	0.84	0	54	2.44%	2.4	48%	1.10	0.000	1.10
14.764	6962.67	68.8	1.832	68.8	0.6	0.24	2.66%	General Fill	0.057	113.8	0.85	0.000	0.85	0	80	2.69%	2.3	48%	1.11	0.000	1.11
14.928	6962.50	139.9	2.813	139.9	2.2	0.96	2.01%	General Fill	0.057	113.8	0.86	0.000	0.86	0	162	2.02%	2.0	48%	1.12	0.000	1.12
15.092	6962.34	251.0	3.685	251.0	3.9	1.67	1.47%	General Fill	0.057	113.8	0.87	0.000	0.87	0	289	1.47%	1.7	48%	1.13	0.000	1.13
15.256	6962.17	335.8	5.525	335.8	4.4	1.89	1.65%	General Fill	0.057	113.8	0.88	0.000	0.88	0	382	1.65%	1.7	48%	1.14	0.000	1.14
15.420	6962.01	348.9	6.990	348.9	3.5	1.50	2.00%	General Fill	0.057	113.8	0.89	0.000	0.89	0	393	2.01%	1.8	48%	1.15	0.000	1.15
15.584	6961.85	335.1	8.254	335.1	2.8	1.20	2.46%	General Fill	0.057	113.8	0.90	0.000	0.90	0	373	2.47%	1.8	48%	1.16	0.000	1.16
15.748	6961.68	313.5	8.912	313.5	2.2	0.94	2.84%	General Fill	0.057	113.8	0.90	0.000	0.90	0	346	2.85%	1.9	48%	1.17	0.000	1.17
15.912	6961.52	283.3	7.971	283.3	1.7	0.73	2.81%	General Fill	0.057	113.8	0.91	0.000	0.91	0	309	2.82%	1.9	48%	1.18	0.000	1.18
16.076	6961.35	244.1	6.188	244.1	2.8	1.22	2.53%	General Fill	0.057	113.8	0.92	0.000	0.92	0	263	2.54%	1.9	48%	1.19	0.000	1.19
16.240	6961.19	239.4	5.322	239.3	3.9	1.69	2.22%	General Fill	0.057	113.8	0.93	0.000	0.93	0	256	2.23%	1.9	48%	1.20	0.000	1.20
16.404	6961.03	272.1	5.977	272.0	3.3	1.44	2.20%	General Fill	0.057	113.8	0.94	0.000	0.94	0	288	2.20%	1.9	48%	1.21	0.000	1.21
16.568	6960.86	206.3	5.625	206.3	3.8	1.63	2.73%	General Fill	0.057	113.8	0.95	0.000	0.95	0	216	2.74%	2.0	48%	1.22	0.000	1.22
16.732	6960.70	129.5	5.206	129.5	5.2	2.26	4.02%	General Fill	0.057	113.8	0.96	0.000	0.96	0	134	4.05%	2.3	48%	1.22	0.000	1.22
16.896	6960.53	109.6	1.599	109.6	7.1	3.07	1.46%	General Fill	0.057	113.8	0.97	0.000	0.97	0	112	1.47%	2.0	48%	1.23	0.000	1.23
17.060	6960.37	71.9	1.296	71.9	2.5	1.10	1.80%	General Fill	0.057	113.8	0.98	0.000	0.98	0	72	1.83%	2.2	48%	1.24	0.000	1.24
17.224	6960.21	59.0	1.102	59.0	1.8	0.77	1.87%	General Fill	0.057	113.8	0.99	0.000	0.99	0	59	1.90%	2.3	48%	1.25	0.000	1.25
17.388	6960.04	64.5	1.458	64.4	2.2	0.96	2.26%	General Fill	0.057	113.8	1.00	0.000	1.00	0	64	2.30%	2.3	48%	1.26	0.000	1.26
17.552	6959.88	88.0	1.984	88.0	4.2	1.81	2.25%	General Fill	0.057	113.8	1.01	0.000	1.01	0	86	2.28%	2.2	48%	1.27	0.000	1.27
17.716	6959.71	100.0	3.078	99.9	8.9	3.87	3.08%	General Fill	0.057	113.8	1.02	0.000	1.02	0	97	3.11%	2.3	48%	1.28	0.000	1.28
17.880	6959.55	106.9	3.615	106.9	7.7	3.35	3.38%	General Fill	0.057	113.8	1.03	0.000	1.03	0	103	3.41%	2.3	48%	1.29	0.000	1.29
18.044	6959.39	107.4	3.421	107.3	9.3	4.05	3.19%	General Fill	0.057	113.8	1.04	0.000	1.04	0	103	3.22%	2.3	48%	1.30	0.000	1.30
18.208	6959.22	109.7	3.159	109.6	11.3	4.90	2.88%	General Fill	0.057	113.8	1.04	0.000	1.04	0	104	2.91%	2.2	48%	1.31	0.000	1.31
18.372	6959.06	96.5	2.430	96.4	8.1	3.50	2.52%	General Fill	0.057	113.8	1.05	0.000	1.05	0	91	2.55%	2.2	48%	1.32	0.000	1.32
18.537	6958.89	72.3	1.823	72.3	4.6	1.97	2.52%	General Fill	0.057	113.8	1.06	0.000	1.06	0	67	2.56%	2.3	48%	1.33	0.000	1.33
18.701	6958.73	49.0	1.056	49.0	2.3	0.98	2.16%	General Fill	0.057	113.8	1.07	0.000	1.07	0	45	2.20%	2.4	48%	1.34	0.000	1.34
18.865	6958.57	40.9	0.614	40.9	1.2	0.51	1.50%	General Fill	0.057	113.8	1.08	0.000	1.08	0	37	1.54%	2.4	48%	1.35	0.000	1.35
19.029	6958.40	30.4	0.597	30.4	0.3	0.12	1.96%	General Fill	0.057	113.8	1.09	0.000	1.09	0	27	2.04%	2.6	48%	1.36	0.000	1.36
19.193	6958.24	27.7	0.626	27.7	-0.3	-0.12	2.26%	General Fill	0.057	113.8	1.10	0.000	1.10	0	24	2.36%	2.6	48%	1.36	0.000	1.36
19.357	6958.07	24.7	0.669	24.7	-0.7	-0.30	2.71%	General Fill	0.057	113.8	1.11	0.000	1.11	0	21	2.84%	2.7	48%	1.37	0.000	1.37
19.521	6957.91	26.7	0.645	26.7	-0.3	-0.12	2.41%	General Fill	0.057	113.8	1.12	0.000	1.12	0	23	2.52%	2.7	48%	1.38	0.000	1.38
19.685	6957.75	21.7	0.567	21.7	-0.5	-0.20	2.61%	General Fill	0.057	113.8	1.13	0.000	1.13	0	18	2.75%	2.8	48%	1.39	0.000	1.39
19.849	6957.58	21.7	0.601	21.7	-0.6	-0.26	2.77%	General Fill	0.057	113.8	1.14	0.000	1.14	0	18	2.92%	2.8	48%	1.40	0.000	1.40
20.013	6957.42	25.1	0.891	25.1	-1.0	-0.43	3.55%	General Fill	0.057	113.8	1.15	0.000	1.15	0	21	3.72%	2.8	48%	1.41	0.000	1.41
20.177	6957.25	38.9	1.167	38.9	-0.3	-0.14	3.00%	General Fill	0.057	113.8	1.16	0.000	1.16	0	33	3.09%	2.6	48%	1.42	0.000	1.42
20.341	6957.09	38.3	1.198	38.3	-0.6	-0.26	3.13%	General Fill	0.057	113.8	1.17	0.000	1.17	0	32	3.23%	2.6	48%	1.43	0.000	1.43
20.505	6956.93	31.6	0.945	31.6	-1.1	-0.49	2.99%	General Fill	0.057	113.8	1.18	0.000	1.18	0	26	3.11%	2.7	48%	1.44	0.000	1.44
20.669	6956.76	29.7	0.711	29.7	-0.7	-0.29	2.39%	General Fill	0.057	113.8	1.18	0.000	1.18	0	24	2.49%	2.6	48%	1.45	0.000	1.45
20.833	6956.60	28.2	0.539	28.2	-0.8	-0.33	1.91%	General Fill	0.057	113.8	1.19	0.000	1.19	0	23	2.00%	2.6	48%	1.46	0.000	1.46
20.997	6956.43	24.4	0.441	24.4	-0.9	-0.41	1.81%	General Fill	0.057	113.8	1.20	0.000	1.20	0	19	1.90%	2.6	48%	1.47	0.000	1.47
21.161	6956.27	23.3	0.371	23.3	-1.0	-0.43	1.60%	General Fill	0.057	113.8	1.21	0.000	1.21	0	18	1.68%	2.6	48%	1.48	0.000	1.48
21.325	6956.10	24.6	0.312	24.6	-1.3	-0.57	1.27%	General Fill	0.057	113.8	1.22	0.000	1.22	0	19	1.34%	2.6	48%	1.49	0.000	1.49
21.489	6955.94	20.9	0.348	20.9	-0.6	-0.26	1.66%	General Fill	0.057	113.8	1.23	0.000	1.23	0	16	1.77%	2.7	48%	1.50	0.000	1.50
21.653	6955.78	18.7	0.388	18.7	-0.2	-0.10	2.08%	General Fill	0.057	113.8	1.24	0.000	1.24	0	14	2.23%	2.8	48%	1.50	0.000	1.50
21.817	6955.61	20.5	0.564	20.5	-0.3	-0.12	2.75%	General Fill	0.057	113.8	1.25	0.000	1.25	0	15	2.93%	2.8	48%	1.51	0.000	1.51
21.981	6955.45	31.5	1.036	31.5	-0.2	-0.10	3.29%	General Fill	0.057	113.8	1.26	0.000	1.26	0	24	3.43%	2.7	48%	1.52	0.000	1.52
22.145	6955.28	59.7	1.551	59.7	0.1	0.02	2.60%	General Fill	0.057	113.8	1.27	0.000	1.27	0	46	2.66%	2.4	48%	1.53	0.000	1.53
22.309	6955.12	68.0	1.307	67.9	2.5	1.10	1.92%	General Fill	0.057	113.8	1.28	0.000	1.28	0	52	1.96%	2.3	48%	1.54	0.000	1.54
22.473	6954.96	74.8	1.320	74.8	1.9	0.81	1.76%	General Fill	0.057	113.8	1.29	0.000	1.29	0	57	1.79%	2.3	48%	1.55	0.000	1.55
22.638	6954.79	95.7	1.688	95.7	1.3	0.57	1.76%	General Fill	0.057	113.8	1.30	0.000	1.30	0	73	1.79%	2.2	48%	1.56	0.000	1.56
22.802	6954.63	101.9	2.104	101.9	1.8	0.77	2.07%	General Fill	0.057	113.8	1.31	0.000	1.31	0	77	2.09%	2.2	48%	1.57	0.000	1.57
22.966	6954.46	113.3	3.005	113.3	2.2	0.96	2.65%	General Fill	0.057	113.8	1.32	0.000	1.32	0	85	2.68%	2.3	48%	1.58	0.000	1.58
23.130	6954.30	137.6	3.634	137.6	3.5	1.50	2.64%	General Fill	0.057	113.8	1.32	0.000	1.32	0	103	2.67%	2.2	48%	1.59	0.000	1.59
23.294	6954.14	144.6	4.151	144.6	4.5	1.93	2.87%	General Fill	0.057	113.8	1.33	0.000	1.33	0	107	2.90%	2.2	48%	1.60	0.000	1.60
23.458	6953.97	138.7	4.271	138.7	5.4	2.32	3.08%	General Fill	0.057	113.8	1.34	0.000	1.34	0	102	3.11%	2.3	48%	1.61	0.000	1.61
23.622	6953.81	127.0	4.370	127.0	4.6	1.99	3.44%	General Fill	0.057	113.8	1.35	0.000	1.35	0	93	3.48%	2.3	48%	1.62	0.000	1.62

4.55	821	1.8E-03	1.2E+03	298	0.9546	1.4E-04	19	0.202	0.198	67	18.012	10527	7263	1463	5716	0.03%	1.70	0.75	0.020%	0.001607	0.34	0.079	0.797	0.26%	0.0004
4.60	821	1.8E-03	1.2E+03	293	0.9536	1.4E-04	19	0.203	0.198	68	18.279	10481	7231	1464	5693	0.03%	1.70	0.75	0.020%	0.001661	0.34	0.079	0.797	0.26%	0.0004
4.65	821	1.8E-03	1.2E+03	289	0.9527	1.4E-04	19	0.203	0.199	69	18.546	10436	7199	1465	5670	0.03%	1.70	0.75	0.020%	0.001715	0.34	0.079	0.797	0.27%	0.0004
4.70	821	1.8E-03	1.2E+03	284	0.9517	1.4E-04	19	0.204	0.199	70	18.813	10392	7168	1466	5647	0.03%	1.70	0.75	0.020%	0.001768	0.34	0.079	0.797	0.28%	0.0005
4.75	821	1.8E-03	1.2E+03	280	0.9507	1.4E-04	19	0.204	0.200	71	19.080	10349	7137	1467	5625	0.03%	1.70	0.75	0.020%	0.001820	0.34	0.079	0.797	0.29%	0.0005
4.80	821	1.8E-03	1.2E+03	275	0.9497	1.4E-04	19	0.205	0.201	72	19.347	10306	7107	1468	5603	0.03%	1.70	0.75	0.020%	0.001873	0.34	0.079	0.797	0.30%	0.0005
4.85	821	1.8E-03	1.2E+03	271	0.9487	1.5E-04	19	0.205	0.201	73	19.614	10264	7077	1469	5582	0.03%	1.70	0.75	0.020%	0.001924	0.34	0.079	0.797	0.31%	0.0005
4.90	821	1.8E-03	1.2E+03	266	0.9476	1.5E-04	19	0.206	0.202	74	19.881	10222	7048	1470	5561	0.03%	1.70	0.75	0.020%	0.001976	0.34	0.079	0.797	0.31%	0.0005
4.95	821	1.8E-03	1.2E+03	262	0.9466	1.5E-04	19	0.206	0.202	75	20.148	10181	7019	1471	5540	0.03%	1.70	0.75	0.020%	0.002027	0.34	0.079	0.797	0.32%	0.0005
5.00	821	1.8E-03	1.2E+03	258	0.9455	1.5E-04	19	0.207	0.203	76	20.415	10140	6991	1472	5519	0.03%	1.70	0.75	0.020%	0.002077	0.34	0.079	0.797	0.33%	0.0005
5.05	821	1.8E-03	1.2E+03	254	0.9444	1.5E-04	19	0.207	0.203	77	20.682	10100	6963	1473	5499	0.03%	1.70	0.75	0.020%	0.002128	0.34	0.079	0.797	0.34%	0.0006
5.10	821	1.8E-03	1.2E+03	250	0.9433	1.5E-04	19	0.208	0.204	78	20.949	10061	6935	1474	5479	0.03%	1.70	0.75	0.020%	0.002177	0.34	0.079	0.797	0.35%	0.0006
5.15	821	1.8E-03	1.2E+03	246	0.9422	1.5E-04	19	0.208	0.204	79	21.216	10022	6907	1475	5459	0.03%	1.70	0.75	0.020%	0.002227	0.34	0.079	0.797	0.35%	0.0006
5.20	821	1.8E-03	1.2E+03	242	0.9411	1.5E-04	19	0.209	0.205	80	21.483	9983	6880	1476	5439	0.03%	1.70	0.75	0.020%	0.002276	0.34	0.079	0.797	0.36%	0.0006
5.25	821	1.8E-03	1.2E+03	238	0.9399	1.6E-04	19	0.209	0.205	81	21.751	9945	6854	1477	5420	0.04%	1.70	0.75	0.020%	0.002325	0.34	0.079	0.797	0.37%	0.0006
5.30	821	1.8E-03	1.2E+03	235	0.9387	1.6E-04	19	0.209	0.206	82	22.018	9908	6828	1478	5401	0.04%	1.70	0.75	0.020%	0.002373	0.34	0.079	0.797	0.38%	0.0006
5.35	821	1.8E-03	1.2E+03	231	0.9376	1.6E-04	19	0.210	0.206	83	22.285	9871	6802	1479	5382	0.04%	1.70	0.75	0.020%	0.002421	0.34	0.079	0.797	0.39%	0.0006
5.40	821	1.8E-03	1.2E+03	227	0.9364	1.6E-04	19	0.210	0.207	84	22.552	9834	6776	1480	5364	0.04%	1.70	0.75	0.020%	0.002469	0.34	0.079	0.797	0.39%	0.0006
5.45	821	1.8E-03	1.2E+03	224	0.9351	1.6E-04	19	0.211	0.207	85	22.819	9798	6751	1481	5345	0.04%	1.70	0.75	0.020%	0.002516	0.34	0.079	0.797	0.40%	0.0007
5.50	821	1.8E-03	1.2E+03	220	0.9339	1.6E-04	19	0.211	0.208	86	23.086	9763	6726	1482	5327	0.04%	1.70	0.75	0.020%	0.002563	0.34	0.079	0.797	0.41%	0.0007
5.55	821	1.8E-03	1.2E+03	217	0.9326	1.6E-04	19	0.212	0.208	87	23.353	9728	6701	1483	5309	0.04%	1.70	0.75	0.020%	0.002609	0.34	0.079	0.797	0.42%	0.0007
5.60	821	1.8E-03	1.2E+03	213	0.9314	1.6E-04	19	0.212	0.209	88	23.620	9693	6677	1484	5292	0.04%	1.70	0.75	0.020%	0.002655	0.34	0.079	0.797	0.42%	0.0007
5.65	821	1.8E-03	1.2E+03	210	0.9301	1.7E-04	19	0.212	0.209	89	23.887	9659	6652	1485	5274	0.04%	1.70	0.75	0.020%	0.002701	0.34	0.079	0.797	0.43%	0.0007
5.70	821	1.8E-03	1.2E+03	207	0.9288	1.7E-04	19	0.213	0.210	90	24.154	9625	6629	1486	5257	0.04%	1.70	0.75	0.020%	0.002746	0.34	0.079	0.797	0.44%	0.0007
5.75	821	1.8E-03	1.2E+03	204	0.9274	1.7E-04	19	0.213	0.210	91	24.421	9591	6605	1487	5240	0.04%	1.70	0.75	0.020%	0.002791	0.34	0.079	0.797	0.44%	0.0007
5.80	838	1.8E-03	1.2E+03	200	0.9261	1.6E-04	19	0.214	0.211	92	24.688	9558	6582	1488	5224	0.04%	1.70	0.75	0.020%	0.002518	0.34	0.079	0.797	0.40%	0.0007
5.85	838	1.8E-03	1.2E+03	197	0.9247	1.6E-04	19	0.214	0.211	93	24.955	9526	6559	1489	5207	0.04%	1.70	0.75	0.020%	0.002560	0.34	0.079	0.797	0.41%	0.0007
5.90	838	1.8E-03	1.2E+03	194	0.9233	1.6E-04	19	0.215	0.211	94	25.222	9493	6536	1490	5191	0.04%	1.70	0.75	0.020%	0.002602	0.34	0.079	0.797	0.41%	0.0007
5.95	838	1.8E-03	1.2E+03	191	0.9219	1.7E-04	19	0.215	0.212	95	25.489	9461	6514	1491	5175	0.04%	1.70	0.75	0.020%	0.002643	0.34	0.079	0.797	0.42%	0.0007
6.00	838	1.8E-03	1.2E+03	188	0.9205	1.7E-04	19	0.215	0.212	96	25.756	9430	6492	1492	5159	0.04%	1.70	0.75	0.020%	0.002684	0.34	0.079	0.797	0.43%	0.0007
6.05	838	1.8E-03	1.2E+03	185	0.9190	1.7E-04	19	0.216	0.213	97	26.023	9399	6470	1493	5143	0.04%	1.70	0.75	0.020%	0.002725	0.34	0.079	0.797	0.43%	0.0007
6.10	838	1.8E-03	1.2E+03	182	0.9176	1.7E-04	19	0.216	0.213	98	26.290	9368	6448	1494	5127	0.04%	1.70	0.75	0.020%	0.002765	0.34	0.079	0.797	0.44%	0.0007
6.15	838	1.8E-03	1.2E+03	180	0.9161	1.7E-04	19	0.217	0.214	99	26.557	9337	6427	1495	5112	0.04%	1.70	0.75	0.020%	0.002805	0.34	0.079	0.797	0.45%	0.0007
6.20	838	1.8E-03	1.2E+03	177	0.9145	1.7E-04	19	0.217	0.214	100	26.824	9307	6406	1496	5096	0.04%	1.70	0.75	0.020%	0.002844	0.34	0.079	0.797	0.45%	0.0007
6.25	838	1.8E-03	1.2E+03	174	0.9130	1.7E-04	19	0.217	0.215	101	27.091	9277	6385	1497	5081	0.04%	1.70	0.75	0.020%	0.002883	0.34	0.079	0.797	0.46%	0.0008
6.30	838	1.8E-03	1.2E+03	171	0.9115	1.7E-04	19	0.218	0.215	102	27.358	9248	6364	1498	5066	0.04%	1.70	0.75	0.020%	0.002922	0.34	0.079	0.797	0.47%	0.0008
6.35	838	1.8E-03	1.2E+03	169	0.9099	1.7E-04	19	0.218	0.216	103	27.625	9219	6344	1499	5052	0.04%	1.70	0.75	0.020%	0.002960	0.34	0.079	0.797	0.47%	0.0008
6.40	838	1.8E-03	1.2E+03	166	0.9083	1.7E-04	19	0.219	0.216	104	27.892	9190	6323	1500	5037	0.04%	1.70	0.75	0.020%	0.002998	0.34	0.079	0.797	0.48%	0.0008
6.45	838	1.8E-03	1.2E+03	164	0.9067	1.8E-04	19	0.219	0.216	105	28.159	9161	6303	1501	5023	0.04%	1.70	0.75	0.020%	0.003035	0.34	0.079	0.797	0.48%	0.0008
6.50	838	1.8E-03	1.2E+03	161	0.9050	1.8E-04	19	0.219	0.217	106	28.426	9133	6283	1502	5008	0.04%	1.70	0.75	0.020%	0.003072	0.34	0.079	0.797	0.49%	0.0008
6.55	838	1.8E-03	1.2E+03	159	0.9034	1.8E-04	19	0.220	0.217	107	28.693	9105	6264	1503	4994	0.04%	1.70	0.75	0.020%	0.003108	0.34	0.079	0.797	0.50%	0.0008
6.60	838	1.8E-03	1.2E+03	156	0.9017	1.8E-04	19	0.220	0.218	108	28.960	9077	6244	1504	4980	0.04%	1.70	0.75	0.020%	0.003145	0.34	0.079	0.797	0.50%	0.0008
6.65	838	1.8E-03	1.2E+03	154	0.9000	1.8E-04	19	0.220	0.218	109	29.227	9050	6225	1505	4966	0.04%	1.70	0.75	0.020%	0.003180	0.34	0.079	0.797	0.51%	0.0008
6.70	838	1.8E-03	1.2E+03	152	0.8982	1.8E-04	19	0.221	0.219	110	29.494	9023	6206	1506	4953	0.04%	1.70	0.75	0.020%	0.003215	0.34	0.079	0.797	0.51%	0.0008
6.75	838	1.8E-03	1.2E+03	149	0.8965	1.8E-04	19	0.221	0.219	111	29.761	8996	6187	1507	4939	0.04%	1.70	0.75	0.020%	0.003250	0.34	0.079	0.797	0.52%	0.0008
6.80	838	1.8E-03	1.2E+03	147	0.8947	1.8E-04	19	0.222	0.219	112	30.028	8969	6169	1508	4926	0.04%	1.70	0.75	0.020%	0.003284	0.34	0.079	0.797	0.52%	0.0009
6.85	838	1.8E-03	1.2E+03	145	0.8929	1.8E-04	19	0.222	0.220	113	30.295	8943	6150	1509	4913	0.04%	1.70	0.75	0.020%	0.003318	0.34	0.079	0.797	0.53%	0.0009
6.90	838	1.8E-03	1.2E+03	143	0.8911	1.8E-04	19	0.222	0.220	114	30.562	8917	6132	1510	4900	0.04%	1.70	0.75	0.020%	0.003351	0.34	0.079	0.797	0.53%	0.0009
6.95	838	1.8E-03	1.2E+03	141	0.8892	1.9E-04	19	0.223	0.221	115	30.828	8891	6114	1511	4887	0.05%	1.70	0.75	0.020%	0.003384	0.34	0.079	0.797	0.54%	0.0009
7.00	838	1.8E-03	1.2E+03	139	0.8873	1.9E-04	19	0.223	0.221	116	31.095	8866	6096	1512	4874	0.05%	1.70	0.75	0.020%	0.003417	0.34	0.079	0.797	0.54%	0.0009
7.05	838	1.8E-03	1.2E+03	136	0.8854	1.9E-04	19	0.223	0.221	117	31.362	8841	6078	1513	4861	0.05%	1.70	0.75	0.020%	0.003449	0.34	0.079	0.797	0.55%	0.0009
7.10	838	1.8E-03	1.2E+03	134	0.8835	1.9E-04	19	0.224	0.222	118	31.629	8815	6061	1514	4848	0.05%	1.70	0.75	0.020%	0.003480	0.34	0.079	0.797	0.55%	0.0009
7.15	838	1.8E-03	1.2E+03	132	0.8815	1.9E-04	19	0.224	0.222	119	31.896	8791	6044	1515	4836	0.05%	1.70	0.75	0.020%	0.003511	0.34	0.079	0.797	0.56%	0.0009
7.20	838	1.8E-03	1.2E+03	130	0.8796	1.9E-04	19	0.224	0.223	120	32.163	8766	6026	1516	4824	0.05%	1.70	0.75	0.020%	0.003541	0.34	0.079	0.797	0.56%	0.0009
7.25	853	1.8E-03	1.3E+03	129	0.8776	1.8E-04	19	0.225	0.223	121	32.430	8742	6009	1517	4811	0.04%	1.70	0.75	0.020%	0.003264	0.34	0.079	0.797	0.52%	0.0009
7.30	853	1.8E-03	1.3E+03	127	0.8755	1.8E-04	19	0.225	0.223	122	32.697	8718	5992	1518	4799	0.04%	1.70	0.75	0.020%	0.003292	0.34	0.079	0.797	0.52%	0.0009
7.35	853	1.8E-03	1.3E+03	125	0.8735	1.9E-04	19	0.225	0.224	123	32.964	8694	5976	1519	4787	0.04%	1.70	0.75	0.020%	0.003319	0.34	0.079	0.797	0.53%	0.0009
7.40	853	1.8E-03	1.3E+03	123	0.8714	1.9E-04	19	0.226	0.224	124	33.231	8670	5959	1520	4775	0.04%	1.70	0.75	0.020%	0.003346	0.34	0.079	0.797	0.53%	0.0009
7.45	853	1.8E-03	1.3E+03	121	0.8693	1.9E-04	19	0.226	0.225	125	33.498	8647	5943	1521	4764	0.04%	1.70	0.75	0.020%	0.003373	0.34	0.079	0.797	0.54%	0.0009
7.50	853	1.8E-03	1.3E+03	119	0.8672	1.9E-04	19	0.226	0.225	126	33.765	8624	5927	1522	4752	0.05%	1.70	0.75	0.020%	0.003398	0.34	0.079	0.797	0.54%	0.0009
7.55	853	1.8E-03	1.3E+03	118	0.8650	1.9E-04	19	0.227	0.225	127	34.032	8601	5910	1523	4740	0.05%	1.70	0.75	0.020%	0.003424	0.34	0.079	0.797	0.55%	0.0009
7.60	853	1.8E-03	1.3E+03	116	0.8628	1.9E-04	19	0.227	0.226	128	34.299	8578	5895	1524	4729	0.05%	1.70	0.75	0.020%	0.003449	0.34	0.079	0.797	0.55%	0.0009
7.65	853	1.8E-03	1.3E+03	114	0.8606	1.9E-04	19	0.228	0.226	129	34.566	8555	5879	1525	4718	0.05%	1.70	0.75	0.020%	0.003473	0.34	0.079	0.797	0.55%	0.0009
7.70	853	1.8E-03	1.3E+03	113	0.8584	1.9E-04	19	0.228	0.227	130	34.833	8533	5863	1526	4707	0.05%	1.70	0.75	0.020%	0.003497	0.34	0.079	0.797	0.56%	0.0009
7.75	853	1.8E-03	1.3E+03	111	0.8561	1.9E-04	19	0.228	0.227	131	35.100	8511	5848	1527	4695	0.05%	1.70	0.75	0.020%	0.003520	0.34	0.079	0.797	0.56%	0.0009
7.80	853	1.8E-03	1.3E+03	109	0.8538	1.9E-04	19	0.229	0.227	132	35.367	8489	5832	1528	4684	0.05%	1.70	0.75	0.020%	0.003543	0.34	0.079	0.797	0.56%	0.0009
7.85	853	1.8E-03	1.3E+03	108	0.8515	1.9E-04	19	0.229	0.228	133	35.634	8467	5817	1529	4673	0.05%	1.70	0.75	0.020%	0.003565	0.34	0.079	0.797	0.57%	0.0009
7.90	853	1.8E-03	1.3E+03	106	0.8491	1.9E-04	19	0.229	0.228	134	35.901	8446	5802	1530	4663	0.05%	1.70	0.75	0.020%	0.003586	0.34	0.079	0.797	0.57%	0.0009
7.95	853	1.8E-03	1.3E+03	105	0.8467	1.9E-04	19	0.229	0.228	135	36.168	8424	5787	1531	4652	0.05%	1.70	0.75	0.020%	0.003607	0.34	0.079	0.797	0.57%	0.0009
8.00	853	1.8E-03	1.3E+03	103	0.8443	2.0E-04	19	0.230	0.229	136	36.434	8403	5772	1532	4641	0.05%	1.70	0.75	0.020%	0.003627	0.34	0.079	0.797	0.58%	0.0009
8.05	853	1.8E-03	1.3E+03	102	0.8419	2.0E-04	19	0.230	0.229	137	36.701	8382	5757	1533	4631	0.05%	1.70	0.75	0.020%	0.003647	0.34	0.079	0.797	0.58%	0.0010
8.10	853	1.8E-03	1.3E+03	100	0.8394	2.0E-04	19	0.230	0.230	138	36.968	8361	5743	1534	4620	0.05%	1.70	0.75	0.020%	0.003666	0.34	0.079	0.797	0.58%	0.0010
8.15	853	1.8E-03	1.3E+03	99	0.8369	2.0E-04	19	0.231	0.230	139	37.235	8341	5728	1535	4610	0.05%	1.70	0.75	0.020%	0.003685	0.34	0.079	0.797	0.59%	0.0010
8.20	853	1.8E-03	1.3E+03	97	0.8344	2.0E-04	19	0.231	0.230	140	37.502	8320	5714	1536	4600	0.05%	1.70	0.75	0.020%	0.003702	0.34	0.079	0.797	0.59%	0.0010
8.25	853	1.8E-03	1.3E+03	96	0.8319	2.0E-04	19	0.231	0.231	141	37.769	8300	5700	1537	4590	0.05%	1.70	0.75	0.020%	0.003720	0.34	0.079	0.797	0.59%	0.0010
8.30	853	1.8E-03	1.3E+03	95	0.8293	2.0E-04	19	0.232	0.231	142	38.036	8280	5686	1538	4580	0.05%	1.70	0.75	0.020%	0.003736	0.34	0.079	0.797	0.60%	0.0010
8.35	853	1.8E-03	1.3E+03	93	0.8267	2.0E-04	19	0.232	0.231	143	38.303	8260	5672	1539	4570	0.05%	1.70	0.75	0.020%	0.003752	0.34	0.079	0.797	0.60%	0.0010
8.40	853	1.8E-03	1.3E+03	92	0.8241	2.0E-04	19	0.232	0.232	144	38.570	8240	5658	1540	4560	0.05%	1.70	0.75	0.020%	0.003768	0.34	0.079	0.797	0.60%	0.0010
8.45	853	1.8E-03	1.3E+03	91	0.8214	2.0E-04	19	0.233	0.232	145	38.837	8220	5644	1541	4550	0.05%	1.70	0.75	0.020%	0.003782	0.34	0.079	0.797	0.60%	0.0010
8.50	853	1.8E-03	1.3E+03	90	0.8187	2.0E-04	19	0.233	0.232	146	39.104	8201	5630	1542	4540	0.05%	1.70	0.75	0.020%	0.003796	0.34	0.079	0.797	0.61%	0.0010

23.786	6953.64	105.8	3.484	105.7	3.6	1.55	3.29%	General Fill	0.057	113.8	1.36	0.000	1.36	0	77	3.34%	2.4	48%	1.63	0.000	1.63
23.950	6953.48	104.9	3.193	104.9	3.9	1.69	3.04%	General Fill	0.057	113.8	1.37	0.000	1.37	0	76	3.08%	2.3	48%	1.64	0.000	1.64
24.114	6953.32	100.0	2.838	99.9	3.3	1.44	2.84%	General Fill	0.057	113.8	1.38	0.000	1.38	0	71	2.88%	2.3	48%	1.64	0.000	1.64
24.278	6953.15	77.9	2.845	77.9	2.2	0.94	3.65%	General Fill	0.057	113.8	1.39	0.000	1.39	0	55	3.72%	2.5	48%	1.65	0.000	1.65
24.442	6952.99	67.3	2.777	67.3	1.8	0.77	4.13%	General Fill	0.057	113.8	1.40	0.000	1.40	0	47	4.21%	2.6	48%	1.66	0.000	1.66
24.606	6952.82	58.9	2.669	58.9	1.9	0.81	4.53%	General Fill	0.057	113.8	1.41	0.000	1.41	0	41	4.64%	2.6	48%	1.67	0.000	1.67
24.770	6952.66	49.3	2.288	49.3	1.7	0.75	4.64%	General Fill	0.057	113.8	1.42	0.000	1.42	0	34	4.78%	2.7	48%	1.68	0.000	1.68
24.934	6952.50	52.0	1.715	52.0	1.9	0.83	3.30%	General Fill	0.057	113.8	1.43	0.000	1.43	0	35	3.39%	2.6	48%	1.69	0.000	1.69
25.098	6952.33	45.4	1.412	45.4	1.6	0.71	3.11%	General Fill	0.057	113.8	1.44	0.000	1.44	0	31	3.21%	2.6	48%	1.70	0.000	1.70
25.262	6952.17	38.8	1.265	38.8	-0.5	-0.20	3.26%	General Fill	0.057	113.8	1.45	0.000	1.45	0	26	3.38%	2.7	48%	1.71	0.000	1.71
25.426	6952.00	37.9	1.312	37.9	-0.5	-0.23	3.47%	General Fill	0.057	113.8	1.46	0.000	1.46	0	25	3.60%	2.7	48%	1.72	0.000	1.72
25.590	6951.84	38.4	1.611	38.4	-0.6	-0.26	4.19%	General Fill	0.057	113.8	1.46	0.000	1.46	0	25	4.36%	2.8	48%	1.73	0.000	1.73
25.754	6951.68	47.0	1.787	47.0	-0.5	-0.23	3.80%	General Fill	0.057	113.8	1.47	0.000	1.47	0	31	3.92%	2.7	48%	1.74	0.000	1.74
25.918	6951.51	49.2	1.819	49.2	-0.6	-0.26	3.70%	General Fill	0.057	113.8	1.48	0.000	1.48	0	32	3.81%	2.7	48%	1.75	0.000	1.75
26.082	6951.35	50.7	1.690	50.7	-0.5	-0.23	3.33%	General Fill	0.057	113.8	1.49	0.000	1.49	0	33	3.43%	2.6	48%	1.76	0.000	1.76
26.246	6951.18	53.8	1.866	53.8	-0.5	-0.20	3.47%	General Fill	0.057	113.8	1.50	0.000	1.50	0	35	3.57%	2.6	48%	1.77	0.000	1.77
26.410	6951.02	59.2	2.031	59.2	-0.5	-0.23	3.43%	General Fill	0.057	113.8	1.51	0.000	1.51	0	38	3.52%	2.6	48%	1.78	0.000	1.78
26.574	6950.86	60.6	1.994	60.6	-0.1	-0.06	3.29%	General Fill	0.057	113.8	1.52	0.000	1.52	0	39	3.37%	2.6	48%	1.78	0.000	1.78
26.739	6950.69	64.6	2.277	64.6	-0.3	-0.12	3.53%	General Fill	0.057	113.8	1.53	0.000	1.53	0	41	3.61%	2.6	48%	1.79	0.000	1.79
26.903	6950.53	68.4	2.223	68.5	-0.4	-0.16	3.25%	General Fill	0.057	113.8	1.54	0.000	1.54	0	43	3.32%	2.5	48%	1.80	0.000	1.80
27.067	6950.36	64.6	2.093	64.6	0.1	0.04	3.24%	General Fill	0.057	113.8	1.55	0.000	1.55	0	41	3.32%	2.5	48%	1.81	0.000	1.81
27.231	6950.20	67.9	2.017	67.9	-0.1	-0.02	2.97%	General Fill	0.057	113.8	1.56	0.000	1.56	0	43	3.04%	2.5	48%	1.82	0.000	1.82
27.395	6950.04	71.5	1.948	71.5	0.1	0.04	2.72%	General Fill	0.057	113.8	1.57	0.000	1.57	0	45	2.79%	2.5	48%	1.83	0.000	1.83
27.559	6949.87	71.8	2.207	71.8	-0.2	-0.08	3.07%	General Fill	0.057	113.8	1.58	0.000	1.58	0	45	3.14%	2.5	48%	1.84	0.000	1.84
27.723	6949.71	81.8	2.242	81.8	0.3	0.14	2.74%	General Fill	0.057	113.8	1.59	0.000	1.59	0	51	2.79%	2.4	48%	1.85	0.000	1.85
27.887	6949.54	102.4	2.701	102.4	1.2	0.51	2.64%	General Fill	0.057	113.8	1.60	0.000	1.60	0	63	2.68%	2.3	48%	1.86	0.000	1.86
28.051	6949.38	105.0	3.171	105.0	0.8	0.35	3.02%	General Fill	0.057	113.8	1.60	0.000	1.60	0	64	3.07%	2.4	48%	1.87	0.000	1.87
28.215	6949.22	93.3	3.179	93.3	1.5	0.63	3.41%	General Fill	0.057	113.8	1.61	0.000	1.61	0	57	3.47%	2.5	48%	1.88	0.000	1.88
28.379	6949.05	93.5	3.284	93.4	3.7	1.59	3.51%	General Fill	0.057	113.8	1.62	0.000	1.62	0	57	3.58%	2.5	48%	1.89	0.000	1.89
28.543	6948.89	99.1	3.151	99.1	2.4	1.04	3.18%	General Fill	0.057	113.8	1.63	0.000	1.63	0	60	3.23%	2.4	48%	1.90	0.000	1.90
28.707	6948.72	90.4	2.720	90.4	2.6	1.12	3.01%	General Fill	0.057	113.8	1.64	0.000	1.64	0	54	3.06%	2.4	48%	1.91	0.000	1.91
28.871	6948.56	76.4	2.454	76.4	1.6	0.67	3.21%	General Fill	0.057	113.8	1.65	0.000	1.65	0	45	3.28%	2.5	48%	1.92	0.000	1.92
29.035	6948.39	71.0	2.498	70.9	2.7	1.18	3.52%	General Fill	0.057	113.8	1.66	0.000	1.66	0	42	3.60%	2.6	48%	1.92	0.000	1.92
29.199	6948.23	72.3	2.818	72.3	3.4	1.49	3.90%	General Fill	0.057	113.8	1.67	0.000	1.67	0	42	3.99%	2.6	48%	1.93	0.000	1.93
29.363	6948.07	70.5	3.251	70.5	3.1	1.34	4.61%	General Fill	0.057	113.8	1.68	0.000	1.68	0	41	4.72%	2.7	48%	1.94	0.000	1.94
29.527	6947.90	69.6	3.140	69.6	3.3	1.42	4.51%	General Fill	0.057	113.8	1.69	0.000	1.69	0	40	4.62%	2.7	48%	1.95	0.000	1.95
29.691	6947.74	63.5	2.815	63.5	3.0	1.30	4.43%	General Fill	0.057	113.8	1.70	0.000	1.70	0	36	4.55%	2.7	48%	1.96	0.000	1.96
29.855	6947.57	52.6	2.351	52.6	1.7	0.73	4.47%	General Fill	0.057	113.8	1.71	0.000	1.71	0	30	4.62%	2.7	48%	1.97	0.000	1.97
30.019	6947.41	47.7	2.008	47.7	1.2	0.53	4.21%	General Fill	0.057	113.8	1.72	0.000	1.72	0	27	4.37%	2.8	48%	1.98	0.000	1.98
30.183	6947.25	37.1	1.824	37.1	-0.3	-0.12	4.92%	General Fill	0.057	113.8	1.73	0.000	1.73	0	20	5.16%	2.9	48%	1.99	0.000	1.99
30.347	6947.08	42.0	1.881	42.0	-0.2	-0.08	4.48%	General Fill	0.057	113.8	1.74	0.000	1.74	0	23	4.67%	2.8	48%	2.00	0.000	2.00
30.511	6946.92	42.1	1.882	42.1	-0.2	-0.10	4.47%	General Fill	0.057	113.8	1.74	0.000	1.74	0	23	4.66%	2.8	48%	2.01	0.000	2.01
30.675	6946.75	42.4	2.072	42.4	0.1	0.06	4.89%	General Fill	0.057	113.8	1.75	0.000	1.75	0	23	5.10%	2.9	48%	2.02	0.000	2.02
30.840	6946.59	38.2	2.014	38.2	-0.1	-0.04	5.27%	General Fill	0.057	113.8	1.76	0.000	1.76	0	21	5.52%	2.9	48%	2.03	0.000	2.03
31.004	6946.43	31.1	1.839	31.1	-0.4	-0.16	5.91%	General Fill	0.057	113.8	1.77	0.000	1.77	0	17	6.27%	3.0	48%	2.04	0.000	2.04
31.168	6946.26	27.2	1.562	27.2	-0.7	-0.30	5.74%	General Fill	0.057	113.8	1.78	0.000	1.78	0	14	6.14%	3.1	48%	2.05	0.000	2.05
31.332	6946.10	23.8	1.225	23.8	-0.3	-0.14	5.14%	General Fill	0.057	113.8	1.79	0.000	1.79	0	12	5.56%	3.1	48%	2.06	0.000	2.06
31.496	6945.93	19.6	1.043	19.6	0.8	0.33	5.31%	General Fill	0.057	113.8	1.80	0.000	1.80	0	10	5.85%	3.2	48%	2.06	0.000	2.06
31.660	6945.77	20.9	0.989	20.9	1.0	0.43	4.73%	General Fill	0.057	113.8	1.81	0.000	1.81	0	11	5.18%	3.1	48%	2.07	0.000	2.07
31.824	6945.61	22.7	0.955	22.7	1.8	0.77	4.21%	General Fill	0.057	113.8	1.82	0.000	1.82	0	11	4.57%	3.1	48%	2.08	0.000	2.08
31.988	6945.44	34.2	1.725	34.2	2.8	1.20	5.04%	General Fill	0.057	113.8	1.83	0.000	1.83	0	18	5.32%	3.0	48%	2.09	0.000	2.09
32.152	6945.28	167.5	3.581	167.5	7.1	3.09	2.14%	General Fill	0.057	113.8	1.84	0.000	1.84	0	90	2.16%	2.2	48%	2.10	0.000	2.10
32.316	6945.11	321.8	6.023	321.8	6.2	2.70	1.87%	General Fill	0.057	113.8	1.85	0.000	1.85	0	173	1.88%	1.9	48%	2.11	0.000	2.11
32.480	6944.95	380.3	7.789	380.2	9.9	4.29	2.05%	General Fill	0.057	113.8	1.86	0.000	1.86	0	204	2.06%	1.9	48%	2.12	0.000	2.12
32.644	6944.79	371.5	7.460	371.5	11.0	4.78	2.01%	General Fill	0.057	113.8	1.87	0.000	1.87	0	198	2.02%	1.9	48%	2.13	0.000	2.13
32.808	6944.62	321.0	6.963	320.9	9.8	4.25	2.17%	General Fill	0.057	113.8	1.88	0.000	1.88	0	170	2.18%	2.0	48%	2.14	0.000	2.14
32.972	6944.46	254.9	5.341	254.9	7.6	3.28	2.10%	General Fill	0.057	113.8	1.88	0.000	1.88	0	134	2.11%	2.0	48%	2.15	0.000	2.15
33.136	6944.29	162.1	3.841	162.1	7.2	3.13	2.37%	General Fill	0.057	113.8	1.89	0.000	1.89	0	85	2.40%	2.2	48%	2.16	0.000	2.16
33.300	6944.13	118.1	2.119	118.1	5.1	2.22	1.79%	General Fill	0.057	113.8	1.90	0.000	1.90	0	61	1.82%	2.2	48%	2.17	0.000	2.17
33.464	6943.97	95.9	1.236	95.9	2.8	1.20	1.29%	General Fill	0.057	113.8	1.91	0.000	1.91	0	49	1.32%	2.2	48%	2.18	0.000	2.18
33.628	6943.80	88.4	0.623	88.4	2.4	1.04	0.70%	General Fill	0.057	113.8	1.92	0.000	1.92	0	45	0.72%	2.1	48%	2.19	0.000	2.19
33.792	6943.64	88.6	1.921	88.6	2.0	0.85	2.17%	General Fill	0.057	113.8	1.93	0.000	1.93	0	45	2.22%	2.4	48%	2.20	0.000	2.20
33.956	6943.47	51.6	2.126	51.6	0.2	0.08	4.12%	General Fill	0.057	113.8	1.94	0.000	1.94	0	26	4.28%	2.8	48%	2.20	0.000	2.20
34.120	6943.31	55.2	2.273	55.2	1.8	0.79	4.12%	General Fill	0.057	113.8	1.95	0.000	1.95	0	27	4.27%	2.7	48%	2.21	0.000	2.21
34.284	6943.15	65.5	1.245	65.5	2.5	1.10	1.90%	General Fill	0.057	113.8	1.96	0.000	1.96	0	32	1.96%	2.5	48%	2.22	0.000	2.22
34.448	6942.98	74.8	1.921	74.8	2.9	1.26	2.57%	General Fill	0.057	113.8	1.97	0.000	1.97	0	37	2.64%	2.5	48%	2.23	0.000	2.23
34.612	6942.82	71.5	2.842	71.5	3.4	1.46	3.97%	General Fill	0.057	113.8	1.98	0.000	1.98	0	35	4.09%	2.7	48%	2.24	0.000	2.24
34.776	6942.65	84.4	3.493	84.4	4.1	1.79	4.14%	General Fill	0.057	113.8	1.99	0.000	1.99	0	41	4.24%	2.6	48%	2.25	0.000	2.25
34.941	6942.49	101.3	3.063	101.3	4.3	1.85	3.02%	General Fill	0.057	113.8	2.00	0.000	2.00	0	50	3.08%	2.5	48%	2.26	0.000	2.26
35.105	6942.33	76.9	2.935	76.9	4.1	1.77	3.82%	General Fill	0.057	113.8	2.01	0.000	2.01	0	37	3.92%	2.6	48%	2.27	0.000	2.27
35.269	6942.16	70.8	2.707	70.8	2.0	0.85	3.83%	General Fill	0.057	113.8	2.02	0.000	2.02	0	34	3.94%	2.7	48%	2.28	0.000	2.28
35.433	6942.00	58.4	2.667	58.4	1.6	0.71	4.57%	General Fill	0.057	113.8	2.02	0.000	2.02	0	28	4.73%	2.8	48%	2.29	0.000	2.29
35.597	6941.83	59.7	2.886	59.7	1.7	0.75	4.84%	General Fill	0.057	113.8	2.03	0.000	2.03	0	28	5.01%	2.8	48%	2.30	0.000	2.30
35.761	6941.67	63.6	2.755	63.6	1.9	0.81	4.33%	General Fill	0.057	113.8	2.04	0.000	2.04	0	30	4.47%	2.7	48%	2.31	0.000	2.31
35.925	6941.51	70.6	2.388	70.6	2.1	0.91	3.38%	General Fill	0.057	113.8	2.05	0.000	2.05	0	33	3.48%	2.6	48%	2.32	0.000	2.32
36.089	6941.34	65.9	1.886	65.8	1.8	0.77	2.86%	General Fill	0.057	113.8	2.06	0.000	2.06	0	31	2.96%	2.6	48%	2.33	0.000	2.33
36.253	6941.18	62.3	1.502	62.3	1.3	0.57	2.41%	General Fill	0.057	113.8	2.07	0.000	2.07	0	29	2.49%	2.6	48%	2.34	0.000	2.34
36.417	6941.01	60.4	1.486	60.4	0.8	0.35	2.46%	General Fill	0.057	113.8	2.08	0.000	2.08	0	28	2.55%	2.6	48%	2.34	0.000	2.34
36.581	6940.85	59.2	1.748	59.2	0.8	0.36	2.95%	General Fill	0.057	113.8	2.09	0.000	2.09	0	27	3.06%	2.7	48%	2.35	0.000	2.35
36.745	6940.69	54.6	1.994	54.6	0.6	0.26	3.65%	General Fill	0.057	113.8	2.10	0.000	2.10	0	25	3.80%	2.7	48%	2.36	0.000	2.36

8.55	853	1.8E-03	1.3E+03	88	0.8160	2.0E-04	19	0.233	0.233	147	39.371	8181	5617	1543	4530	0.05%	1.70	0.75	0.020%	0.003810	0.34	0.079	0.797	0.61%	0.0010
8.60	853	1.8E-03	1.3E+03	87	0.8132	2.0E-04	19	0.234	0.233	148	39.638	8162	5603	1544	4521	0.05%	1.70	0.75	0.020%	0.003823	0.34	0.079	0.797	0.61%	0.0010
8.65	853	1.8E-03	1.3E+03	86	0.8104	2.0E-04	19	0.234	0.234	149	39.905	8143	5590	1545	4511	0.05%	1.70	0.75	0.020%	0.003835	0.34	0.079	0.797	0.61%	0.0010
8.70	853	1.8E-03	1.3E+03	85	0.8076	2.0E-04	19	0.234	0.234	150	40.172	8124	5577	1546	4502	0.05%	1.70	0.75	0.020%	0.003846	0.34	0.079	0.797	0.61%	0.0010
8.75	853	1.8E-03	1.3E+03	84	0.8048	2.0E-04	19	0.235	0.234	151	40.438	8106	5564	1547	4493	0.05%	1.70	0.75	0.020%	0.003857	0.34	0.079	0.797	0.61%	0.0010
8.80	897	1.8E-03	1.4E+03	82	0.8019	1.8E-04	19	0.235	0.235	152	40.705	8087	5551	1548	4483	0.04%	1.70	0.75	0.020%	0.003008	0.34	0.079	0.797	0.48%	0.0008
8.85	897	1.8E-03	1.4E+03	81	0.7990	1.8E-04	19	0.235	0.235	153	40.972	8069	5538	1549	4474	0.04%	1.70	0.75	0.020%	0.003016	0.34	0.079	0.797	0.48%	0.0008
8.90	897	1.8E-03	1.4E+03	80	0.7961	1.8E-04	19	0.235	0.235	154	41.239	8050	5525	1550	4465	0.04%	1.70	0.75	0.020%	0.003024	0.34	0.079	0.797	0.48%	0.0008
8.95	897	1.8E-03	1.4E+03	79	0.7931	1.8E-04	19	0.236	0.236	155	41.506	8032	5512	1551	4456	0.04%	1.70	0.75	0.020%	0.003031	0.34	0.079	0.797	0.48%	0.0008
9.00	897	1.8E-03	1.4E+03	78	0.7901	1.9E-04	19	0.236	0.236	156	41.773	8014	5500	1552	4447	0.04%	1.70	0.75	0.020%	0.003038	0.34	0.079	0.797	0.48%	0.0008
9.05	897	1.8E-03	1.4E+03	77	0.7871	1.9E-04	19	0.236	0.236	157	42.040	7996	5487	1553	4438	0.04%	1.70	0.75	0.020%	0.003044	0.34	0.079	0.797	0.49%	0.0008
9.10	897	1.8E-03	1.4E+03	76	0.7840	1.9E-04	19	0.237	0.237	158	42.307	7978	5475	1554	4429	0.04%	1.70	0.75	0.020%	0.003050	0.34	0.079	0.797	0.49%	0.0008
9.15	897	1.8E-03	1.4E+03	75	0.7810	1.9E-04	19	0.237	0.237	159	42.574	7961	5462	1555	4420	0.04%	1.70	0.75	0.020%	0.003054	0.34	0.079	0.797	0.49%	0.0008
9.20	897	1.8E-03	1.4E+03	74	0.7778	1.9E-04	19	0.237	0.237	160	42.841	7943	5450	1556	4412	0.04%	1.70	0.75	0.020%	0.003058	0.34	0.079	0.797	0.49%	0.0008
9.25	897	1.8E-03	1.4E+03	73	0.7747	1.9E-04	19	0.238	0.238	161	43.108	7926	5438	1557	4403	0.04%	1.70	0.75	0.020%	0.003062	0.34	0.079	0.797	0.49%	0.0008
9.30	897	1.8E-03	1.4E+03	72	0.7715	1.9E-04	19	0.238	0.238	162	43.375	7909	5426	1558	4395	0.04%	1.70	0.75	0.020%	0.003065	0.34	0.079	0.797	0.49%	0.0008
9.35	897	1.8E-03	1.4E+03	71	0.7683	1.9E-04	19	0.238	0.238	163	43.641	7892	5414	1559	4386	0.04%	1.70	0.75	0.020%	0.003067	0.34	0.079	0.797	0.49%	0.0008
9.40	897	1.8E-03	1.4E+03	70	0.7651	1.9E-04	19	0.238	0.239	164	43.908	7875	5402	1560	4378	0.04%	1.70	0.75	0.020%	0.003069	0.34	0.079	0.797	0.49%	0.0008
9.45	897	1.8E-03	1.4E+03	69	0.7618	1.9E-04	19	0.239	0.239	165	44.175	7858	5391	1561	4369	0.04%	1.70	0.75	0.020%	0.003070	0.34	0.079	0.797	0.49%	0.0008
9.50	897	1.8E-03	1.4E+03	68	0.7585	1.9E-04	19	0.239	0.239	166	44.442	7841	5379	1562	4361	0.04%	1.70	0.75	0.020%	0.003070	0.34	0.079	0.797	0.49%	0.0008
9.55	897	1.8E-03	1.4E+03	68	0.7552	1.9E-04	19	0.239	0.240	167	44.709	7825	5367	1563	4353	0.04%	1.70	0.75	0.020%	0.003070	0.34	0.079	0.797	0.49%	0.0008
9.60	897	1.8E-03	1.4E+03	67	0.7519	1.9E-04	19	0.240	0.240	168	44.976	7808	5356	1564	4345	0.04%	1.70	0.75	0.020%	0.003069	0.34	0.079	0.797	0.49%	0.0008
9.65	897	1.8E-03	1.4E+03	66	0.7485	1.9E-04	19	0.240	0.240	169	45.243	7792	5344	1565	4337	0.04%	1.70	0.75	0.020%	0.003068	0.34	0.079	0.797	0.49%	0.0008
9.70	897	1.8E-03	1.4E+03	65	0.7451	1.9E-04	19	0.240	0.241	170	45.510	7776	5333	1566	4328	0.04%	1.70	0.75	0.020%	0.003066	0.34	0.079	0.797	0.49%	0.0008
9.75	897	1.8E-03	1.4E+03	64	0.7416	1.9E-04	19	0.240	0.241	171	45.777	7760	5322	1567	4320	0.04%	1.70	0.75	0.020%	0.003063	0.34	0.079	0.797	0.49%	0.0008
9.80	897	1.8E-03	1.4E+03	63	0.7382	1.9E-04	19	0.241	0.241	172	46.044	7744	5311	1568	4313	0.04%	1.70	0.75	0.020%	0.003059	0.34	0.079	0.797	0.49%	0.0008
9.85	897	1.8E-03	1.4E+03	63	0.7347	1.9E-04	19	0.241	0.242	173	46.310	7728	5299	1569	4305	0.04%	1.70	0.75	0.020%	0.003055	0.34	0.079	0.797	0.49%	0.0008
9.90	897	1.8E-03	1.4E+03	62	0.7312	1.9E-04	19	0.241	0.242	174	46.577	7712	5288	1570	4297	0.04%	1.70	0.75	0.020%	0.003050	0.34	0.079	0.797	0.49%	0.0008
9.95	897	1.8E-03	1.4E+03	61	0.7276	1.9E-04	19	0.241	0.242	175	46.844	7696	5277	1571	4289	0.04%	1.70	0.75	0.020%	0.003045	0.34	0.079	0.797	0.49%	0.0008
10.00	897	1.8E-03	1.4E+03	60	0.7240	1.9E-04	19	0.242	0.243	176	47.111	7681	5267	1572	4281	0.04%	1.70	0.75	0.020%	0.003039	0.34	0.079	0.797	0.48%	0.0008
10.05	897	1.8E-03	1.4E+03	59	0.7204	1.9E-04	19	0.242	0.243	177	47.378	7665	5256	1573	4274	0.04%	1.70	0.75	0.020%	0.003032	0.34	0.079	0.797	0.48%	0.0008
10.10	897	1.8E-03	1.4E+03	59	0.7168	1.9E-04	19	0.242	0.243	178	47.645	7650	5245	1574	4266	0.04%	1.70	0.75	0.020%	0.003025	0.34	0.079	0.797	0.48%	0.0008
10.15	897	1.8E-03	1.4E+03	58	0.7131	1.9E-04	19	0.243	0.243	179	47.912	7635	5234	1575	4259	0.04%	1.70	0.75	0.020%	0.003017	0.34	0.079	0.797	0.48%	0.0008
10.20	897	1.8E-03	1.4E+03	57	0.7094	1.9E-04	19	0.243	0.244	180	48.179	7620	5224	1576	4251	0.04%	1.70	0.75	0.020%	0.003009	0.34	0.079	0.797	0.48%	0.0008
10.25	897	1.8E-03	1.4E+03	57	0.7057	1.9E-04	19	0.243	0.244	181	48.446	7605	5213	1577	4244	0.04%	1.70	0.75	0.020%	0.002999	0.34	0.079	0.797	0.48%	0.0008
10.30	987	1.8E-03	1.7E+03	56	0.7020	1.6E-04	19	0.243	0.244	182	48.713	7590	5203	1578	4236	0.03%	1.70	0.75	0.020%	0.001659	0.34	0.079	0.797	0.26%	0.0004
10.35	987	1.8E-03	1.7E+03	55	0.6982	1.6E-04	19	0.244	0.245	183	48.979	7575	5193	1579	4229	0.03%	1.70	0.75	0.020%	0.001651	0.34	0.079	0.797	0.26%	0.0004
10.40	987	1.8E-03	1.7E+03	55	0.6944	1.6E-04	19	0.244	0.245	184	49.246	7560	5182	1580	4222	0.03%	1.70	0.75	0.020%	0.001643	0.34	0.079	0.797	0.26%	0.0004
10.45	987	1.8E-03	1.7E+03	54	0.6906	1.5E-04	19	0.244	0.245	185	49.513	7545	5172	1581	4214	0.03%	1.70	0.75	0.020%	0.001634	0.34	0.079	0.797	0.26%	0.0004
10.50	987	1.8E-03	1.7E+03	53	0.6867	1.5E-04	19	0.244	0.246	186	49.780	7531	5162	1582	4207	0.03%	1.70	0.75	0.020%	0.001624	0.34	0.079	0.797	0.26%	0.0004
10.55	987	1.8E-03	1.7E+03	53	0.6828	1.5E-04	19	0.245	0.246	187	50.047	7517	5152	1583	4200	0.03%	1.70	0.75	0.020%	0.001614	0.34	0.079	0.797	0.26%	0.0004
10.60	987	1.8E-03	1.7E+03	52	0.6789	1.5E-04	19	0.245	0.246	188	50.314	7502	5142	1584	4193	0.03%	1.70	0.75	0.020%	0.001603	0.34	0.079	0.797	0.26%	0.0004
10.65	987	1.8E-03	1.7E+03	51	0.6750	1.5E-04	19	0.245	0.247	189	50.581	7488	5132	1585	4186	0.03%	1.70	0.75	0.020%	0.001592	0.34	0.079	0.797	0.25%	0.0004
10.70	987	1.8E-03	1.7E+03	51	0.6710	1.5E-04	19	0.246	0.247	190	50.848	7474	5122	1586	4179	0.03%	1.70	0.75	0.020%	0.001581	0.34	0.079	0.797	0.25%	0.0004
10.75	987	1.8E-03	1.7E+03	50	0.6671	1.5E-04	19	0.246	0.247	191	51.115	7460	5112	1587	4172	0.03%	1.70	0.75	0.020%	0.001568	0.34	0.079	0.797	0.25%	0.0004
10.80	987	1.8E-03	1.7E+03	50	0.6631	1.5E-04	19	0.246	0.247	192	51.381	7446	5102	1588	4165	0.03%	1.70	0.75	0.020%	0.001556	0.34	0.079	0.797	0.25%	0.0004
10.85	987	1.8E-03	1.7E+03	49	0.6590	1.5E-04	19	0.246	0.248	193	51.648	7432	5093	1589	4158	0.03%	1.70	0.75	0.020%	0.001542	0.34	0.079	0.797	0.25%	0.0004
10.90	987	1.8E-03	1.7E+03	49	0.6550	1.5E-04	19	0.247	0.248	194	51.915	7418	5083	1590	4152	0.03%	1.70	0.75	0.020%	0.001528	0.34	0.079	0.797	0.24%	0.0004
10.95	987	1.8E-03	1.7E+03	48	0.6509	1.5E-04	19	0.247	0.248	195	52.182	7404	5073	1591	4145	0.03%	1.70	0.75	0.020%	0.001514	0.34	0.079	0.797	0.24%	0.0004
11.00	987	1.8E-03	1.7E+03	48	0.6468	1.5E-04	19	0.247	0.249	196	52.449	7391	5064	1592	4138	0.03%	1.70	0.75	0.020%	0.001499	0.34	0.079	0.797	0.24%	0.0004
11.05	987	1.8E-03	1.7E+03	47	0.6427	1.5E-04	19	0.247	0.249	197	52.716	7377	5054	1593	4131	0.03%	1.70	0.75	0.020%	0.001484	0.34	0.079	0.797	0.24%	0.0004
11.10	987	1.8E-03	1.7E+03	46	0.6386	1.5E-04	19	0.248	0.249	198	52.983	7364	5045	1594	4125	0.03%	1.70	0.75	0.020%	0.001468	0.34	0.079	0.797	0.23%	0.0004
11.15	987	1.8E-03	1.7E+03	46	0.6344	1.5E-04	19	0.248	0.250	199	53.250	7350	5036	1595	4118	0.03%	1.70	0.75	0.020%	0.001451	0.34	0.079	0.797	0.23%	0.0004
11.20	987	1.8E-03	1.7E+03	45	0.6302	1.5E-04	19	0.248	0.250	200	53.517	7337	5026	1596	4112	0.03%	1.70	0.75	0.020%	0.001434	0.34	0.079	0.797	0.23%	0.0004
11.25	987	1.8E-03	1.7E+03	45	0.6260	1.5E-04	19	0.248	0.250	201	53.783	7324	5017	1597	4105	0.03%	1.70	0.75	0.020%	0.001417	0.34	0.079	0.797	0.23%	0.0004
11.30	987	1.8E-03	1.7E+03	44	0.6218	1.5E-04	19	0.249	0.250	202	54.050	7311	5008	1598	4099	0.03%	1.70	0.75	0.020%	0.001399	0.34	0.079	0.797	0.22%	0.0004
11.35	987	1.8E-03	1.7E+03	44	0.6176	1.5E-04	19	0.249	0.251	203	54.317	7298	4999	1599	4092	0.03%	1.70	0.75	0.020%	0.001380	0.34	0.079	0.797	0.22%	0.0004
11.40	987	1.8E-03	1.7E+03	44	0.6133	1.5E-04	19	0.249	0.251	204	54.584	7285	4990	1600	4086	0.03%	1.70	0.75	0.020%	0.001361	0.34	0.079	0.797	0.22%	0.0004
11.45	987	1.8E-03	1.7E+03	43	0.6090	1.5E-04	19	0.249	0.251	205	54.851	7272	4981	1601	4080	0.03%	1.70	0.75	0.020%	0.001342	0.34	0.079	0.797	0.21%	0.0004
11.50	987	1.8E-03	1.7E+03	43	0.6047	1.5E-04	19	0.250	0.252	206	55.118	7259	4972	1602	4073	0.03%	1.70	0.75	0.020%	0.001322	0.34	0.079	0.797	0.21%	0.0003
11.55	987	1.8E-03	1.7E+03	42	0.6004	1.5E-04	19	0.250	0.252	207	55.385	7246	4963	1603	4067	0.03%	1.70	0.75	0.020%	0.001301	0.34	0.079	0.797	0.21%	0.0003
11.60	987	1.8E-03	1.7E+03	42	0.5961	1.5E-04	19	0.250	0.252	208	55.652	7234	4954	1604	4061	0.03%	1.70	0.75	0.020%	0.001280	0.34	0.079	0.797	0.20%	0.0003
11.65	987	1.8E-03	1.7E+03	41	0.5917	1.5E-04	19	0.250	0.252	209	55.918	7221	4946	1605	4055	0.03%	1.70	0.75	0.020%	0.001258	0.34	0.079	0.797	0.20%	0.0003
11.70	987	1.8E-03	1.7E+03	41	0.5874	1.5E-04	19	0.251	0.253	210	56.185	7209	4937	1606	4049	0.03%	1.70	0.75	0.020%	0.001236	0.34	0.079	0.797	0.20%	0.0003
11.75	987	1.8E-03	1.7E+03	40	0.5830	1.5E-04	19	0.251	0.253	211	56.452	7196	4928	1607	4042	0.03%	1.70	0.75	0.020%	0.001213	0.34	0.079	0.797	0.19%	0.0003
11.80	987	1.8E-03	1.7E+03	40	0.5786	1.5E-04	19	0.251	0.253	212	56.719	7184	4919	1608	4036	0.03%	1.70	0.75	0.020%	0.001190	0.34	0.079	0.797	0.19%	0.0003
11.85	918	1.8E-03	1.5E+03	40	0.5742	1.7E-04	19	0.251	0.254	213	56.986	7172	4911	1609	4030	0.03%	1.70	0.75	0.020%	0.002066	0.34	0.079	0.797	0.33%	0.0005
11.90	918	1.8E-03	1.5E+03	39	0.5698	1.7E-04	19	0.252	0.254	214	57.253	7159	4902	1610	4024	0.03%	1.70	0.75	0.020%	0.002039	0.34	0.079	0.797	0.33%	0.0005
11.95	918	1.8E-03	1.5E+03	39	0.5654	1.7E-04	19	0.252	0.254	215	57.520	7147	4894	1611	4018	0.03%	1.70	0.75	0.020%	0.002011	0.34	0.079	0.797	0.32%	0.0005
12.00	918	1.8E-03	1.5E+03	38	0.5609	1.7E-04	19	0.252	0.254	216	57.787	7135	4885	1612	4013	0.03%	1.70	0.75	0.020%	0.001983	0.34	0.079	0.797	0.32%	0.0005
12.05	918	1.8E-03	1.5E+03	38	0.5565	1.7E-04	19	0.252	0.255	217	58.053	7123	4877	1613	4007	0.03%	1.70	0.75	0.020%	0.001954	0.34	0.079	0.797	0.31%	0.0005
12.10	918	1.8E-03	1.5E+03	38	0.5520	1.7E-04	19	0.252	0.255	218	58.320	7111	4869	1614	4001	0.03%	1.70	0.75	0.020%	0.001925	0.34	0.079	0.797	0.31%	0.0005
12.15	918	1.8E-03	1.5E+03	37	0.5475	1.6E-04	19	0.253	0.255	219	58.587	7099	4861	1615	3995	0.03%	1.70	0.75	0.020%	0.001895	0.34	0.079	0.797	0.30%	0.0005
12.20	918	1.8E-03	1.5E+03	37	0.5430	1.6E-04	19	0.253	0.255	220	58.854	7088	4852	1616	3989	0.03%	1.70	0.75	0.020%	0.001865	0.34	0.079	0.797	0.30%	0.0005
12.25	918	1.8E-03	1.5E+03	37	0.5385	1.6E-04	19	0.253	0.256	221	59.121	7076	4844	1617	3984	0.03%	1.70	0.75	0.020%	0.001834	0.34	0.079	0.797	0.29%	0.0005
12.30	918	1.8E-03	1.5E+03	36	0.5340	1.6E-04	19	0.253	0.256	222	59.388	7064	4836	1618	3978	0.03%	1.70	0.75	0.020%	0.001803	0.34	0.079	0.797	0.29%	0.0005
12.35	918	1.8E-03	1.5E+03	36	0.5295	1.6E-04	19	0.254	0.256	223	59.655	7053	4828	1619	3972	0.03%	1.70	0.75	0.020%	0.001772	0.34	0.079	0.797	0.28%	0.0005
12.40	918	1.8E-03	1.5E+03	36	0.5250	1.6E-04	19	0.254	0.257	224	59.921	7041	4820	1620	3967	0.03%	1.70	0.75	0.020%	0.001739	0.34	0.079	0.797	0.28%	0.0005
12.45	918	1.8E-03	1.5E+03	35	0.5204	1.6E-04	19	0.254	0.257	225	60.188	7030	4812	1621	3961	0.03%	1.70	0.75	0.020%	0.001707	0.34	0.079	0.797	0.27%	0.0004
12.50	918	1.8E-03	1.5E+03	35	0.5159	1.6E-04	19	0.254	0.257	226	60.455	7018	4804	1622	3955	0.03%	1.70	0.75	0.020%	0.001674	0.34	0.079	0.797	0.27%	0.0004

36.909	6940.52	48.6	1.774	48.6	0.6	0.26	3.65%	General Fill	0.057	113.8	2.11	0.000	2.11	0	22	3.82%	2.8	48%	2.37	0.000	2.37
37.073	6940.36	54.7	1.759	54.7	1.1	0.49	3.22%	General Fill	0.057	113.8	2.12	0.000	2.12	0	25	3.35%	2.7	48%	2.38	0.000	2.38
37.237	6940.19	50.4	1.722	50.4	0.5	0.23	3.42%	General Fill	0.057	113.8	2.13	0.000	2.13	0	23	3.57%	2.8	48%	2.39	0.000	2.39
37.401	6940.03	45.6	1.817	45.6	1.0	0.43	3.98%	General Fill	0.057	113.8	2.14	0.000	2.14	0	20	4.18%	2.8	48%	2.40	0.000	2.40
37.565	6939.86	38.9	1.931	38.9	0.5	0.23	4.97%	General Fill	0.057	113.8	2.15	0.000	2.15	0	17	5.26%	3.0	48%	2.41	0.000	2.41
37.729	6939.70	37.5	1.975	37.5	0.6	0.24	5.27%	General Fill	0.057	113.8	2.16	0.000	2.16	0	16	5.59%	3.0	48%	2.42	0.000	2.42
37.893	6939.54	41.1	1.391	41.1	0.8	0.35	3.38%	General Fill	0.057	113.8	2.16	0.000	2.16	0	18	3.57%	2.8	48%	2.43	0.000	2.43
38.057	6939.37	60.9	1.509	60.9	-0.6	-0.24	2.48%	General Fill	0.057	113.8	2.17	0.000	2.17	0	27	2.57%	2.6	48%	2.44	0.000	2.44
38.221	6939.21	82.0	1.841	82.0	0.8	0.33	2.25%	General Fill	0.057	113.8	2.18	0.000	2.18	0	37	2.31%	2.5	48%	2.45	0.000	2.45
38.385	6939.04	55.6	2.193	55.6	0.5	0.23	3.95%	General Fill	0.057	113.8	2.19	0.000	2.19	0	24	4.11%	2.8	48%	2.46	0.000	2.46
38.549	6938.88	56.7	2.214	56.7	2.8	1.20	3.91%	General Fill	0.057	113.8	2.20	0.000	2.20	0	25	4.06%	2.8	48%	2.47	0.000	2.47
38.713	6938.72	47.8	1.786	47.7	2.8	1.22	3.74%	General Fill	0.057	113.8	2.21	0.000	2.21	0	21	3.92%	2.8	48%	2.48	0.000	2.48
38.877	6938.55	39.5	1.625	39.5	4.2	1.81	4.12%	General Fill	0.057	113.8	2.22	0.000	2.22	0	17	4.36%	2.9	48%	2.48	0.000	2.48
39.042	6938.39	36.7	1.507	36.7	3.3	1.44	4.10%	General Fill	0.057	113.8	2.23	0.000	2.23	0	15	4.37%	2.9	48%	2.49	0.000	2.49
39.206	6938.22	37.9	1.421	37.9	3.3	1.42	3.75%	General Fill	0.057	113.8	2.24	0.000	2.24	0	16	3.98%	2.9	48%	2.50	0.000	2.50
39.370	6938.06	36.3	1.375	36.3	2.2	0.96	3.79%	General Fill	0.057	113.8	2.25	0.000	2.25	0	15	4.04%	2.9	48%	2.51	0.000	2.51
39.534	6937.90	38.1	1.361	38.1	2.7	1.16	3.58%	General Fill	0.057	113.8	2.26	0.000	2.26	0	16	3.80%	2.9	48%	2.52	0.000	2.52
39.698	6937.73	45.3	1.490	45.3	2.4	1.02	3.29%	General Fill	0.057	113.8	2.27	0.000	2.27	0	19	3.47%	2.8	48%	2.53	0.000	2.53
39.862	6937.57	46.0	1.458	46.0	2.4	1.04	3.17%	General Fill	0.057	113.8	2.28	0.000	2.28	0	19	3.34%	2.8	48%	2.54	0.000	2.54
40.026	6937.40	37.9	1.662	37.9	2.2	0.96	4.39%	General Fill	0.057	113.8	2.29	0.000	2.29	0	16	4.67%	3.0	48%	2.55	0.000	2.55
40.190	6937.24	34.3	1.625	34.3	2.5	1.08	4.74%	General Fill	0.057	113.8	2.30	0.000	2.30	0	14	5.08%	3.0	48%	2.56	0.000	2.56
40.354	6937.08	36.5	1.530	36.5	2.4	1.04	4.19%	General Fill	0.057	113.8	2.30	0.000	2.30	0	15	4.47%	3.0	48%	2.57	0.000	2.57
40.518	6936.91	38.6	1.514	38.6	3.1	1.36	3.92%	General Fill	0.057	113.8	2.31	0.000	2.31	0	16	4.17%	2.9	48%	2.58	0.000	2.58
40.682	6936.75	40.1	1.406	40.1	2.7	1.16	3.51%	General Fill	0.057	113.8	2.32	0.000	2.32	0	16	3.72%	2.9	48%	2.59	0.000	2.59
40.846	6936.58	45.4	1.394	45.4	2.8	1.22	3.07%	General Fill	0.057	113.8	2.33	0.000	2.33	0	18	3.24%	2.8	48%	2.60	0.000	2.60
41.010	6936.42	43.1	1.454	43.1	2.6	1.12	3.37%	General Fill	0.057	113.8	2.34	0.000	2.34	0	17	3.57%	2.8	48%	2.61	0.000	2.61
41.174	6936.26	36.9	1.481	36.8	2.2	0.94	4.02%	General Fill	0.057	113.8	2.35	0.000	2.35	0	15	4.29%	3.0	48%	2.62	0.000	2.62
41.338	6936.09	30.0	1.456	30.0	2.7	1.16	4.85%	General Fill	0.057	113.8	2.36	0.000	2.36	0	12	5.26%	3.1	48%	2.62	0.000	2.62
41.502	6935.93	24.0	1.284	24.0	3.0	1.28	5.35%	General Fill	0.057	113.8	2.37	0.000	2.37	0	9	5.94%	3.2	48%	2.63	0.000	2.63
41.666	6935.76	24.9	1.103	24.9	3.9	1.71	4.43%	General Fill	0.057	113.8	2.38	0.000	2.38	0	9	4.90%	3.1	48%	2.64	0.000	2.64
41.830	6935.60	30.8	1.070	30.7	5.1	2.20	3.48%	General Fill	0.057	113.8	2.39	0.000	2.39	0	12	3.77%	3.0	48%	2.65	0.000	2.65
41.994	6935.44	40.2	1.115	40.2	4.7	2.03	2.78%	General Fill	0.057	113.8	2.40	0.000	2.40	0	16	2.95%	2.8	48%	2.66	0.000	2.66
42.158	6935.27	27.8	1.095	27.8	3.4	1.46	3.94%	General Fill	0.057	113.8	2.41	0.000	2.41	0	11	4.31%	3.1	48%	2.67	0.000	2.67
42.322	6935.11	23.4	1.016	23.4	3.4	1.46	4.34%	General Fill	0.057	113.8	2.42	0.000	2.42	0	9	4.84%	3.2	48%	2.68	0.000	2.68
42.486	6934.94	17.1	0.778	17.1	2.8	1.22	4.55%	General Fill	0.057	113.8	2.43	0.000	2.43	0	6	5.30%	3.3	48%	2.69	0.000	2.69
42.650	6934.78	7.8	0.469	7.8	2.4	1.02	6.02%	General Fill	0.057	113.8	2.43	0.000	2.43	0	2	8.75%	3.8	48%	2.70	0.000	2.70
42.814	6934.62	7.0	0.165	7.0	3.4	1.49	2.35%	General Fill	0.057	113.8	2.44	0.000	2.44	0	2	3.60%	3.7	48%	2.71	0.000	2.71
42.978	6934.45	6.1	0.088	6.1	4.9	2.14	1.44%	General Fill	0.057	113.8	2.45	0.000	2.45	0	1	2.42%	3.7	48%	2.72	0.000	2.72
43.143	6934.29	6.4	0.064	6.3	6.6	2.87	1.01%	General Fill	0.057	113.8	2.46	0.000	2.46	0	2	1.65%	3.6	48%	2.73	0.000	2.73
43.307	6934.12	6.1	0.056	6.1	9.3	4.05	0.92%	General Fill	0.057	113.8	2.47	0.000	2.47	0	1	1.54%	3.6	48%	2.74	0.000	2.74
43.471	6933.96	6.6	0.054	6.5	12.4	5.37	0.82%	General Fill	0.057	113.8	2.48	0.000	2.48	0	2	1.32%	3.5	48%	2.75	0.000	2.75
43.635	6933.80	6.8	0.062	6.7	15.7	6.79	0.91%	General Fill	0.057	113.8	2.49	0.000	2.49	0	2	1.44%	3.5	48%	2.76	0.000	2.76
43.799	6933.63	7.7	0.068	7.3	52.7	22.82	0.89%	General Fill	0.057	113.8	2.50	0.000	2.50	0	2	1.32%	3.4	48%	2.76	0.000	2.76
43.963	6933.47	8.3	0.087	7.9	59.1	25.60	1.05%	General Fill	0.057	113.8	2.51	0.000	2.51	0	2	1.51%	3.4	48%	2.77	0.000	2.77
44.127	6933.30	9.0	0.095	8.5	68.2	29.55	1.06%	General Fill	0.057	113.8	2.52	0.000	2.52	0	3	1.47%	3.4	48%	2.78	0.000	2.78
44.291	6933.14	8.7	0.099	8.2	81.6	35.34	1.13%	General Fill	0.057	113.8	2.53	0.000	2.53	0	2	1.60%	3.4	48%	2.79	0.000	2.79
44.455	6932.98	8.5	0.095	7.9	92.9	40.27	1.12%	General Fill	0.057	113.8	2.54	0.000	2.54	0	2	1.60%	3.4	48%	2.80	0.000	2.80
44.619	6932.81	9.1	0.098	8.5	103.8	44.96	1.07%	General Fill	0.057	113.8	2.55	0.004	2.54	1	3	1.49%	3.4	48%	2.81	0.004	2.81
44.783	6932.65	9.6	0.106	8.9	115.0	49.82	1.11%	General Fill	0.057	113.8	2.56	0.009	2.55	1	3	1.51%	3.3	48%	2.82	0.009	2.81
44.947	6932.48	10.3	0.140	9.5	125.6	54.44	1.36%	General Fill	0.057	113.8	2.57	0.014	2.55	1	3	1.81%	3.3	48%	2.83	0.014	2.82
45.111	6932.32	10.6	0.141	9.7	140.1	60.72	1.33%	General Fill	0.057	113.8	2.57	0.019	2.56	1	3	1.76%	3.3	48%	2.84	0.019	2.82
45.275	6932.15	11.5	0.162	10.5	161.3	69.89	1.41%	General Fill	0.057	113.8	2.58	0.024	2.56	1	3	1.83%	3.3	48%	2.85	0.024	2.82
45.439	6931.99	11.6	0.215	10.5	179.2	77.64	1.85%	General Fill	0.057	113.8	2.59	0.029	2.56	1	4	2.38%	3.3	48%	2.86	0.029	2.83
45.603	6931.83	11.6	0.223	10.5	165.2	71.58	1.93%	Fine Tailings	0.054	107.6	2.60	0.034	2.57	1	3	2.49%	3.3	83%	2.87	0.034	2.83
45.767	6931.66	11.5	0.211	10.5	170.6	73.94	1.83%	Fine Tailings	0.054	107.6	2.61	0.040	2.57	1	3	2.37%	3.3	83%	2.88	0.040	2.84
45.931	6931.50	11.6	0.226	10.4	186.7	80.92	1.96%	Fine Tailings	0.054	107.6	2.62	0.045	2.58	1	3	2.53%	3.3	83%	2.88	0.045	2.84
46.095	6931.33	11.2	0.204	9.9	195.9	84.90	1.83%	Fine Tailings	0.054	107.6	2.63	0.050	2.58	1	3	2.39%	3.4	83%	2.89	0.050	2.84
46.259	6931.17	11.4	0.160	10.2	189.8	82.26	1.41%	Fine Tailings	0.054	107.6	2.64	0.055	2.58	1	3	1.83%	3.3	83%	2.90	0.055	2.85
46.423	6931.01	12.4	0.164	11.2	207.6	89.96	1.32%	Fine Tailings	0.054	107.6	2.65	0.060	2.59	1	4	1.67%	3.2	83%	2.91	0.060	2.85
46.587	6930.84	13.8	0.292	12.4	222.1	96.25	2.11%	Fine Tailings	0.054	107.6	2.66	0.065	2.59	1	4	2.62%	3.3	83%	2.92	0.065	2.85
46.751	6930.68	18.8	0.393	18.0	122.6	53.14	2.09%	Fine Tailings	0.054	107.6	2.66	0.070	2.59	1	6	2.43%	3.1	83%	2.93	0.070	2.86
46.915	6930.51	15.5	0.317	14.4	183.4	79.49	2.04%	Fine Tailings	0.054	107.6	2.67	0.075	2.60	1	5	2.46%	3.2	83%	2.94	0.075	2.86
47.079	6930.35	15.2	0.169	13.6	259.6	#####	1.11%	Fine Tailings	0.054	107.6	2.68	0.080	2.60	1	5	1.35%	3.1	83%	2.95	0.080	2.87
47.244	6930.19	15.8	0.164	14.2	270.2	#####	1.04%	Fine Tailings	0.054	107.6	2.69	0.086	2.61	1	5	1.25%	3.1	83%	2.95	0.086	2.87
47.408	6930.02	16.8	0.209	15.0	292.3	#####	1.24%	Fine Tailings	0.054	107.6	2.70	0.091	2.61	1	5	1.48%	3.1	83%	2.96	0.091	2.87
47.572	6929.86	18.1	0.233	16.1	312.3	#####	1.29%	Fine Tailings	0.054	107.6	2.71	0.096	2.61	1	6	1.52%	3.0	83%	2.97	0.096	2.88
47.736	6929.69	18.7	0.236	16.6	325.0	#####	1.26%	Fine Tailings	0.054	107.6	2.72	0.101	2.62	1	6	1.48%	3.0	83%	2.98	0.101	2.88
47.900	6929.53	19.5	0.247	17.5	320.4	#####	1.27%	Fine Tailings	0.054	107.6	2.73	0.106	2.62	1	6	1.48%	3.0	83%	2.99	0.106	2.88
48.064	6929.37	18.5	0.268	16.5	316.4	#####	1.45%	Fine Tailings	0.054	107.6	2.73	0.111	2.62	1	6	1.70%	3.1	83%	3.00	0.111	2.89
48.228	6929.20	20.1	0.311	17.9	356.7	#####	1.55%	Fine Tailings	0.054	107.6	2.74	0.116	2.63	1	7	1.79%	3.0	83%	3.01	0.116	2.89
48.392	6929.04	16.8	0.391	15.0	275.0	#####	2.33%	Fine Tailings	0.054	107.6	2.75	0.121	2.63	1	5	2.79%	3.2	83%	3.02	0.121	2.90
48.556	6928.87	15.0	0.412	13.5	249.3	#####	2.75%	Fine Tailings	0.054	107.6	2.76	0.127	2.63	1	5	3.36%	3.3	83%	3.03	0.127	2.90
48.720	6928.71	16.1	0.364	14.4	269.7	#####	2.26%	Fine Tailings	0.054	107.6	2.77	0.132	2.64	1	5	2.73%	3.2	83%	3.03	0.132	2.90
48.884	6928.55	15.5	0.340	14.0	245.2	#####	2.19%	Fine Tailings	0.054	107.6	2.78	0.137	2.64	1	5	2.67%	3.2	83%	3.04	0.137	2.91
49.048	6928.38	14.5	0.364	13.1	235.4	#####	2.50%	Fine Tailings	0.054	107.6	2.79	0.142	2.65	1	4	3.10%	3.3	83%	3.05	0.142	2.91
49.212	6928.22	13.9	0.345	12.6	209.7	90.88	2.49%	Fine Tailings	0.054	107.6	2.80	0.147	2.65	1	4	3.12%	3.3	83%	3.06	0.147	2.91
49.376	6928.05	13.5	0.324	12.2	202.6	87.81	2.40%	Fine Tailings	0.054	107.6	2.81	0.152	2.65	1	4	3.03%	3.3	83%	3.07	0.152	2.92
49.540	6927.89	12.2	0.315	10.9	202.2	87.62	2.59%	Fine Tailings	0.054	107.6	2.81	0.157	2.66	1	4	3.37%	3.4	83%	3.08	0.157	2.92
49.704	6927.73	12.5	0.319	11.2	202.5	87.77	2.56%	Fine Tailings	0.054	107.6	2.82	0.162	2.66	1	4	3.30%	3.4	83%	3.09	0.162	2.92
49.868	6927.56	12.6	0.307	11.3	206.1	89.31	2.44%	Fine Tailings	0.054	107.6	2.83	0.167	2.66	1	4	3.15%	3.4	83%	3.10	0.167	2.93

12.55	918	1.8E-03	1.5E+03	35	0.5114	1.6E-04	19	0.255	0.257	227	60.722	7007	4796	1623	3950	0.03%	1.70	0.75	0.020%	0.001640	0.34	0.079	0.797	0.26%	0.0004
12.60	918	1.8E-03	1.5E+03	34	0.5068	1.6E-04	19	0.255	0.258	228	60.989	6996	4788	1624	3944	0.03%	1.70	0.75	0.020%	0.001606	0.34	0.079	0.797	0.26%	0.0004
12.65	918	1.8E-03	1.5E+03	34	0.5023	1.6E-04	19	0.255	0.258	229	61.256	6985	4780	1625	3939	0.03%	1.70	0.75	0.020%	0.001572	0.34	0.079	0.797	0.25%	0.0004
12.70	918	1.8E-03	1.5E+03	34	0.4977	1.6E-04	19	0.255	0.258	230	61.523	6973	4773	1626	3933	0.03%	1.70	0.75	0.020%	0.001537	0.34	0.079	0.797	0.24%	0.0004
12.75	918	1.8E-03	1.5E+03	33	0.4932	1.6E-04	19	0.256	0.258	231	61.790	6962	4765	1627	3928	0.03%	1.70	0.75	0.020%	0.001501	0.34	0.079	0.797	0.24%	0.0004
12.80	918	1.8E-03	1.5E+03	33	0.4886	1.5E-04	19	0.256	0.259	232	62.056	6951	4757	1628	3923	0.03%	1.70	0.75	0.020%	0.001466	0.34	0.079	0.797	0.23%	0.0004
12.85	918	1.8E-03	1.5E+03	33	0.4841	1.5E-04	19	0.256	0.259	233	62.323	6940	4749	1629	3917	0.03%	1.70	0.75	0.020%	0.001429	0.34	0.079	0.797	0.23%	0.0004
12.90	918	1.8E-03	1.5E+03	33	0.4795	1.5E-04	19	0.256	0.259	234	62.590	6929	4742	1630	3912	0.03%	1.70	0.75	0.020%	0.001392	0.34	0.079	0.797	0.22%	0.0004
12.95	918	1.8E-03	1.5E+03	32	0.4749	1.5E-04	19	0.256	0.259	235	62.857	6919	4734	1631	3907	0.03%	1.70	0.75	0.020%	0.001355	0.34	0.079	0.797	0.22%	0.0004
13.00	918	1.8E-03	1.5E+03	32	0.4704	1.5E-04	19	0.257	0.260	236	63.124	6908	4727	1632	3901	0.03%	1.70	0.75	0.020%	0.001317	0.34	0.079	0.797	0.21%	0.0003
13.05	918	1.8E-03	1.5E+03	32	0.4658	1.5E-04	19	0.257	0.260	237	63.391	6897	4719	1633	3896	0.03%	1.70	0.75	0.020%	0.001279	0.34	0.079	0.797	0.20%	0.0003
13.10	918	1.8E-03	1.5E+03	32	0.4613	1.5E-04	19	0.257	0.260	238	63.658	6886	4712	1634	3891	0.03%	1.70	0.75	0.020%	0.001240	0.34	0.079	0.797	0.20%	0.0003
13.15	918	1.8E-03	1.5E+03	31	0.4567	1.5E-04	19	0.257	0.261	239	63.924	6876	4704	1635	3886	0.03%	1.70	0.75	0.020%	0.001201	0.34	0.079	0.797	0.19%	0.0003
13.20	918	1.8E-03	1.5E+03	31	0.4522	1.5E-04	19	0.258	0.261	240	64.191	6865	4697	1636	3881	0.03%	1.70	0.75	0.020%	0.001161	0.34	0.079	0.797	0.19%	0.0003
13.25	918	1.8E-03	1.5E+03	31	0.4476	1.5E-04	19	0.258	0.261	241	64.458	6855	4690	1637	3876	0.03%	1.70	0.75	0.020%	0.001121	0.34	0.079	0.797	0.18%	0.0003
13.30	918	1.8E-03	1.5E+03	31	0.4431	1.5E-04	19	0.258	0.261	242	64.725	6844	4682	1638	3871	0.03%	1.70	0.75	0.020%	0.001080	0.34	0.079	0.797	0.17%	0.0003
13.35	829	1.8E-03	1.2E+03	30	0.4385	1.8E-04	19	0.258	0.262	243	64.992	6834	4675	1639	3866	0.04%	1.70	0.75	0.020%	0.002306	0.34	0.079	0.797	0.37%	0.0006
13.40	829	1.8E-03	1.2E+03	30	0.4340	1.8E-04	19	0.258	0.262	244	65.259	6823	4668	1640	3860	0.03%	1.70	0.75	0.020%	0.002257	0.34	0.079	0.797	0.36%	0.0006
13.45	829	1.8E-03	1.2E+03	30	0.4295	1.8E-04	19	0.259	0.262	245	65.526	6813	4661	1641	3856	0.03%	1.70	0.75	0.020%	0.002208	0.34	0.079	0.797	0.35%	0.0006
13.50	829	1.8E-03	1.2E+03	30	0.4249	1.7E-04	19	0.259	0.262	246	65.792	6803	4654	1642	3851	0.03%	1.70	0.75	0.020%	0.002159	0.34	0.079	0.797	0.34%	0.0006
13.55	829	1.8E-03	1.2E+03	29	0.4204	1.7E-04	19	0.259	0.263	247	66.059	6793	4647	1643	3846	0.03%	1.70	0.75	0.020%	0.002110	0.34	0.079	0.797	0.34%	0.0006
13.60	829	1.8E-03	1.2E+03	29	0.4159	1.7E-04	19	0.259	0.263	248	66.326	6783	4639	1644	3841	0.03%	1.70	0.75	0.020%	0.002060	0.34	0.079	0.797	0.33%	0.0005
13.65	829	1.8E-03	1.2E+03	29	0.4114	1.7E-04	19	0.260	0.263	249	66.593	6773	4632	1645	3836	0.03%	1.70	0.75	0.020%	0.002010	0.34	0.079	0.797	0.32%	0.0005
13.70	829	1.8E-03	1.2E+03	29	0.4070	1.7E-04	19	0.260	0.263	250	66.860	6763	4625	1646	3831	0.03%	1.70	0.75	0.020%	0.001959	0.34	0.079	0.797	0.31%	0.0005
13.75	829	1.8E-03	1.2E+03	28	0.4025	1.7E-04	19	0.260	0.264	251	67.127	6753	4618	1647	3826	0.03%	1.70	0.75	0.020%	0.001909	0.34	0.079	0.797	0.30%	0.0005
13.80	829	1.8E-03	1.2E+03	28	0.3980	1.7E-04	19	0.260	0.264	252	67.393	6743	4612	1648	3821	0.03%	1.70	0.75	0.020%	0.001858	0.34	0.079	0.797	0.30%	0.0005
13.85	829	1.8E-03	1.2E+03	28	0.3936	1.7E-04	19	0.260	0.264	253	67.660	6733	4605	1649	3817	0.03%	1.70	0.75	0.020%	0.001807	0.34	0.079	0.797	0.29%	0.0005
13.90	829	1.8E-03	1.2E+03	28	0.3891	1.6E-04	19	0.261	0.264	254	67.927	6723	4598	1650	3812	0.03%	1.70	0.75	0.020%	0.001755	0.34	0.079	0.797	0.28%	0.0005
13.95	829	1.8E-03	1.2E+03	28	0.3847	1.6E-04	19	0.261	0.265	255	68.194	6713	4591	1651	3807	0.03%	1.70	0.75	0.020%	0.001703	0.34	0.079	0.797	0.27%	0.0004
14.00	829	1.8E-03	1.2E+03	27	0.3803	1.6E-04	19	0.261	0.265	256	68.461	6703	4584	1652	3802	0.03%	1.70	0.75	0.020%	0.001651	0.34	0.079	0.797	0.26%	0.0004
14.05	829	1.8E-03	1.2E+03	27	0.3759	1.6E-04	19	0.261	0.265	257	68.728	6694	4577	1653	3798	0.03%	1.70	0.75	0.020%	0.001599	0.34	0.079	0.797	0.25%	0.0004
14.10	829	1.8E-03	1.2E+03	27	0.3715	1.6E-04	19	0.261	0.265	258	68.995	6684	4571	1654	3793	0.03%	1.70	0.75	0.020%	0.001546	0.34	0.079	0.797	0.25%	0.0004
14.15	829	1.8E-03	1.2E+03	27	0.3671	1.6E-04	19	0.262	0.266	259	69.261	6674	4564	1655	3788	0.03%	1.70	0.75	0.020%	0.001493	0.34	0.079	0.797	0.24%	0.0004
14.20	829	1.8E-03	1.2E+03	27	0.3628	1.6E-04	19	0.262	0.266	260	69.528	6665	4557	1656	3784	0.03%	1.70	0.75	0.020%	0.001440	0.34	0.079	0.797	0.23%	0.0004
14.25	829	1.8E-03	1.2E+03	27	0.3584	1.5E-04	19	0.262	0.266	261	69.795	6655	4551	1657	3779	0.03%	1.70	0.75	0.020%	0.001386	0.34	0.079	0.797	0.22%	0.0004
14.30	829	1.8E-03	1.2E+03	26	0.3541	1.5E-04	19	0.262	0.266	262	70.062	6646	4544	1658	3775	0.03%	1.70	0.75	0.020%	0.001332	0.34	0.079	0.797	0.21%	0.0003
14.35	829	1.8E-03	1.2E+03	26	0.3498	1.5E-04	19	0.263	0.267	263	70.329	6637	4538	1659	3770	0.03%	1.70	0.75	0.020%	0.001278	0.34	0.079	0.797	0.20%	0.0003
14.40	829	1.8E-03	1.2E+03	26	0.3455	1.5E-04	19	0.263	0.267	264	70.596	6627	4531	1660	3766	0.03%	1.70	0.75	0.020%	0.001223	0.34	0.079	0.797	0.19%	0.0003
14.45	829	1.8E-03	1.2E+03	26	0.3412	1.5E-04	19	0.263	0.267	265	70.862	6618	4525	1661	3761	0.03%	1.70	0.75	0.020%	0.001167	0.34	0.079	0.797	0.19%	0.0003
14.50	829	1.8E-03	1.2E+03	26	0.3370	1.5E-04	19	0.263	0.267	266	71.129	6609	4518	1662	3757	0.03%	1.70	0.75	0.020%	0.001111	0.34	0.079	0.797	0.18%	0.0003
14.55	829	1.8E-03	1.2E+03	26	0.3327	1.5E-04	19	0.263	0.268	267	71.396	6599	4512	1663	3752	0.03%	1.70	0.75	0.020%	0.001055	0.34	0.079	0.797	0.17%	0.0003
14.60	829	1.8E-03	1.2E+03	25	0.3285	1.5E-04	19	0.264	0.268	268	71.663	6590	4505	1664	3748	0.02%	1.70	0.75	0.020%	0.000998	0.34	0.079	0.797	0.16%	0.0003
14.65	829	1.8E-03	1.2E+03	25	0.3243	1.4E-04	19	0.264	0.268	269	71.930	6581	4499	1665	3743	0.02%	1.70	0.75	0.020%	0.000940	0.34	0.079	0.797	0.15%	0.0002
14.70	829	1.8E-03	1.2E+03	25	0.3202	1.4E-04	19	0.264	0.268	270	72.197	6572	4493	1666	3739	0.02%	1.70	0.75	0.020%	0.000882	0.34	0.079	0.797	0.14%	0.0002
14.75	829	1.8E-03	1.2E+03	25	0.3160	1.4E-04	19	0.264	0.268	271	72.464	6563	4486	1667	3735	0.02%	1.70	0.75	0.020%	0.000823	0.34	0.079	0.797	0.13%	0.0002
14.80	829	1.8E-03	1.2E+03	25	0.3119	1.4E-04	19	0.264	0.269	272	72.730	6554	4480	1668	3730	0.02%	1.70	0.75	0.020%	0.000763	0.34	0.079	0.797	0.12%	0.0002
14.85	829	1.8E-03	1.2E+03	25	0.3078	1.4E-04	19	0.265	0.269	273	72.997	6545	4474	1669	3726	0.02%	1.70	0.75	0.020%	0.000701	0.34	0.079	0.797	0.11%	0.0002
14.90	648	1.8E-03	7.4E+02	25	0.3037	2.2E-04	19	0.265	0.269	274	73.264	6540	4470	1670	3723	0.05%	1.70	0.75	0.020%	0.004004	0.34	0.079	0.797	0.64%	0.0010
14.95	648	1.8E-03	7.4E+02	24	0.2996	2.2E-04	19	0.265	0.269	275	73.531	6536	4467	1671	3722	0.05%	1.70	0.75	0.020%	0.003912	0.34	0.079	0.797	0.62%	0.0010
15.00	648	1.8E-03	7.4E+02	24	0.2956	2.2E-04	19	0.265	0.269	276	73.797	6532	4465	1672	3720	0.05%	1.70	0.75	0.020%	0.003819	0.34	0.079	0.797	0.61%	0.0010
15.05	648	1.8E-03	7.4E+02	24	0.2916	2.2E-04	19	0.265	0.269	277	74.064	6528	4462	1673	3718	0.05%	1.70	0.75	0.020%	0.003728	0.34	0.079	0.797	0.59%	0.0010
15.10	648	1.8E-03	7.4E+02	24	0.2876	2.2E-04	19	0.265	0.270	278	74.331	6524	4459	1674	3716	0.05%	1.70	0.75	0.020%	0.003637	0.34	0.079	0.797	0.58%	0.0010
15.15	648	1.8E-03	7.4E+02	24	0.2836	2.1E-04	19	0.265	0.270	279	74.598	6520	4456	1675	3715	0.05%	1.70	0.75	0.020%	0.003546	0.34	0.079	0.797	0.57%	0.0009
15.20	648	1.7E-03	7.0E+02	24	0.2796	2.2E-04	43	0.265	0.270	280	280.000	6516	4454	1676	1676	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.25	648	1.7E-03	7.0E+02	24	0.2757	2.2E-04	43	0.265	0.270	281	281.000	6513	4451	1677	1677	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.30	648	1.7E-03	7.0E+02	23	0.2718	2.2E-04	43	0.265	0.270	282	282.000	6509	4449	1678	1678	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.35	648	1.7E-03	7.0E+02	23	0.2680	2.2E-04	43	0.265	0.270	283	283.000	6506	4446	1679	1679	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.40	648	1.7E-03	7.0E+02	23	0.2641	2.1E-04	43	0.266	0.270	284	284.000	6502	4444	1680	1680	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.45	648	1.7E-03	7.0E+02	23	0.2603	2.1E-04	43	0.266	0.270	285	285.000	6499	4442	1681	1681	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.50	648	1.7E-03	7.0E+02	23	0.2565	2.1E-04	43	0.266	0.270	286	286.000	6495	4439	1682	1682	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.55	648	1.7E-03	7.0E+02	23	0.2527	2.1E-04	43	0.266	0.270	287	287.000	6492	4437	1683	1683	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.60	648	1.7E-03	7.0E+02	23	0.2490	2.0E-04	43	0.266	0.270	288	288.000	6488	4434	1684	1684	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.65	648	1.7E-03	7.0E+02	23	0.2453	2.0E-04	43	0.266	0.271	289	289.000	6485	4432	1685	1685	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.70	648	1.7E-03	7.0E+02	23	0.2416	2.0E-04	43	0.266	0.271	290	290.000	6482	4430	1686	1686	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.75	648	1.7E-03	7.0E+02	22	0.2379	2.0E-04	43	0.266	0.271	291	291.000	6478	4427	1687	1687	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.80	648	1.7E-03	7.0E+02	22	0.2343	1.9E-04	43	0.266	0.271	292	292.000	6475	4425	1688	1688	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.85	648	1.7E-03	7.0E+02	22	0.2307	1.9E-04	43	0.266	0.271	293	293.000	6471	4422	1689	1689	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.90	648	1.7E-03	7.0E+02	22	0.2271	1.9E-04	43	0.266	0.271	294	294.000	6468	4420	1690	1690	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.95	648	1.7E-03	7.0E+02	22	0.2236	1.9E-04	43	0.266	0.271	295	295.000	6464	4418	1691	1691	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.00	648	1.7E-03	7.0E+02	22	0.2201	1.8E-04	43	0.266	0.271	296	296.000	6461	4415	1692	1692	0.03%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.05	648	1.7E-03	7.0E+02	22	0.2166	1.8E-04	43	0.267	0.271	297	297.000	6458	4413	1693	1693	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.10	648	1.7E-03	7.0E+02	22	0.2131	1.8E-04	43	0.267	0.271	298	298.000	6454	4411	1694	1694	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.15	648	1.7E-03	7.0E+02	22	0.2097	1.8E-04	43	0.267	0.271	299	299.000	6451	4408	1695	1695	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.20	648	1.7E-03	7.0E+02	22	0.2063	1.7E-04	43	0.267	0.272	300	300.000	6447	4406	1696	1696	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.25	648	1.7E-03	7.0E+02	21	0.2029	1.7E-04	43	0.267	0.272	301	301.000	6444	4404	1697	1697	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.30	648	1.7E-03	7.0E+02	21	0.1996	1.7E-04	43	0.267	0.272	302	302.000	6441	4401	1698	1698	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.35	648	1.7E-03	7.0E+02	21	0.1963	1.7E-04	43	0.267	0.272	303	303.000	6437	4399	1699	1699	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.40	640	1.7E-03	6.8E+02	21	0.1930	1.7E-04	43	0.267	0.272	304	304.000	6434	4396	1700	1700	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.45	640	1.7E-03	6.8E+02	21	0.1898	1.7E-04	43	0.267	0.272	305	305.000	6431	4394	1701	1701	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.50	640	1.7E-03	6.8E+02	21	0.1865	1.6E-04	43	0.267	0.272	306	306.000	6427	4392	1702	1702	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000

50.032	6927.40	13.1	0.334	11.8	204.5	88.62	2.56%	Fine Tailings	0.054	107.6	2.84	0.173	2.67	1	4	3.27%	3.4	83%	3.10	0.173	2.93
50.196	6927.23	13.9	0.358	12.7	200.5	86.87	2.57%	Fine Tailings	0.054	107.6	2.85	0.178	2.67	1	4	3.23%	3.3	83%	3.11	0.178	2.94
50.360	6927.07	14.2	0.369	12.9	209.8	90.90	2.59%	Fine Tailings	0.054	107.6	2.86	0.183	2.68	1	4	3.24%	3.3	83%	3.12	0.183	2.94
50.524	6926.91	14.3	0.368	13.0	213.5	92.51	2.57%	Fine Tailings	0.054	107.6	2.87	0.188	2.68	1	4	3.21%	3.3	83%	3.13	0.188	2.94
50.688	6926.74	13.6	0.372	12.3	210.7	91.31	2.73%	Fine Tailings	0.054	107.6	2.88	0.193	2.68	1	4	3.46%	3.4	83%	3.14	0.193	2.95
50.852	6926.58	13.5	0.365	12.2	205.0	88.85	2.70%	Fine Tailings	0.054	107.6	2.88	0.198	2.69	1	4	3.43%	3.4	83%	3.15	0.198	2.95
51.016	6926.41	13.8	0.358	12.4	215.9	93.54	2.60%	Fine Tailings	0.054	107.6	2.89	0.203	2.69	1	4	3.29%	3.3	83%	3.16	0.203	2.95
51.180	6926.25	14.1	0.345	12.8	213.5	92.51	2.44%	Fine Tailings	0.054	107.6	2.90	0.208	2.69	1	4	3.07%	3.3	83%	3.17	0.208	2.96
51.345	6926.09	14.1	0.366	12.8	217.8	94.36	2.59%	Fine Tailings	0.054	107.6	2.91	0.214	2.70	1	4	3.27%	3.3	83%	3.18	0.214	2.96
51.509	6925.92	14.3	0.372	12.9	231.0	#####	2.60%	Fine Tailings	0.054	107.6	2.92	0.219	2.70	1	4	3.27%	3.3	83%	3.18	0.219	2.97
51.673	6925.76	14.4	0.384	12.9	229.7	99.52	2.67%	Fine Tailings	0.054	107.6	2.93	0.224	2.71	1	4	3.36%	3.3	83%	3.19	0.224	2.97
51.837	6925.59	14.9	0.395	13.3	246.7	#####	2.66%	Fine Tailings	0.054	107.6	2.94	0.229	2.71	1	4	3.31%	3.3	83%	3.20	0.229	2.97
52.001	6925.43	16.1	0.433	14.6	241.5	#####	2.69%	Fine Tailings	0.054	107.6	2.95	0.234	2.71	1	5	3.29%	3.3	83%	3.21	0.234	2.98
52.165	6925.27	19.4	0.543	18.0	220.4	95.52	2.80%	Fine Tailings	0.054	107.6	2.96	0.239	2.72	1	6	3.30%	3.2	83%	3.22	0.239	2.98
52.329	6925.10	20.7	0.636	19.8	146.1	63.31	3.08%	Fine Tailings	0.054	107.6	2.96	0.244	2.72	1	7	3.59%	3.2	83%	3.23	0.244	2.98
52.493	6924.94	21.4	0.788	20.1	208.1	90.17	3.69%	Fine Tailings	0.054	107.6	2.97	0.249	2.72	1	7	4.28%	3.2	83%	3.24	0.249	2.99
52.657	6924.77	23.1	0.866	21.7	213.1	92.33	3.76%	Fine Tailings	0.054	107.6	2.98	0.254	2.73	1	7	4.31%	3.2	83%	3.25	0.254	2.99
52.821	6924.61	24.4	1.078	23.3	183.3	79.43	4.42%	Fine Tailings	0.054	107.6	2.99	0.260	2.73	1	8	5.03%	3.2	83%	3.26	0.260	3.00
52.985	6924.45	28.8	1.315	28.0	126.1	54.62	4.56%	Fine Tailings	0.054	107.6	3.00	0.265	2.73	1	9	5.09%	3.2	83%	3.26	0.265	3.00
53.149	6924.28	30.6	1.722	30.3	36.8	15.96	5.63%	Fine Tailings	0.054	107.6	3.01	0.270	2.74	1	10	6.25%	3.2	83%	3.27	0.270	3.00
53.313	6924.12	26.6	1.938	26.5	11.0	4.78	7.29%	Fine Tailings	0.054	107.6	3.02	0.275	2.74	1	9	8.23%	3.3	83%	3.28	0.275	3.01
53.477	6923.95	22.4	1.813	22.3	18.9	8.19	8.08%	Fine Tailings	0.054	107.6	3.03	0.280	2.75	1	7	9.34%	3.4	83%	3.29	0.280	3.01
53.641	6923.79	20.1	1.307	19.8	48.4	20.96	6.50%	Fine Tailings	0.054	107.6	3.04	0.285	2.75	1	6	7.65%	3.4	83%	3.30	0.285	3.01
53.805	6923.62	18.1	0.954	17.5	84.0	36.40	5.28%	Fine Tailings	0.054	107.6	3.04	0.290	2.75	1	5	6.36%	3.4	83%	3.31	0.290	3.02
53.969	6923.46	17.7	0.885	17.4	40.9	17.71	5.01%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	5	6.06%	3.4	76%	3.32	0.000	3.32
54.133	6923.30	18.0	1.099	17.7	42.0	18.18	6.11%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	5	7.37%	3.5	76%	3.33	0.000	3.33
54.297	6923.13	27.8	1.519	27.3	77.6	33.61	5.46%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	8	6.14%	3.3	76%	3.34	0.000	3.34
54.461	6922.97	48.6	2.094	48.1	74.9	32.46	4.31%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	15	4.60%	3.0	76%	3.35	0.000	3.35
54.625	6922.80	52.8	2.211	52.7	17.4	7.52	4.19%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	16	4.45%	2.9	76%	3.36	0.000	3.36
54.789	6922.64	74.5	1.977	74.4	12.3	5.33	2.66%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	23	2.77%	2.7	76%	3.37	0.000	3.37
54.953	6922.48	86.2	0.896	86.1	7.7	3.35	1.04%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	27	1.08%	2.4	76%	3.38	0.000	3.38
55.117	6922.31	98.4	1.047	98.4	8.0	3.46	1.06%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	31	1.10%	2.4	36%	3.39	0.000	3.39
55.281	6922.15	122.4	1.603	122.3	20.7	8.95	1.31%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	38	1.34%	2.3	36%	3.40	0.000	3.40
55.446	6921.98	175.1	1.595	175.0	16.6	7.18	0.91%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	55	0.93%	2.1	36%	3.40	0.000	3.40
55.610	6921.82	169.2	2.120	169.1	13.5	5.84	1.25%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	53	1.28%	2.2	36%	3.41	0.000	3.41
55.774	6921.66	157.0	2.567	156.9	8.2	3.54	1.64%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	49	1.67%	2.3	36%	3.42	0.000	3.42
55.938	6921.49	142.0	2.604	141.9	6.2	2.70	1.83%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	44	1.88%	2.4	36%	3.43	0.000	3.43
56.102	6921.33	122.9	2.604	122.8	5.1	2.22	2.12%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	38	2.18%	2.5	36%	3.44	0.000	3.44
56.266	6921.16	108.3	2.477	108.3	4.7	2.03	2.29%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	33	2.36%	2.5	36%	3.45	0.000	3.45
56.430	6921.00	99.3	2.397	99.2	5.1	2.20	2.41%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	30	2.49%	2.6	36%	3.46	0.000	3.46
56.594	6920.84	88.6	2.278	88.5	5.0	2.18	2.57%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	27	2.67%	2.6	36%	3.47	0.000	3.47
56.758	6920.67	79.2	1.818	79.2	5.0	2.15	2.30%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	24	2.39%	2.6	36%	3.48	0.000	3.48
56.922	6920.51	78.3	1.667	78.3	7.6	3.29	2.13%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	23	2.22%	2.6	36%	3.49	0.000	3.49
57.086	6920.34	78.1	1.590	78.0	7.1	3.07	2.04%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	23	2.13%	2.6	36%	3.50	0.000	3.50
57.250	6920.18	79.5	1.632	79.4	6.5	2.81	2.05%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	24	2.14%	2.6	36%	3.50	0.000	3.50
57.414	6920.02	90.2	1.782	90.2	6.8	2.93	1.97%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	27	2.05%	2.6	36%	3.51	0.000	3.51
57.578	6919.85	98.3	1.799	98.3	6.8	2.93	1.83%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	29	1.89%	2.5	36%	3.52	0.000	3.52
57.742	6919.69	100.9	1.873	100.8	6.4	2.76	1.86%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	30	1.92%	2.5	36%	3.53	0.000	3.53
57.906	6919.52	102.1	1.920	102.1	6.4	2.76	1.88%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	30	1.94%	2.5	36%	3.54	0.000	3.54
58.070	6919.36	96.5	1.922	96.5	5.8	2.50	1.99%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	28	2.06%	2.5	36%	3.55	0.000	3.55
58.234	6919.20	83.6	1.922	83.6	5.1	2.20	2.30%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	24	2.39%	2.6	36%	3.56	0.000	3.56
58.398	6919.03	69.4	1.998	69.4	4.8	2.09	2.88%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	20	3.02%	2.8	36%	3.57	0.000	3.57
58.562	6918.87	52.8	2.089	52.8	5.0	2.18	3.96%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	15	4.22%	2.9	36%	3.58	0.000	3.58
58.726	6918.70	54.1	2.266	54.1	6.2	2.68	4.19%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	15	4.46%	3.0	36%	3.59	0.000	3.59
58.890	6918.54	64.3	2.249	64.3	6.0	2.58	3.50%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	18	3.69%	2.8	36%	3.60	0.000	3.60
59.054	6918.38	83.2	2.213	83.2	6.8	2.95	2.66%	Coarse Alluvium	0.056	111.0	3.34	0.000	3.34	0	24	2.77%	2.7	36%	3.60	0.000	3.60
59.218	6918.21	99.1	1.992	99.1	6.7	2.91	2.01%	Coarse Alluvium	0.056	111.0	3.35	0.000	3.35	0	29	2.08%	2.5	36%	3.61	0.000	3.61
59.382	6918.05	91.2	1.743	91.2	5.6	2.44	1.91%	Coarse Alluvium	0.056	111.0	3.36	0.000	3.36	0	26	1.98%	2.6	36%	3.62	0.000	3.62
59.547	6917.88	89.9	1.702	89.9	5.6	2.44	1.89%	Coarse Alluvium	0.056	111.0	3.37	0.000	3.37	0	26	1.97%	2.6	36%	3.63	0.000	3.63
59.711	6917.72	91.8	1.836	91.8	6.1	2.62	2.00%	Coarse Alluvium	0.056	111.0	3.38	0.000	3.38	0	26	2.08%	2.6	36%	3.64	0.000	3.64
59.875	6917.56	94.4	1.834	94.3	5.8	2.52	1.94%	Coarse Alluvium	0.056	111.0	3.39	0.000	3.39	0	27	2.02%	2.5	36%	3.65	0.000	3.65
60.039	6917.39	92.1	1.915	92.1	5.4	2.32	2.08%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	26	2.16%	2.6	36%	3.66	0.000	3.66
60.203	6917.23	84.6	2.042	84.5	5.2	2.26	2.42%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	24	2.52%	2.6	36%	3.67	0.000	3.67
60.367	6917.06	86.8	2.158	86.8	5.4	2.34	2.48%	Coarse Alluvium	0.056	111.0	3.41	0.000	3.41	0	24	2.59%	2.6	36%	3.68	0.000	3.68
60.531	6916.90	93.5	2.428	93.5	5.4	2.36	2.60%	Coarse Alluvium	0.056	111.0	3.42	0.000	3.42	0	26	2.69%	2.6	36%	3.69	0.000	3.69
60.695	6916.74	73.1	2.546	73.1	3.8	1.65	3.48%	Coarse Alluvium	0.056	111.0	3.43	0.000	3.43	0	20	3.65%	2.8	36%	3.70	0.000	3.70
60.859	6916.57	54.9	2.741	54.9	3.9	1.67	4.99%	Coarse Alluvium	0.056	111.0	3.44	0.000	3.44	0	15	5.33%	3.0	36%	3.71	0.000	3.71
61.023	6916.41	47.0	2.681	47.0	4.7	2.02	5.70%	Coarse Alluvium	0.056	111.0	3.45	0.000	3.45	0	13	6.16%	3.1	36%	3.71	0.000	3.71
61.187	6916.24	59.9	2.474	59.9	7.6	3.28	4.13%	Coarse Alluvium	0.056	111.0	3.46	0.000	3.46	0	16	4.38%	2.9	36%	3.72	0.000	3.72
61.351	6916.08	57.7	2.418	57.6	5.5	2.38	4.19%	Coarse Alluvium	0.056	111.0	3.47	0.000	3.47	0	16	4.46%	2.9	36%	3.73	0.000	3.73
61.515	6915.92	50.8	2.422	50.7	4.9	2.11	4.77%	Coarse Alluvium	0.056	111.0	3.48	0.000	3.48	0	14	5.12%	3.0	36%	3.74	0.000	3.74
61.679	6915.75	45.5	2.292	45.5	5.8	2.52	5.03%	Coarse Alluvium	0.056	111.0	3.49	0.000	3.49	0	12	5.45%	3.1	36%	3.75	0.000	3.75
61.843	6915.59	49.3	2.345	49.2	7.1	3.07	4.76%	Coarse Alluvium	0.056	111.0	3.50	0.000	3.50	0	13	5.12%	3.0	36%	3.76	0.000	3.76
62.007	6915.42	62.8	2.091	62.8	8.0	3.48	3.33%	Coarse Alluvium	0.056	111.0	3.50	0.000	3.50	0	17	3.52%	2.9	36%	3.77	0.000	3.77
62.171	6915.26	81.9	2.022	81.9	7.3	3.17	2.47%	Coarse Alluvium	0.056	111.0	3.51	0.000	3.51	0	22	2.58%	2.7	36%	3.78	0.000	3.78
62.335	6915.09	94.4	1.820	94.4	6.3	2.75	1.93%	Coarse Alluvium	0.056	111.0	3.52	0.000	3.52	0	26	2.00%	2.6	36%	3.79	0.000	3.79
62.499	6914.93	97.3	1.785	97.3	6.1	2.62	1.83%	Coarse Alluvium	0.056	111.0	3.53	0.000	3.53	0	27	1.90%	2.5	36%	3.80	0.000	3.80
62.663	6914.77	90.0	2.240	90.0	5.3	2.30	2.49%	Coarse Alluvium	0.056	111.0	3.54	0.000	3.54	0	24	2.59%	2.6	36%	3.81	0.000	3.81
62.827	6914.60	81.6	2.978	81.6	5.1	2.20	3.65%	Coarse Alluvium	0.056	111.0	3.55	0.000	3.55	0	22	3.81%	2.8	36%	3.81	0.000	3.81
62.991	6914.44	85.3	3.029	85.2	6.2	2.67	3.55%	Coarse Alluvium	0.056	111.0	3.56	0.000	3.56	0	23	3.71%	2.8	36%	3.82	0.000	3.82

16.55	640	1.7E-03	6.8E+02	21	0.1833	1.6E-04	43	0.267	0.272	307	307.000	6424	4390	1703	1703	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.60	640	1.7E-03	6.8E+02	21	0.1802	1.6E-04	43	0.267	0.272	308	308.000	6421	4387	1704	1704	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.65	640	1.7E-03	6.8E+02	21	0.1770	1.6E-04	43	0.268	0.272	309	309.000	6417	4385	1705	1705	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.70	640	1.7E-03	6.8E+02	21	0.1739	1.6E-04	43	0.268	0.272	310	310.000	6414	4383	1706	1706	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.75	640	1.7E-03	6.8E+02	21	0.1709	1.5E-04	43	0.268	0.273	311	311.000	6411	4380	1707	1707	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.80	640	1.7E-03	6.8E+02	21	0.1678	1.5E-04	43	0.268	0.273	312	312.000	6407	4378	1708	1708	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.85	640	1.7E-03	6.8E+02	21	0.1648	1.5E-04	43	0.268	0.273	313	313.000	6404	4376	1709	1709	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.90	640	1.7E-03	6.8E+02	20	0.1618	1.5E-04	43	0.268	0.273	314	314.000	6401	4373	1710	1710	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.95	640	1.7E-03	6.8E+02	20	0.1589	1.4E-04	43	0.268	0.273	315	315.000	6398	4371	1711	1711	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.00	640	1.7E-03	6.8E+02	20	0.1560	1.4E-04	43	0.268	0.273	316	316.000	6394	4369	1712	1712	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.05	640	1.7E-03	6.8E+02	20	0.1531	1.4E-04	43	0.268	0.273	317	317.000	6391	4367	1713	1713	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.10	640	1.7E-03	6.8E+02	20	0.1502	1.4E-04	43	0.268	0.273	318	318.000	6388	4364	1714	1714	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.15	640	1.7E-03	6.8E+02	20	0.1474	1.3E-04	43	0.268	0.273	319	319.000	6384	4362	1715	1715	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.20	640	1.7E-03	6.8E+02	20	0.1446	1.3E-04	43	0.268	0.273	320	320.000	6381	4360	1716	1716	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.25	640	1.7E-03	6.8E+02	20	0.1418	1.3E-04	43	0.268	0.273	321	321.000	6378	4357	1717	1717	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.30	640	1.7E-03	6.8E+02	20	0.1390	1.3E-04	43	0.269	0.274	322	322.000	6375	4355	1718	1718	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.35	640	1.7E-03	6.8E+02	20	0.1363	1.3E-04	43	0.269	0.274	323	323.000	6371	4353	1719	1719	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.40	640	1.7E-03	6.8E+02	20	0.1336	1.2E-04	43	0.269	0.274	324	324.000	6368	4351	1720	1720	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.45	640	1.7E-03	6.8E+02	20	0.1310	1.2E-04	43	0.269	0.274	325	325.000	6365	4348	1721	1721	0.02%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.50	640	1.7E-03	6.8E+02	20	0.1284	1.2E-04	43	0.269	0.274	326	326.000	6362	4346	1722	1722	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.55	640	1.7E-03	6.8E+02	20	0.1258	1.2E-04	43	0.269	0.274	327	327.000	6359	4344	1723	1723	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.60	640	1.7E-03	6.8E+02	20	0.1232	1.2E-04	43	0.269	0.274	328	328.000	6355	4342	1724	1724	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.65	640	1.7E-03	6.8E+02	19	0.1206	1.1E-04	43	0.269	0.274	329	329.000	6352	4339	1725	1725	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.70	640	1.7E-03	6.8E+02	19	0.1181	1.1E-04	43	0.269	0.274	330	330.000	6349	4337	1726	1726	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.75	640	1.9E-03	7.7E+02	19	0.1157	9.7E-05	22	0.275	0.281	331	154.617	6107	4169	1727	3029	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.80	640	1.9E-03	7.7E+02	19	0.1132	9.6E-05	22	0.275	0.282	332	155.083	6099	4163	1728	3027	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.85	640	1.9E-03	7.7E+02	19	0.1108	9.4E-05	22	0.275	0.282	333	155.550	6092	4158	1729	3025	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.90	640	1.9E-03	7.7E+02	19	0.1084	9.2E-05	22	0.276	0.282	334	156.017	6085	4153	1730	3022	0.01%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.95	1229	1.9E-03	2.8E+03	19	0.1060	2.5E-05	22	0.276	0.282	335	156.484	6077	4148	1731	3020	0.00%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.00	1229	1.9E-03	2.8E+03	19	0.1037	2.4E-05	22	0.276	0.282	336	156.951	6070	4143	1732	3018	0.00%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.05	1229	1.9E-03	2.8E+03	19	0.1013	2.4E-05	22	0.276	0.283	337	157.417	6063	4138	1733	3016	0.00%	0.90	0.75	0.060%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.10	1229	1.7E-03	2.6E+03	19	0.0991	2.5E-05	0	0.276	0.283	338	0.276	6056	4133	1734	6056	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.15	1229	1.7E-03	2.6E+03	19	0.0968	2.5E-05	0	0.277	0.283	339	0.277	6049	4129	1735	6049	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.20	1229	1.7E-03	2.6E+03	19	0.0946	2.4E-05	0	0.277	0.283	340	0.277	6043	4124	1736	6043	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.25	1229	1.7E-03	2.6E+03	19	0.0924	2.4E-05	0	0.277	0.283	341	0.277	6036	4119	1737	6036	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.30	1229	1.7E-03	2.6E+03	19	0.0902	2.3E-05	0	0.277	0.284	342	0.277	6029	4115	1738	6029	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.35	1229	1.7E-03	2.6E+03	19	0.0880	2.3E-05	0	0.277	0.284	343	0.277	6023	4110	1739	6023	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.40	1229	1.7E-03	2.6E+03	19	0.0859	2.2E-05	0	0.277	0.284	344	0.277	6016	4106	1740	6016	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.45	1229	1.7E-03	2.6E+03	19	0.0838	2.2E-05	0	0.278	0.284	345	0.278	6010	4101	1741	6010	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.50	1229	1.7E-03	2.6E+03	19	0.0817	2.1E-05	0	0.278	0.284	346	0.278	6003	4097	1742	6003	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.55	1229	1.7E-03	2.6E+03	19	0.0797	2.1E-05	0	0.278	0.285	347	0.278	5997	4092	1743	5997	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.60	1229	1.7E-03	2.6E+03	19	0.0777	2.0E-05	0	0.278	0.285	348	0.278	5990	4088	1744	5990	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.65	1229	1.7E-03	2.6E+03	19	0.0757	2.0E-05	0	0.278	0.285	349	0.278	5984	4083	1745	5984	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.70	1229	1.7E-03	2.6E+03	19	0.0737	1.9E-05	0	0.278	0.285	350	0.278	5977	4079	1746	5977	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.75	1229	1.7E-03	2.6E+03	18	0.0718	1.9E-05	0	0.279	0.285	351	0.279	5971	4074	1747	5971	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.80	1229	1.7E-03	2.6E+03	18	0.0699	1.8E-05	0	0.279	0.286	352	0.279	5965	4070	1748	5965	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.85	1229	1.7E-03	2.6E+03	18	0.0680	1.8E-05	0	0.279	0.286	353	0.279	5958	4065	1749	5958	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.90	1229	1.7E-03	2.6E+03	18	0.0661	1.7E-05	0	0.279	0.286	354	0.279	5952	4061	1750	5952	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
18.95	1229	1.7E-03	2.6E+03	18	0.0642	1.7E-05	0	0.279	0.286	355	0.279	5946	4057	1751	5946	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.00	1229	1.7E-03	2.6E+03	18	0.0624	1.7E-05	0	0.279	0.286	356	0.279	5940	4052	1752	5940	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.05	1229	1.7E-03	2.6E+03	18	0.0606	1.6E-05	0	0.280	0.287	357	0.280	5933	4048	1753	5933	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.10	1229	1.7E-03	2.6E+03	18	0.0589	1.6E-05	0	0.280	0.287	358	0.280	5927	4044	1754	5927	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.15	1229	1.7E-03	2.6E+03	18	0.0571	1.5E-05	0	0.280	0.287	359	0.280	5921	4039	1755	5921	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.20	1229	1.7E-03	2.6E+03	18	0.0554	1.5E-05	0	0.280	0.287	360	0.280	5915	4035	1756	5915	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.25	1229	1.7E-03	2.6E+03	18	0.0537	1.4E-05	0	0.280	0.287	361	0.280	5909	4031	1757	5909	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.30	1229	1.7E-03	2.6E+03	18	0.0520	1.4E-05	0	0.280	0.288	362	0.280	5902	4027	1758	5902	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.35	1229	1.7E-03	2.6E+03	18	0.0503	1.4E-05	0	0.281	0.288	363	0.281	5896	4022	1759	5896	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.40	1229	1.7E-03	2.6E+03	18	0.0487	1.3E-05	0	0.281	0.288	364	0.281	5890	4018	1760	5890	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.45	1091	1.7E-03	2.1E+03	18	0.0471	1.6E-05	0	0.281	0.288	365	0.281	5884	4014	1761	5884	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.50	1091	1.7E-03	2.1E+03	18	0.0455	1.6E-05	0	0.281	0.288	366	0.281	5878	4010	1762	5878	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.55	1091	1.7E-03	2.1E+03	18	0.0439	1.5E-05	0	0.281	0.288	367	0.281	5872	4005	1763	5872	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.60	1091	1.7E-03	2.1E+03	18	0.0424	1.5E-05	0	0.281	0.289	368	0.281	5866	4001	1764	5866	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.65	1091	1.7E-03	2.1E+03	18	0.0408	1.4E-05	0	0.282	0.289	369	0.282	5860	3997	1765	5860	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.70	1091	1.7E-03	2.1E+03	18	0.0393	1.4E-05	0	0.282	0.289	370	0.282	5854	3993	1766	5854	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.75	1091	1.7E-03	2.1E+03	18	0.0379	1.3E-05	0	0.282	0.289	371	0.282	5848	3989	1767	5848	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.80	1091	1.7E-03	2.1E+03	18	0.0364	1.3E-05	0	0.282	0.289	372	0.282	5842	3985	1768	5842	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.85	1091	1.7E-03	2.1E+03	18	0.0350	1.2E-05	0	0.282	0.290	373	0.282	5837	3981	1769	5837	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.90	1091	1.7E-03	2.1E+03	18	0.0335	1.2E-05	0	0.282	0.290	374	0.282	5831	3977	1770	5831	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
19.95	1091	1.7E-03	2.1E+03	18	0.0321	1.1E-05	0	0.283	0.290	375	0.283	5825	3972	1771	5825	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.00	1091	1.7E-03	2.1E+03	18	0.0308	1.1E-05	0	0.283	0.290	376	0.283	5819	3968	1772	5819	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.05	1091	1.7E-03	2.1E+03	18	0.0306	1.1E-05	0	0.283	0.290	377	0.283	5813	3964	1773	5813	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.10	1091	1.7E-03	2.1E+03	18	0.0304	1.1E-05	0	0.283	0.291	378	0.283	5807	3960	1774	5807	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.15	1091	1.7E-03	2.1E+03	18	0.0301	1.1E-05	0	0.283	0.291	379	0.283	5802	3956	1775	5802	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.20	1091	1.7E-03	2.1E+03	18	0.0299	1.1E-05	0	0.283	0.291	380	0.283	5796	3952	1776	5796	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.25	1091	1.7E-03	2.1E+03	18	0.0297	1.1E-05	0	0.283	0.291	381	0.283	5790	3948	1777	5790	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.30	1091	1.7E-03	2.1E+03	18	0.0294	1.1E-05	0	0.284	0.291	382	0.284	5784	3944	1778	5784	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.35	1091	1.7E-03	2.1E+03	18	0.0292	1.1E-05	0	0.284	0.292	383	0.284	5779	3940	1779	5779	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.40	1091	1.7E-03	2.1E+03	18	0.0290	1.0E-05	0	0.284	0.292	384	0.284	5773	3936	1780	5773	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.45	1091	1.7E-03	2.1E+03	18	0.0287	1.0E-05	0	0.284	0.292	385	0.284	5767	3933	1781	5767	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.50	1091	1.7E-03	2.1E+03	17	0.0285	1.0E-05	0	0.284	0.292	386	0.284	5762	3929	1782	5762	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000

63.155	6914.27	104.6	2.560	104.5	7.0	3.01	2.45%	Coarse Alluvium	0.056	111.0	3.57	0.000	3.57	0	28	2.53%	2.6	36%	3.83	0.000	3.83
63.319	6914.11	113.6	2.098	113.5	6.5	2.83	1.85%	Coarse Alluvium	0.056	111.0	3.58	0.000	3.58	0	31	1.91%	2.5	36%	3.84	0.000	3.84
63.483	6913.95	113.9	2.009	113.8	6.7	2.89	1.76%	Coarse Alluvium	0.056	111.0	3.59	0.000	3.59	0	31	1.82%	2.5	36%	3.85	0.000	3.85
63.648	6913.78	95.7	2.337	95.7	5.5	2.40	2.44%	Coarse Alluvium	0.056	111.0	3.60	0.000	3.60	0	26	2.54%	2.6	36%	3.86	0.000	3.86
63.812	6913.62	77.3	2.500	77.3	5.3	2.28	3.23%	Coarse Alluvium	0.056	111.0	3.60	0.000	3.60	0	20	3.39%	2.8	36%	3.87	0.000	3.87
63.976	6913.45	65.3	2.806	65.3	5.2	2.24	4.30%	Coarse Alluvium	0.056	111.0	3.61	0.000	3.61	0	17	4.55%	2.9	36%	3.88	0.000	3.88
64.140	6913.29	62.1	2.838	62.1	7.6	3.28	4.57%	Coarse Alluvium	0.056	111.0	3.62	0.000	3.62	0	16	4.85%	3.0	36%	3.89	0.000	3.89
64.304	6913.13	62.1	2.935	62.0	7.3	3.17	4.73%	Coarse Alluvium	0.056	111.0	3.63	0.000	3.63	0	16	5.02%	3.0	36%	3.90	0.000	3.90
64.468	6912.96	60.8	2.689	60.7	6.7	2.91	4.42%	Coarse Alluvium	0.056	111.0	3.64	0.000	3.64	0	16	4.71%	3.0	36%	3.91	0.000	3.91
64.632	6912.80	64.0	2.694	63.9	7.3	3.15	4.21%	Coarse Alluvium	0.056	111.0	3.65	0.000	3.65	0	17	4.47%	2.9	36%	3.91	0.000	3.91
64.796	6912.63	51.7	2.453	51.6	6.5	2.83	4.75%	Coarse Alluvium	0.056	111.0	3.66	0.000	3.66	0	13	5.11%	3.0	36%	3.92	0.000	3.92
64.960	6912.47	58.3	2.154	58.3	7.8	3.40	3.69%	Coarse Alluvium	0.056	111.0	3.67	0.000	3.67	0	15	3.94%	2.9	36%	3.93	0.000	3.93
65.124	6912.31	62.3	2.066	62.2	6.8	2.95	3.32%	Coarse Alluvium	0.056	111.0	3.68	0.000	3.68	0	16	3.53%	2.9	36%	3.94	0.000	3.94
65.288	6912.14	62.0	1.918	62.0	7.0	3.05	3.09%	Coarse Alluvium	0.056	111.0	3.69	0.000	3.69	0	16	3.29%	2.9	36%	3.95	0.000	3.95
65.452	6911.98	66.9	1.901	66.9	8.6	3.72	2.84%	Coarse Alluvium	0.056	111.0	3.70	0.000	3.70	0	17	3.01%	2.8	36%	3.96	0.000	3.96
65.616	6911.81	88.3	1.871	88.3	7.1	3.09	2.12%	Coarse Alluvium	0.056	111.0	3.71	0.000	3.71	0	23	2.21%	2.6	36%	3.97	0.000	3.97
65.780	6911.65	107.8	1.886	107.8	6.5	2.81	1.75%	Coarse Alluvium	0.056	111.0	3.71	0.000	3.71	0	28	1.81%	2.5	36%	3.98	0.000	3.98
65.944	6911.49	120.1	2.143	120.0	6.2	2.70	1.78%	Coarse Alluvium	0.056	111.0	3.72	0.000	3.72	0	31	1.84%	2.5	36%	3.99	0.000	3.99
66.108	6911.32	120.9	2.433	120.9	6.2	2.70	2.01%	Coarse Alluvium	0.056	111.0	3.73	0.000	3.73	0	31	2.08%	2.5	36%	4.00	0.000	4.00
66.272	6911.16	120.6	2.662	120.6	6.1	2.64	2.21%	Coarse Alluvium	0.056	111.0	3.74	0.000	3.74	0	31	2.28%	2.5	36%	4.01	0.000	4.01
66.436	6910.99	113.0	2.772	113.0	6.0	2.58	2.45%	Coarse Alluvium	0.056	111.0	3.75	0.000	3.75	0	29	2.54%	2.6	36%	4.01	0.000	4.01
66.600	6910.83	108.1	2.836	108.0	6.0	2.58	2.62%	Coarse Alluvium	0.056	111.0	3.76	0.000	3.76	0	28	2.72%	2.6	36%	4.02	0.000	4.02
66.764	6910.67	108.1	2.718	108.0	7.9	3.41	2.51%	Coarse Alluvium	0.056	111.0	3.77	0.000	3.77	0	28	2.61%	2.6	36%	4.03	0.000	4.03
66.928	6910.50	104.4	2.567	104.4	6.6	2.87	2.46%	Coarse Alluvium	0.056	111.0	3.78	0.000	3.78	0	27	2.55%	2.6	36%	4.04	0.000	4.04
67.092	6910.34	99.3	2.456	99.3	6.2	2.70	2.47%	Coarse Alluvium	0.056	111.0	3.79	0.000	3.79	0	25	2.57%	2.6	36%	4.05	0.000	4.05
67.256	6910.17	97.1	2.223	97.1	6.3	2.75	2.29%	Coarse Alluvium	0.056	111.0	3.80	0.000	3.80	0	25	2.38%	2.6	36%	4.06	0.000	4.06
67.420	6910.01	94.4	2.017	94.3	6.2	2.67	2.14%	Coarse Alluvium	0.056	111.0	3.81	0.000	3.81	0	24	2.23%	2.6	36%	4.07	0.000	4.07
67.584	6909.85	91.1	1.874	91.1	6.2	2.67	2.06%	Coarse Alluvium	0.056	111.0	3.81	0.000	3.81	0	23	2.15%	2.6	36%	4.08	0.000	4.08
67.749	6909.68	84.0	1.676	83.9	6.0	2.60	2.00%	Coarse Alluvium	0.056	111.0	3.82	0.000	3.82	0	21	2.09%	2.6	36%	4.09	0.000	4.09
67.913	6909.52	77.2	1.655	77.2	5.8	2.50	2.14%	Coarse Alluvium	0.056	111.0	3.83	0.000	3.83	0	19	2.25%	2.7	36%	4.10	0.000	4.10
68.077	6909.35	71.7	2.027	71.6	5.8	2.50	2.83%	Coarse Alluvium	0.056	111.0	3.84	0.000	3.84	0	18	2.99%	2.8	36%	4.11	0.000	4.11
68.241	6909.19	67.3	2.078	67.2	6.3	2.73	3.09%	Coarse Alluvium	0.056	111.0	3.85	0.000	3.85	0	16	3.28%	2.8	36%	4.12	0.000	4.12
68.405	6909.03	69.6	1.971	69.6	6.1	2.62	2.83%	Coarse Alluvium	0.056	111.0	3.86	0.000	3.86	0	17	3.00%	2.8	36%	4.12	0.000	4.12
68.569	6908.86	85.5	1.780	85.4	6.4	2.79	2.08%	Coarse Alluvium	0.056	111.0	3.87	0.000	3.87	0	21	2.18%	2.7	36%	4.13	0.000	4.13
68.733	6908.70	98.8	1.776	98.7	7.2	3.11	1.80%	Coarse Alluvium	0.056	111.0	3.88	0.000	3.88	0	24	1.87%	2.6	36%	4.14	0.000	4.14
68.897	6908.53	97.2	1.825	97.1	6.7	2.89	1.88%	Coarse Alluvium	0.056	111.0	3.89	0.000	3.89	0	24	1.96%	2.6	36%	4.15	0.000	4.15
69.061	6908.37	91.4	1.844	91.4	6.4	2.76	2.02%	Coarse Alluvium	0.056	111.0	3.90	0.000	3.90	0	22	2.11%	2.6	36%	4.16	0.000	4.16
69.225	6908.21	95.7	2.058	95.7	6.2	2.67	2.15%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	24	2.24%	2.6	36%	4.17	0.000	4.17
69.389	6908.04	97.0	2.048	96.9	6.9	2.99	2.11%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	24	2.20%	2.6	36%	4.18	0.000	4.18
69.553	6907.88	88.5	1.961	88.5	6.1	2.64	2.22%	Coarse Alluvium	0.056	111.0	3.92	0.000	3.92	0	22	2.32%	2.7	36%	4.19	0.000	4.19
69.717	6907.71	86.1	1.567	86.1	6.0	2.60	1.82%	Coarse Alluvium	0.056	111.0	3.93	0.000	3.93	0	21	1.91%	2.6	36%	4.20	0.000	4.20
69.881	6907.55	83.7	1.456	83.7	6.0	2.60	1.74%	Coarse Alluvium	0.056	111.0	3.94	0.000	3.94	0	20	1.82%	2.6	36%	4.21	0.000	4.21
70.045	6907.38	75.7	1.403	75.7	6.4	2.76	1.85%	Coarse Alluvium	0.056	111.0	3.95	0.000	3.95	0	18	1.96%	2.7	36%	4.22	0.000	4.22
70.209	6907.22	78.4	1.601	78.4	5.7	2.46	2.04%	Coarse Alluvium	0.056	111.0	3.96	0.000	3.96	0	19	2.15%	2.7	36%	4.22	0.000	4.22
70.373	6907.06	89.0	1.829	89.0	5.6	2.44	2.05%	Coarse Alluvium	0.056	111.0	3.97	0.000	3.97	0	21	2.15%	2.6	36%	4.23	0.000	4.23
70.537	6906.89	85.0	2.108	85.0	4.8	2.09	2.48%	Coarse Alluvium	0.056	111.0	3.98	0.000	3.98	0	20	2.60%	2.7	36%	4.24	0.000	4.24
70.701	6906.73	72.9	2.513	72.9	4.0	1.75	3.45%	Coarse Alluvium	0.056	111.0	3.99	0.000	3.99	0	17	3.64%	2.9	36%	4.25	0.000	4.25
70.865	6906.56	72.8	2.090	72.7	5.2	2.26	2.87%	Coarse Alluvium	0.056	111.0	4.00	0.000	4.00	0	17	3.04%	2.8	36%	4.26	0.000	4.26
71.029	6906.40	77.2	2.061	77.1	5.0	2.18	2.67%	Coarse Alluvium	0.056	111.0	4.01	0.000	4.01	0	18	2.82%	2.8	36%	4.27	0.000	4.27
71.193	6906.24	80.6	1.837	80.6	5.7	2.46	2.28%	Coarse Alluvium	0.056	111.0	4.01	0.000	4.01	0	19	2.40%	2.7	36%	4.28	0.000	4.28
71.357	6906.07	81.9	2.006	81.8	5.8	2.50	2.45%	Coarse Alluvium	0.056	111.0	4.02	0.000	4.02	0	19	2.58%	2.7	36%	4.29	0.000	4.29
71.521	6905.91	89.4	2.071	89.4	5.8	2.50	2.32%	Coarse Alluvium	0.056	111.0	4.03	0.000	4.03	0	21	2.43%	2.7	36%	4.30	0.000	4.30
71.685	6905.74	85.4	1.670	85.4	4.7	2.02	1.95%	Coarse Alluvium	0.056	111.0	4.04	0.000	4.04	0	20	2.05%	2.7	36%	4.31	0.000	4.31
71.850	6905.58	75.7	1.569	75.7	4.4	1.89	2.07%	Coarse Alluvium	0.056	111.0	4.05	0.000	4.05	0	18	2.19%	2.7	36%	4.32	0.000	4.32
72.014	6905.42	75.3	1.992	75.3	5.4	2.34	2.65%	Coarse Alluvium	0.056	111.0	4.06	0.000	4.06	0	18	2.80%	2.8	36%	4.32	0.000	4.32
72.178	6905.25	63.4	2.295	63.4	4.6	1.97	3.62%	Coarse Alluvium	0.056	111.0	4.07	0.000	4.07	0	15	3.87%	2.9	36%	4.33	0.000	4.33
72.342	6905.09	46.8	2.246	46.8	4.3	1.87	4.80%	Coarse Alluvium	0.056	111.0	4.08	0.000	4.08	0	10	5.26%	3.1	36%	4.34	0.000	4.34
72.506	6904.92	47.8	1.964	47.8	5.7	2.46	4.11%	Coarse Alluvium	0.056	111.0	4.09	0.000	4.09	0	11	4.49%	3.1	36%	4.35	0.000	4.35
72.670	6904.76	84.5	1.695	84.5	7.4	3.19	2.01%	Coarse Alluvium	0.056	111.0	4.10	0.000	4.10	0	20	2.11%	2.7	36%	4.36	0.000	4.36
72.834	6904.60	95.9	1.774	95.9	5.9	2.56	1.85%	Coarse Alluvium	0.056	111.0	4.11	0.000	4.11	0	22	1.93%	2.6	36%	4.37	0.000	4.37
72.998	6904.43	104.6	1.651	104.5	5.7	2.48	1.58%	Coarse Alluvium	0.056	111.0	4.12	0.000	4.12	0	24	1.64%	2.5	36%	4.38	0.000	4.38
73.162	6904.27	88.9	1.047	88.9	4.8	2.09	1.18%	Coarse Alluvium	0.056	111.0	4.12	0.000	4.12	0	21	1.23%	2.5	36%	4.39	0.000	4.39
73.326	6904.10	93.6	1.342	93.6	-2.6	-1.14	1.43%	Coarse Alluvium	0.056	111.0	4.13	0.000	4.13	0	22	1.50%	2.6	36%	4.40	0.000	4.40
73.490	6903.94	80.1	1.507	80.1	-0.7	-0.30	1.88%	Coarse Alluvium	0.056	111.0	4.14	0.000	4.14	0	18	1.98%	2.7	36%	4.41	0.000	4.41
73.654	6903.78	81.8	1.537	81.8	2.4	1.06	1.88%	Coarse Alluvium	0.056	111.0	4.15	0.000	4.15	0	19	1.98%	2.7	36%	4.42	0.000	4.42
73.818	6903.61	85.0	1.434	85.0	2.4	1.06	1.69%	Coarse Alluvium	0.056	111.0	4.16	0.000	4.16	0	19	1.77%	2.6	36%	4.42	0.000	4.42
73.982	6903.45	88.0	1.420	88.0	2.0	0.85	1.61%	Coarse Alluvium	0.056	111.0	4.17	0.000	4.17	0	20	1.69%	2.6	36%	4.43	0.000	4.43
74.146	6903.28	93.1	1.520	93.1	2.2	0.94	1.63%	Coarse Alluvium	0.056	111.0	4.18	0.000	4.18	0	21	1.71%	2.6	36%	4.44	0.000	4.44
74.310	6903.12	92.1	1.544	92.1	2.1	0.89	1.68%	Coarse Alluvium	0.056	111.0	4.19	0.000	4.19	0	21	1.76%	2.6	36%	4.45	0.000	4.45
74.474	6902.96	88.4	1.592	88.4	1.7	0.73	1.80%	Coarse Alluvium	0.056	111.0	4.20	0.000	4.20	0	20	1.89%	2.6	36%	4.46	0.000	4.46
74.638	6902.79	86.2	1.643	86.2	1.9	0.81	1.91%	Coarse Alluvium	0.056	111.0	4.21	0.000	4.21	0	19	2.00%	2.7	36%	4.47	0.000	4.47
74.802	6902.63	86.5	1.678	86.5	1.2	0.53	1.94%	Coarse Alluvium	0.056	111.0	4.22	0.000	4.22	0	20	2.04%	2.7	36%	4.48	0.000	4.48
74.966	6902.46	77.0	1.381	77.0	0.9	0.39	1.79%	Coarse Alluvium	0.056	111.0	4.22	0.000	4.22	0	17	1.90%	2.7	36%	4.49	0.000	4.49
75.130	6902.30	72.0	1.337	72.0	1.0	0.45	1.86%	Coarse Alluvium	0.056	111.0	4.23	0.000	4.23	0	16	1.97%	2.7	36%	4.50	0.000	4.50
75.294	6902.14	68.0	1.301	68.0	1.0	0.45	1.91%	Coarse Alluvium	0.056	111.0	4.24	0.000	4.24	0	15	2.04%	2.8	36%	4.51	0.000	4.51
75.458	6901.97	70.1	1.272	70.1	0.8	0.36	1.81%	Coarse Alluvium	0.056	111.0	4.25	0.000	4.25	0	15	1.93%	2.7	36%	4.52	0.000	4.52
75.622	6901.81	69.4	1.196	69.4	0.6	0.24	1.72%	Coarse Alluvium	0.056	111.0	4.26	0.000	4.26	0	15	1.84%	2.7	36%	4.52	0.000	4.52
75.786	6901.64	72.3	1.167	72.3	0.7	0.29	1.61%	Coarse Alluvium	0.056	111.0	4.27	0.000	4.27	0	16	1.71%	2.7	36%	4.53	0.000	4.53
75.951	6901.48	81.3	1.280	81.3	1.2	0.51	1.58%	Coarse Alluvium	0.056	111.0	4.28	0.000	4.28	0	18	1.66%	2.6	36%	4.54	0.000	4.54
76.115	6901.32	82.5	1.372	82.5	1.1	0.49	1.66%	Coarse Alluvium	0.056	111.0	4.29	0.000	4.29	0	18	1.75%	2.6	36%	4.55	0.000	4.55

20.55	1091	1.7E-03	2.1E+03	17	0.0283	1.0E-05	0	0.284	0.292	387	0.284	5756	3925	1783	5756	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.60	1091	1.7E-03	2.1E+03	17	0.0281	1.0E-05	0	0.285	0.292	388	0.285	5751	3921	1784	5751	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.65	1091	1.7E-03	2.1E+03	17	0.0278	1.0E-05	0	0.285	0.293	389	0.285	5745	3917	1785	5745	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.70	1091	1.7E-03	2.1E+03	17	0.0276	1.0E-05	0	0.285	0.293	390	0.285	5739	3913	1786	5739	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.75	1091	1.7E-03	2.1E+03	17	0.0274	1.0E-05	0	0.285	0.293	391	0.285	5734	3909	1787	5734	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.80	1091	1.7E-03	2.1E+03	17	0.0271	1.0E-05	0	0.285	0.293	392	0.285	5728	3905	1788	5728	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.85	1091	1.7E-03	2.1E+03	17	0.0269	9.9E-06	0	0.285	0.293	393	0.285	5723	3902	1789	5723	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.90	1091	1.7E-03	2.1E+03	17	0.0267	9.9E-06	0	0.286	0.294	394	0.286	5717	3898	1790	5717	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
20.95	1091	1.7E-03	2.1E+03	17	0.0264	9.8E-06	0	0.286	0.294	395	0.286	5712	3894	1791	5712	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.00	1091	1.7E-03	2.1E+03	17	0.0262	9.8E-06	0	0.286	0.294	396	0.286	5706	3890	1792	5706	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.05	1060	1.7E-03	1.9E+03	17	0.0260	1.0E-05	0	0.286	0.294	397	0.286	5701	3886	1793	5701	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.10	1060	1.7E-03	1.9E+03	17	0.0258	1.0E-05	0	0.286	0.294	398	0.286	5696	3883	1794	5696	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.15	1060	1.7E-03	1.9E+03	17	0.0255	1.0E-05	0	0.286	0.294	399	0.286	5690	3879	1795	5690	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.20	1060	1.7E-03	1.9E+03	17	0.0253	1.0E-05	0	0.286	0.295	400	0.286	5685	3875	1796	5685	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.25	1060	1.7E-03	1.9E+03	17	0.0251	1.0E-05	0	0.287	0.295	401	0.287	5679	3871	1797	5679	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.30	1060	1.7E-03	1.9E+03	17	0.0248	9.9E-06	0	0.287	0.295	402	0.287	5674	3868	1798	5674	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.35	1060	1.7E-03	1.9E+03	17	0.0246	9.9E-06	0	0.287	0.295	403	0.287	5669	3864	1799	5669	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.40	1060	1.7E-03	1.9E+03	17	0.0244	9.8E-06	0	0.287	0.295	404	0.287	5663	3860	1800	5663	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.45	1060	1.7E-03	1.9E+03	17	0.0241	9.7E-06	0	0.287	0.296	405	0.287	5658	3857	1801	5658	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.50	1060	1.7E-03	1.9E+03	17	0.0239	9.6E-06	0	0.287	0.296	406	0.287	5653	3853	1802	5653	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.55	1060	1.7E-03	1.9E+03	17	0.0237	9.6E-06	0	0.287	0.296	407	0.287	5648	3849	1803	5648	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.60	1060	1.7E-03	1.9E+03	17	0.0235	9.5E-06	0	0.288	0.296	408	0.288	5642	3846	1804	5642	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.65	1060	1.7E-03	1.9E+03	17	0.0232	9.4E-06	0	0.288	0.296	409	0.288	5637	3842	1805	5637	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.70	1060	1.7E-03	1.9E+03	17	0.0230	9.4E-06	0	0.288	0.296	410	0.288	5632	3838	1806	5632	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.75	1060	1.7E-03	1.9E+03	17	0.0228	9.3E-06	0	0.288	0.297	411	0.288	5627	3835	1807	5627	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.80	1060	1.7E-03	1.9E+03	17	0.0225	9.2E-06	0	0.288	0.297	412	0.288	5622	3831	1808	5622	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.85	1060	1.7E-03	1.9E+03	17	0.0223	9.1E-06	0	0.288	0.297	413	0.288	5616	3828	1809	5616	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.90	1060	1.7E-03	1.9E+03	17	0.0221	9.1E-06	0	0.289	0.297	414	0.289	5611	3824	1810	5611	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
21.95	1060	1.7E-03	1.9E+03	17	0.0218	9.0E-06	0	0.289	0.297	415	0.289	5606	3820	1811	5606	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.00	1060	1.7E-03	1.9E+03	17	0.0216	8.9E-06	0	0.289	0.297	416	0.289	5601	3817	1812	5601	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.05	1060	1.7E-03	1.9E+03	17	0.0214	8.8E-06	0	0.289	0.298	417	0.289	5596	3813	1813	5596	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.10	1060	1.7E-03	1.9E+03	17	0.0212	8.8E-06	0	0.289	0.298	418	0.289	5591	3810	1814	5591	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.15	1060	1.7E-03	1.9E+03	17	0.0209	8.7E-06	0	0.289	0.298	419	0.289	5586	3806	1815	5586	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.20	1060	1.7E-03	1.9E+03	17	0.0207	8.6E-06	0	0.289	0.298	420	0.289	5581	3803	1816	5581	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.25	1060	1.7E-03	1.9E+03	17	0.0205	8.5E-06	0	0.290	0.298	421	0.290	5576	3799	1817	5576	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.30	1060	1.7E-03	1.9E+03	17	0.0202	8.5E-06	0	0.290	0.298	422	0.290	5571	3796	1818	5571	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.35	1060	1.7E-03	1.9E+03	17	0.0200	8.4E-06	0	0.290	0.299	423	0.290	5566	3792	1819	5566	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.40	1060	1.7E-03	1.9E+03	17	0.0198	8.3E-06	0	0.290	0.299	424	0.290	5561	3789	1820	5561	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.45	1060	1.7E-03	1.9E+03	17	0.0195	8.2E-06	0	0.290	0.299	425	0.290	5556	3785	1821	5556	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.50	1060	1.7E-03	1.9E+03	17	0.0193	8.1E-06	0	0.290	0.299	426	0.290	5551	3782	1822	5551	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.55	1003	1.7E-03	1.7E+03	17	0.0191	9.0E-06	0	0.290	0.299	427	0.290	5546	3779	1823	5546	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.60	1003	1.7E-03	1.7E+03	17	0.0189	8.9E-06	0	0.291	0.300	428	0.291	5541	3775	1824	5541	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.65	1003	1.7E-03	1.7E+03	17	0.0186	8.8E-06	0	0.291	0.300	429	0.291	5536	3772	1825	5536	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.70	1003	1.7E-03	1.7E+03	17	0.0184	8.7E-06	0	0.291	0.300	430	0.291	5531	3768	1826	5531	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.75	1003	1.7E-03	1.7E+03	17	0.0182	8.6E-06	0	0.291	0.300	431	0.291	5526	3765	1827	5526	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.80	1003	1.7E-03	1.7E+03	17	0.0179	8.6E-06	0	0.291	0.300	432	0.291	5521	3762	1828	5521	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.85	1003	1.7E-03	1.7E+03	17	0.0177	8.5E-06	0	0.291	0.300	433	0.291	5516	3758	1829	5516	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.90	1003	1.7E-03	1.7E+03	17	0.0175	8.4E-06	0	0.291	0.301	434	0.291	5512	3755	1830	5512	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
22.95	1003	1.7E-03	1.7E+03	17	0.0172	8.3E-06	0	0.292	0.301	435	0.292	5507	3751	1831	5507	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.00	1003	1.7E-03	1.7E+03	17	0.0170	8.2E-06	0	0.292	0.301	436	0.292	5502	3748	1832	5502	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.05	1003	1.7E-03	1.7E+03	17	0.0168	8.1E-06	0	0.292	0.301	437	0.292	5497	3745	1833	5497	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.10	1003	1.7E-03	1.7E+03	17	0.0166	8.0E-06	0	0.292	0.301	438	0.292	5492	3741	1834	5492	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.15	1003	1.7E-03	1.7E+03	17	0.0163	7.9E-06	0	0.292	0.301	439	0.292	5488	3738	1835	5488	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.20	1003	1.7E-03	1.7E+03	17	0.0161	7.8E-06	0	0.292	0.302	440	0.292	5483	3735	1836	5483	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.25	1003	1.7E-03	1.7E+03	17	0.0159	7.7E-06	0	0.292	0.302	441	0.292	5478	3732	1837	5478	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.30	1003	1.7E-03	1.7E+03	17	0.0156	7.6E-06	0	0.293	0.302	442	0.293	5473	3728	1838	5473	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.35	1003	1.7E-03	1.7E+03	17	0.0154	7.5E-06	0	0.293	0.302	443	0.293	5469	3725	1839	5469	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.40	1003	1.7E-03	1.7E+03	17	0.0152	7.4E-06	0	0.293	0.302	444	0.293	5464	3722	1840	5464	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.45	1003	1.7E-03	1.7E+03	17	0.0149	7.3E-06	0	0.293	0.302	445	0.293	5459	3719	1841	5459	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.50	1003	1.7E-03	1.7E+03	17	0.0147	7.2E-06	0	0.293	0.303	446	0.293	5455	3715	1842	5455	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.55	1003	1.7E-03	1.7E+03	17	0.0145	7.1E-06	0	0.293	0.303	447	0.293	5450	3712	1843	5450	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.60	1003	1.7E-03	1.7E+03	17	0.0143	7.0E-06	0	0.293	0.303	448	0.293	5445	3709	1844	5445	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.65	1003	1.7E-03	1.7E+03	17	0.0140	6.9E-06	0	0.294	0.303	449	0.294	5441	3706	1845	5441	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.70	1003	1.7E-03	1.7E+03	17	0.0138	6.8E-06	0	0.294	0.303	450	0.294	5436	3702	1846	5436	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.75	1003	1.7E-03	1.7E+03	17	0.0136	6.7E-06	0	0.294	0.303	451	0.294	5431	3699	1847	5431	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.80	1003	1.7E-03	1.7E+03	17	0.0133	6.6E-06	0	0.294	0.304	452	0.294	5427	3696	1848	5427	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.85	1003	1.7E-03	1.7E+03	17	0.0131	6.5E-06	0	0.294	0.304	453	0.294	5422	3693	1849	5422	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.90	1003	1.7E-03	1.7E+03	17	0.0129	6.4E-06	0	0.294	0.304	454	0.294	5418	3690	1850	5418	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
23.95	1003	1.7E-03	1.7E+03	17	0.0126	6.3E-06	0	0.294	0.304	455	0.294	5413	3687	1851	5413	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.00	1003	1.7E-03	1.7E+03	17	0.0124	6.2E-06	0	0.295	0.304	456	0.295	5409	3683	1852	5409	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.05	1005	1.7E-03	1.7E+03	17	0.0122	6.1E-06	0	0.295	0.304	457	0.295	5404	3680	1853	5404	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.10	1005	1.7E-03	1.7E+03	17	0.0120	6.0E-06	0	0.295	0.305	458	0.295	5400	3677	1854	5400	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.15	1005	1.7E-03	1.7E+03	17	0.0117	5.9E-06	0	0.295	0.305	459	0.295	5395	3674	1855	5395	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.20	1005	1.7E-03	1.7E+03	17	0.0115	5.8E-06	0	0.295	0.305	460	0.295	5391	3671	1856	5391	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.25	1005	1.7E-03	1.7E+03	17	0.0113	5.7E-06	0	0.295	0.305	461	0.295	5386	3668	1857	5386	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.30	1005	1.7E-03	1.7E+03	17	0.0110	5.6E-06	0	0.295	0.305	462	0.295	5382	3665	1858	5382	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.35	1005	1.7E-03	1.7E+03	17	0.0108	5.5E-06	0	0.296	0.305	463	0.296	5377	3662	1859	5377	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.40	1005	1.7E-03	1.7E+03	17	0.0106	5.4E-06	0	0.296	0.306	464	0.296	5373	3659	1860	5373	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.45	1005	1.7E-03	1.7E+03	17	0.0103	5.3E-06	0	0.296	0.306	465	0.296	5368	3655	1861	5368	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.50	1005	1.7E-03	1.7E+03	17	0.0101	5.2E-06	0	0.296	0.306	466	0.296	5364	3652	1862	5364	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000

76.279	6901.15	81.5	1.347	81.5	0.8	0.35	1.65%	Coarse Alluvium	0.056	111.0	4.30	0.000	4.30	0	18	1.74%	2.7	36%	4.56	0.000	4.56
76.443	6900.99	83.7	1.312	83.7	1.1	0.49	1.57%	Coarse Alluvium	0.056	111.0	4.31	0.000	4.31	0	18	1.65%	2.6	36%	4.57	0.000	4.57
76.607	6900.82	86.8	1.384	86.8	2.2	0.96	1.59%	Coarse Alluvium	0.056	111.0	4.32	0.000	4.32	0	19	1.68%	2.6	36%	4.58	0.000	4.58
76.771	6900.66	102.4	1.512	102.4	2.0	0.85	1.48%	Coarse Alluvium	0.056	111.0	4.32	0.000	4.32	0	23	1.54%	2.5	36%	4.59	0.000	4.59
76.935	6900.50	113.5	0.957	113.5	1.5	0.63	0.84%	Coarse Alluvium	0.056	111.0	4.33	0.000	4.33	0	25	0.88%	2.4	36%	4.60	0.000	4.60
77.099	6900.33	111.7	1.361	111.7	1.2	0.53	1.22%	Coarse Alluvium	0.056	111.0	4.34	0.000	4.34	0	25	1.27%	2.5	36%	4.61	0.000	4.61
77.263	6900.17	106.8	1.506	106.8	4.4	1.91	1.41%	Coarse Alluvium	0.056	111.0	4.35	0.000	4.35	0	24	1.47%	2.5	36%	4.62	0.000	4.62
77.427	6900.00	86.2	1.982	86.2	0.4	0.16	2.30%	Coarse Alluvium	0.056	111.0	4.36	0.000	4.36	0	19	2.42%	2.7	36%	4.63	0.000	4.63
77.591	6899.84	88.7	1.678	88.7	2.9	1.26	1.89%	Coarse Alluvium	0.056	111.0	4.37	0.000	4.37	0	19	1.99%	2.7	36%	4.63	0.000	4.63
77.755	6899.68	120.4	1.831	120.3	4.2	1.83	1.52%	Coarse Alluvium	0.056	111.0	4.38	0.000	4.38	0	26	1.58%	2.5	36%	4.64	0.000	4.64
77.919	6899.51	145.7	2.244	145.6	2.1	0.89	1.54%	Coarse Alluvium	0.056	111.0	4.39	0.000	4.39	0	32	1.59%	2.4	36%	4.65	0.000	4.65
78.083	6899.35	137.9	2.233	137.9	1.0	0.43	1.62%	Coarse Alluvium	0.056	111.0	4.40	0.000	4.40	0	30	1.67%	2.5	36%	4.66	0.000	4.66
78.247	6899.18	122.6	2.131	122.6	2.5	1.08	1.74%	Coarse Alluvium	0.056	111.0	4.41	0.000	4.41	0	27	1.80%	2.5	36%	4.67	0.000	4.67
78.411	6899.02	112.8	1.876	112.8	0.5	0.23	1.66%	Coarse Alluvium	0.056	111.0	4.42	0.000	4.42	0	25	1.73%	2.5	36%	4.68	0.000	4.68
78.575	6898.85	108.9	1.646	108.9	1.6	0.71	1.51%	Coarse Alluvium	0.056	111.0	4.42	0.000	4.42	0	24	1.58%	2.5	36%	4.69	0.000	4.69
78.739	6898.69	104.2	1.479	104.2	1.6	0.67	1.42%	Coarse Alluvium	0.056	111.0	4.43	0.000	4.43	0	23	1.48%	2.5	36%	4.70	0.000	4.70
78.903	6898.53	107.9	1.467	107.9	1.1	0.49	1.36%	Coarse Alluvium	0.056	111.0	4.44	0.000	4.44	0	23	1.42%	2.5	36%	4.71	0.000	4.71
79.067	6898.36	116.8	1.667	116.8	1.4	0.59	1.43%	Coarse Alluvium	0.056	111.0	4.45	0.000	4.45	0	25	1.48%	2.5	36%	4.72	0.000	4.72
79.231	6898.20	140.5	1.836	140.5	1.2	0.51	1.31%	Coarse Alluvium	0.056	111.0	4.46	0.000	4.46	0	30	1.35%	2.4	36%	4.73	0.000	4.73
79.395	6898.03	140.6	1.890	140.6	1.4	0.59	1.34%	Coarse Alluvium	0.056	111.0	4.47	0.000	4.47	0	30	1.39%	2.4	36%	4.73	0.000	4.73
79.559	6897.87	161.2	1.585	161.2	3.3	1.44	0.98%	Coarse Alluvium	0.056	111.0	4.48	0.000	4.48	0	35	1.01%	2.3	36%	4.74	0.000	4.74
79.723	6897.71	172.6	1.841	172.5	2.7	1.18	1.07%	Coarse Alluvium	0.056	111.0	4.49	0.000	4.49	0	37	1.10%	2.3	36%	4.75	0.000	4.75
79.887	6897.54	164.9	2.077	164.9	4.3	1.85	1.26%	Coarse Alluvium	0.056	111.0	4.50	0.000	4.50	0	36	1.29%	2.3	36%	4.76	0.000	4.76
80.052	6897.38	128.8	1.981	128.8	1.4	0.59	1.54%	Coarse Alluvium	0.056	111.0	4.51	0.000	4.51	0	28	1.59%	2.5	36%	4.77	0.000	4.77
80.216	6897.21	193.6	3.060	193.6	2.7	1.16	1.58%	Coarse Alluvium	0.056	111.0	4.52	0.000	4.52	0	42	1.62%	2.3	36%	4.78	0.000	4.78
80.380	6897.05	234.3	3.869	234.2	3.9	1.71	1.65%	Coarse Alluvium	0.056	111.0	4.52	0.000	4.52	0	51	1.68%	2.3	36%	4.79	0.000	4.79
80.544	6896.89	232.5	3.947	232.5	3.4	1.46	1.70%	Coarse Alluvium	0.056	111.0	4.53	0.000	4.53	0	50	1.73%	2.3	36%	4.80	0.000	4.80
80.708	6896.72	201.0	3.303	201.0	2.8	1.20	1.64%	Coarse Alluvium	0.056	111.0	4.54	0.000	4.54	0	43	1.68%	2.3	36%	4.81	0.000	4.81
80.872	6896.56	174.7	2.828	174.6	1.9	0.83	1.62%	Coarse Alluvium	0.056	111.0	4.55	0.000	4.55	0	37	1.66%	2.4	36%	4.82	0.000	4.82
81.036	6896.39	175.9	2.247	175.9	1.4	0.59	1.28%	Coarse Alluvium	0.056	111.0	4.56	0.000	4.56	0	38	1.31%	2.3	36%	4.83	0.000	4.83
81.200	6896.23	180.5	3.641	180.5	6.9	2.97	2.02%	Coarse Alluvium	0.056	111.0	4.57	0.000	4.57	0	39	2.07%	2.4	36%	4.83	0.000	4.83
81.364	6896.07	176.2	4.838	176.2	5.7	2.46	2.75%	Coarse Alluvium	0.056	111.0	4.58	0.000	4.58	0	37	2.82%	2.5	36%	4.84	0.000	4.84
81.528	6895.90	162.7	4.408	162.7	0.2	0.10	2.71%	Coarse Alluvium	0.056	111.0	4.59	0.000	4.59	0	34	2.79%	2.6	36%	4.85	0.000	4.85
81.692	6895.74	178.8	3.777	178.8	4.5	1.93	2.11%	Coarse Alluvium	0.056	111.0	4.60	0.000	4.60	0	38	2.17%	2.4	36%	4.86	0.000	4.86
81.856	6895.57	192.8	3.206	192.7	4.9	2.14	1.66%	Coarse Alluvium	0.056	111.0	4.61	0.000	4.61	0	41	1.70%	2.4	36%	4.87	0.000	4.87
82.020	6895.41	196.4	3.155	196.4	5.6	2.42	1.61%	Coarse Alluvium	0.056	111.0	4.62	0.000	4.62	0	42	1.65%	2.3	36%	4.88	0.000	4.88
82.184	6895.25	175.8	2.856	175.8	6.8	2.93	1.62%	Coarse Alluvium	0.056	111.0	4.63	0.000	4.63	0	37	1.67%	2.4	36%	4.89	0.000	4.89
82.348	6895.08	165.6	2.303	165.6	4.7	2.05	1.39%	Coarse Alluvium	0.056	111.0	4.63	0.000	4.63	0	35	1.43%	2.4	36%	4.90	0.000	4.90
82.512	6894.92	158.2	2.014	158.1	3.9	1.69	1.27%	Coarse Alluvium	0.056	111.0	4.64	0.000	4.64	0	33	1.31%	2.4	36%	4.91	0.000	4.91
82.676	6894.75	153.2	2.228	153.2	3.2	1.38	1.45%	Coarse Alluvium	0.056	111.0	4.65	0.000	4.65	0	32	1.50%	2.4	36%	4.92	0.000	4.92
82.840	6894.59	166.2	2.685	166.2	3.4	1.46	1.62%	Coarse Alluvium	0.056	111.0	4.66	0.000	4.66	0	35	1.66%	2.4	36%	4.93	0.000	4.93
83.004	6894.43	149.4	2.829	149.4	5.3	2.28	1.89%	Coarse Alluvium	0.056	111.0	4.67	0.000	4.67	0	31	1.95%	2.5	36%	4.93	0.000	4.93
83.168	6894.26	213.0	4.207	213.0	10.1	4.37	1.97%	Coarse Alluvium	0.056	111.0	4.68	0.000	4.68	0	45	2.02%	2.4	36%	4.94	0.000	4.94
83.332	6894.10	304.4	5.876	304.3	12.0	5.20	1.93%	Coarse Alluvium	0.056	111.0	4.69	0.000	4.69	0	64	1.96%	2.2	36%	4.95	0.000	4.95
83.496	6893.93	237.4	6.993	237.3	12.3	5.35	2.95%	Coarse Alluvium	0.056	111.0	4.70	0.000	4.70	0	50	3.01%	2.5	36%	4.96	0.000	4.96
83.660	6893.77	206.9	5.430	206.8	9.3	4.03	2.62%	Coarse Alluvium	0.056	111.0	4.71	0.000	4.71	0	43	2.69%	2.5	36%	4.97	0.000	4.97
83.824	6893.61	187.5	4.225	187.5	5.7	2.46	2.25%	Coarse Alluvium	0.056	111.0	4.72	0.000	4.72	0	39	2.31%	2.5	36%	4.98	0.000	4.98
83.988	6893.44	174.8	3.938	174.8	5.4	2.32	2.25%	Coarse Alluvium	0.056	111.0	4.73	0.000	4.73	0	36	2.32%	2.5	36%	4.99	0.000	4.99
84.153	6893.28	194.7	4.146	194.7	9.0	3.90	2.13%	Coarse Alluvium	0.056	111.0	4.73	0.000	4.73	0	40	2.18%	2.4	36%	5.00	0.000	5.00
84.317	6893.11	198.1	3.974	198.0	7.0	3.01	2.01%	Coarse Alluvium	0.056	111.0	4.74	0.000	4.74	0	41	2.06%	2.4	36%	5.01	0.000	5.01
84.481	6892.95	219.7	2.921	219.7	5.0	2.15	1.33%	Coarse Alluvium	0.056	111.0	4.75	0.000	4.75	0	45	1.36%	2.3	36%	5.02	0.000	5.02
84.645	6892.79	241.9	2.807	241.8	5.9	2.54	1.16%	Coarse Alluvium	0.056	111.0	4.76	0.000	4.76	0	50	1.18%	2.2	36%	5.03	0.000	5.03
84.809	6892.62	275.3	2.947	275.2	5.8	2.52	1.07%	Coarse Alluvium	0.056	111.0	4.77	0.000	4.77	0	57	1.09%	2.1	36%	5.03	0.000	5.03
84.973	6892.46	304.3	2.706	304.2	7.2	3.11	0.89%	Coarse Alluvium	0.056	111.0	4.78	0.000	4.78	0	63	0.90%	2.0	36%	5.04	0.000	5.04
85.137	6892.29	326.3	3.161	326.3	6.3	2.75	0.97%	Coarse Alluvium	0.056	111.0	4.79	0.000	4.79	0	67	0.98%	2.0	36%	5.05	0.000	5.05
85.301	6892.13	317.5	3.308	317.5	6.2	2.68	1.04%	Coarse Alluvium	0.056	111.0	4.80	0.000	4.80	0	65	1.06%	2.1	36%	5.06	0.000	5.06
85.465	6891.97	305.3	2.983	305.2	4.4	1.91	0.98%	Coarse Alluvium	0.056	111.0	4.81	0.000	4.81	0	63	0.99%	2.1	36%	5.07	0.000	5.07
85.629	6891.80	253.4	2.720	253.4	3.1	1.34	1.07%	Coarse Alluvium	0.056	111.0	4.82	0.000	4.82	0	52	1.09%	2.2	36%	5.08	0.000	5.08
85.793	6891.64	227.0	3.377	227.0	3.0	1.30	1.49%	Coarse Alluvium	0.056	111.0	4.83	0.000	4.83	0	46	1.52%	2.3	36%	5.09	0.000	5.09
85.957	6891.47	217.9	3.663	217.9	2.9	1.26	1.68%	Coarse Alluvium	0.056	111.0	4.83	0.000	4.83	0	44	1.72%	2.3	36%	5.10	0.000	5.10
86.121	6891.31	222.3	5.234	222.3	5.5	2.40	2.35%	Coarse Alluvium	0.056	111.0	4.84	0.000	4.84	0	45	2.41%	2.4	36%	5.11	0.000	5.11
86.285	6891.14	253.5	4.559	253.5	6.5	2.83	1.80%	Coarse Alluvium	0.056	111.0	4.85	0.000	4.85	0	51	1.83%	2.3	36%	5.12	0.000	5.12
86.449	6890.98	158.9	3.725	158.9	6.2	2.67	2.34%	Coarse Alluvium	0.056	111.0	4.86	0.000	4.86	0	32	2.42%	2.5	36%	5.13	0.000	5.13
86.613	6890.82	134.2	2.265	134.2	3.8	1.65	1.69%	Coarse Alluvium	0.056	111.0	4.87	0.000	4.87	0	27	1.75%	2.5	36%	5.14	0.000	5.14
86.777	6890.65	124.3	2.022	124.3	3.0	1.30	1.63%	Coarse Alluvium	0.056	111.0	4.88	0.000	4.88	0	24	1.69%	2.5	36%	5.14	0.000	5.14
86.941	6890.49	131.8	2.125	131.7	3.0	1.28	1.61%	Coarse Alluvium	0.056	111.0	4.89	0.000	4.89	0	26	1.67%	2.5	36%	5.15	0.000	5.15
87.105	6890.32	130.9	1.817	130.9	1.0	0.45	1.39%	Coarse Alluvium	0.056	111.0	4.90	0.000	4.90	0	26	1.44%	2.5	36%	5.16	0.000	5.16
87.269	6890.16	107.8	1.588	107.8	-0.4	-0.18	1.47%	Coarse Alluvium	0.056	111.0	4.91	0.000	4.91	0	21	1.54%	2.6	36%	5.17	0.000	5.17
87.433	6890.00	125.8	1.786	125.8	0.3	0.14	1.42%	Coarse Alluvium	0.056	111.0	4.92	0.000	4.92	0	25	1.48%	2.5	36%	5.18	0.000	5.18
87.597	6889.83	178.9	2.091	178.9	2.0	0.85	1.17%	Coarse Alluvium	0.056	111.0	4.93	0.000	4.93	0	35	1.20%	2.3	36%	5.19	0.000	5.19
87.761	6889.67	182.9	2.239	182.9	1.6	0.69	1.22%	Coarse Alluvium	0.056	111.0	4.93	0.000	4.93	0	36	1.26%	2.3	36%	5.20	0.000	5.20
87.925	6889.50	184.0	1.863	184.0	1.0	0.45	1.01%	Coarse Alluvium	0.056	111.0	4.94	0.000	4.94	0	36	1.04%	2.3	36%	5.21	0.000	5.21
88.089	6889.34	198.0	1.832	198.0	0.5	0.20	0.93%	Coarse Alluvium	0.056	111.0	4.95	0.000	4.95	0	39	0.95%	2.2	36%	5.22	0.000	5.22
88.254	6889.18	175.0	2.037	175.0	-0.5	-0.20	1.16%	Coarse Alluvium	0.056	111.0	4.96	0.000	4.96	0	34	1.20%	2.3	36%	5.23	0.000	5.23
88.418	6889.01	159.1	1.975	159.2	-0.6	-0.24	1.24%	Coarse Alluvium	0.056	111.0	4.97	0.000	4.97	0	31	1.28%	2.4	36%	5.24	0.000	5.24
88.582	6888.85	165.7	1.897	165.7	-0.4	-0.18	1.14%	Coarse Alluvium	0.056	111.0	4.98	0.000	4.98	0	32	1.18%	2.3	36%	5.24	0.000	5.24
88.746	6888.68	178.8	1.899	178.8	-0.2	-0.08	1.06%	Coarse Alluvium	0.056	111.0	4.99	0.000	4.99	0	35	1.09%	2.3	36%	5.25	0.000	5.25
88.910	6888.52	198.4	1.887	198.4	-0.6	-0.24	0.95%	Coarse Alluvium	0.056	111.0	5.00	0.000	5.00	0	39	0.98%	2.2	36%	5.26	0.000	5.26
89.074	6888.36	193.1	1.716	193.1	-0.8	-0.36	0.89%	Coarse Alluvium	0.056	111.0	5.01	0.000	5.01	0	38	0.91%	2.2	36%	5.27	0.000	5.27
89.238	6888.19	190.0	1.544	190.0	-1.3	-0.57	0.81%	Coarse Alluvium	0.056	111.0	5.02	0.000	5.02	0	37	0.83%	2.2	36%	5.28	0.000	5.28

24.55	1005	1.7E-03	1.7E+03	17	0.0099	5.1E-06	0	0.296	0.306	467	0.296	5360	3649	1863	5360	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.60	1005	1.7E-03	1.7E+03	17	0.0097	4.9E-06	0	0.296	0.306	468	0.296	5355	3646	1864	5355	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.65	1005	1.7E-03	1.7E+03	17	0.0094	4.8E-06	0	0.296	0.306	469	0.296	5351	3643	1865	5351	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.70	1005	1.7E-03	1.7E+03	17	0.0092	4.7E-06	0	0.296	0.307	470	0.296	5347	3640	1866	5347	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.75	1005	1.7E-03	1.7E+03	17	0.0090	4.6E-06	0	0.297	0.307	471	0.297	5342	3637	1867	5342	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.80	1005	1.7E-03	1.7E+03	17	0.0087	4.5E-06	0	0.297	0.307	472	0.297	5338	3634	1868	5338	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.85	1005	1.7E-03	1.7E+03	17	0.0085	4.4E-06	0	0.297	0.307	473	0.297	5334	3631	1869	5334	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.90	1005	1.7E-03	1.7E+03	17	0.0083	4.3E-06	0	0.297	0.307	474	0.297	5329	3628	1870	5329	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
24.95	1005	1.7E-03	1.7E+03	17	0.0080	4.2E-06	0	0.297	0.307	475	0.297	5325	3625	1871	5325	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.00	1005	1.7E-03	1.7E+03	17	0.0078	4.1E-06	0	0.297	0.307	476	0.297	5321	3622	1872	5321	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.05	1005	1.7E-03	1.7E+03	17	0.0076	4.0E-06	0	0.297	0.308	477	0.297	5316	3619	1873	5316	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.10	1005	1.7E-03	1.7E+03	17	0.0074	3.8E-06	0	0.298	0.308	478	0.298	5312	3616	1874	5312	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.15	1005	1.7E-03	1.7E+03	17	0.0071	3.7E-06	0	0.298	0.308	479	0.298	5308	3613	1875	5308	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.20	1005	1.7E-03	1.7E+03	17	0.0069	3.6E-06	0	0.298	0.308	480	0.298	5304	3610	1876	5304	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.25	1005	1.7E-03	1.7E+03	17	0.0067	3.5E-06	0	0.298	0.308	481	0.298	5299	3608	1877	5299	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.30	1005	1.7E-03	1.7E+03	16	0.0064	3.4E-06	0	0.298	0.308	482	0.298	5295	3605	1878	5295	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.35	1005	1.7E-03	1.7E+03	16	0.0062	3.3E-06	0	0.298	0.309	483	0.298	5291	3602	1879	5291	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.40	1005	1.7E-03	1.7E+03	16	0.0060	3.2E-06	0	0.298	0.309	484	0.298	5287	3599	1880	5287	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.45	1005	1.7E-03	1.7E+03	16	0.0057	3.0E-06	0	0.299	0.309	485	0.299	5283	3596	1881	5283	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.50	1005	1.7E-03	1.7E+03	16	0.0055	2.9E-06	0	0.299	0.309	486	0.299	5278	3593	1882	5278	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.55	1235	1.7E-03	2.6E+03	16	0.0053	1.9E-06	0	0.299	0.309	487	0.299	5274	3590	1883	5274	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.60	1235	1.7E-03	2.6E+03	16	0.0051	1.8E-06	0	0.299	0.309	488	0.299	5270	3587	1884	5270	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.65	1235	1.7E-03	2.6E+03	16	0.0048	1.7E-06	0	0.299	0.310	489	0.299	5266	3584	1885	5266	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.70	1235	1.7E-03	2.6E+03	16	0.0046	1.6E-06	0	0.299	0.310	490	0.299	5262	3581	1886	5262	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.75	1235	1.7E-03	2.6E+03	16	0.0044	1.5E-06	0	0.299	0.310	491	0.299	5258	3579	1887	5258	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.80	1235	1.7E-03	2.6E+03	16	0.0041	1.5E-06	0	0.299	0.310	492	0.299	5254	3576	1888	5254	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.85	1235	1.7E-03	2.6E+03	16	0.0039	1.4E-06	0	0.300	0.310	493	0.300	5250	3573	1889	5250	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.90	1235	1.7E-03	2.6E+03	16	0.0037	1.3E-06	0	0.300	0.310	494	0.300	5246	3570	1890	5246	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
25.95	1235	1.7E-03	2.6E+03	16	0.0034	1.2E-06	0	0.300	0.310	495	0.300	5241	3567	1891	5241	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.00	1235	1.7E-03	2.6E+03	16	0.0032	1.2E-06	0	0.300	0.311	496	0.300	5237	3564	1892	5237	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.05	1235	1.7E-03	2.6E+03	16	0.0030	1.1E-06	0	0.300	0.311	497	0.300	5233	3562	1893	5233	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.10	1235	1.7E-03	2.6E+03	16	0.0028	9.9E-07	0	0.300	0.311	498	0.300	5229	3559	1894	5229	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.15	1235	1.7E-03	2.6E+03	16	0.0025	9.1E-07	0	0.300	0.311	499	0.300	5225	3556	1895	5225	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.20	1235	1.7E-03	2.6E+03	16	0.0023	8.3E-07	0	0.300	0.311	500	0.300	5221	3553	1896	5221	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.25	1235	1.7E-03	2.6E+03	16	0.0021	7.5E-07	0	0.301	0.311	501	0.301	5217	3550	1897	5217	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.30	1235	1.7E-03	2.6E+03	16	0.0018	6.7E-07	0	0.301	0.312	502	0.301	5213	3548	1898	5213	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.35	1235	1.7E-03	2.6E+03	16	0.0016	5.8E-07	0	0.301	0.312	503	0.301	5209	3545	1899	5209	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.40	1235	1.7E-03	2.6E+03	16	0.0014	5.0E-07	0	0.301	0.312	504	0.301	5205	3542	1900	5205	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.45	1235	1.7E-03	2.6E+03	16	0.0012	4.2E-07	0	0.301	0.312	505	0.301	5201	3539	1901	5201	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.50	1235	1.7E-03	2.6E+03	16	0.0009	3.4E-07	0	0.301	0.312	506	0.301	5197	3537	1902	5197	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.55	1235	1.7E-03	2.6E+03	16	0.0007	2.5E-07	0	0.301	0.312	507	0.301	5193	3534	1903	5193	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.60	1235	1.7E-03	2.6E+03	16	0.0005	1.7E-07	0	0.302	0.312	508	0.302	5190	3531	1904	5190	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.65	1235	1.7E-03	2.6E+03	16	0.0002	8.4E-08	0	0.302	0.313	509	0.302	5186	3529	1905	5186	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.70	1235	1.7E-03	2.6E+03	16	0.0000	4.7E-11	0	0.302	0.313	510	0.302	5182	3526	1906	5182	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.75	1235	1.7E-03	2.6E+03	16	-0.0002	######	0	0.302	0.313	511	0.302	5178	3523	1907	5178	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.80	1235	1.7E-03	2.6E+03	16	-0.0005	######	0	0.302	0.313	512	0.302	5174	3520	1908	5174	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.85	1235	1.7E-03	2.6E+03	16	-0.0007	######	0	0.302	0.313	513	0.302	5170	3518	1909	5170	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.90	1235	1.7E-03	2.6E+03	16	-0.0009	######	0	0.302	0.313	514	0.302	5166	3515	1910	5166	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
26.95	1235	1.7E-03	2.6E+03	16	-0.0011	######	0	0.302	0.314	515	0.302	5162	3512	1911	5162	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.00	1235	1.7E-03	2.6E+03	16	-0.0014	######	0	0.303	0.314	516	0.303	5158	3510	1912	5158	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.05	1235	1.7E-03	2.6E+03	16	-0.0016	######	0	0.303	0.314	517	0.303	5155	3507	1913	5155	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.10	1016	1.7E-03	1.8E+03	16	-0.0018	######	0	0.303	0.314	518	0.303	5151	3504	1914	5151	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.15	1016	1.7E-03	1.8E+03	16	-0.0021	######	0	0.303	0.314	519	0.303	5147	3502	1915	5147	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.20	1016	1.7E-03	1.8E+03	16	-0.0023	######	0	0.303	0.314	520	0.303	5143	3499	1916	5143	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.25	1016	1.7E-03	1.8E+03	16	-0.0025	######	0	0.303	0.314	521	0.303	5139	3496	1917	5139	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.30	1016	1.7E-03	1.8E+03	16	-0.0028	######	0	0.303	0.315	522	0.303	5136	3494	1918	5136	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.35	1016	1.7E-03	1.8E+03	16	-0.0030	######	0	0.303	0.315	523	0.303	5132	3491	1919	5132	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.40	1016	1.7E-03	1.8E+03	16	-0.0032	######	0	0.304	0.315	524	0.304	5128	3489	1920	5128	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.45	1016	1.7E-03	1.8E+03	16	-0.0034	######	0	0.304	0.315	525	0.304	5124	3486	1921	5124	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.50	1016	1.7E-03	1.8E+03	16	-0.0037	######	0	0.304	0.315	526	0.304	5120	3483	1922	5120	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.55	1016	1.7E-03	1.8E+03	16	-0.0039	######	0	0.304	0.315	527	0.304	5117	3481	1923	5117	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.60	1016	1.7E-03	1.8E+03	16	-0.0041	######	0	0.304	0.315	528	0.304	5113	3478	1924	5113	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.65	1016	1.7E-03	1.8E+03	16	-0.0044	######	0	0.304	0.316	529	0.304	5109	3476	1925	5109	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.70	1016	1.7E-03	1.8E+03	16	-0.0046	######	0	0.304	0.316	530	0.304	5106	3473	1926	5106	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.75	1016	1.7E-03	1.8E+03	16	-0.0048	######	0	0.304	0.316	531	0.304	5102	3470	1927	5102	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.80	1016	1.7E-03	1.8E+03	16	-0.0051	######	0	0.305	0.316	532	0.305	5098	3468	1928	5098	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.85	1016	1.7E-03	1.8E+03	16	-0.0053	######	0	0.305	0.316	533	0.305	5094	3465	1929	5094	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.90	1016	1.7E-03	1.8E+03	16	-0.0055	######	0	0.305	0.316	534	0.305	5091	3463	1930	5091	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
27.95	1016	1.7E-03	1.8E+03	16	-0.0057	######	0	0.305	0.317	535	0.305	5087	3460	1931	5087	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.00	1016	1.7E-03	1.8E+03	16	-0.0060	######	0	0.305	0.317	536	0.305	5083	3458	1932	5083	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.05	1016	1.7E-03	1.8E+03	16	-0.0062	######	0	0.305	0.317	537	0.305	5080	3455	1933	5080	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.10	1016	1.7E-03	1.8E+03	16	-0.0064	######	0	0.305	0.317	538	0.305	5076	3453	1934	5076	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.15	1016	1.7E-03	1.8E+03	16	-0.0067	######	0	0.305	0.317	539	0.305	5072	3450	1935	5072	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.20	1016	1.7E-03	1.8E+03	16	-0.0069	######	0	0.306	0.317	540	0.306	5069	3448	1936	5069	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.25	1016	1.7E-03	1.8E+03	16	-0.0071	######	0	0.306	0.317	541	0.306	5065	3445	1937	5065	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.30	1016	1.7E-03	1.8E+03	16	-0.0074	######	0	0.306	0.318	542	0.306	5062	3443	1938	5062	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.35	1016	1.7E-03	1.8E+03	16	-0.0076	######	0	0.306	0.318	543	0.306	5058	3440	1939	5058	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.40	1016	1.7E-03	1.8E+03	16	-0.0078	######	0	0.306	0.318	544	0.306	5054	3438	1940	5054	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.45	1016	1.7E-03	1.8E+03	16	-0.0080	######	0	0.306	0.318	545	0.306	5051	3435	1941	5051	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.50	1016	1.7E-03	1.8E+03	16	-0.0083	######	0	0.306	0.318	546	0.306	5047	3433	1942	5047	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000

89.402	6888.03	188.9	1.368	188.9	-1.1	-0.47	0.72%	Coarse Alluvium	0.056	111.0	5.03	0.000	5.03	0	37	0.74%	2.2	36%	5.29	0.000	5.29
89.566	6887.86	188.1	1.479	188.1	-1.3	-0.55	0.79%	Coarse Alluvium	0.056	111.0	5.03	0.000	5.03	0	36	0.81%	2.2	36%	5.30	0.000	5.30
89.730	6887.70	164.1	1.834	164.1	-0.8	-0.36	1.12%	Coarse Alluvium	0.056	111.0	5.04	0.000	5.04	0	32	1.15%	2.4	36%	5.31	0.000	5.31
89.894	6887.54	147.7	1.329	147.7	-1.5	-0.65	0.90%	Coarse Alluvium	0.056	111.0	5.05	0.000	5.05	0	28	0.93%	2.3	36%	5.32	0.000	5.32
90.058	6887.37	148.4	1.521	148.4	-1.6	-0.71	1.02%	Coarse Alluvium	0.056	111.0	5.06	0.000	5.06	0	28	1.06%	2.4	36%	5.33	0.000	5.33
90.222	6887.21	181.2	1.550	181.2	-1.7	-0.75	0.86%	Coarse Alluvium	0.056	111.0	5.07	0.000	5.07	0	35	0.88%	2.3	36%	5.34	0.000	5.34
90.386	6887.04	193.4	1.996	193.4	-1.6	-0.69	1.03%	Coarse Alluvium	0.056	111.0	5.08	0.000	5.08	0	37	1.06%	2.3	36%	5.34	0.000	5.34
90.550	6886.88	200.4	1.665	200.4	-2.5	-1.08	0.83%	Coarse Alluvium	0.056	111.0	5.09	0.000	5.09	0	38	0.85%	2.2	36%	5.35	0.000	5.35
90.714	6886.72	240.4	1.781	240.4	-1.7	-0.75	0.74%	Coarse Alluvium	0.056	111.0	5.10	0.000	5.10	0	46	0.76%	2.1	36%	5.36	0.000	5.36
90.878	6886.55	240.0	2.697	240.0	-1.7	-0.73	1.12%	Coarse Alluvium	0.056	111.0	5.11	0.000	5.11	0	46	1.15%	2.2	36%	5.37	0.000	5.37
91.042	6886.39	225.2	3.396	225.2	-1.9	-0.81	1.51%	Coarse Alluvium	0.056	111.0	5.12	0.000	5.12	0	43	1.54%	2.3	36%	5.38	0.000	5.38
91.206	6886.22	213.7	3.313	213.7	-1.5	-0.65	1.55%	Coarse Alluvium	0.056	111.0	5.13	0.000	5.13	0	41	1.59%	2.3	36%	5.39	0.000	5.39
91.370	6886.06	200.7	3.490	200.7	-1.6	-0.71	1.74%	Coarse Alluvium	0.056	111.0	5.14	0.000	5.14	0	38	1.78%	2.4	36%	5.40	0.000	5.40
91.534	6885.90	123.1	3.538	123.1	-2.7	-1.16	2.87%	Coarse Alluvium	0.056	111.0	5.14	0.000	5.14	0	23	3.00%	2.7	36%	5.41	0.000	5.41
91.698	6885.73	64.5	3.045	64.5	-3.7	-1.59	4.72%	Coarse Alluvium	0.056	111.0	5.15	0.000	5.15	0	12	5.13%	3.1	36%	5.42	0.000	5.42
91.862	6885.57	47.7	2.189	47.7	-3.3	-1.44	4.59%	Coarse Alluvium	0.056	111.0	5.16	0.000	5.16	0	8	5.14%	3.2	36%	5.43	0.000	5.43
92.026	6885.40	99.9	1.913	99.9	1.2	0.51	1.92%	Coarse Alluvium	0.056	111.0	5.17	0.000	5.17	0	18	2.02%	2.7	36%	5.44	0.000	5.44
92.190	6885.24	142.8	1.768	142.8	1.3	0.55	1.24%	Coarse Alluvium	0.056	111.0	5.18	0.000	5.18	0	27	1.28%	2.4	36%	5.44	0.000	5.44
92.355	6885.08	144.2	1.412	144.2	0.1	0.02	0.98%	Coarse Alluvium	0.056	111.0	5.19	0.000	5.19	0	27	1.02%	2.4	36%	5.45	0.000	5.45
92.519	6884.91	142.1	0.308	142.1	-0.7	-0.30	0.22%	Coarse Alluvium	0.056	111.0	5.20	0.000	5.20	0	26	0.23%	2.1	36%	5.46	0.000	5.46
92.683	6884.75	135.4	0.530	135.4	-0.8	-0.35	0.39%	Coarse Alluvium	0.056	111.0	5.21	0.000	5.21	0	25	0.41%	2.2	36%	5.47	0.000	5.47
92.847	6884.58	138.6	0.653	138.5	8.5	3.66	0.47%	Coarse Alluvium	0.056	111.0	5.22	0.000	5.22	0	26	0.49%	2.3	36%	5.48	0.000	5.48
93.011	6884.42	131.0	0.808	131.0	0.9	0.39	0.62%	Coarse Alluvium	0.056	111.0	5.23	0.000	5.23	0	24	0.64%	2.3	36%	5.49	0.000	5.49
93.175	6884.26	122.0	0.867	122.0	-0.6	-0.26	0.71%	Coarse Alluvium	0.056	111.0	5.24	0.000	5.24	0	22	0.74%	2.4	36%	5.50	0.000	5.50
93.339	6884.09	134.9	1.098	134.9	-4.0	-1.75	0.81%	Coarse Alluvium	0.056	111.0	5.24	0.000	5.24	0	25	0.85%	2.4	36%	5.51	0.000	5.51
93.503	6883.93	163.2	1.641	163.2	-3.4	-1.46	1.01%	Coarse Alluvium	0.056	111.0	5.25	0.000	5.25	0	30	1.04%	2.3	36%	5.52	0.000	5.52
93.667	6883.76	186.9	1.857	186.9	-2.7	-1.18	0.99%	Coarse Alluvium	0.056	111.0	5.26	0.000	5.26	0	35	1.02%	2.3	36%	5.53	0.000	5.53
93.831	6883.60	193.0	2.073	193.0	-2.5	-1.08	1.07%	Coarse Alluvium	0.056	111.0	5.27	0.000	5.27	0	36	1.10%	2.3	36%	5.54	0.000	5.54
93.995	6883.44	199.4	2.059	199.4	-2.3	-0.98	1.03%	Coarse Alluvium	0.056	111.0	5.28	0.000	5.28	0	37	1.06%	2.3	36%	5.55	0.000	5.55
94.159	6883.27	204.2	2.008	204.2	-2.5	-1.08	0.98%	Coarse Alluvium	0.056	111.0	5.29	0.000	5.29	0	38	1.01%	2.3	36%	5.55	0.000	5.55
94.323	6883.11	190.8	2.045	190.8	-2.7	-1.16	1.07%	Coarse Alluvium	0.056	111.0	5.30	0.000	5.30	0	35	1.10%	2.3	36%	5.56	0.000	5.56
94.487	6882.94	178.7	2.495	178.7	-2.6	-1.14	1.40%	Coarse Alluvium	0.056	111.0	5.31	0.000	5.31	0	33	1.44%	2.4	36%	5.57	0.000	5.57
94.651	6882.78	195.5	2.741	195.5	-2.4	-1.02	1.40%	Coarse Alluvium	0.056	111.0	5.32	0.000	5.32	0	36	1.44%	2.4	36%	5.58	0.000	5.58

28.55	1016	1.7E-03	1.8E+03	16	-0.0085	######	0	0.306	0.318	547	0.306	5044	3430	1943	5044	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.60	1637	1.7E-03	4.6E+03	16	-0.0087	######	0	0.307	0.318	548	0.307	5040	3428	1944	5040	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.65	1637	1.7E-03	4.6E+03	16	-0.0090	######	0	0.307	0.319	549	0.307	5037	3425	1945	5037	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.70	1637	1.7E-03	4.6E+03	16	-0.0092	######	0	0.307	0.319	550	0.307	5033	3423	1946	5033	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.75	1637	1.7E-03	4.6E+03	16	-0.0094	######	0	0.307	0.319	551	0.307	5030	3420	1947	5030	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.80	1637	1.7E-03	4.6E+03	16	-0.0097	######	0	0.307	0.319	552	0.307	5026	3418	1948	5026	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.85	1637	1.7E-03	4.6E+03	16	-0.0099	######	0	0.307	0.319	553	0.307	5022	3415	1949	5022	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.90	1637	1.7E-03	4.6E+03	16	-0.0101	######	0	0.307	0.319	554	0.307	5019	3413	1950	5019	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
28.95	1637	1.7E-03	4.6E+03	16	-0.0103	######	0	0.307	0.319	555	0.307	5015	3411	1951	5015	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.00	1637	1.7E-03	4.6E+03	16	-0.0106	######	0	0.307	0.320	556	0.307	5012	3408	1952	5012	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.05	1637	1.7E-03	4.6E+03	16	-0.0108	######	0	0.308	0.320	557	0.308	5009	3406	1953	5009	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.10	1637	1.7E-03	4.6E+03	16	-0.0110	######	0	0.308	0.320	558	0.308	5005	3403	1954	5005	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.15	1637	1.7E-03	4.6E+03	16	-0.0113	######	0	0.308	0.320	559	0.308	5002	3401	1955	5002	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.20	1637	1.7E-03	4.6E+03	16	-0.0115	######	0	0.308	0.320	560	0.308	4998	3399	1956	4998	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.25	1637	1.7E-03	4.6E+03	16	-0.0117	######	0	0.308	0.320	561	0.308	4995	3396	1957	4995	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.30	1637	1.7E-03	4.6E+03	16	-0.0120	######	0	0.308	0.320	562	0.308	4991	3394	1958	4991	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.35	1637	1.7E-03	4.6E+03	16	-0.0122	######	0	0.308	0.321	563	0.308	4988	3391	1959	4988	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.40	1637	1.7E-03	4.6E+03	16	-0.0124	######	0	0.308	0.321	564	0.308	4984	3389	1960	4984	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.45	1637	1.7E-03	4.6E+03	16	-0.0126	######	0	0.309	0.321	565	0.309	4981	3387	1961	4981	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.50	1637	1.7E-03	4.6E+03	16	-0.0129	######	0	0.309	0.321	566	0.309	4978	3384	1962	4978	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.55	1637	1.7E-03	4.6E+03	16	-0.0131	######	0	0.309	0.321	567	0.309	4974	3382	1963	4974	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.60	1637	1.7E-03	4.6E+03	16	-0.0133	######	0	0.309	0.321	568	0.309	4971	3380	1964	4971	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.65	1637	1.7E-03	4.6E+03	16	-0.0136	######	0	0.309	0.321	569	0.309	4967	3377	1965	4967	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.70	1637	1.7E-03	4.6E+03	16	-0.0138	######	0	0.309	0.322	570	0.309	4964	3375	1966	4964	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.75	1637	1.7E-03	4.6E+03	16	-0.0140	######	0	0.309	0.322	571	0.309	4961	3373	1967	4961	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.80	1637	1.7E-03	4.6E+03	16	-0.0143	######	0	0.309	0.322	572	0.309	4957	3370	1968	4957	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.85	1637	1.7E-03	4.6E+03	16	-0.0145	######	0	0.310	0.322	573	0.310	4954	3368	1969	4954	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.90	1637	1.7E-03	4.6E+03	16	-0.0147	######	0	0.310	0.322	574	0.310	4951	3366	1970	4951	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
29.95	1637	1.7E-03	4.6E+03	16	-0.0149	######	0	0.310	0.322	575	0.310	4947	3363	1971	4947	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
30.00	1637	1.7E-03	4.6E+03	16	-0.0152	######	0	0.310	0.322	576	0.310	4944	3361	1972	4944	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
30.05	1637	1.7E-03	4.6E+03	16	-0.0154	######	0	0.310	0.323	577	0.310	4941	3359	1973	4941	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
30.10	1637	1.7E-03	4.6E+03	16	-0.0156	######	0	0.310	0.323	578	0.310	4937	3356	1974	4937	0.00%	2.00	1.00	0.010%	0.000000	0.36	0.025	0.785	0.00%	0.0000
30.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Proposed Repository	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer (tsf)	Total Stress at Midpoint of Layer (tsf)	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint of Layer (tsf)	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint of Layer (tsf)
Erosion Protection	6981.7	6981.0	6980.2	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6980.2	6978.7	6977.2	3.0	0.057	114.7	0.264	0.178	0.00	0.00	0.264	0.178
Mine Spoils	6977.2	6977.3	6977.4	0.0	0.058	116.4	0.264	0.264	0.00	0.00	0.264	0.264

6977.43	Ground Surface Elevation at time of CPT (ft amsl)
6981.71	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

0.26	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6923.54	Elevation of bottom of tailings (ft amsl)

UNC-NECR WASTE REPOSITORY SEISMIC SETTLEMENT ANALYSIS - CPT-15

Data File: 13-52118_RP11-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS

Cells Requiring User Input/Manipulation

http://projects.mwhglobal.com/.../13-52118_RP15-BSC-CPT.XLS

Legend	
Erosion Protection	Coarse Tailings
Cover Soil	Coarse/Fine Tailings
Mine Spoils	Fine Tailings
Radon Barrier	Coarse Alluvium
General Fill	Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69

Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Parameter
0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ratio, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
8.26	Equiv. Number of Uniform Strain Cycles, N

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0	g_1 for PI = 15	g_1 for PI = 30	g_1	g_2 for PI = 0	g_2 for PI = 15	g_2 for PI = 30	g_2	Shear Strain, γ (%)	a	b	Threshold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
0.23	866	1.9E-03	1.4E+03	1249	0.9990	6.3E-06	12	0.102	0.091	4	0.093	35267	24912	1400	26983	0.001%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
0.91	866	1.8E-03	1.3E+03	992	0.9954	2.6E-05	12	0.140	0.130	4	0.132	20256	14154	1400	15375	0.003%	2.00	0.65	0.03%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.46	866	1.8E-03	1.4E+03	826	0.9919	4.0E-05	12	0.155	0.146	4	0.148	16810	11704	1400	12725	0.004%	1.18	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Pore Pressure at time of CPT, (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)
0.164	6976.48	38.9	0.066	38.9	-1.2	-0.51	0.17%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	3880	0.17%	0.5	59%	0.31	0.000	0.31
0.328	6976.31	68.5	0.255	68.5	2.0	0.88	0.37%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	3411	0.37%	0.8	59%	0.32	0.000	0.32
0.492	6976.15	153.5	0.385	153.4	13.3	5.78	0.25%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	5100	0.25%	0.7	59%	0.33	0.000	0.33
0.656	6975.98	198.9	0.493	198.8	18.4	7.95	0.25%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	4956	0.25%	0.7	59%	0.34	0.000	0.34
0.820	6975.82	209.2	0.964	209.1	15.8	6.85	0.46%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	4170	0.46%	0.9	59%	0.35	0.000	0.35
0.984	6975.66	202.0	1.632	201.9	16.8	7.26	0.81%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	3354	0.81%	1.1	59%	0.36	0.000	0.36
1.148	6975.49	194.1	2.159	194.0	11.1	4.82	1.11%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	2763	1.11%	1.3	59%	0.37	0.000	0.37
1.312	6975.33	176.4	2.758	176.4	8.4	3.64	1.56%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	2197	1.56%	1.4	59%	0.38	0.000	0.38
1.476	6975.16	172.4	3.280	172.4	6.6	2.87	1.90%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1908	1.90%	1.5	59%	0.39	0.000	0.39
1.640	6975.00	175.7	3.694	175.7	5.8	2.52	2.10%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1750	2.10%	1.6	59%	0.40	0.000	0.40
1.804	6974.84	161.9	4.117	161.8	5.5	2.40	2.54%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1466	2.55%	1.7	59%	0.41	0.000	0.41
1.968	6974.67	134.1	3.840	134.0	4.1	1.77	2.86%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1113	2.87%	1.7	59%	0.42	0.000	0.42
2.133	6974.51	120.5	3.293	120.5	2.1	0.91	2.73%	General Fill	0.057	113.8	0.13	0.000	0.13	0	928	2.73%	1.7	48%	0.43	0.000	0.43
2.297	6974.34	114.6	3.096	114.6	0.9	0.41	2.70%	General Fill	0.057	113.8	0.14	0.000	0.14	0	823	2.70%	1.7	48%	0.44	0.000	0.44
2.461	6974.18	125.5	3.340	125.5	0.8	0.33	2.66%	General Fill	0.057	113.8	0.15	0.000	0.15	0	845	2.66%	1.7	48%	0.45	0.000	0.45
2.625	6974.02	220.2	4.154	220.2	2.4	1.06	1.89%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1395	1.89%	1.5	48%	0.46	0.000	0.46
2.789	6973.85	256.4	4.727	256.4	2.5	1.10	1.84%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1534	1.84%	1.5	48%	0.46	0.000	0.46
2.953	6973.69	305.1	5.216	305.1	4.8	2.09	1.71%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1729	1.71%	1.5	48%	0.47	0.000	0.47
3.117	6973.52	377.3	5.421	377.3	5.4	2.36	1.44%	Coarse Tailings	0.054	108.1	0.19	0.000	0.19	0	2036	1.44%	1.4	21%	0.48	0.000	0.48
3.281	6973.36	421.6	5.598	421.6	5.3	2.30	1.33%	Coarse Tailings	0.054	108.1	0.19	0.000	0.19	0	2171	1.33%	1.3	21%	0.49	0.000	0.49
3.445	6973.20	430.2	5.857	430.2	4.4	1.89	1.36%	Coarse Tailings	0.054	108.1	0.20	0.000	0.20	0	2118	1.36%	1.4	21%	0.50	0.000	0.50
3.609	6973.03	431.5	5.893	431.4	4.1	1.77	1.37%	Coarse Tailings	0.054	108.1	0.21	0.000	0.21	0	2036	1.37%	1.4	21%	0.51	0.000	0.51
3.773	6972.87	421.6	5.896	421.6	3.6	1.56	1.40%	Coarse Tailings	0.054	108.1	0.22	0.000	0.22	0	1909	1.40%	1.4	21%	0.52	0.000	0.52
3.937	6972.70	400.9	5.806	400.9	3.2	1.40	1.45%	Coarse Tailings	0.054	108.1	0.23	0.000	0.23	0	1745	1.45%	1.4	21%	0.53	0.000	0.53
4.101	6972.54	372.4	5.108	372.4	2.5	1.08	1.37%	Coarse Tailings	0.054	108.1	0.24	0.000	0.24	0	1561	1.37%	1.4	21%	0.54	0.000	0.54
4.265	6972.37	342.8	4.671	342.8	2.4	1.04	1.36%	Coarse Tailings	0.054	108.1	0.25	0.000	0.25	0	1385	1.36%	1.4	21%	0.54	0.000	0.54
4.429	6972.21	307.9	4.013	307.9	3.9	1.71	1.30%	Coarse Tailings	0.054	108.1	0.26	0.000	0.26	0	1201	1.30%	1.4	21%	0.55	0.000	0.55
4.593	6972.05	291.4	3.536	291.3	3.1	1.32	1.21%	Coarse Tailings	0.054	108.1	0.27	0.000	0.27	0	1098	1.21%	1.4	21%	0.56	0.000	0.56
4.757	6971.88	272.4	3.513	272.4	2.9	1.24	1.29%	Coarse Tailings	0.054	108.1	0.27	0.000	0.27	0	994	1.29%	1.4	21%	0.57	0.000	0.57
4.921	6971.72	249.3	3.044	249.3	2.1	0.91	1.22%	Coarse Tailings	0.054	108.1	0.28	0.000	0.28	0	881	1.22%	1.4	21%	0.58	0.000	0.58
5.085	6971.55	231.8	2.683	231.8	1.9	0.81	1.16%	Coarse Tailings	0.054	108.1	0.29	0.000	0.29	0	794	1.16%	1.4	21%	0.59	0.000	0.59
5.249	6971.39	201.6	2.341	201.6	1.6	0.71	1.16%	Coarse Tailings	0.054	108.1	0.30	0.000	0.30	0	670	1.16%	1.4	21%	0.60	0.000	0.60
5.413	6971.23	185.0	2.137	185.0	1.0	0.45	1.15%	Coarse Tailings	0.054	108.1	0.31	0.000	0.31	0	597	1.16%	1.5	21%	0.61	0.000	0.61
5.577	6971.06	170.7	1.978	170.7	0.3	0.12	1.16%	Coarse Tailings	0.054	108.1	0.32	0.000	0.32	0	535	1.16%	1.5	21%	0.62	0.000	0.62
5.741	6970.90	159.5	1.744	159.5	0.2	0.10	1.09%	Coarse Tailings	0.054	108.1	0.33	0.000	0.33	0	486	1.10%	1.5	21%	0.62	0.000	0.62
5.905	6970.73	146.7	1.630	146.7	-0.2	-0.10	1.11%	Coarse Tailings	0.054	108.1	0.34	0.000	0.34	0	436	1.11%	1.5	21%	0.63	0.000	0.63
6.069	6970.57	132.1	1.490	132.1	-0.7	-0.29	1.13%	Coarse Tailings	0.054	108.1	0.34	0.000	0.34	0	382	1.13%	1.6	21%	0.64	0.000	0.64
6.234	6970.41	121.9	1.332	121.9	-0.8	-0.33	1.09%	Coarse Tailings	0.054	108.1	0.35	0.000	0.35	0	344	1.10%	1.6	21%	0.65	0.000	0.65
6.398	6970.24	113.3	1.179	113.3	-0.7	-0.30	1.04%	Coarse Tailings	0.054	108.1	0.36	0.000	0.36	0	311	1.04%	1.6	21%	0.66	0.000	0.66
6.562	6970.08	104.0	1.031	104.0	-0.9	-0.41	0.99%	Coarse Tailings	0.054	108.1	0.37	0.000	0.37	0	279	1.00%	1.6	21%	0.67	0.000	0.67
6.726	6969.91	96.0	0.935	96.0	-0.7	-0.30	0.97%	Coarse Tailings	0.054	108.1	0.38	0.000	0.38	0	251	0.98%	1.6	21%	0.68	0.000	0.68
6.890	6969.75	85.1	0.824	85.2	-1.0	-0.45	0.97%	Coarse Tailings	0.054	108.1	0.39	0.000	0.39	0	218	0.97%	1.7	21%	0.69	0.000	0.69
7.054	6969.59	76.4	0.714	76.4	-1.0	-0.45	0.93%	Coarse Tailings	0.054	108.1	0.40	0.000	0.40	0	191	0.94%	1.7	21%	0.70	0.000	0.70
7.218	6969.42	71.0	0.633	71.0	-1.0	-0.45	0.89%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	173	0.90%	1.7	21%	0.70	0.000	0.70
7.382	6969.26	66.5	0.428	66.5	-1.3	-0.55	0.64%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	159	0.65%	1.6	21%	0.71	0.000	0.71
7.546	6969.09	59.5	0.458	59.5	-1.4	-0.61	0.77%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	139	0.78%	1.7	21%	0.72	0.000	0.72
7.710	6968.93	54.6	0.414	54.6	-0.8	-0.35	0.76%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	125	0.76%	1.8	21%	0.73	0.000	0.73
7.874	6968.77	49.6	0.356	49.6	-0.9	-0.39	0.72%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	111	0.72%	1.8	21%	0.74	0.000	0.74
8.038	6968.60	48.4	0.337	48.4	-1.1	-0.49	0.70%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	106	0.70%	1.8	21%	0.75	0.000	0.75
8.202	6968.44	46.7	0.323	46.7	-1.2	-0.51	0.69%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	100	0.70%	1.8	21%	0.76	0.000	0.76
8.366	6968.27	45.0	0.310	45.0	-1.3	-0.55	0.69%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	95	0.70%	1.8	21%	0.77	0.000	0.77
8.530	6968.11	43.4	0.279	43.4	-1.3	-0.57	0.64%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	90	0.65%	1.8	21%	0.78	0.000	0.78
8.694	6967.95	40.9	0.242	40.9	-1.2	-0.53	0.59%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	83	0.60%	1.8	21%	0.78	0.000	0.78
8.858	6967.78	40.2	0.221	40.2	-1.6	-0.67	0.55%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	80	0.56%	1.8	21%	0.79	0.000	0.79
9.022	6967.62	40.3	0.211	40.4	-1.7	-0.73	0.52%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	79	0.53%	1.8	21%	0.80	0.000	0.80
9.186	6967.45	39.9	0.208	39.9	-1.4	-0.61	0.52%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	77	0.53%	1.8	21%	0.81	0.000	0.81
9.350	6967.29	39.4	0.199	39.5	-1.4	-0.61	0.50%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	75	0.51%	1.8	21%	0.82	0.000	0.82
9.514	6967.13	39.1	0.194	39.1	-1.8	-0.77	0.50%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	73	0.50%	1.9	21%	0.83	0.000	0.83
9.678	6966.96	37.3	0.190	37.4	-1.8	-0.79	0.51%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	68	0.52%	1.9	21%	0.84	0.000	0.84
9.842	6966.80	37.0	0.193	37.0	-1.9	-0.83	0.52%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	66	0.53%	1.9	21%	0.85	0.000	0.85
10.006	6966.63	39.4	0.210	39.5	-1.8	-0.79	0.53%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	70	0.54%	1.9	21%	0.86	0.000	0.86
10.170	6966.47	37.7	0.215	37.7	-0.6	-0.24	0.57%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	66	0.58%	1.9	21%	0.86	0.000	0.86
10.335	6966.31	35.4	0.207	35.4	-0.8	-0.35	0.59%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	60	0.60%	2.0	21%	0.87	0.000	0.87
10.499	6966.14	33.6	0.194	33.7	-0.9	-0.39	0.58%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	57	0.59%	2.0	21%	0.88	0.000	0.88

Seismic Settlement Analysis - Stewart et al (2004)

TOTAL SEISMIC SETTLEMENT (FT): 0.0943

Midpoint Depth at t_1, z_1 (m)	Shear Wave Velocity, V_s (ft/sec)	Soil Density, ρ (tcf)	Max Shear Strain Modulus, G_{max} (tsf)	Coefficient a_2 for Stress Reduction Factor	Stress Reduction Factor, r_d	P = γ_{eff}*(G_{eff}/G_{max}) (tsf)	Plasticity Index, PI	g_1 for PI = 0 (0)	g_1 for PI = 15 (15)	g_1 for PI = 30 (30)	g_1	g_2 for PI = 0 (0)	g_2 for PI = 15 (15)	g_2 for PI = 30 (30)	g_2	Shear Strain, γ (%)	a	b	Threshold Shear Strain, γ_{tv} (%)	Volumetric Strain at 15 Cycles, ε_{c-15} (%)	R	c	C_N	Volumetric Strain for Design Event, ε_v (%)	Incremental Consolidation (ft)
1.60	680	1.9E-03	8.8E+02	790	0.9909	6.8E-05	16	0.159	0.150	4	0.406	16197	11269	1400	10611	0.009%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.65	680	1.9E-03	8.8E+02	776	0.9905	7.0E-05	16	0.160	0.151	4	0.408	15985	11119	1400	10471	0.009%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.70	680	1.9E-03	8.8E+02	764	0.9901	7.2E-05	16	0.161	0.152	5	0.475	15782	10975	1401	10337	0.010%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.75	680	1.9E-03	8.8E+02	751	0.9897	7.4E-05	16	0.162	0.153	6	0.543	15588	10837	1402	10208	0.010%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.80	680	1.9E-03	8.8E+02	739	0.9893	7.6E-05	16	0.163	0.155	7	0.611	15402	10705	1403	10085	0.011%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.85	680	1.9E-03	8.8E+02	726	0.9890	7.9E-05	16	0.164	0.156	8	0.679	15224	10579	1404	9967	0.012%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.90	680	1.9E-03	8.8E+02	714	0.9885	8.1E-05	16	0.165	0.157	9	0.747	15052	10457	1405	9854	0.012%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
1.95	680	1.9E-03	8.8E+02	703	0.9881	8.3E-05	16	0.167	0.158	10	0.814	14887	10340	1406	9745	0.013%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.00	680	1.9E-03	8.8E+02	691	0.9877	8.5E-05	16	0.168	0.159	11	0.882	14727	10227	1407	9640	0.014%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.05	680	1.9E-03	8.8E+02	680	0.9873	8.7E-05	16	0.169	0.160	12	0.950	14574	10119	1408	9538	0.014%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.10	680	1.9E-03	8.8E+02	668	0.9869	8.9E-05	16	0.169	0.161	13	1.017	14426	10014	1409	9440	0.015%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.15	680	1.9E-03	8.8E+02	657	0.9864	9.1E-05	16	0.170	0.162	14	1.085	14283	9913	1410	9346	0.016%	0.65	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.20	680	1.8E-03	8.2E+02	646	0.9860	1.0E-04	19	0.171	0.163	15	4.120	14154	9822	1411	7579	0.019%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.25	680	1.8E-03	8.2E+02	636	0.9855	1.0E-04	19	0.172	0.164	16	4.387	14029	9733	1412	7514	0.020%	1.70	0.75	0.02%	0.000000	0.34	0.079	0.797	0.00%	0.0000
2.30	680	1.8E-03	8.2E+02	625	0.9851	1.0E-04	19	0.173	0.165	17	4.655	13908	9647	1413	7452	0.021%	1.70	0.75	0.02%	0.000228	0.34	0.079	0.797	0.04%	0.0001
2.35	680	1.8E-03	8.2E+02	615	0.9846	1.1E-04	19	0.174	0.166	18	4.922	13790	9564	1414	7391	0.021%	1.70	0.75	0.02%	0.000388	0.34	0.079	0.797	0.06%	0.0001
2.40	680	1.8E-03	8.2E+02	605	0.9841	1.1E-04	19	0.175	0.167	19	5.189	13676	9483	1415	7332	0.022%	1.70	0.75	0.02%	0.000529	0.34	0.079	0.797	0.08%	0.0001
2.45	680	1.8E-03	8.2E+02	595	0.9837	1.1E-04	19	0.175	0.168	20	5.456	13565	9405	1416	7275	0.023%	1.70	0.75	0.02%	0.000659	0.34	0.079	0.797	0.11%	0.0002
2.50	680	1.7E-03	7.8E+02	585	0.9832	1.2E-04	0	0.176	0.169	21	0.176	13462	9332	1417	13462	0.019%	1.79	1.00	0.01%	0.000161	0.36	0.025	0.785	0.03%	0.0000
2.55	680	1.7E-03	7.8E+02	576	0.9827	1.2E-04	0	0.177	0.170	22	0.177	13362	9261	1418	13362	0.020%	1.79	1.00	0.01%	0.000171	0.36	0.025	0.785	0.03%	0.0000
2.60	680	1.7E-03	7.8E+02	566	0.9822	1.2E-04	0	0.178	0.170	23	0.178	13264	9192	1419	13264	0.020%	1.79	1.00	0.01%	0.000180	0.36	0.025	0.785	0.03%	0.0000
2.65	680	1.7E-03	7.8E+02	557	0.9817	1.3E-04	0	0.178	0.171	24	0.178	13169	9125	1420	13169	0.021%	1.79	1.00	0.01%	0.000189	0.36	0.025	0.785	0.03%	0.0000
2.70	680	1.7E-03	7.8E+02	548	0.9811	1.3E-04	0	0.179	0.172	25	0.179	13076	9060	1421	13076	0.021%	1.79	1.00	0.01%	0.000199	0.36	0.025	0.785	0.03%	0.0001
2.75	680	1.7E-03	7.8E+02	539	0.9806	1.3E-04	0	0.180	0.173	26	0.180	12985	8996	1422	12985	0.022%	1.79	1.00	0.01%	0.000209	0.36	0.025	0.785	0.03%	0.0001
2.80	680	1.7E-03	7.8E+02	530	0.9801	1.3E-04	0	0.181	0.173	27	0.181	12897	8933	1423	12897	0.022%	1.79	1.00	0.01%	0.000219	0.36	0.025	0.785	0.03%	0.0001
2.85	680	1.7E-03	7.8E+02	521	0.9795	1.3E-04	0	0.181	0.174	28	0.181	12810	8872	1424	12810	0.023%	1.79	1.00	0.01%	0.000229	0.36	0.025	0.785	0.04%	0.0001
2.90	680	1.7E-03	7.8E+02	513	0.9790	1.4E-04	0	0.182	0.175	29	0.182	12726	8812	1425	12726	0.023%	1.79	1.00	0.01%	0.000239	0.36	0.025	0.785	0.04%	0.0001
2.95	680	1.7E-03	7.8E+02	504	0.9784	1.4E-04	0	0.183	0.176	30	0.183	12643	8754	1426	12643	0.024%	1.79	1.00	0.01%	0.000249	0.36	0.025	0.785	0.04%	0.0001
3.00	680	1.7E-03	7.8E+02	496	0.9778	1.4E-04	0	0.183	0.176	31	0.183	12562	8697	1427	12562	0.025%	1.79	1.00	0.01%	0.000260	0.36	0.025	0.785	0.04%	0.0001
3.05	680	1.7E-03	7.8E+02	488	0.9772	1.4E-04	0	0.184	0.177	32	0.184	12483	8641	1428	12483	0.025%	1.79	1.00	0.01%	0.000270	0.36	0.025	0.785	0.04%	0.0001
3.10	680	1.7E-03	7.8E+02	480	0.9767	1.4E-04	0	0.185	0.178	33	0.185	12406	8586	1429	12406	0.026%	1.79	1.00	0.01%	0.000281	0.36	0.025	0.785	0.04%	0.0001
3.15	680	1.7E-03	7.8E+02	472	0.9761	1.5E-04	0	0.185	0.179	34	0.185	12330	8533	1430	12330	0.026%	1.79	1.00	0.01%	0.000292	0.36	0.025	0.785	0.05%	0.0001
3.20	680	1.7E-03	7.8E+02	464	0.9754	1.5E-04	0	0.186	0.179	35	0.186	12256	8481	1431	12256	0.027%	1.79	1.00	0.01%	0.000303	0.36	0.025	0.785	0.05%	0.0001
3.25	680	1.7E-03	7.8E+02	457	0.9748	1.5E-04	0	0.186	0.180	36	0.186	12183	8429	1432	12183	0.028%	1.79	1.00	0.01%	0.000314	0.36	0.025	0.785	0.05%	0.0001
3.30	680	1.7E-03	7.8E+02	449	0.9742	1.5E-04	0	0.187	0.181	37	0.187	12112	8379	1433	12112	0.028%	1.79	1.00	0.01%	0.000326	0.36	0.025	0.785	0.05%	0.0001
3.35	680	1.7E-03	7.8E+02	442	0.9735	1.5E-04	0	0.188	0.181	38	0.188	12042	8330	1434	12042	0.029%	1.79	1.00	0.01%	0.000337	0.36	0.025	0.785	0.05%	0.0001
3.40	680	1.7E-03	7.8E+02	435	0.9729	1.6E-04	0	0.188	0.182	39	0.188	11973	8281	1435	11973	0.029%	1.79	1.00	0.01%	0.000349	0.36	0.025	0.785	0.05%	0.0001
3.45	680	1.7E-03	7.8E+02	428	0.9722	1.6E-04	0	0.189	0.183	40	0.189	11906	8234	1436	11906	0.030%	1.79	1.00	0.01%	0.000360	0.36	0.025	0.785	0.06%	0.0001
3.50	680	1.7E-03	7.8E+02	421	0.9716	1.6E-04	0	0.189	0.183	41	0.189	11840	8188	1437	11840	0.031%	1.79	1.00	0.01%	0.000372	0.36	0.025	0.785	0.06%	0.0001
3.55	680	1.7E-03	7.8E+02	414	0.9709	1.6E-04	0	0.190	0.184	42	0.190	11776	8142	1438	11776	0.031%	1.79	1.00	0.01%	0.000384	0.36	0.025	0.785	0.06%	0.0001
3.60	680	1.7E-03	7.8E+02	407	0.9702	1.7E-04	0	0.191	0.185	43	0.191	11712	8097	1439	11712	0.032%	1.79	1.00	0.01%	0.000397	0.36	0.025	0.785	0.06%	0.0001
3.65	680	1.7E-03	7.8E+02	401	0.9695	1.7E-04	0	0.191	0.185	44	0.191	11650	8054	1440	11650	0.033%	1.79	1.00	0.01%	0.000409	0.36	0.025	0.785	0.06%	0.0001
3.70	680	1.7E-03	7.8E+02	394	0.9688	1.7E-04	0	0.192	0.186	45	0.192	11589	8010	1441	11589	0.034%	1.79	1.00	0.01%	0.000421	0.36	0.025	0.785	0.07%	0.0001
3.75	680	1.7E-03	7.8E+02	388	0.9680	1.7E-04	0	0.192	0.187	46	0.192	11529	7968	1442	11529	0.034%	1.79	1.00	0.01%	0.000434	0.36	0.025	0.785	0.07%	0.0001
3.80	680	1.7E-03	7.8E+02	381	0.9673	1.7E-04	0	0.193	0.187	47	0.193	11470	7927	1443	11470	0.035%	1.79	1.00	0.01%	0.000447	0.36	0.025	0.785	0.07%	0.0001
3.85	680	1.7E-03	7.8E+02	375	0.9665	1.8E-04	0	0.193	0.188	48	0.193	11412	7886	1444	11412	0.036%	1.79	1.00	0.01%	0.000460	0.36	0.025	0.785	0.07%	0.0001
3.90	680	1.7E-03	7.8E+02	369	0.9658	1.8E-04	0	0.194	0.188	49	0.194	11355	7846	1445	11355	0.036%	1.79	1.00	0.01%	0.000473	0.36	0.025	0.785	0.07%	0.0001
3.95	680	1.7E-03	7.8E+02	363	0.9650	1.8E-04	0	0.195	0.189	50	0.195	11299	7806	1446	11299	0.037%	1.79	1.00	0.01%	0.000486	0.36	0.025	0.785	0.08%	0.0001
4.00	680	1.7E-03	7.8E+02	357	0.9642	1.8E-04	0	0.195	0.190	51	0.195	11244	7767	1447	11244	0.038%	1.79	1.00	0.01%	0.000499	0.36	0.025	0.785	0.08%	0.0001
4.05	680	1.7E-03	7.8E+02	352	0.9634	1.8E-04	0	0.196	0.190	52	0.196	11190	7729	1448	11190	0.039%	1.79	1.00	0.01%	0.000513	0.36	0.025	0.785	0.08%	0.0001
4.10	680	1.7E-03	7.8E+02	346	0.9626	1.9E-04	0	0.196	0.191	53	0.196	11136	7692	1449	11136	0.039%	1.79	1.00	0.01%	0.000526	0.36	0.025	0.785	0.08%	0.0001
4.15	680	1.7E-03	7.8E+02	340	0.9618	1.9E-04	0	0.197	0.191	54	0.197	11084	7655	1450	11084	0.040%	1.79	1.00	0.01%	0.000540	0.36	0.025	0.785	0.08%	0.0001
4.20	680	1.7E-03	7.8E+02	335	0.9610	1.9E-04	0	0.197	0.192	55	0.197	11032	7618	1451	11032	0.041%	1.79	1.00	0.01%	0.000554	0.36	0.025	0.785	0.09%	0.0001
4.25	680	1.7E-03	7.8E+02	330	0.9601	1.9E-04	0	0.198	0.192	56	0.198	10982	7583	1452	10982	0.042%	1.79	1.00	0.01%	0.000568	0.36	0.025	0.785	0.09%	0.0001
4.30	680	1.7E-03	7.8E+02	324	0.9592	1.9E-04	0	0.198	0.193	57	0.198	10932	7548	1453	10932	0.043%	1.79	1.00	0.01%	0.000582	0.36	0.025	0.785	0.09%	0.0001
4.35	680	1.7E-03	7.8E+02	319	0.9584	2.0E-04	0	0.199	0.194	58	0.199	10883	7513	1454	10883	0.043%	1.79	1.00	0.01%	0.000596	0.36	0.025	0.785	0.09%	0.0002
4.40	680	1.7E-03	7.8E+02	314	0.9575	2.0E-04	0	0.199	0.194	59	0.199	10834	7479	1455	10834	0.044%	1.79	1.00	0.01%	0.000611	0.36	0.025	0.785	0.10%	0.0002
4.45	607	1.7E-03	6.2E+02	309	0.9566	2.5E-04	0	0.200	0.195	60	0.200	10786	7445	1456	10786	0.082%	1.79	1.00	0.01%	0.001295	0.36	0.025	0.785	0.20%	0.0003
4.50	607	1.7E-03	6.2E+02	304	0.9557	2.5E-04	0	0.200	0.195	61	0.200	10739	7412	1457	10739	0.084%	1.79	1.00	0.01%	0.001327	0.36	0.025	0.785	0.21%	0.0003
4.55	607	1.7E-03	6.2E+02	299	0.9547	2.5E-04	0	0.201	0.196	62	0.201	10693	7380	1458	10693	0.086%	1.79	1.00	0.01%	0.001360	0.36	0.025	0.785	0.21%	0.0004
4.60	607	1.7E-03	6.2E+02	294	0.9538	2.6E-04	0	0.201	0.196	63	0.201	10648	7348	1459	10648	0.088%	1.79	1.00	0.01%	0.001394	0.36	0.025	0.785	0.22%	0.0004
4.65	607	1.7E-03	6.2E+02	290	0.9528	2.6E-04	0	0.202	0.197	64	0.202	10603	7316	1460	10603	0.090%	1.79	1.00	0.01%	0.001428	0.36	0.025	0.785	0.22%	0.0004
4.70	607	1.7E-03	6.2E+02	285	0.9519	2.6E-04	0	0.202	0.197	65	0.202	10558	7285	1461	10558	0.092%	1.79	1.00	0.01%	0.001462	0.36	0.025	0.785	0.23%	0.0004
4.75	607	1.7E-03	6.2E+02	280	0.9509	2.6E-04	0	0.203	0.198	66	0.203	10515	7254	1462	10515	0.094%	1.79	1.00	0.01%	0.001497	0.36	0.025	0.785	0.23%	0.0004

10.663	6965.98	33.1	0.190	33.1	-1.3	-0.57	0.57%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	55	0.59%	2.0	21%	0.89	0.000	0.89
10.827	6965.81	32.8	0.193	32.8	-1.3	-0.57	0.59%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	53	0.60%	2.0	21%	0.90	0.000	0.90
10.991	6965.65	32.4	0.189	32.4	-1.5	-0.63	0.58%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	52	0.59%	2.0	21%	0.91	0.000	0.91
11.155	6965.49	31.7	0.178	31.7	-1.9	-0.83	0.56%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	50	0.57%	2.0	21%	0.92	0.000	0.92
11.319	6965.32	31.0	0.176	31.0	-1.6	-0.71	0.57%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	48	0.58%	2.0	21%	0.93	0.000	0.93
11.483	6965.16	30.8	0.169	30.8	-1.8	-0.77	0.55%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	47	0.56%	2.0	21%	0.93	0.000	0.93
11.647	6964.99	30.2	0.170	30.2	-1.6	-0.67	0.56%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	46	0.58%	2.1	21%	0.94	0.000	0.94
11.811	6964.83	30.5	0.175	30.5	-1.4	-0.61	0.57%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	45	0.59%	2.1	21%	0.95	0.000	0.95
11.975	6964.67	29.2	0.173	29.2	-1.8	-0.79	0.59%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	43	0.61%	2.1	21%	0.96	0.000	0.96
12.139	6964.50	26.9	0.168	27.0	-2.0	-0.88	0.62%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	39	0.64%	2.1	21%	0.97	0.000	0.97
12.303	6964.34	23.4	0.280	23.4	-1.2	-0.51	1.20%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	33	1.23%	2.3	21%	0.98	0.000	0.98
12.467	6964.17	16.2	0.310	16.3	-0.7	-0.30	1.91%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	23	1.99%	2.6	21%	0.99	0.000	0.99
12.631	6964.01	12.4	0.349	12.4	-0.7	-0.29	2.81%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	17	2.98%	2.8	21%	1.00	0.000	1.00
12.795	6963.84	15.2	0.291	15.2	-1.0	-0.45	1.91%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	20	2.00%	2.6	21%	1.01	0.000	1.01
12.959	6963.68	20.6	0.228	20.6	-0.9	-0.39	1.11%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	28	1.15%	2.4	21%	1.01	0.000	1.01
13.123	6963.52	24.8	0.134	24.8	-0.8	-0.35	0.54%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	33	0.56%	2.2	21%	1.02	0.000	1.02
13.287	6963.35	26.3	0.145	26.3	-1.2	-0.51	0.55%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	35	0.57%	2.2	21%	1.03	0.000	1.03
13.451	6963.19	22.3	0.254	22.3	-1.2	-0.53	1.14%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	29	1.18%	2.4	21%	1.04	0.000	1.04
13.615	6963.02	19.6	0.294	19.6	-0.5	-0.23	1.50%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	25	1.56%	2.5	21%	1.05	0.000	1.05
13.779	6962.86	25.8	0.270	25.8	-0.7	-0.29	1.05%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	33	1.08%	2.3	21%	1.06	0.000	1.06
13.943	6962.70	27.2	0.156	27.2	-0.6	-0.26	0.57%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	34	0.59%	2.2	21%	1.07	0.000	1.07
14.107	6962.53	28.2	0.119	28.2	-1.2	-0.51	0.42%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	35	0.43%	2.1	21%	1.08	0.000	1.08
14.271	6962.37	28.9	0.121	28.9	-0.5	-0.23	0.42%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	36	0.43%	2.1	21%	1.09	0.000	1.09
14.436	6962.20	30.1	0.133	30.1	-0.7	-0.29	0.44%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	37	0.45%	2.1	21%	1.09	0.000	1.09
14.600	6962.04	30.0	0.143	30.0	-0.6	-0.26	0.48%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	36	0.49%	2.1	21%	1.10	0.000	1.10
14.764	6961.88	29.6	0.161	29.6	-0.9	-0.41	0.54%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	35	0.56%	2.2	21%	1.11	0.000	1.11
14.928	6961.71	27.3	0.174	27.3	-1.1	-0.47	0.64%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	32	0.66%	2.2	21%	1.12	0.000	1.12
15.092	6961.55	22.9	0.199	22.9	-1.4	-0.59	0.87%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	26	0.90%	2.4	21%	1.13	0.000	1.13
15.256	6961.38	23.2	0.232	23.2	-0.6	-0.26	1.00%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0	27	1.04%	2.4	21%	1.14	0.000	1.14
15.420	6961.22	22.4	0.309	22.4	-0.5	-0.20	1.38%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0	25	1.43%	2.5	21%	1.15	0.000	1.15
15.584	6961.06	23.3	0.405	23.3	-0.7	-0.29	1.74%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0	26	1.80%	2.5	21%	1.16	0.000	1.16
15.748	6960.89	15.4	0.397	15.4	-0.6	-0.24	2.59%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	17	2.74%	2.8	21%	1.17	0.000	1.17
15.912	6960.73	13.8	0.342	13.8	-0.9	-0.39	2.48%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	15	2.65%	2.8	21%	1.17	0.000	1.17
16.076	6960.56	24.9	0.307	24.9	-2.3	-0.98	1.23%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	27	1.28%	2.4	21%	1.18	0.000	1.18
16.240	6960.40	27.6	0.207	27.6	-1.5	-0.63	0.75%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	30	0.78%	2.3	21%	1.19	0.000	1.19
16.404	6960.24	25.9	0.126	25.9	-0.6	-0.24	0.49%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	28	0.50%	2.2	21%	1.20	0.000	1.20
16.568	6960.07	25.7	0.147	25.8	-0.7	-0.29	0.57%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	27	0.59%	2.3	21%	1.21	0.000	1.21
16.732	6959.91	25.9	0.208	25.9	-0.8	-0.35	0.80%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0	27	0.83%	2.3	21%	1.22	0.000	1.22
16.896	6959.74	26.6	0.292	26.6	-0.7	-0.30	1.10%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0	28	1.14%	2.4	21%	1.23	0.000	1.23
17.060	6959.58	26.6	0.305	26.6	-0.9	-0.39	1.15%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0	27	1.19%	2.4	21%	1.24	0.000	1.24
17.224	6959.42	30.6	0.205	30.6	-1.0	-0.45	0.67%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0	31	0.69%	2.2	21%	1.25	0.000	1.25
17.388	6959.25	34.6	0.189	34.6	-1.1	-0.49	0.55%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0	35	0.56%	2.2	21%	1.25	0.000	1.25
17.552	6959.09	29.3	0.215	29.3	-0.8	-0.35	0.73%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	29	0.76%	2.3	21%	1.26	0.000	1.26
17.716	6958.92	28.8	0.301	28.8	-0.4	-0.16	1.04%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	29	1.08%	2.4	21%	1.27	0.000	1.27
17.880	6958.76	23.4	0.344	23.4	-0.9	-0.41	1.47%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0	23	1.54%	2.5	21%	1.28	0.000	1.28
18.044	6958.60	30.1	0.314	30.2	-0.6	-0.26	1.04%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	29	1.08%	2.4	21%	1.29	0.000	1.29
18.208	6958.43	32.4	0.276	32.4	-0.3	-0.14	0.85%	Coarse Tailings	0.054	108.1	1.00	0.000	1.00	0	31	0.88%	2.3	21%	1.30	0.000	1.30
18.372	6958.27	38.3	0.198	38.3	0.0	0.00	0.52%	Coarse Tailings	0.054	108.1	1.01	0.000	1.01	0	37	0.53%	2.1	21%	1.31	0.000	1.31
18.537	6958.10	36.6	0.196	36.6	-1.0	-0.43	0.54%	Coarse Tailings	0.054	108.1	1.02	0.000	1.02	0	35	0.55%	2.2	21%	1.32	0.000	1.32
18.701	6957.94	28.5	0.312	28.6	-1.0	-0.43	1.09%	Coarse Tailings	0.054	108.1	1.03	0.000	1.03	0	27	1.13%	2.4	21%	1.33	0.000	1.33
18.865	6957.78	18.4	0.298	18.4	-0.8	-0.36	1.62%	Coarse Tailings	0.054	108.1	1.04	0.000	1.04	0	17	1.71%	2.7	21%	1.33	0.000	1.33
19.029	6957.61	14.8	0.326	14.9	-1.2	-0.53	2.20%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0	13	2.36%	2.8	21%	1.34	0.000	1.34
19.193	6957.45	22.6	0.299	22.6	-1.1	-0.47	1.32%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0	20	1.39%	2.6	21%	1.35	0.000	1.35
19.357	6957.28	33.4	0.289	33.4	-1.1	-0.47	0.87%	Coarse Tailings	0.054	108.1	1.06	0.000	1.06	0	30	0.89%	2.3	21%	1.36	0.000	1.36
19.521	6957.12	33.8	0.240	33.8	-1.3	-0.55	0.71%	Coarse Tailings	0.054	108.1	1.07	0.000	1.07	0	31	0.73%	2.3	21%	1.37	0.000	1.37
19.685	6956.96	32.5	0.185	32.5	-1.1	-0.47	0.57%	Coarse Tailings	0.054	108.1	1.08	0.000	1.08	0	29	0.59%	2.2	21%	1.38	0.000	1.38
19.849	6956.79	30.8	0.173	30.9	-0.9	-0.41	0.56%	Coarse Tailings	0.054	108.1	1.09	0.000	1.09	0	27	0.58%	2.3	21%	1.39	0.000	1.39
20.013	6956.63	28.7	0.272	28.7	-1.4	-0.59	0.95%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0	25	0.99%	2.4	21%	1.40	0.000	1.40
20.177	6956.46	22.4	0.323	22.4	-0.8	-0.36	1.44%	Coarse Tailings	0.054	108.1	1.11	0.000	1.11	0	19	1.52%	2.6	21%	1.40	0.000	1.40
20.341	6956.30	22.0	0.349	22.1	-0.7	-0.30	1.58%	Coarse Tailings	0.054	108.1	1.12	0.000	1.12	0	19	1.67%	2.6	21%	1.41	0.000	1.41
20.505	6956.14	20.1	0.349	20.1	-0.9	-0.41	1.74%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0	17	1.84%	2.7	21%	1.42	0.000	1.42
20.669	6955.97	22.7	0.229	22.8	-0.8	-0.33	1.01%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0	19	1.06%	2.5	21%	1.43	0.000	1.43
20.833	6955.81	28.8	0.238	28.8	-0.5	-0.20	0.83%	Coarse Tailings	0.054	108.1	1.14	0.000	1.14	0	24	0.86%	2.4	21%	1.44	0.000	1.44
20.997	6955.64	27.8	0.178	27.9	-0.6	-0.26	0.64%	Coarse Tailings	0.054	108.1	1.15	0.000	1.15	0	23	0.67%	2.3	21%	1.45	0.000	1.45
21.161	6955.48	29.6	0.154	29.6	-0.8	-0.35	0.52%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0	24	0.54%	2.3	21%	1.46	0.000	1.46
21.325	6955.31	31.3	0.170	31.3	-0.8	-0.35	0.54%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0	26	0.56%	2.3	21%	1.47	0.000	1.47
21.489	6955.15	32.4	0.181	32.4	-0.7	-0.29	0.56%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	26	0.58%	2.3	21%	1.48	0.000	1.48
21.653	6954.99	32.8	0.193	32.8	-0.5	-0.20	0.59%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0	27	0.61%	2.3	21%	1.48	0.000	1.48
21.817	6954.82	34.4	0.196	34.4	-0.6	-0.24	0.57%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0	28	0.59%	2.3	21%	1.49	0.000	1.49
21.981	6954.66	34.7	0.203	34.7	-0.5	-0.23	0.58%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	28	0.61%	2.3	21%	1.50	0.000	1.50
22.145	6954.49	35.6	0.204	35.6	-0.7	-0.29	0.57%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	28	0.59%	2.2	21%	1.51	0.000	1.51
22.309	6954.33	37.2	0.010	37.2	-0.9	-0.39	0.03%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	29	0.03%	2.0	21%	1.52	0.000	1.52
22.473	6954.17	40.2	0.156	40.2	-0.7	-0.30	0.39%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0	32	0.40%	2.1	21%	1.53	0.000	1.53
22.638	6954.00	6.0	0.203	6.0	-1.9	-0.81	3.40%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0	4	4.28%	3.4	21%	1.54	0.000	1.54
22.802	6953.84	46.1	0.268	46.2	-0.5	-0.23	0.58%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	36	0.60%	2.2	21%	1.55	0.000	1.55
22.966	6953.67	40.5	0.458	40.5	-0.6	-0.26	1.13%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0	31	1.17%	2.4	21%	1.56	0.000	1.56
23.130	6953.51	26.1	0.611	26.1	-1.1	-0.49	2.34%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0	20	2.46%	2.7	21%	1.56	0.000	1.56
23.294	6953.35	19.6	0.570	19.6	-0.6	-0.24	2.91%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	14	3.12%	2.9	21%	1.57	0.000	1.57
23.458	6953.18	22.0	0.558	22.0	-0.3	-0.14	2.54%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	16	2.70%	2.8	21%	1.58	0.000	1.58
23.622	6953.02	21.9	0.547	21.9	-0.6	-0.26	2.50%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	16	2.66%	2.8	21%	1.59	0.000	1.59

4.80	607	1.7E-03	6.2E+02	276	0.9499	2.7E-04	0	0.203	0.199	67	0.203	10472	7224	1463	10472	0.096%	1.79	1.00	0.01%	0.001532	0.36	0.025	0.785	0.24%	0.0004
4.85	607	1.7E-03	6.2E+02	272	0.9488	2.7E-04	0	0.203	0.199	68	0.203	10429	7194	1464	10429	0.098%	1.79	1.00	0.01%	0.001567	0.36	0.025	0.785	0.25%	0.0004
4.90	607	1.7E-03	6.2E+02	267	0.9478	2.7E-04	0	0.204	0.200	69	0.204	10387	7164	1465	10387	0.100%	1.79	1.00	0.01%	0.001603	0.36	0.025	0.785	0.25%	0.0004
4.95	607	1.7E-03	6.2E+02	263	0.9468	2.7E-04	0	0.204	0.200	70	0.204	10346	7135	1466	10346	0.102%	1.79	1.00	0.01%	0.001639	0.36	0.025	0.785	0.26%	0.0004
5.00	607	1.7E-03	6.2E+02	259	0.9457	2.8E-04	0	0.205	0.201	71	0.205	10305	7107	1467	10305	0.104%	1.79	1.00	0.01%	0.001675	0.36	0.025	0.785	0.26%	0.0004
5.05	607	1.7E-03	6.2E+02	255	0.9446	2.8E-04	0	0.205	0.201	72	0.205	10265	7078	1468	10265	0.106%	1.79	1.00	0.01%	0.001712	0.36	0.025	0.785	0.27%	0.0004
5.10	607	1.7E-03	6.2E+02	251	0.9435	2.8E-04	0	0.206	0.202	73	0.206	10225	7051	1469	10225	0.108%	1.79	1.00	0.01%	0.001750	0.36	0.025	0.785	0.27%	0.0005
5.15	607	1.7E-03	6.2E+02	247	0.9424	2.8E-04	0	0.206	0.202	74	0.206	10186	7023	1470	10186	0.110%	1.79	1.00	0.01%	0.001787	0.36	0.025	0.785	0.28%	0.0005
5.20	607	1.7E-03	6.2E+02	243	0.9413	2.9E-04	0	0.207	0.203	75	0.207	10148	6996	1471	10148	0.112%	1.79	1.00	0.01%	0.001825	0.36	0.025	0.785	0.29%	0.0005
5.25	607	1.7E-03	6.2E+02	239	0.9401	2.9E-04	0	0.207	0.203	76	0.207	10109	6969	1472	10109	0.114%	1.79	1.00	0.01%	0.001863	0.36	0.025	0.785	0.29%	0.0005
5.30	607	1.7E-03	6.2E+02	235	0.9390	2.9E-04	0	0.208	0.204	77	0.208	10072	6943	1473	10072	0.116%	1.79	1.00	0.01%	0.001902	0.36	0.025	0.785	0.30%	0.0005
5.35	607	1.7E-03	6.2E+02	232	0.9378	2.9E-04	0	0.208	0.204	78	0.208	10035	6917	1474	10035	0.118%	1.79	1.00	0.01%	0.001941	0.36	0.025	0.785	0.30%	0.0005
5.40	607	1.7E-03	6.2E+02	228	0.9366	2.9E-04	0	0.208	0.205	79	0.208	9998	6891	1475	9998	0.121%	1.79	1.00	0.01%	0.001980	0.36	0.025	0.785	0.31%	0.0005
5.45	607	1.7E-03	6.2E+02	224	0.9354	3.0E-04	0	0.209	0.205	80	0.209	9962	6865	1476	9962	0.123%	1.79	1.00	0.01%	0.002019	0.36	0.025	0.785	0.32%	0.0005
5.50	607	1.7E-03	6.2E+02	221	0.9341	3.0E-04	0	0.209	0.205	81	0.209	9926	6840	1477	9926	0.125%	1.79	1.00	0.01%	0.002059	0.36	0.025	0.785	0.32%	0.0005
5.55	607	1.7E-03	6.2E+02	217	0.9329	3.0E-04	0	0.210	0.206	82	0.210	9891	6815	1478	9891	0.127%	1.79	1.00	0.01%	0.002099	0.36	0.025	0.785	0.33%	0.0005
5.60	607	1.7E-03	6.2E+02	214	0.9316	3.0E-04	0	0.210	0.206	83	0.210	9856	6791	1479	9856	0.130%	1.79	1.00	0.01%	0.002139	0.36	0.025	0.785	0.34%	0.0006
5.65	607	1.7E-03	6.2E+02	211	0.9303	3.1E-04	0	0.210	0.207	84	0.210	9821	6767	1480	9821	0.132%	1.79	1.00	0.01%	0.002179	0.36	0.025	0.785	0.34%	0.0006
5.70	607	1.7E-03	6.2E+02	207	0.9290	3.1E-04	0	0.211	0.207	85	0.211	9787	6743	1481	9787	0.134%	1.79	1.00	0.01%	0.002220	0.36	0.025	0.785	0.35%	0.0006
5.75	607	1.7E-03	6.2E+02	204	0.9277	3.1E-04	0	0.211	0.208	86	0.211	9753	6719	1482	9753	0.136%	1.79	1.00	0.01%	0.002261	0.36	0.025	0.785	0.35%	0.0006
5.80	607	1.7E-03	6.2E+02	201	0.9263	3.1E-04	0	0.212	0.208	87	0.212	9720	6696	1483	9720	0.139%	1.79	1.00	0.01%	0.002302	0.36	0.025	0.785	0.36%	0.0006
5.84	607	1.7E-03	6.2E+02	198	0.9250	3.1E-04	0	0.212	0.209	88	0.212	9687	6672	1484	9687	0.141%	1.79	1.00	0.01%	0.002343	0.36	0.025	0.785	0.37%	0.0006
5.89	607	1.7E-03	6.2E+02	195	0.9236	3.2E-04	0	0.213	0.209	89	0.213	9655	6650	1485	9655	0.143%	1.79	1.00	0.01%	0.002384	0.36	0.025	0.785	0.37%	0.0006
5.94	607	1.7E-03	6.2E+02	192	0.9222	3.2E-04	0	0.213	0.210	90	0.213	9622	6627	1486	9622	0.146%	1.79	1.00	0.01%	0.002425	0.36	0.025	0.785	0.38%	0.0006
5.99	607	1.7E-03	6.2E+02	189	0.9207	3.2E-04	0	0.213	0.210	91	0.213	9591	6605	1487	9591	0.148%	1.79	1.00	0.01%	0.002467	0.36	0.025	0.785	0.39%	0.0006
6.04	607	1.7E-03	6.2E+02	186	0.9193	3.2E-04	0	0.214	0.211	92	0.214	9559	6583	1488	9559	0.150%	1.79	1.00	0.01%	0.002508	0.36	0.025	0.785	0.39%	0.0006
6.09	607	1.7E-03	6.2E+02	183	0.9178	3.2E-04	0	0.214	0.211	93	0.214	9528	6561	1489	9528	0.152%	1.79	1.00	0.01%	0.002550	0.36	0.025	0.785	0.40%	0.0007
6.14	607	1.7E-03	6.2E+02	180	0.9163	3.3E-04	0	0.215	0.211	94	0.215	9497	6539	1490	9497	0.155%	1.79	1.00	0.01%	0.002592	0.36	0.025	0.785	0.41%	0.0007
6.19	607	1.7E-03	6.2E+02	177	0.9148	3.3E-04	0	0.215	0.212	95	0.215	9467	6518	1491	9467	0.157%	1.79	1.00	0.01%	0.002634	0.36	0.025	0.785	0.41%	0.0007
6.24	607	1.7E-03	6.2E+02	175	0.9133	3.3E-04	0	0.215	0.212	96	0.215	9437	6497	1492	9437	0.159%	1.79	1.00	0.01%	0.002675	0.36	0.025	0.785	0.42%	0.0007
6.29	607	1.7E-03	6.2E+02	172	0.9117	3.3E-04	0	0.216	0.213	97	0.216	9407	6476	1493	9407	0.162%	1.79	1.00	0.01%	0.002717	0.36	0.025	0.785	0.43%	0.0007
6.34	607	1.7E-03	6.2E+02	169	0.9102	3.3E-04	0	0.216	0.213	98	0.216	9378	6455	1494	9378	0.164%	1.79	1.00	0.01%	0.002759	0.36	0.025	0.785	0.43%	0.0007
6.39	607	1.7E-03	6.2E+02	167	0.9086	3.4E-04	0	0.216	0.214	99	0.216	9349	6435	1495	9349	0.166%	1.79	1.00	0.01%	0.002801	0.36	0.025	0.785	0.44%	0.0007
6.44	607	1.7E-03	6.2E+02	164	0.9070	3.4E-04	0	0.217	0.214	100	0.217	9320	6415	1496	9320	0.169%	1.79	1.00	0.01%	0.002842	0.36	0.025	0.785	0.45%	0.0007
6.49	607	1.7E-03	6.2E+02	162	0.9053	3.4E-04	0	0.217	0.214	101	0.217	9291	6395	1497	9291	0.171%	1.79	1.00	0.01%	0.002884	0.36	0.025	0.785	0.45%	0.0007
6.54	607	1.7E-03	6.2E+02	159	0.9037	3.4E-04	0	0.218	0.215	102	0.218	9263	6375	1498	9263	0.173%	1.79	1.00	0.01%	0.002925	0.36	0.025	0.785	0.46%	0.0008
6.59	607	1.7E-03	6.2E+02	157	0.9020	3.4E-04	0	0.218	0.215	103	0.218	9235	6355	1499	9235	0.176%	1.79	1.00	0.01%	0.002966	0.36	0.025	0.785	0.47%	0.0008
6.64	607	1.7E-03	6.2E+02	154	0.9003	3.5E-04	0	0.218	0.216	104	0.218	9208	6336	1500	9208	0.178%	1.79	1.00	0.01%	0.003008	0.36	0.025	0.785	0.47%	0.0008
6.69	607	1.7E-03	6.2E+02	152	0.8985	3.5E-04	0	0.219	0.216	105	0.219	9180	6317	1501	9180	0.180%	1.79	1.00	0.01%	0.003048	0.36	0.025	0.785	0.48%	0.0008
6.74	607	1.7E-03	6.2E+02	150	0.8968	3.5E-04	0	0.219	0.217	106	0.219	9153	6298	1502	9153	0.183%	1.79	1.00	0.01%	0.003089	0.36	0.025	0.785	0.49%	0.0008
6.79	607	1.7E-03	6.2E+02	148	0.8950	3.5E-04	0	0.219	0.217	107	0.219	9127	6279	1503	9127	0.185%	1.79	1.00	0.01%	0.003130	0.36	0.025	0.785	0.49%	0.0008
6.84	607	1.7E-03	6.2E+02	145	0.8932	3.5E-04	0	0.220	0.217	108	0.220	9100	6260	1504	9100	0.187%	1.79	1.00	0.01%	0.003170	0.36	0.025	0.785	0.50%	0.0008
6.89	607	1.7E-03	6.2E+02	143	0.8914	3.5E-04	0	0.220	0.218	109	0.220	9074	6242	1505	9074	0.189%	1.79	1.00	0.01%	0.003210	0.36	0.025	0.785	0.50%	0.0008
6.94	607	1.7E-03	6.2E+02	141	0.8895	3.6E-04	0	0.220	0.218	110	0.220	9048	6224	1506	9048	0.192%	1.79	1.00	0.01%	0.003249	0.36	0.025	0.785	0.51%	0.0008
6.99	607	1.7E-03	6.2E+02	139	0.8877	3.6E-04	0	0.221	0.219	111	0.221	9022	6206	1507	9022	0.194%	1.79	1.00	0.01%	0.003288	0.36	0.025	0.785	0.52%	0.0008
7.04	607	1.7E-03	6.2E+02	137	0.8858	3.6E-04	0	0.221	0.219	112	0.221	8997	6188	1508	8997	0.196%	1.79	1.00	0.01%	0.003327	0.36	0.025	0.785	0.52%	0.0009
7.09	607	1.7E-03	6.2E+02	135	0.8839	3.6E-04	0	0.222	0.219	113	0.222	8971	6170	1509	8971	0.198%	1.79	1.00	0.01%	0.003366	0.36	0.025	0.785	0.53%	0.0009
7.14	607	1.7E-03	6.2E+02	133	0.8819	3.6E-04	0	0.222	0.220	114	0.222	8946	6153	1510	8946	0.200%	1.79	1.00	0.01%	0.003403	0.36	0.025	0.785	0.53%	0.0009
7.19	607	1.7E-03	6.2E+02	131	0.8799	3.7E-04	0	0.222	0.220	115	0.222	8922	6135	1511	8922	0.202%	1.79	1.00	0.01%	0.003441	0.36	0.025	0.785	0.54%	0.0009
7.24	607	1.7E-03	6.2E+02	129	0.8779	3.7E-04	0	0.223	0.221	116	0.223	8897	6118	1512	8897	0.204%	1.79	1.00	0.01%	0.003478	0.36	0.025	0.785	0.55%	0.0009
7.29	607	1.7E-03	6.2E+02	127	0.8759	3.7E-04	0	0.223	0.221	117	0.223	8873	6101	1513	8873	0.206%	1.79	1.00	0.01%	0.003515	0.36	0.025	0.785	0.55%	0.0009
7.34	607	1.7E-03	6.2E+02	125	0.8739	3.7E-04	0	0.223	0.221	118	0.223	8849	6084	1514	8849	0.208%	1.79	1.00	0.01%	0.003551	0.36	0.025	0.785	0.56%	0.0009
7.39	607	1.7E-03	6.2E+02	123	0.8718	3.7E-04	0	0.224	0.222	119	0.224	8825	6067	1515	8825	0.210%	1.79	1.00	0.01%	0.003586	0.36	0.025	0.785	0.56%	0.0009
7.44	607	1.7E-03	6.2E+02	121	0.8697	3.7E-04	0	0.224	0.222	120	0.224	8801	6051	1516	8801	0.212%	1.79	1.00	0.01%	0.003621	0.36	0.025	0.785	0.57%	0.0009
7.49	616	1.7E-03	6.4E+02	120	0.8676	3.6E-04	0	0.224	0.222	121	0.224	8778	6034	1517	8778	0.192%	1.79	1.00	0.01%	0.003253	0.36	0.025	0.785	0.51%	0.0008
7.54	616	1.7E-03	6.4E+02	118	0.8654	3.7E-04	0	0.225	0.223	122	0.225	8755	6018	1518	8755	0.193%	1.79	1.00	0.01%	0.003283	0.36	0.025	0.785	0.52%	0.0008
7.59	616	1.7E-03	6.4E+02	116	0.8632	3.7E-04	0	0.225	0.223	123	0.225	8732	6002	1519	8732	0.195%	1.79	1.00	0.01%	0.003312	0.36	0.025	0.785	0.52%	0.0009
7.64	616	1.7E-03	6.4E+02	115	0.8610	3.7E-04	0	0.225	0.224	124	0.225	8709	5986	1520	8709	0.197%	1.79	1.00	0.01%	0.003340	0.36	0.025	0.785	0.52%	0.0009
7.69	616	1.7E-03	6.4E+02	113	0.8588	3.7E-04	0	0.226	0.224	125	0.226	8686	5970	1521	8686	0.198%	1.79	1.00	0.01%	0.003367	0.36	0.025	0.785	0.53%	0.0009
7.74	616	1.7E-03	6.4E+02	111	0.8565	3.7E-04	0	0.226	0.224	126	0.226	8664	5955	1522	8664	0.200%	1.79	1.00	0.01%	0.003394	0.36	0.025	0.785	0.53%	0.0009
7.79	616	1.7E-03	6.4E+02	110	0.8542	3.7E-04	0	0.226	0.225	127	0.226	8642	5939	1523	8642	0.201%	1.79	1.00	0.01%	0.003420	0.36	0.025	0.785	0.54%	0.0009
7.84	616	1.7E-03	6.4E+02	108	0.8519	3.7E-04	0	0.227	0.225	128	0.227	8620	5924	1524	8620	0.203%	1.79	1.00	0.01%	0.003446	0.36	0.025	0.785	0.54%	0.0009
7.89	616	1.7E-03	6.4E+02	106	0.8496	3.7E-04	0	0.227	0.225	129	0.227	8598	5908	1525	8598	0.204%	1.79	1.00	0.01%	0.003471	0.36	0.025	0.785	0.54%	0.0009
7.94	616	1.7E-03	6.4E+02	105	0.8472	3.8E-04	0	0.227	0.226	130	0.227	8576	5893	1526	8576	0.205%	1.79	1.00	0.01%	0.003494	0.36	0.025	0.785	0.55%	0.0009
7.99	616	1.7E-03	6.4E+02	103	0.8448	3.8E-04	0	0.228	0.226	131	0.228	8555	5878	1527	8555	0.207%	1.79	1.00	0.01%	0.003518	0.36	0.025	0.785	0.55%	0.0009
8.04	616	1.7E-03	6.4E+02	102	0.8424	3.8E-04	0	0.228	0.227	132	0.228	8534	5863	1528	8534	0.208%	1.79	1.00	0.01%	0.003540	0.36	0.025	0.785	0.56%	0.0009
8.09	616	1.7E-03	6.4E+02	101	0.8399	3.8E-04	0	0.228	0.227	133	0.228	8513	5849	1529	8513	0.209%	1.79	1.00	0.01%	0.003562	0.36	0.025	0.785	0.56%	0.0009
8.14	616	1.7E-03	6.4E+02	99	0.8374	3.8E-04	0	0.228	0.227	134	0.228	8492	5834	1530	8492	0.210%	1.79	1.00	0.01%	0.003582	0.36	0.025	0.785	0.56%	0.0009
8.19	616	1.7E-03	6.4E+02	98	0.8349	3.8E-04	0	0.229	0.228	135	0.229	8471	5819	1531	8471	0.211%	1.79	1.00	0.01%	0.003602	0.36	0.025	0.785	0.57%	0.0009
8.24	616	1.7E-03	6.4E+02	96	0.8324	3.8E-04	0	0.229	0.228	136	0.229	8450	5805	1532	8450	0.212%	1.79	1.00	0.01%	0.003621	0.36	0.025	0.785	0.57%	0.0009
8.29	616	1.7E-03	6.4E+02	95	0.8298	3.8E-04	0	0.229	0.228	137	0.229	8430	5791	1533	8430	0.213%	1.79	1.00	0.01%	0.003639	0.36	0.025	0.785	0.57%	0.0009
8.34	616	1.7E-03	6.4E+02	94	0.8272	3.8E-04	0	0.230	0.229	138	0.230	8410	5777	1534	8410	0.214%	1.79	1.00	0.01%	0.003656	0.36	0.025	0.785	0.57%	0.0009
8.39	616	1.7E-03	6.4E+02	92	0.8245	3.9E-04	0	0.230	0.229	139	0.230	8390	5763	1535	8390	0.215%	1.79	1.00	0.01%	0.003672	0.36	0.025	0.785	0.58%	0.0009
8.44	616	1.7E-03	6.4E+02	91	0.8219	3.9E-04	0	0.230	0.229	140	0.230	8370	5749	1536	8370	0.216%	1.79	1.00	0.01%	0.003688	0.36	0.025	0.785	0.58%	0.0009
8.49	616	1.7E-03	6.4E+02	90	0.8192	3.9E-04	0	0.231	0.230	141	0.231	8350	5735	1537	8350	0.217%	1.79	1.00	0.01%	0.003702	0.36	0.025	0.785	0.58%	0.0010
8.54	616	1.7E-03	6.4E+02	89	0.8165	3.9E-04	0	0.231	0.230	142	0.231	8331	5721	1538	8331	0.218%	1.79	1.00	0.01%	0.003715	0.36	0.025	0.785	0.58%	0.0010
8.59	616	1.7E-03	6.4E+02	87	0.8137	3.9E-04	0	0.231	0.230	143	0.231	8311	5708	1539	8311	0.218%	1.79	1.00	0.01%	0.003727	0.36	0.025	0.785	0.59%	0.0010
8.64	616	1.7E-03	6.4E+02	86	0.8109	3.9E-04	0	0.232	0.231	144	0.232	8292	5694	1540	8292	0.219%	1.79	1.00	0.01%	0.003738	0.36	0.025	0.785	0.59%	0.0010
8.69	616	1.7E-03	6.4E+02	85	0.8081	3.9E-04	0	0.232	0.231	145	0.232	8273	5681	1541	8273	0.219%	1.79	1.00	0.01%	0.003749	0.36	0.025	0.785	0.59%	0.0010
8.74	616	1.7E-03	6.4E+02	84	0.8053	3.9E-04	0	0.232	0.232	146	0.232	8254	5668	1542	8254	0.220%	1.79	1.00	0.01%	0.003758	0.36	0.025	0.785	0.59%	0.0010

23.786	6952.85	17.1	0.379	17.2	-0.2	-0.08	2.21%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	12	2.39%	2.9	21%	1.60	0.000	1.60
23.950	6952.69	20.5	0.361	20.5	0.4	0.18	1.76%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0	15	1.88%	2.7	21%	1.61	0.000	1.61
24.114	6952.53	28.3	0.331	28.2	2.4	1.02	1.17%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0	20	1.23%	2.5	21%	1.62	0.000	1.62
24.278	6952.36	32.1	0.263	32.1	2.1	0.91	0.82%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	23	0.85%	2.4	21%	1.63	0.000	1.63
24.442	6952.20	34.6	0.308	34.6	1.8	0.79	0.89%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0	25	0.93%	2.4	21%	1.64	0.000	1.64
24.606	6952.03	31.4	0.412	31.4	1.3	0.57	1.31%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0	22	1.37%	2.5	21%	1.64	0.000	1.64
24.770	6951.87	19.6	0.574	19.6	1.3	0.57	2.92%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	13	3.14%	2.9	21%	1.65	0.000	1.65
24.934	6951.71	28.9	0.546	28.9	1.2	0.51	1.89%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	20	1.98%	2.6	21%	1.66	0.000	1.66
25.098	6951.54	21.7	0.511	21.7	0.8	0.36	2.35%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	15	2.51%	2.8	21%	1.67	0.000	1.67
25.262	6951.38	29.9	0.463	29.9	0.1	0.04	1.55%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	21	1.62%	2.6	21%	1.68	0.000	1.68
25.426	6951.21	41.6	0.432	41.6	0.2	0.10	1.04%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	29	1.08%	2.4	21%	1.69	0.000	1.69
25.590	6951.05	37.9	0.373	37.9	0.7	0.30	0.98%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	26	1.02%	2.4	21%	1.70	0.000	1.70
25.754	6950.89	35.0	0.602	35.0	0.0	0.00	1.72%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	24	1.79%	2.6	21%	1.71	0.000	1.71
25.918	6950.72	28.9	0.617	28.9	0.5	0.23	2.14%	Coarse Tailings	0.054	108.1	1.42	0.000	1.42	0	19	2.25%	2.7	21%	1.72	0.000	1.72
26.082	6950.56	17.6	0.606	17.6	0.4	0.18	3.44%	Coarse Tailings	0.054	108.1	1.43	0.000	1.43	0	11	3.75%	3.0	21%	1.72	0.000	1.72
26.246	6950.39	32.7	0.775	32.7	0.8	0.35	2.37%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0	22	2.48%	2.7	21%	1.73	0.000	1.73
26.410	6950.23	24.9	0.769	24.9	0.6	0.24	3.09%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0	16	3.28%	2.8	21%	1.74	0.000	1.74
26.574	6950.07	22.2	0.776	22.2	0.4	0.16	3.50%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0	14	3.74%	2.9	21%	1.75	0.000	1.75
26.739	6949.90	34.4	0.919	34.4	0.8	0.33	2.68%	Coarse Tailings	0.054	108.1	1.46	0.000	1.46	0	22	2.79%	2.7	21%	1.76	0.000	1.76
26.903	6949.74	21.7	0.997	21.7	0.8	0.35	4.59%	Coarse Tailings	0.054	108.1	1.47	0.000	1.47	0	14	4.92%	3.0	21%	1.77	0.000	1.77
27.067	6949.57	16.1	0.792	16.1	0.4	0.16	4.93%	Coarse Tailings	0.054	108.1	1.48	0.000	1.48	0	10	5.43%	3.2	21%	1.78	0.000	1.78
27.231	6949.41	26.1	0.589	26.1	0.8	0.35	2.25%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0	17	2.39%	2.8	21%	1.79	0.000	1.79
27.395	6949.25	45.0	0.692	45.0	1.9	0.81	1.54%	Coarse Tailings	0.054	108.1	1.50	0.000	1.50	0	29	1.59%	2.5	21%	1.80	0.000	1.80
27.559	6949.08	33.5	0.889	33.5	1.9	0.81	2.65%	Coarse Tailings	0.054	108.1	1.51	0.000	1.51	0	21	2.78%	2.7	21%	1.80	0.000	1.80
27.723	6948.92	26.5	0.744	26.5	1.9	0.81	2.81%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0	16	2.98%	2.8	21%	1.81	0.000	1.81
27.887	6948.75	35.5	0.749	35.4	2.1	0.89	2.11%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0	22	2.21%	2.6	21%	1.82	0.000	1.82
28.051	6948.59	28.6	0.945	28.6	1.8	0.77	3.30%	Coarse Tailings	0.054	108.1	1.53	0.000	1.53	0	18	3.49%	2.8	21%	1.83	0.000	1.83
28.215	6948.43	30.2	0.826	30.2	1.8	0.77	2.74%	Coarse Tailings	0.054	108.1	1.54	0.000	1.54	0	19	2.89%	2.8	21%	1.84	0.000	1.84
28.379	6948.26	22.5	0.783	22.5	2.3	0.98	3.48%	Coarse Tailings	0.054	108.1	1.55	0.000	1.55	0	14	3.74%	2.9	21%	1.85	0.000	1.85
28.543	6948.10	21.3	0.651	21.3	3.1	1.34	3.05%	Coarse Tailings	0.054	108.1	1.56	0.000	1.56	0	13	3.30%	2.9	21%	1.86	0.000	1.86
28.707	6947.93	24.7	0.647	24.7	4.2	1.81	2.62%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0	15	2.80%	2.8	21%	1.87	0.000	1.87
28.871	6947.77	24.5	0.677	24.5	5.4	2.32	2.76%	Coarse Tailings	0.054	108.1	1.58	0.000	1.58	0	15	2.95%	2.9	21%	1.87	0.000	1.87
29.035	6947.60	25.4	0.771	25.4	6.2	2.70	3.03%	Coarse Tailings	0.054	108.1	1.59	0.000	1.59	0	15	3.24%	2.9	21%	1.88	0.000	1.88
29.199	6947.44	23.8	0.792	23.8	7.8	3.40	3.33%	Coarse Tailings	0.054	108.1	1.60	0.000	1.60	0	14	3.56%	2.9	21%	1.89	0.000	1.89
29.363	6947.28	28.9	0.798	28.8	9.2	3.99	2.76%	Coarse Tailings	0.054	108.1	1.60	0.000	1.60	0	17	2.93%	2.8	21%	1.90	0.000	1.90
29.527	6947.11	27.0	0.867	26.9	9.3	4.05	3.22%	Coarse Tailings	0.054	108.1	1.61	0.000	1.61	0	16	3.42%	2.9	21%	1.91	0.000	1.91
29.691	6946.95	26.4	0.820	26.3	9.8	4.23	3.11%	Coarse Tailings	0.054	108.1	1.62	0.000	1.62	0	15	3.31%	2.9	21%	1.92	0.000	1.92
29.855	6946.78	24.9	0.848	24.8	10.0	4.35	3.41%	Coarse Tailings	0.054	108.1	1.63	0.000	1.63	0	14	3.65%	2.9	21%	1.93	0.000	1.93
30.019	6946.62	27.9	1.013	27.9	10.8	4.66	3.63%	Coarse Tailings	0.054	108.1	1.64	0.000	1.64	0	16	3.86%	2.9	21%	1.94	0.000	1.94
30.183	6946.46	35.8	1.269	35.7	16.7	7.24	3.55%	Fine Alluvium	0.060	120.7	1.65	0.000	1.65	0	21	3.72%	2.8	76%	1.95	0.000	1.95
30.347	6946.29	45.7	1.550	45.6	16.4	7.12	3.39%	Fine Alluvium	0.060	120.7	1.66	0.000	1.66	0	27	3.52%	2.7	76%	1.96	0.000	1.96
30.511	6946.13	73.1	1.680	73.0	16.2	7.04	2.30%	Fine Alluvium	0.060	120.7	1.67	0.000	1.67	0	43	2.35%	2.4	76%	1.97	0.000	1.97
30.675	6945.96	84.5	1.591	84.4	15.5	6.71	1.88%	Fine Alluvium	0.060	120.7	1.68	0.000	1.68	0	49	1.92%	2.3	76%	1.98	0.000	1.98
30.840	6945.80	83.2	1.767	83.1	13.7	5.94	2.12%	Fine Alluvium	0.060	120.7	1.69	0.000	1.69	0	48	2.17%	2.4	76%	1.99	0.000	1.99
31.004	6945.64	70.2	2.017	70.2	12.4	5.37	2.87%	Fine Alluvium	0.060	120.7	1.70	0.000	1.70	0	40	2.94%	2.5	76%	2.00	0.000	2.00
31.168	6945.47	62.2	2.343	62.1	12.1	5.23	3.77%	Fine Alluvium	0.060	120.7	1.71	0.000	1.71	0	35	3.87%	2.6	76%	2.01	0.000	2.01
31.332	6945.31	61.1	2.427	61.0	12.1	5.23	3.97%	Fine Alluvium	0.060	120.7	1.72	0.000	1.72	0	35	4.09%	2.7	76%	2.02	0.000	2.02
31.496	6945.14	42.6	2.177	42.5	11.3	4.88	5.11%	Fine Alluvium	0.060	120.7	1.73	0.000	1.73	0	24	5.33%	2.9	76%	2.03	0.000	2.03
31.660	6944.98	45.4	2.130	45.3	11.3	4.90	4.69%	Fine Alluvium	0.060	120.7	1.74	0.000	1.74	0	25	4.88%	2.8	76%	2.04	0.000	2.04
31.824	6944.82	35.2	1.773	35.2	10.9	4.72	5.03%	Fine Alluvium	0.060	120.7	1.75	0.000	1.75	0	19	5.29%	2.9	76%	2.05	0.000	2.05
31.988	6944.65	31.1	1.490	31.0	11.1	4.82	4.79%	Fine Alluvium	0.060	120.7	1.76	0.000	1.76	0	17	5.08%	3.0	76%	2.06	0.000	2.06
32.152	6944.49	22.7	1.147	22.6	10.5	4.55	5.05%	Fine Alluvium	0.060	120.7	1.77	0.000	1.77	0	12	5.48%	3.1	76%	2.07	0.000	2.07
32.316	6944.32	20.0	1.124	19.9	10.7	4.62	5.63%	Fine Alluvium	0.060	120.7	1.78	0.000	1.78	0	10	6.18%	3.2	76%	2.08	0.000	2.08
32.480	6944.16	21.9	1.247	21.9	12.0	5.20	5.68%	Fine Alluvium	0.060	120.7	1.79	0.000	1.79	0	11	6.19%	3.1	76%	2.09	0.000	2.09
32.644	6944.00	22.4	1.225	22.4	11.7	5.08	5.46%	Fine Alluvium	0.060	120.7	1.80	0.000	1.80	0	11	5.93%	3.1	76%	2.10	0.000	2.10
32.808	6943.83	30.9	1.665	30.8	13.0	5.63	5.39%	Fine Alluvium	0.060	120.7	1.81	0.000	1.81	0	16	5.73%	3.0	76%	2.11	0.000	2.11
32.972	6943.67	25.6	1.719	25.5	13.3	5.78	6.72%	Fine Alluvium	0.060	120.7	1.82	0.000	1.82	0	13	7.24%	3.1	76%	2.12	0.000	2.12
33.136	6943.50	20.0	1.559	20.0	13.1	5.66	7.78%	Fine Alluvium	0.060	120.7	1.83	0.000	1.83	0	10	8.56%	3.3	76%	2.13	0.000	2.13
33.300	6943.34	17.7	1.093	17.7	14.0	6.08	6.16%	Fine Alluvium	0.060	120.7	1.84	0.000	1.84	0	9	6.87%	3.3	76%	2.13	0.000	2.13
33.464	6943.18	17.0	0.903	17.0	14.2	6.16	5.30%	Fine Alluvium	0.060	120.7	1.85	0.000	1.85	0	8	5.94%	3.2	76%	2.14	0.000	2.14
33.628	6943.01	17.2	0.875	17.2	14.6	6.32	5.08%	Fine Alluvium	0.060	120.7	1.86	0.000	1.86	0	8	5.69%	3.2	76%	2.15	0.000	2.15
33.792	6942.85	20.8	1.542	20.7	15.1	6.55	7.41%	Fine Alluvium	0.060	120.7	1.87	0.000	1.87	0	10	8.14%	3.3	76%	2.16	0.000	2.16
33.956	6942.68	28.3	2.137	28.2	15.4	6.67	7.56%	Fine Alluvium	0.060	120.7	1.88	0.000	1.88	0	14	8.10%	3.1	76%	2.17	0.000	2.17
34.120	6942.52	37.8	2.783	37.7	16.5	7.16	7.36%	Fine Alluvium	0.060	120.7	1.89	0.000	1.89	0	19	7.74%	3.0	76%	2.18	0.000	2.18
34.284	6942.36	39.2	2.940	39.1	16.9	7.30	7.50%	Fine Alluvium	0.060	120.7	1.90	0.000	1.90	0	20	7.89%	3.0	76%	2.19	0.000	2.19
34.448	6942.19	37.7	2.870	37.6	16.9	7.34	7.61%	Fine Alluvium	0.060	120.7	1.91	0.000	1.91	0	19	8.02%	3.1	76%	2.20	0.000	2.20
34.612	6942.03	37.3	2.586	37.2	17.5	7.58	6.93%	Fine Alluvium	0.060	120.7	1.92	0.000	1.92	0	18	7.30%	3.0	76%	2.21	0.000	2.21
34.776	6941.86	35.2	2.418	35.1	18.0	7.81	6.87%	Fine Alluvium	0.060	120.7	1.93	0.000	1.93	0	17	7.27%	3.1	76%	2.22	0.000	2.22
34.941	6941.70	30.8	2.126	30.7	17.7	7.65	6.90%	Fine Alluvium	0.060	120.7	1.94	0.000	1.94	0	15	7.36%	3.1	76%	2.23	0.000	2.23
35.105	6941.54	30.1	2.298	30.0	17.7	7.69	7.64%	Fine Alluvium	0.060	120.7	1.95	0.000	1.95	0	14	8.17%	3.1	76%	2.24	0.000	2.24
35.269	6941.37	32.5	2.207	32.4	22.2	9.64	6.79%	Fine Alluvium	0.060	120.7	1.96	0.000	1.96	0	16	7.22%	3.1	76%	2.25	0.000	2.25
35.433	6941.21	34.8	2.574	34.7	23.9	10.35	7.39%	Fine Alluvium	0.060	120.7	1.97	0.000	1.97	0	17	7.83%	3.1	76%	2.26	0.000	2.26
35.597	6941.04	37.2	2.744	37.0	24.7	10.72	7.38%	Fine Alluvium	0.060	120.7	1.98	0.000	1.98	0	18	7.79%	3.1	76%	2.27	0.000	2.27
35.761	6940.88	38.0	2.976	37.9	25.3	10.98	7.83%	Fine Alluvium	0.060	120.7	1.99	0.000	1.99	0	18	8.26%	3.1	76%	2.28	0.000	2.28
35.925	6940.72	38.0	3.196	37.8	25.6	11.10	8.42%	Fine Alluvium	0.060	120.7	2.00	0.000	2.00	0	18	8.89%	3.1	76%	2.29	0.000	2.29
36.089	6940.55	37.0	3.283	36.8	25.1	10.86	8.87%	Fine Alluvium	0.060	120.7	2.01	0.000	2.01	0	17	9.38%	3.1	76%	2.30	0.000	2.30
36.253	6940.39	35.5	2.998	35.4	24.9	10.80	8.44%	Fine Alluvium	0.060	120.7	2.02	0.000	2.02	0	17	8.95%	3.1	76%	2.31	0.000	2.31
36.417	6940.22	33.9	2.974	33.8	25.0	10.84	8.76%	Fine Alluvium	0.060	120.7	2.03	0.000	2.03	0	16	9.32%	3.2	76%	2.32	0.000	2.32
36.581	6940.06	32.3	2.817	32.1	23.8	10.29	8.73%	Fine Alluvium	0.060	120.7	2.04	0.000	2.04	0	15	9.32%	3.2	76%	2.33	0.000	2.33
36.745	6939.90	32.3	2.386	32.1	23.0	9.98	7.40%	Fine Alluvium	0.060	120.7	2.05	0.000	2.05	0	15	7.90%	3.1	76%	2.34	0.000	2.34

8.79	616	1.7E-03	6.4E+02	83	0.8024	3.9E-04	0	0.232	0.232	147	0.232	8235	5654	1543	8235	0.220%	1.79	1.00	0.01%	0.003766	0.36	0.025	0.785	0.59%	0.0010
8.84	616	1.7E-03	6.4E+02	82	0.7995	3.9E-04	0	0.233	0.232	148	0.233	8217	5641	1544	8217	0.221%	1.79	1.00	0.01%	0.003773	0.36	0.025	0.785	0.59%	0.0010
8.89	616	1.7E-03	6.4E+02	80	0.7966	3.9E-04	0	0.233	0.233	149	0.233	8198	5628	1545	8198	0.221%	1.79	1.00	0.01%	0.003779	0.36	0.025	0.785	0.59%	0.0010
8.94	616	1.7E-03	6.4E+02	79	0.7937	4.0E-04	0	0.233	0.233	150	0.233	8180	5616	1546	8180	0.221%	1.79	1.00	0.01%	0.003784	0.36	0.025	0.785	0.59%	0.0010
8.99	616	1.7E-03	6.4E+02	78	0.7907	4.0E-04	0	0.234	0.233	151	0.234	8161	5603	1547	8161	0.222%	1.79	1.00	0.01%	0.003787	0.36	0.025	0.785	0.59%	0.0010
9.04	636	1.7E-03	6.8E+02	77	0.7876	3.7E-04	0	0.234	0.234	152	0.234	8143	5590	1548	8143	0.176%	1.79	1.00	0.01%	0.002968	0.36	0.025	0.785	0.47%	0.0008
9.09	636	1.7E-03	6.8E+02	76	0.7846	3.7E-04	0	0.234	0.234	153	0.234	8125	5578	1549	8125	0.176%	1.79	1.00	0.01%	0.002969	0.36	0.025	0.785	0.47%	0.0008
9.14	636	1.7E-03	6.8E+02	75	0.7815	3.7E-04	0	0.235	0.234	154	0.235	8108	5565	1550	8108	0.176%	1.79	1.00	0.01%	0.002970	0.36	0.025	0.785	0.47%	0.0008
9.19	636	1.7E-03	6.8E+02	74	0.7784	3.7E-04	0	0.235	0.235	155	0.235	8090	5553	1551	8090	0.176%	1.79	1.00	0.01%	0.002970	0.36	0.025	0.785	0.47%	0.0008
9.24	636	1.7E-03	6.8E+02	73	0.7753	3.7E-04	0	0.235	0.235	156	0.235	8072	5541	1552	8072	0.176%	1.79	1.00	0.01%	0.002969	0.36	0.025	0.785	0.47%	0.0008
9.29	636	1.7E-03	6.8E+02	72	0.7721	3.7E-04	0	0.235	0.235	157	0.235	8055	5528	1553	8055	0.176%	1.79	1.00	0.01%	0.002968	0.36	0.025	0.785	0.47%	0.0008
9.34	636	1.7E-03	6.8E+02	71	0.7689	3.7E-04	0	0.236	0.236	158	0.236	8038	5516	1554	8038	0.176%	1.79	1.00	0.01%	0.002965	0.36	0.025	0.785	0.47%	0.0008
9.39	636	1.7E-03	6.8E+02	70	0.7657	3.8E-04	0	0.236	0.236	159	0.236	8021	5504	1555	8021	0.175%	1.79	1.00	0.01%	0.002962	0.36	0.025	0.785	0.47%	0.0008
9.44	636	1.7E-03	6.8E+02	69	0.7624	3.8E-04	0	0.236	0.236	160	0.236	8004	5492	1556	8004	0.175%	1.79	1.00	0.01%	0.002958	0.36	0.025	0.785	0.46%	0.0008
9.49	636	1.7E-03	6.8E+02	69	0.7592	3.8E-04	0	0.236	0.236	161	0.236	7987	5481	1557	7987	0.175%	1.79	1.00	0.01%	0.002953	0.36	0.025	0.785	0.46%	0.0008
9.54	636	1.7E-03	6.8E+02	68	0.7558	3.8E-04	0	0.237	0.237	162	0.237	7970	5469	1558	7970	0.175%	1.79	1.00	0.01%	0.002947	0.36	0.025	0.785	0.46%	0.0008
9.59	636	1.7E-03	6.8E+02	67	0.7525	3.8E-04	0	0.237	0.237	163	0.237	7953	5457	1559	7953	0.174%	1.79	1.00	0.01%	0.002941	0.36	0.025	0.785	0.46%	0.0008
9.64	636	1.7E-03	6.8E+02	66	0.7491	3.8E-04	0	0.237	0.237	164	0.237	7937	5446	1560	7937	0.174%	1.79	1.00	0.01%	0.002933	0.36	0.025	0.785	0.46%	0.0008
9.69	636	1.7E-03	6.8E+02	65	0.7457	3.8E-04	0	0.238	0.238	165	0.238	7920	5434	1561	7920	0.173%	1.79	1.00	0.01%	0.002925	0.36	0.025	0.785	0.46%	0.0008
9.74	636	1.7E-03	6.8E+02	64	0.7423	3.8E-04	0	0.238	0.238	166	0.238	7904	5423	1562	7904	0.173%	1.79	1.00	0.01%	0.002916	0.36	0.025	0.785	0.46%	0.0008
9.79	636	1.7E-03	6.8E+02	63	0.7388	3.8E-04	0	0.238	0.238	167	0.238	7888	5411	1563	7888	0.172%	1.79	1.00	0.01%	0.002906	0.36	0.025	0.785	0.46%	0.0007
9.84	636	1.7E-03	6.8E+02	63	0.7353	3.8E-04	0	0.238	0.239	168	0.238	7872	5400	1564	7872	0.172%	1.79	1.00	0.01%	0.002896	0.36	0.025	0.785	0.45%	0.0007
9.89	636	1.7E-03	6.8E+02	62	0.7318	3.8E-04	0	0.239	0.239	169	0.239	7856	5389	1565	7856	0.171%	1.79	1.00	0.01%	0.002885	0.36	0.025	0.785	0.45%	0.0007
9.94	636	1.7E-03	6.8E+02	61	0.7283	3.8E-04	0	0.239	0.239	170	0.239	7840	5378	1566	7840	0.170%	1.79	1.00	0.01%	0.002872	0.36	0.025	0.785	0.45%	0.0007
9.99	636	1.7E-03	6.8E+02	60	0.7247	3.8E-04	0	0.239	0.240	171	0.239	7824	5367	1567	7824	0.170%	1.79	1.00	0.01%	0.002860	0.36	0.025	0.785	0.45%	0.0007
10.04	636	1.7E-03	6.8E+02	60	0.7211	3.8E-04	0	0.240	0.240	172	0.240	7808	5356	1568	7808	0.169%	1.79	1.00	0.01%	0.002846	0.36	0.025	0.785	0.45%	0.0007
10.09	636	1.7E-03	6.8E+02	59	0.7175	3.8E-04	0	0.240	0.240	173	0.240	7793	5345	1569	7793	0.168%	1.79	1.00	0.01%	0.002832	0.36	0.025	0.785	0.44%	0.0007
10.14	636	1.7E-03	6.8E+02	58	0.7138	3.8E-04	0	0.240	0.241	174	0.240	7778	5334	1570	7778	0.167%	1.79	1.00	0.01%	0.002816	0.36	0.025	0.785	0.44%	0.0007
10.19	636	1.7E-03	6.8E+02	57	0.7101	3.8E-04	0	0.240	0.241	175	0.240	7762	5324	1571	7762	0.166%	1.79	1.00	0.01%	0.002801	0.36	0.025	0.785	0.44%	0.0007
10.24	636	1.7E-03	6.8E+02	57	0.7064	3.8E-04	0	0.241	0.241	176	0.241	7747	5313	1572	7747	0.166%	1.79	1.00	0.01%	0.002784	0.36	0.025	0.785	0.44%	0.0007
10.29	636	1.7E-03	6.8E+02	56	0.7027	3.8E-04	0	0.241	0.241	177	0.241	7732	5302	1573	7732	0.165%	1.79	1.00	0.01%	0.002767	0.36	0.025	0.785	0.43%	0.0007
10.34	636	1.7E-03	6.8E+02	55	0.6989	3.8E-04	0	0.241	0.242	178	0.241	7717	5292	1574	7717	0.164%	1.79	1.00	0.01%	0.002749	0.36	0.025	0.785	0.43%	0.0007
10.39	636	1.7E-03	6.8E+02	55	0.6951	3.8E-04	0	0.241	0.242	179	0.241	7702	5281	1575	7702	0.163%	1.79	1.00	0.01%	0.002731	0.36	0.025	0.785	0.43%	0.0007
10.44	636	1.7E-03	6.8E+02	54	0.6913	3.8E-04	0	0.242	0.242	180	0.242	7687	5271	1576	7687	0.162%	1.79	1.00	0.01%	0.002712	0.36	0.025	0.785	0.43%	0.0007
10.49	636	1.7E-03	6.8E+02	53	0.6874	3.8E-04	0	0.242	0.243	181	0.242	7672	5261	1577	7672	0.160%	1.79	1.00	0.01%	0.002692	0.36	0.025	0.785	0.42%	0.0007
10.54	801	1.7E-03	1.1E+03	53	0.6835	2.4E-04	0	0.242	0.243	182	0.242	7658	5251	1578	7658	0.047%	1.79	1.00	0.01%	0.000666	0.36	0.025	0.785	0.10%	0.0002
10.59	801	1.7E-03	1.1E+03	52	0.6796	2.4E-04	0	0.242	0.243	183	0.242	7643	5240	1579	7643	0.047%	1.79	1.00	0.01%	0.000662	0.36	0.025	0.785	0.10%	0.0002
10.64	801	1.7E-03	1.1E+03	52	0.6757	2.4E-04	0	0.243	0.244	184	0.243	7629	5230	1580	7629	0.047%	1.79	1.00	0.01%	0.000659	0.36	0.025	0.785	0.10%	0.0002
10.69	801	1.7E-03	1.1E+03	51	0.6718	2.4E-04	0	0.243	0.244	185	0.243	7614	5220	1581	7614	0.047%	1.79	1.00	0.01%	0.000655	0.36	0.025	0.785	0.10%	0.0002
10.74	801	1.9E-03	1.2E+03	50	0.6678	2.1E-04	22	0.243	0.244	186	86.930	7599	5209	1582	3516	0.044%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
10.79	801	1.9E-03	1.2E+03	50	0.6638	2.1E-04	22	0.244	0.245	187	87.397	7583	5198	1583	3511	0.044%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
10.84	801	1.9E-03	1.2E+03	49	0.6598	2.1E-04	22	0.244	0.245	188	87.864	7567	5187	1584	3506	0.044%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
10.89	801	1.9E-03	1.2E+03	49	0.6557	2.1E-04	22	0.244	0.245	189	88.331	7552	5176	1585	3500	0.044%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
10.94	801	1.9E-03	1.2E+03	48	0.6517	2.1E-04	22	0.244	0.246	190	88.798	7536	5165	1586	3495	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
10.99	801	1.9E-03	1.2E+03	48	0.6476	2.1E-04	22	0.245	0.246	191	89.264	7521	5155	1587	3490	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.04	801	1.9E-03	1.2E+03	47	0.6435	2.1E-04	22	0.245	0.246	192	89.731	7506	5144	1588	3485	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.09	801	1.9E-03	1.2E+03	47	0.6393	2.1E-04	22	0.245	0.246	193	90.198	7490	5134	1589	3479	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.14	801	1.9E-03	1.2E+03	46	0.6352	2.1E-04	22	0.245	0.247	194	90.665	7475	5123	1590	3474	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.19	801	1.9E-03	1.2E+03	46	0.6310	2.1E-04	22	0.246	0.247	195	91.132	7460	5113	1591	3469	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.24	801	1.9E-03	1.2E+03	45	0.6268	2.1E-04	22	0.246	0.247	196	91.599	7446	5102	1592	3464	0.043%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.29	801	1.9E-03	1.2E+03	45	0.6226	2.1E-04	22	0.246	0.248	197	92.065	7431	5092	1593	3459	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.34	801	1.9E-03	1.2E+03	44	0.6183	2.1E-04	22	0.247	0.248	198	92.532	7416	5082	1594	3454	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.39	801	1.9E-03	1.2E+03	44	0.6141	2.1E-04	22	0.247	0.248	199	92.999	7402	5072	1595	3449	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.44	801	1.9E-03	1.2E+03	43	0.6098	2.1E-04	22	0.247	0.249	200	93.466	7387	5062	1596	3444	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.49	801	1.9E-03	1.2E+03	43	0.6055	2.1E-04	22	0.247	0.249	201	93.933	7373	5052	1597	3439	0.042%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.54	801	1.9E-03	1.2E+03	42	0.6012	2.1E-04	22	0.248	0.249	202	94.400	7359	5042	1598	3435	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.59	801	1.9E-03	1.2E+03	42	0.5969	2.0E-04	22	0.248	0.250	203	94.866	7345	5032	1599	3430	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.64	801	1.9E-03	1.2E+03	41	0.5925	2.0E-04	22	0.248	0.250	204	95.333	7331	5022	1600	3425	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.69	801	1.9E-03	1.2E+03	41	0.5882	2.0E-04	22	0.248	0.250	205	95.800	7317	5012	1601	3420	0.041%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.74	801	1.9E-03	1.2E+03	41	0.5838	2.0E-04	22	0.249	0.251	206	96.267	7303	5003	1602	3416	0.040%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.79	801	1.9E-03	1.2E+03	40	0.5794	2.0E-04	22	0.249	0.251	207	96.734	7289	4993	1603	3411	0.040%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.84	801	1.9E-03	1.2E+03	40	0.5750	2.0E-04	22	0.249	0.251	208	97.201	7275	4983	1604	3406	0.040%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.89	801	1.9E-03	1.2E+03	39	0.5706	2.0E-04	22	0.250	0.251	209	97.667	7262	4974	1605	3402	0.040%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.94	801	1.9E-03	1.2E+03	39	0.5662	2.0E-04	22	0.250	0.252	210	98.134	7248	4964	1606	3397	0.039%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
11.99	801	1.9E-03	1.2E+03	39	0.5617	2.0E-04	22	0.250	0.252	211	98.601	7235	4955	1607	3393	0.039%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.04	801	1.9E-03	1.2E+03	38	0.5573	2.0E-04	22	0.250	0.252	212	99.068	7222	4946	1608	3388	0.039%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.09	1095	1.9E-03	2.2E+03	38	0.5528	1.1E-04	22	0.251	0.253	213	99.535	7208	4936	1609	3384	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.14	1095	1.9E-03	2.2E+03	37	0.5483	1.1E-04	22	0.251	0.253	214	100.002	7195	4927	1610	3379	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.19	1095	1.9E-03	2.2E+03	37	0.5438	1.1E-04	22	0.251	0.253	215	100.468	7182	4918	1611	3375	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.24	1095	1.9E-03	2.2E+03	37	0.5393	1.1E-04	22	0.251	0.254	216	100.935	7169	4909	1612	3370	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.29	1095	1.9E-03	2.2E+03	36	0.5348	1.0E-04	22	0.252	0.254	217	101.402	7156	4900	1613	3366	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.34	1095	1.9E-03	2.2E+03	36	0.5303	1.0E-04	22	0.252	0.254	218	101.869	7143	4891	1614	3362	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.39	1095	1.9E-03	2.2E+03	36	0.5258	1.0E-04	22	0.252	0.254	219	102.336	7130	4882	1615	3357	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.44	1095	1.9E-03	2.2E+03	35	0.5213	1.0E-04	22	0.252	0.255	220	102.803	7118	4873	1616	3353	0.015%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.49	1095	1.9E-03	2.2E+03	35	0.5168	1.0E-04	22	0.253	0.255	221	103.269	7105	4865	1617	3349	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.54	1095	1.9E-03	2.2E+03	35	0.5122	1.0E-04	22	0.253	0.255	222	103.736	7093	4856	1618	3345	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.59	1095	1.9E-03	2.2E+03	34	0.5077	1.0E-04	22	0.253	0.256	223	104.203	7080	4847	1619	3341	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.64	1095	1.9E-03	2.2E+03	34	0.5031	1.0E-04	22	0.253	0.256	224	104.670	7068	4838	1620	3336	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.69	1095	1.9E-03	2.2E+03	34	0.4986	1.0E-04	22	0.254	0.256	225	105.137	7055	4830	1621	3332	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.74	1095	1.9E-03	2.2E+03	34	0.4940	1.0E-04	22	0.254	0.257	226	105.603	7043	4821	1622	3328	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000

36.909	6939.73	33.3	1.627	33.1	23.0	9.95	4.89%	Fine Alluvium	0.060	120.7	2.06	0.000	2.06	0	15	5.21%	3.0	76%	2.35	0.000	2.35
37.073	6939.57	41.6	1.831	41.4	23.0	9.95	4.40%	Fine Alluvium	0.060	120.7	2.07	0.000	2.07	0	19	4.63%	2.9	76%	2.36	0.000	2.36
37.237	6939.40	43.7	1.892	43.6	23.2	10.04	4.33%	Fine Alluvium	0.060	120.7	2.08	0.000	2.08	0	20	4.54%	2.9	76%	2.37	0.000	2.37
37.401	6939.24	38.4	1.935	38.2	19.9	8.64	5.04%	Fine Alluvium	0.060	120.7	2.09	0.000	2.09	0	17	5.33%	3.0	76%	2.38	0.000	2.38
37.565	6939.07	33.6	1.901	33.5	17.9	7.75	5.66%	Fine Alluvium	0.060	120.7	2.09	0.000	2.09	0	15	6.04%	3.0	76%	2.39	0.000	2.39
37.729	6938.91	43.8	1.261	43.7	18.1	7.83	2.88%	Fine Alluvium	0.060	120.7	2.10	0.000	2.10	0	20	3.02%	2.8	76%	2.40	0.000	2.40
37.893	6938.75	57.0	1.013	56.9	17.3	7.51	1.78%	Fine Alluvium	0.060	120.7	2.11	0.000	2.11	0	26	1.84%	2.5	76%	2.41	0.000	2.41
38.057	6938.58	70.7	1.333	70.7	3.4	1.46	1.89%	Coarse Alluvium	0.056	111.0	2.12	0.000	2.12	0	32	1.94%	2.5	36%	2.42	0.000	2.42
38.221	6938.42	72.4	1.485	72.3	3.7	1.59	2.05%	Coarse Alluvium	0.056	111.0	2.13	0.000	2.13	0	33	2.11%	2.5	36%	2.43	0.000	2.43
38.385	6938.25	75.2	1.598	75.2	4.0	1.73	2.13%	Coarse Alluvium	0.056	111.0	2.14	0.000	2.14	0	34	2.19%	2.5	36%	2.44	0.000	2.44
38.549	6938.09	74.8	1.648	74.8	3.7	1.59	2.20%	Coarse Alluvium	0.056	111.0	2.15	0.000	2.15	0	34	2.27%	2.5	36%	2.45	0.000	2.45
38.713	6937.93	73.4	1.333	73.4	3.5	1.53	1.82%	Coarse Alluvium	0.056	111.0	2.16	0.000	2.16	0	33	1.87%	2.5	36%	2.46	0.000	2.46
38.877	6937.76	72.7	1.512	72.7	3.9	1.67	2.08%	Coarse Alluvium	0.056	111.0	2.17	0.000	2.17	0	33	2.14%	2.5	36%	2.47	0.000	2.47
39.042	6937.60	70.3	2.033	70.2	3.7	1.61	2.89%	Coarse Alluvium	0.056	111.0	2.18	0.000	2.18	0	31	2.99%	2.6	36%	2.48	0.000	2.48
39.206	6937.43	64.6	2.247	64.6	4.1	1.79	3.48%	Coarse Alluvium	0.056	111.0	2.19	0.000	2.19	0	29	3.60%	2.7	36%	2.48	0.000	2.48
39.370	6937.27	44.7	2.304	44.7	3.8	1.63	5.15%	Coarse Alluvium	0.056	111.0	2.20	0.000	2.20	0	19	5.42%	2.9	36%	2.49	0.000	2.49
39.534	6937.11	51.7	2.063	51.7	4.4	1.89	3.99%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	22	4.17%	2.8	36%	2.50	0.000	2.50
39.698	6936.94	66.3	1.912	66.3	5.1	2.22	2.88%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	29	2.98%	2.6	36%	2.51	0.000	2.51
39.862	6936.78	74.4	1.421	74.3	5.0	2.15	1.91%	Coarse Alluvium	0.056	111.0	2.22	0.000	2.22	0	32	1.97%	2.5	36%	2.52	0.000	2.52
40.026	6936.61	68.4	1.350	68.3	4.9	2.11	1.97%	Coarse Alluvium	0.056	111.0	2.23	0.000	2.23	0	30	2.04%	2.5	36%	2.53	0.000	2.53
40.190	6936.45	64.4	1.507	64.4	5.0	2.15	2.34%	Coarse Alluvium	0.056	111.0	2.24	0.000	2.24	0	28	2.42%	2.6	36%	2.54	0.000	2.54
40.354	6936.29	51.8	1.815	51.8	4.5	1.95	3.50%	Coarse Alluvium	0.056	111.0	2.25	0.000	2.25	0	22	3.66%	2.8	36%	2.55	0.000	2.55
40.518	6936.12	49.2	2.141	49.2	4.8	2.08	4.35%	Coarse Alluvium	0.056	111.0	2.26	0.000	2.26	0	21	4.56%	2.9	36%	2.56	0.000	2.56
40.682	6935.96	58.5	2.216	58.5	5.3	2.28	3.79%	Coarse Alluvium	0.056	111.0	2.27	0.000	2.27	0	25	3.94%	2.8	36%	2.57	0.000	2.57
40.846	6935.79	68.3	2.094	68.3	5.3	2.30	3.07%	Coarse Alluvium	0.056	111.0	2.28	0.000	2.28	0	29	3.17%	2.6	36%	2.58	0.000	2.58
41.010	6935.63	69.3	2.215	69.2	5.2	2.24	3.20%	Coarse Alluvium	0.056	111.0	2.29	0.000	2.29	0	29	3.31%	2.7	36%	2.59	0.000	2.59
41.174	6935.47	70.8	2.270	70.8	4.8	2.08	3.21%	Coarse Alluvium	0.056	111.0	2.30	0.000	2.30	0	30	3.31%	2.6	36%	2.59	0.000	2.59
41.338	6935.30	70.3	2.546	70.3	5.4	2.34	3.62%	Coarse Alluvium	0.056	111.0	2.31	0.000	2.31	0	29	3.74%	2.7	36%	2.60	0.000	2.60
41.502	6935.14	56.4	2.378	56.3	4.7	2.03	4.22%	Coarse Alluvium	0.056	111.0	2.32	0.000	2.32	0	23	4.40%	2.8	36%	2.61	0.000	2.61
41.666	6934.97	57.9	1.860	57.9	5.6	2.44	3.21%	Coarse Alluvium	0.056	111.0	2.32	0.000	2.32	0	24	3.35%	2.7	36%	2.62	0.000	2.62
41.830	6934.81	71.4	1.653	71.3	6.2	2.70	2.32%	Coarse Alluvium	0.056	111.0	2.33	0.000	2.33	0	30	2.39%	2.6	36%	2.63	0.000	2.63
41.994	6934.65	77.4	1.425	77.4	5.8	2.50	1.84%	Coarse Alluvium	0.056	111.0	2.34	0.000	2.34	0	32	1.90%	2.5	36%	2.64	0.000	2.64
42.158	6934.48	79.8	1.586	79.8	5.9	2.54	1.99%	Coarse Alluvium	0.056	111.0	2.35	0.000	2.35	0	33	2.05%	2.5	36%	2.65	0.000	2.65
42.322	6934.32	79.1	2.082	79.1	6.2	2.67	2.63%	Coarse Alluvium	0.056	111.0	2.36	0.000	2.36	0	33	2.71%	2.6	36%	2.66	0.000	2.66
42.486	6934.15	76.5	2.369	76.5	6.3	2.73	3.10%	Coarse Alluvium	0.056	111.0	2.37	0.000	2.37	0	31	3.19%	2.6	36%	2.67	0.000	2.67
42.650	6933.99	54.1	2.369	54.1	6.3	2.73	4.37%	Coarse Alluvium	0.056	111.0	2.38	0.000	2.38	0	22	4.58%	2.8	36%	2.68	0.000	2.68
42.814	6933.83	48.2	2.165	48.1	7.0	3.03	4.50%	Coarse Alluvium	0.056	111.0	2.39	0.000	2.39	0	19	4.73%	2.9	36%	2.69	0.000	2.69
42.978	6933.66	51.6	1.904	51.6	7.3	3.17	3.69%	Coarse Alluvium	0.056	111.0	2.40	0.000	2.40	0	21	3.87%	2.8	36%	2.69	0.000	2.69
43.143	6933.50	62.5	1.837	62.5	7.4	3.19	2.94%	Coarse Alluvium	0.056	111.0	2.41	0.000	2.41	0	25	3.06%	2.7	36%	2.70	0.000	2.70
43.307	6933.33	60.0	1.735	59.9	7.3	3.15	2.89%	Coarse Alluvium	0.056	111.0	2.42	0.000	2.42	0	24	3.02%	2.7	36%	2.71	0.000	2.71
43.471	6933.17	74.2	1.678	74.1	7.8	3.40	2.26%	Coarse Alluvium	0.056	111.0	2.42	0.000	2.42	0	30	2.34%	2.6	36%	2.72	0.000	2.72
43.635	6933.01	88.0	1.497	88.0	8.1	3.50	1.70%	Coarse Alluvium	0.056	111.0	2.43	0.000	2.43	0	35	1.75%	2.4	36%	2.73	0.000	2.73
43.799	6932.84	111.2	1.955	111.2	8.6	3.74	1.76%	Coarse Alluvium	0.056	111.0	2.44	0.000	2.44	0	45	1.80%	2.3	36%	2.74	0.000	2.74
43.963	6932.68	139.3	2.806	139.2	9.0	3.90	2.01%	Coarse Alluvium	0.056	111.0	2.45	0.000	2.45	0	56	2.05%	2.3	36%	2.75	0.000	2.75
44.127	6932.51	147.4	4.138	147.3	9.2	3.99	2.81%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0	59	2.86%	2.4	36%	2.76	0.000	2.76
44.291	6932.35	146.3	5.462	146.2	10.1	4.37	3.73%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0	58	3.80%	2.5	36%	2.77	0.000	2.77
44.455	6932.19	170.7	6.731	170.6	10.6	4.60	3.94%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0	68	4.00%	2.5	36%	2.78	0.000	2.78
44.619	6932.02	185.1	7.743	185.0	11.6	5.02	4.18%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0	73	4.24%	2.4	36%	2.79	0.000	2.79
44.783	6931.86	128.4	6.546	128.3	11.4	4.92	5.10%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	50	5.20%	2.6	36%	2.79	0.000	2.79
44.947	6931.69	110.8	4.906	110.7	16.0	6.93	4.43%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0	43	4.53%	2.6	36%	2.80	0.000	2.80
45.111	6931.53	108.9	3.071	108.7	24.4	10.57	2.82%	Fine Alluvium	0.060	120.7	2.52	0.000	2.52	0	42	2.89%	2.5	76%	2.81	0.000	2.81
45.275	6931.36	94.2	2.838	94.0	30.4	13.18	3.01%	Fine Alluvium	0.060	120.7	2.53	0.000	2.53	0	36	3.10%	2.6	76%	2.82	0.000	2.82
45.439	6931.20	91.1	3.068	90.9	35.8	15.50	3.37%	Fine Alluvium	0.060	120.7	2.54	0.000	2.54	0	35	3.46%	2.6	76%	2.83	0.000	2.83
45.603	6931.04	95.8	3.249	95.6	36.1	15.66	3.39%	Fine Alluvium	0.060	120.7	2.55	0.000	2.55	0	37	3.48%	2.6	76%	2.84	0.000	2.84
45.767	6930.87	105.6	2.581	105.4	34.7	15.03	2.44%	Fine Alluvium	0.060	120.7	2.56	0.000	2.56	0	40	2.51%	2.5	76%	2.85	0.000	2.85
45.931	6930.71	80.3	3.109	80.1	29.6	12.83	3.87%	Fine Alluvium	0.060	120.7	2.57	0.000	2.57	0	30	4.00%	2.7	76%	2.86	0.000	2.86
46.095	6930.54	85.8	3.520	85.7	17.0	7.38	4.10%	Fine Alluvium	0.060	120.7	2.58	0.000	2.58	0	32	4.23%	2.7	76%	2.87	0.000	2.87
46.259	6930.38	70.5	3.470	70.4	16.4	7.12	4.92%	Fine Alluvium	0.060	120.7	2.59	0.000	2.59	0	26	5.11%	2.8	76%	2.88	0.000	2.88
46.423	6930.22	62.6	3.118	62.5	15.9	6.89	4.98%	Fine Alluvium	0.060	120.7	2.60	0.000	2.60	0	23	5.19%	2.9	76%	2.89	0.000	2.89
46.587	6930.05	73.8	2.530	73.7	15.8	6.83	3.43%	Fine Alluvium	0.060	120.7	2.61	0.000	2.61	0	27	3.55%	2.7	76%	2.90	0.000	2.90
46.751	6929.89	80.7	2.560	80.6	15.3	6.63	3.17%	Fine Alluvium	0.060	120.7	2.62	0.000	2.62	0	30	3.28%	2.6	76%	2.91	0.000	2.91
46.915	6929.72	66.3	2.542	66.2	13.6	5.90	3.83%	Fine Alluvium	0.060	120.7	2.63	0.000	2.63	0	24	3.99%	2.8	76%	2.92	0.000	2.92
47.079	6929.56	62.6	1.985	62.5	14.6	6.34	3.17%	Fine Alluvium	0.060	120.7	2.64	0.000	2.64	0	23	3.31%	2.7	76%	2.93	0.000	2.93
47.244	6929.40	68.5	2.287	68.5	14.0	6.06	3.34%	Fine Alluvium	0.060	120.7	2.64	0.000	2.64	0	25	3.47%	2.7	76%	2.94	0.000	2.94
47.408	6929.23	52.7	1.998	52.7	9.9	4.27	3.79%	Fine Alluvium	0.060	120.7	2.65	0.000	2.65	0	19	3.99%	2.9	76%	2.95	0.000	2.95
47.572	6929.07	40.8	1.994	40.7	11.2	4.86	4.89%	Fine Alluvium	0.060	120.7	2.66	0.000	2.66	0	14	5.23%	3.0	76%	2.96	0.000	2.96
47.736	6928.90	53.4	2.256	53.3	12.9	5.59	4.23%	Fine Alluvium	0.060	120.7	2.67	0.000	2.67	0	19	4.45%	2.9	76%	2.97	0.000	2.97
47.900	6928.74	54.6	2.196	54.6	12.0	5.19	4.02%	Fine Alluvium	0.060	120.7	2.68	0.000	2.68	0	19	4.23%	2.9	76%	2.98	0.000	2.98
48.064	6928.58	72.9	2.046	72.8	12.3	5.31	2.81%	Fine Alluvium	0.060	120.7	2.69	0.000	2.69	0	26	2.92%	2.7	76%	2.99	0.000	2.99
48.228	6928.41	81.0	1.908	81.0	11.9	5.14	2.35%	Fine Alluvium	0.060	120.7	2.70	0.000	2.70	0	29	2.44%	2.6	76%	3.00	0.000	3.00
48.392	6928.25	80.2	1.730	80.1	11.7	5.07	2.16%	Fine Alluvium	0.060	120.7	2.71	0.000	2.71	0	29	2.23%	2.6	76%	3.01	0.000	3.01
48.556	6928.08	85.9	2.045	85.8	11.6	5.02	2.38%	Fine Alluvium	0.060	120.7	2.72	0.000	2.72	0	31	2.46%	2.6	76%	3.02	0.000	3.02
48.720	6927.92	92.2	2.256	92.1	11.2	4.84	2.45%	Fine Alluvium	0.060	120.7	2.73	0.000	2.73	0	33	2.52%	2.5	76%	3.03	0.000	3.03
48.884	6927.76	94.8	2.312	94.8	11.0	4.76	2.44%	Fine Alluvium	0.060	120.7	2.74	0.000	2.74	0	34	2.51%	2.5	76%	3.04	0.000	3.04
49.048	6927.59	105.8	2.407	105.7	11.2	4.86	2.28%	Fine Alluvium	0.060	120.7	2.75	0.000	2.75	0	37	2.34%	2.5	76%	3.05	0.000	3.05
49.212	6927.43	122.2	2.757	122.1	11.7	5.07	2.26%	Fine Alluvium	0.060	120.7	2.76	0.000	2.76	0	43	2.31%	2.4	76%	3.06	0.000	3.06
49.376	6927.26	132.4	3.301	132.3	12.2	5.27	2.49%	Fine Alluvium	0.060	120.7	2.77	0.000	2.77	0	47	2.55%	2.4	76%	3.07	0.000	3.07
49.540	6927.10	133.7	3.732	133.7	12.3	5.35	2.79%	Fine Alluvium	0.060	120.7	2.78	0.000	2.78	0	47	2.85%	2.5	76%	3.08	0.000	3.08
49.704	6926.94	129.6	4.167	129.5	12.3	5.33	3.22%	Fine Alluvium	0.060	120.7	2.79	0.000	2.79	0	45	3.29%	2.5	76%	3.09	0.000	3.09
49.868	6926.77	103.9	1.821	103.8	12.4	5.39	1.75%	Fine Alluvium	0.060	120.7	2.80	0.000	2.80	0	36	1.80%	2.4	76%	3.10	0.000	3.10

12.79	1095	1.9E-03	2.2E+03	33	0.4895	1.0E-04	22	0.254	0.257	227	106.070	7031	4813	1623	3324	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.84	1095	1.9E-03	2.2E+03	33	0.4849	9.9E-05	22	0.254	0.257	228	106.537	7019	4804	1624	3320	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.89	1095	1.9E-03	2.2E+03	33	0.4803	9.9E-05	22	0.255	0.257	229	107.004	7007	4796	1625	3316	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.94	1095	1.9E-03	2.2E+03	32	0.4758	9.8E-05	22	0.255	0.258	230	107.471	6995	4788	1626	3312	0.014%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
12.99	1095	1.9E-03	2.2E+03	32	0.4712	9.8E-05	22	0.255	0.258	231	107.938	6983	4779	1627	3308	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.04	1095	1.9E-03	2.2E+03	32	0.4667	9.7E-05	22	0.255	0.258	232	108.404	6971	4771	1628	3304	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.09	1095	1.9E-03	2.2E+03	32	0.4621	9.7E-05	22	0.256	0.258	233	108.871	6960	4763	1629	3300	0.013%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
13.14	1095	1.7E-03	2.1E+03	31	0.4575	1.0E-04	0	0.256	0.259	234	0.256	6949	4755	1630	6949	0.013%	2.00	1.00	0.01%	0.000054	0.36	0.025	0.785	0.01%	0.0000
13.19	1095	1.7E-03	2.1E+03	31	0.4530	1.0E-04	0	0.256	0.259	235	0.256	6938	4748	1631	6938	0.013%	2.00	1.00	0.01%	0.000052	0.36	0.025	0.785	0.01%	0.0000
13.24	1095	1.7E-03	2.1E+03	31	0.4484	1.0E-04	0	0.256	0.259	236	0.256	6928	4741	1632	6928	0.013%	2.00	1.00	0.01%	0.000050	0.36	0.025	0.785	0.01%	0.0000
13.29	1095	1.7E-03	2.1E+03	31	0.4439	1.0E-04	0	0.256	0.260	237	0.256	6917	4733	1633	6917	0.012%	2.00	1.00	0.01%	0.000048	0.36	0.025	0.785	0.01%	0.0000
13.34	1095	1.7E-03	2.1E+03	30	0.4394	1.0E-04	0	0.257	0.260	238	0.257	6906	4726	1634	6906	0.012%	2.00	1.00	0.01%	0.000046	0.36	0.025	0.785	0.01%	0.0000
13.39	1095	1.7E-03	2.1E+03	30	0.4348	1.0E-04	0	0.257	0.260	239	0.257	6896	4719	1635	6896	0.012%	2.00	1.00	0.01%	0.000044	0.36	0.025	0.785	0.01%	0.0000
13.44	1095	1.7E-03	2.1E+03	30	0.4303	1.0E-04	0	0.257	0.260	240	0.257	6886	4711	1636	6886	0.012%	2.00	1.00	0.01%	0.000042	0.36	0.025	0.785	0.01%	0.0000
13.49	1095	1.7E-03	2.1E+03	30	0.4258	1.0E-04	0	0.257	0.261	241	0.257	6875	4704	1637	6875	0.012%	2.00	1.00	0.01%	0.000040	0.36	0.025	0.785	0.01%	0.0000
13.54	1095	1.7E-03	2.1E+03	29	0.4213	9.9E-05	0	0.258	0.261	242	0.258	6865	4697	1638	6865	0.012%	2.00	1.00	0.01%	0.000038	0.36	0.025	0.785	0.01%	0.0000
13.59	1092	1.7E-03	2.1E+03	29	0.4168	9.9E-05	0	0.258	0.261	243	0.258	6855	4690	1639	6855	0.012%	2.00	1.00	0.01%	0.000037	0.36	0.025	0.785	0.01%	0.0000
13.64	1092	1.7E-03	2.1E+03	29	0.4123	9.8E-05	0	0.258	0.261	244	0.258	6844	4683	1640	6844	0.012%	2.00	1.00	0.01%	0.000035	0.36	0.025	0.785	0.01%	0.0000
13.69	1092	1.7E-03	2.1E+03	29	0.4078	9.8E-05	0	0.258	0.262	245	0.258	6834	4675	1641	6834	0.012%	2.00	1.00	0.01%	0.000033	0.36	0.025	0.785	0.01%	0.0000
13.74	1092	1.7E-03	2.1E+03	29	0.4033	9.7E-05	0	0.258	0.262	246	0.258	6824	4668	1642	6824	0.012%	2.00	1.00	0.01%	0.000031	0.36	0.025	0.785	0.00%	0.0000
13.79	1092	1.7E-03	2.1E+03	28	0.3988	9.6E-05	0	0.259	0.262	247	0.259	6814	4661	1643	6814	0.011%	2.00	1.00	0.01%	0.000029	0.36	0.025	0.785	0.00%	0.0000
13.84	1092	1.7E-03	2.1E+03	28	0.3944	9.5E-05	0	0.259	0.262	248	0.259	6804	4654	1644	6804	0.011%	2.00	1.00	0.01%	0.000026	0.36	0.025	0.785	0.00%	0.0000
13.89	1092	1.7E-03	2.1E+03	28	0.3899	9.5E-05	0	0.259	0.263	249	0.259	6794	4648	1645	6794	0.011%	2.00	1.00	0.01%	0.000024	0.36	0.025	0.785	0.00%	0.0000
13.94	1092	1.7E-03	2.1E+03	28	0.3855	9.4E-05	0	0.259	0.263	250	0.259	6784	4641	1646	6784	0.011%	2.00	1.00	0.01%	0.000022	0.36	0.025	0.785	0.00%	0.0000
13.99	1092	1.7E-03	2.1E+03	28	0.3811	9.3E-05	0	0.259	0.263	251	0.259	6774	4634	1647	6774	0.011%	2.00	1.00	0.01%	0.000020	0.36	0.025	0.785	0.00%	0.0000
14.04	1092	1.7E-03	2.1E+03	27	0.3767	9.2E-05	0	0.260	0.263	252	0.260	6765	4627	1648	6765	0.011%	2.00	1.00	0.01%	0.000018	0.36	0.025	0.785	0.00%	0.0000
14.09	1092	1.7E-03	2.1E+03	27	0.3723	9.2E-05	0	0.260	0.264	253	0.260	6755	4620	1649	6755	0.011%	2.00	1.00	0.01%	0.000016	0.36	0.025	0.785	0.00%	0.0000
14.14	1092	1.7E-03	2.1E+03	27	0.3679	9.1E-05	0	0.260	0.264	254	0.260	6745	4613	1650	6745	0.011%	2.00	1.00	0.01%	0.000013	0.36	0.025	0.785	0.00%	0.0000
14.19	1092	1.7E-03	2.1E+03	27	0.3636	9.0E-05	0	0.260	0.264	255	0.260	6736	4607	1651	6736	0.011%	2.00	1.00	0.01%	0.000011	0.36	0.025	0.785	0.00%	0.0000
14.24	1092	1.7E-03	2.1E+03	27	0.3592	8.9E-05	0	0.261	0.264	256	0.261	6726	4600	1652	6726	0.010%	2.00	1.00	0.01%	0.000009	0.36	0.025	0.785	0.00%	0.0000
14.29	1092	1.7E-03	2.1E+03	26	0.3549	8.9E-05	0	0.261	0.265	257	0.261	6716	4593	1653	6716	0.010%	2.00	1.00	0.01%	0.000007	0.36	0.025	0.785	0.00%	0.0000
14.34	1092	1.7E-03	2.1E+03	26	0.3506	8.8E-05	0	0.261	0.265	258	0.261	6707	4587	1654	6707	0.010%	2.00	1.00	0.01%	0.000005	0.36	0.025	0.785	0.00%	0.0000
14.39	1092	1.7E-03	2.1E+03	26	0.3463	8.7E-05	0	0.261	0.265	259	0.261	6697	4580	1655	6697	0.010%	2.00	1.00	0.01%	0.000002	0.36	0.025	0.785	0.00%	0.0000
14.44	1092	1.7E-03	2.1E+03	26	0.3420	8.6E-05	0	0.261	0.265	260	0.261	6688	4573	1656	6688	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.49	1092	1.7E-03	2.1E+03	26	0.3378	8.5E-05	0	0.262	0.265	261	0.262	6679	4567	1657	6679	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.54	1092	1.7E-03	2.1E+03	26	0.3335	8.5E-05	0	0.262	0.266	262	0.262	6669	4560	1658	6669	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.59	1092	1.7E-03	2.1E+03	25	0.3293	8.4E-05	0	0.262	0.266	263	0.262	6660	4554	1659	6660	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.64	1092	1.7E-03	2.1E+03	25	0.3251	8.3E-05	0	0.262	0.266	264	0.262	6651	4548	1660	6651	0.010%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.69	1092	1.7E-03	2.1E+03	25	0.3209	8.2E-05	0	0.262	0.266	265	0.262	6642	4541	1661	6642	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.74	1092	1.7E-03	2.1E+03	25	0.3168	8.1E-05	0	0.263	0.267	266	0.263	6632	4535	1662	6632	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.79	1092	1.7E-03	2.1E+03	25	0.3126	8.1E-05	0	0.263	0.267	267	0.263	6623	4528	1663	6623	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.84	1092	1.7E-03	2.1E+03	25	0.3085	8.0E-05	0	0.263	0.267	268	0.263	6614	4522	1664	6614	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.89	1092	1.7E-03	2.1E+03	25	0.3044	7.9E-05	0	0.263	0.267	269	0.263	6605	4516	1665	6605	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.94	1092	1.7E-03	2.1E+03	24	0.3004	7.8E-05	0	0.263	0.268	270	0.263	6596	4510	1666	6596	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
14.99	1092	1.7E-03	2.1E+03	24	0.2963	7.8E-05	0	0.264	0.268	271	0.264	6587	4503	1667	6587	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.04	1092	1.7E-03	2.1E+03	24	0.2923	7.7E-05	0	0.264	0.268	272	0.264	6578	4497	1668	6578	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.09	1092	1.7E-03	2.1E+03	24	0.2883	7.6E-05	0	0.264	0.268	273	0.264	6570	4491	1669	6570	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.14	1092	1.7E-03	2.1E+03	24	0.2843	7.5E-05	0	0.264	0.269	274	0.264	6561	4485	1670	6561	0.009%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.19	1092	1.7E-03	2.1E+03	24	0.2804	7.4E-05	0	0.264	0.269	275	0.264	6552	4479	1671	6552	0.008%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.24	1092	1.7E-03	2.1E+03	24	0.2764	7.4E-05	0	0.265	0.269	276	0.265	6543	4473	1672	6543	0.008%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
15.29	1092	1.9E-03	2.2E+03	23	0.2725	6.7E-05	22	0.265	0.269	277	129.410	6534	4466	1673	3163	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.34	1092	1.9E-03	2.2E+03	23	0.2687	6.6E-05	22	0.265	0.270	278	129.877	6524	4459	1674	3160	0.008%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.39	1206	1.9E-03	2.7E+03	23	0.2648	5.4E-05	22	0.265	0.270	279	130.344	6515	4453	1675	3157	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.44	1206	1.9E-03	2.7E+03	23	0.2610	5.3E-05	22	0.265	0.270	280	130.811	6506	4446	1676	3154	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.49	1206	1.9E-03	2.7E+03	23	0.2572	5.3E-05	22	0.266	0.270	281	131.277	6496	4440	1677	3151	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.54	1206	1.9E-03	2.7E+03	23	0.2534	5.2E-05	22	0.266	0.271	282	131.744	6487	4434	1678	3148	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.59	1206	1.9E-03	2.7E+03	23	0.2497	5.1E-05	22	0.266	0.271	283	132.211	6478	4427	1679	3145	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.64	1206	1.9E-03	2.7E+03	23	0.2460	5.1E-05	22	0.266	0.271	284	132.678	6469	4421	1680	3142	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.69	1206	1.9E-03	2.7E+03	23	0.2423	5.0E-05	22	0.267	0.271	285	133.145	6460	4414	1681	3139	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.74	1206	1.9E-03	2.7E+03	22	0.2386	5.0E-05	22	0.267	0.271	286	133.611	6451	4408	1682	3136	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.79	1206	1.9E-03	2.7E+03	22	0.2350	4.9E-05	22	0.267	0.272	287	134.078	6442	4402	1683	3133	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.84	1206	1.9E-03	2.7E+03	22	0.2314	4.8E-05	22	0.267	0.272	288	134.545	6433	4396	1684	3130	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.89	1206	1.9E-03	2.7E+03	22	0.2278	4.8E-05	22	0.267	0.272	289	135.012	6424	4389	1685	3127	0.006%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.94	1206	1.9E-03	2.7E+03	22	0.2242	4.7E-05	22	0.268	0.272	290	135.479	6415	4383	1686	3125	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
15.99	1206	1.9E-03	2.7E+03	22	0.2207	4.7E-05	22	0.268	0.273	291	135.945	6406	4377	1687	3122	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.04	1206	1.9E-03	2.7E+03	22	0.2172	4.6E-05	22	0.268	0.273	292	136.412	6397	4371	1688	3119	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.09	1206	1.9E-03	2.7E+03	22	0.2138	4.5E-05	22	0.268	0.273	293	136.879	6389	4365	1689	3116	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.14	1206	1.9E-03	2.7E+03	22	0.2103	4.5E-05	22	0.268	0.273	294	137.346	6380	4359	1690	3113	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.19	1206	1.9E-03	2.7E+03	22	0.2069	4.4E-05	22	0.269	0.274	295	137.813	6371	4353	1691	3111	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.24	1206	1.9E-03	2.7E+03	21	0.2036	4.4E-05	22	0.269	0.274	296	138.279	6363	4347	1692	3108	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.29	1206	1.9E-03	2.7E+03	21	0.2002	4.3E-05	22	0.269	0.274	297	138.746	6354	4341	1693	3105	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.34	1206	1.9E-03	2.7E+03	21	0.1969	4.3E-05	22	0.269	0.274	298	139.213	6346	4335	1694	3102	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.39	1206	1.9E-03	2.7E+03	21	0.1936	4.2E-05	22	0.269	0.275	299	139.680	6337	4329	1695	3100	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.44	1206	1.9E-03	2.7E+03	21	0.1904	4.1E-05	22	0.270	0.275	300	140.147	6329	4323	1696	3097	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.49	1206	1.9E-03	2.7E+03	21	0.1871	4.1E-05	22	0.270	0.275	301	140.613	6320	4317	1697	3094	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.54	1206	1.9E-03	2.7E+03	21	0.1839	4.0E-05	22	0.270	0.275	302	141.080	6312	4311	1698	3092	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.59	1206	1.9E-03	2.7E+03	21	0.1808	4.0E-05	22	0.270	0.276	303	141.547	6303	4306	1699	3089	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.64	1142	1.9E-03	2.4E+03	21	0.1776	4.4E-05	22	0.270	0.276	304	142.014	6295	4300	1700	3087	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.69	1142	1.9E-03	2.4E+03	21	0.1745	4.3E-05	22	0.271	0.276	305	142.481	6287	4294	1701	3084	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.74	1142	1.9E-03	2.4E+03	21	0.1714	4.2E-05	22	0.271	0.276	306	142.947	6279	4288	1702	3081	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000

50.032	6926.61	96.1	1.817	96.1	15.0	6.49	1.89%	Fine Alluvium	0.060	120.7	2.81	0.000	2.81	0	33	1.95%	2.5	76%	3.11	0.000	3.11
50.196	6926.44	99.3	2.434	99.1	27.7	12.00	2.45%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	34	2.52%	2.5	36%	3.12	0.000	3.12
50.360	6926.28	84.0	3.182	83.8	22.8	9.86	3.79%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	29	3.92%	2.7	36%	3.13	0.000	3.13
50.524	6926.12	52.6	3.156	52.5	21.9	9.48	6.00%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	18	6.34%	3.0	36%	3.14	0.000	3.14
50.688	6925.95	38.6	2.742	38.4	20.4	8.83	7.11%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	13	7.68%	3.2	36%	3.15	0.000	3.15
50.852	6925.79	43.0	2.157	42.8	21.0	9.09	5.02%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	14	5.38%	3.0	36%	3.16	0.000	3.16
51.016	6925.62	57.6	2.068	57.5	24.7	10.69	3.59%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	19	3.78%	2.8	36%	3.17	0.000	3.17
51.180	6925.46	81.2	1.947	81.0	25.0	10.82	2.40%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	27	2.49%	2.6	36%	3.17	0.000	3.17
51.345	6925.30	92.8	1.829	92.7	21.4	9.27	1.97%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	31	2.03%	2.5	36%	3.18	0.000	3.18
51.509	6925.13	111.8	1.691	111.7	18.6	8.05	1.51%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	38	1.55%	2.4	36%	3.19	0.000	3.19
51.673	6924.97	127.5	1.862	127.4	17.4	7.52	1.46%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	43	1.49%	2.3	36%	3.20	0.000	3.20
51.837	6924.80	131.5	2.071	131.4	16.6	7.20	1.57%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	44	1.61%	2.3	36%	3.21	0.000	3.21
52.001	6924.64	130.1	2.340	130.0	15.8	6.85	1.80%	Fine Alluvium	0.060	120.7	2.92	0.000	2.92	0	43	1.84%	2.4	76%	3.22	0.000	3.22
52.165	6924.48	124.5	2.653	124.4	14.4	6.22	2.13%	Fine Alluvium	0.060	120.7	2.93	0.000	2.93	0	41	2.18%	2.4	76%	3.23	0.000	3.23
52.329	6924.31	128.5	2.597	128.4	14.4	6.22	2.02%	Fine Alluvium	0.060	120.7	2.94	0.000	2.94	0	43	2.07%	2.4	76%	3.24	0.000	3.24
52.493	6924.15	128.9	2.368	128.8	14.9	6.47	1.84%	Fine Alluvium	0.060	120.7	2.95	0.000	2.95	0	43	1.88%	2.4	76%	3.25	0.000	3.25
52.657	6923.98	123.4	2.644	123.3	14.1	6.12	2.14%	Fine Alluvium	0.060	120.7	2.96	0.000	2.96	0	41	2.20%	2.4	76%	3.26	0.000	3.26
52.821	6923.82	120.1	2.625	120.0	15.1	6.53	2.19%	Fine Alluvium	0.060	120.7	2.97	0.000	2.97	0	39	2.24%	2.4	76%	3.27	0.000	3.27
52.985	6923.66	127.6	2.583	127.5	15.8	6.83	2.02%	Fine Alluvium	0.060	120.7	2.98	0.000	2.98	0	42	2.07%	2.4	76%	3.28	0.000	3.28
53.149	6923.49	133.7	2.313	133.6	14.8	6.43	1.73%	Fine Alluvium	0.060	120.7	2.99	0.000	2.99	0	44	1.77%	2.3	76%	3.29	0.000	3.29
53.313	6923.33	128.5	2.286	128.4	14.5	6.26	1.78%	Fine Alluvium	0.060	120.7	3.00	0.000	3.00	0	42	1.82%	2.4	76%	3.30	0.000	3.30
53.477	6923.16	117.4	2.912	117.3	13.5	5.86	2.48%	Fine Alluvium	0.060	120.7	3.01	0.000	3.01	0	38	2.55%	2.5	76%	3.31	0.000	3.31
53.641	6923.00	119.7	2.512	119.6	13.1	5.69	2.10%	Fine Alluvium	0.060	120.7	3.02	0.000	3.02	0	39	2.15%	2.4	76%	3.32	0.000	3.32
53.805	6922.83	134.1	2.551	134.0	15.6	6.77	1.90%	Fine Alluvium	0.060	120.7	3.03	0.000	3.03	0	43	1.95%	2.4	76%	3.33	0.000	3.33
53.969	6922.67	165.3	2.556	165.2	14.0	6.08	1.55%	Fine Alluvium	0.060	120.7	3.04	0.000	3.04	0	53	1.58%	2.2	76%	3.34	0.000	3.34
54.133	6922.51	184.4	2.581	184.3	14.6	6.32	1.40%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	59	1.42%	2.2	76%	3.35	0.000	3.35
54.297	6922.34	187.0	3.073	186.9	19.9	8.64	1.64%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	60	1.67%	2.2	76%	3.36	0.000	3.36
54.461	6922.18	194.5	3.149	194.4	17.1	7.42	1.62%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	62	1.64%	2.2	76%	3.37	0.000	3.37
54.625	6922.01	211.5	2.885	211.4	19.8	8.58	1.36%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	68	1.38%	2.1	76%	3.38	0.000	3.38
54.789	6921.85	216.9	4.198	216.8	18.3	7.93	1.94%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	69	1.96%	2.2	76%	3.39	0.000	3.39
54.953	6921.69	260.9	4.198	260.8	19.8	8.58	1.61%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	83	1.63%	2.1	76%	3.40	0.000	3.40
55.117	6921.52	390.0	4.198	389.8	32.8	14.21	1.08%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	124	1.08%	1.9	76%	3.41	0.000	3.41

16.79	1142	1.9E-03	2.4E+03	21	0.1684	4.2E-05	22	0.271	0.277	307	143.414	6270	4283	1703	3079	0.005%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
16.84	1142	1.7E-03	2.2E+03	21	0.1654	4.5E-05	0	0.271	0.277	308	0.271	6263	4277	1704	6263	0.005%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
16.89	1142	1.7E-03	2.2E+03	20	0.1624	4.4E-05	0	0.271	0.277	309	0.271	6255	4272	1705	6255	0.005%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
16.94	1142	1.7E-03	2.2E+03	20	0.1594	4.3E-05	0	0.272	0.277	310	0.272	6248	4267	1706	6248	0.005%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
16.99	1142	1.7E-03	2.2E+03	20	0.1565	4.3E-05	0	0.272	0.277	311	0.272	6241	4262	1707	6241	0.005%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.04	1142	1.7E-03	2.2E+03	20	0.1536	4.2E-05	0	0.272	0.278	312	0.272	6233	4257	1708	6233	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.09	1142	1.7E-03	2.2E+03	20	0.1507	4.1E-05	0	0.272	0.278	313	0.272	6226	4252	1709	6226	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.14	1142	1.7E-03	2.2E+03	20	0.1479	4.1E-05	0	0.272	0.278	314	0.272	6219	4246	1710	6219	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.19	1142	1.7E-03	2.2E+03	20	0.1451	4.0E-05	0	0.272	0.278	315	0.272	6211	4241	1711	6211	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.24	1142	1.7E-03	2.2E+03	20	0.1423	3.9E-05	0	0.273	0.278	316	0.273	6204	4236	1712	6204	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.29	1142	1.7E-03	2.2E+03	20	0.1395	3.9E-05	0	0.273	0.279	317	0.273	6197	4231	1713	6197	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.34	1142	1.7E-03	2.2E+03	20	0.1368	3.8E-05	0	0.273	0.279	318	0.273	6190	4226	1714	6190	0.004%	2.00	1.00	0.01%	0.000000	0.36	0.025	0.785	0.00%	0.0000
17.39	1142	1.9E-03	2.4E+03	20	0.1341	3.4E-05	22	0.273	0.279	319	149.016	6182	4221	1715	3051	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.44	1142	1.9E-03	2.4E+03	20	0.1315	3.4E-05	22	0.273	0.279	320	149.482	6174	4215	1716	3049	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.49	1142	1.9E-03	2.4E+03	20	0.1288	3.3E-05	22	0.274	0.280	321	149.949	6166	4210	1717	3047	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.54	1142	1.9E-03	2.4E+03	20	0.1262	3.3E-05	22	0.274	0.280	322	150.416	6158	4205	1718	3044	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.59	1142	1.9E-03	2.4E+03	20	0.1237	3.2E-05	22	0.274	0.280	323	150.883	6151	4199	1719	3042	0.004%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.64	1142	1.9E-03	2.4E+03	20	0.1211	3.2E-05	22	0.274	0.280	324	151.349	6143	4194	1720	3039	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.69	1142	1.9E-03	2.4E+03	19	0.1186	3.1E-05	22	0.274	0.280	325	151.816	6136	4189	1721	3037	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.74	1142	1.9E-03	2.4E+03	19	0.1161	3.0E-05	22	0.275	0.281	326	152.283	6128	4183	1722	3035	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.79	1142	1.9E-03	2.4E+03	19	0.1136	3.0E-05	22	0.275	0.281	327	152.750	6120	4178	1723	3032	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.84	1142	1.9E-03	2.4E+03	19	0.1112	2.9E-05	22	0.275	0.281	328	153.217	6113	4173	1724	3030	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.89	1142	1.9E-03	2.4E+03	19	0.1088	2.9E-05	22	0.275	0.281	329	153.683	6105	4168	1725	3028	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.94	1142	1.9E-03	2.4E+03	19	0.1064	2.8E-05	22	0.275	0.282	330	154.150	6098	4163	1726	3025	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
17.99	1142	1.9E-03	2.4E+03	19	0.1041	2.8E-05	22	0.276	0.282	331	154.617	6091	4157	1727	3023	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.04	1142	1.9E-03	2.4E+03	19	0.1018	2.7E-05	22	0.276	0.282	332	155.084	6083	4152	1728	3021	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.09	1142	1.9E-03	2.4E+03	19	0.0995	2.7E-05	22	0.276	0.282	333	155.551	6076	4147	1729	3019	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.14	1142	1.9E-03	2.4E+03	19	0.0972	2.6E-05	22	0.276	0.282	334	156.017	6069	4142	1730	3016	0.003%	0.90	0.75	0.06%	0.000000	0.25	0.323	0.851	0.00%	0.0000
18.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Proposed Repository	Elev. at Top of Layer (ft)	Elev. At Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at Bottom of Layer (tsf)	Total Stress at Midpoint of Layer (tsf)	Equil Pore Pressure at Bottom of Layer (tsf)	Equil Pore Pressure at Midpoint of Layer (tsf)	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint of Layer (tsf)
Erosion Protection	6981.7	6981.0	6980.2	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6980.2	6978.7	6977.2	3.0	0.057	114.7	0.264	0.178	0.00	0.00	0.264	0.178
Mine Spoils	6977.2	6976.9	6976.6	0.6	0.058	116.4	0.297	0.281	0.00	0.00	0.297	0.281

6976.64	Ground Surface Elevation at time of CPT (ft amsl)
6981.71	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement (ft)
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)

0.30	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6946.54	Elevation of bottom of tailings (ft amsl)

MWH now part of Stantec

ATTACHMENT G.5
Repository (Existing Radon Barrier) Cover Cracking Analysis

Client: GE/UNC **Sheet:** 1 of 6
Project: Northeast Church Rock Mine Site Removal Action
Description: Cover Cracking of the Existing Radon Barrier **Job No:** 10508639

ATTACHMENT G.5: REPOSITORY (EXISTING RADON BARRIER) COVER CRACKING ANALYSIS

Revisioning

Rev.	Date	Description	By	Checked	Date
0	06/02/2016	Preliminary (30%) Design	S. Moore	J. Cumbers	6/23/16
1	July 2017	95% Design	S. Downey	M. Davis	10/17/17
2	Oct 2019	Update Cover Thickness	S. Downey	M. Davis	11/11/19

Location and Format

Electronic copies of these calculations are located on the Stantec internal project teamsite.

The following calculations were generated using the following software:

Microsoft Excel 2013

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Objective

The objective of this calculation brief is to analyze the potential for cover cracking of the existing radon barrier, where the new repository cover transitions directly to the existing radon barrier.

Background

This analysis was performed as part of the design of the Removal Action (RA) at the Northeast Church Rock Mine Site (Mine Site) and the related Remedial Action (RA) at the Church Rock Mill Site (Mill Site). The Mine Site and Mill Site are located in close proximity to one another, approximately 16 miles northeast of Gallup, in McKinley County, New Mexico. They are located on adjacent Sections approximately one-half mile apart. The sites are temporarily being treated as one facility for purposes of the RA. The combined site is referred to as the “Settlement Agreement Site” (SA Site).

Site History

The NECR mine is a historical uranium mine operated by United Nuclear Corporation (UNC). Mining development began in 1967 and ended in 1982. While the mine operated, it served as the principal mineral source for the UNC uranium mill. The uranium mill and its adjacent disposal cells make up the UNC Superfund Site (the “UNC Mill Site”). Remedial activities addressing source control and on-site surface reclamation are being implemented by General Electric/United Nuclear Corporation (GE/UNC) under the direction of the U.S. Nuclear Regulatory Commission (NRC), pursuant to the UNC facility's NRC license, and integrated with the US Environmental Protection Agency’s (USEPA’s) selected remedy for the groundwater.

The tailings disposal area (TDA) is an unlined facility bounded by an embankment and subdivided by cross-dikes into three cells, which are identified as the South Cell, Central Cell, and North Cell. An estimated 3.5 million tons of tailings were pumped in slurry from the mill to the TDA.

Proposed Remedial Action

The proposed repository will be constructed on top of the existing TDA and will incorporate controlled placement of mine spoils on top of the existing TDA cover/radon barrier and a final evapotranspirative (ET) cover placed over the mine spoils. Improvements to the existing TDA cover/radon barrier within the footprint of the proposed repository will be completed prior to placement of mine spoils.

The design for the selected repository alternative will be evaluated as part of a NRC license amendment request for the existing licensed facility. The repository features that affect the licensed facility will meet the performance standards outlined in NRC regulations and areas of the existing facility affected by the repository construction will be evaluated for compliance. However, existing conditions of the facility not affected by the proposed repository were not evaluated as part of this analysis, as they are managed by the existing NRC license.

Site Description

The natural stratigraphy at the Mill Site is divided into two main components: the surficial unconsolidated deposits (alluvium) and the underlying consolidated bedrock units. The alluvium consists of a mixture of sand, silt, and clay with minor portions of gravel. Alluvial thicknesses at the site are usually around 50 feet, but exceed 120 feet in some locations. Generally, the uppermost bedrock unit at the site is the Upper Gallup Sandstone, though in some locations it is overlain by coal or the Mancos shale.

The TDA was constructed on top of the native alluvium and deposition of tailings via slurry within the TDA has resulted in an interbedded accumulation of tailings. TDA closure construction began in 1989 and was completed in 1995. Closure construction included placement of an interim cover (general fill) from 1989 through 1991 followed by placement of the final cover (radon barrier and erosion protection layer) from 1993 through 1995.

Site Investigation

In 2013, MWH performed pre-design studies (PDS) at the Mill Site and Mine Site to supplement previous site investigations and collect pre-design data necessary to perform the Removal Design (RD). Activities performed as part of the Mill Site PDS included: surveying, cone penetration tests (CPTs), drilling, standard penetration tests (SPTs), excavation and soil sampling, and subsequent laboratory testing. Geotechnical data collected during the PDS are presented in the PDS reports (MWH, 2014a and MWH, 2014b).

Results of the settlement analyses and seismic settlement analysis (Attachments G.3 and G.4 of Appendix G) were used for the cover cracking analysis. The potential for cover cracking was analyzed at three critical locations, CPT-01, CPT-15, and CPT-26, shown on **Figure 1**, located where the repository cover transitions directly to the TDA cover.

Applicable Codes and Standards

NUREG 1620 (NRC, 2003)

Methods

Results of the immediate, primary, and secondary consolidation, as well as the seismic settlement, were used to evaluate the potential for differential settlement and cover cracking. Differential settlement was determined by the difference between the estimated total potential future settlement at each of three locations and the settlement at the nearest point on the edge of the repository fill (assumed to be zero). The slope reduction at each location was calculated from the maximum differential settlement divided by the shortest distance between the point and edge of cover. The addition of minor amounts of grading fill (up to 3 feet) on the west and southwest sides of the cover may affect these selected locations, however the differential settlement results will not change significantly.

The evaluation of potential for cover cracking used the critical location determined in the differential settlement analysis. The method presented in Morrison-Knudsen Environmental Corporation (1993) was used to determine the tensile strain required to cause cracking of the radon barrier as a function of the plasticity index (PI) of the soil. The PI was estimated as the average of the measured PIs of radon barrier samples collected during the PDS (MWH, 2014a). The horizontal movement at the top of the radon barrier was calculated based on the method presented in Lee and Shen (1969). The peak horizontal movement is assumed to be twice the average horizontal movement based on relationships presented in Gourc et al. (2010) and Rajesh and Viswanadham (2010). The horizontal strain was calculated using the horizontal distance between the point and edge of cover. The calculated strain was compared to the maximum allowable strain to determine the potential for cover cracking.

Assumptions

Three critical locations were selected for the cover cracking analysis, CPT-01, CPT-15, and CPT-26. The greatest potential for detrimental cracking of the radon barrier is in the area where the radon barrier remains in its current configuration (i.e., at the edge of fill to be placed) and the fill differential adjacent to it is the highest. These locations were selected as critical because they are nearest to the repository slope where the final cover will transition directly to the existing radon barrier, and has the potential to cause cover cracking in the existing radon barrier. In the remaining area of the repository, differential settlements will be less since the fill will completely cover the existing radon barrier. The radon barrier will be recompacted and, therefore, this analysis only considers how the radon barrier performs after recompaction then loading. The critical locations used in the cover cracking analysis are shown on **Figure 1**.

Differential Settlement

The critical time period where differential settlement is a concern for the cover grading is after active placement of waste and the final cover is complete. Potential maximum future settlement after active placement of waste and the final cover includes immediate, primary and secondary consolidation as well as seismic settlement and is estimated to be 0.26 to 1.17 feet at the three locations evaluated (CPT-01, CPT-15, and CPT-26) (**Attachment A**). The horizontal distances range from 80 to 210 feet from each of these three points to the edge of the cover.

Calculations

Differential Settlement

The total potential differential settlement for the three locations were approximated using the estimated total settlement on the cover and assuming zero settlement at the edge of the repository. The maximum differential settlement in feet (equal to the estimated total settlement at each location) was divided by the distance in feet between the respective location and edge of the cover to obtain the slope reduction in percent.

Cover Cracking

Morrison-Knudsen Environmental Corporation (1993) presents a method for determining the tensile strain required to cause cracking of the radon barrier as a function of the PI of the soil. The tensile strain at cracking is calculated by the equation below:

$$\varepsilon_f(\%) = 0.05 + 0.003 * (PI)$$

where:

$\varepsilon_f(\%)$ = tensile strain to cause cracking of the radon barrier
PI = plasticity index of radon barrier

The PI value for the compacted radon attenuation layer was estimated as 16 percent, calculated as the average of the measured PIs of 10 radon barrier samples collected during the PDS (MWH, 2014a). The PI values ranged from 14 to 20, with a median value of 15.5. The average value was used as it is representative of the radon barrier material. Using this value for PI, the minimum tensile strain that will induce cracking is 0.10 percent. The maximum settlement-induced horizontal tensile strain on the radon attenuation layer must be less than 0.10 percent to prevent cover cracking.

The horizontal movement at the top of the radon barrier can be calculated based on the following equation (Lee and Shen, 1969), which is referenced in NUREG 1620 (NRC, 2003) for cover cracking analysis:

$$m = \frac{2}{3} H\alpha$$

where:

m = horizontal movement in feet
H = thickness of relatively incompressible material (in this analysis H is the thickness of the radon barrier)
α = local slope of the settlement profile (expressed as decimal fraction)

Horizontal movement at the maximum tailing thickness is calculated using a maximum thickness of relatively incompressible material of 1.8 feet (21 inches), and the total differential settlement. The thickness of relatively incompressible material was estimated assuming a maximum of 21 inches for the radon barrier, based on the As-Built Reports (Canonie, 1994, 1995). The as-built reports by Canonie do not include details on specific depths of the radon barrier at specific locations. The cover test pits conducted during the PDS were intentionally terminated prior to reaching the bottom of the radon barrier and were therefore not used to estimate the radon barrier thickness. By assuming the greatest thickness of radon barrier documented by Canonie (21 inches), the cover cracking results are conservative. The peak horizontal movement is assumed to be twice the average horizontal movement based on relationships presented in Gourc et al. (2010) and Rajesh and Viswanadham (2010).

The horizontal strain between any two settlement locations is the maximum horizontal movement divided by the horizontal distance. This value is then compared with the maximum allowable strain of 0.10 percent.

Results

The estimated reduction in slope for the three locations ranges from approximately 0.29 to 0.61 percent. The estimated differential settlement is sufficiently low such that ponding and slope reversal is not expected to occur.

The maximum horizontal strains calculated for the three locations are less than 0.01 percent. The values are lower than the calculated maximum allowable strain of 0.10 percent and indicate that cracking of the radon attenuation layer due to settlement is not likely. The results are summarized in **Table 1** and the spreadsheet calculations and results are presented in **Attachment A** to this brief.

Conclusions

The results indicate that cracking of the radon attenuation layer due to total differential settlement is not expected.

Attachments

- Figure 1 – Differential Settlement and Cover Cracking
- Attachment A – Spreadsheet Calculations

References

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U.S. Nuclear Regulatory Commission (NRC), 2003. "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of Uranium Mill Tailings Radiation Control Act of 1978, Final Report." NUREG-1620. June.

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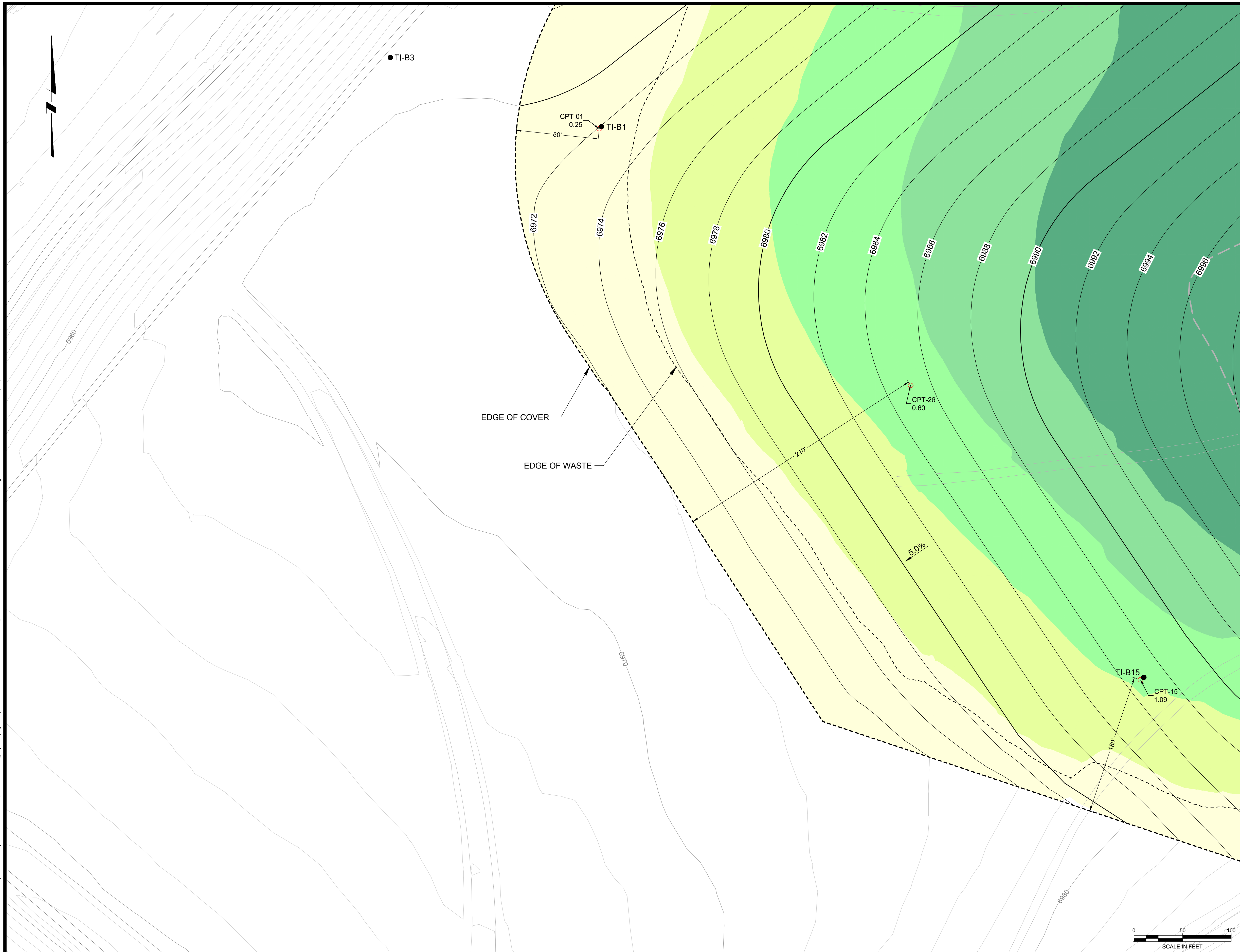
TABLE

Table 1: Estimated Differential Settlement and Cover Cracking Potential near the Edge of the Repository

Location/Borehole ID	Estimated Total Differential Settlement (ft)	Horizontal Distance to Edge of Cover (ft)	Resulting Slope Reduction (%)	Horizontal Strain (%)
TI-B1/CPT-01	0.25	80	0.32	0.009
TI-B15/CPT-15	1.10	180	0.61	0.008
CPT-26	0.60	210	0.29	0.003

FIGURE



LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
7200	PROPOSED SURFACE CONTOUR & ELEVATION, FEET
	EXISTING ROAD
	EXISTING DRAINAGE
x	FENCE
	BOUNDARY OF REPOSITORY
	FORMER BORROW PIT BOUNDARY
CPT-17	CPT LOCATION
TI-B15	BORING LOCATION
0.26	ESTIMATED TOTAL SETTLEMENT (FEET)

NOTE:

1. THE ESTIMATED TOTAL SETTLEMENT FOR THE COVER CRACKING ANALYSIS INCLUDES IMMEDIATE, PRIMARY, SECONDARY, AND SEISMIC SETTLEMENT.

REPOSITORY FILL THICKNESS			
NUMBER	MIN (FT)	MAX (FT)	COLOR
1	0.0	5.0	
2	5.0	10.0	
3	10.0	15.0	
4	15.0	20.0	
5	20.0	30.0	
6	30.0	42.0	

DESIGNED S MOORE
CHECKED M DAVIS
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

DIFFERENTIAL SETTLEMENT AND COVER CRACKING

FIGURE
1
10508639
JULY, 2016

pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Figures\2016-3-30_REPOSITORY_COVER\NECR_REPOSITORY_COVER_THICKNESS_FIG 7-2.dwg LAYOUT:COVER PLOT DATE:7/17/2017 2:45 PM BY:KWREED

ATTACHMENT A

SPREADSHEET CALCULATIONS

Differential Settlement and Cover Cracking Evaluation

Date:	30-Jun-17	11-Nov-19
Calculated By:	S. Downey	S. Downey (updated)
Review:	J. Cumbers	M. Davis (update)

During Placement of Waste and Final Cover

Location	Immediate Settlement (ft)
CPT-01	0.10
CPT-15	1.00
CPT-26	0.60

After Placement of Waste and Final Cover

Location	Total Primary, Secondary, and Seismic Settlement (ft)
CPT-01	0.15
CPT-15	0.10
CPT-26	0.00

During and After Placement of Waste and Final Cover

Total Potential Future Settlement (ft)
0.25
1.10
0.60

primary+secondary	seismic	total
0.07	0.079	0.149
0	0.101	0.101
0		0

Differential Settlement After Active Maintenance

Location:	CPT-01	CPT-15	CPT-26
Maximum Differential Settlement (ft) =	0.25	1.10	0.60
Distance between point and edge of cover (ft) =	80	180	210
Slope reduction =	**0.32%**	**0.61%**	**0.29%**

Evaluation of Potential for Cover Cracking

Maximum Allowable Strain

Plasticity Index (PI) =	16
Maximum Allowable Strain (%) =	**0.10**

Average of 10 samples from the PDS (MWH, 2014)

Peak Horizontal Movement

Location:	CPT-01	CPT-15	CPT-26
Maximum Differential Settlement (ft) =	0.25	1.10	0.60
Distance between points (ft) =	80	180	210
Local slope of settlement profile, α =	0.003	0.006	0.003
Thickness of relatively incompressible material, H (ft) =	1.8	1.8	1.8
Horizontal movement, m (ft) =	0.004	0.007	0.003
Peak Horizontal Movement (ft) =	0.01	0.01	0.01

Horizontal Strain

Horizontal Strain (%) =	**0.009**	**0.008**	**0.003**

Horizontal Strain is **<** **Maximum Allowable Strain**

Cover Cracking is Not Likely

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ATTACHMENT G.6
Repository Liquefaction Triggering Analysis

Client:	GE/UNC	**Sheet:**	1 **of** 24
Project:	Northeast Church Rock Mine Site Removal Action		
Description:	Liquefaction Triggering Analysis for the Mill Site Repository	**Job No:**	10508639

ATTACHMENT G.6: REPOSITORY LIQUEFACTION TRIGGERING ANALYSIS

Revisioning

Rev.	Date	Description	By	Checked	Date
0	June 2016	Preliminary (30%) Design	S. McManus	J. Barber	06/01/2016
1	June 2017	95% Design	T. Borden	M. Garton	06/26/2017
2	Oct 2019	Update Cover Thickness	S. Downey	S. Sun	11/11/2019

Location and Format

Electronic copies of these calculations are located on the Stantec internal project teamsite.

The calculations were generated using the following software:

Microsoft Excel

Table of Contents

Objective

The purpose of this calculation is to evaluate the potential for liquefaction of the materials beneath the repository. This calculation brief documents evaluation of the potential for liquefaction of saturated layers of tailings and alluvium beneath the proposed repository during the design seismic event. The analysis was performed for the proposed conditions (after completion of repository construction). A liquefaction screening analysis (Bray et al., 2009) was performed to identify potential zones of susceptible to liquefaction. Potential zones of susceptibility, as identified by the screening analysis, were evaluated by a liquefaction triggering analysis using two simplified liquefaction triggering analysis methods (Idriss and Boulanger, 2008; Youd et al., 2001). Liquefaction-induced settlement was estimated using the results of the liquefaction analysis and field data.

Background

This analysis was performed as part of the design of the Removal Action (RA) at the Northeast Church Rock Mine Site (Mine Site) and the related Remedial Action (RA) at the Church Rock Mill Site (Mill Site). The Mine Site and Mill Site are located in close proximity to one another, approximately 16 miles northeast of Gallup, in McKinley County, New Mexico. They are located on adjacent Sections approximately one-half mile apart. The sites are temporarily being treated as one facility for purposes of the RA. The combined site is referred to as the "Settlement Agreement Site" (SA Site).

Site History

The NECR mine is a historical uranium mine operated by United Nuclear Corporation (UNC). Mining development began in 1967 and ended in 1982. While the mine operated, it served as the principal mineral source for the UNC uranium mill. The uranium mill and its adjacent disposal cells make up the UNC Superfund Site (the "UNC Mill Site"). Remedial activities addressing source control and on-site surface reclamation are being implemented by General Electric/United Nuclear Corporation (GE/UNC) under the direction of the U.S. Nuclear Regulatory Commission (NRC), pursuant to the UNC facility's NRC license, and integrated with the US Environmental Protection Agency's (USEPA's) selected remedy for the groundwater.

The tailings disposal area (TDA) is an unlined facility bounded by an embankment and subdivided by cross-dikes into three cells, which are identified as the South Cell, Central Cell, and North Cell. An estimated 3.5 million tons of tailings were pumped in slurry from the mill to the TDA.

Proposed Remedial Action

The proposed repository will be constructed on top of the existing TDA and will incorporate controlled placement of mine waste on top of the existing TDA cover/radon barrier and a final evapotranspirative (ET) cover placed over the mine waste. Improvements to the existing TDA cover/radon barrier within the footprint of the proposed repository will be completed prior to placement of mine waste. **Figure 1** shows the location and grading of the proposed repository.

The design for the selected repository alternative will be evaluated as part of an NRC license amendment request for the existing licensed facility. The repository features that affect the licensed facility will meet the performance standards outlined in NRC regulations and areas of the existing facility affected by the repository construction will be evaluated for compliance. However, existing conditions of the facility not affected by the proposed repository were not evaluated as part of this analysis, as they are managed by the existing NRC license.

Site Description

The natural stratigraphy at the Mill Site is divided into two main components: the surficial unconsolidated deposits (alluvium) and the underlying consolidated bedrock units. The alluvium consists of a mixture of sand, silt, and clay with minor portions of gravel. Alluvial thicknesses at the site are usually around 50 feet, but exceed 120 feet in some locations. Generally, the uppermost bedrock unit at the site is the Upper Gallup Sandstone, though in some locations it is overlain by coal or the Mancos shale.

The TDA was constructed on top of the native alluvium and deposition of tailings via slurry within the TDA resulted in an interbedded accumulation of tailings. TDA closure construction began in 1989 and was completed in 1995. Closure construction included placement of an interim cover (general fill) from 1989 through 1991 followed by placement of the final cover (radon barrier and erosion protection layer) from 1993 through 1995.

Measurements taken in alluvial monitoring wells show an alluvial groundwater table in the vicinity of the TDA at approximately 6,867 feet above mean sea level (amsl), which indicates that the alluvium is unsaturated above this

elevation. Additionally, subsurface investigations of the TDA indicate that there is not a consistent static water level within the tailings or the alluvium above approximately 6,867 feet amsl. However, localized perched zones of saturation exist within the low-permeability, fine-grained tailings. These zones of saturation do not appear to extend beyond the fine-grained tailings into the higher-permeability coarse-grained tailings.

Site Investigation

In 2013, MWH performed pre-design studies (PDS) at the Mill Site and Mine Site to supplement previous site investigations and collect pre-design data necessary to perform the Remedial Design (RD). Activities performed as part of the Mill Site PDS included: surveying, cone penetration tests (CPTs), drilling, standard penetration tests (SPTs), excavation and soil sampling, and subsequent laboratory testing. Geotechnical data collected during the PDS are presented in the PDS reports (MWH, 2014a and MWH, 2014b) and summarized in **Attachment A**. A list of the materials encountered within the TDA during the PDS is presented in the Assumptions section below. Geotechnical properties for these materials and discussion of one-dimensional stratigraphic profiles developed for the liquefaction triggering analysis are also presented in the Assumptions section.

Applicable Codes and Standards

Applicable regulatory guidance documents include the following:

- NUREG 1620, Section 2.4 (NRC, 2003)
- NRC Regulatory Guide 3.11, Section C (NRC, 2008)

Methods

General

The liquefaction triggering analysis evaluated the potential for liquefaction of saturated soil layers beneath the proposed repository to damage the existing TDA radon barrier or compromise the effectiveness of the proposed repository. A liquefaction screening evaluation was performed to identify soil layers that may be susceptible to liquefaction.

One-dimensional soil profiles were developed for analysis, based on conditions observed during the Mill Site PDS field investigation and modified to reflect proposed conditions (after completion of repository construction) (see **Figure 2**). Identified zones of potentially susceptible soils within these profiles, as identified by the screening analysis, were evaluated for liquefaction potential using simplified liquefaction triggering analysis methods (Idriss and Boulanger, 2008; Youd et al., 2001). The "simplified procedure" was first developed by Seed and Idriss (1971). "That procedure has been modified and improved periodically since that time…" (Youd et al., 2001). Detailed earthquake measurements in recent decades have allowed researchers to adjust the simplified procedure for empirical accuracy. It is therefore appropriate to use these updated simplified procedures. Regulatory Guide 3.11 (2008) lists five criteria that any liquefaction analysis shall meet: (1) development of a detailed understanding of site conditions (see Attachment A)], (2) development of simplified cross-section amenable to analysis (see Figure 1), (3) calculation of the force required to liquefy the critical zone based on the characteristics of the critical zone (this is the Cyclic Resistance Ratio [CRR] as calculated below) (4) calculation of the design earthquake effect (this is the Cyclic Stress Ratio (CSR) as calculated below), and (5) computation of the factor of safety against liquefaction (see Table 2). Therefore, the liquefaction analysis presented herein meets the NRC Regulatory Guide 3.11 criteria.

The liquefaction triggering analysis used data collected during CPTs, Hollow Stem Auger (HSA) drilling, SPTs, and laboratory testing to calculate the factor of safety (FS) against liquefaction for potentially susceptible soil layers below the proposed repository. Primary analysis of the soil layers was performed using the results of CPTs. Results of SPTs, where available, were analyzed to provide a secondary data point against which the results of the CPT-based analysis were checked. The liquefaction triggering analyses incorporated supplemental data from laboratory testing and were

performed according to the methods outlined in Idriss and Boulanger (2008) and Youd et al. (2001). The FS was calculated as the average of the FS values calculated by each of the analysis methods. Both analysis methods were based in part on the CPT data, which was collected approximately every two inches within the subsurface profile. Due to the heterogeneity of the subsurface materials, anomalies occurred in the CPT data. By averaging the two calculation methods, the effects of anomalies on the calculated results was reduced for the evaluated profiles. The percent difference between the FS for the two methods was calculated for critical depths (location of minimum FS) and was observed to be at most 7 percent for CPT methods and 13 percent for SPT methods. Therefore, each method independently yields an answer close to the reported average.

Subsurface materials considered in the liquefaction triggering analysis are identified in the Assumptions section. Subsurface material properties relevant to the liquefaction triggering analysis and one-dimensional stratigraphic profiles evaluated in this analysis are also presented in the Assumptions section.

Liquefaction Screening Evaluation

A liquefaction screening evaluation was performed to identify soil layers that are potentially susceptible to liquefaction, considering tailings and alluvial soils at the TDA with perched layers of saturation, high fines content, and high plasticity. Saturated, or nearly-saturated, soils identified as "susceptible" or "moderately susceptible" to liquefaction (Bray et al., 2009) were further evaluated using the liquefaction triggering analysis, as described below. Unsaturated soils with a high degree of saturation (85 percent or higher) may behave like saturated soils and experience strength reduction due to excess pore pressure generation during a seismic event (NRC, 2008). Soils at or near saturation are composed mostly of the fine-grained tailings and fine-grained alluvium that exhibit a low hydraulic conductivity. For the purpose of this analysis, the term "nearly saturated" refers to soils between 85 percent and 99 percent saturation. Discussion of saturated and nearly saturated soil layers are presented in the Assumptions section. Every borehole was evaluated for the entire depth, which was generally in excess of 50 ft. The one borehole evaluated to a bottom depth of 34 ft. experienced refusal at that depth and liquefaction is therefore not a concern.

Soils were identified as "susceptible" or "moderately susceptible" to liquefaction according to the guidelines outlined in Bray et al. (2009), which state that a soil deposit is considered to be susceptible to liquefaction if the ratio of the water content (w_c) to liquid limit (LL) is greater than or equal to 0.85 ($w_c/LL \geq 0.85$), and the soil plasticity index (PI) is less than or equal to 12 ($PI \leq 12$). Soils with $12 < PI \leq 20$ and $w_c/LL \geq 0.8$ may be moderately susceptible to liquefaction. Soils with $PI > 20$ are considered too clayey to liquefy.

NRC Regulatory Guide 3.11 (2008) states that if three or more of the following indicate liquefaction is likely, then "… a more rigorous analysis of the liquefaction potential at a facility is required": (1) geologic age and origin, (2) fines content and plasticity index, (3) saturation, (4) depth below ground surface, and (5) soil penetration and resistance. As discussed above, materials considered to be susceptible to liquefaction included materials with 85 percent saturation or greater (meets NUREG 3.11), water content to liquid limit ratio of 0.85 or greater (exceeds NUREG 3.11, which limits at a ratio of 0.9), and material depths from the ground surface to depths greater than 50 feet (meets NUREG 3.11). In addition, penetration resistances were used to evaluate liquefaction potential (meets NUREG 3.11). In cases where three or more of the NRC criteria were met, the materials were further evaluated using the Bray et al. (2009) criteria which states a soils plasticity index (PI) is a better indicator of susceptibility than weight of clay-size particles. PI values used in this evaluation come from laboratory testing of samples taken along the length of each borehole.

Analysis of Cone Penetration Testing Results

Two procedures were used to evaluate the potential for liquefaction of the soils beneath the proposed repository based on the results of the CPT soundings and the drilling logs associated with the "paired" hollow-stem auger boreholes. These methods (Idriss and Boulanger, 2008; Youd et al., 2001) are described below. The average FS calculated from the two methods was used to evaluate the liquefaction potential of these soils.

Idriss and Boulanger (2008)

The Idriss and Boulanger (2008) liquefaction triggering method estimates the cyclic stress ratio (CSR) based on the seismic design criteria and estimates the cyclic resistance ratio (CRR) based on the CPT readings and site conditions. CSR is calculated using a simplified procedure to estimate earthquake induced stresses normalized for a magnitude 7.5 earthquake and confining pressure equal to 1 atm, calculated using the following relationship:

$$CSR_{M=7.5,\sigma'_{vc}=1} = 0.65 \frac{a_{max}}{g} \frac{\sigma_{vc}}{\sigma'_{vc}} r_d \frac{1}{MSF} \frac{1}{K_\sigma} \frac{1}{K_\alpha}$$

where:

a_{max}: maximum horizontal ground surface acceleration
σ_{vc}': effective vertical confining stress
σ_{vc}: total vertical confining stress
r_d: shear stress reduction coefficient
MSF: earthquake magnitude scaling factor
K_σ: overburden correction factor
K_α: static shear stress correction factor
g: acceleration due to gravity

The equations for the correction factors applied to the CSR for this evaluation are the following:

$$r_d = \exp(\alpha(z) + \beta(z)M)$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$\text{MSF} = 6.9 \exp\left(\frac{-M}{4}\right) - 0.058 \quad \leq 1.8$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_{vc}}{P_a}\right) \leq 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27(q_{c1N})^{0.264}} \leq 0.3$$

where:

r_d: shear stress reduction coefficient
q_{c1N}: tip resistance normalized to atmospheric pressure and overburden pressure
z: depth below ground surface
P_a: atmospheric pressure (calculated for an average elevation of 7,000 feet for the site)
M: design earthquake magnitude

The liquefaction triggering analysis was performed assuming essentially flat ground and ignored the effects of the sloping final surface of the repository. Thus, a static shear stress correction factor of $K_\alpha=1$ was used for all calculations.

The cone tip resistance (q_c) as measured in the field is dependent on the confining stress. To express the material strength independent of the in-situ stress condition, the field readings are normalized for a confining stress of 1 atm (q_{c1}) according to:

$$q_{c1} = C_N * q_c$$

$$q_{c1N} = \frac{q_{c1}}{P_a}$$

For $21 \le q_{c1N} \le 254$: $C_N = \left(\frac{P_a}{\sigma'_{vc}}\right)^{1.338-0.249*(q_{c1N})^{0.264}} \le 1.7$

where:

q_{c1}: cone tip resistance corrected to an effective overburden stress of 1 atm
C_N: CPT overburden correction factor
q_c: cone tip resistance recorded by cone penetrometer

Solving for C_N and q_{c1N} using the above expressions requires iteration, because q_{c1N} is dependent on C_N and C_N is dependent on q_{c1N}. This iteration was accomplished using circular references in a spreadsheet.

The relationship for CRR is based on liquefaction case histories and is expressed as:

$$\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1} = \exp\left(\frac{q_{c1Ncs}}{540} + \left(\frac{q_{c1Ncs}}{67}\right)^2 - \left(\frac{q_{c1Ncs}}{80}\right)^3 + \left(\frac{q_{c1Ncs}}{114}\right)^4 - 3\right)$$

where:

q_{c1Ncs}: equivalent clean-sand corrected normalized tip resistance

The cone tip resistance corrected for overburden (q_{c1}) must be further corrected for the fines content (*q_{c1Ncs}*). A clayey material with the same strength as a clean sand will measure lower cone tip resistances, and this correction accounts for that phenomenon. The correction for clean sand is calculated as follows:

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(5.4 + \frac{q_{c1N}}{16}\right) \cdot \exp\left(1.63 + \frac{9.7}{\mathrm{FC}+0.01} - \left(\frac{15.7}{\mathrm{FC}+0.01}\right)^2\right)$$

where:

FC = Fines Content in %

The FS against liquefaction was computed as:

$$FS_{liq} = \frac{\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1}}{\mathrm{CSR}_{M=7.5,\sigma'_{vc}=1}}$$

The correlation between CSR, CRR, and q_{c1N} is shown in Figure 67 of Idriss and Boulanger (2008).

Youd et al. (2001)

The Youd et al. (2001) liquefaction triggering analysis method estimates the CSR based on the seismic design criteria and estimates the CRR based on the CPT readings and site conditions. CSR is calculated using a simplified procedure to estimate earthquake induced stresses normalized for a magnitude of 7.5 and a confining pressure equal to 1 atm, calculated using the following relationship:

$$CSR_{M=7.5,\sigma'_{vc}=1} = 0.65\frac{a_{max}}{g}\frac{\sigma_{vc}}{\sigma'_{vc}}r_d\frac{1}{MSF}\frac{1}{K_\sigma}\frac{1}{K_\alpha}$$

where:

a_{max}: maximum horizontal ground surface acceleration
σ'_{vc}: effective vertical confining stress
σ_{vc}: total vertical confining stress
r_d: shear stress reduction coefficient
MSF: earthquake magnitude scaling factor
K_σ: overburden correction factor
K_α: static shear stress correction factor
g: acceleration due to gravity

The equations for the correction factors applied to the CSR for this evaluation are the following:

$$r_d = 1.0 - 0.00765 \times z \text{ for } z \le 9.15m$$

$$r_d = 1.174 - 0.0267 \times z \text{ for } 9.15m < z \le 23m$$

Revised Idriss Scaling Factor: $MSF = \frac{10^{2.24}}{M_w^{2.56}}$

$$K_\sigma = \left(\frac{\sigma'_{vc}}{P_a}\right)^{(f-1)}$$

where:

r_d: shear stress reduction coefficient
z: depth below ground surface
M_w: design earthquake magnitude
P_a: atmospheric pressure (calculated for an average elevation of 7,000 feet for the site)
σ'_{vc}: effective vertical overburden pressure
f = 0.7 to 0.8 for 40% ≤ relative density, D_r ≤ 60%
f = 0.6 to 0.7 for 60% < relative density, D_r ≤ 80%

$$D_r = \sqrt{\frac{q_{c1n}}{300}}$$

where:

q_{c1N}: tip resistance normalized to atmospheric pressure and overburden pressure (calculated using the same method as outlined in Idriss and Boulanger, 2008 [see above]).

The liquefaction triggering analysis was performed assuming essentially flat ground and ignored the effects of the sloping final surface of the repository. Thus, a static shear stress correction factor of $K_\alpha=1$ was used for all calculations.

The relationship for CRR is based on liquefaction case histories and is expressed as:

If $(q_{c1N})_{cs} < 50$ then $CRR_{7.5} = 0.833\left[\frac{(q_{c1N})_{cs}}{1000}\right] + 0.05$

If $50 \le (q_{c1N})_{cs} < 160$ then $CRR_{7.5} = 93\left[\frac{(q_{c1N})_{cs}}{1000}\right]^3 + 0.08$

If $(q_{c1N})_{cs} \ge 160$ then $CRR_{7.5} = 1.0$

where $(q_{c1N})_{cs}$ is the normalized cone penetration resistance adjusted to the clean sand value and is defined by:

$$(q_{c1N})_{cs} = K_c \times q_{c1N}$$

where:

q_{c1N}: tip resistance normalized to atmospheric pressure and overburden pressure
K_c: correction factor for grain characteristics

For $I_c \le 1.64$ $K_c = 1.0$

For $I_c > 1.64$ $K_c = -0.403 I_c^4 + 5.581 I_c^3 - 21.63 I_c^2 + 33.75 I_c - 17.88$

where:

I_c: soil behavior type index

I_c is defined by the following equations (per Robertson and Cabal, 2012, page 29):

$$I_c = \left[(3.47 - \log Q)^2 + (1.22 + \log F)^2\right]^{0.5}$$

$$Q = \frac{(q_t - \sigma_{vo})}{\sigma'_{vo}}$$

$$F = \left[\frac{f_s}{(q_c - \sigma_{vo})}\right] \times 100\%$$

where:

Q: normalized and dimensionless cone penetration resistance
F: normalized friction ratio
q_c: cone tip resistance recorded by cone penetrometer
f_s: sleeve friction measured by cone penetrometer

The FS against liquefaction was computed as:

$$FS_{liq} = \frac{\text{CRR}_{M=7.5,\sigma'_{vc}=1}}{\text{CSR}_{M=7.5,\sigma'_{vc}=1}}$$

The correlation between CSR, CRR, and q_{c1N} is shown in Figure 4 of Youd et al. (2001).

Analysis of Standard Penetration Test Results

Results of SPTs performed during the PDS were analyzed using two procedures to evaluate the potential for liquefaction of the soils beneath the proposed repository. These methods are described below (Idriss and Boulanger, 2008; Youd et al., 2001). The average FS calculated from the two methods was used to evaluate the liquefaction potential of these soils. Analyses using SPT blow counts were performed for the discreet locations for which SPT data was available (e.g. blow counts were not extrapolated to other areas). Analysis of SPT results were used only as a secondary data point against which the results of the CPT-based analysis were checked.

SPTs performed during the Mill Site PDS used an oversized split spoon sampler (2.5-inch outer diameter). To correct the recorded blow counts for this non-standard sampler, the LaCroix and Horn corrective method was applied (Rogers, 2006 after LaCroix and Horn, 1973):

$$N = N_1\left(\frac{2in}{D_1}\right)^2 \times \frac{12in}{L_1} \times \frac{W_1}{140lbs} \times \frac{H_1}{30in} = \frac{2N_1W_1H_1}{175D^2L_1}$$

For D = 2.5 in.: $N = N_1 \times 0.64$

where:

N: standard penetration resistance (blow count)
N_1: nonstandard penetration resistance (blow count)
L: sampler drive distance (12 in.)
D: outside diameter of the nonstandard sampler (2.5 in.)
W: weight of the hammer (140 lb.)
H: height of the hammer drop (30 in.)

Using this relationship, a correction factor of 0.64 was applied to the blow counts recorded during the Mill Site PDS.

After correcting the recorded blow counts for the non-standard sampler, the blow counts were further corrected for an energy ratio of 60 percent (Idriss and Boulanger, 2008), rod length, borehole diameter, and sampler type, using the following equations and correction factors:

$$N_{60} = C_E C_B C_R C_S N_m$$

Rod Length Correction Factor

Rod Length (m)	C_R
< 3	0.75
3 to 4	0.80
4 to 6	0.85
6 to 10	0.95
10 to 30	1.00

$$C_E = \frac{ER_m}{60}$$

where:

N_{60}: blow count for an energy ratio of 60%
C_E: energy ratio correction factor
C_B: correction factor for borehole diameter (equal to 1.15 for boreholes with D ≥ 8 in.)
C_R: correction factor for rod length
C_S: correction factor for samplers without liners (equal to 1.0 for a split spoon sampler with liners)
N_m: measured blow count
ER_m: delivered energy ratio

Idriss and Boulanger (2008)

The Idriss and Boulanger (2008) method of liquefaction triggering analysis using SPT blow counts is similar to the method presented in the same paper for analysis using CPT results (see above). The CSR is estimated using the same method as was used for the CPT-based analysis. However, the CRR is estimated using SPT blow counts. Using this method, the CRR can only be estimated at discrete locations within the soil profile where SPT blow counts are available.

The relationship for CRR is based on liquefaction case histories and is expressed as:

$$CRR_{M=7.5,\sigma'_{vc}=1} = \exp\left(\frac{(N_1)_{60cs}}{14.1} + \left(\frac{(N_1)_{60cs}}{126}\right)^2 - \left(\frac{(N_1)_{60cs}}{23.6}\right)^3 + \left(\frac{(N_1)_{60cs}}{25.4}\right)^4 - 2.8\right)$$

where:

$(N_1)_{60cs}$: *equivalent clean sand corrected $(N_1)_{60}$*

$$(N_1)_{60cs} = (N_1)_{60} + \Delta(N_1)_{60}$$

$$\Delta(N_1)_{60} = \exp\left(1.63 + \frac{9.7}{FC + 0.01} - \left(\frac{15.7}{FC + 0.01}\right)^2\right)$$

where:

FC: fines content (expressed in percent)
$\Delta(N_1)_{60}$: fines content correction factor for $(N_1)_{60}$
$(N_1)_{60}$: SPT blow count corrected to a 60% energy ratio and an overburden stress of 1 atm

$(N_1)_{60}$ is estimated using the following equations:

$$(N_1)_{60} = C_N \cdot N_{60}$$

$$C_N = \left(\frac{P_a}{\sigma'_{vc}}\right)^m$$

$$m = 0.784 - 0.521 \cdot D_R$$

$$D_R = \sqrt{\frac{(N_1)_{60}}{C_d}}$$

C_d = 40 for fine sands in recent fills (per Skempton, 1986)

where:

C_N: SPT overburden correction factor
P_a: atmospheric pressure (calculated for an average elevation of 7,000 feet for the site)
m: parameter dependent on sand properties and relative density
σ'_{vc}: vertical effective stress
D_R: relative density

Solving for $(N_1)_{60}$ and C_N using the above expressions requires iteration, because $(N_1)_{60}$ is dependent on C_N and C_N is dependent on $(N_1)_{60}$. This iteration was accomplished using circular references in a spreadsheet.

As before, the FS against liquefaction was computed as:

$$FS_{liq} = \frac{\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1}}{\mathrm{CSR}_{M=7.5,\sigma'_{vc}=1}}$$

<u>*Youd et al. (2001)*</u>

The Youd et al. (2001) liquefaction triggering analysis using SPT blow counts is similar to the method presented in the same paper for analysis using CPT results (see above). The CSR is estimated using the same method as was used for the CPT-based analysis. However, the CRR is estimated using SPT blow counts. Using this method, the CRR can only be estimated at discrete locations within the soil profile where SPT blow counts are available.

The relationship for CRR is based on liquefaction case histories and is expressed as:

$$CRR_{7.5} = \frac{1}{34-(N_1)_{60cs}} + \frac{(N_1)_{60cs}}{135} + \frac{50}{[10\cdot(N_1)_{60cs}+45]^2} - \frac{1}{200}$$

where:

$(N_1)_{60cs}$: *equivalent clean sand corrected $(N_1)_{60}$*

$(N_1)_{60cs}$ is estimated using the following equations:

$$(N_1)_{60cs} = \alpha + \beta \cdot (N_1)_{60}$$

For FC ≤ 5%   α = 0

For 5% < FC < 35% $\alpha = \exp\left[1.76 - \left(\frac{190}{FC^2}\right)\right]$

For FC ≥ 35% α = 5.0

For FC ≤ 5% β = 1.0

For 5% < FC < 35% $\beta = \left[0.99 + \left(\frac{FC^{1.5}}{1{,}000}\right)\right]$

For FC ≥ 35% β = 1.2

where:

FC: fines content (expressed in percent)

$(N_1)_{60}$: SPT blow count corrected to a 60% energy ratio and an overburden stress of 1 atm calculated using the same method as outlined in Idriss and Boulanger, 2008 (see above).

As before, the FS against liquefaction was computed as:

$$FS_{liq} = \frac{\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1}}{\mathrm{CSR}_{M=7.5,\sigma'_{vc}=1}}$$

Post-Liquefaction Reconsolidation Settlement

Following a seismic event during which liquefaction occurs, the soil may experience a volume change as the excess pore water dissipates and the soil particles rearrange themselves. One method for estimating this volume change is outlined in Idriss and Boulanger (2008), Section 4.4 "Post-liquefaction Reconsolidation Settlement". Assuming that displacement occurs only in the vertical direction, the settlement can be calculated from the volumetric strain according to:

$$S_{v-1D} = \int_0^{z_{max}} \varepsilon_v * dz$$

where:

S_{v-1D} *: magnitude of vertical settlement with 1D assumptions*

ε_v *: volumetric strain*

z : depth below surface

The volumetric strain can be calculated using either SPT or CPT data. Both methods were implemented for the available data using the following equations:

Estimated volumetric strain using SPT data:

$$\varepsilon_v = 1.5 * e^{\left(-0.369*\sqrt{(N1_{60cs})}\right)} * \min(0.08, \gamma_{max})$$

where:

$N1_{60cs}$*: equivalent clean sand corrected $(N_1)_{60}$*

γ_{max} *: maximum shear strain developed during liquefaction*

Estimated volumetric strain using CPT data:

$$\varepsilon_v = 1.5 * e^{\left(2.551-1.147*q_{c1Ncs}{}^{0.264}\right)} * \min(0.08, \gamma_{max})$$

where:

γ_{max} : *maximum shear strain developed during liquefaction*
$q_{c1N_{cs}}$: *normalized cone penetration resistance adjusted to the clean sand value*

Note that the CPT correlation for volumetric strain is limited to q_{c1Ncs} values of greater or equal to 21. Values less than 21 are calculated as being on the asymptote defined by the value calculated at 21. To estimate the maximum shear strain, one must first identify which of three ranges the factor of safety falls in.

$$FS_{liq} \geq 2 \qquad \gamma_{max} = 0$$

$$2 > FS_{liq} > F_\alpha \qquad \gamma_{max} = \min\left[\gamma_{lim,} 0.035 * \left(2 - FS_{liq}\right) * \left(\frac{1 - F_\alpha}{FS_{liq} - F_\alpha}\right)\right]$$

$$F_\alpha \geq FS_{liq} \qquad \gamma_{max} = \gamma_{lim}$$

where:

γ_{lim} : *limiting shear strain*
F_α : *cut-off for above ranges defined below for both CPT and SPT data*

$$F_\alpha = 0.032 + 0.69 * \sqrt{N_{1,60cs}} - 0.13 * N_{1,60cs}$$

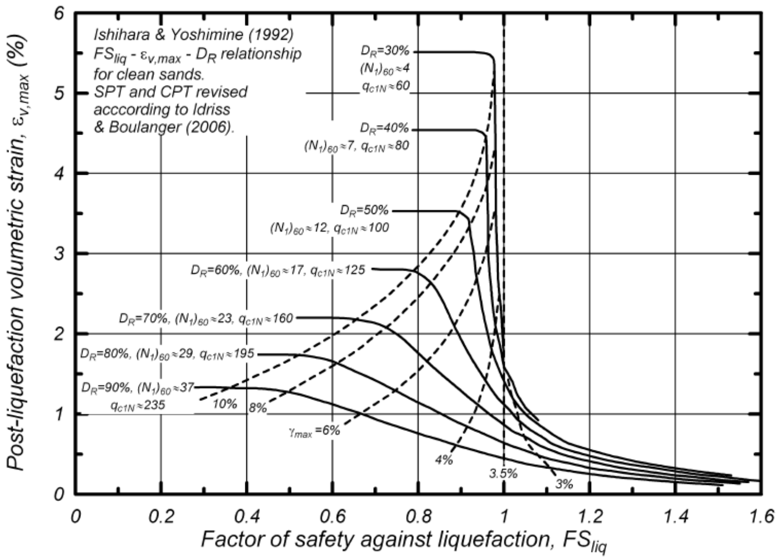
$$F_\alpha = -11.74 + 8.34 * {q_{c1Ncs}}^{0.264} - 1.371 * {q_{c1Ncs}}^{0.528}$$

Note that the SPT correlation for F_α is limited to $N_{1,60cs}$ values of greater or equal to 7 and the CPT correlation for F_α is limited to q_{c1Ncs} values of greater or equal to 69. Once the appropriate expression for the maximum shear strain has been estimated, the final term may be calculated according to (as before, equations for both CPT and SPT data):

$$\gamma_{lim} = 1.859 * \left(1.1 - \sqrt{\frac{N1_{60cs}}{46}}\right)^3 \geq 0$$

$$\gamma_{lim} = 1.859 * (2.163 - 0.478 * {q_{c1Ncs}}^{0.264})^3 \geq 0$$

There are a few important implications about this series of equations. Firstly, if the FS_{liq} is greater than or equal to 2, there will be zero settlement (as the volumetric strain term is multiplied by zero). The two primary inputs are relative density (alternatively expressed as $N_{1,60cs}$ or q_{c1Ncs}) and FS_{liq}(which is a function of CRR and CSR). Volumetric strain can therefore be plotted showing a series of solutions on the figure below.



(From Idriss and Boulanger 2008)

From the above plot, it can be seen that the settlement calculation is sensitive to an FS breakpoint of 1. Typical volumetric strains for an FS greater than 1 are in the range of 0.5 percent -1.5 percent. The top curve represents strains up to 5.5 percent. The maximum strain is approximately 12 percent, which is for the softest possible soil within the equation constraints (CPT values of less than 21).

Material Properties and General Assumptions

Subsurface Materials

The PDS investigation encountered the following materials within the TDA: general fill, erosion protection admixture, radon barrier (clay), tailings, alluvium, and various bedrock units (including coal, shale, and sandstone). For the purposes of the liquefaction triggering analysis, some of these units were further subdivided according to notation in the borehole logs, results of CPT logs, and results of laboratory analysis.

The material identifications used in this analysis are discussed below and are as follows: erosion protection, cover soil, mine waste, radon barrier, general fill, coarse tailings, fine tailings, coarse/fine tailings, coarse alluvium, and fine alluvium. A comprehensive discussion of material properties is contained in Appendix G: Mine Waste Repository Design. Table 1 presents the material properties associated with each of these materials used in this analysis.

Other General Assumptions

- The ground surface elevations for paired CPT and HSA boreholes have been estimated from the topographic survey using AutoCAD Civil3D.
- The design seismic event is the 10,000-year return period earthquake, which has a maximum peak ground acceleration (PGA) of 0.30 g and a magnitude of 5.5, as identified in the Seismic Hazard Analysis (SHA; see Appendix G, Attachment G.1).
- The minimum acceptable average factor of safety against liquefaction is 1.0 (NRC, 2008). If the FS is less than 1.0 over a minimum depth of 1 foot, the material is considered liquefiable.
- Soils that are have a degree of saturation less than 85 percent are assumed to be non-liquefiable (NRC, 2008).

- Soils at a depth in excess of 50 feet are less susceptible to liquefaction than those within the first 50 feet (NRC, 2008). Nonetheless, liquefaction triggering and susceptibility analysis was conducted for the available CPT/SPT data, which in some places went up to a depth of 80 feet. Two of the liquefiable layers are at depths of greater than 50 feet, and this should be considered a mitigating factor when analyzing the risk they pose.
- The liquefaction triggering analysis was performed assuming essentially flat ground, and ignored the effects of the sloping final surface of the repository. Thus, a static shear stress correction factor of K_α=1.0 was used for all calculations (Idriss and Boulanger, 2008).
- The in-field energy ratio (ER_m) for the SPTs performed during the PDS field investigation of the tailings impoundment is 0.75. This is based on published data for CME Automatic SPT hammers (USBR, 1999).

Stratigraphic Profiles

During the Mill Site PDS, eight CPTs were paired with boreholes to correlate CPT results with direct observation of the materials encountered. The borehole logs are presented in **Attachment B** and plots of the CPT measurements are presented in **Attachment C**. Seven of these “paired” CPT locations are within the footprint of the proposed repository. The CPT data combined with the profiles from the borehole logs were used to define the thickness and texture of the soil layers, as well as the location of the contact between the tailings and underlying alluvium. The relationships used to define the tailings-alluvium contact are described in the Mill Site PDS (MWH, 2014a). These subsurface profiles were modified using the proposed repository design to reflect proposed conditions after repository construction. The final one-dimensional profiles (**Figure 2**) and associated CPT results (**Attachment C**) were used in the liquefaction triggering analysis.

Groundwater

Groundwater was encountered during drilling in two of the boreholes (TI-B10 and TI-B11) within the footprint of the proposed repository. In both boreholes, the groundwater elevation was approximately 6,885 feet amsl. Groundwater was also encountered at about 6,903 feet amsl while drilling in boring B3 (drilled through the dam). In addition, alluvial wells 509D and EPA 23 (measured on 1/4/2016) show an alluvial ground water elevation of approximately 6,867 feet amsl. These elevations are below the bottom of the tailings and exceed the depth at which liquefaction is likely to occur. Therefore, the liquefaction triggering analysis did not assume the presence of a consistent static water level within the TDA. Water level measurements taken in the vicinity of the TDA are presented in **Attachment D**.

For the purpose of this analysis, it is assumed that localized perched zones of saturated or nearly saturated soils are present above the water levels in the alluvial wells and encountered while drilling. Unsaturated soils with a high degree of saturation (85 percent or higher) may behave like saturated soils and experience strength reduction due to excess pore pressure generation during a seismic event (NRC, 2008). Soils at or near saturation consist mostly of the fine-grained tailings and fine-grained alluvium that exhibit a low hydraulic conductivity. For the purpose of this analysis, the term “nearly saturated” refers to soils between 85 percent and 99 percent saturation.

For the purposes of this analysis, it has been assumed that hydrostatic conditions are present in tailings at or above 85 percent saturation considering the long-term loading of the site. A layer of clay alluvium exists beneath much of the tailings impoundment. The clay layer appears to have localized zones of saturated or nearly saturated soils that may experience strength reduction due to excess pore pressure generation during a seismic event. For the purpose of this analysis, it is assumed that these soils are nearly saturated and should be included in the liquefaction screening and triggering analysis. It is also assumed that hydrostatic conditions do not exist in the alluvium, above the static water levels observed while drilling the HSA boreholes or the nearby alluvial monitoring wells.

It is also assumed that pore pressure dissipation tests performed in the tailings were unable to reach equilibrium due to the low hydraulic conductivity of the tailings deposited in the TDA. Therefore, the results of the pore pressure dissipation tests are likely to be artificially elevated and are not indicators of saturation. Assumptions regarding perched zones of saturated and nearly saturated soils at each of the paired CPT/boreholes are based on the results of CPTs,

observations during HSA drilling and sampling, and subsequent laboratory testing. These assumptions are presented below.

CPT-01 and TI-B1

Tailings

- It is assumed that saturated or nearly saturated tailings do not exist at this location.
- Dynamic pore pressures recorded by the CPT in the tailings at CPT-01 were not elevated, indicating that these tailings are unsaturated.
- Eight tailings samples from TI-B1 were analyzed for water contents. All but one of these samples had degrees of saturation below 85 percent (1 percent to 63 percent saturation).
- One tailings sample (from approximately 31.25 ft to 31.5 ft below ground surface [bgs]) was nearly saturated (94 percent saturation). However, it is assumed that this sample is not indicative of the soils in this area and was collected from a discontinuous layer of interbedded fine tailings for the following reasons:
    - Three samples from the approximately 1.25 ft of immediately overlying soil (30 ft to 31.25 ft bgs) did not exhibit this level of saturation (1 percent to 47 percent saturation).
    - Analysis of a soil sample from approximately one foot below this sample (32 ft to 33 ft bgs) did not exhibit this level of saturation (63 percent saturation).
    - The boring log for TI-B1 indicated that the soils from 18.5 ft to 34.3 ft bgs are coarse tailings, an observation that is supported by laboratory analysis (other samples in this layer had fines contents of 7 percent, 9 percent and 53 percent). However, the sample in question had a fines content of 69 percent and was identified as fine tailings.

Alluvium

- At this location, it has been assumed that there are two layers of clay alluvium with increased degrees of saturation that may be susceptible to strength reduction during a seismic event. For the purposes of the analysis, these layers are assumed to behave as saturated soils, but hydrostatic conditions (e.g. perched ground water) are not present:
    - 41.0 ft to 45.0 ft bgs
    - 54.0 ft to 68.2 ft bgs
- These zones correspond to layers of fine alluvium observed during HSA drilling of TI-B1 and are separated by a layer of coarse alluvium that is unsaturated.
- It is assumed that hydrostatic conditions do not exist within the alluvium at this site above approximately elevation 6,867 ft amsl (approximately 103 ft bgs). This is supported by observations in alluvial monitoring wells (509D, EPA23) and boreholes and free water encountered at TI-B10 and TI-B11.
- The uppermost zone of soils assumed to be nearly saturated (41.0 ft to 45.0 ft bgs) corresponds to a layer of fine alluvium observed during HSA drilling at TI-B1. This assumption is based on the:
    - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured in this layer during the CPT.
    - Two samples from this layer that were submitted for laboratory analysis. One sample was 98 percent saturated and one sample was 100 percent saturated.
- It is assumed that the wetter fine-grained zones are separated by a layer of coarse alluvium (45.0 ft to 54.0 ft bgs) identified during HSA drilling. This assumption is based on the following:
    - A sample of this layer was submitted for laboratory analysis, the results of which indicate that the material is 74 percent saturated.
    - Dynamic pore pressures (one potential indicator of higher degrees of saturation) measured in this layer were not elevated, as they were in the overlying and underlying layers of fine alluvium.
- The lowermost zone of soils assumed to be nearly saturated (54.0 ft to 68.2 ft bgs) corresponds to a layer of fine alluvium observed during HSA drilling at TI-B1. This assumption is conservative and is based on the following:
    - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured at in this layer during the CPT.

- No samples from this layer were submitted for laboratory analysis.

- Elevated dynamic pore pressure measurements (one potential indicator of higher degrees of saturation) were not observed below 68.2 ft bgs. Therefore, it is assumed that saturated soils do not exist from 68.2 ft to 103 ft bgs at this location.

CPT-02 and TI-B2

Tailings

- It has been assumed that saturated or nearly saturated tailings do not exist at this location.
- Dynamic pore pressures recorded by the CPT in this zone were not elevated, indicating that this zone is unsaturated.
- This assumption is supported by the degree of saturation calculated from laboratory testing results (77 percent saturation).

Alluvium

- It is assumed that the alluvium at this location is moist to wet, but is not saturated or nearly saturated above the weathered sandstone encountered at 33.5 ft bgs (approximate elevation: 6,926.5 ft amsl).
- Despite some elevated dynamic pore pressure measurements during the CPT at this location (one potential indicator of higher degrees of saturation), this assumption is based on the following:
  - No free water was encountered during HSA drilling at this location.
  - Laboratory analysis of samples from the alluvium at TI-B2 indicated that these soils are not at or near saturation (22 percent to 78 percent saturation).
  - The nearest alluvial well indicates that the static water level within the alluvium is approximately 6,867 ft amsl (approximately 93 ft bgs).

CPT-08 and TI-B8

Tailings

- It has been assumed for this analysis that there are three localized perched zones of saturation (hydrostatic conditions) within the tailings at this location.
- These zones of saturation correspond to the layers of fine tailings observed during HSA drilling:
  - 26.3 ft to 31.0 ft bgs
  - 32.5 ft to 35.0 ft bgs
  - 38.6 ft to 44.5 ft bgs
- The uppermost zone that is assumed to be saturated (26.3 ft to 31.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 26.9 ft to 31.5 ft bgs during the CPT.
  - A sample from this layer that was submitted for laboratory analysis, the results of which indicate that the material is fully saturated (100 percent saturation).
- The middle zone of assumed saturation (32.5 ft to 35.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 32.8 ft to 35.1 ft bgs during the CPT.
- The lowermost zone that is assumed to be saturated (38.6 ft to 44.5 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B8. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured in this layer during the CPT.
  - Samples from this layer that were submitted for laboratory analysis, the results of which indicate that the material is 93 percent to 99 percent saturated.
- Laboratory analysis of samples of the coarse tailings and coarse/fine tailings between the layers of fine tailings at TI-B8 indicated that these soils are unsaturated (44 percent to 67 percent saturation).

- The dynamic pore pressure measurements taken during CPT-08 also support this pattern of nearly-saturated layers of fine tailings, interbedded with layers of coarser unsaturated tailings.
- The pore pressure dissipation test performed at 31.7 ft bgs did not reach zero, which may indicate saturated conditions; however, the material is classified as a CH (USCS) and has a fines content of 91 percent. It is likely that dynamic pore pressures generated by the CPT probe shearing the soils were very slow to dissipate, resulting in misleading measurements during the pore pressure dissipation test.

Alluvium

- It is assumed that the alluvium at this location is unsaturated. This assumption is based on the following:
  - Dynamic pore pressure measurements taken during the CPT were not elevated in the alluvium.
  - No free water was encountered during HSA drilling at this location.
  - The nearest alluvial well indicates that the static water level within the alluvium is approximately 6,867 ft amsl (approximately 109 ft bgs). Bedrock at TI-B8 was encountered at 61 ft bgs. Free water was encountered in the alluvium at B10 and B11 at about 90 ft bgs while drilling.

CPT-10 and TI-B10

Tailings

- At this location, it has been assumed for this analysis that free-draining layers of coarse tailings separate three perched zones of saturated tailings:
  - 18.9 ft to 24.4 ft bgs
  - 25.7 ft to 31.0 ft bgs
  - 33.2 ft to 44.6 ft bgs
- The uppermost zone that is assumed to be saturated (18.9 ft to 24.4 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B10. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 17.7 ft to 24.3 ft bgs during the CPT.
  - A sample from this layer was submitted for laboratory analysis, the results of which indicate that the material is 89 percent saturated.
- The uppermost and middle zones of assumed saturation are separated by a layer of unsaturated coarse tailings (24.4 ft to 25.7 ft bgs) identified during HSA drilling.
- The middle zone of assumed saturation (25.7 ft to 31.0 ft bgs) corresponds to a layer of fine tailings observed during HSA drilling at TI-B10. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured in this layer during the CPT.
  - Samples from this layer that were submitted for laboratory analysis, the results of which indicate that the material is 95 percent to 96 percent saturated.
- The middle and lowermost zones of assumed saturation are separated by a layer of unsaturated coarse tailings (31.0 ft to 33.2 ft bgs) identified during HSA drilling. A sample of this layer was submitted for laboratory analysis, the results of which indicate that the material is unsaturated (62 percent saturation).
- The lowermost zone of assumed saturation (33.2 ft to 44.6 ft bgs) spans two layers of fine tailings (33.2 ft to 36.3 ft bgs and 37.8 ft to 44.6 ft bgs) and the layer of coarse/fine tailings by which they are separated. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured during the CPT at this location to a depth of 43.8 ft bgs.
  - Laboratory analysis of samples of these tailings indicated that these soils are 95 percent to 100 percent saturated.

Alluvium

- It is assumed that the alluvium at this location is unsaturated above 90.2 ft bgs. This assumption is based on the following:

- Dynamic pore pressure measurements taken during the CPT at this location were not elevated in the alluvium.
- A static water level was measured in TI-B10 at 90.2 ft bgs (approximately 6,883 ft amsl), while drilling and the groundwater measurements in the nearest alluvial well (509D) indicate that the static water level near the tailings impoundment is approximately 6,867 ft amsl.

CPT-11 and TI-B11

Tailings

- It has been assumed that there is a localized perched zone of saturation (hydrostatic conditions) within the tailings at this location (44.5 ft to 53.9 ft bgs).
- This assumption corresponds to a layer of fine tailings observed during HSA drilling at TI-B11 and is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 43.5 ft to 54.8 ft bgs during the CPT.
  - Laboratory analysis of samples of the fine tailings at TI-B11 indicated that these soils are 95 percent to 100 percent saturated.

Alluvium

- It is assumed that the alluvium at this location is unsaturated. This assumption is based on the following:
  - Dynamic pore pressure measurements taken during the CPT were not elevated in the alluvium.
  - Free water was not encountered in the alluvial soils (53.9 ft to 77.5 ft bgs). Free water (wet sampler bit) was encountered at approximately 90 ft bgs (approximately 6,887 ft amsl) in the weathered sandstone.
  - Laboratory analysis of alluvium samples at TI-B11 indicated that these soils are unsaturated (38 percent to 56 percent saturation).

CPT-15 and TI-B15

Tailings

- It has been assumed that there are no saturated tailings at this location. This assumption is based on the following:
  - The tailings at this location are of a coarse nature and therefore have a higher hydraulic conductivity than fine-grained tailings.
  - Results of multiple samples of tailings from this location that were submitted for laboratory analysis. Laboratory analysis indicated that the samples were unsaturated (22 percent to 58 percent saturation).

Alluvium

- At this location, it has been assumed that there are two layers of clay alluvium with increased degrees of saturation that may be susceptible to strength reduction during a seismic event. For the purposes of the analysis, these layers are assumed to behave as saturated soils, but hydrostatic conditions (e.g. perched groundwater) are not present:
  - 30.0 ft to 38.0 ft bgs
  - 45.0 ft to 50.0 ft bgs
- These zones correspond to layers of fine alluvium observed during HSA drilling of TI-B15 and are separated by a layer of coarse alluvium that is unsaturated
- It is assumed that hydrostatic conditions do not exist within the alluvium at this site above elevation approximately 6,867 ft amsl (approximately 110 ft bgs). This is supported by observations in alluvial monitoring wells and boreholes and free water encountered at TI-B10 and TI-B11.
- The uppermost zone of soils assumed to be nearly saturated (30.0 ft to 38.0 ft bgs) corresponds to a layer of fine alluvium observed during HSA drilling at TI-B15. This assumption is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured from approximately 30 ft to 38 ft bgs during the CPT.

  - Results of two samples from this layer that were submitted for laboratory analysis. One sample was 92 percent saturated and one sample was 70 percent saturated.
- It is assumed that the wetter fine-grained zones are separated by a layer of coarse alluvium (38.0 ft to 45.0 ft bgs) identified during HSA drilling. This assumption is based on the following:
  - A sample of this layer was submitted for laboratory analysis, the results of which indicate that the material is 33 percent saturated.
  - Dynamic pore pressures (one potential indicator of higher degrees of saturation) measured in this layer were not elevated, as they were in the overlying and underlying layers of fine alluvium.
- The lowermost zone of soils assumed to be nearly saturated (45.0 ft to 50.0 ft bgs) corresponds to a layer of fine alluvium observed during HSA drilling at TI-B15. This assumption is conservative and is based on the following:
  - Elevated dynamic pore pressures, one potential indicator of higher degrees of saturation, were measured at depths greater than 45 ft bgs during the CPT.
  - Results from two samples from this layer that were submitted for laboratory analysis. One sample was 93 percent saturated and one sample was 67 percent saturated.
- Despite some elevated dynamic pore pressure measurements (one potential indicator of higher degrees of saturation) below 50 ft bgs, it is assumed that nearly saturated soils do not exist between 50 ft and 110 ft bgs at this location. This assumption is based on the following:
  - A layer of coarse alluvium was observed at 50 ft to 52 ft bgs. Due to the coarse nature of this material and the water levels encountered while drilling at nearby locations during the PDS, at or below elevation 6,867 ft amsl (approximately 110 ft bgs) it is assumed that this layer is unsaturated and that the recorded dynamic pore pressures are the result of shearing induced by the penetrometer during CPT.
  - Laboratory analysis of alluvium samples from depths of 56 ft and 66 ft bgs at TI-B15 indicated that these soils were unsaturated (51 percent saturation for both samples).

<u>*CPT-23 and TI-B23*</u>

Tailings

- It has been assumed that saturated conditions do not exist within the tailings at this location. This assumption is based on the following:
  - Dynamic pore pressures recorded by the CPT in this zone were not elevated, indicating that this zone is unsaturated.
  - Laboratory analysis of a tailings sample collected from TI-B23 indicated these tailings are unsaturated (57 percent saturation).
  - The layer of fine tailings (the material most likely to have a high degree of saturation) did not exhibit positive dynamic pore pressures during the CPT.

Alluvium

- It is assumed that the moist to wet layers of fine alluvium at this location are nearly, but not completely, saturated and hydrostatic conditions are not present:
  - 16.0 ft to 20.3 ft bgs
  - 23.0 ft to 38.6 ft bgs
  - 40.0 ft to 43.0 ft bgs
- This assumption is based on the following:
  - Laboratory analysis of alluvium samples collected at this location indicated that the samples were nearly, but not completely, saturated (87 percent and 91 percent saturation).
  - Elevated dynamic pore pressure measurements, one potential indicator of higher degrees of saturation, were recorded below approximately 25 ft bgs but not in the uppermost layer of fine alluvium (16.0 ft to 20.3 ft bgs) or in the top approximately 2 feet of the middle layer of fine alluvium (23 ft bgs to 38.6 ft bgs).
  - The nearest alluvial well indicates that the static water level within the alluvium is approximately 6,867 feet amsl (approximately 92 ft bgs). Bedrock at TI-B8 was encountered at 65.5 ft bgs.

Also, the uppermost layer of fine alluvium (16.0 ft to 20.3 ft bgs) did not exhibit positive pore pressures, despite the laboratory results indicating 91 percent saturation.

Other Stratigraphic Assumptions

- The 4.5-foot-thick ET cover will consist of two layers: (1) an erosion protection layer (14-31.5 inches thick) on top of (2) a layer of cover soil (22.5-40 inches thick). The final cover thicknesses were updated to reflect the change in cover thickness after approving use of the Jetty borrow as cover material.
- The top of the ET cover will be the same as the finished grade of the proposed repository grading plan (as shown in **Figure 1**).
- Improvement and reconditioning of the existing TDA cover and radon barrier within the footprint of the proposed repository will result in a minimum 18-inch-thick radon barrier over the general fill. The existing erosion protection material will be removed from within the proposed repository footprint during this process. The finished grade of the improved radon barrier will be equal to existing grade.
- Mine waste will be placed from the top of the radon barrier (existing grade) to the bottom of the ET cover (4.5 ft below finished grade).

Calculations

Figure 3 presents the liquefaction screening evaluation. Results of laboratory analysis on soil samples have been plotted to identify the soils as susceptible, moderately susceptible, or unsusceptible to liquefaction (Bray, et al., 2009). **Attachment E** presents the liquefaction triggering analysis calculations.

Results

The liquefaction triggering analysis evaluated the potential for liquefaction of saturated soil layers during the design seismic event, which could cause settlement of the proposed repository cover, result in damage to the existing TDA radon barrier or compromise the effectiveness of the proposed repository. A liquefaction screening evaluation was performed to identify soil layers that may be susceptible to liquefaction. Results of the liquefaction screening evaluation are presented in **Figure 3**.

Soil layers meeting both of the following criteria were evaluated by a liquefaction triggering analysis:

- A sample taken from the soil layer was identified by the liquefaction screening evaluation as susceptible or moderately susceptible to liquefaction.
- The soil layer is fully saturated, nearly saturated (greater than or equal to 85 percent saturation per NRC, 2008), or has the potential to become saturated in the future.

Results of the liquefaction triggering analysis and liquefaction induced settlement are presented in **Table 2**. The FS values were calculated as the average of the FS values calculated using each of the liquefaction triggering analysis methods. Averaging the results of two methods mitigates the effects of anomalous results and draws upon the data and analyses used to develop both methods. Of the three locations identified as susceptible to liquefaction in the liquefaction screening evaluation, only one location was found to be potentially liquefiable (FS < 1): TI-B10 from 33.2 ft to 44.6 ft bgs. Although only one location was found to be potentially liquefiable, two locations were evaluated for post-liquefaction consolidation settlement: TI-B8 (liquefaction analysis at location TI-B8 resulted in a FS of 1.0) and TI-B10. These post-liquefaction settlements were estimated to be approximately 0.06 ft at TI-B8 (considering CPT data – SPT data resulted in zero settlement) and approximately 0.5 ft at TI-B10, considering CPT and SPT data. These settlements fall within the range of possible vertical strains described in the methods section, and therefore seem reasonable.

A sensitivity analysis was performed to explore how varying material properties would influence the results. Whereas the primary analysis presented herein uses the average (50th percentile) material properties (from multiple tests performed on a certain material), this sensitivity analysis uses the material property of the 30th percentile (see **Table 3**). Using the 30th percentile material properties, the results of the liquefaction analysis and post-liquefaction settlement showed little variation from the base case (50th percentile material properties) values. This is reasonable because the controlling parameters of this analysis are seismic hazard inputs, CPT/SPT values, and the liquefiable criteria outlined above.

Conclusions

Liquefaction Screening Evaluation

The liquefaction screening evaluation identified eight soil samples from four depths/locations as moderately susceptible to liquefaction (see **Figure 3**). None of the soil types encountered within or below the TDA had a significant portion of the profile identified as susceptible or moderately susceptible to liquefaction.

Liquefaction Analysis

Three of the four depths/locations identified as moderately susceptible to liquefaction were also fully saturated or nearly saturated. The minimum calculated average FS for one of these soil layers is 0.79 (calculated for a minimum thickness of 1 foot). This indicates that the layer of fine tailings from 33.2 ft to 44.6 ft bgs at TI-B10 does not meet the minimum acceptable FS criteria for liquefaction (per NRC, 2008 C.2.f). Note that the final depth of this layer will be about 54.2 ft to 65.6 ft. The soil layer at this depth and within this borehole location is susceptible to liquefaction under the design seismic event. However, the layer is at significant depth below the cover and is limited to a localized area within one of the former borrow pits. This layer is also below the pseudo-static failure surfaces identified in the slope stability analyses and is not likely to present a post-seismic slope stability concern, if it were to liquefy following the design seismic event.

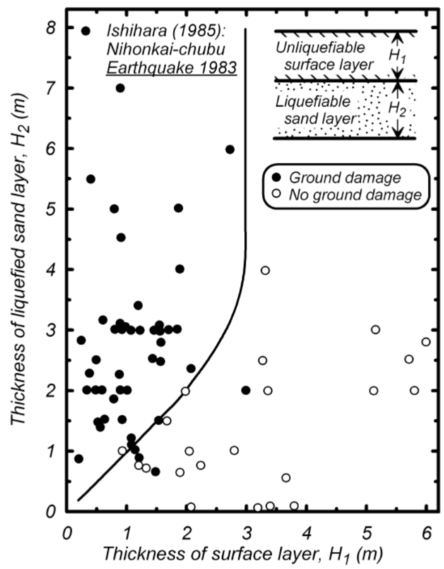
Per NUREG 1620 2.4.3(8) (NRC, 2003), liquefiable material may not require mitigation "if minor liquefaction potential is identified and is evaluated to have only a localized effect that may not directly alter the stability of embankments, the effect of liquefaction is adequately accounted for in analyses of both differential and total settlement and is shown not to compromise the intended performance of the radon barrier." Based on the results of the liquefaction analysis for the 30% Design, mitigation measures are not considered necessary with respect to the post-seismic slope stability. Adding the mine waste and cover material to the site will increase vertical stresses and depths of existing material. From a calculation perspective, this additional material would increase vertical stress and result in higher FS values. The identified liquefaction potential at the Mill Site falls into this category of minor liquefaction. Neither slope stability nor the radon barrier would be compromised due to liquefaction given the location of the potentially liquefiable material, thickness of the layer, and the number of layer.

Liquefaction Induced Settlement

There are two mechanisms by which liquefied soil may experience settlement. The first is displacement caused by lateral spreading. Certain criteria are necessary for this type of displacement to occur, and these criteria are not present at this site. Specifically, this phenomenon may occur if a liquefied layer of soil extends to a free face. Not only have the liquefiable deposits been identified as pockets of material in a localized area, they are either at a depth greater than any free surface and/or hundreds of feet away. Therefore, this type of settlement was not accounted for in this analysis.

Of the three locations identified as liquefiable in the liquefaction analysis, two locations indicated the potential for post-liquefaction consolidation settlement. Note that the liquefaction analysis at location TI-B8 resulted in a FS of 1.0, at a depth of about 52 to 59 ft. While this does not meet the criteria for liquefaction (it meets the minimum required FS against liquefaction), it was evaluated for potential settlement due to the liquefaction. These post-liquefaction settlements were estimated to be about 0.06 ft at TI-B8 (considering CPT data – SPT data resulted in zero settlement)

and approximately 0.5 ft at TI-B10 (considering both CPT and SPT data sets). It is unlikely that settlements of this magnitude would be observed at the ground surface, due to depth at which they occur. Per Idriss and Boulanger (2008): "The consequences of one-dimensional settlement may, however, be largely mitigated by the presence of a thick nonliquefied layer above the liquefied soils (e.g., Ishihara 1985, Naesgaard et al. 1998, Bouckovalas and Dakoulas 2007)." At depths of 52 to 59 ft and 54 to 66 ft for TI-B8 and TI-B10, respectively, there is a substantial amount of nonliquefied material above the liquefiable pockets and surficial expressions of the liquefied pockets may not be realized as shown in the figure below from Idriss and Boulanger (2008) based on historic earthquake data.



Example of nonliquefiable surface layer protecting against surface damage from case histories
(From Idriss and Boulanger 2008)

Based on the field data and the results of the calculations presented herein, the potential for liquefaction induced settlement at the site is contained in a localized area and occurs at a depth where surficial expression and damage to the radon barrier or ET cover is considered unlikely. Therefore, remedial action is not required.

Attachments

Figures

- Figure 1 – Borehole and CPT Locations for Liquefaction Triggering Analysis
- Figure 2 – One-Dimensional Stratigraphic Profiles
- Figure 3 – Liquefaction Screening Evaluation Results

Attachments

- Attachment A – Laboratory Results from Pre-Design Studies (MWH, 2014a and MWH, 2014b)
- Attachment B – Tailings Disposal Area Borehole Logs (MWH, 2014a)
- Attachment C – Tailings Disposal Area Cone Penetration Test Results (MWH, 2014a)
- Attachment D – Recorded Water Levels at the Mill Site (Chester Engineers, 2016)
- Attachment E – Liquefaction Triggering Analysis Calculations

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TABLES

Table 1: Material Properties Used in Liquefaction Triggering Analysis

Material Identification	Maximum Dry Unit Weight, γ_d (pcf)	Relative Compaction, C_r (% of Standard Proctor)	Specific Gravity, G_s	Void Ratio, e	Water Content, w (%)	Moist Unit Weight, γ_m (pcf)	Fines Content, FC (%)	Plasticity Index, PI
Erosion Protection	130.0	90	2.71	0.45	5.0	122.9	N/A	N/A
Cover Soil	115.0	90	2.69	0.62	10.8	114.7	53	12
Mine Spoils	118.3	90	2.66	0.56	9.3	116.4	53	12
Radon Barrier	116.3	95	2.68	0.51	9.4	122.3	59	16
Existing Fill	N/A	N/A	2.69	0.67	13.0	113.8	48	19
Coarse Tailings	N/A	N/A	2.67	0.71	10.9	108.1	21	0
Coarse/Fine Tailings	N/A	N/A	2.72	0.90	30.0	116.0	52	20
Fine Tailings	N/A	N/A	2.70	1.35	50.1	107.6	83	43
Coarse Alluvium	N/A	N/A	2.71	0.73	14.6	111.0	36	N/A
Fine Alluvium	N/A	N/A	2.74	0.72	21.4	120.7	76	N/A

Notes:

All values are the results of laboratory testing, unless otherwise noted.

Table 2: Minimum Average Factors of Safety Against Liquefaction and Predicted Settlement

Borehole	Soil Type	Depth Range of Soil Layer[1] (ft.)	Min. Average FS from Analysis of CPT Data	Min Average FS from Analysis of SPT Data	Post-Liq Consol. Settlement from CPT Data (ft.)	Post-Liq Consol. Settlement from SPT Data (ft.)
TI-B1	Fine Alluvium	43.2 – 47.1	44.9	45.1	0	0
TI-B8	Fine Tailings	52.8 – 58.7	1.01	N/A[2]	0.06	N/A[2]
TI-B10	Fine Tailings	54.2 – 65.6	0.88	0.79	0.47	0.51

Notes:

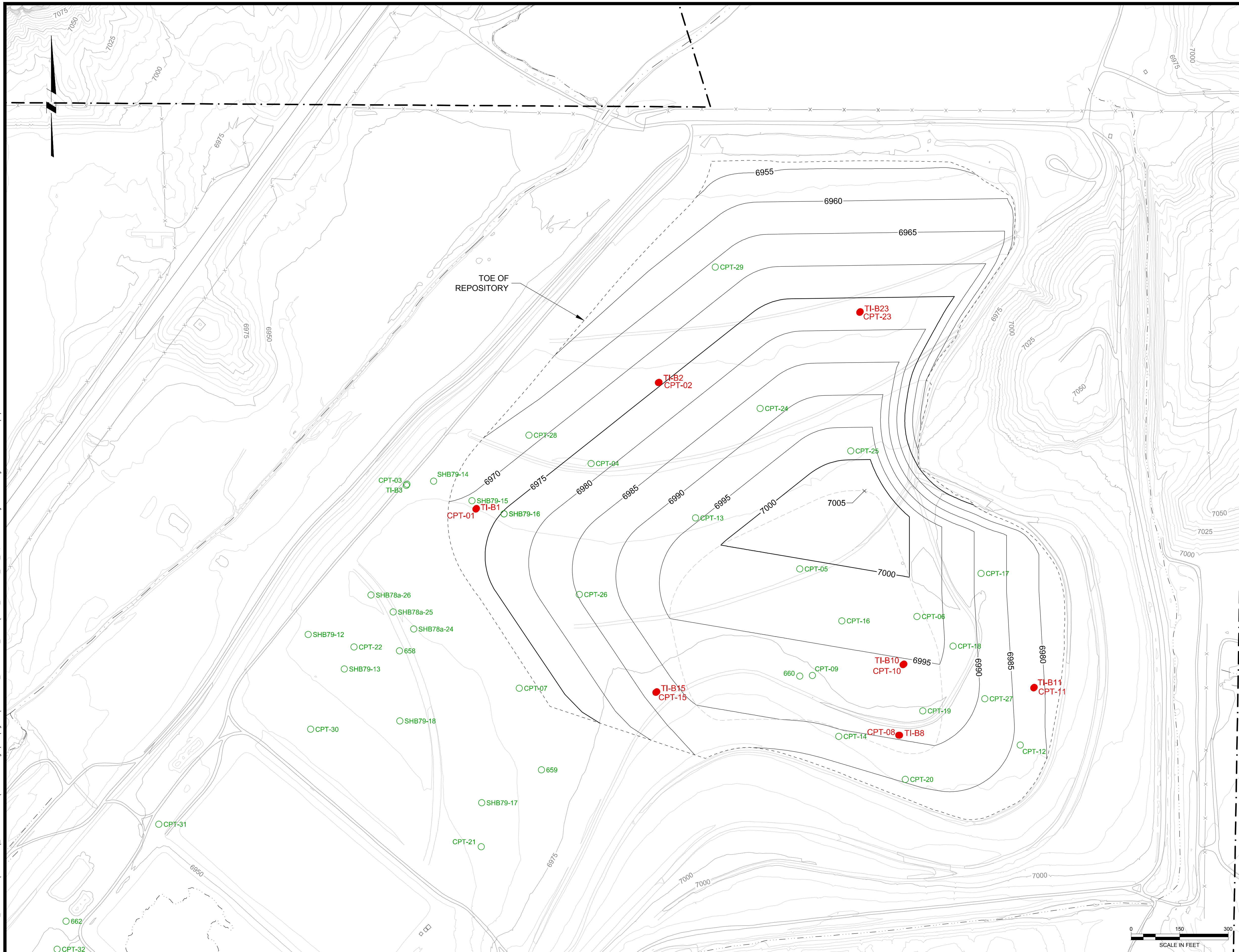
[1]Depth indicated is the depth considering the final proposed repository configuration

[2]An SPT (N = value) was not performed within this layer at TI-B8

Table 3: 30th Percentile Material Properties Used in Sensitivity Demonstration

Material Identification	Specific Gravity, G_s	Water Content, w (%)	Moist Unit Weight, γ_m (pcf)	Fines Content, FC (%)	Plasticity Index, PI
Existing Fill	2.67	8.4	104.4	38	19
Coarse Tailings	2.66	6.8	97.9	14	0
Coarse/Fine Tailings	2.72	27.6	109.4	49	18
Fine Tailings	2.61	41.6	94.6	77	36
Coarse Alluvium	2.68	11.9	105.8	30	0
Fine Alluvium	2.72	19.9	115.5	69	16

FIGURES



LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
7200	PROPOSED SURFACE CONTOUR & ELEVATION, FEET
	EXISTING ROAD
	EXISTING DRAINAGE
	FENCE
	BOUNDARY OF REPOSITORY
●	PAIRED BOREHOLES AND CPT LOCATIONS USED FOR LI□UEFACTION ANALYSIS
○	OTHER BOREHOLES, WELLS, OR CPT LOCATIONS

DESIGNED S McMANUS
DRAWN K REED
CHECKED C WEBER

MWH

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

BOREHOLE AND CPT LOCATIONS
FOR LI□UEFACTION TRIGGERING ANALYSIS

FIGURE
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TI-B1/CPT-01

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 2.1	Cover Soil
0.0 - 2.0	2.1 - 4.1	Radon Barrier
2.0 - 13.0	4.1 - 15.1	General Fill
13.0 - 15.0	15.1 - 16.1	Coarse Tailings
15.0 - 18.5	16.1 - 20.6	General Fill
18.5 - 34.3	20.6 - 36.4	Coarse Tailings
34.3 - 41.1	36.4 - 43.2	Coarse Alluvium
41.1 - 45.0	43.2 - 47.1	Fine Alluvium
45.0 - 54.0	47.1 - 56.1	Coarse Alluvium
54.0 - 68.2	56.1 - 70.3	Fine Alluvium
68.2 - 70.0	70.3 - 72.1	Coarse Alluvium

TI-B2/CPT-02

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 14.3	Mine Spoils
0.0 - 2.0	14.3 - 16.3	Radon Barrier
2.0 - 12.8	16.3 - 27.1	General Fill
12.8 - 15.0	27.1 - 29.3	Fine Tailings
15.0 - 25.7	29.3 - 40.0	Coarse Alluvium
25.7 - 33.5	40.0 - 47.8	Fine Alluvium

TI-B8/CPT-08

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 14.2	Mine Spoils
0.0 - 2.0	14.2 - 16.2	Radon Barrier
2.0 - 7.0	16.2 - 21.2	General Fill
7.0 - 18.0	21.2 - 32.2	Coarse Tailings
18.0 - 20.7	32.2 - 34.9	General Fill
20.7 - 26.3	34.9 - 40.5	Coarse Tailings
26.3 - 31.1	40.5 - 45.3	Fine Tailings
31.1 - 32.5	45.3 - 46.7	Coarse Tailings
32.5 - 35.0	46.7 - 49.2	Fine Tailings
35.0 - 38.6	49.2 - 52.8	Coarse/Fine Tailings
38.6 - 44.5	52.8 - 58.7	Fine Tailings
44.5+	58.7+	Coarse Alluvium

TI-B10/CPT-10

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 21.0	Mine Spoils
0.0 - 2.0	21.0 - 23.0	Radon Barrier
2.0 - 6.8	23.0 - 27.8	General Fill
6.8 - 18.9	27.8 - 39.9	Coarse Tailings
18.9 - 24.4	39.9 - 45.4	Fine Tailings
24.4 - 25.7	45.4 - 46.7	Coarse Tailings
25.7 - 31.0	46.7 - 52.0	Fine Tailings
31.0 - 33.2	52.0 - 54.2	Coarse Tailings
33.2 - 44.6	54.2 - 65.6	Fine Tailings
44.6+	65.6+	Coarse Alluvium

TI-B11/CPT-11

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 4.3	Mine Spoils
0.0 - 2.0	4.3 - 6.3	Radon Barrier
2.0 - 44.5	6.3 - 48.8	General Fill
44.5 - 53.9	48.8 - 58.2	Fine Tailings
53.9 - 55.0	58.2 - 59.3	Fine Alluvium
55.0 - 77.5	59.3 -81.8	Coarse Alluvium

TI-B15/CPT-15

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 5.1	Mine Spoils
0.0 - 2.0	5.1 - 7.1	Radon Barrier
2.0 - 3.0	7.1 - 8.1	General Fill
3.0 - 30.0	8.1 - 35.1	Coarse Tailings
30.0 - 38.0	35.1 - 43.1	Fine Alluvium
38.0 - 45.0	43.1 - 50.1	Coarse Alluvium
45.0 - 50.0	50.1 - 55.1	Fine Alluvium
50.0 - 52.0	55.1 - 57.1	Coarse Alluvium
52.0 - 65.0	57.1 - 70.1	Fine Alluvium

TI-B23/CPT-23

Depth below Existing Ground Surface at Time of CPT (ft)	Depth below Finished Ground Surface (ft)	Soil Type
-	0 - 1.5	Erosion Protection
-	1.5 - 3.5	Cover Soil
-	3.5 - 22.2	Mine Spoils
0.0 - 2.0	22.2 - 24.2	Radon Barrier
2.0 - 13.4	24.2 - 35.6	General Fill
13.4 - 14.2	35.6 - 36.4	Fine Tailings
14.2 - 16.0	36.4 - 38.2	Coarse Tailings
16.0 - 20.3	38.2 - 42.5	Fine Alluvium
20.3 - 23.0	42.5 - 45.2	Coarse Alluvium
23.0 - 38.6	45.2 - 60.8	Fine Alluvium
38.6 - 40.3	60.8 - 62.5	Coarse Alluvium
40.3 - 43.0	62.5 - 65.2	Fine Alluvium

PROJECT UNITED NULEAR CORPERATION AND NORTHEAST CHURCH ROCK MINE

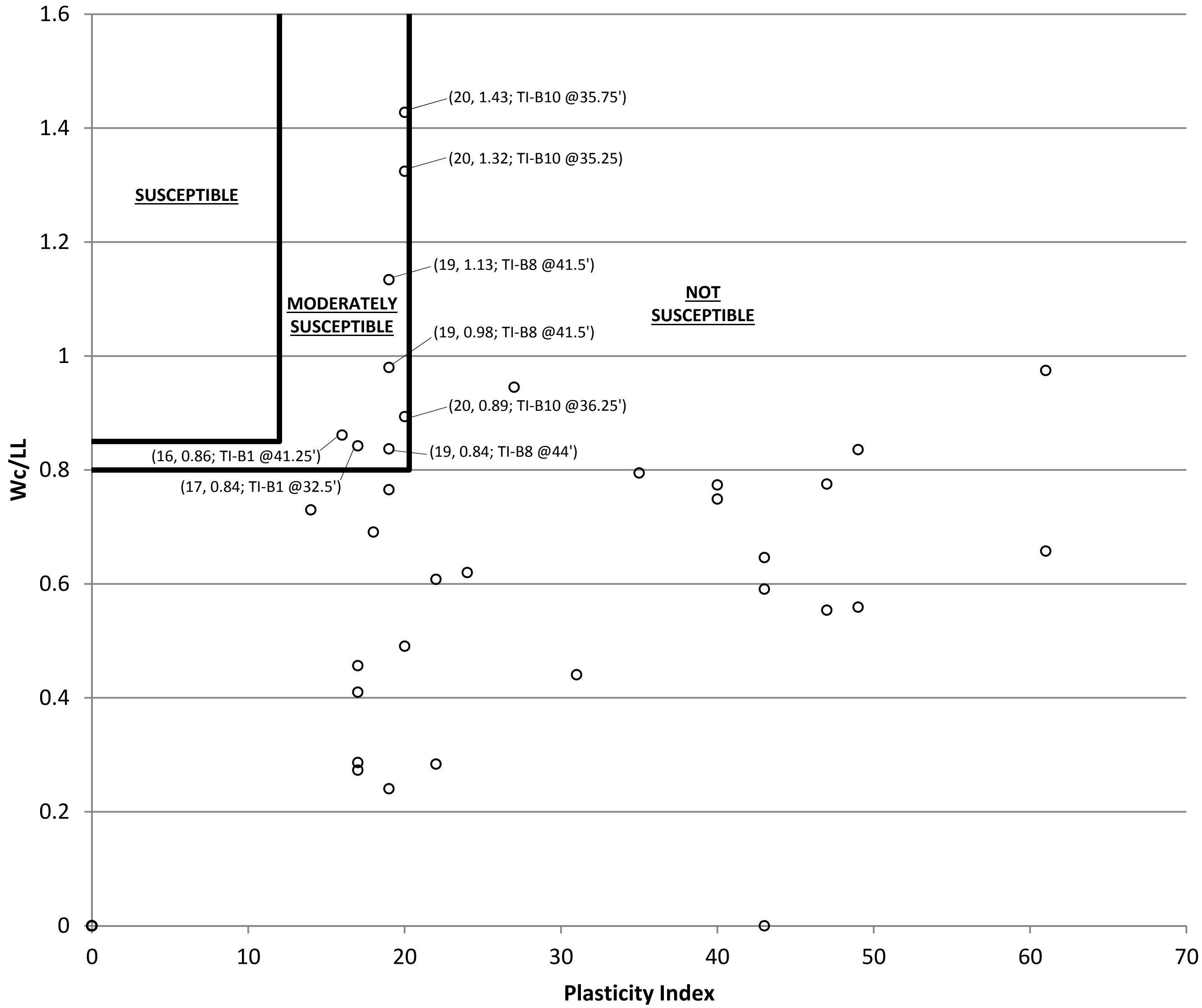
TITLE ONE-DIMENSIONAL STRATIGRAPHIC PROFILES

MWH

DATE May 2016

FIGURE 2

FILENAME FIG_2



PROJECT	UNITED NULEAR CORPERATION AND NORTHEAST CHURCH ROCK MINE
TITLE	LIQUEFACTION SCREENING EVALUATION RESULTS
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	FIGURE 3
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ATTACHMENT A

LABORATORY RESULTS FROM PRE-DESIGN STUDIES (MWH, 2014A AND MWH, 2014B)

Table 3-1 Summary of Geotechnical Laboratory Data - Cover Samples

Cover Layer	Sample	Sample Type (1)	Sample Depth Interval (in)		Material Description (2)	USCS (2)	USDA Classification (3)	Water Content (by mass) (%)	Specific Gravity	Standard Proctor (max. dd@opt. w.c.) (pcf @ %)	Atterberg Limits (%) (5)			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	L.A. Abrasion (6) (% loss)	Sodium Soundness (7) (% loss)	Absorption (8) (%)	Pinhole Dispersion (9)	Remolded Saturated Hydraulic Conductivity (10) (cm/sec)			Confining Stress (psi)	SWCC: -5 bar Water Content (by mass) (%) (10)	SWCC: Saturated Water Content (by mass) (%) (11)
											LL	PL	PI										90%	95%	100%			
Admix. (Gravel/ Soil Mixture)	TI - CS01 - 02A	Bulk	0	11	Clayey Gravel with Sand		Loam							33.3	23.4	43.3	28.0	15.3										
	TI - CS02 - 02A	Bulk	0	10	Clayey Gravel with Sand		Clay Loam		2.81 (4)					36.9	17.0	46.1	28.8	17.3	3.8	0.37	1.06							
	TI - CS03 - 02A	Bulk	0	6	Clayey Gravel with Sand		Loam							53.6	18.7	27.7	18.1	9.6										
	TI - CS04 - 02A	Bulk	0	10	Clayey Gravel with Sand		Loam							53.6	18.2	28.2	18.0	10.2										
	TI - CS05 - 02A	Bulk	0	9	Sandy Lean Clay		Loam							13.9	34.4	51.7	31.2	20.5										
	TI - CS06 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam		2.77 (4)					48.4	18.5	33.1	23.4	9.7	5.7	0.14	1.91							
	TI - CS07 - 02A	Bulk	0	20	Sandy Lean Clay	CL	Loam	7.8			28	13	15	1.1	41.0	60.9	42.4	18.5										
	TI - CS08 - 02A	Bulk	0	8	Clayey Gravel with Sand		Loam							56.7	18.5	24.8	17.2	7.6										
	TI - CS09 - 02A	Bulk	0	9	Clayey Gravel		Loam		2.78 (4)					53.6	14.2	32.2	21.2	11.0	5.1	1.17	1.55							
	TI - CS10 - 02A	Bulk	0	7	Clayey Gravel with Sand		Loam							41.4	19.7	38.9	26.1	12.8										
	TI - CS11 - 02A	Bulk	0	9	Clayey Gravel with Sand		Sandy Loam							30.7	30.1	39.2	26.1	13.1										
	TI - CS12 - 02A	Bulk	0	14	Sandy Lean Clay	CL	Loam	9.1			33	13	20	1.3	28.8	69.9	43.5	26.4										
Radon barrier (clay layer)	TI - CS03 - 04A	Bulk	6	24	Sandy Lean Clay	CL	Loam	6.0			28	14	14	6.3	38.7	55.0	36.1	18.9										
	TI - CS06 - 04A	Bulk	7	24	Sandy Lean Clay	CL	Loam	11.0			30	13	17	6.7	34.2	59.1	40.2	18.9										
	TI - CS10 - 04A	Bulk	7	25	Sandy Lean Clay	CL	Loam	7.7			29	14	15	2.3	39.5	58.2	36.9	21.3										
	TI - CS08 - 04A	Bulk	8	28	Sandy Lean Clay	CL	Loam	8.1	2.67	119.4 @ 11.9	27	12	15	11.3	35.0	53.7	36.7	17.0					9.1E-06	1.1E-05	1.5E-06	24		
	TI - CS05 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Loam	9.6			29	12	17	1.3	37.3	61.4	42.0	19.4										
	TI - CS09 - 04A	Bulk	9	26	Sandy Lean Clay	CL	Loam	7.7			28	13	15	4.0	38.1	57.9	40.0	17.9										
	TI - CS11 - 04A	Bulk	9	24	Sandy Lean Clay	CL	Clay Loam	8.6	2.68	115.0 @ 14.9	32	13	19	5.1	28.4	66.5	40.7	25.8					7.6E-08	1.4E-07	1.0E-07	24		
	TI - CS02 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Sandy Clay Loam	11.4			28	12	16	3.6	44.7	51.7	30.4	21.3										
	TI - CS04 - 04A	Bulk	10	24	Sandy Lean Clay	CL	Clay Loam	15.0	2.68	113.5 @ 15.0	35	15	20	0.9	35.0	68.2	37.2	26.9					4.6E-06	6.2E-06	2.3E-07	8		
	TI - CS01 - 04A	Bulk	11	24	Sandy Lean Clay	CL	Loam	9.2	2.68	117.3 @ 13.0	29	15	14	2.0	39.8	58.2	39.0	19.2				ND3	3.0E-04	4.6E-05	7.8E-07	8	8.6 / 9.6	21.7 / 19.0

Notes: 1. Sample Types: Bulk = bucket/grab sample
2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay
3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.
4. Bulk saturated surface dry (SSD) specific gravity of the gravel fraction, average of three results (ASTM C127).
5. LL = liquid limit, PL = plastic limit, PI = plasticity index
6. L.A. abrasion results are percent loss, by mass, for 100 revolutions.
7. Weighted percent loss for the 3/4-inch to 3/8-inch size range
8. Average of three results for the gravel fraction of the cover gravel/soil mixture samples
9. Pinhole dispersion test (ASTM method A) conducted on a specimen remolded to approximately 95% of the maximum standard Proctor density at optimum water content. ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head.
10. Flexible wall permeameter tests conducted on specimens remolded to approximately 90, 95 and 100% of the maximum standard Proctor density and tested at the confining stresses shown in the table.
11. SWCC test conducted on material passing the No. 10 sieve, remolded to approximately 95% of the maximum standard Proctor density and optimum water content. SWCC tests performed with pairs of specimens for each test.

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment

Area	Boring	Sample Type [9]	Sample Depth Interval (ft.)		Material Description [1]	USCS [1]	Water content (by mass, %) 110C	Water content (by mass, %) 60C	SWCC - Saturated water content (by mass, %) [2]	SWCC - Specimen dry density (pcf) [2]	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) [3]	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) [7]	Collapse potential (%) (inundation load (psf))	Triaxial [12] (peak friction angle (φ) (degrees), cohesion (psf), where applicable)
CENTRAL CELL	TI-B1	CA	16	16.5	Lean Clay with Sand (Fill)	CL	16.2				104.7				33	13	20	0.3	27.2	72.5	42.9	29.6					
	TI-B1	CA	20.5	21	Coarse Tailings		6.1	5.7																			
	TI-B1	CA	21	21.5	Coarse Tailings		7.5		21.9 / 19.8	96.5 / 99.6	105.5							0.0	90.7	9.3	5.5	3.8	3.7E-04	18	0.024		
	TI-B1	ST	27	27.5	Coarse Tailings	SP	4.0				97.6		2.67			NP		0.0	92.7	7.3	5.2	2.1	2.9E-03	14			34.9
	TI-B1	CA	30	30.5	Coarse Tailings		13.9	13.5																			
	TI-B1	CA	30.5	31	Coarse Tailings		14.6		29.6 / 33.8	84.2 / 83.6	91.6												3.0E-07	25	0.092		
	TI-B1	CA (top)	31	31.5	Coarse Tailings		0.8	0.4																			
	TI-B1	CA (bottom)	31	31.5	Fine Tailings	CL		41.6				76.5	2.68	2.69	44	17	27	0.0	30.9	69.1	54.6	14.5					33.3
	TI-B1	CC-AC	32	33	Coarse/Fine Tailings	CL	29.3	27.8							33	16	17	0.0	46.7	53.3	37.4	15.9					
	TI-B1	CA	36	36.5	Clayey Sand		21.0	19.9	36.3 / 33.2	85.2 / 88.0	97.3		2.73					0.0	62.5	37.5	32.8	4.7	1.7E-06	32	0.059		
	TI-B1	CA	41	41.5	Lean Clay with Sand	CL	26.7				98.6				31	15	16	0.0	18.2	81.8	54.7	27.1	1.2E-07	35			
	TI-B1	ST	45	46	Clayey Sand		22	21.2			106.0														0.058		34.4
CENTRAL CELL - BORROW PIT 1	TI-B10	ST (top)	10	11	Coarse Tailings		9.7	9.1			110	110.5	2.63	2.65													
	TI-B10	ST (bottom)	10	11	Coarse Tailings		9.0		20.7 / 21.5	102.6 / 101.2	96.8							0.2	71.9	27.9	16.6	11.3	4.3E-04	34	0.094		
	TI-B10	CC-AC [4] (top)	12.5	14	Coarse Tailings		6.7	6.3					2.61	2.64													
	TI-B10	CC-AC [4] (bot)	12.5	14	Coarse Tailings		7.5		31.3 / 31.4	85.0 / 85.0	99.1							0.7	71.5	27.8	18.9	8.9	6.7E-05	36			
	TI-B10	CA	15	15.5	Coarse Tailings		9.3				103.0																
	TI-B10	CA	16	16.5	Coarse Tailings	SM	6.5				100.0		2.65			NP		2.4	82.3	15.3	10.2	5.1					
	TI-B10	ST	21.5	22.5	Coarse/Fine Tailings	CL	28.1	26.7			91.9	92.9			43	19	24	0.0	43.0	57.0	51.4	5.6			0.111		
	TI-B10	CA	25.75	26	Fine Tailings		43.7	41.0																			
	TI-B10	CA	26	26.5	Fine Tailings	CH	60.4	57.4			63.1	64.3	2.71	2.80	74	27	47	0.0	10.0	90.0	82.6	7.4					
	TI-B10	ST	30.3	30.7	Fine Tailings	CH	47.7	45.3			72.2	73.4	2.71	2.78	57	22	35	0.0	24.3	75.7	68.4	7.3					
	TI-B10	ST	32	32.5	Coarse Tailings	SM	15.4				100.1		2.67			NP		0.0	83.1	16.9	12.6	4.3					
	TI-B10	CA	35	35.5	Fine Tailings		50.2	47.7			71.3	72.5															
	TI-B10	CA	35.5	36	Fine Tailings		54.2	51.4																			
	TI-B10	CA	36	36.5	Coarse/Fine Tailings	SC/CL	33.9	32.2			86.7	87.8	2.68	2.72	36	16	20	0.0	50.6	49.4	31.1	18.3					
	TI-B10	ST (top)	40	41	Fine Tailings		47.3	45.7			70.5	73.7	2.54	2.56													
	TI-B10	ST (bottom)	40	41	Fine Tailings	CH	49.7	47.2	47.7 / 55.7	75.3 / 67.9	73.3	74.5			61	21	40	0.0	20.7	79.3	46.5	32.9	2.9E-08	58	0.315		
	TI-B10	CA	46	46.5	Silty Sand		9.9				95.4		2.74					0.0	65.8	34.2	23.4	10.8					
	TI-B10	ST	55	56	Silty Sand		14.1		25.7 / 24.8	98.0 / 99.9	100.8												2.4E-05	72	0.139		
	TI-B10	CA	66	66.5	Silty Sand / Sandy Silt	SM/ML	13.8				94.5					NP		0.0	50.1	49.9	33.4	16.5					
	TI-B10	CA	71	71.5	Silty Sand		18.1				100.8																
	TI-B10	CA	91	91.5	Clayey Sand		18.6				105.6		2.66														
	TI-B10	CC	106.9	107.3	Sandstone		14.2				109.1												1.4E-07	115			
CENTRAL CELL - BORROW PIT 2	TI-B11	CA	6	6.5	Sandy Clay (Fill)		8.6				93.5																
	TI-B11	ST	15	16	Clayey Sand (Fill)		8.2		16.0 / 16.3	117.7 / 116.6	110.4		2.67					3.9	57.6	38.5	24.6	13.9	2.5E-05	38	0.085		
	TI-B11	CA	21	21.5	Sandy Clay (Fill)		12.3				107.6																
	TI-B11	ST	30.5	31.5	Sandy Clay (Fill)	CL	13.7				112.4				30	13	17	7.1	41.3	51.6	33.9	17.7	9.0E-07	51	0.059		
	TI-B11	CA	45.5	46	Fine Tailings		117.2	88.7																			
	TI-B11	ST	51.5	52.5	Fine Tailings	CH	63.0	59.9			62.5	63.7	2.75	2.84	91	30	61	0.0	2.7	97.3	90	7.3	3.1E-08	67	0.482		
	TI-B11	ST	56	57	Silty Sand	SM	16.2		31.0 / 30.8	90.6 / 92.8	77.9		2.64			NP		0.0	60.4	39.6	31.9	7.7	5.6E-04	72	0.129		
	TI-B11	CA	61	61.5	Sandy Clay		16.0				95.4							0.0	38.7	61.3	44.1	17.2					
	TI-B11	CA	66	66.5	Silty Sand		14.2				96.2																
	TI-B11	CA	81	81.5	Clayey Sand with Gravel		11.0				107.6		2.76					12.9	65.6	21.5	9.9	11.6					
	TI-B11	CA	100	100.2	Sandstone		21.1				103.9												1.3E-05	112			
CENTRAL CELL - BORROW PIT 1	TI-B8	CA	25	25.5	Coarse Tailings		9.0	8.4			103.7	104.2	2.72	2.72													
	TI-B8	CA [5]	25.5	26	Coarse Tailings		6.2		25.7	94.6	99.6							0.0	87.9	12.7	7.9	4.8	3.6E-04	46			
	TI-B8	CA [5]	26	26.5	Coarse Tailings	SM	16.8		27.0	94.8	91.7					NP		0.0	76.0	24.0	19.0	5.0					
	TI-B8	ST	30	31	Fine Tailings	CH	65.1	61.8			61.5	62.7			74	25	49	0.0	9.2	90.8	81.2	9.6			0.426		
	TI-B8	ST	31	31.5	Fine Tailings		44.3	41.4																			
	TI-B8	ST (top)	35	36	Coarse Tailings		14.3	13.6			90.9	91.4	2.66	2.67													
	TI-B8	ST (bottom)	35	36	Coarse Tailings		16.5		31.2 / 39.3	89.3 / 82.3	89.6		2.67										1.6E-05	43			
	TI-B8	ST (top)	41	42	Fine Tailings		41.8	39.7			79.2	80.4	2.60	2.63													
	TI-B8	ST (bottom)	41	42	Coarse/Fine Tailings	SC/CL	35.6	34.3	33.1 / 31.6	88.7 / 90.7	82.8	83.6			35	16	19	0.0	51.2	48.8	40.7	8.1	1.3E-07	53	0.262		
	TI-B8	CC-AC (top)	43.5	44.5	Coarse/Fine Tailings		31.2	29.3			91.0	92.3															
	TI-B8	CC-AC [6] (bot)	43.5	44.5	Fine Tailings		45.6	43.3	47.9 / 49.0	74.4 / 73.6	73.6	74.8						0.0	14.5	85.5	74.7	10.8	3.0E-08	61			

Table 3-4 Summary of Geotechnical Laboratory Data - Mill Site Impoundment (continued)

Area	Boring	Sample Type [9]	Sample Depth Interval (ft.)		Material Description [1]	USCS [1]	Water content (by mass, %) 110C	Water content (by mass, %) 60C	SWCC - Saturated water content (by mass, %) [2]	SWCC - Specimen dry density (pcf) [2]	Dry density (pcf), 110C	Dry density (pcf), 60C	Specific gravity, 110C	Specific gravity, 60C	Atterberg limits (%) LL	PL	PI	USCS % gravel (size)	USCS % sand (size)	% Passing No. 200 sieve	% Silt (size)	USDA % clay (size <0.002 mm)	Saturated Hydraulic conductivity (cm/sec) [3]	Hydraulic conductivity confining stress (psi)	Consolidation (Cc) [7]	Collapse potential (%) (inundation load (psf))	Triaxial [12] (peak friction angle (ϕ') (degrees), cohesion (psf), where applicable)
BORROW PIT 1 (cont.)	TI-B8	CC-AC	44.5	45	Fine Tailings								2.59	2.60													
	TI-B8	CA	46	46.5	Lean Clay with Sand	CL	21.9				95.2		2.72		30	16	14	0.0	27.9	72.1	55.6	16.5					
	TI-B8	CA	56	56.5	Silty Sand	SM	12.6				97.6		2.70			NP		0.0	57.0	43.0	30.9	12.1					
	TI-B8	BULK	63.5	64	Shale		X				X												X	X			
CENTRAL CELL	TI-B15	CA	6	6.5	Coarse Tailings		5.4				101.1							0.0	87.5	12.5	9.8	2.7					
	TI-B15	CA	11	11.5	Coarse Tailings		6.8				93.8																
	TI-B15	CC-AC	13.5	14	Coarse Tailings	SM	19.0	18.4					2.68			NP		0.0	69.6	30.4	22.6	7.8					
	TI-B15	ST	15.5	16	Coarse Tailings	SM	14.2				90.4		2.66			NP		0.0	54.9	15.1	10.1	5.0	8.3E-04	38	0.126		
	TI-B15	CA	21	21.5	Coarse Tailings	SM	12.7				99.8		2.68			NP		0.0	80.6	19.4	13.3	6.1					
	TI-B15	CC-AC	28.5	29.5	Coarse Tailings	SM	19.3						2.66			NP		0.0	65.4	34.6	24.4	10.2					
	TI-B15	CA (top)	31	31.5	Silty Sand		22.3	21.3																			
	TI-B15	CA (bottom)	31	31.5	Silty Sand	SM	17.1				101.8		2.71			NP		6.2	51.9	41.9	25.9	16.0					
	TI-B15	CA	41	41.5	Clayey Sand		11.4	10.1			87.1	88.1															
	TI-B15	CA (top)	46	46.5	Sandy Silt		25.8	24.0																			
	TI-B15	CA (bottom)	46	46.5	Sandy Silt	ML	17.3				99.3		2.81			NP		0.0	37.0	63.0	55.7	7.3					
	TI-B15	CA	56	56.5	Silty Clay		11.7	10.5			104.2	105.3															
	TI-B15	CA	66	66.5	Clayey Sand		12.7	11.8			100.7	101.5															
NORTH CELL	TI-B23	ST	15.5	15.75	Coarse Tailings		20.7	19.6			87.7		2.77					0.0	62.8	37.2	34.1	3.1					
	TI-B23	ST	17.25	17.5	Sandy Clay		22.5				101.9		2.73					0.0	31.1	68.9	46.5	22.5					
	TI-B23	ST	26	27	Lean Clay	CL	21.6				101.7		2.73		49	18	31	0.0	8.8	91.2	43.8	47.5			0.046		
	TI-B23	CA	45.2	45.7	Sandstone		13.8				108.7												2.4E-07	43			
	TI-B23	CA [8]	65.5	66	Shale		10.2				103.0												9.7E-08	62			
	TI-B2	CA	6	6.5	Silty Sand with Gravel (Fill)		7.7				100.4		2.68					26.9	29.9	43.2	30.7	12.5					
	TI-B2	CA	11	11.5	Clayey Sand (fill)		24.5				75.9		2.73					0.0	65.4	34.6	30.3	4.3					
	TI-B2	CC-AC	13.5	14.5	Fine Tailings		41.7	*39.6*										0.0	23.1	76.9	49.2	27.7					
	TI-B2	CA	15	15.5	Silty Sand		6.9				90.4		2.68														
	TI-B2	CA	21	21.5	Silty Sand		7.0				91.4		2.74					0.0	82.9	17.1	11.5	5.6					
	TI-B2	CA	26	26.5	Lean Clay with Sand	CL	23.5				93.2				34	16	18	0.0	20.9	79.1	51.5	27.6					
	TI-B2	BULK	38.4	38.7	Sandstone		13.5				X																
DAM	TI-B3	CA	11	11.5	Silty Sand (dam)		5.1				108.4		2.64					5.4	74.7	19.9	13.5	6.4					
	TI-B3	CA	16	16.5	Silty Sand (dam)		4.7				105.3															-2.8 (2,236)	
	TI-B3	ST	21	22	Sandy Clay (dam)	CL	16.0				111.1				30	12	18	0.0	32.8	67.2	41.7	25.5				-0.03 (2,709)	32.2, 195
	TI-B3	CA	26	26.5	Sandy Clay (dam)		12.0				106.8				25	13	12										
	TI-B3	CA	31	31.5	Sandy Clay (dam)		16.1				108.4																
	TI-B3	ST (top)	35	36	Clayey Sand (dam)		10.5	10.2																			
	TI-B3	ST (bottom)	35	36	Clayey Sand (dam)	SC	14.7				102.2		2.67		23	14	9	2.1	50.2	47.7	30.9	16.8			nc	-0.7 (4,608)	33.7, 135
	TI-B3	CA	41	41.5	Sandy Clay (dam)		21.5				90.6							0.0	33.8	66.2	41.7	24.5					
	TI-B3	CA	45.5	46	Sandy Clay (dam)		17.0	17.7			110.1	109.4															29.3, 293
	TI-B3	CA	46	46.5	Sandy Clay (dam)		18.0				104.8				28	13	15										
	TI-B3	ST	56	57	Lean Clay	CL	22.1	21.1			105.3	106.2	2.72		43	14	29	0.0	11.7	88.3	48.4	39.9				-1.5 (7,204)	22.2, 494
	TI-B3	CA	61	61.5	Silty Clay		25.8				99.0							0.0	22.0	78.0	54.9	23.1					

Notes: 1. Material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available.
2. SWCC tests conducted with pairs of specimens for each test.
3. Flexible wall permeameter tests conducted at confining pressures representing confining stresses for the proposed design fill. Confining stresses were estimated as the existing overburden stress on the specimens (depth times total unit weight of material above) plus the maximum anticipated fill height for the location times the estimated unit weight of fill.
4. Specimen remolded to the in-situ water content and density of the Shelby tube sample from 10-12.5 for the SWCC.
5. Remolded SWCC and permeability tests conducted on a 50-50 mixture of the materials from these two specimens, remolded to the average measured density of the two CA samples.
6. SWCC specimen remolded to the in-situ water content and density of the Shelby tube sample from 41-42 feet.
7. Compression indices estimated using the maximum anticipated loading during fill placement and the range of loading during testing. Initial void ratios are calculated using the average specific gravity for all samples of 2.70.
8. Shale sample had multiple horizontal fractures and was likely disturbed during sampling.

9. Sample Types: CC = continuous core, CC-AC = continuous core in acrylic liner, top/bottom indicates the specimen was taken from the top or bottom of the sample interval
10. Values in italics were calculated based on the relationship (WC60=0.951(WC110)-.0611) between the water content results measured for 15 tailings samples at the two oven temperatures.*
11. Shaded cells are alluvium.
12. Consolidated undrained (CU) triaxial shear, staged loading of one specimen with pore pressure measurements

ST = 3" diam. Shelby tube, CA = California sample
R = remolded, nc = Cc not calculated, because fill will not be placed in this location
X = testing not possible due to sample disturbance
LL = liquid limit, PL = plastic limit, PI = plasticity index

Table 3-5 Summary of Geotechnical Laboratory Data - Borrow Areas

Area	Sample	Sample Type [1]	Sample Depth Interval (ft)		Material Description [2]	USCS [2]	USDA Classification [3]	Water Content (by mass, %)	Dry Density (pcf)	Porosity	Specific Gravity	Standard Proctor (max. dd@opt. w.c.), (pcf @ %)	Atterberg Limits (%) [4]			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	Pinhole Dispersion [5,6]	Remolded Saturated Hydraulic Conductivity (cm/sec) [7]			SWCC: -5 bar Water Content (by mass, %) [8]	SWCC: Saturated Water Content (by mass, %) [8]
													LL	PL	PI							80%	85%	90%		
West Borrow	WB-B1-01A	CA	3.0	3.5	Clayey Sand			3.8	88.8	46.7	2.67															
	WB-B1-03A	CA	11.0	11.5	Clayey Sand	SC	Sandy Loam	6.4	111.0	33.3	2.67		28	18	10	2.8	48.6	48.6	32.8	15.8						
	WB-B1-06	Bulk	5.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.64	112.5 @ 13.7	26	20	6	0.8	52.3	46.9	31.0	15.9	ND3	7.2E-04	5.8E-04	2.1E-04	6.6 / 6.2	31.7 / 32.4
	WB-B2-02A	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	5.6	87.1	47.8	2.67					8.6	53.5	37.9	23.8	14.1						
	WB-B2-05	Bulk	10.0	20.0	Clayey Sand	SC	Sandy Loam						26	17	9	9.9	46.3	43.8	27.7	16.1	ND3	8.5E-05	1.2E-04	6.4E-05	6.4 / 6.7	30.9 / 33.7
	WB-B5-001B	CA	3.0	3.5	Clayey Sand			3.7	92.5	44.3	2.66															
	WB-B5-002A	CA	6.0	6.5	Silty, Clayey Sand	SC-SM	Sandy Loam	5.1	86.9	47.7	2.66		24	17	7	0.0	56.3	43.7	27.8	15.9						
	WB-B5-005	Bulk	0.0	10.0	Silty, Clayey Sand	SC-SM	Sandy Loam					117.3 @ 12.7				0.0	61.6	38.4	22.8	15.6						
East Borrow	EB-B2-001A	CA	3.0	3.5	Weath. Sandstone			5.8	107.1	35.8	2.67															
	EB-B3-003B	CA	10.5	11.0	Sandy Lean Clay	CL	Sandy Loam	6.0	83.1	50.7	2.70		26	15	11	0.0	46.3	53.7	34.9	18.8						
	EB-B4-02A	CA	6.0	6.5	Sandy Lean Clay	CL	Sandy Loam	5.4	80.7	51.2	2.65					0.0	48.5	51.5	33.9	17.6						
	EB-B4-06	Bulk	10.0	20.0	Silty, Clayey Sand	SC-SM	Sandy Loam				2.67	117.1 @ 12.9	23	17	6	0.0	50.5	49.5	32.0	17.5	ND3	8.7E-04	9.0E-04	4.4E-04	4.6 / 4.2	30.8 / 29.8
	EB-B5-02B	CA	5.5	6.0	Clayey Sand	SC	Sandy Loam	6.7	93.8	44.4	2.71		27	15	12	8.8	45.7	45.5	28.8	16.7						
	EB-B6-01B	CA	3.0	3.5	Sandy Clay			7.6	91.2	46.1	2.71															
	EB-B6-03	Bulk	0.0	10.0	Lean Clay with Sand	CL	Clay Loam					114.8 @ 14.1				0.0	26.6	73.4	44.3	29.1	ND3	2.3E-04	3.6E-05	2.9E-05	9.4 / 9.3	32.8 / 32.2
	EB-B6-04A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	8.6	95.2	43.3	2.69		31	13	18	0.0	31.1	68.9	43.8	25.1						
South Borrow	SB-B1-01A	CA	3.5	4.0	Sandy Lean Clay	CL	Sandy Loam	7.1	91.4	49.3	2.89					0.0	43.1	56.9	39.2	17.7						
	SB-B1-03A	CA	11.0	11.5	Sandy Lean Clay	CL	Sandy Clay Loam	6.6	82.6	50.7	2.69		31	15	16	0.0	46.7	53.3	32.9	20.4						
	SB-B1-04	Bulk	0.0	25.0	Sandy Lean Clay	CL	Sandy Clay Loam				2.70	115.5 @ 14.2	33	14	19	0.0	42.6	57.4	30.7	26.7	ND1	2.3E-04	5.7E-05	1.4E-04	6.4 / 5.9	31.9 / 30.3
	SB-B2-02B	CA	5.5	6.0	Sandy Lean Clay	CL	Loam	7.7	80.1	52.6	2.70		36	15	21	0.0	29.8	70.2	45.4	24.8						
	SB-B3-02A	CA	6.0	6.5	Lean Clay with Sand	CL	Clay Loam	10.2	84.3	49.7	2.69		40	17	23	0.0	21.6	78.4	46.2	32.2						
	SB-B4-01	Bulk	0.0	15.0	Sandy Lean Clay	CL	Sandy Clay Loam	7.1			2.67	114.1 @ 14.4	33	15	18	0.8	39.6	59.6	35.7	23.9	ND3	3.4E-04	2.0E-04	7.4E-05	9.1 / 8.6	29.6 / 33.5
North Borrow	NB-B1-03B	CA	10.5	11.0	Silty Sand	SM	Sandy Loam	5.4	84.4	49.5	2.68		25	22	3	0.0	55.6	44.4	30.3	14.1						
	NB-B2-01B	CA	3.0	3.5	Silty Sand	SM	Sandy Loam	4.9	81.9	50.3	2.64		27	23	4	0.0	51.2	48.8	33.9	15.0						
	NB-B2-04	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam					113.9 @ 14.5	26	19	7	0.0	49.0	51.0	32.5	18.5	ND3	4.0E-04	2.7E-04	7.5E-05	4.9 / 4.7	29.5 / 29.9
Dilco Hill	DH-B1-01B	CA	3.0	3.5	Silty Sand			3.5	88.8	46.6	2.66															
	DH-B1-03	Bulk	0.0	10.0	Sandy, Silty Clay	CL-ML	Sandy Loam	5.4			2.67	117.5 @ 13.8	25	19	6	2.0	47.4	50.6	35.0	15.6	ND4	6.3E-04	7.1E-04	2.5E-04	4.2 / 4.1	39.6 / 35.0
	DH-B1-10	Bulk	35.0	45.0	Lean Clay with Sand	CL	Loam	10.3			2.38					1.5	20.9	77.6	60.9	16.7	ND3	1.6E-04	2.5E-05	3.2E-06	5.8 / 6.0	25.7 / 24.5
	DH-B2-03	CA	15.0	15.5	Silty Clay with Sand	CL-ML	Sandy Loam	10.5	96.7	39.2	2.55		29	24	5	0.0	27.7	72.3	66.9	5.4						
	DH-B3-05	Bulk	20.0	30.0	Sandy Lean Clay	CL	Loam	7.3			2.66	116.3 @ 13.0	29	18	11	2.5	34.6	62.9	45.5	17.4						

Notes: 1. Sample Types: CA = California sample, Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. USDA = United States Department of Agriculture, USDA classifications are based on the sand/silt/clay fraction of the sample and on USDA grain-size designations.

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. With the exception of DH-B1-03, which was tested at a density based on the natural in-situ density measured from the CA samples, specimens were remolded to approximately 85% of standard Proctor density and between the estimated natural and optimum water contents for the soil.

6. ND1 = nondispersive clay with very slight to no colloidal erosion under 15-inch or 40-inch head; ND4, ND3 = slightly to moderately dispersive clays that erode slowly under 2-inch or 7-inch head (ASTM test method A)

7. Specimens remolded to approximately 80%, 85%, and 90% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil.

8. Specimens remolded to approximately 85% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil. SWCC tests performed with pairs of speciments for each test.

Table 3-6 Summary of Geotechnical Laboratory Data - Site Stockpiles

Area	Sample	Sample Type (1)	Material Description	USCS (2)	Specific Gravity	Atterberg Limits (%) (4) LL	PL	PI	USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	L.A. Abrasion (% loss) (5)	Sodium Sulfate Soundness (% loss) (6)	Absorption (%) (7)	Unconfined Compressive Strength (psi) (8)	Splitting Tensile Strength (psi) (8)
Stockpiles	Topsoil-01	Bulk	Sandy Clay	CL	2.68	33	10	23	2.6	32.4	65.0					
	Topsoil-02	Bulk	Sandy Clay	CL	2.71	39	12	27	0.5	26.8	72.7					
	TI-SP1-01	Bulk	Crusher Fines						1.9	80.8	17.3					
	TI-SP2-01A	Bulk	Erosion Protection Gravel		2.78 (3)				93.0	6.3	0.7	5.7	8.26	1.868		
	TI-SP2-01C	Bulk	Erosion Protection Gravel						83.3	4.9	11.8					
	TI-SP3-01A	Bulk	Road Base (gravel with sand)						67.4	24.6	8.0					
	TI-SP4-01A	Bulk	Erosion Protection Gravel		2.75 (3)				98.0	1.2	0.8	6.1	10.47	2.091		
	TI-SP6 (56A)	Bulk	9-inch riprap												20,780 and 23,630	1,320 and 1,400
	TI-SP6 (56B)	Bulk	9-inch riprap												19,100 and 14,440	1,530 and 1,720

Notes: 1. Bulk = bucket/grab sample

2. USCS = Unified Soil Classification Sysytem, material descriptions are based on field observations, and refined with laboratory data, if available.
USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay

3. Average of three bulk saturated surface dry (SSD) specific gravity results for the rock samples (ASTM C127)

4. LL = liquid limit, PL = plastic limit, PI = plasticity index

5. L.A. Abrasion results are percent loss, by mass, for 100 revolutions.

6. Weighted percentage loss for 0.75 to 1.5-inch size range

7. Average of three absorption results

8. Specimens were collected from the 9-inch stockpile and cored for strength testing.

Table 3-6 Geotechnical Test Results

Sample ID[1]	Sample Location	Sample Type	Sample Depth Interval		Gravimetric Water content	Dry Density	Specific gravity	Standard Proctor	
		Units:	top (ft bgs)	bottom (ft bgs)	(% by mass)	(pcf)	(g/cm^3)	max. dry density (pcf)[3]	optimum water content (%)
NECR1-CC01	NECR-1	Bulk	10	20			2.68	120.7	11.9
NECR1-CC17		CA[2]	5.5	6	4.9	92.3			
NECR1-CC17		CA	10.5	11	6.2	96.5			
NECR1-CC17		CA	15.5	16	2	106.7			
NECR1-CC17		CA	20.5	21	19.1	95.8			
NECR1-CC17		Bulk	0	10				120.3	11.3
NECR1-CC17		Bulk	10	20				125.1	10
NECR2-CC05	NECR-2	Bulk	0	10				118.8	11.9
NECR2-CC07		Bulk	0	10			2.71	117.8	11.6
NECR2-CC05		CA	2.5	3	8.1	93.7			
NECR2-CC05		CA	5	5.5	10	D[3]			
NECR2-CC06		CA	3.5	4	4.7	101.1			
NECR2-CC07		CA	6	6.5	2.7	101			
NECR2-CC07		CA	5.5	6	4.5	101.3			
NECR2-CC07		CA	10	10.5	4.1	97.1			
NECR2-CC01		CA	5.5	6	7.4	99.1			
NECR2-CC06		CA	3	3.5	5	103.4			
N2D-CC01	NECR-2 Drainage	Bulk	0	10				115.6	13.4
N2D-CC01		CA	3.5	4	8.6	91.2			
N2D-CC01		CA	6	6.5	4.7	87.2			
N2D-CC01		CA	11	11.5	4	91.8			
NMSA-CC02	NEMSA	CA	3	3.5	8.1	110.6			
NMSA-CC02		CA	6	6.5	20	97.5			
NMSA-CC02		CA	10.5	11	15	86.6			
NMSA-CC04		Bulk	0	15			2.66	125.2	9.8
P2-CC04	Pond 2	Bulk	0	3			2.66	102.0	20.6
P3-CC07	Pond 3	Bulk	0	5			2.63	109.7	13.7
SF2-CC01	Sandfill 2	Bulk	0	10			2.65	121.5	10.5
SF3-CC01	Sandfill 3	Bulk	0	10			2.68	121.7	11.1
SF3-CC01		CA	3.5	4	17	99.3			
SF3-CC01		CA	6	6.5	10.5	96.4			
SF3-CC01		CA	11	11.5	8.2	83.5			
SP-CC13	Sediment Pad	CA	5.5	6	10.2	101.4			
SP-CC13		CA	11	11.5	3.5	100.8			
SP-CC13		CA	15.5	16	6.9	97.5			
SP-CC13		Bulk	0	15			2.62	120.6	11.5

Notes:
pcf=pounds per cubic foot
1. Samples collected October-December 2013 during the Pre-Design Studies
2. CA = 2-inch diameter California sample, Bulk = 5-gallon bucket sample
3. Maximum dry density listed includes rock correction
4. D = Disturbed, moisture content only

ATTACHMENT B

TAILINGS DISPOSAL AREA BOREHOLE LOGS (MWH, 2014A)

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/21/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6969.7	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	14"				NA	(0' - 8") SILTY CLAY (FILL) - Light brown, soft, moist silty clay, trace to few very fine to fine sand.												
						(8" - 12") ROCK - 1/2" to 3" crushed basalt.												
1						(1' - 18.5') SILTY CLAY WITH SAND (FILL) - Dark brown, firm to hard, slightly moist silty clay, little to some very fine to fine sand, occasional coarse sand and gravel (upper ~5' may be compacted radon barrier).												
3						[0 - 5' Core not retained.]												
5	24"	CA 18"	1C	8														
			1B	9														
6			1A	11														
		AC	2															
10	30"	CA 18"	3C	10		[Below ~10', occasional elevated rad readings indicating possible sand tailings mixed with silty clay fill.]												
			3B	12														
11			3A	14		(~11' - ~11.5') 1/2" to 1" gravel observed.												
		AC	4															
13																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH | PROJ. LOC.: GALLUP, NM | CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION | BORING LOG | BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	AC	4		NA												
14						(~13 - ~14') - Sand Tailings - see description below, slightly elevated rad readings.]											
15	32"	CA 18"	5C	5													
			5B	6													
16			5A	10			CL	16.2	104.7		33/13/20	0.3	27.2	72.5			
		AC	6														
17																	
18																	
19						(18.5' - 34.3') SAND TAILINGS - Pale gray, dense, moist, fine to medium sand tailings, slightly elevated rad levels.											
20	36"	CA 18"	7C	19													
			7B	22				6.1									
21			7A	24				7.5	105.5			0.0	90.7	9.3	3.7E-4		
22		AC	8														
23																	
24																	
25	30"	ST 28"	9														
26																	
27								4.0	97.6	2.67	NP	0.0	92.7	7.3	2.9E-3		34.9
		AC	10														

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
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HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
28	30"	AC	10		NA													
29						(29.6' - 34.3') Very fine grained sand tailings, abundant clayey zones.												
30	36"	CA 18"	11C	5					13.9									
			11B	5					14.6	91.6						3.0E-7	0.092	
31			11A	4														
							CL		41.6	76.5	2.69	44/17/27	0.0	30.9	69.1			33.3
32		AC	12				CL		27.8			33/16/17	0.0	46.7	53.3			
33																		
34						(34.3' - ~41') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, increasing clay content with depth.												
35	40"	CA 18"	13C	7														
			13B	20														
36			13A	22		(35' - 36.5') High blow counts due to rock in CA shoe.			21.0	97.3	2.73		0.0	62.5	37.5	1.7E-6	0.059	
		AC	14B															
37																		
		AC	14A															
38																		
39																		
40	42"	CA 18"	15C	3														
			15B	5														
41			15A	5		(~41' - ~45') SANDY CLAY - Very moist to wet sandy clay, sand is very fine-grained.	CL		26.7	98.6		31/15/16	0.0	18.2	81.8	1.2E-7		
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
42–45	42"	AC	16		NA													
45	40"	ST 30"	17			(~45' - 54') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, decreasing clay content with depth.			22.0	106.0							.058	34.4
50	42"	CA 18"	18C	4														
			18B	5														
			18A	7														
54						(54' - 68.2') SILTY CLAY - Dark brown, firm, very moist to wet silty clay, trace to few very fine sand.												
55	60"	CA 18"		6														
			19B	7														
			19A	10														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

MWH | CLIENT: GE | UNC

PROJ. LOC.: GALLUP, NM

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B1**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	60"				NA													
58																		
59																		
60	60"	CA 18"		5														
			20B	8														
61			20A	12														
62																		
63																		
64																		
65	60"	CA 18"		5														
			21B	7														
66			21A	11														
67																		
68						(68.2' - E.O.B.) SILTY SAND - Brown, silty, moist very fine to fine sand.												
69																		
70						E.O.B. at 70.0'												
71																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/20/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6959.9	FINISH: 11/21/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 33.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 38.7	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	8"					(0" - 3") SILTY CLAY - Brown, soft, silty clay, dry, trace few very fine to fine sand.												
						(3" - 6") ROCK - 1/2" to 3" crushed basalt.												
1		CA 17"		13		(6" - ~2.5') SILTY CLAY - Dark brown, hard, slightly moist silty clay, few to little very fine sand, occasional coarse sand.												
			1B	11														
2			1A	18		[0' - 5' Core not retained.]												
3						(~2.5' - 7.3') SILTY SAND WITH GRAVEL - Pale yellow, dense, dry to slightly moist silty very fine to medium sand with coarse sand and gravel.												
5	42"	CA 15"		23														
			2B	22														
6			2A	18					7.7	100.4	2.68		26.9	29.9	43.2			
		AC	3															
7		AC	4			(7.3' - 12.8') CLAYEY SAND - Predominantly brown, medium dense, slightly moist to moist clayey fine to medium sand, abundant clay "pockets" throughout. May be sand tailings mixed with site soils.												
10	40"	CA 18"	5C	6														
			5B	7														
11			5A	7					24.5	75.9	2.73		0.0	65.4	34.6			
		AC	6															
12		AC	7															
13						(12.8' - 15') SAND TAILINGS - Pale gray, moist sand												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B2

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
13–15	40"	AC	7			tailings, very fine silty sand from 12.8' to 13.2', fine to medium sand from 13.2' to 15'.			39.6				0.0	23.1	76.9			
15	42"	CA 18"	8C	5		(15' - 25.7') SILTY SAND - Brown, medium dense, moist silty very fine to fine sand, occasional roots. Appears to be natural "alluvium." Occasional dark brown clay lenses. Rad levels ~ background.			6.9	90.4	2.68							
			8B	5														
16			8A	7														
		AC	9															
		AC	10															
20	42"	CA 18"	11C	4														
			11B	4														
21			11A	6					7.0	91.4	2.74		0.0	82.9	17.1			
		AC	12															
		AC	13															
25	48"	CA 18"	14C	5														
			14B	6														
26			14A	6		(25.7' - 33.5') SILTY CLAY - Dark brown, moist, firm to hard, silty clay, trace to few very fine to fine sand, occasional coarse sand.	CL		23.5	93.2		34/16/18	0.0	20.9	79.1			

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B2**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	48"																	
29																		
30	54"	CA 18"	15C	6														
			15B	11														
31			15A	12														
32						(32' - 33.5') Softer (soft to firm).												
33																		
34						(33.5' - 38.7') WEATHERED SANDSTONE - Mottled pale yellow and reddish orange, moist, fissile, lightly cemented, very fine to fine sand.												
35	48"	NR		50/ 1"														
36																		
37																		
38					16	Bag sample of SS Core.			13.5	X								
39						E.O.B. = 38.7' (Practical Auger Refusal)												
40																		
41																		
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.
At 8:30 AM on 11/21/13, water was measured at 38.3' bgs (may be due to overnight precipitation as hole was left open overnight).

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

PROJ. LOC.: GALLUP, NM

BORING LOG

BOREHOLE ID: **TI-B3**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/19/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6968.6	FINISH: 11/19/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	31"					(0' - 0.8') SANDY CLAY FILL - Brown, hard, slightly moist sandy clay, silty, sand is fine-grained.												
0.8						(0.8' - 10.8') GRAVELLY SAND FILL - Pale yellow, dense, slightly moist gravelly very fine to medium sand.												
5	33"	CA 7"		18		[Sample loose - not retained.]												
				50/ 6"														
10	50"	CA 18"	1C	30														
			1B	34														
10.8			1A	43		(10.8' - 16.8') SILTY SAND FILL - Yellow/orange, dense, moist very fine to fine sand, silty, occasional gravel.			5.1	108.4	2.64		5.4	74.7	19.9			

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	50"																	
14																		
15	38"	CA 18"	2C	18														
			2B	21														
16			2A	28					4.7	105.3								
17						(16.8' - 46.5') SANDY CLAY - Dark brown, firm to hard, moist sandy clay, very fine to fine sand.												
18																		
19																		
20	50"	ST 28.5"	3															
21							CL		16.0	111.1		30/12/18	0.0	32.8	67.2			32.2, 195
22																		
23						(22.6' - 26') More sand and gravel.												
24																		
25	52"	CA 18"	4C	10														
			4B	12														
26			4A	16			CL		12.0	106.8		25/13/12						
27																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	52"																	
29																		
30	58"	CA 18"	5C	10														
			5B	10														
31			5A	19					16.1	108.4								
						(31.5' - 36') More sand: Sandy/Silty Clay.												
32																		
33																		
34																		
35	48"	ST 28"	6						10.5									
							SC		14.7	102.2	2.67	23/14/9	2.1	50.2	47.7			33.7, 135
36																		
37																		
38																		
39																		
40	57"	CA 18"	7C	3		(~40') Becomes very moist to wet.												
			7B	7														
41			7A	6					21.5	90.6			0.0	33.8	66.2			
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	57"																
43																	
44																	
45	48"	CA 17"		6													
			8B	7				17.0	110.1								29.3, 293
46			8A	12				18.0	104.8		28/13/15						
47						(46.5' - ~55') SILTY/CLAYEY SAND - Brown, loose, very moist to wet, silty/clayey very fine sand.											
48																	
49																	
50	27"	CA 17"	9C	2		["B" and "C" samples are best.]											
			9B	3													
51			9A	6													
52																	
53																	
54																	
55	30"	ST 24"	10			(~55' - 57.3') SILTY CLAY - Dark brown, firm to hard, wet silty clay, few to little very fine sand.											
56							CL	22.1	105.3	2.72	43/14/29	0.0	11.7	88.3			22.2, 494
57																	

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B3**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
57.3	30"					(57.3' - 61.9') SILTY SAND - Brown, loose, wet, silty very fine to fine sand.												
60	33"	CA 18"	11C	3														
			11B	5														
61			11A	4					25.8	99.0			0.0	22.0	78.0			
61.9						(61.9' - E.O.B.) SILTY CLAY - Dark brown, firm to hard, wet silty clay, trace to few very fine to fine sand.												
65	32"	ST 28"	12															
70						E.O.B. at 70'												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/3/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.1	FINISH: 12/4/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 60.5	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 65.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0						(0' - ~7') SANDY CLAY - Dark brown, slightly moist sandy clay, silty, sand is very fine to fine-grained, occasional coarse sand and fine gravel.												
1						(0' - 20' No sampling. Material descriptions based on cuttings and should be considered approximate.)												
2																		
3																		
4																		
5																		
6																		
7						(~7' - ~18') SAND TAILINGS - Predominantly pale yellowish brown, fine to medium grained, slightly moist, some clayey material.												
8																		
9																		
10																		
11																		
12																		
13																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
14																	
15																	
16																	
17																	
18						(~18' - 20.7') SANDY CLAY - Dark brown, firm to hard, slighly moist sandy clay, very fine to fine sand, few to little coarse sand and fine gravel.											
19																	
20	36"					Begin sampling at 20'											
		AC	8			(20.7' - 26.3') SAND TAILINGS - Pale yellow, medium dense, slightly moist to moist, fine to medium sand tailings, silty.											
21																	
22																	
23																	
24																	
25	54"	CA 18"	2C	7				9.0	103.7	2.72							
			2B	7				6.2	99.6			0.0	87.9	12.7	3.6E-4		
26			2A	10			SM	16.8	91.7		NP	0.0	76.0	24.0			
		AC	3B			(26.3' - ~31') FINE TAILINGS - Soft to firm, moist. (26.3' - 28.8') - Pale yellowish brown, few to little very fine sand.											
27																	
		AC	3A														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE | UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
28	54"	AC	3A															
29						(28.8' - 31') Pale gray, no sand.												
30	24"	ST 23"	4				CH		61.8	62.7		74/25/49	0.0	9.2	90.8		0.43	
31						(~31' - ~32.5') SAND TAILINGS - Pale yellowish brown, medium dense, moist, fine to medium sand, trace silt.			41.4									
32																		
		AC	5			(~32.5' - 35') FINE TAILINGS WITH SAND - Pale gray, soft, moist, very fine to fine sand.												
33																		
34																		
35	30"	ST 28"	6			(35' - 38.6') CLAYEY/SILTY SAND TAILINGS - Pale yellowish gray, soft, moist, very fine to fine sand.			14.3	90.9	2.66							
									16.5	89.6	2.67					1.6E-5		
36																		
37																		
		AC	7															
38																		
						(38.6' - 44.5') FINE TAILINGS - Pale gray, firm, moist, trace to few very fine sand.												
39																		
40	37"	ST 27"	8															
41									39.7	80.4	2.63							
							SC / CL		34.3	83.6		35/16/19	0.0	51.2	48.8	1.3E-7	0.262	
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	37"	AC	9			(42.5' - 43.7') More sand (little to some).											
43																	
								29.3	92.3								
44								43.3	74.8			0.0	14.5	85.5	3.0E-8		
						(44.5' - 60.5') SILTY/CLAYEY SAND - Predominantly yellowish brown, medium dense, moist silty/clayey very fine to fine sand with abundant clay zones (as shown), occasional coarse sand throughout. (44.5' - 47.5') Silty clay with sand.				2.60							
45	48"	CA 18"	10C	6													
			10B	9													
46			10A	10			CL	21.9	95.2	2.72	30/16/14	0.0	27.9	72.1			
47																	
48																	
49						(49' - 50') Reddish brown.											
50	40"	CA 18"		9													
			11B	10													
51			11A	12													
52																	
53																	
						(53.4' - 55') Silty clay with sand.											
54																	
55	42"	CA 18"	12C	8													
			12B	8													
56			12A	8			SM	12.6	97.6	2.70	NP	0.0	57.0	43.0			
57																	

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B8**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
58.7						(58.7' - 59.5') Silty clay with sand.												
59.5						(59.5' - 60') Reddish brown, fine to medium sand.												
60	48"	CA 18"	13C	16														
60.5			13B	22		(60.5' - 61') COAL - sandy.												
61			13A	50/ 4"		(61' - E.O.B.) SHALE - Dark grayish brown, hard to very hard, moist, silty, trace very fine sand.												
63.5					14	(bagged core)												
64	12"					At 64' - becomes fissile, very hard, brittle, more sand (few to little).												
65		CA 2"	15	50/ 2"		65.2' E.O.B. (Practical Auger Refusal at 65.0')												

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM | CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 11/26/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6973.3	FINISH: 11/27/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 105.0	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 108.2	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	21"					(0' - 0.6') SANDY CLAY - Light brown, soft, very moist sandy clay, very fine sand, some roots, silty.												
						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt.												
1						(0.9' - 6.8') SANDY CLAY - Dark brown, hard, slighly moist to moist sandy clay, very fine to fine sand, occasional coarse sand to fine gravel, silty.												
2																		
3																		
4																		
5	45"	CA 17"		12														
			1B	13														
6			1A	19														
7						(6.8' - 18.9') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium, silty sand tailings, occasional more clayey/silty zones.												
8																		
9																		
10	33"	ST 27.5"	2						9.7	110.0	2.63							
									9.0	96.8			0.2	71.9	27.9	4.3E-4	0.094	
11																		
12																		
		AC	3						6.7		2.61							
13									7.5	99.1			0.7	71.5	27.8	6.7E-5		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
	33"	AC	3															
14																		
15	42"	CA 18"	4C	5					9.3	103.0								
			4B	5														
16			4A	5			SM		6.5	100.0	2.65	NP	2.4	82.3	15.3			
		AC	5B															
17																		
		AC	5A															
18																		
19						(18.9' - 24.4') FINE TAILINGS - Pale gray, soft, moist, trace to few fine to medium sand.												
20	36"	ST 30"	6															
21																		
							CL		26.7	92.9		43/19/24	0.0	43.0	57.0		0.111	
22																		
		AC	7															
23																		
24						(24.4' - 25.7') SAND TAILINGS - Pale yellowish gray, loose, moist to very moist, fine to medium sand.												
25	42"	CA 18"	8C	2														
			8B	2		(25.7' - ~31') FINE TAILINGS - Pale gray, soft, moist to very moist, trace to few fine to medium sand.			41.0									
26			8A	3			CH		57.4	64.3	2.80	74/27/47	0.0	10.0	90.0			
		AC	9B															
27																		
		AC	9A															

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	42"	AC	9A															
30	42"	ST 27"	10				CH		45.3	73.4	2.78	57/22/35	0.0	24.3	75.7			
31						(~31' - 33.2') SAND TAILINGS - See description for 24.4' - 25.7'.												
32							SM		15.4	100.1	2.67	NP	0.0	83.1	16.9			
		AC	11															
33						(33.2' - 44.6') FINE TAILINGS - Pale gray, soft, moist to very moist.												
35	48"	CA 18"	12C	2					47.7	72.5								
			12B	2					51.4									
36			12A	2			SC / CL		32.2	87.8	2.72	36/16/20	0.0	50.6	49.4			
		AC	13B			(36.3' - 37.8') Some very fine to fine sand.												
		AC	13A															
40	30"	ST 30"	14						45.7	73.7	2.56							
							CH		47.2	74.5		61/21/40	0.0	20.7	79.3	2.9E-8	0.315	
41																		
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT: GE / UNC	BORING LOG	BOREHOLE ID: TI-B10
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	ST 30" AC	14															
			15															
43																		
44						(44.3' - 44.6') Appears finer grained (clayey), lighter gray, more moist.												
						(44.6' - 85.5') SILTY SAND - Light brown, medium dense, moist, silty very fine to fine sand, occasional coarse sand and fine gravel.												
45	42"	CA 17"		12														
			16B	12														
46			16A	14					9.9	95.4	2.74		0.0	65.8	34.2			
47																		
48																		
49																		
50	48"	CA 18"	17B	10														
			17A	11														
51				14														
52																		
53																		
54																		
55	42"	ST 17"	18						14.1	100.8						2.4E-5	0.139	
56						(~56' - 57.5') Gravelly.												
						(Shelby Tube refusal at 56.5')												
57																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

PROJ. LOC.: GALLUP, NM

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"																	
58																		
59																		
60	39"	CA 18"		11														
			19B	11														
61			19A	14														
62																		
						(62.5' - 65.2') Weathered Sandstone (?) - Hard, moist, gravelly.												
63																		
64																		
65	48"	CA 18"		14														
			20B	14														
66			20A	15			SM / ML		13.8	94.5		NP	0.0	50.1	49.9			
67																		
68																		
69																		
70	30"	CA 18"		4														
			21B	6		(70.5' - 71.5') Moist to very moist, increased clay.												
71			21A	10					18.1	100.8								

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	30"																	
75	42"	CA 18"	22B	5, 7														
76			22A	11														
80	36"	CA 18"	23B	9, 14		(80' - 82') Gravelly (sandstone fragments)												
81			23A	17														
82						(82' - 85.5') Weathered Sandstone - Mottled red/gray/brown, moist, fine to medium weathered sandstone.												
84	NA	3"	24	50/ 3"														
85	50"																	
85.5						(85.5' - 105') CLAYEY SAND - Dark brown, firm, very moist to wet, fine to medium clayey sand, occasional sandstone fragments.												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT: GE / UNC	BORING LOG	BOREHOLE ID: TI-B10
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	50"																	
87																		
88																		
89																		
90	40"	CA 18"		7		[CA sampler wet 11/26/13.] [Water measured at approximately 90.2' bgs at 9:30 11/27/13.]												
			25B	12														
91			25A	10					18.6	105.6	2.66							
92																		
						[Core barrel wet 11/27/13.]												
93																		
94																		
95	52"	NR		1														
				5														
96				8														
97																		
						[Core barrel wet.]												
98																		
99																		
100	44"																	
101																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B10**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	44"																	
102																		
						[Core barrel wet.]												
103																		
104																		
105	36"					(105' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, very moist, very fine to fine sandstone, some cemented zones.												
106						[Core barrel wet.]												
107					26	(106.9' - 107.3') Bagged core sample.			14.2	109.1						1.4E-7		
108		1"		50/ 1.5"	27	(107.9' - 108') Bagged core sample. (108') CA sample not retained.												
						E.O.B. = 108.2 ft at 9:00 on 11/27/13 (practical auger refusal)												
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT:		BOREHOLE ID:
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	TI-B11

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/2/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6977.3	FINISH: 12/3/2013
DRILLER'S HELPER: J. RAMIREZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 96.9	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 103.0	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	19"					(0' - 0.6') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very fine to fine sand, roots, silty.												
						(0.6' - 0.9') ROCK - 1/2" to 3" crushed basalt, silty clay in voids.												
1						(0.9' - 10.3') SANDY CLAY - Dark brown, hard, slightly moist sandy clay, very fine to fine sand, occasional coarse sand and gravel up to 1.5".												
5	30"	CA 17"	1C	12														
			1B	16														
6			1A	15					8.6	93.5								
10	42"	CA 18"	2C	7														
						(10.3' - 12') SILTY SAND - Light brown, medium dense, slightly moist, silty very fine to fine sand.												
			2B	7														
11			2A	8														
12						(12' - 15') SANDY CLAY - Dark brown, firm to hard, slightly moist sandy clay, very fine to fine sand, occasional gravel up to 3" size.												
13																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
13	42"																	
15	45"	ST 13"	3			(15' - 18') CLAYEY SAND - Light yellowish brown, medium dense, slightly moist, fine to medium clayey sand, occasional gravel up to 1".			8.2	110.4	2.67		3.9	57.6	38.5	2.5E-5	0.09	
18						(18' - 32.9') SANDY CLAY - Predominantly dark brown, hard, slighly moist sandy clay, silty, very fine to medium sand, few to little coarse sand and gravel up to ~1" size.												
19.2						(19.2' - 19.4') Sand, very fine to fine.												
20	48"	CA 18"	4C	4														
20.5			4B	7														
21			4A	10					12.3	107.6								
25	56"	CA 18"	5C	7														
25.5			5B	8														
26			5A	13														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	56"																	
30	47"	ST 21"	6				CL		13.7	112.4		30/13/17	7.1	41.3	51.6	9.0E-7	0.06	
32.9						(32.9' - 34') SAND (TAILINGS?) - Pale yellowish gray, slightly moist, fine to medium sand.												
34	NA					(34' - 45.5') SANDY CLAY WITH GRAVEL - Dark brown, firm to hard, moist sandy clay with very fine to coarse sand and gravel up to ~3", some metallic and fibrous debris. [34' - 38' Drilling through metallic debris (appers to be metal siding). Center bit required to penetrate debris. No core collected. CA sample attempted at 34' and 35' - no penetration or recovery.]												
40	51"	CA 3"		25 27 22		[Metallic debris in CA shoe - no sample.]												

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B11

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
43–45	51"																	
45	60"	CA 18"	7C	7		(Photo 310 at 46'.)												
			7B	7		(45.5' - 53.9') FINE TAILINGS - Mottled orange and dark greenish gray (to 50'), pale yellowish gray (50' - 53.9'), firm, moist tailings.			88.7									
46			7A	8		[Photo 311 at 46.5'.]												
50	43"	ST 28"	8															
51.5							CH		59.9	63.7	2.84	91/30/61	0.0	2.7	97.3	3.1E-8	0.48	
52.5		AC	9			[Photo 312 at 52.5']												
54						(53.9' - 55') SILTY CLAY - Dark brown, hard, moist silty clay, trace very fine sand.												
55	48"	ST 25"	10			(55' - 77.5') SILTY SAND - Yellowish brown, medium dense, slighly moist to moist, silty, very fine to fine sand.												
56							SM		16.2	77.9	2.64	NP	0.0	60.4	39.6	5.6E-4	0.129	
57																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	48"																	
		AC	11															
58																		
59																		
60	48"	CA 17"		9														
			12B	11														
61			12A	12		(61.1' - 62.1') Sandy clay.			16.0	95.4			0.0	38.7	61.3			
62																		
63						(63.1' - 64') Sandy clay.												
64																		
65	49"	CA 18"	13C	7														
			13B	7														
66			13A	12					14.2	96.2								
67																		
68																		
69																		
70	44"	CA 18"	14C	7														
			14B	9														
71			14A	10														

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
72	44"																	
						(71.5' - 73.5') Abundant clayey sand zones.												
73																		
74																		
75	38"	CA 18"	15C	7														
			15B	8														
76			15A	11														
77																		
					16	(77.5' - 78') WEATHERED SANDSTONE - Rusty red, moist, fine to medium grained. (Sample #16 is bagged core.)												
78						(78' - 96.9') GRAVELLY SAND - Mottled rusty red/brown/yellow, dense, moist fine to medium sand, silty throughout, some clayey zones, abundant coarse material from coarse sand up to 3" gravel comprised of cemented sandstone.												
79																		
80	42"	CA 18"	17C	16														
			17B	21														
81			17A	21					11.0	107.6	2.76		12.9	65.6	21.5			
82																		
83																		
84																		
85	36"	CA 17"	18C	18														
			18B	21														
86			18A	19														

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	36"					(~86.7' - 87.2) Clayey.											
90	48"	NR		3, 5, 6		(~90' to 96.9') Becomes very moist to wet.											
92						(92' - 92.5') Clayey.											
						[Core barrel is wet.]											
95	55"	CA 14"	19B, 19A	13, 20, 18													
96.9						(96.9' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, moist to very moist, fissile, fine-grained, weakly cemented.											
98					21	(98' - 98.3') Bagged core sample.											
100		CA 2"	20A	50/ 2"				21.1	103.9						1.3E-5		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

unc

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B11**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	FIELD SAMPLE RECOVERY DATA								LABORATORY TEST DATA									
102																		
						(102.5' - 103') Reddish brown, strongly cemented sandstone.												
103						E.O.B. at 103.0' at 10:00 (practical auger refusal)												
104																		
105																		
106																		
107																		
108																		
109																		
110																		
111																		
112																		
113																		
114																		
115																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/5/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6976.8	FINISH: 12/5/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): N/A	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 71.5	

FIELD SAMPLE RECOVERY DATA / LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	18"					(0' - 0.5') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very find sand, roots.												
0.5						(0.5' - 0.8') ROCK - Crushed basalt, up to 3" size, sandy clay in voids.												
0.8						(0.8' - ~3') SANDY CLAY - Dark yellowish brown, hard, moist sandy clay, very fine to fine sand.												
3						(~3' - 30') SILTY SAND TAILINGS - Pale yellowish gray, loose to medium dense, moist, fine to medium sand.												
5	30"	CA 18"	1C	10														
5.5			1B	11														
6			1A	12					5.4	101.1			0.0	87.5	12.5			
6.5		AC	2															
10	30"	CA 18"		3														
10.5			3B	3														
11			3A	3					6.8	93.8								
11.5		AC	4															

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH	CLIENT: GE / UNC	BORING LOG	BOREHOLE ID: TI-B15
PROJ. LOC.: GALLUP, NM	NECR - PRE DESIGN STUDY INVESTIGATION		

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	30"	AC	4			(13.5' - 13.8') Silty sand tailings.	SM		19.0		2.68	NP	0.0	69.6	30.4			
14																		
15	32"	ST 27"	5				SM		14.2	90.4	2.66	NP	0.0	54.9	15.1	8.3E-4	0.126	
16																		
17		AC	6															
18																		
19						(~19.5' to ~25') Becomes slightly finer grained (very fine to medium sand), slightly clayey.												
20	28"	CA 18"	7C	3														
			7B	2														
21			7A	4			SM		12.7	99.8	2.68	NP	0.0	80.6	19.4			
		AC	8															
22																		
23																		
24																		
25	27"	ST 23"	9															
26																		
27		AC	10			(~27' and below) Becomes clayey.												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B15

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	27"	AC	10															
28.5						(~28.5' - 30') Very fine to fine sand	SM		19.3		2.66	NP	0.0	65.4	34.6			
30	36"	CA 18"	11C	6		(30' - ~32') SILTY SAND - Dark brown, medium dense, moist silty sand, very fine to fine sand.												
30.5			11B	7														
31			11A	10					22.3									
31.3							SM		17.1	101.8	2.71	NP	6.2	51.9	41.9			
32		AC	12			(~32' - 38') SILTY CLAY - Dark brown, firm to hard, moist silty clay, trace to few very fine to fine sand.												
35	40"	CA 18"	13C	8														
35.5			13B	12														
36			13A	15														
38						(38' - 45') CLAYEY SAND - Yellowish brown, medium dense, moist clayey very fine to fine sand, silty, occasional 1-6" sandy clay zones.												
40	48"	CA 18"		10														
40.5			14B	9														
41			14A	12					11.4	87.1								

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: GE / UNC

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	48"																	
43																		
44																		
45	26"	CA 18"	15C	13		(45' - 50') SANDY SILT - Dark yellowish brown, hard, moist, very fine to fine sand, occasional clayey sand zones.												
			15B	25														
46			15A	26					25.8									
									17.3	99.3	2.81	NP	0.0	37.0	63.0			
47																		
48																		
49																		
50	24"	CA 18"	16C	6		(50' - 52') CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine sand, silty.												
			16B	8														
51			16A	11														
52						(52' - 65') SILTY CLAY - Dark yellowish brown, firm to hard, moist silty clay, trace to few very fine to fine sand, occasional thin (1-6") clayey sand zones.												
53						(~53' - 55') Very hard, very dense clay.												
54																		
55	18"	CA 18"	17C	10														
			17B	11														
56			17A	12					11.7	104.2								
57																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B15**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	18"																	
58																		
59																		
60	60"	CA 18"	18C	8														
			18B	11														
61			18A	15														
62																		
63																		
64																		
65	40"	CA 18"		6		(65' - E.O.B.) CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine clayey sand, silty, occasional 1-3" zones of sandy clay.												
			19B	8														
66			19A	10					12.7	100.7								
67																		
68																		
69																		
70		CA 18"		7														
			20B	6														
71			20A	9														
						E.O.B. 71.5' at 14:30												

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

PROJ. LOC.: GALLUP, NM	CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION	BORING LOG	BOREHOLE ID: TI-B23

CONTRACTOR INFORMATION	DRILL RIG INFORMATION		BOREHOLE INFORMATION	
DRILLING COMPANY: NATIONAL	DRILLING RIG: CME 85 HD	BIT TYPE: N/A	CASING DEPTH: N/A	START: 12/6/2013
DRILLER: M. CAIN	DRILLING METHOD: HSA/CC	AUGER O.D.: 8.25"	SURFACE ELEV. (FT): 6959.3	FINISH: 12/6/2013
DRILLER'S HELPER: L. ALDAZ	HAMMER TYPE: AUTO	HOLE DIAM.: 8.25"	DEPTH TO BEDROCK (FT): 43.0	
LOGGED BY: R. SCHAUT	HAMMER WT: 140 lb	CORE DIAM.: 3.0"	TOTAL DEPTH (FT): 70.5	

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
0	39"					(0' - 0.6') SANDY CLAY - Light brown, soft, moist, very fine to fine sand, roots.												
						(0.6' - 0.9') ROCK - Crushed basalt, 1/2" - 3", sandy clay in voids.												
1						(0.9' - 5') SANDY CLAY - Firm to hard, slighly moist to moist, sandy clay, very fine to fine sand, occasional coarse sand and very fine gravel.												
2																		
3																		
4																		
5	44"	CA 18"	1C	12		(5' - 7') SILTY SAND WITH GRAVEL - Light brown, medium dense, slightly moist to moist, silty very fine to fine sand with little to some gravel to 2".												
			1B	14														
6			1A	10														
7						(7' - 13.4') SANDY CLAY - See 0.9' to 5' above.												
8																		
9																		
10	42"	CA 16"		5														
			2B	4														
11			2A	6														
12																		
13																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	42"					(13.4' - 14.2') FINE TAILINGS WITH SAND - Pale gray, soft to firm, moist with very fine to fine sand tailings.											
14						(14.2' - ~16') SILTY SAND TAILINGS - Pale yellowish gray, loose, moist, fine to medium sand.											
15	25"	ST 28"	3					20.7	87.7	2.77		0.0	62.8	37.2			
16						(~16' - 20.3') SANDY CLAY - Dark yellowish brown, firm, moist, very fine to fine sand.											
17								22.5	101.9	2.73		0.0	31.1	68.9			
		AC	4														
20	36"	CA 18"	5C	5													
			5B	6		(20.3' - 23') SILTY SAND - Yellowish brown, medium dense, moist, silty very fine to fine sand.											
21			5A	7													
23						(23' - 38.6') SILTY CLAY - Predominantly dark yellowish brown, firm to hard, moist silty clay with varying amount of sand as shown, occasional coarse sand to very fine gravel throughout. (23' - 27.5') Trace to few sand.											
25	39"	ST 30"	6														
26							CL	21.6	101.7	2.73	49/18/31	0.0	8.8	91.2		0.05	
27						(27.5' - 30') Little to some sand.											

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT: NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
28	39"																	
29																		
30	44"	CA 18"		5		(30' - 30.5') Gravelly.												
			7B	6		(30.5' - ~33.5') Little to some sand.												
31			7A	8														
32																		
33						(~33.5' - ~34.3') Clayey sand, very fine to fine.												
34						(~34.3' - 38.6') Few to little sand.												
35	42"	ST 28"	8															
36																		
37																		
38						(38.6' - 40.3') CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine sand, silty.												
39																		
40	25"	CA 18"		6		(40.3' - 43') SILTY CLAY WITH SAND - Dark yellowish brown, firm to hard, moist, silty clay with little to some very fine to fine sand.												
			9B	9														
41			9A	12														
42																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

FIELD SAMPLE RECOVERY DATA | LABORATORY TEST DATA

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	25"																	
43						(43' - 65.5') SANDSTONE - Mostly very pale yellowish gray, moist, mostly non-or weakly cemented very fine to fine sand, some very hard, strongly cemented, fissile zones as shown, some clay zones as shown ("Zone 3"?).												
44						(43' - 43.6') Strongly cemented, fissile. (43.6' - 44') Clay - yellowish brown, firm to hard, moist, slightly silty.												
45	32"	CA 8"	10A	13 50/ 3"		(44' - 45.5') strongly cemented, fissile. (45.5' - 46.2') Clayey sand, yellowish brown.			13.8	108.7						2.4E-7		
46																		
47						(~47' - ~48') Very hard, strongly cemented, fissile.												
	16"																	
48																		
49		CA NR		50/ 4"														
50	29"																	
51																		
52																		
53																		
54																		
55	33"	CA 3"	11A	50/ 5"		(~55' - 63') Coarser (fine to medium).												
56						(~56' - 56.8') Color is reddish yellow.												
57																		

LEGEND:
CA = CALIFORNIA SAMPLE (2-INCH OD)
ST = SHELBY TUBE (3-INCH OD)
AC = ACRYLIC LINER
HSA = HOLLOW-STEM AUGER
CC = CONTINUOUS CORE
NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

MWH

PROJ. LOC.: GALLUP, NM

CLIENT:

NECR - PRE DESIGN STUDY INVESTIGATION

BORING LOG

BOREHOLE ID: **TI-B23**

DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
	33"																	
58																		
59																		
60	24"	CA 3"	12A	50/ 4"														
61																		
62																		
63						(~63 - 65.5') COAL - Black, hard, dry to slightly moist, fissile.												
64																		
65	30"	CA 13"	13B	24														
			13A	50/ 4.5"		(65.5' - E.O.B.) SHALE - Gray, very hard, slightly moist shale, trace silt, non- to weakly-cemented ("Zone 2"?).			10.2	103.0						9.7E-8		
66																		
67																		
68																		
69																		
70		CA 4"	14	50/ 5"														
						E.O.B. 70.5' @ 13:50												
71																		

LEGEND:
- CA = CALIFORNIA SAMPLE (2-INCH OD)
- ST = SHELBY TUBE (3-INCH OD)
- AC = ACRYLIC LINER
- HSA = HOLLOW-STEM AUGER
- CC = CONTINUOUS CORE
- NR = NO RECOVERY

NOTES:
Hole backfilled with cement/bentonite grout.

ATTACHMENT C

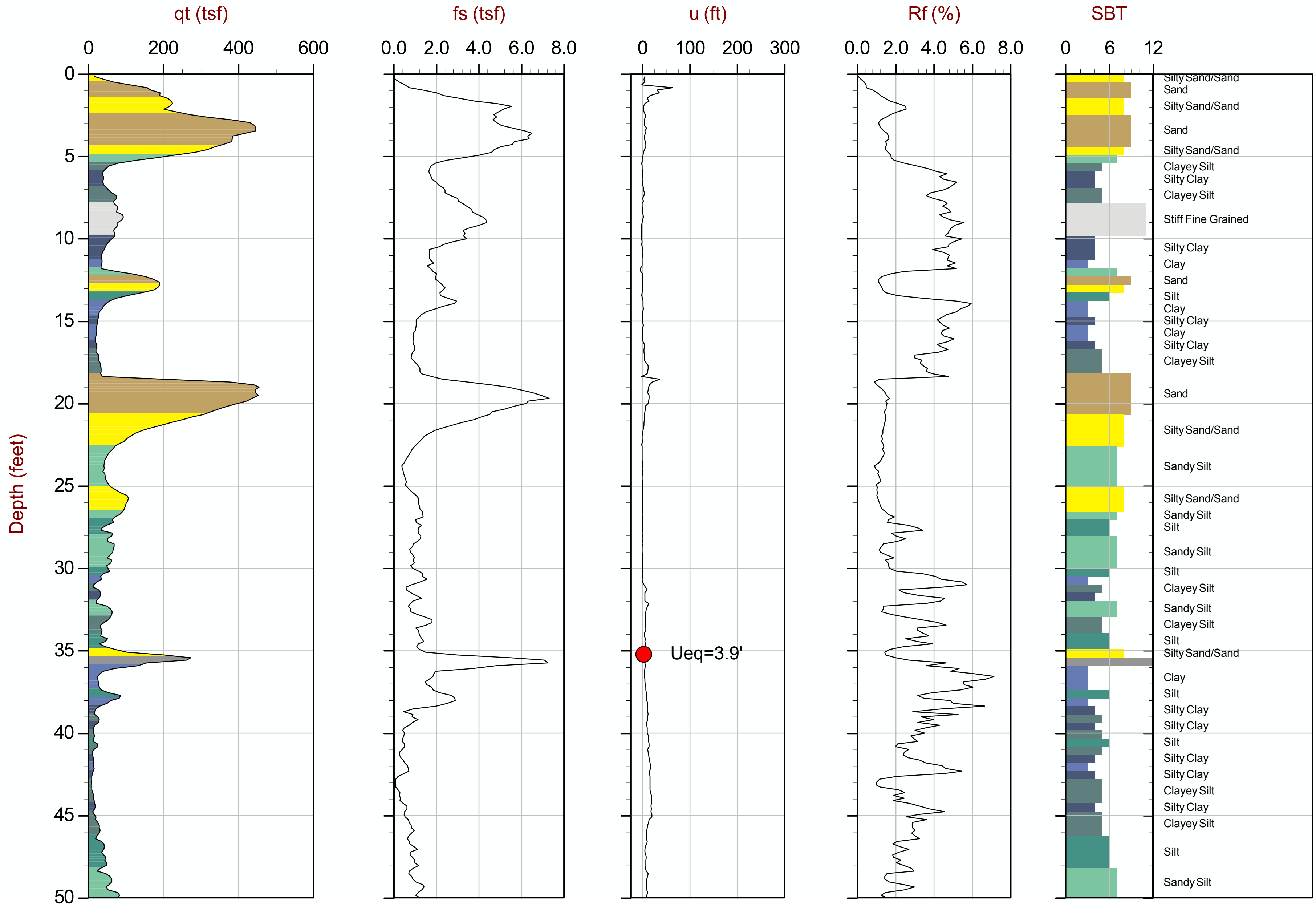
TAILINGS DISPOSAL AREA CONE PENETRATION TEST RESULTS (MWH, 2014A)

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 15:36
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01
Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

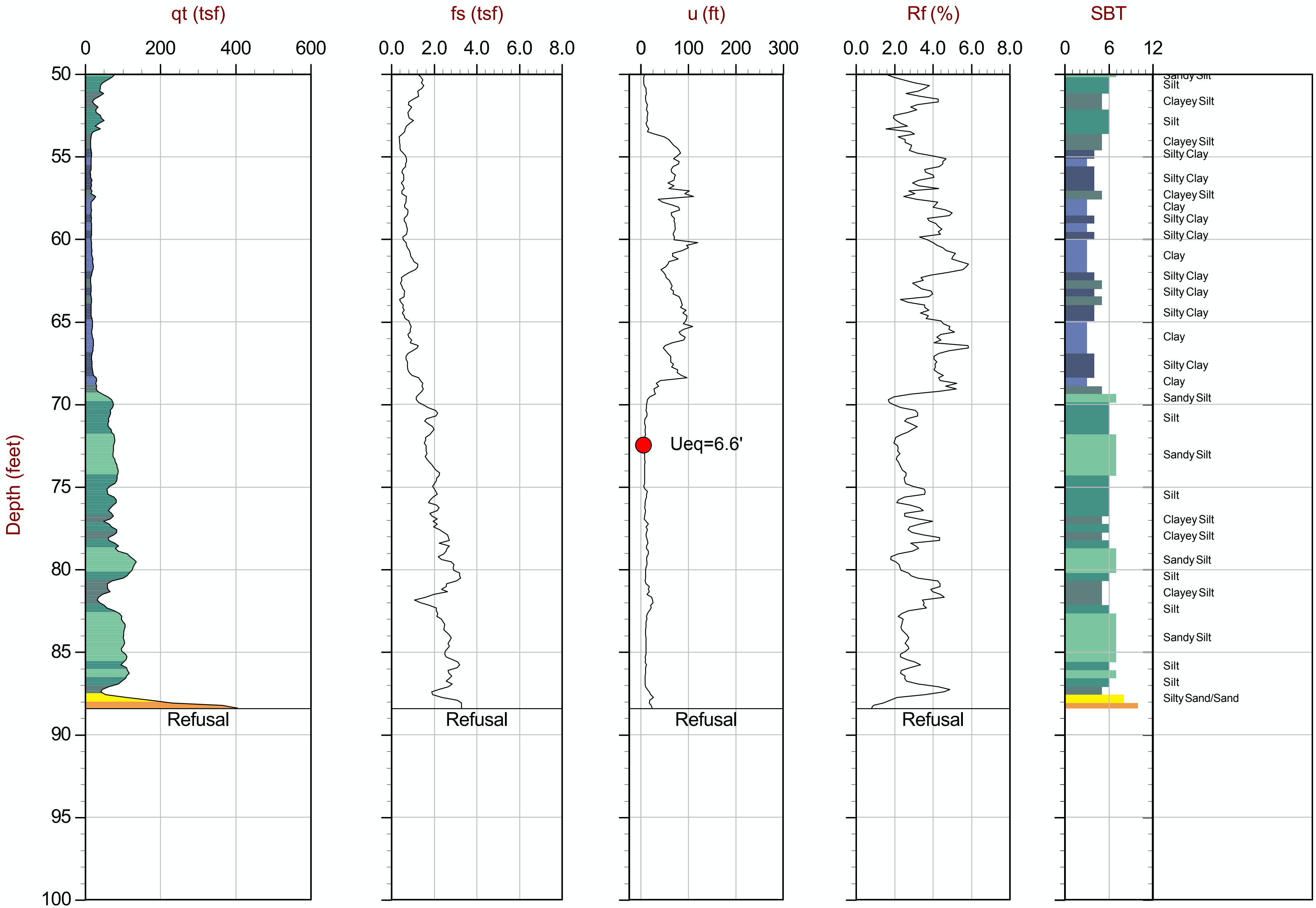
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:07:13 15:36
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01
Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

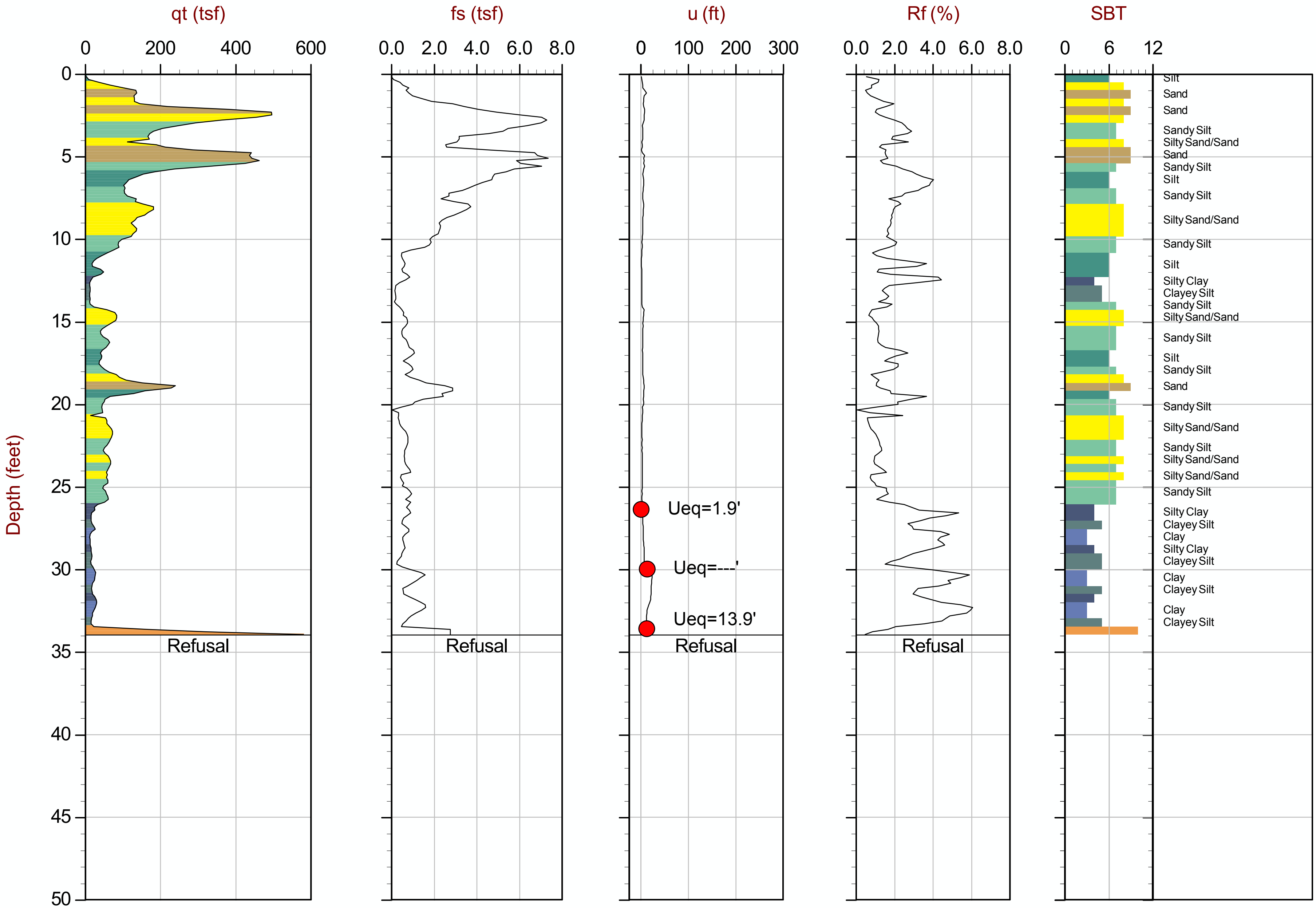
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:05:13 13:37
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02
Cone: 155:T1500F15U500



Max Depth: 10.350 m / 33.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP02.COR
Unit Wt: SBT Chart Soil Zones

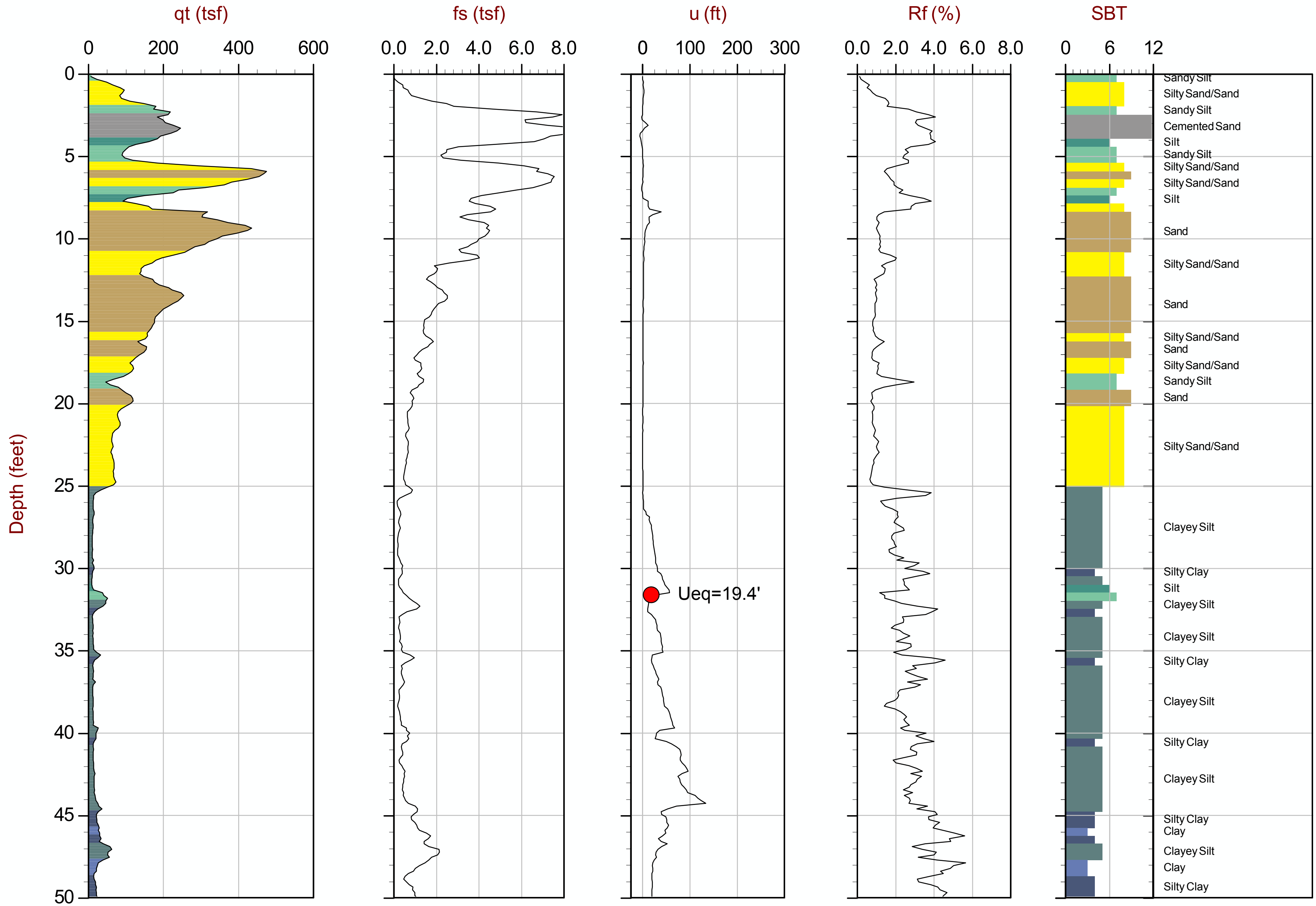
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650200 Long: -108.499750
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 08:21
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08
Cone: 155:T1500F15U500



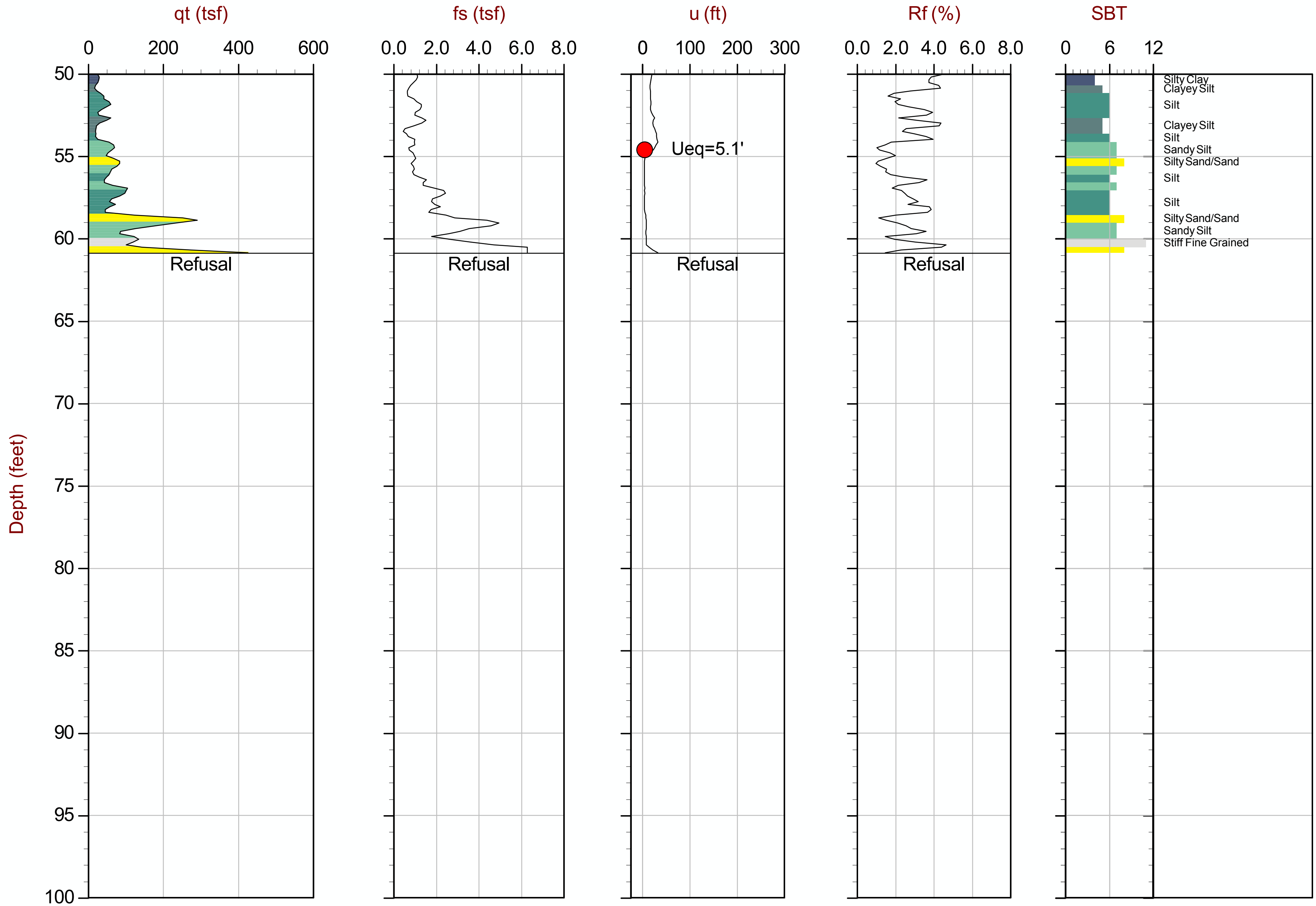
Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
● Equilibrium Pore Pressure from Dissipation

MWH Americas

Job No: 13-52118
Date: 11:07:13 08:21
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-08
Cone: 155:T1500F15U500



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

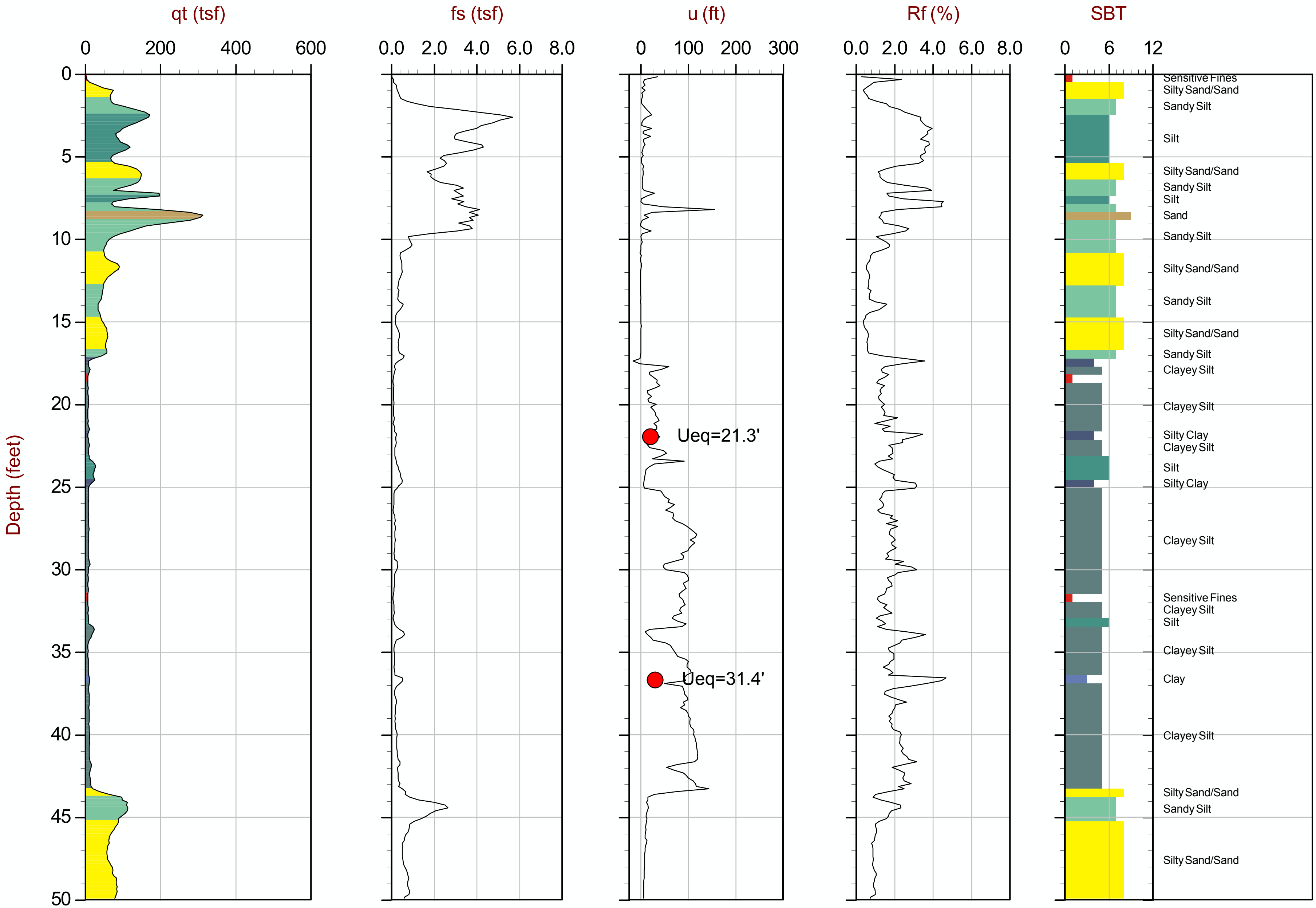
File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:06:13 10:23
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-10
Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

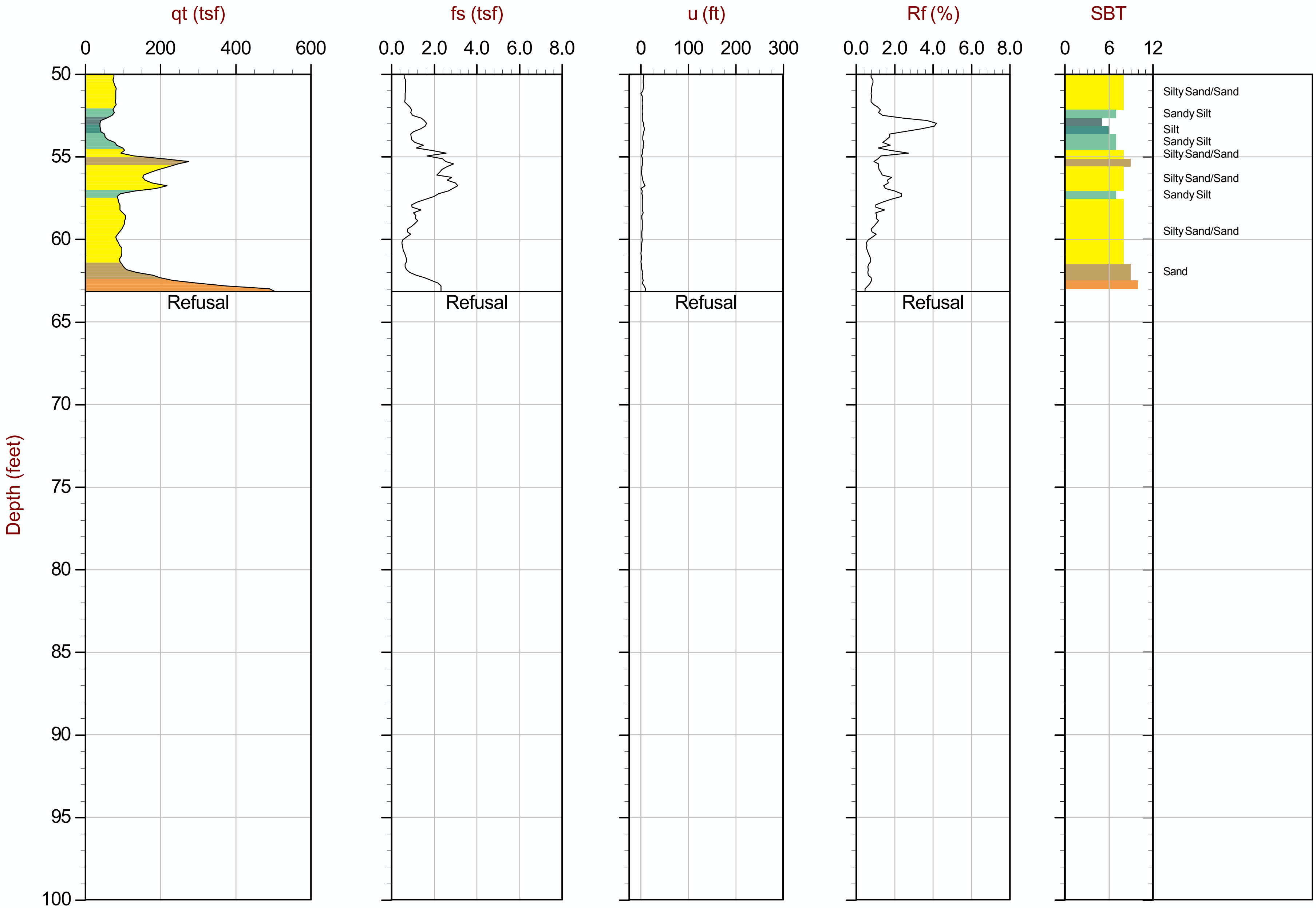
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:06:13 10:23
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10
Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

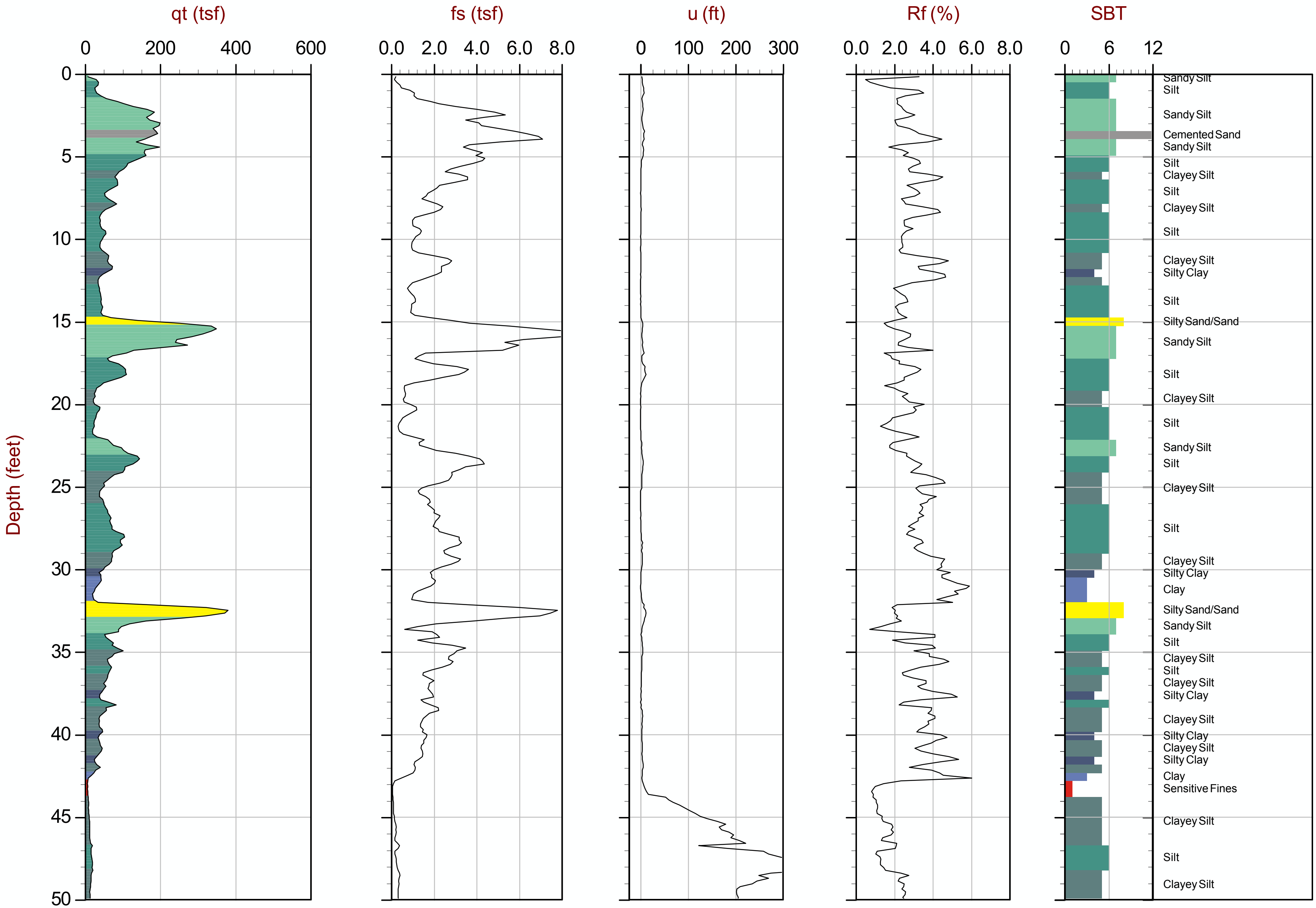
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:07:13 12:13
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11
Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

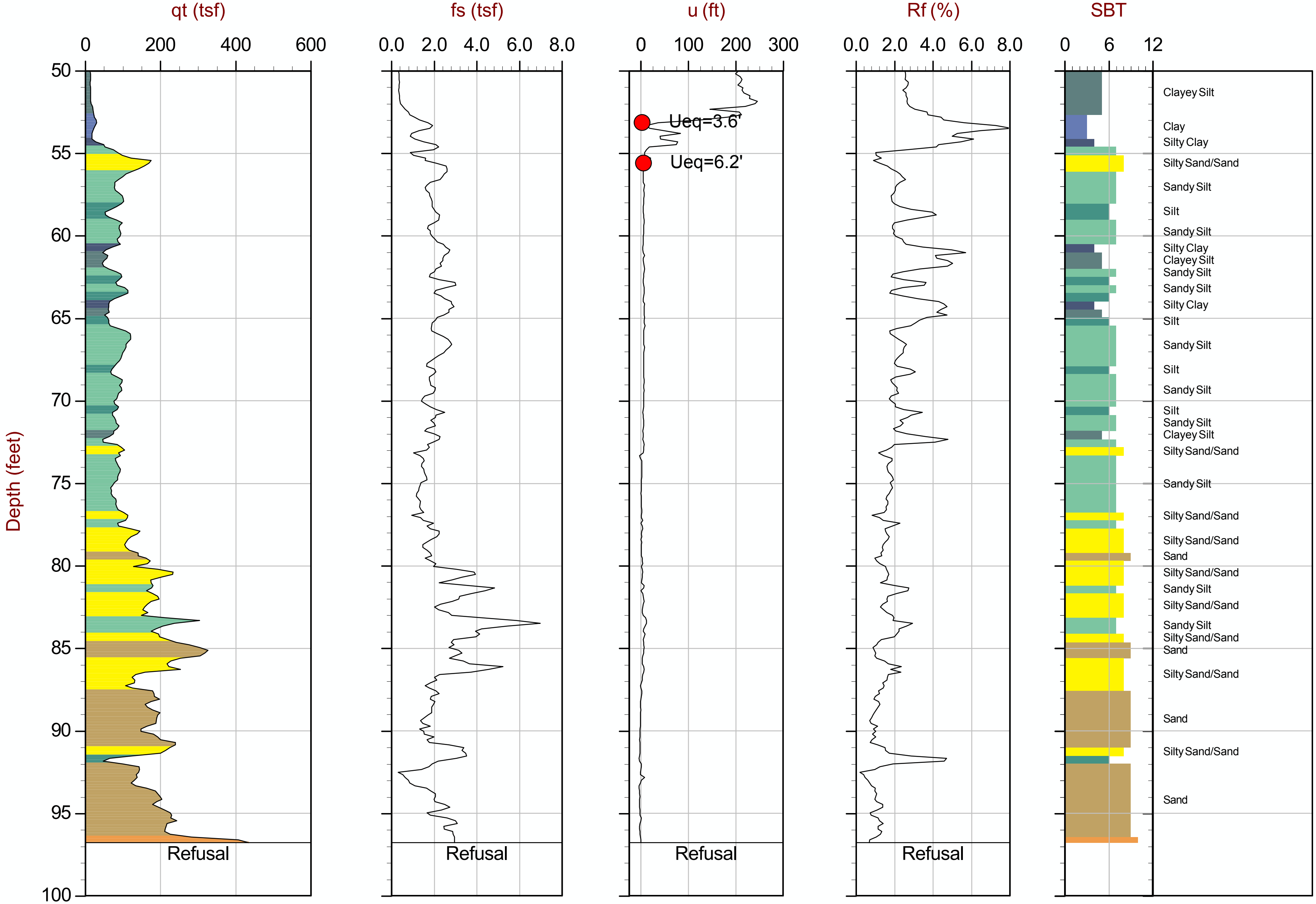
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:07:13 12:13
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11
Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

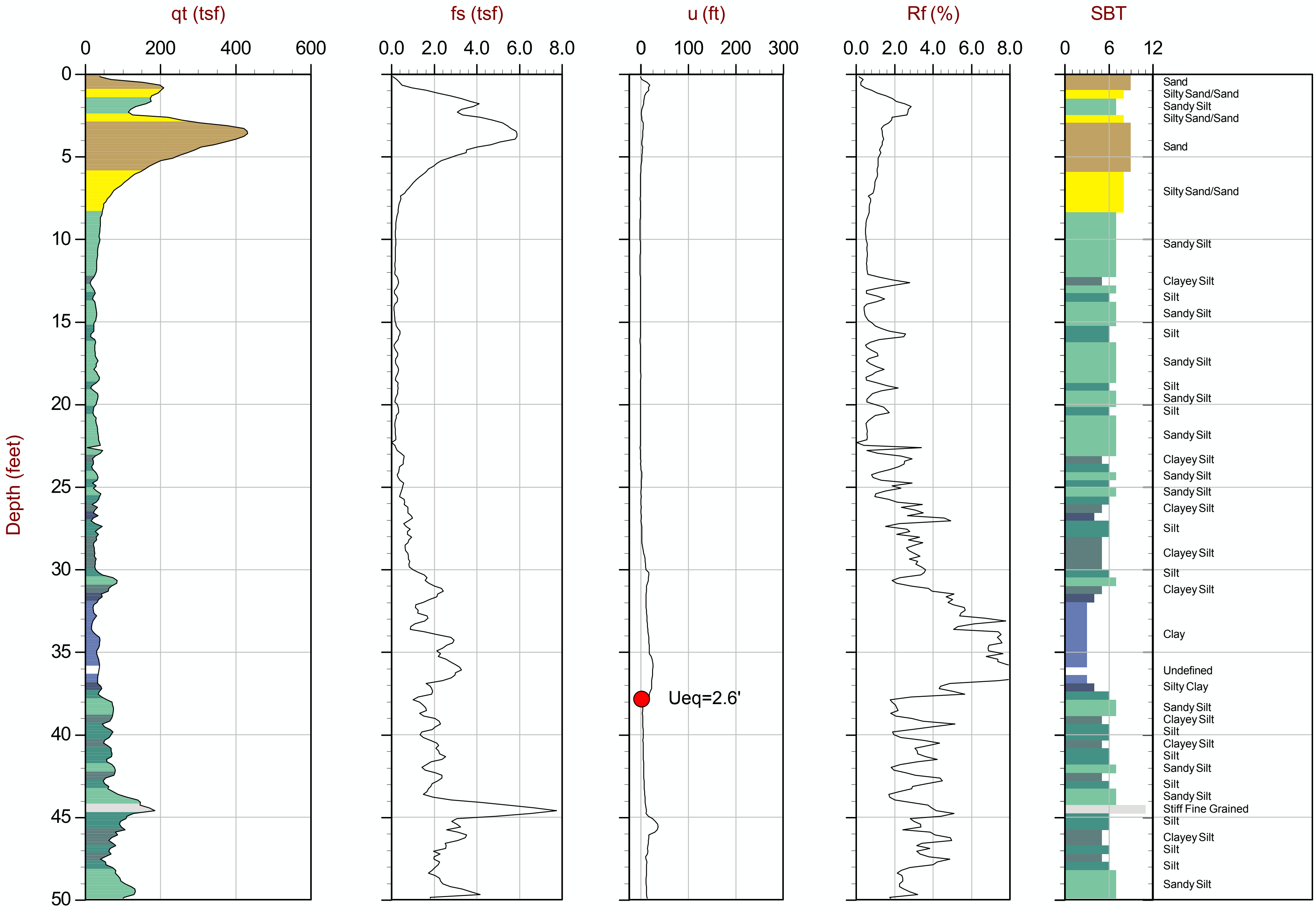
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:06:13 16:32
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15
Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

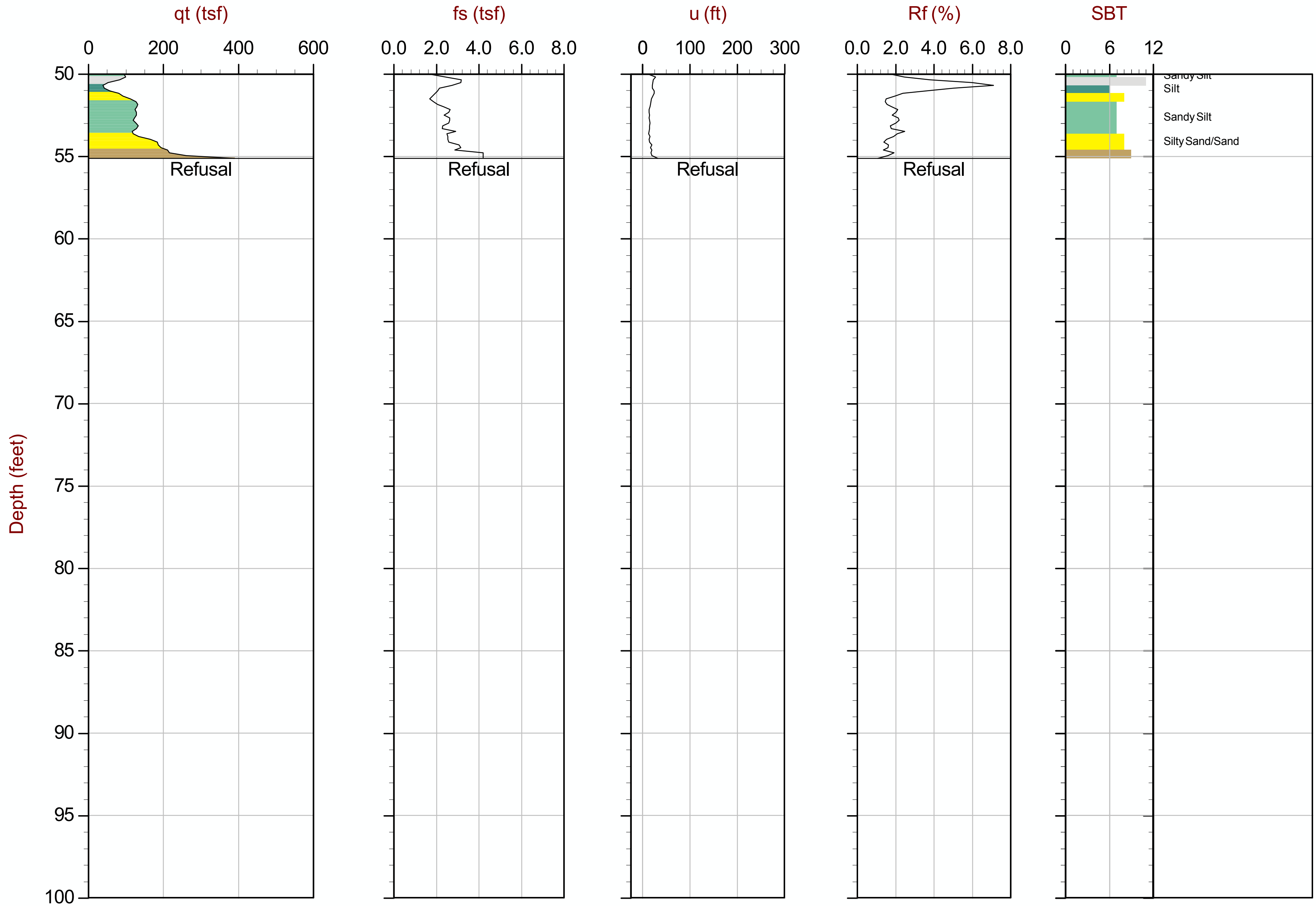
File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
Equilibrium Pore Pressure from Dissipation

ConeTec

MWH Americas

Job No: 13-52118
Date: 11:06:13 16:32
Site: CHURCH ROCK MILL SITE TSF
Sounding: RCPT-15
Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

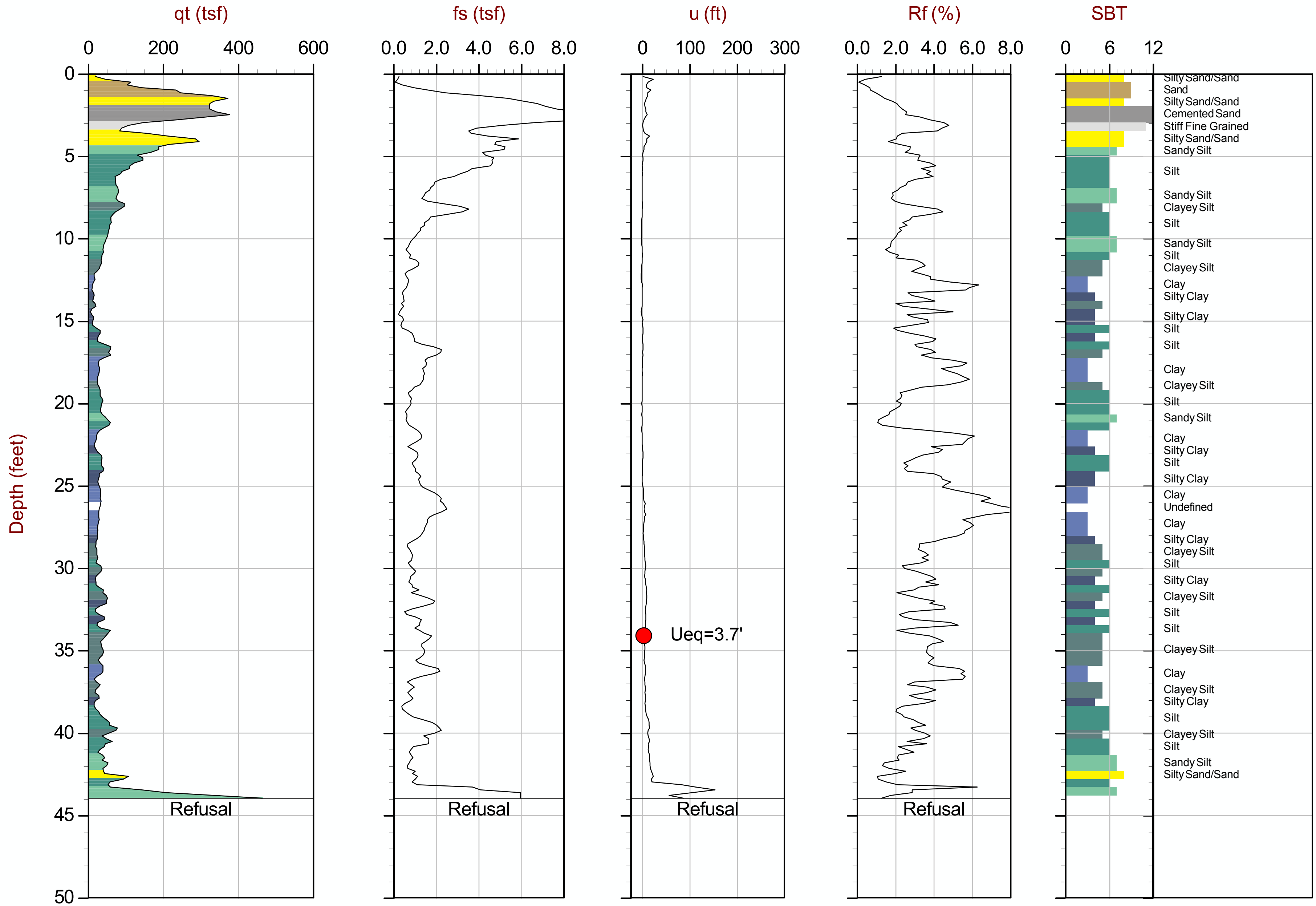
SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
Equilibrium Pore Pressure from Dissipation

CONETEC

MWH Americas

Job No: 13-52118
Date: 11:08:13 16:21
Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-23
Cone: 155:T1500F15U500



Max Depth: 13.400 m / 43.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP23.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650833 Long: -108.497700
● Equilibrium Pore Pressure from Dissipation

ATTACHMENT D

RECORDED WATER LEVELS AT THE MILL SITE (CHESTER ENGINEERS, 2016)

Well ID	Measurement Date	Measurement Time	Historical Reference Elev	Water Level Depth	Water Level Elev
0509 D	1/4/2016	8:37	6949.44	82.89	6866.55
EPA 23	1/4/2016	9:30	6926.31	59.52	6866.79
GW 1	1/4/2016	14:20	6916.46	65.01	6851.45
GW 2	7/6/2015	14:25	6912.88	58.96	6853.92
GW 3	7/7/2015	10:50	6910.04	56	6854.04
632	1/4/2016	12:35	6903.49	48.05	6855.44
EPA 25	1/5/2016	10:35	6903.38	56.62	6846.76
EPA 27	1/12/1999		6910.95	55.45	6855.5
EPA 28	1/4/2016	15:20	6917.86	65.83	6852.03
624	1/4/2016	16:35	6898.57	53.61	6844.96

Note: Water levels provided by email from Chester Engineers, on April 20, 2016.

ATTACHMENT E

LIQUEFACTION TRIGGERING ANALYSIS CALCULATIONS

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-01

Data File: 13-52118_RP01-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP02-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Parameter
0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ratio, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6969.96	Ground Surface Elevation at time of CPT (ft amsl)
6972.06	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after Placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
0.13	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6954.95	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom of Layer (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6972.1	6971.3	6970.6	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6970.6	6970.3	6970.0	0.6	0.057	113.3	0.126	0.109	0.00	0.00	0.126	0.109
Mine Spoils	6970.0	6970.0	6970.0	0.0	0.058	116.4	0.126	0.126	0.00	0.00	0.126	0.126

*Note that the thickness of the cover soil is less at this location due to being located at the edge of the repository. This location does not include any mine spoils placed, and reduced cover thickness due to the new cover being tied into the existing cover.

2013 CPT Data from ConeTec / CPT Data Interpretations

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at time of CPT (tsf)	Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No
0.164	6969.80	16.2	0.010	16.1	5.1	2.20	0.06%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0
0.328	6969.63	42.1	0.084	42.1	3.5	1.53	0.20%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0
0.492	6969.47	69.1	0.265	69.0	4.0	1.75	0.38%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0
0.656	6969.30	112.7	0.532	112.8	-1.5	-0.65	0.47%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0
0.820	6969.14	156.8	0.733	156.4	63.7	27.59	0.47%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0
0.984	6968.98	167.1	1.370	166.9	30.9	13.40	0.82%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0
1.148	6968.81	191.0	2.019	190.8	35.7	15.47	1.06%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0
1.312	6968.65	190.2	2.339	190.1	15.5	6.73	1.23%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0
1.476	6968.48	212.1	3.122	212.1	9.7	4.19	1.47%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0
1.640	6968.32	221.1	3.843	221.0	13.9	6.02	1.74%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0
1.804	6968.16	224.7	4.838	224.7	4.7	2.03	2.15%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0
1.968	6967.99	217.7	5.537	217.7	2.0	0.88	2.54%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0
2.133	6967.83	201.2	5.163	201.2	2.1	0.89	2.57%	General Fill	0.057	113.8	0.13	0.000	0.13	0
2.297	6967.66	234.6	4.924	234.6	2.7	1.16	2.10%	General Fill	0.057	113.8	0.14	0.000	0.14	0
2.461	6967.50	272.0	4.716	272.0	5.6	2.44	1.73%	General Fill	0.057	113.8	0.15	0.000	0.15	0
2.625	6967.34	314.3	4.833	314.2	6.3	2.75	1.54%	General Fill	0.057	113.8	0.16	0.000	0.16	0
2.789	6967.17	380.9	4.667	380.8	3.6	1.55	1.23%	General Fill	0.057	113.8	0.17	0.000	0.17	0
2.953	6967.01	430.6	4.848	430.6	3.9	1.67	1.13%	General Fill	0.057	113.8	0.18	0.000	0.18	0
3.117	6966.84	443.0	5.051	443.0	3.7	1.59	1.14%	General Fill	0.057	113.8	0.19	0.000	0.19	0
3.281	6966.68	446.4	5.599	446.4	9.0	3.90	1.25%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.445	6966.52	445.2	6.173	445.2	4.8	2.09	1.39%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.609	6966.35	418.4	6.499	418.4	5.9	2.56	1.55%	General Fill	0.057	113.8	0.21	0.000	0.21	0
3.773	6966.19	384.7	6.314	384.7	3.9	1.69	1.64%	General Fill	0.057	113.8	0.22	0.000	0.22	0
3.937	6966.02	383.8	6.364	383.8	4.0	1.75	1.66%	General Fill	0.057	113.8	0.23	0.000	0.23	0
4.101	6965.86	382.3	5.669	382.3	6.3	2.73	1.48%	General Fill	0.057	113.8	0.24	0.000	0.24	0
4.265	6965.70	359.7	5.575	359.7	6.8	2.93	1.55%	General Fill	0.057	113.8	0.25	0.000	0.25	0
4.429	6965.53	337.4	5.041	337.4	7.1	3.09	1.49%	General Fill	0.057	113.8	0.26	0.000	0.26	0
4.593	6965.37	317.8	4.730	317.7	4.5	1.95	1.49%	General Fill	0.057	113.8	0.27	0.000	0.27	0
4.757	6965.20	284.3	4.604	284.3	2.4	1.02	1.62%	General Fill	0.057	113.8	0.28	0.000	0.28	0
4.921	6965.04	230.5	4.034	230.5	0.8	0.36	1.75%	General Fill	0.057	113.8	0.29	0.000	0.29	0
5.085	6964.88	179.6	3.217	179.6	-0.2	-0.10	1.79%	General Fill	0.057	113.8	0.30	0.000	0.30	0
5.249	6964.71	129.2	2.502	129.2	0.9	0.39	1.94%	General Fill	0.057	113.8	0.31	0.000	0.31	0
5.413	6964.55	81.8	1.983	81.8	-1.4	-0.61	2.43%	General Fill	0.057	113.8	0.32	0.000	0.32	0
5.577	6964.38	56.9	1.757	56.9	-1.3	-0.57	3.09%	General Fill	0.057	113.8	0.33	0.000	0.33	0
5.741	6964.22	46.0	1.697	46.0	-0.7	-0.30	3.69%	General Fill	0.057	113.8	0.34	0.000	0.34	0
5.905	6964.06	39.7	1.645	39.7	0.1	0.02	4.14%	General Fill	0.057	113.8	0.34	0.000	0.34	0
6.069	6963.89	36.1	1.690	36.1	-0.2	-0.08	4.68%	General Fill	0.057	113.8	0.35	0.000	0.35	0
6.234	6963.73	40.7	1.753	40.7	0.4	0.18	4.30%	General Fill	0.057	113.8	0.36	0.000	0.36	0
6.398	6963.56	40.1	1.814	40.1	0.6	0.26	4.52%	General Fill	0.057	113.8	0.37	0.000	0.37	0
6.562	6963.40	38.3	1.996	38.3	0.2	0.10	5.21%	General Fill	0.057	113.8	0.38	0.000	0.38	0
6.726	6963.23	42.1	2.110	42.1	-0.1	-0.06	5.02%	General Fill	0.057	113.8	0.39	0.000	0.39	0
6.890	6963.07	48.4	2.317	48.4	2.3	0.98	4.79%	General Fill	0.057	113.8	0.40	0.000	0.40	0
7.054	6962.91	53.7	2.416	53.7	2.4	1.06	4.50%	General Fill	0.057	113.8	0.41	0.000	0.41	0
7.218	6962.74	63.1	2.420	63.1	4.3	1.85	3.83%	General Fill	0.057	113.8	0.42	0.000	0.42	0
7.382	6962.58	74.5	2.677	74.5	3.5	1.53	3.59%	General Fill	0.057	113.8	0.43	0.000	0.43	0
7.546	6962.41	76.0	3.010	76.0	0.5	0.20	3.96%	General Fill	0.057	113.8	0.44	0.000	0.44	0
7.710	6962.25	67.3	3.053	67.2	1.9	0.83	4.54%	General Fill	0.057	113.8	0.45	0.000	0.45	0
7.874	6962.09	69.1	3.249	69.1	-0.9	-0.41	4.70%	General Fill	0.057	113.8	0.46	0.000	0.46	0
8.038	6961.92	76.9	3.433	76.9	-0.5	-0.20	4.46%	General Fill	0.057	113.8	0.47	0.000	0.47	0
8.202	6961.76	76.9	3.662	76.9	-0.2	-0.08	4.76%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.366	6961.59	75.6	3.700	75.6	0.4	0.18	4.89%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.530	6961.43	91.7	3.940	91.7	0.8	0.33	4.30%	General Fill	0.057	113.8	0.49	0.000	0.49	0
8.694	6961.27	93.1	4.178	93.1	1.6	0.71	4.49%	General Fill	0.057	113.8	0.50	0.000	0.50	0
8.858	6961.10	89.5	4.338	89.5	0.2	0.08	4.85%	General Fill	0.057	113.8	0.51	0.000	0.51	0
9.022	6960.94	78.4	4.367	78.4	-1.2	-0.53	5.57%	General Fill	0.057	113.8	0.52	0.000	0.52	0
9.186	6960.77	79.0	4.004	79.0	-1.8	-0.79	5.07%	General Fill	0.057	113.8	0.53	0.000	0.53	0
9.350	6960.61	72.1	3.530	72.1	-2.6	-1.14	4.90%	General Fill	0.057	113.8	0.54	0.000	0.54	0
9.514	6960.45	68.0	3.272	68.0	-3.1	-1.36	4.81%	General Fill	0.057	113.8	0.55	0.000	0.55	0
9.678	6960.28	70.6	3.353	70.6	-2.2	-0.96	4.75%	General Fill	0.057	113.8	0.56	0.000	0.56	0
9.842	6960.12	71.4	3.285	71.5	-2.2	-0.94	4.60%	General Fill	0.057	113.8	0.57	0.000	0.57	0
10.006	6959.95	62.4	3.418	62.4	-2.0	-0.85	5.48%	General Fill	0.057	113.8	0.58	0.000	0.58	0
10.170	6959.79	55.6	2.815	55.6	-0.7	-0.30	5.06%	General Fill	0.057	113.8	0.59	0.000	0.59	0
10.335	6959.63	49.2	2.360	49.2	-1.9	-0.83	4.80%	General Fill	0.057	113.8	0.60	0.000	0.60	0
10.499	6959.46	45.0	2.147	45.0	-0.8	-0.36	4.77%	General Fill	0.057	113.8	0.61	0.000	0.61	0
10.663	6959.30	42.4	1.673	42.4	-0.2	-0.08	3.95%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.827	6959.13	37.6	1.695	37.6	-0.8	-0.36	4.51%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.991	6958.97	35.2	1.694	35.3	-0.1	-0.04	4.81%	General Fill	0.057	113.8	0.63	0.000	0.63	0
11.155	6958.81	35.4	1.677	35.4	-0.9	-0.41	4.74%	General Fill	0.057	113.8	0.64	0.000	0.64	0
11.319	6958.64	36.7	1.729	36.7	-0.7	-0.29	4.71%	General Fill	0.057	113.8	0.65	0.000	0.65	0
11.483	6958.48	37.0	1.894	37.0	-0.7	-0.29	5.12%	General Fill	0.057	113.8	0.66	0.000	0.66	0
11.647	6958.31	34.0	1.595	34.0	-0.8	-0.36	4.69%	General Fill	0.057	113.8	0.67	0.000	0.67	0
11.811	6958.15	33.6	1.739	33.7	-4.6	-1.97	5.17%	General Fill	0.057	113.8	0.68	0.000	0.68	0
11.975	6957.99	74.4	1.842	74.4	-3.9	-1.71	2.48%	General Fill	0.057	113.8	0.69	0.000	0.69	0
12.139	6957.82	114.3	2.031	114.3	0.4	0.18	1.78%	General Fill	0.057	113.8	0.70	0.000	0.70	0
12.303	6957.66	152.5	1.987	152.5	0.4	0.18	1.30%	General Fill	0.057	113.8	0.71	0.000	0.71	0
12.467	6957.49	174.4	1.981	174.4	0.1	0.04	1.14%	General Fill	0.057	113.8	0.72	0.000	0.72	0
12.631	6957.33	188.8	2.144	188.8	0.0	0.00	1.14%	General Fill	0.057	113.8	0.73	0.000	0.73	0
12.795	6957.17	190.8	2.281	190.8	0.0	0.00	1.20%	General Fill	0.057	113.8	0.74	0.000	0.74	0
12.959	6957.00	185.8	2.421	185.8	0.0	0.00	1.30%	General Fill	0.057	113.8	0.75	0.000	0.75	0
13.123	6956.84	173.6	2.319	173.6	-0.2	-0.08	1.34%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0
13.287	6956.67	141.9	2.166	141.9	-0.6	-0.26	1.53%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0
13.451	6956.51	104.4	2.194	104.4	-1.4	-0.61	2.10%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0
13.615	6956.35	74.1	2.570	74.1	-0.1	-0.06	3.47%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0
13.779	6956.18	56.9	2.954	56.9	0.8	0.36	5.20%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0
13.943	6956.02	48.2	2.863	48.2	1.1	0.47	5.94%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0
14.107	6955.85	40.4	2.323	40.4	0.9	0.39	5.76%	General Fill	0.057	113.8	0.81	0.000	0.81	0
14.271	6955.69	36.0	1.938	36.0	1.9	0.81	5.38%	General Fill	0.057	113.8	0.82	0.000	0.82	0
14.436	6955.52	29.2	1.513	29.2	-0.2	-0.08	5.18%	General Fill	0.057	113.8	0.83	0.000	0.83	0
14.600	6955.36	27.8	1.299	27.9	-0.2	-0.08	4.66%	General Fill	0.057	113.8	0.84	0.000	0.84	0
14.764	6955.20	27.1	1.213	27.1	0.4	0.16	4.48%	General Fill	0.057	113.8	0.85	0.000	0.85	0
14.928	6955.03	25.5	1.069	25.5	0.4	0.16	4.19%	General Fill	0.057	113.8	0.85	0.000	0.85	0
15.092	6954.87	24.5	1.064	24.5	0.3	0.14	4.34%	General Fill	0.057	113.8	0.86	0.000	0.86	0

CPT Data Interpretations / Conditions at t_1

Depth (ft)	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_0 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? 1=Yes 0=No	susceptible or mod susceptible to 1=Yes 0=No
0.164	1.70	27.421	2.63	33.64	1611	0.06%	0.3	59%	0.14	0.000	0.14	0	0
0.328	1.70	71.519	6.85	87.62	2098	0.20%	0.5	59%	0.15	0.000	0.15	0	0
0.492	1.70	117.351	11.24	143.75	2294	0.38%	0.8	59%	0.16	0.000	0.16	0	0
0.656	1.70	191.675	18.36	234.69	2809	0.47%	0.9	59%	0.17	0.000	0.17	0	0
0.820	1.70	265.897	25.47	326.42	3126	0.47%	0.9	59%	0.18	0.000	0.18	0	0
0.984	1.70	283.781	27.18	347.89	2776	0.82%	1.1	59%	0.19	0.000	0.19	0	0
1.148	1.70	324.309	31.06	397.58	2720	1.06%	1.2	59%	0.20	0.000	0.20	0	0
1.312	1.70	323.102	30.95	395.84	2369	1.23%	1.3	59%	0.21	0.000	0.21	0	0
1.476	1.70	360.485	34.53	441.54	2349	1.47%	1.4	59%	0.22	0.000	0.22	0	0
1.640	1.70	375.768	35.99	460.31	2204	1.74%	1.5	59%	0.23	0.000	0.23	0	0
1.804	1.70	380.991	36.49	466.59	2036	2.15%	1.6	59%	0.24	0.000	0.24	0	0
1.968	1.66	360.727	34.55	441.74	1808	2.55%	1.6	59%	0.25	0.000	0.25	0	0
2.133	1.62	326.824	31.30	400.23	1550	2.57%	1.7	48%	0.26	0.000	0.26	0	0
2.297	1.60	374.284	35.85	458.35	1686	2.10%	1.6	48%	0.27	0.000	0.27	0	0
2.461	1.57	426.497	40.85	522.32	1832	1.73%	1.5	48%	0.27	0.000	0.27	0	0
2.625	1.54	484.888	46.45	593.83	1991	1.54%	1.4	48%	0.28	0.000	0.28	0	0
2.789	1.52	578.833	55.44	708.83	2279	1.23%	1.3	48%	0.29	0.000	0.29	0	0
2.953	1.50	645.177	61.80	790.07	2440	1.13%	1.3	48%	0.30	0.000	0.30	0	0
3.117	1.48	654.731	62.71	801.77	2384	1.14%	1.3	48%	0.31	0.000	0.31	0	0
3.281	1.46	651.249	62.38	797.56	2288	1.25%	1.3	48%	0.32	0.000	0.32	0	0
3.445	1.44	641.612	61.46	785.71	2177	1.39%	1.4	48%	0.33	0.000	0.33	0	0
3.609	1.42	595.886	57.08	729.73	1957	1.55%	1.4	48%	0.34	0.000	0.34	0	0
3.773	1.41	541.815	51.90	663.50	1724	1.64%	1.5	48%	0.35	0.000	0.35	0	0
3.937	1.39	534.650	51.21	654.73	1651	1.66%	1.5	48%	0.36	0.000	0.36	0	0
4.101	1.38	527.113	50.49	645.52	1581	1.48%	1.4	48%	0.37	0.000	0.37	0	0
4.265	1.37	490.980	47.03	601.28	1432	1.55%	1.4	48%	0.38	0.000	0.38	0	0
4.429	1.35	456.112	43.69	558.59	1295	1.50%	1.4	48%	0.39	0.000	0.39	0	0
4.593	1.34	425.600	40.77	521.20	1177	1.49%	1.4	48%	0.40	0.000	0.40	0	0
4.757	1.33	377.458	36.15	462.23	1018	1.62%	1.5	48%	0.41	0.000	0.41	0	0
4.921	1.32	303.313	29.05	371.42	798	1.75%	1.6	48%	0.41	0.000	0.41	0	0
5.085	1.31	234.401	22.45	287.02	602	1.79%	1.6	48%	0.42	0.000	0.42	0	0
5.249	1.36	175.109	16.77	214.43	420	1.94%	1.7	48%	0.43	0.000	0.43	0	0
5.413	1.47	120.361	11.53	147.37	257	2.43%	1.9	48%	0.44	0.000	0.44	0	0
5.577	1.55	88.505	8.48	108.36	174	3.10%	2.1	48%	0.45	0.000	0.45	0	0
5.741	1.59	73.267	7.02	89.71	136	3.71%	2.2	48%	0.46	0.000	0.46	0	0
5.905	1.61	63.898	6.12	78.24	114	4.18%	2.3	48%	0.47	0.000	0.47	0	0
6.069	1.61	58.143	5.57	71.20	101	4.73%	2.4	48%	0.48	0.000	0.48	0	0
6.234	1.56	63.690	6.10	77.99	111	4.34%	2.3	48%	0.49	0.000	0.49	0	0
6.398	1.55	62.076	5.95	76.02	107	4.57%	2.4	48%	0.50	0.000	0.50	0	0
6.562	1.54	58.977	5.65	72.22	99	5.26%	2.4	48%	0.51	0.000	0.51	0	0
6.726	1.50	63.218	6.06	77.41	107	5.06%	2.4	48%	0.52	0.000	0.52	0	0
6.890	1.46	70.580	6.76	86.45	120	4.83%	2.4	48%	0.53	0.000	0.53	0	0
7.054	1.42	76.436	7.32	93.62	130	4.53%	2.3	48%	0.54	0.000	0.54	0	0
7.218	1.38	87.128	8.35	106.74	150	3.86%	2.2	48%	0.55	0.000	0.55	0	0
7.382	1.34	99.702	9.55	122.12	173	3.62%	2.2	48%	0.55	0.000	0.55	0	0
7.546	1.32	100.619	9.64	123.21	173	3.98%	2.2	48%	0.56	0.000	0.56	0	0
7.710	1.33	89.641	8.59	109.79	149	4.57%	2.3	48%	0.57	0.000	0.57	0	0
7.874	1.32	91.023	8.72	111.45	150	4.73%	2.3	48%	0.58	0.000	0.58	0	0
8.038	1.29	99.262	9.51	121.54	164	4.49%	2.3	48%	0.59	0.000	0.59	0	0
8.202	1.28	98.404	9.43	120.49	161	4.79%	2.3	48%	0.60	0.000	0.60	0	0
8.366	1.27	96.177	9.21	117.77	155	4.93%	2.3	48%	0.61	0.000	0.61	0	0
8.530	1.24	113.427	10.86	138.90	185	4.32%	2.2	48%	0.62	0.000	0.62	0	0
8.694	1.23	114.164	10.94	139.81	184	4.51%	2.2	48%	0.63	0.000	0.63	0	0
8.858	1.22	109.394	10.48	133.96	174	4.88%	2.3	48%	0.64	0.000	0.64	0	0
9.022	1.23	96.376	9.23	118.00	149	5.61%	2.4	48%	0.65	0.000	0.65	0	0
9.186	1.22	96.296	9.22	117.90	148	5.11%	2.3	48%	0.66	0.000	0.66	0	0
9.350	1.22	87.954	8.42	107.68	132	4.93%	2.3	48%	0.67	0.000	0.67	0	0
9.514	1.22	82.743	7.93	101.29	123	4.85%	2.4	48%	0.68	0.000	0.68	0	0
9.678	1.20	85.010	8.14	104.07	125	4.79%	2.3	48%	0.69	0.000	0.69	0	0
9.842	1.19	85.292	8.17	104.42	125	4.64%	2.3	48%	0.69	0.000	0.69	0	0
10.006	1.20	74.653	7.15	91.40	107	5.53%	2.4	48%	0.70	0.000	0.70	0	0
10.170	1.20	66.552	6.37	81.49	94	5.11%	2.4	48%	0.71	0.000	0.71	0	0
10.335	1.20	58.827	5.63	72.02	81	4.86%	2.5	48%	0.72	0.000	0.72	0	0
10.499	1.19	53.619	5.14	65.65	73	4.84%	2.5	48%	0.73	0.000	0.73	0	0
10.663	1.19	50.240	4.81	61.52	68	4.00%	2.5	48%	0.74	0.000	0.74	0	0
10.827	1.18	44.443	4.26	54.41	59	4.58%	2.5	48%	0.75	0.000	0.75	0	0
10.991	1.18	41.420	3.97	50.72	55	4.89%	2.6	48%	0.76	0.000	0.76	0	0
11.155	1.16	41.187	3.95	50.43	54	4.83%	2.6	48%	0.77	0.000	0.77	0	0
11.319	1.15	42.309	4.05	51.80	55	4.80%	2.6	48%	0.78	0.000	0.78	0	0
11.483	1.14	42.297	4.05	51.79	55	5.21%	2.6	48%	0.79	0.000	0.79	0	0
11.647	1.14	38.665	3.70	47.34	50	4.78%	2.6	48%	0.80	0.000	0.80	0	0
11.811	1.13	37.906	3.63	46.38	48	5.28%	2.6	48%	0.81	0.000	0.81	0	0
11.975	1.09	80.940	7.75	99.08	107	2.50%	2.2	48%	0.82	0.000	0.82	0	0
12.139	1.06	121.707	11.66	149.04	162	1.79%	1.9	48%	0.83	0.000	0.83	0	0
12.303	1.05	159.905	15.32	195.81	214	1.31%	1.8	48%	0.83	0.000	0.83	0	0
12.467	1.04	181.302	17.37	222.01	242	1.14%	1.7	48%	0.84	0.000	0.84	0	0
12.631	1.03	195.062	18.68	238.86	259	1.14%	1.7	48%	0.85	0.000	0.85	0	0
12.795	1.03	196.365	18.81	240.45	258	1.20%	1.7	48%	0.86	0.000	0.86	0	0
12.959	1.03	190.708	18.27	233.52	248	1.31%	1.7	48%	0.87	0.000	0.87	0	0
13.123	1.02	177.881	17.04	217.82	229	1.34%	1.7	21%	0.88	0.000	0.88	0	0
13.287	1.02	145.366	13.92	178.00	185	1.53%	1.9	21%	0.89	0.000	0.89	0	0
13.451	1.02	106.975	10.25	130.98	134	2.12%	2.0	21%	0.90	0.000	0.90	0	0
13.615	1.02	75.845	7.26	92.87	94	3.50%	2.3	21%	0.91	0.000	0.91	0	0
13.779	1.02	57.937	5.55	70.95	71	5.27%	2.5	21%	0.92	0.000	0.92	0	0
13.943	1.01	48.836	4.68	59.81	59	6.04%	2.6	21%	0.93	0.000	0.93	0	0
14.107	1.01	40.619	3.89	49.75	49	5.87%	2.7	48%	0.93	0.000	0.93	0	0
14.271	1.00	35.984	3.45	44.08	43	5.50%	2.7	48%	0.94	0.000	0.94	0	0
14.436	0.99	28.936	2.77	35.43	34	5.33%	2.7	48%	0.95	0.000	0.95	0	0
14.600	0.98	27.386	2.62	33.53	32	4.81%	2.7	48%	0.96	0.000	0.96	0	0
14.764	0.98	26.425	2.53	32.36	31	4.62%	2.7	48%	0.97	0.000	0.97	0	0
14.928	0.97	24.657	2.36	30.20	29	4.34%	2.7	48%	0.98	0.000	0.98	0	0
15.092	0.96	23.542	2.25	28.83	27	4.49%	2.8	48%	0.99	0.000	0.99	0	0

Liquefaction Triggering Analyses Using CPT Data — Idriss & Boulanger (2008)

Depth (ft)	r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'v=1atm	Δq_{c1n}	q_{c1n-cs}	CRR M=7.5, σ'v=1atm	FoS
0.164	1.00	0.06	1.10	-0.02	1.00	0.105	42.05	75.69	0.107	N/A
0.328	1.00	0.10	1.10	-0.36	1.00	0.105	60.96	148.58	0.265	N/A
0.492	1.00	0.15	1.10	-0.58	1.00	0.105	80.62	224.37	1.000	N/A
0.656	1.00	0.30	1.10	-0.60	1.00	0.105	112.47	347.16	1.000	N/A
0.820	0.99	0.30	1.10	-0.60	1.00	0.104	144.61	471.03	1.000	N/A
0.984	0.99	0.30	1.10	-0.60	1.00	0.104	152.13	500.02	1.000	N/A
1.148	0.99	0.30	1.10	-0.60	1.00	0.104	169.53	567.12	1.000	N/A
1.312	0.99	0.30	1.10	-0.60	1.00	0.104	168.92	564.77	1.000	N/A
1.476	0.99	0.30	1.10	-0.60	1.00	0.104	184.93	626.48	1.000	N/A
1.640	0.99	0.30	1.10	-0.60	1.00	0.104	191.51	651.82	1.000	N/A
1.804	0.99	0.30	1.10	-0.60	1.00	0.104	193.71	660.29	1.000	N/A
1.968	0.99	0.30	1.10	-0.60	1.00	0.104	185.00	626.74	1.000	N/A
2.133	0.99	0.30	1.10	-0.60	1.00	0.104	170.72	570.95	1.000	N/A
2.297	0.99	0.30	1.10	-0.60	1.00	0.104	191.11	649.46	1.000	N/A
2.461	0.99	0.30	1.10	-0.60	1.00	0.104	213.55	735.87	1.000	N/A
2.625	0.98	0.30	1.10	-0.60	1.00	0.103	238.64	832.47	1.000	N/A
2.789	0.98	0.30	1.10	-0.60	1.00	0.103	278.99	987.82	1.000	N/A
2.953	0.98	0.30	1.10	-0.60	1.00	0.103	307.49	######	1.000	N/A
3.117	0.98	0.30	1.10	-0.60	1.00	0.103	311.59	######	1.000	N/A
3.281	0.98	0.30	1.10	-0.60	1.00	0.103	310.12	######	1.000	N/A
3.445	0.98	0.30	1.10	-0.60	1.00	0.103	305.96	######	1.000	N/A
3.609	0.98	0.30	1.10	-0.60	1.00	0.103	286.32	######	1.000	N/A
3.773	0.98	0.30	1.10	-0.60	1.00	0.103	263.08	926.58	1.000	N/A
3.937	0.98	0.30	1.10	-0.60	1.00	0.103	260.01	914.73	1.000	N/A
4.101	0.98	0.30	1.10	-0.60	1.00	0.103	256.78	902.30	1.000	N/A
4.265	0.97	0.30	1.10	-0.60	1.00	0.102	241.26	842.54	1.000	N/A
4.429	0.97	0.30	1.10	-0.60	1.00	0.102	226.28	784.87	1.000	N/A
4.593	0.97	0.30	1.10	-0.60	1.00	0.102	213.16	734.36	1.000	N/A
4.757	0.97	0.30	1.10	-0.60	1.00	0.102	192.47	654.70	1.000	N/A
4.921	0.97	0.30	1.10	-0.60	1.00	0.102	160.62	532.03	1.000	N/A
5.085	0.97	0.30	1.10	-0.60	1.00	0.102	131.01	418.03	1.000	N/A
5.249	0.97	0.30	1.10	-0.60	1.00	0.102	105.54	319.97	1.000	N/A
5.413	0.97	0.16	1.10	-0.57	1.00	0.102	82.01	229.38	1.000	N/A
5.577	0.97	0.11	1.07	-0.43	1.00	0.105	68.33	176.69	0.486	N/A
5.741	0.97	0.10	1.06	-0.35	1.00	0.106	61.78	151.49	0.278	N/A
5.905	0.96	0.09	1.05	-0.29	1.00	0.106	57.76	136.01	0.220	N/A
6.069	0.96	0.08	1.05	-0.25	1.00	0.107	55.29	126.48	0.194	N/A
6.234	0.96	0.09	1.05	-0.29	1.00	0.106	57.67	135.67	0.219	N/A
6.398	0.96	0.09	1.04	-0.28	1.00	0.106	56.98	133.00	0.211	N/A
6.562	0.96	0.09	1.04	-0.26	1.00	0.107	55.65	127.87	0.198	N/A
6.726	0.96	0.09	1.04	-0.29	1.00	0.107	57.47	134.88	0.216	N/A
6.890	0.96	0.10	1.04	-0.33	1.00	0.106	60.64	147.09	0.259	N/A
7.054	0.96	0.10	1.04	-0.36	1.00	0.106	63.16	156.78	0.306	N/A
7.218	0.96	0.11	1.05	-0.42	1.00	0.106	67.76	174.49	0.458	N/A
7.382	0.95	0.13	1.05	-0.48	1.00	0.105	73.16	195.28	0.925	N/A
7.546	0.95	0.13	1.05	-0.48	1.00	0.105	73.54	196.75	0.985	N/A
7.710	0.95	0.11	1.04	-0.43	1.00	0.106	68.83	178.61	0.514	N/A
7.874	0.95	0.12	1.04	-0.43	1.00	0.106	69.41	180.86	0.550	N/A
8.038	0.95	0.13	1.04	-0.47	1.00	0.106	72.95	194.49	0.896	N/A
8.202	0.95	0.13	1.04	-0.47	1.00	0.106	72.58	193.08	0.846	N/A
8.366	0.95	0.12	1.04	-0.46	1.00	0.106	71.63	189.40	0.734	N/A
8.530	0.95	0.15	1.04	-0.53	1.00	0.105	79.04	217.94	1.000	N/A
8.694	0.95	0.15	1.04	-0.53	1.00	0.105	79.36	219.17	1.000	N/A
8.858	0.94	0.14	1.03	-0.51	1.00	0.106	77.31	211.26	1.000	N/A
9.022	0.94	0.12	1.03	-0.46	1.00	0.106	71.71	189.71	0.743	N/A
9.186	0.94	0.12	1.03	-0.46	1.00	0.106	71.67	189.57	0.739	N/A
9.350	0.94	0.11	1.02	-0.42	1.00	0.106	68.09	175.76	0.474	N/A
9.514	0.94	0.11	1.02	-0.39	1.00	0.107	65.85	167.14	0.381	N/A
9.678	0.94	0.11	1.02	-0.40	1.00	0.106	66.82	170.90	0.417	N/A
9.842	0.94	0.11	1.02	-0.40	1.00	0.107	66.95	171.37	0.422	N/A
10.006	0.94	0.10	1.01	-0.34	1.00	0.107	62.38	153.77	0.290	N/A
10.170	0.94	0.09	1.01	-0.30	1.00	0.107	58.90	140.39	0.234	N/A
10.335	0.93	0.09	1.01	-0.25	1.00	0.107	55.58	127.59	0.197	N/A
10.499	0.93	0.08	1.01	-0.21	1.00	0.107	53.34	118.99	0.177	N/A
10.663	0.93	0.08	1.01	-0.19	1.00	0.107	51.89	113.41	0.166	N/A
10.827	0.93	0.07	1.01	-0.14	1.00	0.107	49.40	103.81	0.149	N/A
10.991	0.93	0.07	1.01	-0.12	1.00	0.107	48.10	98.82	0.141	N/A
11.155	0.93	0.07	1.00	-0.11	1.00	0.107	48.00	98.43	0.140	N/A
11.319	0.93	0.07	1.00	-0.12	1.00	0.107	48.49	100.29	0.143	N/A
11.483	0.93	0.07	1.00	-0.12	1.00	0.107	48.48	100.27	0.143	N/A
11.647	0.92	0.07	1.00	-0.09	1.00	0.107	46.92	94.26	0.133	N/A
11.811	0.92	0.07	1.00	-0.08	1.00	0.107	46.58	92.96	0.131	N/A
11.975	0.92	0.11	1.00	-0.37	1.00	0.107	65.07	164.15	0.356	N/A
12.139	0.92	0.16	1.00	-0.56	1.00	0.107	82.60	231.63	1.000	N/A
12.303	0.92	0.25	0.99	-0.60	1.00	0.107	99.01	294.82	1.000	N/A
12.467	0.92	0.30	0.99	-0.60	1.00	0.107	108.20	330.20	1.000	N/A
12.631	0.92	0.30	0.99	-0.60	1.00	0.107	114.11	352.96	1.000	N/A
12.795	0.92	0.30	0.98	-0.60	1.00	0.108	114.67	355.12	1.000	N/A
12.959	0.91	0.30	0.98	-0.60	1.00	0.108	112.24	345.76	1.000	N/A
13.123	0.91	0.30	0.98	-0.60	1.00	0.108	87.25	305.07	1.000	N/A
13.287	0.91	0.21	0.98	-0.60	1.00	0.107	75.83	253.83	1.000	N/A
13.451	0.91	0.14	0.99	-0.49	1.00	0.107	62.35	193.33	0.854	N/A
13.615	0.91	0.10	0.99	-0.34	1.00	0.106	51.42	144.29	0.248	N/A
13.779	0.91	0.08	0.99	-0.24	1.00	0.106	45.13	116.08	0.171	N/A
13.943	0.91	0.08	0.99	-0.17	1.00	0.106	41.94	101.74	0.145	N/A
14.107	0.91	0.07	0.99	-0.10	1.00	0.106	47.76	97.51	0.139	N/A
14.271	0.90	0.07	0.99	-0.06	1.00	0.106	45.78	89.85	0.127	N/A
14.436	0.90	0.06	0.99	0.01	1.00	0.105	42.74	78.17	0.110	N/A
14.600	0.90	0.06	0.99	0.03	1.00	0.105	42.08	75.61	0.107	N/A
14.764	0.90	0.06	0.99	0.04	1.00	0.105	41.66	74.02	0.105	N/A
14.928	0.90	0.06	0.99	0.06	1.00	0.105	40.90	71.10	0.101	N/A
15.092	0.90	0.06	0.99	0.08	1.00	0.105	40.43	69.26	0.099	N/A

Liquefaction Triggering Analyses Using CPT Data — Youd et al. (2001)

Depth (ft)	r_d	D_r	f	K_σ	K_α	CSR M=7.5, σ'v=1atm	Kc	q_{c1n-cs}	(CRR) M=7.5, σ'v=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No
0.164	0.99	0.33	0.80	1.43	1.00	0.085	1.00	33.64	0.078	N/A	N/A	N/A
0.328	0.99	0.54	0.73	1.59	1.00	0.076	1.00	87.62	0.143	N/A	N/A	N/A
0.492	0.99	0.69	0.65	1.77	1.00	0.069	1.00	143.75	0.356	N/A	N/A	N/A
0.656	0.99	0.88	0.60	1.89	1.00	0.064	1.00	234.69	1.000	N/A	N/A	N/A
0.820	0.99	1.04	0.60	1.85	1.00	0.066	1.00	326.42	1.000	N/A	N/A	N/A
0.984	0.99	1.08	0.60	1.81	1.00	0.067	1.00	347.89	1.000	N/A	N/A	N/A
1.148	0.99	1.15	0.60	1.77	1.00	0.069	1.00	397.58	1.000	N/A	N/A	N/A
1.312	0.99	1.15	0.60	1.73	1.00	0.070	1.00	395.84	1.000	N/A	N/A	N/A
1.476	0.99	1.21	0.60	1.70	1.00	0.071	1.00	441.54	1.000	N/A	N/A	N/A
1.640	0.99	1.24	0.60	1.67	1.00	0.073	1.00	460.31	1.000	N/A	N/A	N/A
1.804	0.99	1.25	0.60	1.64	1.00	0.074	1.00	466.59	1.000	N/A	N/A	N/A
1.968	0.99	1.21	0.60	1.61	1.00	0.075	1.00	441.74	1.000	N/A	N/A	N/A
2.133	0.99	1.16	0.60	1.59	1.00	0.076	1.01	402.55	1.000	N/A	N/A	N/A
2.297	0.99	1.24	0.60	1.57	1.00	0.077	1.00	458.35	1.000	N/A	N/A	N/A
2.461	0.99	1.32	0.60	1.55	1.00	0.078	1.00	522.32	1.000	N/A	N/A	N/A
2.625	0.99	1.41	0.60	1.53	1.00	0.079	1.00	593.83	1.000	N/A	N/A	N/A
2.789	0.99	1.54	0.60	1.51	1.00	0.080	1.00	708.83	1.000	N/A	N/A	N/A
2.953	0.99	1.62	0.60	1.49	1.00	0.081	1.00	790.07	1.000	N/A	N/A	N/A
3.117	0.99	1.63	0.60	1.47	1.00	0.082	1.00	801.77	1.000	N/A	N/A	N/A
3.281	0.99	1.63	0.60	1.45	1.00	0.083	1.00	797.56	1.000	N/A	N/A	N/A
3.445	0.99	1.62	0.60	1.44	1.00	0.084	1.00	785.71	1.000	N/A	N/A	N/A
3.609	0.99	1.56	0.60	1.42	1.00	0.085	1.00	729.73	1.000	N/A	N/A	N/A
3.773	0.99	1.49	0.60	1.40	1.00	0.086	1.00	663.50	1.000	N/A	N/A	N/A
3.937	0.99	1.48	0.60	1.39	1.00	0.087	1.00	654.73	1.000	N/A	N/A	N/A
4.101	0.99	1.47	0.60	1.38	1.00	0.088	1.00	645.52	1.000	N/A	N/A	N/A
4.265	0.99	1.42	0.60	1.36	1.00	0.088	1.00	601.28	1.000	N/A	N/A	N/A
4.429	0.98	1.36	0.60	1.35	1.00	0.089	1.00	558.59	1.000	N/A	N/A	N/A
4.593	0.98	1.32	0.60	1.34	1.00	0.090	1.00	521.20	1.000	N/A	N/A	N/A
4.757	0.98	1.24	0.60	1.32	1.00	0.091	1.00	462.23	1.000	N/A	N/A	N/A
4.921	0.98	1.11	0.60	1.31	1.00	0.092	1.00	371.42	1.000	N/A	N/A	N/A
5.085	0.98	0.98	0.60	1.30	1.00	0.093	1.00	287.02	1.000	N/A	N/A	N/A
5.249	0.98	0.85	0.60	1.29	1.00	0.093	1.06	226.82	1.000	N/A	N/A	N/A
5.413	0.98	0.70	0.65	1.24	1.00	0.097	1.21	178.70	1.000	N/A	N/A	N/A
5.577	0.98	0.60	0.70	1.19	1.00	0.101	1.47	159.26	0.456	N/A	N/A	N/A
5.741	0.98	0.55	0.73	1.17	1.00	0.103	1.75	157.16	0.441	N/A	N/A	N/A
5.905	0.98	0.51	0.74	1.15	1.00	0.104	2.01	157.65	0.444	N/A	N/A	N/A
6.069	0.98	0.49	0.76	1.14	1.00	0.105	2.29	163.35	1.000	N/A	N/A	N/A
6.234	0.98	0.51	0.75	1.14	1.00	0.105	2.09	162.71	1.000	N/A	N/A	N/A
6.398	0.98	0.50	0.75	1.13	1.00	0.106	2.19	166.51	1.000	N/A	N/A	N/A
6.562	0.98	0.49	0.75	1.12	1.00	0.107	2.47	178.26	1.000	N/A	N/A	N/A
6.726	0.98	0.51	0.75	1.12	1.00	0.107	2.33	180.55	1.000	N/A	N/A	N/A
6.890	0.98	0.54	0.73	1.13	1.00	0.106	2.15	185.76	1.000	N/A	N/A	N/A
7.054	0.98	0.56	0.72	1.12	1.00	0.106	2.00	187.10	1.000	N/A	N/A	N/A
7.218	0.98	0.60	0.70	1.13	1.00	0.106	1.72	184.03	1.000	N/A	N/A	N/A
7.382	0.98	0.64	0.68	1.13	1.00	0.106	1.58	193.17	1.000	N/A	N/A	N/A
7.546	0.98	0.64	0.68	1.13	1.00	0.106	1.66	204.98	1.000	N/A	N/A	N/A
7.710	0.98	0.60	0.70	1.11	1.00	0.107	1.90	208.11	1.000	N/A	N/A	N/A
7.874	0.98	0.61	0.70	1.11	1.00	0.108	1.93	215.12	1.000	N/A	N/A	N/A
8.038	0.98	0.64	0.68	1.11	1.00	0.108	1.81	219.86	1.000	N/A	N/A	N/A
8.202	0.98	0.63	0.68	1.10	1.00	0.108	1.89	228.16	1.000	N/A	N/A	N/A
8.366	0.98	0.63	0.69	1.10	1.00	0.109	1.95	229.90	1.000	N/A	N/A	N/A
8.530	0.98	0.68	0.66	1.10	1.00	0.109	1.70	235.46	1.000	N/A	N/A	N/A
8.694	0.97	0.68	0.66	1.09	1.00	0.109	1.74	243.05	1.000	N/A	N/A	N/A
8.858	0.97	0.67	0.67	1.09	1.00	0.110	1.86	248.74	1.000	N/A	N/A	N/A
9.022	0.97	0.63	0.69	1.08	1.00	0.111	2.15	253.19	1.000	N/A	N/A	N/A
9.186	0.97	0.63	0.69	1.07	1.00	0.111	2.03	239.80	1.000	N/A	N/A	N/A
9.350	0.97	0.60	0.70	1.06	1.00	0.112	2.09	224.58	1.000	N/A	N/A	N/A
9.514	0.97	0.58	0.71	1.06	1.00	0.113	2.13	216.08	1.000	N/A	N/A	N/A
9.678	0.97	0.59	0.71	1.05	1.00	0.113	2.10	218.21	1.000	N/A	N/A	N/A
9.842	0.97	0.59	0.71	1.05	1.00	0.113	2.06	215.23	1.000	N/A	N/A	N/A
10.006	0.97	0.55	0.72	1.04	1.00	0.114	2.46	224.79	1.000	N/A	N/A	N/A
10.170	0.97	0.52	0.74	1.04	1.00	0.115	2.49	203.09	1.000	N/A	N/A	N/A
10.335	0.97	0.49	0.76	1.03	1.00	0.115	2.59	186.23	1.000	N/A	N/A	N/A
10.499	0.97	0.47	0.77	1.03	1.00	0.116	2.72	178.67	1.000	N/A	N/A	N/A
10.663	0.97	0.45	0.77	1.02	1.00	0.116	2.53	155.67	0.431	N/A	N/A	N/A
10.827	0.97	0.43	0.79	1.02	1.00	0.117	2.95	160.32	1.000	N/A	N/A	N/A
10.991	0.97	0.41	0.79	1.01	1.00	0.117	3.20	162.18	1.000	N/A	N/A	N/A
11.155	0.97	0.41	0.80	1.01	1.00	0.117	3.19	161.00	1.000	N/A	N/A	N/A
11.319	0.97	0.42	0.79	1.01	1.00	0.117	3.14	162.65	1.000	N/A	N/A	N/A
11.483	0.97	0.42	0.79	1.01	1.00	0.118	3.31	171.29	1.000	N/A	N/A	N/A
11.647	0.97	0.40	0.80	1.00	1.00	0.118	3.32	157.10	0.441	N/A	N/A	N/A
11.811	0.97	0.39	0.80	1.00	1.00	0.118	3.57	165.50	1.000	N/A	N/A	N/A
11.975	0.97	0.57	0.71	1.00	1.00	0.118	1.59	157.49	0.443	N/A	N/A	N/A
12.139	0.97	0.70	0.65	1.00	1.00	0.119	1.23	182.75	1.000	N/A	N/A	N/A
12.303	0.97	0.81	0.60	0.99	1.00	0.119	1.08	210.70	1.000	N/A	N/A	N/A
12.467	0.97	0.86	0.60	0.99	1.00	0.120	1.02	226.88	1.000	N/A	N/A	N/A
12.631	0.97	0.89	0.60	0.98	1.00	0.120	1.01	240.97	1.000	N/A	N/A	N/A
12.795	0.97	0.90	0.60	0.98	1.00	0.121	1.02	245.58	1.000	N/A	N/A	N/A
12.959	0.96	0.88	0.60	0.97	1.00	0.121	1.05	244.81	1.000	N/A	N/A	N/A
13.123	0.96	0.85	0.60	0.97	1.00	0.122	1.07	232.80	1.000	N/A	N/A	N/A
13.287	0.96	0.77	0.61	0.97	1.00	0.122	1.15	203.91	1.000	N/A	N/A	N/A
13.451	0.96	0.66	0.67	0.97	1.00	0.122	1.37	179.03	1.000	N/A	N/A	N/A
13.615	0.96	0.56	0.72	0.97	1.00	0.121	2.00	185.30	1.000	N/A	N/A	N/A
13.779	0.96	0.49	0.76	0.97	1.00	0.121	2.91	206.79	1.000	N/A	N/A	N/A
13.943	0.96	0.45	0.78	0.97	1.00	0.121	3.47	207.78	1.000	N/A	N/A	N/A
14.107	0.96	0.41	0.80	0.97	1.00	0.121	3.78	187.99	1.000	N/A	N/A	N/A
14.271	0.96	0.38	0.80	0.97	1.00	0.121	3.90	171.73	1.000	N/A	N/A	N/A
14.436	0.96	0.34	0.80	0.97	1.00	0.121	4.33	153.58	0.417	N/A	N/A	N/A
14.600	0.96	0.33	0.80	0.97	1.00	0.121	4.23	141.94	0.346	N/A	N/A	N/A
14.764	0.96	0.33	0.80	0.97	1.00	0.122	4.24	137.11	0.320	N/A	N/A	N/A
14.928	0.96	0.32	0.80	0.96	1.00	0.122	4.27	129.04	0.280	N/A	N/A	N/A
15.092	0.96	0.31	0.80	0.96	1.00	0.122	4.48	129.22	0.281	N/A	N/A	N/A

Liquefaction Triggering Analyses Using SPT Data

Depth at time of SPT (ft)	CN	qc1 TSF	qc1 MPa	qc1N
0.164	1.70	27.48	2.63	33.64
0.328	1.70	71.56	6.85	87.62
0.492	1.70	117.39	11.24	143.75
0.656	1.70	191.66	18.35	234.69
0.820	1.70	266.57	25.52	326.42
0.984	1.70	284.11	27.20	347.89
1.148	1.70	324.69	31.09	397.58
1.312	1.70	323.27	30.95	395.84
1.476	1.70	360.59	34.52	441.54
1.640	1.70	375.92	35.99	460.31
1.804	1.70	381.04	36.48	466.59
1.968	1.66	360.75	34.54	441.74
2.133	1.62	326.85	31.29	400.23
2.297	1.60	374.31	35.84	458.35
2.461	1.57	426.55	40.84	522.32
2.625	1.54	484.95	46.43	593.83
2.789	1.52	578.87	55.42	708.83
2.953	1.50	645.21	61.77	790.07
3.117	1.48	654.76	62.69	801.77
3.281	1.46	651.33	62.36	797.56
3.445	1.44	641.66	61.43	785.71
3.609	1.42	595.94	57.06	729.73
3.773	1.41	541.85	51.88	663.50
3.937	1.39	534.69	51.19	654.73
4.101	1.38	527.17	50.47	645.52
4.265	1.37	491.04	47.01	601.28
4.429	1.35	456.17	43.67	558.59
4.593	1.34	425.64	40.75	521.20
4.757	1.33	377.48	36.14	462.23
4.921	1.32	303.32	29.04	371.42
5.085	1.31	234.40	22.44	287.02
5.249	1.36	175.12	16.77	214.43
5.413	1.47	120.35	11.52	147.37
5.577	1.55	88.49	8.47	108.36
5.741	1.59	73.26	7.01	89.71
5.905	1.61	63.90	6.12	78.24
6.069	1.61	58.14	5.57	71.20
6.234	1.56	63.69	6.10	77.99
6.398	1.55	62.08	5.94	76.02
6.562	1.54	58.98	5.65	72.22
6.726	1.50	63.22	6.05	77.41
6.890	1.46	70.60	6.76	86.45
7.054	1.42	76.46	7.32	93.62
7.218	1.38	87.17	8.35	106.74
7.382	1.34	99.73	9.55	122.12
7.546	1.32	100.62	9.63	123.21
7.710	1.33	89.66	8.58	109.79
7.874	1.32	91.01	8.71	111.45
8.038	1.29	99.26	9.50	121.54
8.202	1.28	98.40	9.42	120.49
8.366	1.27	96.18	9.21	117.77
8.530	1.24	113.43	10.86	138.90
8.694	1.23	114.18	10.93	139.81
8.858	1.22	109.39	10.47	133.96
9.022	1.23	96.37	9.23	118.00
9.186	1.22	96.28	9.22	117.90
9.350	1.22	87.93	8.42	107.68
9.514	1.22	82.72	7.92	101.29
9.678	1.20	84.99	8.14	104.07
9.842	1.19	85.28	8.16	104.42
10.006	1.20	74.64	7.15	91.40
10.170	1.20	66.55	6.37	81.49
10.335	1.20	58.81	5.63	72.02
10.499	1.19	53.61	5.13	65.65
10.663	1.19	50.24	4.81	61.52
10.827	1.18	44.44	4.25	54.41
10.991	1.18	41.42	3.97	50.72
11.155	1.16	41.18	3.94	50.43
11.319	1.15	42.30	4.05	51.80
11.483	1.14	42.29	4.05	51.79
11.647	1.14	38.66	3.70	47.34
11.811	1.13	37.87	3.63	46.38
11.975	1.09	80.91	7.75	99.08
12.139	1.06	121.71	11.65	149.04
12.303	1.05	159.91	15.31	195.81
12.467	1.04	181.30	17.36	222.01
12.631	1.03	195.06	18.68	238.86
12.795	1.03	196.36	18.80	240.45
12.959	1.03	190.71	18.26	233.52
13.123	1.02	177.88	17.03	217.82
13.287	1.02	145.36	13.92	178.00
13.451	1.02	106.97	10.24	130.98
13.615	1.02	75.84	7.26	92.87
13.779	1.02	57.94	5.55	70.95
13.943	1.01	48.84	4.68	59.81
14.107	1.01	40.63	3.89	49.75
14.271	1.00	36.00	3.45	44.08
14.436	0.99	28.94	2.77	35.43
14.600	0.98	27.39	2.62	33.53
14.764	0.98	26.43	2.53	32.36
14.928	0.97	24.66	2.36	30.20
15.092	0.96	23.54	2.25	28.83

Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'v=1atm (I&B 2008)	FoS (I&B 2008)	α (Youd 2001)	β (Youd 2001)	$(N_1)_{60cs}$ (blows/ft) (Youd 2001)	(CRR) M=7.5, σ'v=1atm (Youd 2001)	FoS (Youd 2001)	Average FoS
0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.281		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.905	20	0.80	15	19	0.68	0.43	1.27	5.6	24.3	0.27	N/A	5.00	1.20	27.37	0.349	N/A	N/A
6.069		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.562		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.890		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.054		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.218		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.382		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.546		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.710		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.874		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.038		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.202		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.366		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.530		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.694		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.858		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.022		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.186		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.350		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.514		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.678		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.842		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.006		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.170		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.335		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.499		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.663		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.827		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.991	26	0.85	20	21	0.72	0.41	1.03	5.6	26.6	0.33	N/A	5.00	1.20	30.12	N/A	N/A	N/A
11.155		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.319		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.483		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.647		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.811		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.975		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.139		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.303		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.467		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.631		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.795		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.959		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.123		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.287		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.451		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.615		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.779		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.943		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.107		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.271		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.436		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.600		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.764		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.928		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
15.092		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

15.256	6954.70	23.5	1.058	23.5	1.7	0.75	4.51%	General Fill	0.057	113.8	0.87	0.000	0.87	0	0.95	22.317	2.14	27.34	26	4.68%	2.8	48%	1.00	0.000	1.00	0
15.420	6954.54	21.4	1.032	21.4	0.4	0.18	4.82%	General Fill	0.057	113.8	0.88	0.000	0.88	0	0.94	20.191	1.93	24.73	24	5.02%	2.8	48%	1.01	0.000	1.01	0
15.584	6954.38	22.6	1.012	22.6	0.1	0.06	4.47%	General Fill	0.057	113.8	0.89	0.000	0.89	0	0.94	21.177	2.03	25.93	24	4.66%	2.8	48%	1.02	0.000	1.02	0
15.748	6954.21	21.4	0.937	21.4	0.0	0.00	4.37%	General Fill	0.057	113.8	0.90	0.000	0.90	0	0.93	19.869	1.90	24.33	23	4.57%	2.8	48%	1.03	0.000	1.03	0
15.912	6954.05	20.8	0.939	20.8	-0.1	-0.02	4.52%	General Fill	0.057	113.8	0.91	0.000	0.91	0	0.92	19.113	1.83	23.40	22	4.73%	2.9	48%	1.04	0.000	1.04	0
16.076	6953.88	18.4	0.930	18.4	-0.3	-0.12	5.07%	General Fill	0.057	113.8	0.92	0.000	0.92	0	0.91	16.724	1.60	20.48	19	5.33%	2.9	48%	1.05	0.000	1.05	0
16.240	6953.72	19.2	0.909	19.2	0.7	0.30	4.74%	General Fill	0.057	113.8	0.93	0.000	0.93	0	0.90	17.337	1.66	21.23	20	4.98%	2.9	48%	1.06	0.000	1.06	0
16.404	6953.56	22.2	0.927	22.2	3.8	1.63	4.18%	General Fill	0.057	113.8	0.94	0.000	0.94	0	0.90	19.952	1.91	24.46	23	4.36%	2.8	48%	1.07	0.000	1.07	0
16.568	6953.39	22.7	0.989	22.6	4.0	1.75	4.37%	General Fill	0.057	113.8	0.95	0.000	0.95	0	0.89	20.211	1.94	24.78	23	4.56%	2.8	48%	1.07	0.000	1.07	0
16.732	6953.23	21.1	0.996	21.0	3.3	1.42	4.73%	General Fill	0.057	113.8	0.96	0.000	0.96	0	0.88	18.606	1.78	22.80	21	4.96%	2.9	48%	1.08	0.000	1.08	0
16.896	6953.06	20.9	0.885	20.9	2.6	1.12	4.23%	General Fill	0.057	113.8	0.97	0.000	0.97	0	0.88	18.356	1.76	22.49	21	4.43%	2.9	48%	1.09	0.000	1.09	0
17.060	6952.90	28.3	0.852	28.3	3.9	1.71	3.01%	General Fill	0.057	113.8	0.98	0.000	0.98	0	0.88	24.889	2.38	30.48	28	3.12%	2.7	48%	1.10	0.000	1.10	0
17.224	6952.74	27.8	0.830	27.7	4.2	1.83	2.99%	General Fill	0.057	113.8	0.99	0.000	0.99	0	0.87	24.180	2.32	29.64	27	3.10%	2.7	48%	1.11	0.000	1.11	0
17.388	6952.57	26.6	0.901	26.6	4.3	1.87	3.39%	General Fill	0.057	113.8	0.99	0.000	0.99	0	0.86	22.982	2.20	28.17	26	3.52%	2.7	48%	1.12	0.000	1.12	0
17.552	6952.41	31.5	1.032	31.4	8.3	3.60	3.28%	General Fill	0.057	113.8	1.00	0.000	1.00	0	0.86	27.131	2.60	33.28	30	3.39%	2.6	48%	1.13	0.000	1.13	0
17.716	6952.24	33.0	1.144	33.0	12.4	5.37	3.46%	General Fill	0.057	113.8	1.01	0.000	1.01	0	0.86	28.310	2.71	34.75	32	3.57%	2.7	48%	1.14	0.000	1.14	0
17.880	6952.08	34.0	1.245	33.9	12.0	5.19	3.66%	General Fill	0.057	113.8	1.02	0.000	1.02	0	0.85	28.973	2.78	35.56	32	3.78%	2.7	48%	1.15	0.000	1.15	0
18.044	6951.92	34.1	1.228	34.0	11.0	4.78	3.60%	General Fill	0.057	113.8	1.03	0.000	1.03	0	0.85	28.897	2.77	35.46	32	3.71%	2.7	48%	1.16	0.000	1.16	0
18.208	6951.75	33.1	1.298	33.1	9.7	4.19	3.92%	General Fill	0.057	113.8	1.04	0.000	1.04	0	0.84	27.865	2.67	34.18	31	4.04%	2.7	48%	1.17	0.000	1.17	0
18.372	6951.59	37.5	1.786	37.5	-1.7	-0.73	4.76%	General Fill	0.057	113.8	1.05	0.000	1.05	0	0.84	31.589	3.03	38.67	35	4.90%	2.7	48%	1.18	0.000	1.18	0
18.537	6951.42	202.7	2.310	202.4	37.0	16.02	1.14%	Coarse Tailings	0.054	108.1	1.06	0.000	1.06	0	0.93	187.617	17.97	230.00	190	1.15%	1.7	21%	1.19	0.000	1.19	0
18.701	6951.26	378.5	3.479	378.3	20.7	8.97	0.92%	Coarse Tailings	0.054	108.1	1.07	0.000	1.07	0	0.93	352.427	33.76	431.70	353	0.92%	1.5	21%	1.19	0.000	1.19	0
18.865	6951.10	441.9	4.569	441.8	14.7	6.39	1.03%	Coarse Tailings	0.054	108.1	1.08	0.000	1.08	0	0.93	410.673	39.34	502.98	409	1.04%	1.5	21%	1.20	0.000	1.20	0
19.029	6950.93	455.6	5.386	455.5	13.0	5.63	1.18%	Coarse Tailings	0.054	108.1	1.09	0.000	1.09	0	0.93	422.437	40.46	517.37	418	1.19%	1.5	21%	1.21	0.000	1.21	0
19.193	6950.77	444.3	5.970	444.2	12.2	5.29	1.34%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0	0.93	411.083	39.38	503.46	405	1.35%	1.6	21%	1.22	0.000	1.22	0
19.357	6950.60	447.3	6.547	447.2	11.4	4.94	1.46%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0	0.92	412.980	39.56	505.78	404	1.47%	1.6	21%	1.23	0.000	1.23	0
19.521	6950.44	453.3	6.951	453.2	14.3	6.20	1.53%	Coarse Tailings	0.054	108.1	1.11	0.000	1.11	0	0.92	417.695	40.01	511.57	406	1.54%	1.6	21%	1.24	0.000	1.24	0
19.685	6950.28	436.4	7.310	436.3	14.0	6.06	1.68%	Coarse Tailings	0.054	108.1	1.12	0.000	1.12	0	0.92	401.224	38.43	491.40	388	1.69%	1.7	21%	1.25	0.000	1.25	0
19.849	6950.11	422.3	6.337	422.2	13.0	5.63	1.50%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0	0.92	387.470	37.11	474.55	372	1.50%	1.7	21%	1.26	0.000	1.26	0
20.013	6949.95	398.5	6.234	398.4	11.5	4.96	1.56%	Coarse Tailings	0.054	108.1	1.14	0.000	1.14	0	0.92	364.894	34.95	446.90	349	1.57%	1.7	21%	1.27	0.000	1.27	0
20.177	6949.78	371.7	5.676	371.7	6.4	2.79	1.53%	Coarse Tailings	0.054	108.1	1.15	0.000	1.15	0	0.91	339.681	32.54	415.99	323	1.53%	1.7	21%	1.27	0.000	1.27	0
20.341	6949.62	347.5	5.235	347.4	5.6	2.42	1.51%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0	0.91	316.901	30.35	388.09	299	1.51%	1.7	21%	1.28	0.000	1.28	0
20.505	6949.46	327.3	4.619	327.2	5.1	2.22	1.41%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0	0.91	297.876	28.53	364.79	280	1.42%	1.7	21%	1.29	0.000	1.29	0
20.669	6949.29	307.4	4.488	307.4	4.5	1.95	1.46%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	0.91	279.266	26.75	342.00	261	1.47%	1.7	21%	1.30	0.000	1.30	0
20.833	6949.13	276.6	4.116	276.6	4.5	1.95	1.49%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	0.91	250.751	24.02	307.08	233	1.49%	1.8	21%	1.31	0.000	1.31	0
20.997	6948.96	250.8	3.769	250.8	3.9	1.69	1.50%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0	0.90	226.957	21.74	277.94	209	1.51%	1.8	21%	1.32	0.000	1.32	0
21.161	6948.80	220.8	3.195	220.8	3.1	1.32	1.45%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0	0.90	198.445	19.01	243.02	183	1.45%	1.8	21%	1.33	0.000	1.33	0
21.325	6948.64	194.2	2.742	194.1	2.7	1.18	1.41%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	0.88	171.399	16.42	209.90	159	1.42%	1.9	21%	1.34	0.000	1.34	0
21.489	6948.47	165.8	2.280	165.8	1.8	0.77	1.38%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	0.86	143.287	13.72	175.47	135	1.39%	1.9	21%	1.35	0.000	1.35	0
21.653	6948.31	144.1	1.934	144.1	0.9	0.39	1.34%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0	0.85	122.158	11.70	149.59	116	1.35%	1.9	21%	1.35	0.000	1.35	0
21.817	6948.14	126.1	1.695	126.1	0.5	0.23	1.34%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0	0.83	104.992	10.06	128.57	101	1.36%	2.0	21%	1.36	0.000	1.36	0
21.981	6947.98	113.3	1.453	113.3	-0.4	-0.16	1.28%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	0.82	92.901	8.90	113.76	90	1.30%	2.0	21%	1.37	0.000	1.37	0
22.145	6947.82	102.3	1.353	102.3	-0.4	-0.18	1.32%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	0.81	82.693	7.92	101.26	81	1.34%	2.1	21%	1.38	0.000	1.38	0
22.309	6947.65	95.2	1.213	95.2	-0.3	-0.12	1.27%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0	0.80	76.039	7.28	93.11	74	1.29%	2.1	21%	1.39	0.000	1.39	0
22.473	6947.49	78.6	1.079	78.6	-1.5	-0.63	1.37%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0	0.78	61.323	5.87	75.08	61	1.40%	2.2	21%	1.40	0.000	1.40	0
22.638	6947.32	70.0	0.980	70.0	-1.0	-0.45	1.40%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	0.77	53.742	5.15	65.80	54	1.43%	2.2	21%	1.41	0.000	1.41	0
22.802	6947.16	65.0	0.861	65.0	-0.9	-0.39	1.32%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	0.76	49.345	4.73	60.42	49	1.35%	2.2	21%	1.42	0.000	1.42	0
22.966	6946.99	56.3	0.793	56.3	-0.8	-0.36	1.41%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	0.75	41.985	4.02	51.41	42	1.44%	2.3	21%	1.43	0.000	1.43	0
23.130	6946.83	51.3	0.713	51.3	-0.5	-0.23	1.39%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0	0.74	37.722	3.61	46.19	38	1.43%	2.3	21%	1.43	0.000	1.43	0
23.294	6946.67	47.5	0.618	47.5	-0.6	-0.26	1.30%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0	0.73	34.488	3.30	42.23	35	1.34%	2.3	21%	1.44	0.000	1.44	0
23.458	6946.50	44.5	0.554	44.5	-0.5	-0.23	1.25%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	0.72	31.965	3.06	39.14	33	1.28%	2.4	21%	1.45	0.000	1.45	0
23.622	6946.34	43.1	0.488	43.1	-0.3	-0.14	1.13%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	0.71	30.715	2.94	37.61	31	1.17%	2.4	21%	1.46	0.000	1.46	0
23.786	6946.17	41.2	0.375	41.2	-0.1	-0.04	0.91%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0	0.71	29.077	2.79	35.60	30	0.94%	2.3	21%	1.47	0.000	1.47	0
23.950	6946.01	42.3	0.401	42.3	-0.5	-0.20	0.95%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0	0.70	29.770	2.85	36.45	30	0.98%	2.3	21%	1.48	0.000	1.48	0
24.114	6945.85	39.3	0.439	39.3	-0.1	-0.02	1.12%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	0.70	27.384	2.62	33.53	28	1.16%	2.4	21%	1.49	0.000	1.49	0
24.278	6945.68	43.9	0.477	43.9	-0.2	-0.10	1.09%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	0.70	30.741	2.94	37.64	31	1.12%	2.4	21%	1.50	0.000	1.50	0
24.442	6945.52	45.2	0.519	45.2	-0.4	-0.18	1.15%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	0.70	31.572	3.02	38.66	32	1.18%	2.4	21%	1.51	0.000	1.51	0
24.606	6945.35	45.9	0.556	46.0	-0.5	-0.23	1.21%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	0.70	32.003	3.07	39.18	32	1.25%	2.4	21%	1.51	0.000	1.51	0
24.770	6945.19	50.0	0.600	50.0	-0.1	-0.02	1.20%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	0.70	34.985	3.35	42.84	35	1.23%	2.3	21%	1.52	0.000	1.52	0
24.934	6945.03	54.6	0.540	54.6	0.4	0.18	0.99%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	0.70	38.332	3.67	46.94	38	1.02%	2.3	21%	1.53	0.000	1.53	0
25.098	6944.86	61.3	0.648	61.3	-0.1	-0.04	1.06%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	0.71	43.455	4.16	53.21	42	1.08%	2.2	21%	1.54	0.000	1.54	0
25.262	6944.70	74.3	0.758	74.3	0.1	0.04	1.02%	Coarse Tailings	0.054	108.1	1.42	0.000	1.42	0	0.72	53.662	5.14	65.71	51	1.04%	2.2	21%	1.55	0.000	1.55	0
25.426	6944.53	86.5	0.916	86.5	0.2	0.08	1.06%	Coarse Tailings	0.054	108.1	1.43	0.000	1.43	0	0.73	63.418	6.07	77.66	59	1.08%	2.1	21%	1.56	0.000	1.56	0
25.590	6944.37	103.5	1.055	103.5	0.1	0.02	1.02%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0	0.75	77.445	7.42	94.83	71	1.03%	2.0	21%	1.57	0.000	1.57	0
25.754	6944.21	107.1	1.159	107.1	0.1	0.06	1.08%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0	0.75	80.275	7.69	98.30	73	1.10%	2.0	21%	1.58	0.000	1.58	0
25.918	6944.04	104.7	1.177	104.7	-0.3	-0.14	1.12%	Coarse Tailings	0.054	108.1	1.46	0.000	1.46	0	0.74	77.925	7.46	95.42	71	1.14%	2.1	21%	1.58	0.000	1.58	0
26.082	6943.88	101.2	1.179	101.2	-0.2	-0.08	1.16%	Coarse Tailings	0.054	108.1	1.47	0.000	1.47	0	0.74	74.723	7.16	91.50	68	1.18%	2.1	21%	1.59	0.000	1.59	0
26.246	6943.71	98.4	1.211	98.4	-0.1	-0.06	1.23%	Coarse Tailings	0.054	108.1	1.48	0.000	1.48	0	0.73	72.100	6.91	88.29	66	1.25%	2.1	21%	1.60	0.000	1.60	0
26.410	6943.55	96.0	1.245	96.0	-0.3	-0.12	1.30%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0	0.73	69.819	6.69	85.49	64	1.32%	2.1	21%	1.61	0.000	1.61	0
26.574	6943.39	90.8	1.350	90.8	-0.3	-0.14	1.49%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0	0.72	65.297	6.25	79.96	60	1.51%	2.2	21%	1.62	0.000	1.62	0
26.739	6943.22	83.7	1.366	83.7	-0.4	-0.16	1.63%	Coarse Tailings	0.054	108.1	1.50	0.000	1.50	0	0.71	59.238	5.67	72.54	55	1.66%	2.3	21%	1.63	0.000	1.63	0
26.903	6943.06	71.4	1.393	71.4	-0.2	-0.08	1.95%	Coarse Tailings	0.054	108.1	1.51	0.000	1.51	0	0.69	49.236	4.72	60.29	46	1.99%	2.4	21%	1.64	0.000	1.64	0
27.067	6942.89	63.3	1.043	63.3	-0.3	-0.12	1.65%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0	0.68	42.778	4.10	52.38	41	1.69%	2.4	21%	1.65	0.000	1.65	0
27.231	6942.73	67.0	1.061	67.0	0.1	0.04	1.58%	Coarse Tailings	0.054	108.1	1.53	0.000	1.53	0	0.68	45.437	4.35	55.64	43	1.62%	2.3	21%	1.66	0.000	1.66	0
27.395	6942.57	49.0	1.302	49.0	0.1	0.02	2.66%	Coarse Tailings	0.054	108.1	1.54	0.000	1.54	0	0.65	31.792	3.05	38.93	31	2.74%	2.6	21%	1.66	0.000	1.66	0
27.559	6942.40	37.0	1.179	37.0	-0.2	-0.10	3.19%	Coarse Tailings	0.054	108.1	1.55	0.000	1.55	0	0.62	23.093	2.21	28.28	23	3.33%	2.7	21%	1.67	0.000	1.67	0
27.723	6942.24	34.6	1.181	34.6	0.0	0.00	3.41%	Coarse Tailings	0.054	108.1	1.56	0.000	1.56	0	0.62	21.358	2.05	26.15	21	3.57%	2.8	21%	1.68	0.000	1.68	0
27.887	6942.07	64.8	1.158	64.8	0.8	0.36	1.79%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0	0.66	43.016	4.12	52.68	43	1.83%	2.4	21%	1.69	0.000	1.69	0
28.051	6941.91	63.2	1.272	63.2	0.2	0.08	2.01%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0	0.66	41.638	3.99	50.99	39	2.07%	2.4	21%	1.70	0.000	1.70	0
28.215	6941.75	49.8	1.258	49.8	-0.4	-0.16	2.52%	Coarse Tailings	0.054	108.1	1.58	0.000	1.58	0	0.64	31.698	3.04	38.81	30	2.61%	2.6	21%	1.71	0.000	1.71	0
28.379	6941.58	52.7	1.094	52.7	0.0	0.00	2.08%	Coarse Tailings	0.054	108.1	1.59	0.000	1.59	0	0.64	33.583	3.22	41.12	32	2.14%	2.5	21%	1.72	0.000	1.72	0
28.543	6941.42	68.3	0.939	68.3	0.7	0.30	1.38%	Coarse Tailings	0.054	108.1	1.60	0.000	1.60	0	0.66	44.957	4.31	55.05	42	1.41%	2.3	21%	1.73	0.000	1.73	0
28.707	6941.25	68.8	0.877	68.8	-0.5	-0.20	1.28%	Coarse Tailings	0.054	108.1	1.61	0.000	1.61	0	0.66	45.164	4.33	55.30	42	1.31%	2.3	21%	1.74	0.000	1.74	0
28.871	6941.09	66.0	0.760	66.0	-0.6	-0.24	1.15%	Coarse Tailings	0.054	108.1	1.62	0.000	1.62	0	0.65	42.892	4.11	52.52	40	1.18%	2.3	21%	1.74	0.000	1.74	0
29.035	6940.93	65.4	0.806	65.4	-0.4	-0.18	1.23%	Coarse Tailings	0.054	108.1	1.63	0.000	1.63	0	0.65	42.292	4.05	51.79	39	1.26%	2.3	21%	1.75	0.000	1.75	0
29.199	6940.76	58.3	0.903	58.3	-0.1	-0.02	1.55%	Coarse Tailings	0.054	108.1	1.64	0.000	1.64	0	0.63	36.951	3.54	45.25	35	1.59%	2.4	21%	1.76	0.000	1.76	0
29.363	6940.60	50.3	0.969	50.3	-0.2	-0.10	1.93%	Coarse Tailings	0.054	108.1	1.64	0.000	1.64	0	0.62	31.081	2.98	38.06	30	1.99%	2.5	21%	1.77	0.000	1.77	0
29.527	6940.43	62.7	0.917	62.7	0.3	0.12	1.46%	Coarse Tailings	0.054	108.1	1.65	0.000	1.65	0	0.64	39.790	3.81	48.72	37	1.50%	2.4	21%	1.78	0.000	1.78	0
29.691	6940.27	60.0	0.965	60.0	-0.3	-0.12	1.61%	Coarse Tailings	0.054	108.1	1.66	0.000	1.66	0	0.63	37.742	3.62	46.21	35	1.65%	2.4	21%	1.79	0.000	1.79	0
29.855	6940.11	48.8	0.798	48.8	0.1	0.04	1.63%	Coarse Tailings	0.054	108.1	1.67	0.000	1.67	0	0.61	29.673	2.84	36.34	28	1.69%	2.5	21%	1.80	0.000	1.80	0
30.019	6939.94	53.0	0.910	53.0	0.2	0.10	1.72%	Coarse Tailings	0.054	108.1	1.68	0.000	1.68	0	0.61	32.475	3.11	39.77	31	1.77%	2.5	21%	1.81	0.000	1.81	0
30.183	6939.78	57.5	1.186	57.6	-0.1	-0.06	2.06%	Coarse Tailings	0.054	108.1	1.69	0.000	1.69	0	0.62	35.522	3.40	43.50	33	2.12%	2.5	21%	1.82	0.000	1.82	0
30.347	6939.61	40.1	1.361	40.1	-0.3	-0.12	3.40%	Coarse Tailings	0.054	108.1	1.69	0.000	1.69	0	0.58	23.424	2.24	28.68	23	3.55%	2.8	21%	1.82	0.000	1.82	0
30.511	6939.45	33.4	1.365	33.4	0.2	0.08	4.09%	Coarse Tailings	0.054	108.1	1.70	0.000	1.70	0	0.57	18.979	1.82	23.24	19	4.31%	2.9	21%	1.83	0.000	1.83	0
30.675	6939.29	35.9	1.566	35.9	1.0	0.45	4.36%	Coarse Tailings	0.054	108.1	1.71	0.000	1.71	0	0.57	20.484	1.96	25.09	20	4.58%	2.9	21%	1.84	0.000	1.84	0
30.840	6939.12	22.7	1.245	22.7	0.1	0.06	5.49%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	0.56	12.648	1.21	15.49	12	5.94%	3.1	21%	1.85	0.000	1.85	0
31.004	6938.96	14.7	0.838	14.7	3.1	1.32	5.71%	Coarse Tailings	0.054	108.1	1.73	0.000	1.73	0	0.56	8.139	0.78	9.98	7	6.47%	3.3	21%	1.86	0.000	1.86	0
31.168	6938.79	13.2	0.590	13.1	6.0	2.60	4.48%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	0.55	7.260	0.70	8.92	7	5.16%	3.3	21%	1.87	0.000	1.87	0
31.332	6938.63	27.5	0.596	27.5	9.6	4.17	2.16%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	0.55	15.130	1.45	18.57	15	2.31%	2.8	21%	1.88	0.000	1.88	0
31.496	6938.46	32.9	0.804	32.9	5.4	2.32	2.44%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	0.55	18.164	1.74	22.26	18	2.58%	2.8	21%	1.89	0.000	1.89	0
31.660	6938.30	32.8	1.061	32.8	5.4	2.36	3.24%	Coarse Tailings	0.054	108.1	1.77	0.000	1.77	0	0.55	18.004	1.72	22.07	18	3.42%	2.8	21%	1.90	0.000	1.90	0
31.824	6938.14	28.3	1.290	28.2	5.1	2.20	4.56%	Coarse Tailings	0.054	108.1	1.78	0.000	1.78	0	0.54	15.372	1.47	18.84	15	4.87%	3.0	21%	1.90	0.000	1.90	0
31.988	6937.97	20.8	0.904	20.8	5.2	2.24	4.34%	Coarse Tailings	0.054	108.1	1.79	0.000	1.79	0	0.54	11.267	1.08	13.82	11	4.75%	3.1	21%	1.91	0.000	1.91	0
32.152	6937.81	22.0	0.794	21.9	13.0	5.61	3.61%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0	0.54	11.845	1.13	14.56	11	3.93%	3.0	21%	1.92	0.000	1.92	0
32.316	6937.64	50.1	0.684	50.0	11.0	4.78	1.37%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0	0.57	28.711	2.75	35.20	27	1.42%	2.5	21%	1.93	0.000	1.93	0
32.480	6937.48	59.0	0.805	59.0	7.6	3.28	1.36%	Coarse Tailings	0.054	108.1	1.81	0.000	1.81	0	0.59	34.592	3.31	42.39	32	1.41%	2.4	21%	1.94	0.000	1.94	0
32.644	6937.32	63.9	0.808	63.9	6.8	2.93	1.28%	Coarse Tailings	0.054	108.1	1.82	0.000	1.82	0	0.59	37.432	3.59	45.87	34	1.31%	2.4	21%	1.95	0.000	1.95	0

15.256	0	0.90	0.06	0.99	0.10	1.00	0.105	39.90	67.24	0.096	N/A	0.96	0.30	0.80	0.96	1.00	0.122	4.73	129.39	0.281	N/A	N/A	N/A
15.420	0	0.90	0.06	0.99	0.10	1.00	0.105	38.99	63.71	0.092	N/A	0.96	0.29	0.80	0.96	1.00	0.122	5.21	128.89	0.279	N/A	N/A	N/A
15.584	0	0.89	0.06	0.99	0.10	1.00	0.105	39.41	65.34	0.094	N/A	0.96	0.29	0.80	0.96	1.00	0.123	4.88	126.61	0.269	N/A	N/A	N/A
15.748	0	0.89	0.06	0.99	0.10	1.00	0.105	38.85	63.18	0.091	N/A	0.96	0.28	0.80	0.96	1.00	0.123	5.03	122.29	0.250	N/A	N/A	N/A
15.912	0	0.89	0.05	0.99	0.10	1.00	0.105	38.52	61.93	0.090	N/A	0.96	0.28	0.80	0.95	1.00	0.123	5.24	122.63	0.251	N/A	N/A	N/A
16.076	0	0.89	0.05	0.99	0.10	1.00	0.104	37.50	57.97	0.086	N/A	0.96	0.26	0.80	0.95	1.00	0.123	6.02	123.26	0.254	N/A	N/A	N/A
16.240	0	0.89	0.05	0.99	0.10	1.00	0.104	37.76	58.99	0.087	N/A	0.96	0.27	0.80	0.95	1.00	0.123	5.71	121.16	0.245	N/A	N/A	N/A
16.404	0	0.89	0.06	0.99	0.10	1.00	0.104	38.89	63.35	0.092	N/A	0.96	0.29	0.80	0.95	1.00	0.123	4.92	120.40	0.242	N/A	N/A	N/A
16.568	0	0.89	0.06	0.98	0.10	1.00	0.104	39.00	63.78	0.092	N/A	0.96	0.29	0.80	0.95	1.00	0.124	5.00	123.97	0.257	N/A	N/A	N/A
16.732	0	0.89	0.05	0.98	0.10	1.00	0.104	38.31	61.12	0.089	N/A	0.96	0.28	0.80	0.94	1.00	0.124	5.49	125.10	0.262	N/A	N/A	N/A
16.896	0	0.88	0.05	0.98	0.10	1.00	0.104	38.20	60.70	0.089	N/A	0.96	0.27	0.80	0.94	1.00	0.124	5.24	117.80	0.232	N/A	N/A	N/A
17.060	0	0.88	0.06	0.98	0.06	1.00	0.104	41.00	71.48	0.101	N/A	0.96	0.32	0.80	0.94	1.00	0.124	3.65	111.33	0.208	N/A	N/A	N/A
17.224	0	0.88	0.06	0.98	0.07	1.00	0.104	40.71	70.34	0.100	N/A	0.95	0.31	0.80	0.94	1.00	0.124	3.71	110.03	0.204	N/A	N/A	N/A
17.388	0	0.88	0.06	0.98	0.09	1.00	0.104	40.19	68.36	0.098	N/A	0.95	0.31	0.80	0.94	1.00	0.124	4.09	115.27	0.222	N/A	N/A	N/A
17.552	0	0.88	0.06	0.98	0.04	1.00	0.104	41.99	75.26	0.106	N/A	0.95	0.33	0.80	0.94	1.00	0.125	3.64	121.01	0.245	N/A	N/A	N/A
17.716	0	0.88	0.06	0.98	0.02	1.00	0.104	42.50	77.25	0.109	N/A	0.95	0.34	0.80	0.94	1.00	0.125	3.65	126.91	0.270	N/A	N/A	N/A
17.880	0	0.88	0.06	0.98	0.02	1.00	0.104	42.79	78.34	0.110	N/A	0.95	0.34	0.80	0.93	1.00	0.125	3.72	132.20	0.295	N/A	N/A	N/A
18.044	0	0.88	0.06	0.98	0.02	1.00	0.103	42.75	78.21	0.110	N/A	0.95	0.34	0.80	0.93	1.00	0.125	3.70	131.05	0.289	N/A	N/A	N/A
18.208	0	0.87	0.06	0.98	0.03	1.00	0.103	42.30	76.49	0.108	N/A	0.95	0.34	0.80	0.93	1.00	0.125	3.96	135.32	0.310	N/A	N/A	N/A
18.372	0	0.87	0.06	0.98	-0.01	1.00	0.103	43.88	82.55	0.116	N/A	0.95	0.36	0.80	0.93	1.00	0.125	4.11	158.76	0.452	N/A	N/A	N/A
18.537	0	0.87	0.30	0.89	-0.60	1.00	0.113	90.75	320.75	1.000	N/A	0.95	0.88	0.60	0.86	1.00	0.135	1.07	246.09	1.000	N/A	N/A	N/A
18.701	1	0.87	0.30	0.89	-0.60	1.00	0.114	148.60	580.30	1.000	N/A	0.95	1.20	0.60	0.86	1.00	0.136	1.00	431.70	1.000	N/A	N/A	N/A
18.865	1	0.87	0.30	0.88	-0.60	1.00	0.114	169.04	672.02	1.000	N/A	0.95	1.29	0.60	0.86	1.00	0.136	1.00	502.98	1.000	N/A	N/A	N/A
19.029	1	0.87	0.30	0.88	-0.60	1.00	0.114	173.17	690.54	1.000	N/A	0.95	1.31	0.60	0.85	1.00	0.136	1.00	517.37	1.000	N/A	N/A	N/A
19.193	1	0.87	0.30	0.88	-0.60	1.00	0.114	169.18	672.64	1.000	N/A	0.95	1.30	0.60	0.85	1.00	0.137	1.00	503.46	1.000	N/A	N/A	N/A
19.357	1	0.86	0.30	0.88	-0.60	1.00	0.114	169.85	675.63	1.000	N/A	0.95	1.30	0.60	0.85	1.00	0.137	1.00	505.78	1.000	N/A	N/A	N/A
19.521	1	0.86	0.30	0.87	-0.60	1.00	0.114	171.51	683.08	1.000	N/A	0.95	1.31	0.60	0.85	1.00	0.137	1.00	513.04	1.000	N/A	N/A	N/A
19.685	1	0.86	0.30	0.87	-0.60	1.00	0.114	165.72	657.12	1.000	N/A	0.95	1.28	0.60	0.84	1.00	0.138	1.03	507.56	1.000	N/A	N/A	N/A
19.849	1	0.86	0.30	0.87	-0.60	1.00	0.114	160.89	635.44	1.000	N/A	0.95	1.26	0.60	0.84	1.00	0.138	1.01	480.02	1.000	N/A	N/A	N/A
20.013	1	0.86	0.30	0.87	-0.60	1.00	0.114	152.96	599.85	1.000	N/A	0.95	1.22	0.60	0.84	1.00	0.138	1.03	461.52	1.000	N/A	N/A	N/A
20.177	1	0.86	0.30	0.87	-0.60	1.00	0.114	144.09	560.08	1.000	N/A	0.95	1.18	0.60	0.84	1.00	0.139	1.04	432.45	1.000	N/A	N/A	N/A
20.341	1	0.86	0.30	0.86	-0.60	1.00	0.115	136.09	524.18	1.000	N/A	0.95	1.14	0.60	0.83	1.00	0.139	1.05	407.10	1.000	N/A	N/A	N/A
20.505	1	0.86	0.30	0.86	-0.60	1.00	0.115	129.41	494.20	1.000	N/A	0.95	1.10	0.60	0.83	1.00	0.139	1.05	381.31	1.000	N/A	N/A	N/A
20.669	1	0.85	0.30	0.86	-0.60	1.00	0.115	122.87	464.87	1.000	N/A	0.95	1.07	0.60	0.83	1.00	0.140	1.07	364.44	1.000	N/A	N/A	N/A
20.833	1	0.85	0.30	0.86	-0.60	1.00	0.115	112.86	419.93	1.000	N/A	0.95	1.01	0.60	0.83	1.00	0.140	1.09	335.05	1.000	N/A	N/A	N/A
20.997	1	0.85	0.30	0.86	-0.60	1.00	0.115	104.50	382.44	1.000	N/A	0.95	0.96	0.60	0.83	1.00	0.140	1.11	309.72	1.000	N/A	N/A	N/A
21.161	1	0.85	0.30	0.85	-0.60	1.00	0.115	94.48	337.50	1.000	N/A	0.95	0.90	0.60	0.82	1.00	0.141	1.13	275.60	1.000	N/A	N/A	N/A
21.325	1	0.85	0.30	0.85	-0.60	1.00	0.115	84.98	294.88	1.000	N/A	0.95	0.84	0.60	0.82	1.00	0.141	1.16	243.57	1.000	N/A	N/A	N/A
21.489	1	0.85	0.20	0.90	-0.60	1.00	0.109	75.11	250.58	1.000	N/A	0.94	0.76	0.62	0.83	1.00	0.140	1.20	210.32	1.000	N/A	N/A	N/A
21.653	1	0.85	0.16	0.92	-0.54	1.00	0.106	67.69	217.28	1.000	N/A	0.94	0.71	0.65	0.84	1.00	0.138	1.24	185.34	1.000	N/A	N/A	N/A
21.817	1	0.84	0.13	0.93	-0.47	1.00	0.105	61.66	190.22	0.757	N/A	0.94	0.65	0.67	0.85	1.00	0.137	1.29	166.28	1.000	N/A	N/A	N/A
21.981	1	0.84	0.12	0.94	-0.42	1.00	0.104	57.41	171.16	0.419	N/A	0.94	0.62	0.69	0.85	1.00	0.135	1.33	150.78	0.399	N/A	N/A	N/A
22.145	1	0.84	0.11	0.94	-0.37	1.00	0.103	53.82	155.08	0.297	N/A	0.94	0.58	0.71	0.86	1.00	0.134	1.39	141.07	0.341	N/A	N/A	N/A
22.309	1	0.84	0.10	0.95	-0.33	1.00	0.103	51.49	144.59	0.249	N/A	0.94	0.56	0.72	0.86	1.00	0.134	1.42	132.28	0.295	N/A	N/A	N/A
22.473	1	0.84	0.09	0.95	-0.24	1.00	0.102	46.32	121.40	0.183	N/A	0.94	0.50	0.75	0.87	1.00	0.132	1.60	119.77	0.240	N/A	N/A	N/A
22.638	1	0.84	0.08	0.96	-0.19	1.00	0.101	43.65	109.46	0.159	N/A	0.94	0.47	0.77	0.88	1.00	0.131	1.71	112.64	0.213	N/A	N/A	N/A
22.802	1	0.84	0.08	0.96	-0.16	1.00	0.101	42.11	102.53	0.147	N/A	0.94	0.45	0.78	0.88	1.00	0.130	1.75	105.61	0.190	N/A	N/A	N/A
22.966	1	0.83	0.07	0.96	-0.10	1.00	0.101	39.53	90.93	0.128	N/A	0.94	0.41	0.79	0.89	1.00	0.129	1.95	100.44	0.174	N/A	N/A	N/A
23.130	1	0.83	0.07	0.96	-0.06	1.00	0.100	38.03	84.22	0.118	N/A	0.94	0.39	0.80	0.89	1.00	0.129	2.07	95.41	0.161	N/A	N/A	N/A
23.294	1	0.83	0.07	0.96	-0.03	1.00	0.100	36.89	79.12	0.111	N/A	0.94	0.38	0.80	0.89	1.00	0.129	2.12	89.44	0.147	N/A	N/A	N/A
23.458	1	0.83	0.06	0.96	-0.01	1.00	0.100	36.01	75.14	0.106	N/A	0.94	0.36	0.80	0.89	1.00	0.129	2.18	85.22	0.138	N/A	N/A	N/A
23.622	1	0.83	0.06	0.96	0.01	1.00	0.100	35.57	73.18	0.104	N/A	0.94	0.35	0.80	0.89	1.00	0.129	2.15	80.74	0.129	N/A	N/A	N/A
23.786	1	0.83	0.06	0.96	0.03	1.00	0.099	34.99	70.60	0.100	N/A	0.94	0.34	0.80	0.89	1.00	0.129	2.04	72.65	0.116	N/A	N/A	N/A
23.950	1	0.83	0.06	0.96	0.02	1.00	0.099	35.24	71.69	0.102	N/A	0.94	0.35	0.80	0.89	1.00	0.129	2.05	74.57	0.119	N/A	N/A	N/A
24.114	1	0.83	0.06	0.96	0.05	1.00	0.099	34.40	67.93	0.097	N/A	0.94	0.33	0.80	0.89	1.00	0.129	2.30	77.10	0.123	N/A	N/A	N/A
24.278	1	0.82	0.06	0.96	0.01	1.00	0.099	35.58	73.22	0.104	N/A	0.94	0.35	0.80	0.89	1.00	0.130	2.12	79.85	0.127	N/A	N/A	N/A
24.442	1	0.82	0.06	0.96	0.00	1.00	0.099	35.87	74.53	0.105	N/A	0.94	0.36	0.80	0.88	1.00	0.130	2.14	82.66	0.133	N/A	N/A	N/A
24.606	1	0.82	0.06	0.96	0.00	1.00	0.099	36.02	75.20	0.106	N/A	0.94	0.36	0.80	0.88	1.00	0.130	2.17	85.04	0.137	N/A	N/A	N/A
24.770	1	0.82	0.07	0.96	-0.03	1.00	0.099	37.07	79.91	0.113	N/A	0.94	0.38	0.80	0.88	1.00	0.130	2.05	88.03	0.143	N/A	N/A	N/A
24.934	1	0.82	0.07	0.96	-0.07	1.00	0.099	38.24	85.19	0.120	N/A	0.94	0.40	0.80	0.88	1.00	0.130	1.81	85.10	0.137	N/A	N/A	N/A
25.098	1	0.82	0.07	0.95	-0.11	1.00	0.099	40.04	93.25	0.132	N/A	0.94	0.42	0.79	0.87	1.00	0.131	1.74	92.67	0.154	N/A	N/A	N/A
25.262	1	0.82	0.08	0.95	-0.19	1.00	0.099	43.63	109.34	0.159	N/A	0.94	0.47	0.77	0.86	1.00	0.133	1.56	102.27	0.179	N/A	N/A	N/A
25.426	1	0.81	0.09	0.94	-0.25	1.00	0.100	47.05	124.71	0.190	N/A	0.94	0.51	0.75	0.85	1.00	0.135	1.47	114.17	0.218	N/A	N/A	N/A
25.590	1	0.81	0.10	0.93	-0.33	1.00	0.101	51.98	146.81	0.258	N/A	0.94	0.56	0.72	0.83	1.00	0.137	1.35	128.14	0.276	N/A	N/A	N/A
25.754	1	0.81	0.10	0.93	-0.35	1.00	0.101	52.97	151.27	0.277	N/A	0.94	0.57	0.71	0.83	1.00	0.138	1.36	133.67	0.302	N/A	N/A	N/A
25.918	1	0.81	0.10	0.93	-0.34	1.00	0.100	52.15	147.57	0.261	N/A	0.93	0.56	0.72	0.83	1.00	0.138	1.39	132.79	0.298	N/A	N/A	N/A
26.082	1	0.81	0.10	0.93	-0.32	1.00	0.100	51.02	142.52	0.241	N/A	0.93	0.55	0.72	0.83	1.00	0.137	1.43	130.90	0.289	N/A	N/A	N/A
26.246	1	0.81	0.10	0.93	-0.30	1.00	0.100	50.10	138.39	0.227	N/A	0.93	0.54	0.73	0.83	1.00	0.137	1.48	130.58	0.287	N/A	N/A	N/A
26.410	1	0.81	0.09	0.94	-0.29	1.00	0.100	49.30	134.79	0.216	N/A	0.93	0.53	0.73	0.83	1.00	0.137	1.53	130.65	0.287	N/A	N/A	N/A
26.574	1	0.80	0.09	0.94	-0.26	1.00	0.099	47.71	127.67	0.197	N/A	0.93	0.52	0.74	0.84	1.00	0.136	1.66	132.63	0.297	N/A	N/A	N/A
26.739	1	0.80	0.09	0.94	-0.22	1.00	0.099	45.59	118.12	0.176	N/A	0.93	0.49	0.75	0.84	1.00	0.135	1.81	131.05	0.289	N/A	N/A	N/A
26.903	1	0.80	0.08	0.95	-0.15	1.00	0.098	42.07	102.36	0.146	N/A	0.93	0.45	0.78	0.86	1.00	0.133	2.16	129.93	0.284	N/A	N/A	N/A
27.067	1	0.80	0.07	0.95	-0.10	1.00	0.097	39.80	92.19	0.130	N/A	0.93	0.42	0.79	0.86	1.00	0.132	2.15	112.55	0.213	N/A	N/A	N/A
27.231	1	0.80	0.07	0.95	-0.12	1.00	0.097	40.74	96.38	0.137	N/A	0.93	0.43	0.78	0.86	1.00	0.133	2.05	113.81	0.217	N/A	N/A	N/A
27.395	1	0.80	0.06	0.95	0.00	1.00	0.097	35.95	74.88	0.106	N/A	0.93	0.36	0.80	0.87	1.00	0.131	3.23	125.55	0.264	N/A	N/A	N/A
27.559	1	0.80	0.06	0.96	0.10	1.00	0.096	32.89	61.17	0.089	N/A	0.93	0.31	0.80	0.87	1.00	0.131	4.27	120.75	0.244	N/A	N/A	N/A
27.723	1	0.79	0.06	0.96	0.10	1.00	0.096	32.28	58.44	0.086	N/A	0.93	0.30	0.80	0.87	1.00	0.132	4.63	121.02	0.245	N/A	N/A	N/A
27.887	1	0.79	0.07	0.95	-0.10	1.00	0.097	39.89	92.57	0.131	N/A	0.93	0.42	0.79	0.86	1.00	0.133	2.24	117.99	0.233	N/A	N/A	N/A
28.051	1	0.79	0.07	0.95	-0.09	1.00	0.097	39.40	90.39	0.127	N/A	0.93	0.41	0.79	0.86	1.00	0.132	2.42	123.28	0.254	N/A	N/A	N/A
28.215	1	0.79	0.06	0.95	0.00	1.00	0.096	35.91	74.73	0.106	N/A	0.93	0.36	0.80	0.86	1.00	0.131	3.17	122.88	0.253	N/A	N/A	N/A
28.379	1	0.79	0.07	0.95	-0.02	1.00	0.096	36.58	77.70	0.110	N/A	0.93	0.37	0.80	0.86	1.00	0.131	2.78	114.34	0.219	N/A	N/A	N/A
28.543	1	0.79	0.07	0.94	-0.12	1.00	0.096	40.57	95.63	0.136	N/A	0.92	0.43	0.79	0.85	1.00	0.133	1.95	107.58	0.196	N/A	N/A	N/A
28.707	1	0.79	0.07	0.94	-0.12	1.00	0.096	40.64	95.94	0.136	N/A	0.92	0.43	0.79	0.85	1.00	0.133	1.89	104.58	0.186	N/A	N/A	N/A
28.871	1	0.78	0.07	0.94	-0.10	1.00	0.096	39.84	92.36	0.130	N/A	0.92	0.42	0.79	0.85	1.00	0.132	1.87	98.03	0.168	N/A	N/A	N/A
29.035	1	0.78	0.07	0.94	-0.10	1.00	0.096	39.63	91.42	0.129	N/A	0.92	0.42	0.79	0.85	1.00	0.132	1.93	100.19	0.174	N/A	N/A	N/A
29.199	1	0.78	0.07	0.95	-0.05	1.00	0.095	37.76	83.00	0.117	N/A	0.92	0.39	0.80	0.86	1.00	0.131	2.30	104.20	0.185	N/A	N/A	N/A
29.363	1	0.78	0.06	0.95	0.01	1.00	0.095	35.70	73.75	0.104	N/A	0.92	0.36	0.80	0.86	1.00	0.131	2.82	107.49	0.195	N/A	N/A	N/A
29.527	1	0.78	0.07	0.95	-0.07	1.00	0.095	38.76	87.48	0.123	N/A	0.92	0.40	0.80	0.85	1.00	0.131	2.16	105.23	0.188	N/A	N/A	N/A
29.691	1	0.78	0.07	0.95	-0.05	1.00	0.095	38.04	84.25	0.119	N/A	0.92	0.39	0.80	0.85	1.00	0.131	2.32	107.36	0.195	N/A	N/A	N/A
29.855	1	0.78	0.06	0.95	0.03	1.00	0.094	35.20	71.54	0.102	N/A	0.91	0.35	0.80	0.85	1.00	0.131	2.70	97.95	0.167	N/A	N/A	N/A
30.019	1	0.78	0.06	0.95	0.00	1.00	0.094	36.19	75.95	0.107	N/A	0.91	0.36	0.80	0.85	1.00	0.131	2.62	104.06	0.185	N/A	N/A	N/A
30.183	1	0.77	0.07	0.95	-0.03	1.00	0.095	37.26	80.75	0.114	N/A	0.91	0.38	0.80	0.85	1.00	0.131	2.72	118.15	0.233	N/A	N/A	N/A
30.347	1	0.77	0.06	0.95	0.10	1.00	0.094	33.01	61.69	0.090	N/A	0.91	0.31	0.80	0.85	1.00	0.131	4.44	127.36	0.272	N/A	N/A	N/A
30.511	1	0.77	0.05	0.96	0.10	1.00	0.093	31.45	54.69	0.082	N/A	0.91	0.28	0.80	0.85	1.00	0.131	5.49	127.52	0.273	N/A	N/A	N/A
30.675	1	0.77	0.06	0.95	0.10	1.00	0.093	31.98	57.06	0.085	N/A	0.91	0.29	0.80	0.85	1.00	0.131	5.43	136.32	0.316	N/A	N/A	N/A
30.840	1	0.77	0.05	0.96	0.10	1.00	0.093	29.22	44.71	0.073	N/A	0.91	0.23	0.80	0.85	1.00	0.131	8.04	124.45	0.259	N/A	N/A	N/A
31.004	1	0.77	0.05	0.96	0.10	1.00	0.092	27.64	37.62	0.067	N/A	0.90	0.18	0.80	0.85	1.00	0.130	10.67	106.45	0.192	N/A	N/A	N/A
31.168	1	0.77	0.04	0.96	0.10	1.00	0.092	27.34	36.25	0.066	N/A	0.90	0.17	0.80	0.85	1.00	0.130	10.45	93.20	0.155	N/A	N/A	N/A
31.332	1	0.76	0.05	0.96	0.10	1.00	0.092	30.11	48.67	0.076	N/A	0.90	0.25	0.80	0.85	1.00	0.130	4.74	87.95	0.143	N/A	N/A	N/A
31.496	1	0.76	0.05	0.95	0.10	1.00	0.092	31.17	53.43	0.081	N/A	0.90	0.27	0.80	0.85	1.00	0.130	4.43	98.58	0.169	N/A	N/A	N/A
31.660	1	0.76	0.05	0.95	0.10	1.00	0.092	31.11	53.18	0.081	N/A	0.90	0.27	0.80	0.85	1.00	0.130	5.08	112.13	0.211	N/A	N/A	N/A
31.824	1	0.76	0.05	0.96	0.10	1.00	0.092	30.19	49.03	0.077	N/A	0.90	0.25	0.80	0.84	1.00	0.130	6.58	124.08	0.258	N/A	N/A	N/A
31.988	1	0.76	0.05	0.96	0.10	1.00	0.091	28.74	42.56	0.071	N/A	0.90	0.21	0.80	0.84	1.00	0.130	7.84	108.28	0.198	N/A	N/A	N/A
32.152	1	0.76	0.05	0.96	0.10	1.00	0.091	28.96	43.51	0.072	N/A	0.90	0.22	0.80	0.84	1.00	0.130	7.01	102.01	0.179	N/A	N/A	N/A
32.316	1	0.76	0.06	0.95	0.04	1.00	0.092	34.88	70.08	0.100	N/A	0.89	0.34	0.80	0.84	1.00	0.130	2.57	90.63	0.149	N/A	N/A	N/A
32.480	1	0.75	0.07	0.94	-0.02	1.00	0.093	36.94	79.33	0.112	N/A	0.89	0.38	0.80	0.84	1.00	0.130	2.31	97.96	0.167	N/A	N/A	N/A
32.644	1	0.75	0.07	0.94	-0.05	1.00	0.093	37.94	83.80	0.118	N/A	0.89	0.39	0.80	0.84	1.00	0.130	2.15	98.62	0.169	N/A	N/A	N/A

0.95	22.33	2.14	27.34	15.256		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.94	20.19	1.93	24.73	15.420		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.94	21.18	2.03	25.93	15.584		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.93	19.87	1.90	24.33	15.748		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.92	19.11	1.83	23.40	15.912	16	0.95	14	12	0.56	0.49	0.89	5.6	18.0	0.18	N/A	5.00	1.20	19.91	0.214	N/A	N/A
0.91	16.72	1.60	20.48	16.076		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	17.34	1.66	21.23	16.240		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	19.97	1.91	24.46	16.404		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.89	20.23	1.94	24.78	16.568		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	18.62	1.78	22.80	16.732		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	18.37	1.76	22.49	16.896		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	24.89	2.38	30.48	17.060		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	24.20	2.32	29.64	17.224		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.86	23.00	2.20	28.17	17.388		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.86	27.18	2.60	33.28	17.552		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.86	28.38	2.72	34.75	17.716		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.85	29.04	2.78	35.56	17.880		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.85	28.96	2.77	35.46	18.044		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.84	27.92	2.67	34.18	18.208		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.84	31.58	3.02	38.67	18.372		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.93	187.83	17.98	230.00	18.537		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.93	352.55	33.75	431.70	18.701		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.93	410.76	39.33	502.98	18.865		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.93	422.51	40.45	517.37	19.029		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.93	411.15	39.36	503.46	19.193		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	413.05	39.55	505.78	19.357		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	417.78	40.00	511.57	19.521		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	401.30	38.42	491.40	19.685		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	387.54	37.10	474.55	19.849		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	364.96	34.94	446.90	20.013		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	339.72	32.52	415.99	20.177		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	316.93	30.34	388.09	20.341		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	297.91	28.52	364.79	20.505		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	279.29	26.74	342.00	20.669		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	250.78	24.01	307.08	20.833		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.90	226.98	21.73	277.94	20.997	46	0.95	40	35	0.93	0.30	0.87	4.6	39.4	3.47	N/A	3.73	1.08	41.52	N/A	N/A	N/A
0.90	198.46	19.00	243.02	21.161		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.88	171.41	16.41	209.90	21.325		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.86	143.30	13.72	175.47	21.489		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.85	122.16	11.70	149.59	21.653		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.83	104.99	10.05	128.57	21.817		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.82	92.90	8.89	113.76	21.981		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.81	82.69	7.92	101.26	22.145		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.80	76.04	7.28	93.11	22.309		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.78	61.32	5.87	75.08	22.473		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.77	53.74	5.14	65.80	22.638		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.76	49.34	4.72	60.42	22.802		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	41.98	4.02	51.41	22.966		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	37.72	3.61	46.19	23.130		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.73	34.48	3.30	42.23	23.294		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.72	31.96	3.06	39.14	23.458		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.71	30.71	2.94	37.61	23.622		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.71	29.08	2.78	35.60	23.786		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	29.77	2.85	36.45	23.950		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	27.38	2.62	33.53	24.114		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	30.74	2.94	37.64	24.278		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	31.57	3.02	38.66	24.442		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	32.00	3.06	39.18	24.606		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	34.99	3.35	42.84	24.770		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	38.33	3.67	46.94	24.934		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.71	43.45	4.16	53.21	25.098		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.72	53.66	5.14	65.71	25.262		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.73	63.42	6.07	77.66	25.426		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	77.44	7.41	94.83	25.590		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	80.28	7.69	98.30	25.754		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	77.92	7.46	95.42	25.918		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	74.72	7.15	91.50	26.082		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.73	72.10	6.90	88.29	26.246		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.73	69.82	6.68	85.49	26.410		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.72	65.30	6.25	79.96	26.574		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.71	59.24	5.67	72.54	26.739		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.69	49.24	4.71	60.29	26.903		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.68	42.78	4.10	52.38	27.067		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.68	45.44	4.35	55.64	27.231		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	31.79	3.04	38.93	27.395		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.62	23.09	2.21	28.28	27.559		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.62	21.36	2.04	26.15	27.723		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.66	43.02	4.12	52.68	27.887		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.66	41.64	3.99	50.99	28.051		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.64	31.70	3.03	38.81	28.215		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.64	33.58	3.22	41.12	28.379		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.66	44.96	4.30	55.05	28.543		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.66	45.16	4.32	55.30	28.707		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	42.89	4.11	52.52	28.871		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	42.29	4.05	51.79	29.035		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.63	36.95	3.54	45.25	29.199		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.62	31.08	2.98	38.06	29.363		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.64	39.79	3.81	48.72	29.527		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.63	37.74	3.61	46.21	29.691		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.61	29.67	2.84	36.34	29.855		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.61	32.48	3.11	39.77	30.019		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.62	35.52	3.40	43.50	30.183		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.58	23.42	2.24	28.68	30.347		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.57	18.98	1.82	23.24	30.511		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.57	20.49	1.96	25.09	30.675		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.56	12.65	1.21	15.49	30.840		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.56	8.15	0.78	9.98	31.004	9	1.00	8	5	0.36	0.60	0.61	4.6	9.6	0.12	N/A	3.73	1.08	9.22	0.106	N/A	N/A
0.55	7.28	0.70	8.92	31.168		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.55	15.16	1.45	18.57	31.332		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.55	18.18	1.74	22.26	31.496		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.55	18.02	1.73	22.07	31.660		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.54	15.39	1.47	18.84	31.824		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.54	11.28	1.08	13.82	31.988		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.54	11.89	1.14	14.56	32.152		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.57	28.75	2.75	35.20	32.316		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.59	34.62	3.31	42.39	32.480		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.59	37.46	3.59	45.87	32.644		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

32.808	6937.15	63.0	1.132	63.0	6.3	2.75	1.80%	Coarse Tailings	0.054	108.1	1.83	0.000	1.83	0	0.59	37.073	3.55	45.42	33	1.85%	2.4	21%	1.96	0.000	1.96	0	1	0.75	0.07	0.94	-0.05	1.00	0.092	37.81	83.23	0.117	N/A	0.89	0.39	0.80	0.84	1.00	0.130	2.53	114.71	0.220	N/A	N/A	N/A	0.59	37.10	3.55	45.42	32.808		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
32.972	6936.99	59.3	1.460	59.3	6.0	2.58	2.46%	Coarse Tailings	0.054	108.1	1.84	0.000	1.84	0	0.58	34.417	3.30	42.17	31	2.54%	2.6	21%	1.97	0.000	1.97	0	1	0.75	0.07	0.94	-0.02	1.00	0.092	36.88	79.05	0.111	N/A	0.89	0.37	0.80	0.84	1.00	0.130	3.08	129.79	0.283	N/A	N/A	N/A	0.58	34.44	3.30	42.17	32.972		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.136	6936.82	54.3	1.805	54.3	6.3	2.75	3.32%	Coarse Tailings	0.054	108.1	1.85	0.000	1.85	0	0.57	30.955	2.97	37.93	28	3.44%	2.7	21%	1.98	0.000	1.98	0	1	0.75	0.06	0.94	0.02	1.00	0.092	35.66	73.59	0.104	N/A	0.89	0.36	0.80	0.84	1.00	0.129	3.81	144.66	0.362	N/A	N/A	N/A	0.57	30.98	2.97	37.93	33.136		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.300	6936.66	42.7	1.793	42.7	5.8	2.50	4.20%	Coarse Tailings	0.054	108.1	1.86	0.000	1.86	0	0.55	23.350	2.24	28.62	22	4.39%	2.8	21%	1.98	0.000	1.98	0	1	0.75	0.06	0.95	0.10	1.00	0.091	32.99	61.61	0.090	N/A	0.89	0.31	0.80	0.84	1.00	0.129	5.02	143.68	0.356	N/A	N/A	N/A	0.55	23.37	2.24	28.62	33.300		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.464	6936.50	32.7	1.516	32.6	5.8	2.52	4.64%	Coarse Tailings	0.054	108.1	1.87	0.000	1.87	0	0.52	17.099	1.64	20.96	17	4.92%	3.0	21%	1.99	0.000	1.99	0	1	0.75	0.05	0.95	0.10	1.00	0.091	30.79	51.75	0.079	N/A	0.88	0.26	0.80	0.84	1.00	0.129	6.25	131.07	0.289	N/A	N/A	N/A	0.52	17.12	1.64	20.96	33.464		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.628	6936.33	33.3	1.044	33.2	7.4	3.19	3.14%	Coarse Tailings	0.054	108.1	1.88	0.000	1.88	0	0.52	17.368	1.66	21.30	17	3.33%	2.8	21%	2.00	0.000	2.00	0	1	0.74	0.05	0.95	0.10	2.00	0.045	30.89	52.19	0.080	N/A	0.88	0.27	0.80	0.84	2.00	0.065	5.16	109.87	0.203	N/A	N/A	N/A	0.52	17.39	1.67	21.30	33.628		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.792	6936.17	36.9	1.171	36.8	6.5	2.83	3.18%	Coarse Tailings	0.054	108.1	1.88	0.000	1.88	0	0.53	19.471	1.87	23.87	19	3.35%	2.8	21%	2.01	0.000	2.01	0	1	0.74	0.05	0.95	0.10	3.00	0.030	31.63	55.50	0.083	N/A	0.88	0.28	0.80	0.84	3.00	0.043	4.86	115.96	0.225	N/A	N/A	N/A	0.53	19.49	1.87	23.87	33.792		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
33.956	6936.00	34.8	1.193	34.8	4.0	1.73	3.43%	Coarse Tailings	0.054	108.1	1.89	0.000	1.89	0	0.52	18.166	1.74	22.26	17	3.62%	2.9	21%	2.02	0.000	2.02	0	1	0.74	0.05	0.95	0.10	4.00	0.023	31.17	53.43	0.081	N/A	0.88	0.27	0.80	0.83	4.00	0.032	5.25	116.80	0.228	N/A	N/A	N/A	0.52	18.18	1.74	22.26	33.956		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
34.120	6935.84	33.1	1.240	33.1	4.3	1.85	3.75%	Coarse Tailings	0.054	108.1	1.90	0.000	1.90	0	0.52	17.081	1.64	20.93	16	3.97%	2.9	21%	2.03	0.000	2.03	0	1	0.74	0.05	0.95	0.10	5.00	0.018	30.78	51.72	0.079	N/A	0.88	0.26	0.80	0.83	5.00	0.026	5.67	118.74	0.236	N/A	N/A	N/A	0.52	17.10	1.64	20.93	34.120		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
34.284	6935.68	52.1	1.317	52.0	6.4	2.76	2.53%	Coarse Tailings	0.054	108.1	1.91	0.000	1.91	0	0.55	28.664	2.75	35.13	26	2.63%	2.6	21%	2.04	0.000	2.04	0	0	0.74	0.06	0.94	0.04	6.00	0.015	34.86	69.98	0.100	N/A	0.88	0.34	0.80	0.83	6.00	0.021	3.49	122.52	0.251	N/A	N/A	N/A	0.55	28.69	2.75	35.13	34.284		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
34.448	6935.51	44.6	1.402	44.6	4.7	2.03	3.14%	Coarse Alluvium	0.056	111.0	1.92	0.000	1.92	0	0.54	23.890	2.29	29.27	22	3.28%	2.7	36%	2.05	0.000	2.05	0	0	0.74	0.06	0.95	0.10	7.00	0.013	39.89	69.17	0.099	N/A	0.88	0.31	0.80	0.83	7.00	0.018	4.31	126.25	0.267	N/A	N/A	N/A	0.54	23.91	2.29	29.27	34.448		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.612	6935.35	29.7	1.175	29.7	5.8	2.50	3.95%	Coarse Alluvium	0.056	111.0	1.93	0.000	1.93	0	0.51	15.167	1.45	18.60	14	4.23%	3.0	36%	2.06	0.000	2.06	0	0	0.74	0.05	0.95	0.10	8.00	0.011	36.21	54.81	0.082	N/A	0.88	0.25	0.80	0.83	8.00	0.016	6.29	116.91	0.229	N/A	N/A	N/A	0.51	15.19	1.45	18.60	34.612		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.776	6935.18	44.7	1.089	44.7	7.5	3.23	2.43%	Coarse Alluvium	0.056	111.0	1.94	0.000	1.94	0	0.53	23.738	2.27	29.10	22	2.55%	2.7	36%	2.06	0.000	2.06	0	0	0.74	0.06	0.95	0.10	9.00	0.010	39.83	68.93	0.098	N/A	0.87	0.31	0.80	0.83	9.00	0.014	3.83	111.38	0.208	N/A	N/A	N/A	0.53	23.76	2.28	29.10	34.776		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.941	6935.02	71.4	1.222	71.3	6.3	2.75	1.71%	Coarse Alluvium	0.056	111.0	1.95	0.000	1.95	0	0.57	40.971	3.92	50.20	36	1.76%	2.4	36%	2.07	0.000	2.07	0	0	0.73	0.07	0.93	-0.08	10.00	0.009	47.11	97.31	0.138	N/A	0.87	0.41	0.80	0.83	10.00	0.013	2.37	118.96	0.237	N/A	N/A	N/A	0.57	40.99	3.92	50.20	34.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.105	6934.86	104.1	1.507	104.1	6.1	2.62	1.45%	Coarse Alluvium	0.056	111.0	1.96	0.000	1.96	0	0.62	64.423	6.17	78.92	52	1.48%	2.2	36%	2.08	0.000	2.08	0	0	0.73	0.09	0.92	-0.25	11.00	0.008	57.01	135.93	0.220	N/A	0.87	0.51	0.74	0.79	11.00	0.012	1.76	138.82	0.329	N/A	N/A	N/A	0.62	64.45	6.17	78.92	35.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.269	6934.69	202.3	2.997	202.2	8.8	3.82	1.48%	Coarse Alluvium	0.056	111.0	1.97	0.000	1.97	0	0.73	148.026	14.18	181.31	102	1.50%	2.0	36%	2.09	0.000	2.09	0	0	0.73	0.21	0.80	-0.60	12.00	0.009	92.33	273.63	1.000	N/A	0.87	0.78	0.61	0.69	12.00	0.013	1.33	240.73	1.000	N/A	N/A	N/A	0.73	148.07	14.18	181.31	35.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.433	6934.53	273.6	5.524	273.6	8.1	3.50	2.02%	Coarse Alluvium	0.056	111.0	1.97	0.000	1.97	0	0.79	216.714	20.76	265.42	138	2.03%	2.0	36%	2.10	0.000	2.10	0	0	0.73	0.30	0.72	-0.60	13.00	0.009	121.33	386.75	1.000	N/A	0.87	0.94	0.60	0.69	13.00	0.012	1.34	354.82	1.000	N/A	N/A	N/A	0.79	216.75	20.75	265.42	35.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.597	6934.36	262.5	7.086	262.5	6.9	2.97	2.70%	Coarse Alluvium	0.056	111.0	1.98	0.000	1.98	0	0.79	207.677	19.89	254.34	131	2.72%	2.1	36%	2.11	0.000	2.11	0	0	0.73	0.30	0.72	-0.60	14.00	0.010	117.51	371.86	1.000	N/A	0.87	0.92	0.60	0.68	14.00	0.011	1.52	387.80	1.000	N/A	N/A	N/A	0.79	207.71	19.89	254.34	35.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.761	6934.20	155.8	7.241	155.8	5.1	2.20	4.65%	Coarse Alluvium	0.056	111.0	1.99	0.000	1.99	0	0.68	105.193	10.08	128.84	77	4.71%	2.5	36%	2.12	0.000	2.12	0	0	0.73	0.13	0.87	-0.46	15.00	0.006	74.23	203.07	1.000	N/A	0.87	0.66	0.67	0.73	15.00	0.010	2.61	336.01	1.000	N/A	N/A	N/A	0.68	105.21	10.07	128.84	35.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.925	6934.04	133.2	4.810	133.2	6.4	2.76	3.61%	Coarse Alluvium	0.056	111.0	2.00	0.000	2.00	0	0.65	86.093	8.25	105.45	66	3.67%	2.4	36%	2.13	0.000	2.13	0	0	0.73	0.11	0.89	-0.37	16.00	0.006	66.17	171.62	0.424	N/A	0.86	0.59	0.70	0.75	16.00	0.009	2.45	258.43	1.000	N/A	N/A	N/A	0.65	86.12	8.24	105.45	35.925	42	1.00	39	28	0.83	0.35	0.71	5.5	33.1	0.77	N/A	5.00	1.20	38.12	N/A	N/A	N/A
36.089	6933.87	70.0	3.734	70.0	5.4	2.32	5.33%	Coarse Alluvium	0.056	111.0	2.01	0.000	2.01	0	0.56	39.076	3.74	47.87	34	5.49%	2.8	36%	2.14	0.000	2.14	0	0	0.72	0.07	0.93	-0.06	17.00	0.005	46.31	94.18	0.133	N/A	0.86	0.40	0.80	0.82	17.00	0.008	4.44	212.52	1.000	N/A	N/A	N/A	0.56	39.09	3.74	47.87	36.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.253	6933.71	40.6	1.978	40.5	4.4	1.91	4.88%	Coarse Alluvium	0.056	111.0	2.02	0.000	2.02	0	0.50	20.457	1.96	25.07	19	5.13%	2.9	36%	2.15	0.000	2.15	0	0	0.72	0.06	0.95	0.10	18.00	0.005	38.44	63.51	0.092	N/A	0.86	0.29	0.80	0.82	18.00	0.007	5.88	147.51	0.378	N/A	N/A	N/A	0.50	20.47	1.96	25.07	36.253		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.417	6933.54	31.4	1.901	31.4	4.3	1.85	6.05%	Coarse Alluvium	0.056	111.0	2.03	0.000	2.03	0	0.49	15.423	1.48	18.90	14	6.46%	3.1	36%	2.16	0.000	2.16	0	0	0.72	0.05	0.95	0.10	19.00	0.005	36.32	55.22	0.083	N/A	0.86	0.25	0.80	0.82	19.00	0.007	7.61	143.88	0.357	N/A	N/A	N/A	0.49	15.44	1.48	18.90	36.417		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.581	6933.38	25.8	1.845	25.8	4.4	1.89	7.14%	Coarse Alluvium	0.056	111.0	2.04	0.000	2.04	0	0.49	12.625	1.21	15.48	12	7.75%	3.2	36%	2.16	0.000	2.16	0	0	0.72	0.05	0.95	0.10	20.00	0.004	35.13	50.61	0.078	N/A	0.86	0.23	0.80	0.82	20.00	0.006	9.21	142.57	0.349	N/A	N/A	N/A	0.49	12.64	1.21	15.48	36.581		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.745	6933.22	25.0	1.678	25.0	5.1	2.22	6.71%	Coarse Alluvium	0.056	111.0	2.05	0.000	2.05	0	0.49	12.177	1.17	14.93	11	7.31%	3.2	36%	2.17	0.000	2.17	0	0	0.72	0.05	0.95	0.10	21.00	0.004	34.95	49.88	0.077	N/A	0.86	0.22	0.80	0.82	21.00	0.006	9.16	136.76	0.318	N/A	N/A	N/A	0.49	12.19	1.17	14.93	36.745		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.909	6933.05	26.5	1.469	26.5	5.5	2.38	5.53%	Coarse Alluvium	0.056	111.0	2.06	0.000	2.06	0	0.49	12.878	1.23	15.79	12	6.00%	3.1	36%	2.18	0.000	2.18	0	0	0.72	0.05	0.95	0.10	22.00	0.004	35.24	51.03	0.078	N/A	0.86	0.23	0.80	0.82	22.00	0.006	8.16	128.83	0.279	N/A	N/A	N/A	0.49	12.89	1.23	15.79	36.909		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.073	6932.89	27.8	1.554	27.8	5.7	2.46	5.58%	Coarse Alluvium	0.056	111.0	2.07	0.000	2.07	0	0.48	13.453	1.29	16.49	12	6.03%	3.1	36%	2.19	0.000	2.19	0	0	0.72	0.05	0.95	0.10	23.00	0.004	35.49	51.98	0.079	N/A	0.86	0.23	0.80	0.82	23.00	0.006	7.98	131.69	0.292	N/A	N/A	N/A	0.48	13.47	1.29	16.49	37.073		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.237	6932.72	29.5	1.787	29.5	6.8	2.95	6.06%	Coarse Alluvium	0.056	111.0	2.07	0.000	2.07	0	0.48	14.208	1.36	17.42	13	6.52%	3.1	36%	2.20	0.000	2.20	0	0	0.71	0.05	0.95	0.10	24.00	0.004	35.81	53.23	0.081	N/A	0.85	0.24	0.80	0.82	24.00	0.005	8.02	139.69	0.333	N/A	N/A	N/A	0.48	14.23	1.36	17.42	37.237		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.401	6932.56	34.2	1.855	34.2	7.1	3.09	5.42%	Coarse Alluvium	0.056	111.0	2.08	0.000	2.08	0	0.48	16.424	1.57	20.14	15	5.78%	3.0	36%	2.21	0.000	2.21	0	0	0.71	0.05	0.95	0.10	25.00	0.003	36.74	56.88	0.084	N/A	0.85	0.26	0.80	0.82	25.00	0.005	7.00	140.88	0.340	N/A	N/A	N/A	0.48	16.45	1.57	20.14	37.401		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.565	6932.40	54.5	2.149	54.4	7.8	3.40	3.94%	Coarse Alluvium	0.056	111.0	2.09	0.000	2.09	0	0.52	28.048	2.69	34.38	25	4.10%	2.8	36%	2.22	0.000	2.22	0	0	0.71	0.06	0.94	0.05	26.00	0.003	41.65	76.03	0.107	N/A	0.85	0.34	0.80	0.82	26.00	0.005	4.50	154.80	0.425	N/A	N/A	N/A	0.52	28.07	2.69	34.38	37.565		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.729	6932.23	86.0	2.718	86.0	9.0	3.88	3.16%	Coarse Alluvium	0.056	111.0	2.10	0.000	2.10	0	0.56	48.478	4.64	59.40	40	3.24%	2.5	36%	2.23	0.000	2.23	0	0	0.71	0.08	0.92	-0.14	27.00	0.003	50.28	109.68	0.159	N/A	0.85	0.44	0.78	0.80	27.00	0.005	3.02	179.17	1.000	N/A	N/A	N/A	0.56	48.51	4.64	59.40	37.729		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.893	6932.07	83.0	2.883	82.9	8.3	3.58	3.47%	Coarse Alluvium	0.056	111.0	2.11	0.000	2.11	0	0.56	46.228	4.43	56.64	38	3.57%	2.6	36%	2.24	0.000	2.24	0	0	0.71	0.08	0.92	-0.12	28.00	0.003	49.33	105.97	0.153	N/A	0.85	0.43	0.78	0.80	28.00	0.005	3.26	184.48	1.000	N/A	N/A	N/A	0.56	46.26	4.43	56.64	37.893		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.057	6931.90	59.6	2.894	59.5	9.2	3.99	4.86%	Coarse Alluvium	0.056	111.0	2.12	0.000	2.12	0	0.52	30.873	2.96	37.84	27	5.04%	2.8	36%	2.25	0.000	2.25	0	0	0.71	0.06	0.94	0.02	29.00	0.003	42.85	80.69	0.114	N/A	0.85	0.36	0.80	0.81	29.00	0.004	4.79	181.25	1.000	N/A	N/A	N/A	0.52	30.90	2.96	37.84	38.057		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.221	6931.74	50.5	2.527	50.4	10.8	4.68	5.01%	Coarse Alluvium	0.056	111.0	2.13	0.000	2.13	0	0.50	25.246	2.42	30.96	23	5.23%	2.9	36%	2.26	0.000	2.26	0	0	0.71	0.06	0.94	0.09	30.00	0.003	40.47	71.43	0.101	N/A	0.85	0.32	0.80	0.81	30.00	0.004	5.39	166.86	1.000	N/A	N/A	N/A	0.50	25.28	2.42	30.96	38.221		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.385	6931.58	30.0	1.994	29.9	10.5	4.55	6.65%	Coarse Alluvium	0.056	111.0	2.14	0.000	2.14	0	0.47	14.083	1.35	17.28	13	7.17%	3.1	36%	2.26	0.000	2.26	0	0	0.71	0.05	0.95	0.10	31.00	0.003	35.76	53.04	0.080	N/A	0.84	0.24	0.80	0.81	31.00	0.004	8.43	145.75	0.368	N/A	N/A	N/A	0.47	14.11	1.35	17.28	38.385		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.549	6931.41	20.8	0.913	20.7	10.1	4.39	4.40%	Coarse Alluvium	0.056	111.0	2.15	0.000	2.15	0	0.47	9.725	0.93	11.95	9	4.90%	3.2	36%	2.27	0.000	2.27	0	0	0.70	0.05	0.95	0.10	32.00	0.003	33.92	45.86	0.074	N/A	0.84	0.20	0.80	0.81	32.00	0.004	8.86	105.84	0.190	N/A	N/A	N/A	0.47	9.75	0.93	11.95	38.549		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.713	6931.25	16.1	0.467	16.1	10.6	4.58	2.90%	Coarse Alluvium	0.056	111.0	2.16	0.000	2.16	0	0.47	7.517	0.72	9.24	6	3.34%	3.2	36%	2.28	0.000	2.28	0	0	0.70	0.04	0.95	0.10	33.00	0.003	32.98	42.23	0.070	N/A	0.84	0.18	0.80	0.81	33.00	0.004	8.97	82.89	0.133	N/A	N/A	N/A	0.47	7.55	0.72	9.24	38.713		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.877	6931.08	17.2	0.909	17.2	11.5	4.96	5.28%	Coarse Alluvium	0.056	111.0	2.17	0.000	2.17	0	0.47	8.001	0.77	9.84	7	6.04%	3.3	36%	2.29	0.000	2.29	0	0	0.70	0.04	0.95	0.10	34.00	0.003	33.19	43.03	0.071	N/A	0.84	0.18	0.80	0.81	34.00	0.004	10.76	105.87	0.190	N/A	N/A	N/A	0.47	8.03	0.77	9.84	38.877		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.042	6930.92	25.8	0.860	25.8	10.0	4.31	3.33%	Coarse Alluvium	0.056	111.0	2.17	0.000	2.17	0	0.46	11.973	1.15	14.70	11	3.64%	3.0	36%	2.30	0.000	2.30	0	0	0.70	0.05	0.95	0.10	35.00	0.002	34.87	49.56	0.077	N/A	0.84	0.22	0.80	0.81	35.00	0.004	6.92	101.73	0.178	N/A	N/A	N/A	0.46	12.00	1.15	14.70	39.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.206	6930.75	28.7	1.144	28.7	10.8	4.66	3.98%	Coarse Alluvium	0.056	111.0	2.18	0.000	2.18	0	0.46	13.292	1.27	16.31	12	4.31%	3.0	36%	2.31	0.000	2.31	0	0	0.70	0.05	0.95	0.10	36.00	0.002	35.42	51.74	0.079	N/A	0.84	0.23	0.80	0.81	36.00	0.004	6.98	113.87	0.217	N/A	N/A	N/A	0.46	13.32	1.28	16.31	39.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.370	6930.59	28.0	0.889	28.0	9.1	3.93	3.17%	Coarse Alluvium	0.056	111.0	2.19	0.000	2.19	0	0.46	12.925	1.24	15.86	12	3.44%	3.0	36%	2.32	0.000	2.32	0	0	0.70	0.05	0.95	0.10	37.00	0.002	35.27	51.13	0.079	N/A	0.84	0.23	0.80	0.81	37.00	0.003	6.45	102.28	0.180	N/A	N/A	N/A	0.46	12.95	1.24	15.86	39.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.534	6930.43	17.1	0.734	17.0	9.1	3.94	4.30%	Coarse Alluvium	0.056	111.0	2.20	0.000	2.20	0	0.46	7.837	0.75	9.63	7	4.93%	3.3	36%	2.33	0.000	2.33	0	0	0.70	0.04	0.95	0.10	38.00	0.002	33.12	42.75	0.071	N/A	0.84	0.18	0.80	0.81	38.00	0.003	10.12	97.47	0.166	N/A	N/A	N/A	0.46	7.86	0.75	9.63	39.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.698	6930.26	13.8	0.491	13.8	9.9	4.29	3.55%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	0.46	6.320	0.61	7.77	5	4.23%	3.3	36%	2.34	0.000	2.34	0	0	0.69	0.04	0.95	0.10	39.00	0.002	32.48	40.25	0.069	N/A	0.83	0.16	0.80	0.81	39.00	0.003	10.90	84.70	0.137	N/A	N/A	N/A	0.46	6.35	0.61	7.77	39.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.862	6930.10	13.8	0.419	13.8	10.0	4.35	3.03%	Coarse Alluvium	0.056	111.0	2.22	0.000	2.22	0	0.46	6.300	0.60	7.75	5	3.61%	3.3	36%	2.35	0.000	2.35	0	0	0.69	0.04	0.95	0.10	40.00	0.002	32.47	40.22	0.069	N/A	0.83	0.16	0.80	0.80	40.00	0.003	10.34	80.17	0.128	N/A	N/A	N/A	0.46	6.33	0.61	7.75	39.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.026	6929.93	14.7	0.519	14.6	10.3	4.47	3.54%	Coarse Alluvium	0.056	111.0	2.23	0.000	2.23	0	0.46	6.658	0.64	8.19	6	4.17%	3.3	36%	2.36	0.000	2.36	0	0	0.69	0.04	0.95	0.10	41.00	0.002	32.62	40.81	0.069	N/A	0.83	0.17	0.80	0.80	41.00	0.003	10.52	86.15	0.139	N/A	N/A	N/A	0.46	6.69	0.64	8.19	40.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.190	6929.77	17.1	0.478	17.0	12.7	5.51	2.80%	Coarse Alluvium	0.056	111.0	2.24	0.000	2.24	0	0.45	7.737	0.74	9.52	7	3.22%	3.2	36%	2.36	0.000	2.36	0	0	0.69	0.04	0.95	0.10	42.00	0.002	33.08	42.60	0.071	N/A	0.83	0.18	0.80	0.80	42.00	0.003	8.72	83.04	0.133	N/A	N/A	N/A	0.45	7.77	0.74	9.52	40.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.354	6929.61	14.2	0.422	14.2	12.9	5.59	2.97%	Coarse Alluvium	0.056	111.0	2.25	0.000	2.25	0	0.45	6.412	0.61	7.90	5	3.52%	3.3	36%	2.37	0.000	2.37	0	0	0.69	0.04	0.95	0.10	43.00	0.002	32.52	40.42	0.069	N/A	0.83	0.16	0.80	0.80	43.00	0.003	10.15	80.19	0.128	N/A	N/A	N/A	0.45	6.45	0.62	7.90	40.354		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.518	6929.44	13.0	0.410	12.9	12.9	5.57	3.17%	Coarse Alluvium	0.056	111.0	2.26	0.000	2.26	0	0.45	5.814	0.56	7.16	5	3.83%	3.3	36%	2.38	0.000	2.38	0	0	0.69	0.04	0.95	0.10	44.00	0.002	32.27	39.43	0.068	N/A	0.83	0.15	0.80	0.80	44.00	0.003	11.12	79.66	0.127	N/A	N/A	N/A	0.45	5.85	0.56	7.16	40.518		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.682	6929.28	23.9	0.504	23.8	14.0	6.06	2.11%	Coarse Alluvium	0.056	111.0	2.27	0.000	2.27	0	0.45	10.704	1.03	13.15	10	2.33%	3.0	36%	2.39	0.000	2.39	0	0	0.69	0.05	0.95	0.10	45.00	0.002	34.33	47.49	0.075	N/A	0.83	0.21	0.80	0.80	45.00	0.003	6.25	82.20	0.132	N/A	N/A	N/A	0.45	10.74	1.03	13.15	40.682		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.846	6929.11	25.6	0.512	25.5	13.5	5.86	2.00%	Coarse Alluvium	0.056	111.0	2.28	0.000	2.28	0	0.45	11.442	1.10	14.06	10	2.20%	2.9	36%	2.40	0.000	2.40	0	0	0.69	0.05	0.95	0.10	46.00	0.002	34.65	48.70	0.076	N/A	0.82	0.22	0.80	0.80	46.00	0.003	5.83	82.01	0.131	N/A	N/A	N/A	0.45	11.48	1.10	14.06	40.846		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.010	6928.95	15.1	0.406	15.0	11.3	4.88	2.74%	Fine Alluvium	0.060	120.7	2.28	0.000	2.28	0	0.45	6.702	0.64	8.24	6	3.18%	3.2	76%	2.41	0.000	2.41	1	1	0.68	0.04	0.95	0.10	47.00	0.002	32.87	41.11	0.070	39.36	0.82	0.17	0.80	0.80	47.00	0.003	9.56	78.81	0.126	47.19	43.27	0	0.45	6.73	0.64	8.24	41.010	10	1.00	9	5	0.35	0.60	0.52	5.6	10.3	0.12	45.28	5.00	1.20	10.74	0.120	45.00	45.14
41.174	6928.79	11.0	0.271	10.9	12.3	5.35	2.47%	Fine Alluvium	0.060	120.7	2.29	0.000	2.29	0	0.45	4.860	0.47	5.99	4	3.12%	3.4	76%	2.42	0.000	2.42	1	1	0.68	0.04	0.95	0.10	48.00	0.002	32.09	38.08	0.067	38.95	0.82	0.14	0.80	0.80	48.00	0.003	11.70	70.12	0.112	43.05	41.00	0	0.45	4.89	0.47	5.99	41.174		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.338	6928.62	11.6	0.279	11.5	13.2	5.72	2.40%	Fine Alluvium	0.060	120.7	2.30	0.000	2.30	0	0.44	5.128	0.49	6.32	4	2.99%	3.3	76%	2.43	0.000	2.43	1	1	0.68	0.04	0.95	0.10	49.00	0.002	32.20	38.52	0.067	40.02	0.82	0.15	0.80	0.80	49.00	0.003	11.15	70.54	0.113	44.22	42.12	0	0.44	5.16	0.49	6.32	41.338		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.502	6928.46	12.9	0.347	12.8	14.3	6.18	2.69%	Fine Alluvium	0.060	120.7	2.31	0.000	2.31	0	0.44	5.673	0.54	7.00	5	3.28%	3.3	76%	2.44	0.000	2.44	1	1	0.68	0.04	0.95	0.10	50.00	0.002	32.43	39.43	0.068	41.32	0.82	0.15	0.80	0.80	50.00	0.002	10.76	75.25	0.120	47.96	44.64	0	0.44	5.71	0.55	7.00	41.502		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.666	6928.29	13.9	0.451	13.8	15.0	6.49	3.25%	Fine Alluvium	0.060	120.7	2.32	0.000	2.32	0	0.44	6.078	0.58	7.49	5	3.91%	3.3	76%	2.45	0.000	2.45	1	1	0.68	0.04	0.95	0.10	51.00	0.002	32.61	40.10	0.069	42.53	0.82	0.16	0.80	0.80	51.00	0.002	10.93	81.87	0.131	53.62	48.08	0	0.44	6.12	0.59	7.49	41.666		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.830	6928.13	14.2	0.509	14.2	15.6	6.77	3.57%	Fine Alluvium	0.060	120.7	2.33	0.000	2.33	0	0.44	6.225	0.60	7.68	5	4.27%	3.3	76%	2.46	0.000	2.46	1	1	0.68	0.04	0.95	0.10	52.00	0.002	32.67	40.35	0.069	43.56	0.82	0.16	0.80	0.80	52.00	0.002	11.10	85.22	0.138	57.44	50.50	0	0.44	6.27	0.60	7.68	41.830		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.994	6927.97	16.6	0.644	16.5	16.5	7.16	4.42%	Fine Alluvium	0.060	120.7	2.34	0.000	2.34	0	0.44	6.345	0.61	7.82	5	5.27%	3.4	76%	2.47	0.000	2.47	1	1	0.68	0.04	0.95	0.10	53.00	0.002	32.72	40.55	0.069	44.57	0.82	0.16	0.80	0.80	53.00	0.002	11.80	92.37	0.153	65.30	54.93	0	0.44	6.39	0.61	7.82	41.994		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.158	6927.80	15.0	0.690	14.9	16.4	7.10	4.61%	Fine Alluvium	0.060	120.7	2.35	0.000	2.35	0	0.44	6.490	0.62	8.00	5	5.48%	3.4	76%	2.48	0.000	2.48	1	1	0.67	0.04	0.95	0.10	54.00	0.002	32.78	40.79	0.069	45.61	0.81	0.16	0.80	0.80	54.00	0.002	11.82	94.56	0.159	68.91	57.26	0	0.44	6.53	0.63	8.00	42.158		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.322	6927.64	13.0	0.710	12.9	15.2	6.59	5.48%	Fine Alluvium	0.060	120.7	2.36	0.000	2.36	0	0.44	5.606	0.54	6.92	4	6.70%	3.5	76%	2.49	0.000	2.49	1	1	0.67	0.04	0.95	0.10	55.00	0.001	32.41	39.32	0.068	45.79	0.81	0.15	0.80	0.80	55.00	0.002	13.77	95.24	0.160	71.00	58.40	0	0.44	5.65	0.54	6.92	42.322		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.486	6927.47	10.7	0.483	10.6	14.9	6.45	4.53%	Fine Alluvium	0.060	120.7	2.37	0.000	2.37	0	0.43	4.594	0.44	5.67	3	5.82%	3.5	76%	2.50	0.000	2.50	1	1	0.67	0.04	0.95	0.10	56.00	0.001	31.98	37.75	0.066	45.87	0.81	0.14	0.80	0.80	56.00	0.002	14.76	83.75	0.135	60.75	53.31	0	0.43	4.63	0.44	5.67	42.486		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.650	6927.31	9.8	0.207	9.8	15.4	6.67	2.10%	Fine Alluvium	0.060	120.7	2.38	0.000	2.38	0	0.43	4.220	0.40	5.22	3	2.77%	3.4	76%	2.51	0.000	2.51	1	1	0.67	0.04	0.95	0.10	57.00	0.001	31.82	37.03	0.066	46.47	0.81	0.13	0.80	0.80	57.00	0.002	12.46	65.02	0.106	48.53	47.50	0	0.43	4.26	0.41	5.22	42.650		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.814	6927.15	9.2	0.109	9.1	15.4	6.67	1.18%	Fine Alluvium	0.060	120.7	2.39	0.000	2.39	0	0.43	3.930	0.38	4.86	3	1.60%	3.3	76%	2.52	0.000	2.52	1	1	0.67	0.04	0.95	0.10	58.00	0.001	31.69	36.56	0.066	47.13	0.81	0.13	0.80	0.80	58.00	0.002	11.27	54.79	0.095	44.61	45.87	0	0.43	3.97	0.38	4.86	42.814		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.978	6926.98	8.4	0.087	8.4	15.4	6.69	1.03%	Fine Alluvium	0.060	120.7	2.40	0.000	2.40	0	0.43	3.591	0.34	4.45	3	1.44%	3.4	76%	2.53	0.000	2.53	1	1	0.67	0.04	0.95	0.10	59.00	0.001	31.55	36.00	0.065	47.75	0.81	0.12	0.80	0.80	59.00	0.002	11.75	52.24	0.093	45.25	46.50	0	0.43	3.63	0.35	4.45	42.978		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.143	6926.82	9.1	0.090	9.0	16.1	6.96	0.99%	Fine Alluvium	0.060	120.7	2.41	0.000	2.41	0	0.43	3.853	0.37	4.77	3	1.35%	3.3	76%	2.54	0.000	2.54	1	1	0.67	0.04	0.95	0.10	60.00	0.001	31.66	36.43	0.066	48.86	0.81	0.13	0.80	0.80	60.00	0.002	10.95	52.26	0.093	45.25	47.06	0	0.43	3.90	0.37	4.77	43.143		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.307	6926.65	8.8	0.107	8.7	16.2	7.04	1.21%	Fine Alluvium	0.060	120.7	2.42	0.000	2.42	0	0.43	3.730	0.36	4.62	3	1.67%	3.4	76%	2.55	0.000	2.55	1	1	0.67	0.04	0.95	0.10	61.00	0.001	31.61	36.21	0.065	49.66	0.80	0.12	0.80	0.80	61.00	0.002	11.86	54.80	0.095	47.05	48.35	0	0.43	3.77	0.36	4.62	43.307		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.471	6926.49	9.7	0.210	9.6	16.2	7.04	2.16%	Fine Alluvium	0.060	120.7	2.43	0.000	2.43	0	0.43	4.097	0.39	5.07	3	2.88%	3.4	76%	2.56	0.000	2.56	1	1	0.66	0.04	0.95	0.10	62.00	0.001	31.77	36.83	0.066	50.88	0.80	0.13	0.80	0.80	62.00	0.002	12.89	65.33	0.106	53.20	52.04	0	0.43	4.14	0.40	5.07	43.471		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.635	6926.33	11.7	0.290	11.6	16.9	7.32	2.48%	Fine Alluvium	0.060	120.7	2.44	0.000	2.44	0	0.42	4.925	0.47	6.08	4	3.13%	3.4	76%	2.57	0.000	2.57	1	1	0.66	0.04	0.95	0.10	63.00	0.001	32.12	38.20	0.067	52.56	0.80	0.14	0.80	0.80	63.00	0.002	11.70	71.19	0.114	58.80	55.28	0	0.42	4.97	0.48	6.08	43.635		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.799	6926.16	13.8	0.263	13.6	18.5	8.01	1.91%	Fine Alluvium	0.060	120.7	2.45	0.000	2.45	0	0.42	5.772	0.55	7.13	5	2.33%	3.2	76%	2.58	0.000	2.58	1	1	0.66	0.04	0.95	0.10	64.00	0.001	32.48	39.61	0.068	54.30	0.80	0.15	0.80	0.79	64.00	0.002	9.59	68.36	0.110	56.97	55.64	0	0.42	5.82	0.56	7.13	43.799		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.963	6926.00	12.9	0.317	12.8	19.0	8.24	2.46%	Fine Alluvium	0.060	120.7	2.46	0.000	2.46	0	0.42	5.379	0.52	6.65	4	3.05%	3.3	76%	2.59	0.000	2.59	1	1	0.66	0.04	0.95	0.10	65.00	0.001	32.31	38.96	0.068	54.86	0.80	0.14	0.80	0.79	65.00	0.002	10.96	72.84	0.116	61.20	58.03	0	0.42	5.43	0.52	6.65	43.963		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.127	6925.83	15.4	0.290	15.2	19.3	8.36	1.89%	Fine Alluvium	0.060	120.7	2.47	0.000	2.47	0	0.42	6.405	0.61	7.90	5	2.25%	3.2	76%	2.60	0.000	2.60	1	1	0.66	0.04	0.95	0.10	66.00	0.001	32.75	40.65	0.069	56.85	0.80	0.16	0.80	0.79	66.00	0.002	8.85	69.95	0.112	60.00	58.43	0	0.42	6.46	0.62	7.90	44.127		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.291	6925.67	16.2	0.444	16.1	18.7	8.09	2.73%	Fine Alluvium	0.060	120.7	2.48	0.000	2.48	0	0.42	6.762	0.65	8.34	6	3.23%	3.2	76%	2.61	0.000	2.61	1	1	0.66	0.04	0.95	0.10	67.00	0.001	32.90	41.24	0.070	58.19	0.80	0.16	0.80	0.79	67.00	0.002	9.65	80.46	0.128	70.02	64.11	0	0.42	6.81	0.65	8.34	44.291		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.455	6925.51	19.0	0.619	18.9	17.9	7.75	3.25%	Fine Alluvium	0.060	120.7	2.49	0.000	2.49	0	0.42	7.912	0.76	9.75	7	3.74%	3.2	76%	2.62	0.000	2.62	1	1	0.66	0.04	0.95	0.10	68.00	0.001	33.39	43.13	0.071	60.43	0.80	0.18	0.80	0.79	68.00	0.002	9.22	89.84	0.147	81.65	71.04	0	0.42	7.96	0.76	9.75	44.455		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.619	6925.34	16.5	0.622	16.4	18.4	7.95	3.77%	Fine Alluvium	0.060	120.7	2.50	0.000	2.50	0	0.42	6.825	0.65	8.42	6	4.45%	3.3	76%	2.63	0.000	2.63	1	1	0.66	0.04	0.95	0.10	69.00	0.001	32.93	41.34	0.070	60.21	0.79	0.17	0.80	0.79	69.00	0.002	10.74	90.40	0.149	83.64	71.93	0	0.42	6.87	0.66	8.42	44.619		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.783	6925.18	11.3	0.514	11.2	18.1	7.85	4.56%	Fine Alluvium	0.060	120.7	2.51	0.000	2.51	0	0.42	4.631	0.44	5.73	3	5.87%	3.5	76%	2.64	0.000	2.64	1	1	0.65	0.04	0.95	0.10	70.00	0.001	31.99	37.72	0.067	58.82	0.79	0.14	0.80	0.79	70.00	0.002	14.83	84.94	0.137	78.24	68.53	0	0.42	4.68	0.45	5.73	44.783		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.947	6925.01	15.2	0.482	15.0	19.7	8.52	3.18%	Fine Alluvium	0.060	120.7	2.52	0.000	2.52	0	0.41	6.228	0.60	7.69	5	3.81%	3.3	76%	2.65	0.000	2.65	1	1	0.65	0.04	0.95	0.10	71.00	0.001	32.67	40.36	0.069	61.50	0.79	0.16	0.80	0.79	71.00	0.002	10.78	82.89	0.133	77.10	69.30	0	0.41	6.28	0.60	7.69	44.947		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.111	6924.85	21.0	0.542	20.8	19.9	8.62	2.59%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	0.41	8.605	0.82	10.60	7	2.94%	3.1	36%	2.66	0.000	2.66	0	0	0.65	0.05	0.95	0.10	72.00	0.001	33.45	44.05	0.072	N/A	0.79	0.19	0.80	0.79	72.00	0.002	8.01	84.91	0.137	N/A	N/A	N/A	0.41	8.66	0.83	10.60	45.111		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.275	6924.69	18.8	0.680	18.7	14.4	6.22	3.62%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0	0.41	7.688	0.74	9.46	6	4.19%	3.2	36%	2.67	0.000	2.67	0	0	0.65	0.04	0.95	0.10	73.00	0.001	33.06	42.52	0.071	N/A	0.79	0.18	0.80	0.79	73.00	0.002	9.82	92.85	0.154	N/A	N/A	N/A	0.41	7.72	0.74	9.46	45.275		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.439	6924.52	25.5	0.737	25.4	13.2	5.73	2.90%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0	0.41	10.417	1.00	12.80	9	3.22%	3.1	36%	2.68	0.000	2.68	0	0	0.65	0.05	0.94	0.10	74.00	0.001	34.21	47.01	0.075	N/A	0.79	0.21	0.80	0.79	74.00	0.002	7.35	94.04	0.157	N/A	N/A	N/A	0.41	10.45	1.00	12.80	45.439		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.603	6924.36	28.9	0.830	28.9	10.9	4.72	2.87%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0	0.41	11.821	1.13	14.51	10	3.15%	3.0	36%	2.69	0.000	2.69	0	0	0.65	0.05	0.94	0.10	75.00	0.001	34.80	49.31	0.077	N/A	0.79	0.22	0.80	0.79	75.00	0.002	6.72	97.50	0.166	N/A	N/A	N/A	0.41	11.85	1.13	14.51	45.603		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.767	6924.19	28.9	0.839	28.8	9.7	4.19	2.91%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0	0.41	11.764	1.13	14.44	10	3.19%	3.0	36%	2.69	0.000	2.69	0	0	0.65	0.05	0.94	0.10	76.00	0.001	34.78	49.21	0.077	N/A	0.78	0.22	0.80	0.79	76.00	0.002	6.78	97.92	0.167	N/A	N/A	N/A	0.41	11.79	1.13	14.44	45.767		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.931	6924.03	32.1	0.965	32.0	8.5	3.70	3.01%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0	0.41	13.031	1.25	15.98	11	3.27%	3.0	36%	2.70	0.000	2.70	0	0	0.65	0.05	0.94	0.10	77.00	0.001	35.31	51.29	0.079	N/A	0.78	0.23	0.80	0.79	77.00	0.002	6.43	102.71	0.181	N/A	N/A	N/A	0.41	13.05	1.25	15.98	45.931		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.095	6923.87	29.2	0.831	29.1	7.6	3.29	2.85%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0	0.41	11.829	1.13	14.51	10	3.13%	3.0	36%	2.71	0.000	2.71	0	0	0.64	0.05	0.94	0.10	78.00	0.001	34.80	49.31	0.077	N/A	0.78	0.22	0.80	0.79	78.00	0.002	6.71	97.37	0.166	N/A	N/A	N/A	0.41	11.85	1.13	14.51	46.095		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.259	6923.70	23.2	0.704	23.2	7.7	3.32	3.03%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	0.40	9.395	0.90	11.53	8	3.41%	3.1	36%	2.72	0.000	2.72	0	0	0.64	0.05	0.94	0.10	79.00	0.001	33.77	45.30	0.073	N/A	0.78	0.20	0.80	0.79	79.00	0.002	8.05	92.84	0.154	N/A	N/A	N/A	0.40	9.41	0.90	11.53	46.259		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.423	6923.54	19.5	0.636	19.5	7.7	3.34	3.25%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	0.40	7.875	0.75	9.67	7	3.75%	3.2	36%	2.73	0.000	2.73	0	0	0.64	0.04	0.95	0.10	80.00	0.001	33.13	42.80	0.071	N/A	0.78	0.18	0.80	0.79	80.00	0.002	9.33	90.22	0.148	N/A	N/A	N/A	0.40	7.89	0.76	9.67	46.423		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.587	6923.37	34.9	0.734	34.9	10.2	4.43	2.10%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0	0.40	14.040	1.34	17.22	12	2.27%	2.9	36%	2.74	0.000	2.74	0	0	0.64	0.05	0.94	0.10	81.00	0.001	35.74	52.96	0.080	N/A	0.78	0.24	0.80	0.78	81.00	0.001	5.25	90.46	0.149	N/A	N/A	N/A	0.40	14.07	1.35	17.22	46.587		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.751	6923.21	41.4	0.764	41.3	8.5	3.68	1.85%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0	0.40	16.589	1.59	20.34	15	1.97%	2.8	36%	2.75	0.000	2.75	0	0	0.64	0.05	0.94	0.10	82.00	0.001	36.81	57.15	0.085	N/A	0.78	0.26	0.80	0.78	82.00	0.001	4.41	89.74	0.147	N/A	N/A	N/A	0.40	16.61	1.59	20.34	46.751		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.915	6923.05	43.4	0.957	43.3	6.5	2.81	2.21%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	0.40	17.409	1.67	21.34	15	2.35%	2.8	36%	2.76	0.000	2.76	0	0	0.64	0.05	0.94	0.10	83.00	0.001	37.16	58.49	0.086	N/A	0.78	0.27	0.80	0.78	83.00	0.001	4.62	98.55	0.169	N/A	N/A	N/A	0.40	17.43	1.67	21.34	46.915		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.079	6922.88	41.7	1.129	41.7	4.8	2.09	2.71%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0	0.40	16.652	1.59	20.40	15	2.89%	2.8	36%	2.77	0.000	2.77	0	0	0.64	0.05	0.94	0.10	84.00	0.001	36.83	57.24	0.085	N/A	0.77	0.26	0.80	0.78	84.00	0.001	5.21	106.37	0.192	N/A	N/A	N/A	0.40	16.66	1.60	20.40	47.079		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.244	6922.72	35.5	0.778	35.5	5.5	2.38	2.19%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0	0.40	14.144	1.35	17.34	12	2.37%	2.9	36%	2.78	0.000	2.78	0	0	0.64	0.05	0.94	0.10	85.00	0.001	35.78	53.11	0.081	N/A	0.77	0.24	0.80	0.78	85.00	0.001	5.33	92.40	0.153	N/A	N/A	N/A	0.40	14.16	1.36	17.34	47.244		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.408	6922.55	41.5	0.774	41.4	7.2	3.13	1.87%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0	0.40	16.463	1.58	20.18	15	1.99%	2.8	36%	2.79	0.000	2.79	0	0	0.63	0.05	0.94	0.10	86.00	0.001	36.76	56.94	0.085	N/A	0.77	0.26	0.80	0.78	86.00	0.001	4.47	90.14	0.148	N/A	N/A	N/A	0.40	16.48	1.58	20.18	47.408		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.572	6922.39	47.0	0.889	46.9	8.0	3.48	1.89%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0	0.40	18.918	1.81	23.19	17	2.01%	2.7	36%	2.79	0.000	2.79	0	0	0.63	0.05	0.93	0.10	87.00	0.001	37.79	60.99	0.089	N/A	0.77	0.28	0.80	0.78	87.00	0.001	4.12	95.52	0.161	N/A	N/A	N/A	0.40	18.94	1.81	23.19	47.572		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.736	6922.22	43.7	1.000	43.7	6.9	2.97	2.29%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0	0.40	17.283	1.66	21.18	15	2.44%	2.8	36%	2.80	0.000	2.80	0	0	0.63	0.05	0.93	0.10	88.00	0.001	37.10	58.29	0.086	N/A	0.77	0.27	0.80	0.78	88.00	0.001	4.73	100.13	0.173	N/A	N/A	N/A	0.40	17.30	1.66	21.18	47.736		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.900	6922.06	48.6	0.997	48.6	7.0	3.01	2.05%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0	0.40	19.612	1.88	24.04	17	2.17%	2.7	36%	2.81	0.000	2.81	0	0	0.63	0.06	0.93	0.10	89.00	0.001	38.09	62.12	0.090	N/A	0.77	0.28	0.80	0.78	89.00	0.001	4.18	100.59	0.175	N/A	N/A	N/A	0.40	19.63	1.88	24.04	47.900		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.064	6921.90	47.7	1.174	47.6	6.9	2.97	2.46%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	0.40	19.080	1.83	23.38	17	2.61%	2.8	36%	2.82	0.000	2.82	0	0	0.63	0.05	0.93	0.10	90.00	0.001	37.86	61.25	0.089	N/A	0.77	0.28	0.80	0.78	90.00	0.001	4.62	108.09	0.197	N/A	N/A	N/A	0.40	19.10	1.83	23.38	48.064		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.228	6921.73	32.1	0.918	32.1	5.9	2.56	2.86%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	0.39	12.572	1.20	15.41	11	3.12%	3.0	36%	2.83	0.000	2.83	0	0	0.63	0.05	0.94	0.10	91.00	0.001	35.11	50.52	0.078	N/A	0.76	0.23	0.80	0.78	91.00	0.001	6.49	100.08	0.173	N/A	N/A	N/A	0.39	12.59	1.20	15.41	48.228		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.392	6921.57	24.6	0.727	24.5	7.5	3.25	2.96%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	0.39	9.598	0.92	11.77	8	3.32%	3.1	36%	2.84	0.000	2.84	0	0	0.63	0.05	0.94	0.10	92.00	0.001	33.86	45.63	0.073	N/A	0.76	0.20	0.80	0.78	92.00	0.001	7.92	93.23	0.155	N/A	N/A	N/A	0.39	9.62	0.92	11.77	48.392		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.556	6921.40	46.0	0.716	46.0	11.7	5.08	1.56%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0	0.39	18.103	1.73	22.20	16	1.65%	2.7	36%	2.85	0.000	2.85	0	0	0.63	0.05	0.93	0.10	93.00	0.001	37.45	59.66	0.087	N/A	0.76	0.27	0.80	0.78	93.00	0.001	3.90	86.51	0.140	N/A	N/A	N/A	0.39	18.13	1.74	22.20	48.556		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.720	6921.24	58.0	0.836	57.9	10.5	4.55	1.44%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	0.41	23.996	2.30	29.42	20	1.51%	2.6	36%	2.86	0.000	2.86	0	0	0.62	0.06	0.93	0.10	94.00	0.001	39.94	69.36	0.099	N/A	0.76	0.31	0.80	0.78	94.00	0.001	3.19	93.83	0.157	N/A	N/A	N/A	0.41	24.02	2.30	29.42	48.720		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.884	6921.08	62.6	0.904	62.5	9.3	4.03	1.44%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0	0.42	26.304	2.52	32.24	22	1.51%	2.5	36%	2.87	0.000	2.87	0	0	0.62	0.06	0.92	0.08	95.00	0.001	40.92	73.16	0.104	N/A	0.76	0.33	0.80	0.78	95.00	0.001	3.03	97.67	0.167	N/A	N/A	N/A	0.42	26.33	2.52	32.24	48.884		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.048	6920.91	62.1	1.028	62.0	8.8	3.80	1.66%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	0.42	25.959	2.49	31.82	22	1.73%	2.6	36%	2.88	0.000	2.88	0	0	0.62	0.06	0.92	0.09	96.00	0.001	40.77	72.59	0.103	N/A	0.76	0.33	0.80	0.78	96.00	0.001	3.25	103.28	0.182	N/A	N/A	N/A	0.42	25.98	2.49	31.82	49.048		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.212	6920.75	55.8	1.366	55.7	8.1	3.52	2.45%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	0.41	22.650	2.17	27.76	19	2.58%	2.7	36%	2.89	0.000	2.89	0	0	0.62	0.06	0.93	0.10	97.00	0.001	39.37	67.13	0.096	N/A	0.76	0.30	0.80	0.78	97.00	0.001	4.20	116.70	0.228	N/A	N/A	N/A	0.41	22.67	2.17	27.76	49.212		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.376	6920.58	47.5	1.425	47.4	7.9	3.41	3.00%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	0.39	18.518	1.77	22.70	16	3.19%	2.8	36%	2.89	0.000	2.89	0	0	0.62	0.05	0.93	0.10	98.00	0.001	37.63	60.32	0.088	N/A	0.76	0.28	0.80	0.78	98.00	0.001	5.17	117.31	0.230	N/A	N/A	N/A	0.39	18.54	1.77	22.70	49.376		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.540	6920.42	52.9	1.319	52.8	9.3	4.05	2.49%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	0.40	21.089	2.02	25.85	18	2.63%	2.8	36%	2.90	0.000	2.90	0	0	0.62	0.06	0.93	0.10	99.00	0.001	38.71	64.56	0.093	N/A	0.75	0.29	0.80	0.78	99.00	0.001	4.42	114.14	0.218	N/A	N/A	N/A	0.40	21.11	2.02	25.85	49.540		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.704	6920.26	79.2	1.156	79.1	11.2	4.84	1.46%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	0.44	34.890	3.34	42.76	27	1.51%	2.5	36%	2.91	0.000	2.91	0	0	0.62	0.07	0.92	-0.01	####	0.001	44.54	87.31	0.123	N/A	0.75	0.38	0.80	0.78	100.00	0.001	2.61	111.61	0.209	N/A	N/A	N/A	0.44	34.92	3.34	42.76	49.704		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.868	6920.09	84.1	1.040	84.0	9.0	3.88	1.24%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	0.45	37.584	3.60	46.05	29	1.28%	2.4	36%	2.92	0.000	2.92	0	0	0.62	0.07	0.91	-0.03	####	0.001	45.68	91.73	0.130	N/A	0.75	0.39	0.80	0.77	101.00	0.001	2.34	107.57	0.196	N/A	N/A	N/A	0.45	37.61	3.60	46.05	49.868		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.032	6919.93	78.1	1.275	78.0	8.2	3.56	1.63%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	0.44	34.084	3.26	41.76	27	1.69%	2.5	36%	2.93	0.000	2.93	0	0	0.62	0.07	0.92	0.00	####	0.001	44.20	85.96	0.121	N/A	0.75	0.37	0.80	0.77	102.00	0.001	2.79	116.33	0.226	N/A	N/A	N/A	0.44	34.11	3.27	41.76	50.032		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.196	6919.76	71.0	1.386	70.9	6.5	2.81	1.95%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	0.42	30.118	2.88	36.90	24	2.03%	2.6	36%	2.94	0.000	2.94	0	0	0.61	0.06	0.92	0.04	####	0.001	42.52	79.42	0.112	N/A	0.75	0.35	0.80	0.77	103.00	0.001	3.24	119.56	0.239	N/A	N/A	N/A	0.42	30.14	2.89	36.90	50.196		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

50.360	6919.60	58.9	1.466	58.8	5.6	2.42	2.49%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	0.40	23.734	2.27	29.08	20	2.62%	2.7	36%	2.95	0.000	2.95	0	0
50.524	6919.44	46.0	1.404	46.0	6.0	2.58	3.05%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	0.38	17.437	1.67	21.37	15	3.25%	2.9	36%	2.96	0.000	2.96	0	0
50.688	6919.27	39.8	1.521	39.8	7.5	3.23	3.82%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	0.38	15.006	1.44	18.40	13	4.11%	3.0	36%	2.97	0.000	2.97	0	0
50.852	6919.11	39.8	1.421	39.8	10.9	4.74	3.57%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	0.38	14.968	1.43	18.36	13	3.84%	3.0	36%	2.98	0.000	2.98	0	0
51.016	6918.94	38.2	1.237	38.2	10.5	4.54	3.23%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	0.38	14.334	1.37	17.58	12	3.50%	3.0	36%	2.99	0.000	2.99	0	0
51.180	6918.78	48.6	1.265	48.6	11.5	5.00	2.60%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	0.38	18.443	1.77	22.62	16	2.76%	2.8	36%	2.99	0.000	2.99	0	0
51.345	6918.62	38.1	1.273	38.0	10.0	4.33	3.35%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	0.37	14.192	1.36	17.41	12	3.62%	3.0	36%	3.00	0.000	3.00	0	0
51.509	6918.45	24.4	1.043	24.4	9.6	4.17	4.27%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	0.37	9.074	0.87	11.14	7	4.85%	3.2	36%	3.01	0.000	3.01	0	0
51.673	6918.29	18.9	0.809	18.9	11.0	4.76	4.27%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.37	7.015	0.67	8.62	6	5.04%	3.3	36%	3.02	0.000	3.02	0	0
51.837	6918.12	25.2	0.801	25.1	13.9	6.04	3.18%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.37	9.311	0.89	11.44	8	3.59%	3.1	36%	3.03	0.000	3.03	0	0
52.001	6917.96	33.6	0.957	33.5	13.5	5.75	2.85%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	0.37	12.403	1.19	15.23	11	3.12%	3.0	36%	3.04	0.000	3.04	0	0
52.165	6917.80	27.5	0.873	27.5	12.3	5.35	3.17%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	0.37	10.137	0.97	12.45	8	3.55%	3.1	36%	3.05	0.000	3.05	0	0
52.329	6917.63	28.7	0.771	28.6	14.6	6.31	2.69%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	0.37	10.536	1.01	12.94	9	2.99%	3.0	36%	3.06	0.000	3.06	0	0
52.493	6917.47	40.7	0.801	40.6	14.3	6.20	1.97%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	0.37	14.910	1.43	18.30	13	2.12%	2.8	36%	3.07	0.000	3.07	0	0
52.657	6917.30	42.7	0.837	42.6	13.0	5.61	1.96%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	0.37	15.599	1.49	19.14	13	2.11%	2.8	36%	3.08	0.000	3.08	0	0
52.821	6917.14	49.9	1.040	49.8	13.7	5.92	2.09%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	0.37	18.456	1.77	22.64	16	2.22%	2.8	36%	3.09	0.000	3.09	0	0
52.985	6916.98	36.6	0.853	36.5	11.4	4.94	2.33%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	0.36	13.315	1.28	16.34	11	2.54%	2.9	36%	3.09	0.000	3.09	0	0
53.149	6916.81	26.6	0.712	26.5	13.3	5.78	2.68%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	0.36	9.642	0.92	11.84	8	3.02%	3.1	36%	3.10	0.000	3.10	0	0
53.313	6916.65	40.8	0.641	40.7	17.1	7.40	1.57%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	0.36	14.779	1.42	18.14	13	1.69%	2.8	36%	3.11	0.000	3.11	0	0
53.477	6916.48	22.2	0.629	22.1	14.2	6.16	2.83%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	0.36	8.007	0.77	9.84	6	3.27%	3.2	36%	3.12	0.000	3.12	0	0
53.641	6916.32	17.0	0.519	16.8	28.5	12.36	3.05%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	0.36	6.078	0.58	7.52	5	3.71%	3.3	36%	3.13	0.000	3.13	0	0
53.805	6916.16	16.1	0.351	15.7	49.7	21.54	2.19%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	0.36	5.671	0.54	7.08	4	2.69%	3.3	36%	3.14	0.000	3.14	0	0
53.969	6915.99	14.7	0.375	14.3	59.4	25.74	2.55%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	0.36	5.154	0.49	6.47	4	3.21%	3.4	36%	3.15	0.000	3.15	0	0
54.133	6915.83	14.9	0.382	14.5	64.3	27.88	2.57%	Fine Alluvium	0.060	120.7	3.03	0.000	3.03	0	0.36	5.188	0.50	6.53	4	3.23%	3.4	76%	3.16	0.000	3.16	1	0
54.297	6915.66	13.7	0.398	13.3	68.7	29.75	2.89%	Fine Alluvium	0.060	120.7	3.04	0.000	3.04	0	0.36	4.763	0.46	6.02	4	3.72%	3.4	76%	3.17	0.000	3.17	1	0
54.461	6915.50	14.4	0.410	14.0	76.7	33.25	2.84%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	0.36	4.979	0.48	6.31	4	3.60%	3.4	76%	3.18	0.000	3.18	1	0
54.625	6915.34	15.7	0.436	15.2	81.0	35.10	2.77%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	0.36	5.419	0.52	6.86	4	3.44%	3.4	76%	3.19	0.000	3.19	1	0
54.789	6915.17	17.2	0.548	16.6	83.5	36.18	3.19%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	0.35	5.905	0.57	7.46	5	3.89%	3.3	76%	3.20	0.000	3.20	1	0
54.953	6915.01	16.3	0.656	15.9	76.6	33.19	4.01%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	0.35	5.618	0.54	7.09	4	4.95%	3.4	76%	3.21	0.000	3.21	1	0
55.117	6914.84	15.2	0.713	14.8	69.0	29.91	4.68%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	0.35	5.223	0.50	6.58	4	5.88%	3.5	76%	3.22	0.000	3.22	1	0
55.281	6914.68	15.5	0.701	15.0	80.6	34.92	4.53%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	0.35	5.277	0.51	6.68	4	5.66%	3.5	76%	3.23	0.000	3.23	1	0
55.446	6914.51	15.0	0.675	14.5	79.8	34.59	4.51%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	0.35	5.084	0.49	6.44	4	5.69%	3.5	76%	3.24	0.000	3.24	1	0
55.610	6914.35	15.3	0.663	14.9	68.4	29.65	4.32%	Fine Alluvium	0.060	120.7	3.12	0.000	3.12	0	0.35	5.226	0.50	6.58	4	5.43%	3.5	76%	3.25	0.000	3.25	1	0
55.774	6914.19	14.9	0.533	14.5	63.7	27.59	3.57%	Fine Alluvium	0.060	120.7	3.13	0.000	3.13	0	0.35	5.080	0.49	6.39	4	4.52%	3.4	76%	3.26	0.000	3.26	1	0
55.938	6914.02	13.6	0.493	13.2	65.5	28.37	3.63%	Fine Alluvium	0.060	120.7	3.14	0.000	3.14	0	0.35	4.600	0.44	5.81	3	4.71%	3.5	76%	3.27	0.000	3.27	1	0
56.102	6913.86	14.4	0.578	14.0	73.3	31.76	4.01%	Fine Alluvium	0.060	120.7	3.15	0.000	3.15	0	0.35	4.857	0.47	6.14	4	5.13%	3.5	76%	3.28	0.000	3.28	1	0
56.266	6913.69	14.5	0.590	14.1	71.2	30.85	4.06%	Fine Alluvium	0.060	120.7	3.16	0.000	3.16	0	0.35	4.890	0.47	6.18	4	5.19%	3.5	76%	3.29	0.000	3.29	1	0
56.430	6913.53	17.5	0.577	17.1	69.8	30.24	3.29%	Fine Alluvium	0.060	120.7	3.17	0.000	3.17	0	0.35	5.913	0.57	7.43	5	4.02%	3.4	76%	3.30	0.000	3.30	1	0
56.594	6913.37	15.9	0.466	15.5	57.7	25.01	2.94%	Fine Alluvium	0.060	120.7	3.18	0.000	3.18	0	0.35	5.350	0.51	6.70	4	3.68%	3.4	76%	3.31	0.000	3.31	1	0
56.758	6913.20	16.8	0.549	16.4	70.4	30.50	3.26%	Fine Alluvium	0.060	120.7	3.19	0.000	3.19	0	0.34	5.643	0.54	7.10	4	4.03%	3.4	76%	3.32	0.000	3.32	1	0
56.922	6913.04	14.0	0.604	13.6	59.7	25.85	4.31%	Fine Alluvium	0.060	120.7	3.20	0.000	3.20	0	0.34	4.688	0.45	5.90	3	5.59%	3.5	76%	3.33	0.000	3.33	1	0
57.086	6912.87	17.9	0.493	17.3	102.7	44.52	2.75%	Fine Alluvium	0.060	120.7	3.21	0.000	3.21	0	0.34	5.921	0.57	7.52	5	3.35%	3.3	76%	3.34	0.000	3.34	1	0
57.250	6912.71	15.9	0.489	15.4	92.2	39.96	3.07%	Fine Alluvium	0.060	120.7	3.22	0.000	3.22	0	0.34	5.254	0.50	6.67	4	3.85%	3.4	76%	3.35	0.000	3.35	1	0
57.414	6912.55	28.5	0.706	27.8	111.8	48.44	2.48%	Fine Alluvium	0.060	120.7	3.23	0.000	3.23	0	0.34	9.483	0.91	11.90	8	2.80%	3.1	76%	3.36	0.000	3.36	1	0
57.578	6912.38	22.3	0.699	22.1	36.5	15.80	3.13%	Fine Alluvium	0.060	120.7	3.24	0.000	3.24	0	0.34	7.530	0.72	9.32	6	3.66%	3.2	76%	3.37	0.000	3.37	1	0
57.742	6912.22	16.0	0.681	15.7	45.5	19.70	4.27%	Fine Alluvium	0.060	120.7	3.25	0.000	3.25	0	0.34	5.325	0.51	6.64	4	5.36%	3.5	76%	3.38	0.000	3.38	1	0
57.906	6912.05	15.3	0.630	14.9	65.0	28.15	4.13%	Fine Alluvium	0.060	120.7	3.26	0.000	3.26	0	0.34	5.031	0.48	6.33	4	5.25%	3.5	76%	3.39	0.000	3.39	1	0
58.070	6911.89	15.4	0.616	14.9	80.3	34.79	4.01%	Fine Alluvium	0.060	120.7	3.27	0.000	3.27	0	0.34	5.019	0.48	6.35	4	5.10%	3.5	76%	3.40	0.000	3.40	1	0
58.234	6911.73	16.6	0.775	16.1	81.9	35.49	4.66%	Fine Alluvium	0.060	120.7	3.28	0.000	3.28	0	0.34	5.439	0.52	6.87	4	5.80%	3.5	76%	3.41	0.000	3.41	1	0
58.398	6911.56	15.7	0.785	15.3	64.2	27.82	5.00%	Fine Alluvium	0.060	120.7	3.29	0.000	3.29	0	0.34	5.147	0.49	6.47	4	6.33%	3.5	76%	3.42	0.000	3.42	1	0
58.562	6911.40	15.1	0.734	14.7	65.1	28.21	4.87%	Fine Alluvium	0.060	120.7	3.30	0.000	3.30	0	0.34	4.920	0.47	6.19	4	6.24%	3.5	76%	3.43	0.000	3.43	1	0
58.726	6911.23	16.1	0.599	15.7	70.8	30.67	3.72%	Fine Alluvium	0.060	120.7	3.31	0.000	3.31	0	0.33	5.250	0.50	6.61	4	4.68%	3.4	76%	3.44	0.000	3.44	1	0
58.890	6911.07	15.8	0.601	15.4	70.5	30.55	3.80%	Fine Alluvium	0.060	120.7	3.32	0.000	3.32	0	0.33	5.131	0.49	6.46	4	4.82%	3.5	76%	3.45	0.000	3.45	1	0
59.054	6910.91	16.4	0.683	15.9	72.4	31.38	4.17%	Fine Alluvium	0.060	120.7	3.33	0.000	3.33	0	0.33	5.309	0.51	6.69	4	5.23%	3.5	76%	3.46	0.000	3.46	1	0
59.218	6910.74	16.6	0.710	16.2	71.7	31.05	4.27%	Fine Alluvium	0.060	120.7	3.34	0.000	3.34	0	0.33	5.383	0.52	6.77	4	5.34%	3.5	76%	3.47	0.000	3.47	1	0
59.382	6910.58	16.9	0.755	16.4	72.6	31.44	4.47%	Fine Alluvium	0.060	120.7	3.35	0.000	3.35	0	0.33	5.454	0.52	6.86	4	5.57%	3.5	76%	3.48	0.000	3.48	1	0
59.547	6910.41	17.2	0.736	16.8	70.0	30.32	4.28%	Fine Alluvium	0.060	120.7	3.36	0.000	3.36	0	0.33	5.547	0.53	6.97	4	5.33%	3.5	76%	3.49	0.000	3.49	1	0
59.711	6910.25	16.2	0.713	15.8	67.6	29.30	4.39%	Fine Alluvium	0.060	120.7	3.37	0.000	3.37	0	0.33	5.220	0.50	6.56	4	5.54%	3.5	76%	3.50	0.000	3.50	1	0
59.875	6910.09	16.1	0.530	15.6	70.7	30.65	3.30%	Fine Alluvium	0.060	120.7	3.38	0.000	3.38	0	0.33	5.146	0.49	6.48	4	4.18%	3.4	76%	3.51	0.000	3.51	1	0
60.039	6909.92	15.1	0.563	14.7	70.2	30.42	3.73%	Fine Alluvium	0.060	120.7	3.39	0.000	3.39	0	0.33	4.819	0.46	6.08	3	4.81%	3.5	76%	3.52	0.000	3.52	1	0
60.203	6909.76	17.0	0.683	16.3	120.8	52.33	4.02%	Fine Alluvium	0.060	120.7	3.40	0.000	3.40	0	0.33	5.329	0.51	6.83	4	5.02%	3.5	76%	3.53	0.000	3.53	1	0
60.367	6909.59	16.6	0.702	16.0	97.1	42.08	4.23%	Fine Alluvium	0.060	120.7	3.41	0.000	3.41	0	0.33	5.235	0.50	6.65	4	5.32%	3.5	76%	3.54	0.000	3.54	1	0
60.531	6909.43	16.9	0.765	16.3	100.8	43.66	4.53%	Fine Alluvium	0.060	120.7	3.42	0.000	3.42	0	0.33	5.305	0.51	6.75	4	5.69%	3.5	76%	3.55	0.000	3.55	1	0
60.695	6909.27	17.8	0.836	17.3	87.3	37.84	4.69%	Fine Alluvium	0.060	120.7	3.43	0.000	3.43	0	0.33	5.625	0.54	7.11	4	5.81%	3.5	76%	3.56	0.000	3.56	1	0
60.859	6909.10	17.1	0.886	16.7	67.4	29.20	5.17%	Fine Alluvium	0.060	120.7	3.44	0.000	3.44	0	0.32	5.427	0.52	6.81	4	6.48%	3.5	76%	3.57	0.000	3.57	1	0
61.023	6908.94	17.8	0.901	17.4	67.5	29.24	5.06%	Fine Alluvium	0.060	120.7	3.45	0.000	3.45	0	0.32	5.642	0.54	7.08	4	6.27%	3.5	76%	3.58	0.000	3.58	1	0
61.187	6908.77	20.0	0.996	19.5	79.2	34.31	4.98%	Fine Alluvium	0.060	120.7	3.46	0.000	3.46	0	0.32	6.309	0.60	7.92	5	6.02%	3.4	76%	3.59	0.000	3.59	1	0
61.351	6908.61	19.7	1.070	19.3	59.3	25.71	5.44%	Fine Alluvium	0.060	120.7	3.47	0.000	3.47	0	0.32	6.233	0.60	7.78	5	6.60%	3.5	76%	3.60	0.000	3.60	1	0
61.515	6908.45	20.9	1.228	20.6	57.4	24.89	5.86%	Fine Alluvium	0.060	120.7	3.48	0.000	3.48	0	0.32	6.632	0.64	8.26	5	7.03%	3.5	76%	3.60	0.000	3.60	1	0
61.679	6908.28	21.4	1.231	21.1	52.6	22.80	5.74%	Fine Alluvium	0.060	120.7	3.49	0.000	3.49	0	0.32	6.781	0.65	8.43	5	6.86%	3.4	76%	3.61	0.000	3.61	1	0
61.843	6908.12	20.1	1.116	19.8	42.1	18.22	5.55%	Fine Alluvium	0.060	120.7	3.50	0.000	3.50	0	0.32	6.356	0.61	7.89	5	6.72%	3.5	76%	3.62	0.000	3.62	1	0
62.007	6907.95	17.8	0.850	17.5	48.8	21.13	4.78%	Fine Alluvium	0.060	120.7	3.51	0.000	3.51	0	0.32	5.586	0.54	6.96	4	5.96%	3.5	76%	3.63	0.000	3.63	1	0
62.171	6907.79	16.3	0.630	16.0	52.5	22.74	3.86%	Fine Alluvium	0.060	120.7	3.52	0.000	3.52	0	0.32	5.108	0.49	6.38	4	4.92%	3.5	76%	3.64	0.000	3.64	1	0
62.335	6907.63	13.9	0.470	13.6	53.7	23.27	3.38%	Fine Alluvium	0.060	120.7	3.53	0.000	3.53	0	0.32	4.326	0.41	5.43	3	4.52%	3.5	76%	3.65	0.000	3.65	1	0
62.499	6907.46	14.0	0.488	13.6	60.4	26.15	3.50%	Fine Alluvium	0.060	120.7	3.54	0.000	3.54	0	0.32	4.316	0.41	5.43	3	4.68%	3.5	76%	3.66	0.000	3.66	1	0
62.663	6907.30	14.7	0.435	14.3	62.7	27.19	2.95%	Fine Alluvium	0.060	120.7	3.55	0.000	3.55	0	0.32	4.548	0.44	5.72	3	3.89%	3.5	76%	3.67	0.000	3.67	1	0
62.827	6907.13	15.5	0.494	15.1	65.6	28.43	3.18%	Fine Alluvium	0.060	120.7	3.56	0.000	3.56	0	0.32	4.782	0.46	6.01	4	4.13%	3.5	76%	3.68	0.000	3.68	1	0
62.991	6906.97	15.4	0.525	15.0	63.5	27.50	3.40%	Fine Alluvium	0.060	120.7	3.57	0.000	3.57	0	0.32	4.749	0.45	5.97	3	4.42%	3.5	76%	3.69	0.000	3.69	1	0
63.155	6906.81	15.9	0.619	15.4	69.0	29.89	3.91%	Fine Alluvium	0.060	120.7	3.58	0.000	3.58	0	0.32	4.859	0.47	6.12	3	5.04%	3.5	76%	3.70	0.000	3.70	1	0
63.319	6906.64	14.8	0.592	14.4	67.8	29.36	3.99%	Fine Alluvium	0.060	120.7	3.59	0.000	3.59	0	0.31	4.528	0.43	5.71	3	5.27%	3.6	76%	3.71	0.000	3.71	1	0
63.483	6906.48	15.7	0.596	15.2	80.7	34.98	3.80%	Fine Alluvium	0.060	120.7	3.60	0.000	3.60	0	0.31	4.760	0.46	6.02	3	4.94%	3.5	76%	3.72	0.000	3.72	1	0
63.648	6906.31	16.7	0.386	16.1	83.7	36.26	2.32%	Fine Alluvium	0.060	120.7	3.61	0.000	3.61	0	0.31	5.050	0.48	6.38	4	2.96%	3.4	76%	3.73	0.000	3.73	1	0
63.812	6906.15	16.6	0.447	16.1	86.2	37.34	2.69%	Fine Alluvium	0.060	120.7	3.62	0.000	3.62	0	0.31	5.017	0.48	6.35	4	3.44%	3.4	76%	3.74	0.000	3.74	1	0
63.976	6905.98	15.6	0.557	15.0	87.4	37.89	3.57%	Fine Alluvium	0.060	120.7	3.63	0.000	3.63	0	0.31	4.688	0.45	5.95	3	4.66%	3.5	76%	3.75	0.000	3.75	1	0
64.140	6905.82	15.2	0.546	14.7	83.5	36.18	3.58%	Fine Alluvium	0.060	120.7	3.64	0.000	3.64	0	0.31	4.579	0.44	5.81	3	4.71%	3.5	76%	3.76	0.000	3.76	1	0
64.304	6905.66	16.0	0.606	15.4	95.2	41.26	3.80%	Fine Alluvium	0.060	120.7	3.65	0.000	3.65	0	0.31	4.768	0.46	6.06	3	4.92%	3.5	76%	3.77	0.000	3.77	1	0
64.468	6905.49	15.3	0.515	14.8	88.8	38.50	3.36%	Fine Alluvium	0.060	120.7	3.66	0.000	3.66	0	0.31	4.581	0.44	5.82	3	4.41%	3.5	76%	3.78	0.000	3.78	1	0
64.632	6905.33	15.8	0.598	15.2	97.1	42.09	3.78%	Fine Alluvium	0.060	120.7	3.67	0.000	3.67	0	0.31	4.708	0.45	5.99	3	4.91%	3.5	76%	3.79	0.000	3.79	1	0
64.796	6905.16	17.5	0.637	16.9	96.8	41.95	3.64%	Fine Alluvium	0.060	120.7	3.68	0.000	3.68	0	0.31	5.210	0.50	6.61	4	4.61%	3.5	76%	3.80	0.000	3.80	1	0
64.960	6905.00	18.6	0.824	18.0	95.1	41.20	4.42%	Fine Alluvium	0.060	120.7	3.69	0.000	3.69	0	0.31	5.553	0.53	7.02	4	5.51%	3.5	76%	3.81	0.000	3.81	1	0
65.124	6904.84	18.9	0.855	18.3	89.3	38.68	4.54%	Fine Alluvium	0.060	120.7	3.70	0.000	3.70	0	0.31	5.618	0.54	7.09	4	5.64%	3.5	76%	3.82	0.000	3.82	1	0
65.288	6904.67	19.2	0.934	18.5	109.3	47.38	4.87%	Fine Alluvium	0.060	120.7	3.71	0.000	3.71	0	0.31	5.664	0.54	7.19	4	6.04%	3.5	76%	3.83	0.000	3.83	1	0
65.452	6904.51	18.2	0.883	17.7	90.4	39.16	4.85%	Fine Alluvium	0.060	120.7	3.72	0.000	3.72	0	0.31	5.412	0.52	6.83	4	6.09%	3.5	76%	3.84	0.000	3.84	1	0
65.616	6904.34	17.3	0.887	16.8	80.4	34.84	5.14%	Fine Alluvium	0.060	120.7	3.73	0.000	3.73	0	0.31	5.116	0.49	6.45	4	6.55%	3.6	76%	3.85	0.000	3.85	1	0
65.780	6904.18	17.6	0.780	17.1	83.5	36.20	4.43%	Fine Alluvium	0.060	120.7	3.74	0.000	3.74	0	0.30	5.203	0.50	6.57	4	5.63%	3.5	76%	3.86	0.000	3.86	1	0
65.944	6904.02	19.6	0.823	19.0	94.1	40.79	4.20%	Fine Alluvium	0.060	120.7	3.75	0.000	3.75	0	0.30	5.773	0.55	7.29	4	5.20%	3.4	76%	3.87	0.000	3.87	1	0
66.108	6903.85	21.3	0.943	20.7	90.9	39.37	4.43%	Fine Alluvium	0.060	120.7	3.76	0.000	3.76	0	0.30	6.282	0.60	7.90	5	5.38%	3.4	76%	3.88	0.000	3.88	1	0
66.272	6903.69	21.7	0.880	21.3	66.0	28.59	4.05%	Fine Alluvium	0.060	120.7	3.77	0.000	3.77	0	0.30	6.445	0.62	8.04	5	4.91%	3.4	76%	3.89	0.000	3.89	1	0
66.436	6903.52	21.3	1.246	21.0	50.9	22.07	5.84%	Fine Alluvium	0.060	120.7	3.78	0.000	3.78	0	0.30	6.353	0.61	7.90	5	7.09%	3.5	76%	3.90	0.000	3.90	1	0
66.600	6903.36	20.6	1.207	20.3	46.9	20.34	5.85%	Fine Alluvium	0.060	120.7	3.79	0.000	3.79	0	0.30	6.129	0.59	7.61	5	7.17%	3.5	76%	3.91	0.000	3.91	1	0
66.764	6903.20	20.8	1.003	20.5	52.3	22.68	4.83%	Fine Alluvium	0.060	120.7	3.80	0.000	3.80	0	0.30	6.156	0.59	7.66	5	5.90%	3.5	76%	3.92	0.000	3.92	1	0
66.928	6903.03	17.8	0.767	17.5	57.5	24.91	4.30%	Fine Alluvium	0.060	120.7	3.81	0.000	3.81	0	0.30	5.243	0.50	6.55	4	5.47%	3.5	76%	3.93	0.000	3.93	1	0
67.092	6902.87	17.0	0.693	16.6	63.1	27.35	4.07%	Fine Alluvium	0.060	120.7	3.82	0.000	3.82	0	0.30	4.986	0.48	6.25	3	5.24%	3.5	76%	3.94	0.000	3.94	1	0
67.256	6902.70	16.8	0.684	16.4	63.0	27.31	4.06%	Fine Alluvium	0.060	120.7	3.83	0.000	3.83	0	0.30	4.916	0.47	6.16	3	5.26%	3.5	76%	3.95	0.000	3.95	1	0
67.420	6902.54	17.7	0.747	17.3	63.5	27.50	4.21%	Fine Alluvium	0.060	120.7	3.84	0.000	3.84	0	0.30	5.175	0.50	6.48	4	5.37%	3.5	76%	3.96	0.000	3.96	1	0
67.584	6902.38	18.2	0.750	17.8	69.5	30.10	4.12%	Fine Alluvium	0.060	120.7	3.84	0.000	3.84	0	0.30	5.296	0.51	6.64	4	5.22%	3.5	76%	3.97	0.000	3.97	1	0
67.749	6902.21	18.0	0.744	17.6	65.0	28.18	4.13%	Fine Alluvium	0.060	120.7	3.85	0.000	3.85	0	0.30	5.229	0.50	6.55	4	5.26%	3.5	76%	3.98	0.000	3.98	1	0
67.913	6902.05	19.2	0.778	18.7	78.4	33.96	4.05%	Fine Alluvium	0.060	120.7	3.86	0.000	3.86	0	0.30	5.538	0.53	6.96	4	5.09%	3.5	76%	3.99	0.000	3.99	1	0
68.077	6901.88	20.0	0.848	19.5	76.5	33.17	4.24%	Fine Alluvium	0.060	120.7	3.87	0.000	3.87	0	0.30	5.773	0.55	7.24	4	5.27%	3.4	76%	4.00	0.000	4.00	1	0

50.360	0.61	0.06	0.93	0.10	####	0.001	39.83	68.91	0.098	N/A	0.75	0.31	0.80	0.77	104.00	0.001	4.15	120.58	0.243	N/A	N/A	N/A
50.524	0.61	0.05	0.93	0.10	####	0.001	37.17	58.54	0.086	N/A	0.75	0.27	0.80	0.77	105.00	0.001	5.40	115.43	0.223	N/A	N/A	N/A
50.688	0.61	0.05	0.93	0.10	####	0.001	36.14	54.54	0.082	N/A	0.74	0.25	0.80	0.77	106.00	0.001	6.58	121.12	0.245	N/A	N/A	N/A
50.852	0.61	0.05	0.93	0.10	####	0.001	36.13	54.49	0.082	N/A	0.74	0.25	0.80	0.77	107.00	0.001	6.40	117.48	0.231	N/A	N/A	N/A
51.016	0.61	0.05	0.93	0.10	####	0.001	35.86	53.44	0.081	N/A	0.74	0.24	0.80	0.77	108.00	0.001	6.31	110.96	0.207	N/A	N/A	N/A
51.180	0.61	0.05	0.93	0.10	####	0.001	37.60	60.21	0.088	N/A	0.74	0.27	0.80	0.77	109.00	0.001	4.88	110.28	0.205	N/A	N/A	N/A
51.345	0.61	0.05	0.93	0.10	####	0.001	35.80	53.21	0.081	N/A	0.74	0.24	0.80	0.77	110.00	0.001	6.45	112.32	0.212	N/A	N/A	N/A
51.509	0.60	0.05	0.94	0.10	####	0.001	33.64	44.78	0.073	N/A	0.74	0.19	0.80	0.77	111.00	0.001	9.55	106.39	0.192	N/A	N/A	N/A
51.673	0.60	0.04	0.94	0.10	####	0.001	32.77	41.39	0.070	N/A	0.74	0.17	0.80	0.77	112.00	0.001	11.28	97.27	0.166	N/A	N/A	N/A
51.837	0.60	0.05	0.94	0.10	####	0.001	33.74	45.18	0.073	N/A	0.74	0.20	0.80	0.77	113.00	0.001	8.39	95.95	0.162	N/A	N/A	N/A
52.001	0.60	0.05	0.94	0.10	####	0.001	35.05	50.27	0.078	N/A	0.73	0.23	0.80	0.77	114.00	0.001	6.61	100.62	0.175	N/A	N/A	N/A
52.165	0.60	0.05	0.94	0.10	####	0.001	34.09	46.54	0.074	N/A	0.73	0.20	0.80	0.77	115.00	0.001	7.92	98.57	0.169	N/A	N/A	N/A
52.329	0.60	0.05	0.94	0.10	####	0.001	34.26	47.20	0.075	N/A	0.73	0.21	0.80	0.77	116.00	0.001	7.23	93.55	0.156	N/A	N/A	N/A
52.493	0.60	0.05	0.93	0.10	####	0.001	36.11	54.40	0.082	N/A	0.73	0.25	0.80	0.77	117.00	0.001	4.98	91.19	0.151	N/A	N/A	N/A
52.657	0.60	0.05	0.93	0.10	####	0.001	36.40	55.53	0.083	N/A	0.73	0.25	0.80	0.77	118.00	0.001	4.82	92.25	0.153	N/A	N/A	N/A
52.821	0.60	0.05	0.93	0.10	####	0.001	37.60	60.24	0.088	N/A	0.73	0.27	0.80	0.77	119.00	0.001	4.44	100.41	0.174	N/A	N/A	N/A
52.985	0.59	0.05	0.93	0.10	####	0.001	35.43	51.77	0.079	N/A	0.73	0.23	0.80	0.77	120.00	0.001	5.81	94.89	0.159	N/A	N/A	N/A
53.149	0.59	0.05	0.94	0.10	####	0.001	33.88	45.73	0.074	N/A	0.72	0.20	0.80	0.77	121.00	0.001	7.70	91.17	0.150	N/A	N/A	N/A
53.313	0.59	0.05	0.93	0.10	####	0.001	36.05	54.20	0.082	N/A	0.72	0.25	0.80	0.77	122.00	0.001	4.58	83.07	0.133	N/A	N/A	N/A
53.477	0.59	0.05	0.94	0.10	####	0.001	33.19	43.04	0.071	N/A	0.72	0.19	0.80	0.76	123.00	0.001	8.95	88.11	0.144	N/A	N/A	N/A
53.641	0.59	0.04	0.94	0.10	####	0.001	32.39	39.91	0.069	N/A	0.72	0.16	0.80	0.76	124.00	0.001	11.09	83.42	0.134	N/A	N/A	N/A
53.805	0.59	0.04	0.94	0.10	####	0.001	32.24	39.32	0.068	N/A	0.72	0.15	0.80	0.76	125.00	0.001	10.40	73.66	0.117	N/A	N/A	N/A
53.969	0.59	0.04	0.94	0.10	####	0.001	32.03	38.50	0.067	N/A	0.72	0.15	0.80	0.76	126.00	0.001	11.67	75.55	0.120	N/A	N/A	N/A
54.133	0.59	0.04	0.94	0.10	####	0.001	32.27	38.80	0.068	N/A	0.72	0.15	0.80	0.76	127.00	0.001	11.63	75.93	0.121	N/A	N/A	N/A
54.297	0.59	0.04	0.94	0.10	####	0.001	32.10	38.12	0.067	N/A	0.72	0.14	0.80	0.76	128.00	0.001	12.81	77.13	0.123	N/A	N/A	N/A
54.461	0.58	0.04	0.94	0.10	####	0.001	32.19	38.50	0.067	N/A	0.71	0.14	0.80	0.76	129.00	0.001	12.32	77.69	0.124	N/A	N/A	N/A
54.625	0.58	0.04	0.94	0.10	####	0.001	32.39	39.24	0.068	N/A	0.71	0.15	0.80	0.76	130.00	0.001	11.51	78.94	0.126	N/A	N/A	N/A
54.789	0.58	0.04	0.94	0.10	####	0.001	32.59	40.05	0.069	N/A	0.71	0.16	0.80	0.76	131.00	0.001	11.36	84.76	0.137	N/A	N/A	N/A
54.953	0.58	0.04	0.94	0.10	####	0.001	32.47	39.55	0.068	N/A	0.71	0.15	0.80	0.76	132.00	0.001	12.70	89.99	0.148	N/A	N/A	N/A
55.117	0.58	0.04	0.94	0.10	####	0.001	32.29	38.87	0.068	N/A	0.71	0.15	0.80	0.76	133.00	0.001	14.04	92.40	0.153	N/A	N/A	N/A
55.281	0.58	0.04	0.94	0.10	####	0.001	32.32	39.00	0.068	N/A	0.71	0.15	0.80	0.76	134.00	0.001	13.76	91.88	0.152	N/A	N/A	N/A
55.446	0.58	0.04	0.94	0.10	####	0.001	32.24	38.68	0.068	N/A	0.71	0.15	0.80	0.76	135.00	0.001	14.09	90.71	0.149	N/A	N/A	N/A
55.610	0.58	0.04	0.94	0.10	####	0.001	32.29	38.87	0.068	N/A	0.71	0.15	0.80	0.76	136.00	0.001	13.70	90.18	0.148	N/A	N/A	N/A
55.774	0.58	0.04	0.94	0.10	####	0.001	32.22	38.61	0.068	N/A	0.70	0.15	0.80	0.76	137.00	0.001	13.16	84.12	0.135	N/A	N/A	N/A
55.938	0.57	0.04	0.94	0.10	####	0.001	32.02	37.83	0.067	N/A	0.70	0.14	0.80	0.76	138.00	0.001	14.15	82.19	0.132	N/A	N/A	N/A
56.102	0.57	0.04	0.94	0.10	####	0.001	32.14	38.28	0.067	N/A	0.70	0.14	0.80	0.76	139.00	0.001	14.04	86.26	0.140	N/A	N/A	N/A
56.266	0.57	0.04	0.94	0.10	####	0.001	32.15	38.33	0.067	N/A	0.70	0.14	0.80	0.76	140.00	0.001	14.05	86.79	0.141	N/A	N/A	N/A
56.430	0.57	0.04	0.94	0.10	####	0.000	32.58	40.01	0.069	N/A	0.70	0.16	0.80	0.76	141.00	0.001	11.57	85.93	0.139	N/A	N/A	N/A
56.594	0.57	0.04	0.94	0.10	####	0.000	32.33	39.04	0.068	N/A	0.70	0.15	0.80	0.76	142.00	0.001	12.00	80.41	0.128	N/A	N/A	N/A
56.758	0.57	0.04	0.94	0.10	####	0.000	32.47	39.56	0.068	N/A	0.70	0.15	0.80	0.76	143.00	0.001	11.92	84.59	0.136	N/A	N/A	N/A
56.922	0.57	0.04	0.94	0.10	####	0.000	32.05	37.95	0.067	N/A	0.69	0.14	0.80	0.76	144.00	0.001	14.81	87.32	0.142	N/A	N/A	N/A
57.086	0.57	0.04	0.94	0.10	####	0.000	32.62	40.14	0.069	N/A	0.69	0.16	0.80	0.75	145.00	0.001	10.83	81.45	0.130	N/A	N/A	N/A
57.250	0.57	0.04	0.94	0.10	####	0.000	32.32	39.00	0.068	N/A	0.69	0.15	0.80	0.75	146.00	0.001	12.22	81.57	0.130	N/A	N/A	N/A
57.414	0.56	0.05	0.93	0.10	####	0.000	34.14	46.04	0.074	N/A	0.69	0.20	0.80	0.75	147.00	0.001	7.54	89.79	0.147	N/A	N/A	N/A
57.578	0.56	0.04	0.94	0.10	####	0.000	33.24	42.55	0.071	N/A	0.69	0.18	0.80	0.75	148.00	0.001	9.75	90.84	0.150	N/A	N/A	N/A
57.742	0.56	0.04	0.94	0.10	####	0.000	32.31	38.95	0.068	N/A	0.69	0.15	0.80	0.75	149.00	0.001	13.64	90.58	0.149	N/A	N/A	N/A
57.906	0.56	0.04	0.94	0.10	####	0.000	32.20	38.53	0.067	N/A	0.69	0.15	0.80	0.75	150.00	0.001	13.96	88.33	0.144	N/A	N/A	N/A
58.070	0.56	0.04	0.94	0.10	####	0.000	32.21	38.56	0.067	N/A	0.68	0.15	0.80	0.75	151.00	0.001	13.80	87.69	0.143	N/A	N/A	N/A
58.234	0.56	0.04	0.94	0.10	####	0.000	32.39	39.26	0.068	N/A	0.68	0.15	0.80	0.75	152.00	0.001	13.74	94.37	0.158	N/A	N/A	N/A
58.398	0.56	0.04	0.94	0.10	####	0.000	32.25	38.72	0.068	N/A	0.68	0.15	0.80	0.75	153.00	0.001	14.63	94.65	0.159	N/A	N/A	N/A
58.562	0.56	0.04	0.94	0.10	####	0.000	32.15	38.35	0.067	N/A	0.68	0.14	0.80	0.75	154.00	0.001	14.95	92.56	0.154	N/A	N/A	N/A
58.726	0.56	0.04	0.94	0.10	####	0.000	32.30	38.91	0.068	N/A	0.68	0.15	0.80	0.75	155.00	0.001	13.13	86.79	0.141	N/A	N/A	N/A
58.890	0.56	0.04	0.94	0.10	####	0.000	32.25	38.71	0.068	N/A	0.68	0.15	0.80	0.75	156.00	0.001	13.44	86.87	0.141	N/A	N/A	N/A
59.054	0.55	0.04	0.94	0.10	####	0.000	32.33	39.01	0.068	N/A	0.68	0.15	0.80	0.75	157.00	0.001	13.53	90.44	0.149	N/A	N/A	N/A
59.218	0.55	0.04	0.94	0.10	####	0.000	32.36	39.13	0.068	N/A	0.68	0.15	0.80	0.75	158.00	0.001	13.52	91.55	0.151	N/A	N/A	N/A
59.382	0.55	0.04	0.94	0.10	####	0.000	32.39	39.25	0.068	N/A	0.67	0.15	0.80	0.75	159.00	0.001	13.61	93.36	0.156	N/A	N/A	N/A
59.547	0.55	0.04	0.94	0.10	####	0.000	32.42	39.39	0.068	N/A	0.67	0.15	0.80	0.75	160.00	0.001	13.28	92.57	0.154	N/A	N/A	N/A
59.711	0.55	0.04	0.94	0.10	####	0.000	32.28	38.85	0.068	N/A	0.67	0.15	0.80	0.75	161.00	0.001	13.95	91.58	0.151	N/A	N/A	N/A
59.875	0.55	0.04	0.94	0.10	####	0.000	32.25	38.73	0.068	N/A	0.67	0.15	0.80	0.75	162.00	0.001	12.87	83.36	0.134	N/A	N/A	N/A
60.039	0.55	0.04	0.94	0.10	####	0.000	32.11	38.19	0.067	N/A	0.67	0.14	0.80	0.75	163.00	0.001	13.99	85.01	0.137	N/A	N/A	N/A
60.203	0.55	0.04	0.94	0.10	####	0.000	32.38	39.20	0.068	N/A	0.67	0.15	0.80	0.75	164.00	0.001	13.22	90.25	0.148	N/A	N/A	N/A
60.367	0.55	0.04	0.94	0.10	####	0.000	32.32	38.97	0.068	N/A	0.67	0.15	0.80	0.75	165.00	0.001	13.68	91.02	0.150	N/A	N/A	N/A
60.531	0.55	0.04	0.94	0.10	####	0.000	32.35	39.10	0.068	N/A	0.66	0.15	0.80	0.75	166.00	0.001	13.86	93.54	0.156	N/A	N/A	N/A
60.695	0.54	0.04	0.94	0.10	####	0.000	32.47	39.58	0.068	N/A	0.66	0.15	0.80	0.75	167.00	0.001	13.55	96.30	0.163	N/A	N/A	N/A
60.859	0.54	0.04	0.94	0.10	####	0.000	32.37	39.18	0.068	N/A	0.66	0.15	0.80	0.74	168.00	0.001	14.39	98.04	0.168	N/A	N/A	N/A
61.023	0.54	0.04	0.94	0.10	####	0.000	32.46	39.54	0.068	N/A	0.66	0.15	0.80	0.74	169.00	0.001	13.94	98.62	0.169	N/A	N/A	N/A
61.187	0.54	0.04	0.94	0.10	####	0.000	32.76	40.68	0.069	N/A	0.66	0.16	0.80	0.74	170.00	0.001	12.90	102.14	0.179	N/A	N/A	N/A
61.351	0.54	0.04	0.94	0.10	####	0.000	32.71	40.49	0.069	N/A	0.66	0.16	0.80	0.74	171.00	0.001	13.44	104.58	0.186	N/A	N/A	N/A
61.515	0.54	0.04	0.94	0.10	####	0.000	32.87	41.14	0.070	N/A	0.66	0.17	0.80	0.74	172.00	0.001	13.29	109.77	0.203	N/A	N/A	N/A
61.679	0.54	0.04	0.93	0.10	####	0.000	32.93	41.37	0.070	N/A	0.65	0.17	0.80	0.74	173.00	0.001	13.03	109.89	0.203	N/A	N/A	N/A
61.843	0.54	0.04	0.94	0.10	####	0.000	32.74	40.63	0.069	N/A	0.65	0.16	0.80	0.74	174.00	0.001	13.44	105.98	0.191	N/A	N/A	N/A
62.007	0.54	0.04	0.94	0.10	####	0.000	32.42	39.38	0.068	N/A	0.65	0.15	0.80	0.74	175.00	0.001	13.87	96.55	0.164	N/A	N/A	N/A
62.171	0.54	0.04	0.94	0.10	####	0.000	32.22	38.60	0.067	N/A	0.65	0.15	0.80	0.74	176.00	0.001	13.74	87.70	0.143	N/A	N/A	N/A
62.335	0.53	0.04	0.94	0.10	####	0.000	31.89	37.32	0.066	N/A	0.65	0.13	0.80	0.74	177.00	0.001	14.81	80.40	0.128	N/A	N/A	N/A
62.499	0.53	0.04	0.94	0.10	####	0.000	31.89	37.32	0.066	N/A	0.65	0.13	0.80	0.74	178.00	0.001	14.96	81.28	0.130	N/A	N/A	N/A
62.663	0.53	0.04	0.94	0.10	####	0.000	31.99	37.71	0.067	N/A	0.65	0.14	0.80	0.74	179.00	0.001	13.71	78.44	0.125	N/A	N/A	N/A
62.827	0.53	0.04	0.94	0.10	####	0.000	32.09	38.11	0.067	N/A	0.65	0.14	0.80	0.74	180.00	0.001	13.53	81.36	0.130	N/A	N/A	N/A
62.991	0.53	0.04	0.94	0.10	####	0.000	32.08	38.05	0.067	N/A	0.64	0.14	0.80	0.74	181.00	0.001	13.88	82.87	0.133	N/A	N/A	N/A
63.155	0.53	0.04	0.94	0.10	####	0.000	32.13	38.24	0.067	N/A	0.64	0.14	0.80	0.74	182.00	0.001	14.24	87.11	0.141	N/A	N/A	N/A
63.319	0.53	0.04	0.94	0.10	####	0.000	31.99	37.69	0.067	N/A	0.64	0.14	0.80	0.74	183.00	0.001	15.06	85.95	0.139	N/A	N/A	N/A
63.483	0.53	0.04	0.94	0.10	####	0.000	32.10	38.12	0.067	N/A	0.64	0.14	0.80	0.74	184.00	0.001	14.29	86.07	0.139	N/A	N/A	N/A
63.648	0.53	0.04	0.94	0.10	####	0.000	32.22	38.61	0.067	N/A	0.64	0.15	0.80	0.74	185.00	0.001	11.78	75.23	0.120	N/A	N/A	N/A
63.812	0.53	0.04	0.94	0.10	####	0.000	32.21	38.56	0.067	N/A	0.64	0.15	0.80	0.74	186.00	0.001	12.39	78.67	0.125	N/A	N/A	N/A
63.976	0.53	0.04	0.94	0.10	####	0.000	32.07	38.02	0.067	N/A	0.64	0.14	0.80	0.74	187.00	0.001	14.16	84.26	0.136	N/A	N/A	N/A
64.140	0.52	0.04	0.94	0.10	####	0.000	32.02	37.83	0.067	N/A	0.63	0.14	0.80	0.74	188.00	0.001	14.43	83.77	0.135	N/A	N/A	N/A
64.304	0.52	0.04	0.94	0.10	####	0.000	32.11	38.17	0.067	N/A	0.63	0.14	0.80	0.74	189.00	0.001	14.25	86.40	0.140	N/A	N/A	N/A
64.468	0.52	0.04	0.94	0.10	####	0.000	32.03	37.85	0.067	N/A	0.63	0.14	0.80	0.74	190.00	0.001	14.14	82.27	0.132	N/A	N/A	N/A
64.632	0.52	0.04	0.94	0.10	####	0.000	32.09	38.08	0.067	N/A	0.63	0.14	0.80	0.74	191.00	0.001	14.35	86.02	0.139	N/A	N/A	N/A
64.796	0.52	0.04	0.94	0.10	####	0.000	32.30	38.91	0.068	N/A	0.63	0.15	0.80	0.74	192.00	0.001	13.26	87.61	0.143	N/A	N/A	N/A
64.960	0.52	0.04	0.93	0.10	####	0.000	32.44	39.47	0.068	N/A	0.63	0.15	0.80	0.73	193.00	0.001	13.54	95.08	0.160	N/A	N/A	N/A
65.124	0.52	0.04	0.93	0.10	####	0.000	32.47	39.55	0.068	N/A	0.63	0.15	0.80	0.73	194.00	0.001	13.57	96.21	0.163	N/A	N/A	N/A
65.288	0.52	0.04	0.93	0.10	####	0.000	32.50	39.69	0.068	N/A	0.63	0.15	0.80	0.73	195.00	0.001	13.77	99.01	0.170	N/A	N/A	N/A
65.452	0.52	0.04	0.93	0.10	####	0.000	32.38	39.20	0.068	N/A	0.62	0.15	0.80	0.73	196.00	0.001	14.23	97.11	0.165	N/A	N/A	N/A
65.616	0.52	0.04	0.93	0.10	####	0.000	32.25	38.70	0.068	N/A	0.62	0.15	0.80	0.73	197.00	0.001	15.05	97.12	0.165	N/A	N/A	N/A
65.780	0.52	0.04	0.93	0.10	####	0.000	32.28	38.85	0.068	N/A	0.62	0.15	0.80	0.73	198.00	0.001	14.20	93.25	0.155	N/A	N/A	N/A
65.944	0.51	0.04	0.93	0.10	####	0.000	32.54	39.82	0.068	N/A	0.62	0.16	0.80	0.73	199.00	0.001	13.02	94.89	0.159	N/A	N/A	N/A
66.108	0.51	0.04	0.93	0.10	####	0.000	32.75	40.65	0.069	N/A	0.62	0.16	0.80	0.73	200.00	0.001	12.56	99.26	0.171	N/A	N/A	N/A
66.272	0.51	0.04	0.93	0.10	####	0.000	32.80	40.84	0.069	N/A	0.62	0.16	0.80	0.73	201.00	0.001	12.05	96.94	0.165	N/A	N/A	N/A
66.436	0.51	0.04	0.93	0.10	####	0.000	32.75	40.64	0.069	N/A	0.62	0.16	0.80	0.73	202.00	0.001	13.80	108.99	0.200	N/A	N/A	N/A
66.600	0.51	0.04	0.93	0.10	####	0.000	32.65	40.26	0.069	N/A	0.61	0.16	0.80	0.73	203.00	0.001	14.14	107.66	0.196	N/A	N/A	N/A
66.764	0.51	0.04	0.93	0.10	####	0.000	32.66	40.32	0.069	N/A	0.61	0.16	0.80	0.73	204.00	0.001	13.21	101.19	0.176	N/A	N/A	N/A
66.928	0.51	0.04	0.93	0.10	####	0.000	32.28	38.83	0.068	N/A	0.61	0.15	0.80	0.73	205.00	0.001	14.13	92.59	0.154	N/A	N/A	N/A
67.092	0.51	0.04	0.93	0.10	####	0.000	32.18	38.43	0.067	N/A	0.61	0.14	0.80	0.73	206.00	0.000	14.35	89.67	0.147	N/A	N/A	N/A
67.256	0.51	0.04	0.93	0.10	####	0.000	32.15	38.31	0.067	N/A	0.61	0.14	0.80	0.73	207.00	0.000	14.49	89.29	0.146	N/A	N/A	N/A
67.420	0.51	0.04	0.93	0.10	####	0.000	32.26	38.74	0.068	N/A	0.61	0.15	0.80	0.73	208.00	0.000	14.16	91.75	0.152	N/A	N/A	N/A
67.584	0.51	0.04	0.93	0.10	####	0.000	32.31	38.95	0.068	N/A	0.61	0.15	0.80	0.73	209.00	0.000	13.83	91.85	0.152	N/A	N/A	N/A
67.749	0.51	0.04	0.93	0.10	####	0.000	32.28	38.83	0.068	N/A	0.61	0.15	0.80	0.73	210.00	0.000	13.98	91.59	0.151	N/A	N/A	N/A
67.913	0.50	0.04	0.93	0.10	####	0.000	32.42	39.38	0.068	N/A	0.60	0.15	0.80	0.73	211.00	0.000	13.34	92.87	0.154	N/A	N/A	N/A
68.077	0.50	0.04	0.93	0.10	####	0.000	32.52	39.76	0.068	N/A	0.60	0.16	0.80	0.73	212.00	0.000	13.18	95.47	0.161	N/A	N/A	N/A

0.40	23.75	2.27	29.08	50.360		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	17.45	1.67	21.37	50.524		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	15.02	1.44	18.40	50.688		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	14.99	1.44	18.36	50.852		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	14.36	1.37	17.58	51.016	12	1.00	11	5	0.36	0.60	0.46	5.5	10.6	0.12	N/A	5.00	1.20	11.10	0.123	N/A	N/A
0.38	18.47	1.77	22.62	51.180		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	14.22	1.36	17.41	51.345		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	9.10	0.87	11.14	51.509		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	7.04	0.67	8.62	51.673		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	9.34	0.89	11.44	51.837		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	12.43	1.19	15.23	52.001		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	10.17	0.97	12.45	52.165		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	10.57	1.01	12.94	52.329		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	14.94	1.43	18.30	52.493		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	15.63	1.50	19.14	52.657		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	18.49	1.77	22.64	52.821		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	13.34	1.28	16.34	52.985		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	9.67	0.93	11.84	53.149		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	14.82	1.42	18.14	53.313		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	8.04	0.77	9.84	53.477		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	6.14	0.59	7.52	53.641		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	5.78	0.55	7.08	53.805		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	5.29	0.51	6.47	53.969		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	5.33	0.51	6.53	54.133		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	4.92	0.47	6.02	54.297		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	5.15	0.49	6.31	54.461		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	5.60	0.54	6.86	54.625		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	6.09	0.58	7.46	54.789		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.79	0.55	7.09	54.953		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.37	0.51	6.58	55.117		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.45	0.52	6.68	55.281		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.26	0.50	6.44	55.446		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.38	0.51	6.58	55.610		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.22	0.50	6.39	55.774		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	4.74	0.45	5.81	55.938	17	1.00	16	7	0.42	0.56	0.46	5.6	12.7	0.14	N/A	5.00	1.20	13.59	0.146	N/A	N/A
0.35	5.02	0.48	6.14	56.102		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.04	0.48	6.18	56.266		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	6.06	0.58	7.43	56.430		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	5.47	0.52	6.70	56.594		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.79	0.55	7.10	56.758		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	4.82	0.46	5.90	56.922		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	6.14	0.59	7.52	57.086		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.45	0.52	6.67	57.250		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	9.72	0.93	11.90	57.414		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	7.61	0.73	9.32	57.578		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.42	0.52	6.64	57.742		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.17	0.49	6.33	57.906		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.19	0.50	6.35	58.070		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.61	0.54	6.87	58.234		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.28	0.51	6.47	58.398		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	5.06	0.48	6.19	58.562		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.40	0.52	6.61	58.726		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.28	0.51	6.46	58.890		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.46	0.52	6.69	59.054		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.53	0.53	6.77	59.218		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.60	0.54	6.86	59.382		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.69	0.54	6.97	59.547		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.36	0.51	6.56	59.711		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.29	0.51	6.48	59.875		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	4.96	0.48	6.08	60.039		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.58	0.53	6.83	60.203		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.43	0.52	6.65	60.367		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.51	0.53	6.75	60.531		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	5.80	0.56	7.11	60.695		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	5.56	0.53	6.81	60.859		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	5.78	0.55	7.08	61.023	20	1.00	18	8	0.45	0.55	0.45	5.6	13.7	0.15	N/A	5.00	1.20	14.83	0.158	N/A	N/A
0.32	6.47	0.62	7.92	61.187		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	6.35	0.61	7.78	61.351		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	6.75	0.65	8.26	61.515		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	6.89	0.66	8.43	61.679		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	6.44	0.62	7.89	61.843		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	5.68	0.54	6.96	62.007		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	5.21	0.50	6.38	62.171		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.43	0.42	5.43	62.335		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.44	0.42	5.43	62.499		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.67	0.45	5.72	62.663		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.91	0.47	6.01	62.827		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.87	0.47	5.97	62.991		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	4.99	0.48	6.12	63.155		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.66	0.45	5.71	63.319		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.92	0.47	6.02	63.483		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.21	0.50	6.38	63.648		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.19	0.50	6.35	63.812		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.86	0.47	5.95	63.976		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.74	0.45	5.81	64.140		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.95	0.47	6.06	64.304		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.75	0.46	5.82	64.468		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	4.89	0.47	5.99	64.632		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.40	0.52	6.61	64.796		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.74	0.55	7.02	64.960		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.79	0.55	7.09	65.124		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.87	0.56	7.19	65.288		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.57	0.53	6.83	65.452		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	5.27	0.50	6.45	65.616		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.36	0.51	6.57	65.780		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.95	0.57	7.29	65.944	18	1.00	17	7	0.41	0.57	0.41	5.6	12.4	0.14	N/A	5.00	1.20	13.20	0.142	N/A	N/A
0.30	6.45	0.62	7.90	66.108		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	6.57	0.63	8.04	66.272		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	6.45	0.62	7.90	66.436		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	6.22	0.60	7.61	66.600		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	6.25	0.60	7.66	66.764		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.35	0.51	6.55	66.928		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.10	0.49	6.25	67.092		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.03	0.48	6.16	67.256		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.29	0.51	6.48	67.420		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.42	0.52	6.64	67.584		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.35	0.51	6.55	67.749		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.68	0.54	6.96	67.913		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	5.91	0.57	7.24	68.077		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

68.241	6901.72	21.3	0.970	20.8	85.3	36.97	4.55%	Coarse Alluvium	0.056	111.0	3.88	0.000	3.88	0	0.30	6.141	0.59	7.71	4	5.57%	3.4	36%	4.01	0.000	4.01	0	0	0.50	0.04	0.93	0.10	####	0.000	32.46	40.17	0.069	N/A	0.60	0.16	0.80	0.73	213.00	0.000	12.94	99.80	0.172	N/A	N/A	N/A	0.30	6.30	0.60	7.71	68.241	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.405	6901.56	29.4	1.269	28.8	97.4	42.22	4.31%	Coarse Alluvium	0.056	111.0	3.89	0.000	3.89	0	0.29	8.498	0.81	10.63	7	4.97%	3.3	36%	4.02	0.000	4.02	0	0	0.50	0.05	0.93	0.10	####	0.000	33.46	44.09	0.072	N/A	0.60	0.19	0.80	0.73	214.00	0.000	10.31	109.52	0.202	N/A	N/A	N/A	0.29	8.68	0.83	10.63	68.405	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.569	6901.39	31.0	1.356	30.7	41.3	17.91	4.38%	Coarse Alluvium	0.056	111.0	3.90	0.000	3.90	0	0.29	9.045	0.87	11.17	7	5.01%	3.3	36%	4.03	0.000	4.03	0	0	0.50	0.05	0.93	0.10	####	0.000	33.65	44.82	0.073	N/A	0.60	0.19	0.80	0.73	215.00	0.000	10.04	112.12	0.211	N/A	N/A	N/A	0.29	9.12	0.87	11.17	68.569	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.733	6901.23	28.3	1.485	28.1	32.4	14.03	5.25%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	0.29	8.262	0.79	10.19	6	6.09%	3.3	36%	4.04	0.000	4.04	0	0	0.50	0.05	0.93	0.10	####	0.000	33.31	43.50	0.072	N/A	0.60	0.18	0.80	0.73	216.00	0.000	11.38	115.99	0.225	N/A	N/A	N/A	0.29	8.32	0.80	10.19	68.733	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.897	6901.06	30.7	1.435	30.5	37.7	16.35	4.67%	Coarse Alluvium	0.056	111.0	3.92	0.000	3.92	0	0.29	8.939	0.86	11.03	7	5.36%	3.3	36%	4.05	0.000	4.05	0	0	0.50	0.05	0.93	0.10	####	0.000	33.60	44.63	0.073	N/A	0.60	0.19	0.80	0.73	217.00	0.000	10.38	114.47	0.219	N/A	N/A	N/A	0.29	9.01	0.86	11.03	68.897	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.061	6900.90	28.6	1.493	28.4	27.3	11.83	5.22%	Coarse Alluvium	0.056	111.0	3.93	0.000	3.93	0	0.29	8.325	0.80	10.26	6	6.05%	3.3	36%	4.06	0.000	4.06	0	0	0.50	0.05	0.93	0.10	####	0.000	33.33	43.59	0.072	N/A	0.59	0.18	0.80	0.73	218.00	0.000	11.32	116.14	0.226	N/A	N/A	N/A	0.29	8.38	0.80	10.26	69.061	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.225	6900.74	32.7	1.426	32.5	28.4	12.32	4.36%	Coarse Alluvium	0.056	111.0	3.94	0.000	3.94	0	0.29	9.503	0.91	11.70	7	4.96%	3.2	36%	4.06	0.000	4.06	0	0	0.50	0.05	0.93	0.10	####	0.000	33.83	45.53	0.073	N/A	0.59	0.20	0.80	0.73	219.00	0.000	9.74	114.00	0.218	N/A	N/A	N/A	0.29	9.55	0.91	11.70	69.225	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.389	6900.57	45.3	1.300	45.1	30.4	13.18	2.87%	Coarse Alluvium	0.056	111.0	3.95	0.000	3.95	0	0.29	13.148	1.26	16.17	10	3.15%	3.0	36%	4.07	0.000	4.07	0	0	0.50	0.05	0.92	0.10	####	0.000	35.37	51.54	0.079	N/A	0.59	0.23	0.80	0.73	220.00	0.000	6.66	107.70	0.196	N/A	N/A	N/A	0.29	13.20	1.26	16.17	69.389	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.553	6900.41	59.5	1.179	59.4	19.2	8.30	1.98%	Coarse Alluvium	0.056	111.0	3.96	0.000	3.96	0	0.29	17.357	1.66	21.30	14	2.12%	2.8	36%	4.08	0.000	4.08	0	0	0.50	0.05	0.91	0.10	####	0.000	37.14	58.44	0.086	N/A	0.59	0.27	0.80	0.72	221.00	0.000	4.70	100.17	0.173	N/A	N/A	N/A	0.29	17.39	1.67	21.30	69.553	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.717	6900.24	69.4	1.177	69.4	14.2	6.16	1.70%	Coarse Alluvium	0.056	111.0	3.97	0.000	3.97	0	0.31	21.220	2.03	26.02	17	1.80%	2.7	36%	4.09	0.000	4.09	0	0	0.50	0.06	0.91	0.10	####	0.000	38.77	64.79	0.093	N/A	0.59	0.29	0.80	0.72	222.00	0.000	3.94	102.48	0.180	N/A	N/A	N/A	0.31	21.25	2.03	26.02	69.717	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.881	6900.08	73.4	1.272	73.3	13.3	5.75	1.73%	Coarse Alluvium	0.056	111.0	3.97	0.000	3.97	0	0.31	22.790	2.18	27.94	17	1.83%	2.7	36%	4.10	0.000	4.10	0	0	0.49	0.06	0.91	0.10	####	0.000	39.43	67.37	0.096	N/A	0.59	0.31	0.80	0.72	223.00	0.000	3.83	106.94	0.194	N/A	N/A	N/A	0.31	22.82	2.18	27.94	69.881	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-02

Data File: 13-52118_RP02-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP02-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Description
0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ratio, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6960.16	Ground Surface Elevation at time of CPT (ft amsl)
6974.44	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
0.83	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6945.15	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6974.4	6973.7	6972.9	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6972.9	6971.4	6969.9	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6969.9	6965.1	6960.2	9.8	0.058	116.4	0.831	0.547	0.00	0.00	0.831	0.547

2013 CPT Data from ConeTec / CPT Data Interpretations

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No
0.164	6960.00	2.6	0.014	2.6	0.8	0.35	0.55%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0
0.328	6959.83	8.7	0.105	8.7	1.8	0.77	1.21%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0
0.492	6959.67	36.0	0.414	36.0	3.4	1.46	1.15%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0
0.656	6959.50	66.4	0.539	66.4	4.5	1.95	0.81%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0
0.820	6959.34	102.2	0.826	102.2	3.9	1.67	0.81%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0
0.984	6959.18	135.1	0.687	135.1	7.5	3.25	0.51%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0
1.148	6959.01	136.4	0.823	136.3	11.6	5.04	0.60%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0
1.312	6958.85	130.0	0.996	130.0	7.5	3.23	0.77%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0
1.476	6958.68	130.4	1.428	130.3	6.1	2.62	1.10%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0
1.640	6958.52	131.0	1.889	130.9	5.7	2.48	1.44%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0
1.804	6958.36	145.6	2.873	145.6	5.4	2.34	1.97%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0
1.968	6958.19	219.5	3.426	219.5	6.1	2.62	1.56%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0
2.133	6958.03	381.6	4.079	381.5	7.7	3.34	1.07%	General Fill	0.057	113.8	0.13	0.000	0.13	0
2.297	6957.86	494.8	4.928	494.8	7.8	3.38	1.00%	General Fill	0.057	113.8	0.14	0.000	0.14	0
2.461	6957.70	497.1	6.052	497.0	7.5	3.23	1.22%	General Fill	0.057	113.8	0.15	0.000	0.15	0
2.625	6957.54	455.8	7.051	455.8	7.3	3.15	1.55%	General Fill	0.057	113.8	0.16	0.000	0.16	0
2.789	6957.37	364.3	7.294	364.3	6.8	2.93	2.00%	General Fill	0.057	113.8	0.17	0.000	0.17	0
2.953	6957.21	294.3	7.021	294.3	5.4	2.32	2.39%	General Fill	0.057	113.8	0.18	0.000	0.18	0
3.117	6957.04	248.5	6.372	248.5	3.4	1.49	2.56%	General Fill	0.057	113.8	0.19	0.000	0.19	0
3.281	6956.88	205.2	5.484	205.2	3.6	1.55	2.67%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.445	6956.72	181.5	5.238	181.5	3.9	1.69	2.89%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.609	6956.55	171.3	4.579	171.3	3.8	1.65	2.67%	General Fill	0.057	113.8	0.21	0.000	0.21	0
3.773	6956.39	166.3	3.191	166.3	3.9	1.67	1.92%	General Fill	0.057	113.8	0.22	0.000	0.22	0
3.937	6956.22	170.8	3.177	170.8	4.2	1.81	1.86%	General Fill	0.057	113.8	0.23	0.000	0.23	0
4.101	6956.06	112.6	3.066	112.6	2.4	1.04	2.72%	General Fill	0.057	113.8	0.24	0.000	0.24	0
4.265	6955.89	188.5	2.546	188.5	2.9	1.26	1.35%	General Fill	0.057	113.8	0.25	0.000	0.25	0
4.429	6955.73	212.3	2.596	212.2	3.0	1.28	1.22%	General Fill	0.057	113.8	0.26	0.000	0.26	0
4.593	6955.57	287.2	4.504	287.2	1.4	0.59	1.57%	General Fill	0.057	113.8	0.27	0.000	0.27	0
4.757	6955.40	441.5	6.718	441.4	3.4	1.49	1.52%	General Fill	0.057	113.8	0.28	0.000	0.28	0
4.921	6955.24	436.9	6.855	436.9	7.7	3.32	1.57%	General Fill	0.057	113.8	0.29	0.000	0.29	0
5.085	6955.07	442.6	7.358	442.5	5.8	2.50	1.66%	General Fill	0.057	113.8	0.30	0.000	0.30	0
5.249	6954.91	463.0	5.871	463.0	6.7	2.89	1.27%	General Fill	0.057	113.8	0.31	0.000	0.31	0
5.413	6954.75	426.1	6.056	426.0	6.5	2.81	1.42%	General Fill	0.057	113.8	0.32	0.000	0.32	0
5.577	6954.58	334.4	7.047	334.4	8.1	3.52	2.11%	General Fill	0.057	113.8	0.33	0.000	0.33	0
5.741	6954.42	237.6	5.766	237.6	6.2	2.68	2.43%	General Fill	0.057	113.8	0.34	0.000	0.34	0
5.905	6954.25	185.2	5.396	185.2	5.0	2.15	2.91%	General Fill	0.057	113.8	0.34	0.000	0.34	0
6.069	6954.09	154.1	4.847	154.1	4.4	1.91	3.15%	General Fill	0.057	113.8	0.35	0.000	0.35	0
6.234	6953.93	135.8	4.745	135.8	5.4	2.32	3.49%	General Fill	0.057	113.8	0.36	0.000	0.36	0
6.398	6953.76	116.2	4.702	116.1	6.3	2.75	4.05%	General Fill	0.057	113.8	0.37	0.000	0.37	0
6.562	6953.60	110.1	4.281	110.1	6.3	2.73	3.89%	General Fill	0.057	113.8	0.38	0.000	0.38	0
6.726	6953.43	102.3	3.917	102.2	5.8	2.50	3.83%	General Fill	0.057	113.8	0.39	0.000	0.39	0
6.890	6953.27	105.4	3.620	105.4	4.8	2.09	3.43%	General Fill	0.057	113.8	0.40	0.000	0.40	0
7.054	6953.11	103.2	3.330	103.2	4.7	2.05	3.23%	General Fill	0.057	113.8	0.41	0.000	0.41	0
7.218	6952.94	105.1	2.699	105.0	4.5	1.95	2.57%	General Fill	0.057	113.8	0.42	0.000	0.42	0
7.382	6952.78	112.8	2.702	112.8	4.4	1.89	2.40%	General Fill	0.057	113.8	0.43	0.000	0.43	0
7.546	6952.61	135.7	2.332	135.7	4.4	1.91	1.72%	General Fill	0.057	113.8	0.44	0.000	0.44	0
7.710	6952.45	133.8	2.944	133.8	4.6	1.97	2.20%	General Fill	0.057	113.8	0.45	0.000	0.45	0
7.874	6952.29	153.1	3.594	153.0	6.1	2.62	2.35%	General Fill	0.057	113.8	0.46	0.000	0.46	0
8.038	6952.12	181.7	3.731	181.7	6.4	2.79	2.05%	General Fill	0.057	113.8	0.47	0.000	0.47	0
8.202	6951.96	181.3	3.527	181.3	5.5	2.38	1.95%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.366	6951.79	168.3	3.251	168.3	5.1	2.20	1.93%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.530	6951.63	158.6	2.935	158.6	4.7	2.02	1.85%	General Fill	0.057	113.8	0.49	0.000	0.49	0
8.694	6951.47	138.6	2.606	138.6	4.3	1.85	1.88%	General Fill	0.057	113.8	0.50	0.000	0.50	0
8.858	6951.31	131.7	2.363	131.7	4.2	1.83	1.79%	General Fill	0.057	113.8	0.51	0.000	0.51	0
9.022	6951.14	121.8	2.239	121.7	4.0	1.73	1.84%	General Fill	0.057	113.8	0.52	0.000	0.52	0
9.186	6950.97	129.2	2.304	129.2	3.9	1.67	1.78%	General Fill	0.057	113.8	0.53	0.000	0.53	0
9.350	6950.81	136.8	2.274	136.6	4.0	1.73	1.66%	General Fill	0.057	113.8	0.54	0.000	0.54	0
9.514	6950.65	135.7	2.236	135.6	3.6	1.56	1.65%	General Fill	0.057	113.8	0.55	0.000	0.55	0
9.678	6950.48	127.5	2.186	127.5	3.9	1.67	1.71%	General Fill	0.057	113.8	0.56	0.000	0.56	0
9.842	6950.32	121.6	1.937	121.6	3.4	1.49	1.59%	General Fill	0.057	113.8	0.57	0.000	0.57	0
10.006	6950.15	97.7	1.808	97.7	3.3	1.44	1.85%	General Fill	0.057	113.8	0.58	0.000	0.58	0
10.170	6949.99	88.7	1.876	88.7	2.5	1.08	2.12%	General Fill	0.057	113.8	0.59	0.000	0.59	0
10.335	6949.83	87.7	1.791	87.7	3.3	1.44	2.04%	General Fill	0.057	113.8	0.60	0.000	0.60	0
10.499	6949.66	89.8	1.559	89.7	3.4	1.46	1.74%	General Fill	0.057	113.8	0.61	0.000	0.61	0
10.663	6949.50	74.8	0.915	74.8	2.5	1.10	1.22%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.827	6949.33	58.3	0.502	58.3	2.1	0.91	0.86%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.991	6949.17	43.9	0.468	43.9	2.1	0.89	1.07%	General Fill	0.057	113.8	0.63	0.000	0.63	0
11.155	6949.01	30.7	0.504	30.7	1.2	0.51	1.64%	General Fill	0.057	113.8	0.64	0.000	0.64	0
11.319	6948.84	22.6	0.588	22.6	1.1	0.47	2.61%	General Fill	0.057	113.8	0.65	0.000	0.65	0
11.483	6948.68	17.4	0.639	17.4	1.3	0.57	3.67%	General Fill	0.057	113.8	0.66	0.000	0.66	0
11.647	6948.51	19.0	0.599	19.0	1.4	0.59	3.15%	General Fill	0.057	113.8	0.67	0.000	0.67	0
11.811	6948.35	40.7	0.487	40.7	1.8	0.79	1.20%	General Fill	0.057	113.8	0.68	0.000	0.68	0
11.975	6948.19	49.0	0.546	49.0	2.3	0.98	1.11%	General Fill	0.057	113.8	0.69	0.000	0.69	0
12.139	6948.02	41.0	0.743	41.0	2.0	0.85	1.81%	General Fill	0.057	113.8	0.70	0.000	0.70	0
12.303	6947.86	20.4	0.871	20.4	1.8	0.77	4.27%	General Fill	0.057	113.8	0.71	0.000	0.71	0
12.467	6947.69	14.9	0.663	14.9	1.8	0.79	4.44%	General Fill	0.057	113.8	0.72	0.000	0.72	0
12.631	6947.53	12.1	0.383	12.1	1.9	0.81	3.16%	General Fill	0.057	113.8	0.73	0.000	0.73	0
12.795	6947.36	12.4	0.214	12.4	2.0	0.88	1.73%	General Fill	0.057	113.8	0.74	0.000	0.74	0
12.959	6947.20	12.5	0.185	12.5	1.9	0.83	1.48%	Fine Tailings	0.054	107.6	0.75	0.000	0.75	0
13.123	6947.04	12.6	0.173	12.6	2.3	0.98	1.38%	Fine Tailings	0.054	107.6	0.75	0.000	0.75	0
13.287	6946.87	12.3	0.189	12.3	2.3	0.98	1.53%	Fine Tailings	0.054	107.6	0.76	0.000	0.76	0
13.451	6946.71	12.4	0.213	12.4	2.2	0.96	1.72%	Fine Tailings	0.054	107.6	0.77	0.000	0.77	0
13.615	6946.54	13.0	0.203	13.0	2.3	1.00	1.56%	Fine Tailings	0.054	107.6	0.78	0.000	0.78	0
13.779	6946.38	12.0	0.140	12.0	2.4	1.06	1.17%	Fine Tailings	0.054	107.6	0.79	0.000	0.79	0
13.943	6946.22	12.7	0.238	12.7	2.4	1.04	1.87%	Fine Tailings	0.054	107.6	0.80	0.000	0.80	0
14.107	6946.05	23.4	0.375	23.4	2.8	1.22	1.60%	Fine Tailings	0.054	107.6	0.81	0.000	0.81	0
14.271	6945.89	57.4	0.484	57.4	7.2	3.13	0.84%	Fine Tailings	0.054	107.6	0.82	0.000	0.82	0
14.436	6945.72	78.4	0.581	78.3	5.7	2.46	0.74%	Fine Tailings	0.054	107.6	0.82	0.000	0.82	0
14.600	6945.56	84.1	0.551	84.1	5.5	2.40	0.66%	Fine Tailings	0.054	107.6	0.83	0.000	0.83	0
14.764	6945.40	84.2	0.709	84.2	5.0	2.18	0.84%	Fine Tailings	0.054	107.6	0.84	0.000	0.84	0
14.928	6945.23	81.7	0.753	81.7	4.7	2.02	0.92%	Fine Tailings	0.054	107.6	0.85	0.000	0.85	0
15.092	6945.07	69.2	0.752	69.2	4.5	1.93	1.09%	Coarse Alluvium	0.056	111.0	0.86	0.000	0.86	0

CPT Data Interpretations (continued) / Conditions at t_1

Depth (ft)	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_0 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? 1=Yes 0=No	susceptible or mod susceptible to 1=Yes 0=No
0.164	1.70	4.335	0.42	5.32	254	0.55%	1.4	59%	0.84	0.000	0.84	0	0
0.328	1.70	14.739	1.41	18.07	432	1.21%	1.5	59%	0.85	0.000	0.85	0	0
0.492	1.70	61.217	5.86	75.00	1196	1.15%	1.3	59%	0.86	0.000	0.86	0	0
0.656	1.70	112.897	10.81	138.30	1655	0.81%	1.2	59%	0.87	0.000	0.87	0	0
0.820	1.70	173.689	16.64	212.73	2037	0.81%	1.1	59%	0.88	0.000	0.88	0	0
0.984	1.70	229.602	21.99	281.25	2244	0.51%	0.9	59%	0.89	0.000	0.89	0	0
1.148	1.70	231.761	22.20	283.94	1942	0.60%	1.0	59%	0.90	0.000	0.90	0	0
1.312	1.70	220.932	21.16	270.63	1619	0.77%	1.1	59%	0.91	0.000	0.91	0	0
1.476	1.70	221.578	21.22	271.40	1443	1.10%	1.3	59%	0.92	0.000	0.92	0	0
1.640	1.70	222.564	21.32	272.61	1305	1.44%	1.4	59%	0.93	0.000	0.93	0	0
1.804	1.70	246.856	23.65	302.35	1319	1.97%	1.6	59%	0.94	0.000	0.94	0	0
1.968	1.66	363.670	34.83	445.39	1822	1.56%	1.4	59%	0.95	0.000	0.95	0	0
2.133	1.62	619.933	59.38	759.21	2941	1.07%	1.2	48%	0.96	0.000	0.96	0	0
2.297	1.60	789.361	75.61	966.68	3558	1.00%	1.2	48%	0.97	0.000	0.97	0	0
2.461	1.57	779.443	74.66	954.53	3349	1.22%	1.3	48%	0.98	0.000	0.98	0	0
2.625	1.54	703.358	67.37	861.35	2889	1.55%	1.4	48%	0.99	0.000	0.99	0	0
2.789	1.52	553.662	53.03	678.04	2180	2.00%	1.5	48%	1.00	0.000	1.00	0	0
2.953	1.50	440.910	42.23	539.96	1668	2.39%	1.6	48%	1.01	0.000	1.01	0	0
3.117	1.48	367.316	35.18	449.82	1337	2.57%	1.7	48%	1.02	0.000	1.02	0	0
3.281	1.46	299.358	28.67	366.61	1051	2.68%	1.7	48%	1.03	0.000	1.03	0	0
3.445	1.44	261.518	25.05	320.27	887	2.89%	1.8	48%	1.04	0.000	1.04	0	0
3.609	1.42	243.928	23.36	298.73	801	2.68%	1.7	48%	1.05	0.000	1.05	0	0
3.773	1.41	234.193	22.43	286.81	745	1.92%	1.6	48%	1.05	0.000	1.05	0	0
3.937	1.39	237.985	22.80	291.46	734	1.86%	1.6	48%	1.06	0.000	1.06	0	0
4.101	1.48	166.992	16.00	204.51	465	2.73%	1.8	48%	1.07	0.000	1.07	0	0
4.265	1.37	257.358	24.65	315.17	750	1.35%	1.5	48%	1.08	0.000	1.08	0	0
4.429	1.35	286.947	27.49	351.40	814	1.22%	1.4	48%	1.09	0.000	1.09	0	0
4.593	1.34	384.702	36.85	471.08	1064	1.57%	1.5	48%	1.10	0.000	1.10	0	0
4.757	1.33	586.021	56.13	717.62	1581	1.52%	1.4	48%	1.11	0.000	1.11	0	0
4.921	1.32	574.916	55.07	704.07	1514	1.57%	1.4	48%	1.12	0.000	1.12	0	0
5.085	1.31	577.517	55.32	707.23	1486	1.66%	1.5	48%	1.13	0.000	1.13	0	0
5.249	1.29	599.318	57.41	733.94	1507	1.27%	1.4	48%	1.14	0.000	1.14	0	0
5.413	1.28	547.122	52.41	670.02	1346	1.42%	1.4	48%	1.15	0.000	1.15	0	0
5.577	1.27	426.138	40.82	521.89	1026	2.11%	1.6	48%	1.16	0.000	1.16	0	0
5.741	1.26	300.498	28.78	368.02	708	2.43%	1.7	48%	1.17	0.000	1.17	0	0
5.905	1.26	232.533	22.27	284.79	537	2.92%	1.8	48%	1.18	0.000	1.18	0	0
6.069	1.27	194.927	18.67	238.73	435	3.15%	1.9	48%	1.19	0.000	1.19	0	0
6.234	1.29	174.736	16.74	214.02	373	3.50%	2.0	48%	1.19	0.000	1.19	0	0
6.398	1.31	152.559	14.61	186.87	311	4.06%	2.1	48%	1.20	0.000	1.20	0	0
6.562	1.32	144.838	13.87	177.42	287	3.90%	2.1	48%	1.21	0.000	1.21	0	0
6.726	1.32	135.110	12.94	165.50	261	3.84%	2.1	48%	1.22	0.000	1.22	0	0
6.890	1.31	137.562	13.18	168.49	262	3.45%	2.0	48%	1.23	0.000	1.23	0	0
7.054	1.30	134.159	12.85	164.33	251	3.24%	2.0	48%	1.24	0.000	1.24	0	0
7.218	1.29	135.219	12.95	165.62	250	2.58%	2.0	48%	1.25	0.000	1.25	0	0
7.382	1.27	142.674	13.67	174.75	262	2.41%	1.9	48%	1.26	0.000	1.26	0	0
7.546	1.22	166.176	15.92	203.53	309	1.72%	1.8	48%	1.27	0.000	1.27	0	0
7.710	1.22	163.182	15.63	199.86	298	2.21%	1.9	48%	1.28	0.000	1.28	0	0
7.874	1.19	182.208	17.45	223.17	334	2.36%	1.9	48%	1.29	0.000	1.29	0	0
8.038	1.16	210.664	20.18	258.02	389	2.06%	1.8	48%	1.30	0.000	1.30	0	0
8.202	1.15	209.126	20.03	256.13	381	1.95%	1.8	48%	1.31	0.000	1.31	0	0
8.366	1.16	194.904	18.67	238.71	346	1.94%	1.8	48%	1.32	0.000	1.32	0	0
8.530	1.16	184.148	17.64	225.53	320	1.86%	1.8	48%	1.33	0.000	1.33	0	0
8.694	1.17	162.633	15.58	199.18	275	1.89%	1.8	48%	1.33	0.000	1.33	0	0
8.858	1.17	154.585	14.81	189.33	256	1.80%	1.8	48%	1.34	0.000	1.34	0	0
9.022	1.18	143.291	13.73	175.50	232	1.85%	1.9	48%	1.35	0.000	1.35	0	0
9.186	1.16	150.293	14.40	184.07	242	1.79%	1.8	48%	1.36	0.000	1.36	0	0
9.350	1.15	157.159	15.05	192.48	251	1.67%	1.8	48%	1.37	0.000	1.37	0	0
9.514	1.15	155.338	14.88	190.24	246	1.66%	1.8	48%	1.38	0.000	1.38	0	0
9.678	1.15	146.040	13.99	178.86	227	1.72%	1.8	48%	1.39	0.000	1.39	0	0
9.842	1.14	139.127	13.33	170.39	213	1.60%	1.8	48%	1.40	0.000	1.40	0	0
10.006	1.16	113.106	10.83	138.53	168	1.86%	1.9	48%	1.41	0.000	1.41	0	0
10.170	1.16	102.714	9.84	125.80	150	2.13%	2.0	48%	1.42	0.000	1.42	0	0
10.335	1.15	101.014	9.68	123.72	146	2.06%	2.0	48%	1.43	0.000	1.43	0	0
10.499	1.14	102.537	9.82	125.59	147	1.75%	2.0	48%	1.44	0.000	1.44	0	0
10.663	1.15	85.830	8.22	105.12	122	1.23%	1.9	48%	1.45	0.000	1.45	0	0
10.827	1.16	67.411	6.46	82.56	92	0.87%	1.9	48%	1.46	0.000	1.46	0	0
10.991	1.16	51.009	4.89	62.48	68	1.08%	2.1	48%	1.47	0.000	1.47	0	0
11.155	1.17	35.983	3.45	44.07	47	1.68%	2.3	48%	1.47	0.000	1.47	0	0
11.319	1.17	26.485	2.54	32.44	34	2.68%	2.5	48%	1.48	0.000	1.48	0	0
11.483	1.17	20.398	1.95	24.99	25	3.82%	2.7	48%	1.49	0.000	1.49	0	0
11.647	1.16	21.978	2.11	26.92	27	3.27%	2.7	48%	1.50	0.000	1.50	0	0
11.811	1.12	45.594	4.37	55.85	59	1.22%	2.1	48%	1.51	0.000	1.51	0	0
11.975	1.10	54.098	5.18	66.26	70	1.13%	2.1	48%	1.52	0.000	1.52	0	0
12.139	1.10	45.127	4.32	55.28	58	1.84%	2.3	48%	1.53	0.000	1.53	0	0
12.303	1.11	22.662	2.17	27.77	28	4.42%	2.8	48%	1.54	0.000	1.54	0	0
12.467	1.11	16.494	1.58	20.21	20	4.67%	2.9	48%	1.55	0.000	1.55	0	0
12.631	1.10	13.262	1.27	16.26	16	3.36%	2.9	48%	1.56	0.000	1.56	0	0
12.795	1.08	13.412	1.28	16.44	16	1.84%	2.7	48%	1.57	0.000	1.57	0	0
12.959	1.07	13.417	1.29	16.45	16	1.57%	2.7	83%	1.58	0.000	1.58	0	0
13.123	1.06	13.369	1.28	16.39	16	1.46%	2.7	83%	1.59	0.000	1.59	0	0
13.287	1.05	12.973	1.24	15.90	15	1.64%	2.7	83%	1.59	0.000	1.59	0	0
13.451	1.05	12.930	1.24	15.85	15	1.83%	2.7	83%	1.60	0.000	1.60	0	0
13.615	1.04	13.469	1.29	16.51	16	1.66%	2.7	83%	1.61	0.000	1.61	0	0
13.779	1.03	12.303	1.18	15.08	14	1.25%	2.7	83%	1.62	0.000	1.62	0	0
13.943	1.02	12.909	1.24	15.83	15	2.00%	2.8	83%	1.63	0.000	1.63	0	0
14.107	1.01	23.595	2.26	28.91	28	1.66%	2.5	83%	1.64	0.000	1.64	0	0
14.271	1.00	57.395	5.50	70.34	69	0.86%	2.0	83%	1.65	0.000	1.65	0	0
14.436	1.00	77.945	7.47	95.49	94	0.75%	1.9	83%	1.66	0.000	1.66	0	0
14.600	0.99	83.230	7.97	101.96	100	0.66%	1.8	83%	1.66	0.000	1.66	0	0
14.764	0.98	82.924	7.94	101.58	99	0.85%	1.9	83%	1.67	0.000	1.67	0	0
14.928	0.98	80.031	7.67	98.03	95	0.93%	1.9	83%	1.68	0.000	1.68	0	0
15.092	0.97	67.237	6.44	82.37	79	1.10%	2.0	36%	1.69	0.000	1.69	0	0

Liquefaction Triggering Analyses Using CPT Data

Idriss & Boulanger (2008)

Depth (ft)	r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'v=1atm	Δq_{c1n}	$q_{c1n\text{-}cs}$	CRR M=7.5, σ'v=1atm	FoS
0.164	0.92	0.04	1.00	0.10	1.00	0.106	32.13	37.45	0.067	N/A
0.328	0.92	0.05	1.00	0.10	1.00	0.106	36.60	54.67	0.082	N/A
0.492	0.92	0.09	1.00	-0.26	1.00	0.107	56.54	131.54	0.207	N/A
0.656	0.92	0.14	0.99	-0.52	1.00	0.107	78.71	217.01	1.000	N/A
0.820	0.91	0.30	0.98	-0.60	1.00	0.108	104.78	317.52	1.000	N/A
0.984	0.91	0.30	0.97	-0.60	1.00	0.108	128.78	410.03	1.000	N/A
1.148	0.91	0.30	0.97	-0.60	1.00	0.109	129.73	413.67	1.000	N/A
1.312	0.91	0.30	0.97	-0.60	1.00	0.109	125.06	395.69	1.000	N/A
1.476	0.91	0.30	0.96	-0.60	1.00	0.109	125.33	396.74	1.000	N/A
1.640	0.91	0.30	0.96	-0.60	1.00	0.109	125.76	398.36	1.000	N/A
1.804	0.91	0.30	0.96	-0.60	1.00	0.109	136.17	438.52	1.000	N/A
1.968	0.91	0.30	0.95	-0.60	1.00	0.110	186.28	631.68	1.000	N/A
2.133	0.90	0.30	0.95	-0.60	1.00	0.110	296.66	######	1.000	N/A
2.297	0.90	0.30	0.95	-0.60	1.00	0.110	369.45	######	1.000	N/A
2.461	0.90	0.30	0.95	-0.60	1.00	0.110	365.18	######	1.000	N/A
2.625	0.90	0.30	0.94	-0.60	1.00	0.110	332.50	######	1.000	N/A
2.789	0.90	0.30	0.94	-0.60	1.00	0.111	268.19	946.23	1.000	N/A
2.953	0.90	0.30	0.94	-0.60	1.00	0.111	219.74	759.70	1.000	N/A
3.117	0.90	0.30	0.93	-0.60	1.00	0.111	188.12	637.94	1.000	N/A
3.281	0.90	0.30	0.93	-0.60	1.00	0.111	158.93	525.53	1.000	N/A
3.445	0.89	0.30	0.93	-0.60	1.00	0.111	142.67	462.95	1.000	N/A
3.609	0.89	0.30	0.93	-0.60	1.00	0.112	135.12	433.85	1.000	N/A
3.773	0.89	0.30	0.92	-0.60	1.00	0.112	130.93	417.75	1.000	N/A
3.937	0.89	0.30	0.92	-0.60	1.00	0.112	132.56	424.02	1.000	N/A
4.101	0.89	0.28	0.92	-0.60	1.00	0.111	102.06	306.57	1.000	N/A
4.265	0.89	0.30	0.92	-0.60	1.00	0.112	140.88	456.05	1.000	N/A
4.429	0.89	0.30	0.91	-0.60	1.00	0.112	153.59	504.99	1.000	N/A
4.593	0.89	0.30	0.91	-0.60	1.00	0.112	195.58	666.67	1.000	N/A
4.757	0.88	0.30	0.91	-0.60	1.00	0.113	282.07	999.70	1.000	N/A
4.921	0.88	0.30	0.91	-0.60	1.00	0.113	277.32	981.38	1.000	N/A
5.085	0.88	0.30	0.91	-0.60	1.00	0.113	278.43	985.66	1.000	N/A
5.249	0.88	0.30	0.91	-0.60	1.00	0.113	287.80	######	1.000	N/A
5.413	0.88	0.30	0.90	-0.60	1.00	0.113	265.37	935.39	1.000	N/A
5.577	0.88	0.30	0.90	-0.60	1.00	0.113	213.40	735.29	1.000	N/A
5.741	0.88	0.30	0.89	-0.60	1.00	0.113	159.42	527.45	1.000	N/A
5.905	0.87	0.30	0.89	-0.60	1.00	0.114	130.22	415.01	1.000	N/A
6.069	0.87	0.30	0.89	-0.60	1.00	0.114	114.07	352.80	1.000	N/A
6.234	0.87	0.30	0.89	-0.60	1.00	0.114	105.39	319.41	1.000	N/A
6.398	0.87	0.23	0.91	-0.60	1.00	0.110	95.87	282.75	1.000	N/A
6.562	0.87	0.21	0.92	-0.60	1.00	0.109	92.55	269.97	1.000	N/A
6.726	0.87	0.18	0.93	-0.60	1.00	0.108	88.37	253.88	1.000	N/A
6.890	0.87	0.19	0.92	-0.60	1.00	0.109	89.42	257.92	1.000	N/A
7.054	0.87	0.18	0.92	-0.59	1.00	0.108	87.96	252.29	1.000	N/A
7.218	0.86	0.18	0.92	-0.59	1.00	0.108	88.42	254.04	1.000	N/A
7.382	0.86	0.20	0.91	-0.60	1.00	0.109	91.62	266.37	1.000	N/A
7.546	0.86	0.27	0.88	-0.60	1.00	0.113	101.71	305.24	1.000	N/A
7.710	0.86	0.26	0.88	-0.60	1.00	0.113	100.43	300.29	1.000	N/A
7.874	0.86	0.30	0.86	-0.60	1.00	0.115	108.61	331.78	1.000	N/A
8.038	0.86	0.30	0.86	-0.60	1.00	0.115	120.83	378.85	1.000	N/A
8.202	0.86	0.30	0.86	-0.60	1.00	0.115	120.17	376.29	1.000	N/A
8.366	0.85	0.30	0.86	-0.60	1.00	0.115	114.06	352.76	1.000	N/A
8.530	0.85	0.30	0.85	-0.60	1.00	0.115	109.43	334.97	1.000	N/A
8.694	0.85	0.26	0.87	-0.60	1.00	0.113	100.19	299.38	1.000	N/A
8.858	0.85	0.23	0.88	-0.60	1.00	0.111	96.73	286.06	1.000	N/A
9.022	0.85	0.20	0.90	-0.60	1.00	0.109	91.88	267.38	1.000	N/A
9.186	0.85	0.22	0.89	-0.60	1.00	0.111	94.89	278.96	1.000	N/A
9.350	0.85	0.24	0.87	-0.60	1.00	0.112	97.84	290.32	1.000	N/A
9.514	0.85	0.24	0.88	-0.60	1.00	0.112	97.05	287.30	1.000	N/A
9.678	0.84	0.21	0.89	-0.60	1.00	0.110	93.06	271.92	1.000	N/A
9.842	0.84	0.19	0.90	-0.60	1.00	0.109	90.09	260.48	1.000	N/A
10.006	0.84	0.14	0.92	-0.51	1.00	0.106	78.91	217.44	1.000	N/A
10.170	0.84	0.13	0.93	-0.46	1.00	0.105	74.44	200.24	1.000	N/A
10.335	0.84	0.13	0.93	-0.45	1.00	0.104	73.72	197.44	1.000	N/A
10.499	0.84	0.13	0.93	-0.46	1.00	0.104	74.37	199.96	1.000	N/A
10.663	0.84	0.11	0.94	-0.38	1.00	0.103	67.19	172.31	0.432	N/A
10.827	0.83	0.09	0.95	-0.28	1.00	0.102	59.28	141.84	0.239	N/A
10.991	0.83	0.08	0.95	-0.17	1.00	0.101	52.23	114.71	0.169	N/A
11.155	0.83	0.07	0.96	-0.05	1.00	0.100	45.77	89.84	0.127	N/A
11.319	0.83	0.06	0.96	0.06	1.00	0.100	41.69	74.13	0.105	N/A
11.483	0.83	0.06	0.97	0.10	1.00	0.099	39.08	64.07	0.092	N/A
11.647	0.83	0.06	0.97	0.10	1.00	0.099	39.76	66.68	0.096	N/A
11.811	0.83	0.07	0.95	-0.13	1.00	0.100	49.90	105.75	0.152	N/A
11.975	0.82	0.08	0.95	-0.19	1.00	0.100	53.56	119.82	0.179	N/A
12.139	0.82	0.07	0.95	-0.12	1.00	0.100	49.70	104.98	0.151	N/A
12.303	0.82	0.06	0.96	0.10	1.00	0.099	40.05	67.82	0.097	N/A
12.467	0.82	0.05	0.97	0.10	1.00	0.098	37.40	57.62	0.085	N/A
12.631	0.82	0.05	0.97	0.10	1.00	0.098	36.01	52.27	0.080	N/A
12.795	0.82	0.05	0.97	0.10	1.00	0.098	36.08	52.52	0.080	N/A
12.959	0.82	0.05	0.97	0.10	1.00	0.098	35.58	52.02	0.079	N/A
13.123	0.82	0.05	0.97	0.10	1.00	0.097	35.56	51.94	0.079	N/A
13.287	0.81	0.05	0.97	0.10	1.00	0.097	35.39	51.29	0.079	N/A
13.451	0.81	0.05	0.97	0.10	1.00	0.097	35.37	51.22	0.079	N/A
13.615	0.81	0.05	0.97	0.10	1.00	0.097	35.60	52.11	0.080	N/A
13.779	0.81	0.05	0.97	0.10	1.00	0.097	35.11	50.19	0.078	N/A
13.943	0.81	0.05	0.97	0.10	1.00	0.097	35.36	51.19	0.079	N/A
14.107	0.81	0.06	0.96	0.10	1.00	0.097	39.89	68.80	0.098	N/A
14.271	0.81	0.08	0.94	-0.21	1.00	0.099	54.22	124.55	0.190	N/A
14.436	0.80	0.10	0.93	-0.34	1.00	0.100	62.92	158.40	0.316	N/A
14.600	0.80	0.11	0.92	-0.36	1.00	0.101	65.16	167.11	0.380	N/A
14.764	0.80	0.11	0.92	-0.36	1.00	0.100	65.02	166.60	0.376	N/A
14.928	0.80	0.10	0.92	-0.35	1.00	0.100	63.80	161.83	0.339	N/A
15.092	0.80	0.09	0.93	-0.27	1.00	0.099	58.20	140.57	0.234	N/A

Youd et al. (2001)

Depth (ft)	r_d	D_r	f	K_σ	K_α	CSR M=7.5, σ'v=1atm	Kc	$q_{c1n\text{-}cs}$	(CRR) M=7.5, s'v=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No
0.164	0.97	0.13	0.80	0.99	1.00	0.119	1.00	5.32	0.054	N/A	N/A	N/A
0.328	0.97	0.25	0.80	0.99	1.00	0.119	1.00	18.07	0.065	N/A	N/A	N/A
0.492	0.97	0.50	0.75	0.99	1.00	0.120	1.00	75.00	0.119	N/A	N/A	N/A
0.656	0.97	0.68	0.66	0.98	1.00	0.121	1.00	138.30	0.326	N/A	N/A	N/A
0.820	0.96	0.84	0.60	0.97	1.00	0.122	1.00	212.73	1.000	N/A	N/A	N/A
0.984	0.96	0.97	0.60	0.97	1.00	0.122	1.00	281.25	1.000	N/A	N/A	N/A
1.148	0.96	0.97	0.60	0.96	1.00	0.123	1.00	283.94	1.000	N/A	N/A	N/A
1.312	0.96	0.95	0.60	0.96	1.00	0.123	1.00	270.63	1.000	N/A	N/A	N/A
1.476	0.96	0.95	0.60	0.95	1.00	0.124	1.00	271.40	1.000	N/A	N/A	N/A
1.640	0.96	0.95	0.60	0.95	1.00	0.124	1.00	272.61	1.000	N/A	N/A	N/A
1.804	0.96	1.00	0.60	0.94	1.00	0.125	1.00	302.35	1.000	N/A	N/A	N/A
1.968	0.96	1.22	0.60	0.94	1.00	0.125	1.00	445.39	1.000	N/A	N/A	N/A
2.133	0.96	1.59	0.60	0.94	1.00	0.126	1.00	759.21	1.000	N/A	N/A	N/A
2.297	0.96	1.80	0.60	0.93	1.00	0.126	1.00	966.68	1.000	N/A	N/A	N/A
2.461	0.96	1.78	0.60	0.93	1.00	0.126	1.00	954.53	1.000	N/A	N/A	N/A
2.625	0.96	1.69	0.60	0.93	1.00	0.127	1.00	861.35	1.000	N/A	N/A	N/A
2.789	0.96	1.50	0.60	0.92	1.00	0.127	1.00	678.04	1.000	N/A	N/A	N/A
2.953	0.96	1.34	0.60	0.92	1.00	0.128	1.00	539.96	1.000	N/A	N/A	N/A
3.117	0.96	1.22	0.60	0.92	1.00	0.128	1.01	456.10	1.000	N/A	N/A	N/A
3.281	0.96	1.11	0.60	0.91	1.00	0.129	1.04	382.29	1.000	N/A	N/A	N/A
3.445	0.96	1.03	0.60	0.91	1.00	0.129	1.08	345.40	1.000	N/A	N/A	N/A
3.609	0.96	1.00	0.60	0.91	1.00	0.129	1.07	318.56	1.000	N/A	N/A	N/A
3.773	0.96	0.98	0.60	0.90	1.00	0.130	1.00	286.81	1.000	N/A	N/A	N/A
3.937	0.96	0.99	0.60	0.90	1.00	0.130	1.00	291.46	1.000	N/A	N/A	N/A
4.101	0.96	0.83	0.60	0.90	1.00	0.131	1.14	232.55	1.000	N/A	N/A	N/A
4.265	0.96	1.02	0.60	0.89	1.00	0.131	1.00	315.17	1.000	N/A	N/A	N/A
4.429	0.96	1.08	0.60	0.89	1.00	0.131	1.00	351.40	1.000	N/A	N/A	N/A
4.593	0.96	1.25	0.60	0.89	1.00	0.132	1.00	471.08	1.000	N/A	N/A	N/A
4.757	0.96	1.55	0.60	0.88	1.00	0.132	1.00	717.62	1.000	N/A	N/A	N/A
4.921	0.96	1.53	0.60	0.88	1.00	0.133	1.00	704.07	1.000	N/A	N/A	N/A
5.085	0.95	1.54	0.60	0.88	1.00	0.133	1.00	707.23	1.000	N/A	N/A	N/A
5.249	0.95	1.56	0.60	0.88	1.00	0.133	1.00	733.94	1.000	N/A	N/A	N/A
5.413	0.95	1.49	0.60	0.87	1.00	0.134	1.00	670.02	1.000	N/A	N/A	N/A
5.577	0.95	1.32	0.60	0.87	1.00	0.134	1.00	521.89	1.000	N/A	N/A	N/A
5.741	0.95	1.11	0.60	0.87	1.00	0.134	1.05	387.20	1.000	N/A	N/A	N/A
5.905	0.95	0.97	0.60	0.86	1.00	0.135	1.14	323.96	1.000	N/A	N/A	N/A
6.069	0.95	0.89	0.60	0.86	1.00	0.135	1.20	285.98	1.000	N/A	N/A	N/A
6.234	0.95	0.84	0.60	0.86	1.00	0.136	1.27	272.81	1.000	N/A	N/A	N/A
6.398	0.95	0.79	0.61	0.86	1.00	0.136	1.41	263.21	1.000	N/A	N/A	N/A
6.562	0.95	0.77	0.62	0.86	1.00	0.135	1.41	250.22	1.000	N/A	N/A	N/A
6.726	0.95	0.74	0.63	0.86	1.00	0.135	1.44	237.87	1.000	N/A	N/A	N/A
6.890	0.95	0.75	0.63	0.86	1.00	0.136	1.37	230.50	1.000	N/A	N/A	N/A
7.054	0.95	0.74	0.63	0.86	1.00	0.136	1.35	221.53	1.000	N/A	N/A	N/A
7.218	0.95	0.74	0.63	0.85	1.00	0.136	1.24	205.79	1.000	N/A	N/A	N/A
7.382	0.95	0.76	0.62	0.85	1.00	0.137	1.20	210.34	1.000	N/A	N/A	N/A
7.546	0.95	0.82	0.60	0.84	1.00	0.138	1.08	218.85	1.000	N/A	N/A	N/A
7.710	0.95	0.82	0.60	0.84	1.00	0.139	1.15	229.47	1.000	N/A	N/A	N/A
7.874	0.95	0.86	0.60	0.83	1.00	0.139	1.15	255.86	1.000	N/A	N/A	N/A
8.038	0.95	0.93	0.60	0.83	1.00	0.140	1.08	279.70	1.000	N/A	N/A	N/A
8.202	0.95	0.92	0.60	0.83	1.00	0.140	1.07	274.92	1.000	N/A	N/A	N/A
8.366	0.95	0.89	0.60	0.83	1.00	0.140	1.09	259.28	1.000	N/A	N/A	N/A
8.530	0.95	0.87	0.60	0.82	1.00	0.141	1.09	245.37	1.000	N/A	N/A	N/A
8.694	0.95	0.81	0.60	0.82	1.00	0.141	1.12	222.93	1.000	N/A	N/A	N/A
8.858	0.95	0.79	0.60	0.82	1.00	0.141	1.12	212.02	1.000	N/A	N/A	N/A
9.022	0.95	0.76	0.62	0.82	1.00	0.140	1.15	201.16	1.000	N/A	N/A	N/A
9.186	0.95	0.78	0.61	0.82	1.00	0.141	1.13	207.81	1.000	N/A	N/A	N/A
9.350	0.94	0.80	0.60	0.81	1.00	0.142	1.10	212.42	1.000	N/A	N/A	N/A
9.514	0.94	0.80	0.60	0.81	1.00	0.142	1.11	210.36	1.000	N/A	N/A	N/A
9.678	0.94	0.77	0.61	0.81	1.00	0.142	1.13	202.42	1.000	N/A	N/A	N/A
9.842	0.94	0.75	0.62	0.82	1.00	0.141	1.13	191.77	1.000	N/A	N/A	N/A
10.006	0.94	0.68	0.66	0.83	1.00	0.139	1.23	170.40	1.000	N/A	N/A	N/A
10.170	0.94	0.65	0.68	0.84	1.00	0.138	1.32	166.53	1.000	N/A	N/A	N/A
10.335	0.94	0.64	0.68	0.84	1.00	0.138	1.32	163.06	1.000	N/A	N/A	N/A
10.499	0.94	0.65	0.68	0.83	1.00	0.138	1.25	156.88	0.439	N/A	N/A	N/A
10.663	0.94	0.59	0.70	0.84	1.00	0.136	1.20	125.97	0.266	N/A	N/A	N/A
10.827	0.94	0.52	0.74	0.86	1.00	0.134	1.19	98.09	0.168	N/A	N/A	N/A
10.991	0.94	0.46	0.77	0.88	1.00	0.132	1.39	86.81	0.141	N/A	N/A	N/A
11.155	0.94	0.38	0.80	0.89	1.00	0.129	1.97	86.97	0.141	N/A	N/A	N/A
11.319	0.94	0.33	0.80	0.89	1.00	0.130	3.03	98.21	0.168	N/A	N/A	N/A
11.483	0.94	0.29	0.80	0.89	1.00	0.130	4.31	107.71	0.196	N/A	N/A	N/A
11.647	0.94	0.30	0.80	0.89	1.00	0.130	3.80	102.37	0.180	N/A	N/A	N/A
11.811	0.94	0.43	0.78	0.88	1.00	0.131	1.54	85.90	0.139	N/A	N/A	N/A
11.975	0.94	0.47	0.77	0.86	1.00	0.133	1.39	92.29	0.153	N/A	N/A	N/A
12.139	0.94	0.43	0.79	0.87	1.00	0.131	1.84	101.74	0.178	N/A	N/A	N/A
12.303	0.94	0.30	0.80	0.88	1.00	0.130	4.41	122.31	0.250	N/A	N/A	N/A
12.467	0.94	0.26	0.80	0.88	1.00	0.130	5.50	111.23	0.208	N/A	N/A	N/A
12.631	0.94	0.23	0.80	0.88	1.00	0.130	5.39	87.64	0.143	N/A	N/A	N/A
12.795	0.94	0.23	0.80	0.88	1.00	0.131	4.09	67.26	0.108	N/A	N/A	N/A
12.959	0.94	0.23	0.80	0.88	1.00	0.131	3.84	63.08	0.103	N/A	N/A	N/A
13.123	0.94	0.23	0.80	0.88	1.00	0.131	3.74	61.26	0.101	N/A	N/A	N/A
13.287	0.94	0.23	0.80	0.87	1.00	0.131	4.01	63.75	0.104	N/A	N/A	N/A
13.451	0.94	0.23	0.80	0.87	1.00	0.131	4.22	66.96	0.108	N/A	N/A	N/A
13.615	0.93	0.23	0.80	0.87	1.00	0.131	3.94	65.05	0.106	N/A	N/A	N/A
13.779	0.93	0.22	0.80	0.87	1.00	0.131	3.75	56.62	0.097	N/A	N/A	N/A
13.943	0.93	0.23	0.80	0.87	1.00	0.131	4.41	69.83	0.112	N/A	N/A	N/A
14.107	0.93	0.31	0.80	0.87	1.00	0.131	2.68	77.59	0.123	N/A	N/A	N/A
14.271	0.93	0.48	0.76	0.84	1.00	0.135	1.29	90.99	0.150	N/A	N/A	N/A
14.436	0.93	0.56	0.72	0.82	1.00	0.139	1.15	109.68	0.203	N/A	N/A	N/A
14.600	0.93	0.58	0.71	0.81	1.00	0.140	1.11	112.93	0.214	N/A	N/A	N/A
14.764	0.93	0.58	0.71	0.81	1.00	0.141	1.16	117.98	0.233	N/A	N/A	N/A
14.928	0.93	0.57	0.71	0.81	1.00	0.140	1.20	117.28	0.230	N/A	N/A	N/A
15.092	0.93	0.52	0.74	0.83	1.00	0.138	1.32	108.64	0.199	N/A	N/A	N/A

Idriss & Boulanger (2008)

Depth (ft)	CN	qc1 TSF	qc1 MPa	qc1N
0.164	1.70	4.34	0.42	5.32
0.328	1.70	14.76	1.41	18.07
0.492	1.70	61.25	5.86	75.00
0.656	1.70	112.94	10.81	138.30
0.820	1.70	173.73	16.63	212.73
0.984	1.70	229.68	21.99	281.25
1.148	1.70	231.88	22.20	283.94
1.312	1.70	221.01	21.16	270.63
1.476	1.70	221.64	21.22	271.40
1.640	1.70	222.62	21.31	272.61
1.804	1.70	246.91	23.64	302.35
1.968	1.66	363.73	34.82	445.39
2.133	1.62	620.01	59.36	759.21
2.297	1.60	789.44	75.58	966.68
2.461	1.57	779.52	74.63	954.53
2.625	1.54	703.43	67.35	861.35
2.789	1.52	553.73	53.01	678.04
2.953	1.50	440.96	42.22	539.96
3.117	1.48	367.35	35.17	449.82
3.281	1.46	299.39	28.66	366.61
3.445	1.44	261.55	25.04	320.27
3.609	1.42	243.96	23.36	298.73
3.773	1.41	234.23	22.42	286.81
3.937	1.39	238.02	22.79	291.46
4.101	1.48	167.01	15.99	204.51
4.265	1.37	257.38	24.64	315.17
4.429	1.35	286.97	27.47	351.40
4.593	1.34	384.71	36.83	471.08
4.757	1.33	586.05	56.11	717.62
4.921	1.32	574.98	55.05	704.07
5.085	1.31	577.56	55.30	707.23
5.249	1.29	599.37	57.38	733.94
5.413	1.28	547.17	52.39	670.02
5.577	1.27	426.20	40.80	521.89
5.741	1.26	300.55	28.77	368.02
5.905	1.26	232.57	22.27	284.79
6.069	1.27	194.96	18.67	238.73
6.234	1.29	174.78	16.73	214.02
6.398	1.31	152.61	14.61	186.87
6.562	1.32	144.89	13.87	177.42
6.726	1.32	135.16	12.94	165.50
6.890	1.31	137.60	13.17	168.49
7.054	1.30	134.20	12.85	164.33
7.218	1.29	135.26	12.95	165.62
7.382	1.27	142.71	13.66	174.75
7.546	1.22	166.21	15.91	203.53
7.710	1.22	163.22	15.63	199.86
7.874	1.19	182.25	17.45	223.17
8.038	1.16	210.71	20.17	258.02
8.202	1.15	209.17	20.03	256.13
8.366	1.16	194.94	18.66	238.71
8.530	1.16	184.18	17.63	225.53
8.694	1.17	162.66	15.57	199.18
8.858	1.17	154.62	14.80	189.33
9.022	1.18	143.32	13.72	175.50
9.186	1.16	150.32	14.39	184.07
9.350	1.15	157.19	15.05	192.48
9.514	1.15	155.36	14.87	190.24
9.678	1.15	146.07	13.98	178.86
9.842	1.14	139.15	13.32	170.39
10.006	1.16	113.13	10.83	138.53
10.170	1.16	102.73	9.84	125.80
10.335	1.15	101.04	9.67	123.72
10.499	1.14	102.56	9.82	125.59
10.663	1.15	85.85	8.22	105.12
10.827	1.16	67.43	6.46	82.56
10.991	1.16	51.02	4.89	62.48
11.155	1.17	35.99	3.45	44.07
11.319	1.17	26.49	2.54	32.44
11.483	1.17	20.41	1.95	24.99
11.647	1.16	21.99	2.11	26.92
11.811	1.12	45.61	4.37	55.85
11.975	1.10	54.11	5.18	66.26
12.139	1.10	45.14	4.32	55.28
12.303	1.11	22.67	2.17	27.77
12.467	1.11	16.51	1.58	20.21
12.631	1.10	13.27	1.27	16.26
12.795	1.08	13.43	1.29	16.44
12.959	1.07	13.43	1.29	16.45
13.123	1.06	13.38	1.28	16.39
13.287	1.05	12.99	1.24	15.90
13.451	1.05	12.94	1.24	15.85
13.615	1.04	13.48	1.29	16.51
13.779	1.03	12.32	1.18	15.08
13.943	1.02	12.92	1.24	15.83
14.107	1.01	23.61	2.26	28.91
14.271	1.00	57.44	5.50	70.34
14.436	1.00	77.98	7.47	95.49
14.600	0.99	83.26	7.97	101.96
14.764	0.98	82.95	7.94	101.58
14.928	0.98	80.06	7.66	98.03
15.092	0.97	67.26	6.44	82.37

Liquefaction Triggering Analyses Using SPT Data

Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	I&B 2008: $\Delta(N_1)_{60}$ (blows/ft)	I&B 2008: $(N_1)_{60cs}$ (blows/ft)	I&B 2008: (CRR) M=7.5, σ'vc=1atm	I&B 2008: FoS	Youd 2001: α	Youd 2001: β	Youd 2001: $(N_1)_{60cs}$ (blows/ft)	Youd 2001: (CRR) M=7.5, σ'vc=1atm	Youd 2001: FoS	Average FoS
0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.804	29	0.75	20	19	0.69	0.43	0.94	5.6	24.4	0.28	N/A	5.00	1.20	27.60	0.356	N/A	N/A
1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.281		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.905	40	0.80	29	26	0.80	0.37	0.88	5.6	31.4	0.59	N/A	5.00	1.20	35.92	N/A	N/A	N/A
6.069		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.562		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.890		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.054		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.218		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.382		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.546		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.710		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.874		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.038		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.202		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.366		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.530		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.694		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.858		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.022		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.186		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.350		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.514		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.678		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.842		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.006		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.170		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.335		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.499		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.663		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.827		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.991	14	0.85	11	8	0.45	0.55	0.72	5.6	13.5	0.14	N/A	5.00	1.20	14.51	0.155	N/A	N/A
11.155		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.319		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.483		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.647		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.811		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.975		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.139		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.303		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.467		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.631		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.795		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.959		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.123		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.287		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.451		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.615		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.779		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.943		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.107		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.271		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.436		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.600		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.764		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.928		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
15.092		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

15.256	6944.90	56.2	0.660	56.2	4.7	2.02	1.17%	Coarse Alluvium	0.056	111.0	0.87	0.000	0.87	0	0.96	54.137	5.19	66.33	64	1.19%	2.1	36%	1.70	0.000	1.70	0	0
15.420	6944.74	45.7	0.543	45.7	4.2	1.81	1.19%	Coarse Alluvium	0.056	111.0	0.88	0.000	0.88	0	0.96	43.662	4.18	53.49	51	1.21%	2.2	36%	1.71	0.000	1.71	0	0
15.584	6944.58	40.1	0.482	40.1	4.1	1.79	1.20%	Coarse Alluvium	0.056	111.0	0.89	0.000	0.89	0	0.95	37.974	3.64	46.53	44	1.23%	2.2	36%	1.72	0.000	1.72	0	0
15.748	6944.41	40.9	0.485	40.9	3.9	1.69	1.18%	Coarse Alluvium	0.056	111.0	0.90	0.000	0.90	0	0.94	38.512	3.69	47.19	45	1.21%	2.2	36%	1.73	0.000	1.73	0	0
15.912	6944.25	47.8	0.545	47.7	4.2	1.81	1.14%	Coarse Alluvium	0.056	111.0	0.91	0.000	0.91	0	0.94	44.766	4.29	54.85	52	1.16%	2.2	36%	1.74	0.000	1.74	0	0
16.076	6944.08	60.3	0.678	60.3	4.0	1.75	1.12%	Coarse Alluvium	0.056	111.0	0.91	0.000	0.91	0	0.94	56.484	5.41	69.19	65	1.14%	2.1	36%	1.75	0.000	1.75	0	0
16.240	6943.92	65.7	0.763	65.7	4.1	1.79	1.16%	Coarse Alluvium	0.056	111.0	0.92	0.000	0.92	0	0.93	61.270	5.87	75.06	70	1.18%	2.1	36%	1.76	0.000	1.76	0	0
16.404	6943.76	59.7	0.795	59.7	3.9	1.67	1.33%	Coarse Alluvium	0.056	111.0	0.93	0.000	0.93	0	0.93	55.220	5.29	67.64	63	1.35%	2.1	36%	1.76	0.000	1.76	0	0
16.568	6943.59	55.2	0.846	55.1	3.8	1.63	1.53%	Coarse Alluvium	0.056	111.0	0.94	0.000	0.94	0	0.92	50.616	4.85	62.01	58	1.56%	2.2	36%	1.77	0.000	1.77	0	0
16.732	6943.43	45.3	1.038	45.3	3.5	1.53	2.29%	Coarse Alluvium	0.056	111.0	0.95	0.000	0.95	0	0.91	41.057	3.93	50.30	47	2.34%	2.4	36%	1.78	0.000	1.78	0	0
16.896	6943.26	40.1	1.080	40.0	3.7	1.61	2.70%	Coarse Alluvium	0.056	111.0	0.96	0.000	0.96	0	0.90	35.960	3.44	44.06	41	2.76%	2.5	36%	1.79	0.000	1.79	0	0
17.060	6943.10	44.2	0.931	44.2	3.9	1.71	2.11%	Coarse Alluvium	0.056	111.0	0.97	0.000	0.97	0	0.90	39.549	3.79	48.45	45	2.15%	2.4	36%	1.80	0.000	1.80	0	0
17.224	6942.94	42.7	0.725	42.6	4.0	1.73	1.70%	Coarse Alluvium	0.056	111.0	0.98	0.000	0.98	0	0.89	37.896	3.63	46.43	43	1.74%	2.3	36%	1.81	0.000	1.81	0	0
17.388	6942.77	37.4	0.560	37.4	3.9	1.67	1.50%	Coarse Alluvium	0.056	111.0	0.99	0.000	0.99	0	0.88	32.836	3.15	40.23	37	1.54%	2.4	36%	1.82	0.000	1.82	0	0
17.552	6942.61	36.6	0.802	36.6	3.8	1.63	2.19%	Coarse Alluvium	0.056	111.0	1.00	0.000	1.00	0	0.87	31.937	3.06	39.13	36	2.25%	2.5	36%	1.83	0.000	1.83	0	0
17.716	6942.44	43.3	0.955	43.3	4.1	1.77	2.21%	Coarse Alluvium	0.056	111.0	1.01	0.000	1.01	0	0.87	37.776	3.62	46.28	42	2.26%	2.4	36%	1.84	0.000	1.84	0	0
17.880	6942.28	51.8	1.013	51.8	3.8	1.65	1.95%	Coarse Alluvium	0.056	111.0	1.01	0.000	1.01	0	0.87	45.295	4.34	55.49	50	1.99%	2.3	36%	1.85	0.000	1.85	0	0
18.044	6942.12	64.4	0.865	64.4	4.1	1.77	1.34%	Coarse Alluvium	0.056	111.0	1.02	0.000	1.02	0	0.88	56.504	5.41	69.22	62	1.36%	2.2	36%	1.86	0.000	1.86	0	0
18.208	6941.95	82.3	0.654	82.3	4.0	1.73	0.79%	Coarse Alluvium	0.056	111.0	1.03	0.000	1.03	0	0.88	72.752	6.97	89.11	79	0.80%	1.9	36%	1.86	0.000	1.86	0	0
18.372	6941.79	91.4	0.887	91.3	4.6	1.97	0.97%	Coarse Alluvium	0.056	111.0	1.04	0.000	1.04	0	0.89	80.845	7.74	99.03	87	0.98%	2.0	36%	1.87	0.000	1.87	0	0
18.537	6941.62	108.0	1.309	108.0	5.8	2.50	1.21%	Coarse Alluvium	0.056	111.0	1.05	0.000	1.05	0	0.89	96.094	9.20	117.71	102	1.22%	2.0	36%	1.88	0.000	1.88	0	0
18.701	6941.46	151.4	1.637	151.4	6.1	2.64	1.08%	Coarse Alluvium	0.056	111.0	1.06	0.000	1.06	0	0.91	137.263	13.15	168.12	142	1.09%	1.8	36%	1.89	0.000	1.89	0	0
18.865	6941.30	239.6	2.499	239.6	7.0	3.01	1.04%	Coarse Alluvium	0.056	111.0	1.07	0.000	1.07	0	0.93	223.128	21.37	273.27	223	1.05%	1.7	36%	1.90	0.000	1.90	0	0
19.029	6941.13	228.4	2.883	228.3	6.7	2.91	1.26%	Coarse Alluvium	0.056	111.0	1.08	0.000	1.08	0	0.93	212.148	20.32	259.83	211	1.27%	1.8	36%	1.91	0.000	1.91	0	0
19.193	6940.97	159.8	2.866	159.7	6.2	2.70	1.79%	Coarse Alluvium	0.056	111.0	1.09	0.000	1.09	0	0.90	143.963	13.79	176.33	146	1.81%	2.0	36%	1.92	0.000	1.92	0	0
19.357	6940.80	128.9	2.367	128.8	6.4	2.79	1.84%	Coarse Alluvium	0.056	111.0	1.10	0.000	1.10	0	0.88	113.755	10.90	139.34	116	1.85%	2.0	36%	1.93	0.000	1.93	0	0
19.521	6940.64	66.7	2.447	66.7	6.1	2.64	3.67%	Coarse Alluvium	0.056	111.0	1.11	0.000	1.11	0	0.84	55.952	5.36	68.55	59	3.73%	2.5	36%	1.94	0.000	1.94	0	0
19.685	6940.48	52.5	1.507	52.5	5.5	2.38	2.87%	Coarse Alluvium	0.056	111.0	1.12	0.000	1.12	0	0.82	43.136	4.13	52.85	46	2.93%	2.5	36%	1.95	0.000	1.95	0	0
19.849	6940.31	50.6	1.096	50.5	6.0	2.60	2.17%	Coarse Alluvium	0.056	111.0	1.12	0.000	1.12	0	0.82	41.234	3.95	50.53	44	2.22%	2.4	36%	1.96	0.000	1.96	0	0
20.013	6940.15	45.5	1.003	45.5	5.9	2.56	2.20%	Coarse Alluvium	0.056	111.0	1.13	0.000	1.13	0	0.81	36.683	3.51	44.96	39	2.26%	2.4	36%	1.96	0.000	1.96	0	0
20.177	6939.98	43.8	0.460	43.8	3.5	1.50	1.05%	Coarse Alluvium	0.056	111.0	1.14	0.000	1.14	0	0.80	35.013	3.35	42.90	37	1.08%	2.3	36%	1.97	0.000	1.97	0	0
20.341	6939.82	45.0	0.031	45.0	3.7	1.61	0.07%	Coarse Alluvium	0.056	111.0	1.15	0.000	1.15	0	0.80	35.842	3.43	43.91	38	0.07%	1.9	36%	1.98	0.000	1.98	0	0
20.505	6939.66	46.0	0.340	46.0	3.6	1.56	0.74%	Coarse Alluvium	0.056	111.0	1.16	0.000	1.16	0	0.79	36.447	3.49	44.65	39	0.76%	2.2	36%	1.99	0.000	1.99	0	0
20.669	6939.49	14.2	0.345	14.2	2.6	1.12	2.43%	Coarse Alluvium	0.056	111.0	1.17	0.000	1.17	0	0.76	10.730	1.03	13.15	11	2.64%	2.9	36%	2.00	0.000	2.00	0	0
20.833	6939.33	54.3	0.327	54.2	3.4	1.49	0.60%	Coarse Alluvium	0.056	111.0	1.18	0.000	1.18	0	0.79	43.063	4.12	52.75	45	0.62%	2.1	36%	2.01	0.000	2.01	0	0
20.997	6939.16	57.5	0.354	57.5	3.3	1.42	0.62%	Coarse Alluvium	0.056	111.0	1.19	0.000	1.19	0	0.79	45.608	4.37	55.87	47	0.63%	2.1	36%	2.02	0.000	2.02	0	0
21.161	6939.00	57.1	0.386	57.1	2.4	1.06	0.68%	Coarse Alluvium	0.056	111.0	1.20	0.000	1.20	0	0.79	45.053	4.32	55.18	47	0.69%	2.1	36%	2.03	0.000	2.03	0	0
21.325	6938.83	63.6	0.459	63.6	2.5	1.08	0.72%	Coarse Alluvium	0.056	111.0	1.21	0.000	1.21	0	0.79	50.313	4.82	61.62	52	0.74%	2.1	36%	2.04	0.000	2.04	0	0
21.489	6938.67	69.9	0.558	69.9	2.2	0.96	0.80%	Coarse Alluvium	0.056	111.0	1.22	0.000	1.22	0	0.79	55.485	5.31	67.96	56	0.81%	2.1	36%	2.05	0.000	2.05	0	0
21.653	6938.51	72.3	0.660	72.3	2.4	1.02	0.91%	Coarse Alluvium	0.056	111.0	1.22	0.000	1.22	0	0.79	57.310	5.49	70.19	58	0.93%	2.1	36%	2.06	0.000	2.06	0	0
21.817	6938.34	72.1	0.742	72.1	2.4	1.06	1.03%	Coarse Alluvium	0.056	111.0	1.23	0.000	1.23	0	0.79	56.882	5.45	69.67	57	1.05%	2.1	36%	2.06	0.000	2.06	0	0
21.981	6938.18	70.6	0.775	70.6	2.5	1.10	1.10%	Coarse Alluvium	0.056	111.0	1.24	0.000	1.24	0	0.78	55.360	5.30	67.80	56	1.12%	2.1	36%	2.07	0.000	2.07	0	0
22.145	6938.01	66.7	0.780	66.7	2.6	1.12	1.17%	Coarse Alluvium	0.056	111.0	1.25	0.000	1.25	0	0.78	51.797	4.96	63.44	52	1.19%	2.2	36%	2.08	0.000	2.08	0	0
22.309	6937.85	63.1	0.774	63.0	2.5	1.10	1.23%	Coarse Alluvium	0.056	111.0	1.26	0.000	1.26	0	0.77	48.448	4.64	59.34	49	1.25%	2.2	36%	2.09	0.000	2.09	0	0
22.473	6937.69	57.6	0.726	57.6	2.3	1.00	1.26%	Coarse Alluvium	0.056	111.0	1.27	0.000	1.27	0	0.76	43.710	4.19	53.54	44	1.29%	2.3	36%	2.10	0.000	2.10	0	0
22.638	6937.52	51.5	0.678	51.5	2.6	1.14	1.32%	Coarse Alluvium	0.056	111.0	1.28	0.000	1.28	0	0.75	38.485	3.69	47.14	39	1.35%	2.3	36%	2.11	0.000	2.11	0	0
22.802	6937.36	47.3	0.632	47.3	2.5	1.10	1.34%	Coarse Alluvium	0.056	111.0	1.29	0.000	1.29	0	0.74	34.896	3.34	42.74	36	1.37%	2.3	36%	2.12	0.000	2.12	0	0
22.966	6937.19	53.0	0.619	53.0	2.8	1.20	1.17%	Coarse Alluvium	0.056	111.0	1.30	0.000	1.30	0	0.74	39.290	3.76	48.13	40	1.20%	2.3	36%	2.13	0.000	2.13	0	0
23.130	6937.03	61.3	0.607	61.3	2.9	1.24	0.99%	Coarse Alluvium	0.056	111.0	1.31	0.000	1.31	0	0.75	45.900	4.40	56.22	46	1.01%	2.2	36%	2.14	0.000	2.14	0	0
23.294	6936.87	65.0	0.622	65.0	2.9	1.24	0.96%	Coarse Alluvium	0.056	111.0	1.32	0.000	1.32	0	0.75	48.719	4.67	59.67	48	0.98%	2.2	36%	2.15	0.000	2.15	0	0
23.458	6936.70	67.0	0.632	67.0	2.7	1.16	0.94%	Coarse Alluvium	0.056	111.0	1.32	0.000	1.32	0	0.75	50.127	4.80	61.40	50	0.96%	2.1	36%	2.16	0.000	2.16	0	0
23.622	6936.54	67.4	0.658	67.4	3.0	1.28	0.98%	Coarse Alluvium	0.056	111.0	1.33	0.000	1.33	0	0.75	50.214	4.81	61.50	50	1.00%	2.2	36%	2.16	0.000	2.16	0	0
23.786	6936.37	63.8	0.763	63.8	3.1	1.36	1.20%	Coarse Alluvium	0.056	111.0	1.34	0.000	1.34	0	0.74	47.065	4.51	57.65	47	1.22%	2.2	36%	2.17	0.000	2.17	0	0
23.950	6936.21	60.6	0.864	60.6	3.0	1.28	1.43%	Coarse Alluvium	0.056	111.0	1.35	0.000	1.35	0	0.73	44.218	4.24	54.16	44	1.46%	2.3	36%	2.18	0.000	2.18	0	0
24.114	6936.05	56.6	0.899	56.6	3.1	1.36	1.59%	Coarse Alluvium	0.056	111.0	1.36	0.000	1.36	0	0.72	40.852	3.91	50.04	41	1.63%	2.3	36%	2.19	0.000	2.19	0	0
24.278	6935.88	58.4	0.463	58.4	3.0	1.30	0.79%	Coarse Alluvium	0.056	111.0	1.37	0.000	1.37	0	0.72	42.076	4.03	51.54	42	0.81%	2.2	36%	2.20	0.000	2.20	0	0
24.442	6935.72	56.5	0.419	56.5	2.9	1.24	0.74%	Coarse Alluvium	0.056	111.0	1.38	0.000	1.38	0	0.71	40.414	3.87	49.50	40	0.76%	2.2	36%	2.21	0.000	2.21	0	0
24.606	6935.55	59.6	0.491	59.6	3.4	1.49	0.82%	Coarse Alluvium	0.056	111.0	1.39	0.000	1.39	0	0.72	42.648	4.09	52.24	42	0.84%	2.2	36%	2.22	0.000	2.22	0	0
24.770	6935.39	59.6	0.584	59.6	3.5	1.50	0.98%	Coarse Alluvium	0.056	111.0	1.40	0.000	1.40	0	0.71	42.453	4.07	52.00	42	1.00%	2.2	36%	2.23	0.000	2.23	0	0
24.934	6935.23	48.5	0.515	48.4	3.4	1.46	1.06%	Coarse Alluvium	0.056	111.0	1.41	0.000	1.41	0	0.69	33.586	3.22	41.14	33	1.09%	2.3	36%	2.24	0.000	2.24	0	0
25.098	6935.06	46.2	0.732	46.2	3.4	1.46	1.59%	Coarse Alluvium	0.056	111.0	1.42	0.000	1.42	0	0.69	31.682	3.03	38.81	32	1.64%	2.4	36%	2.25	0.000	2.25	0	0
25.262	6934.90	54.3	0.862	54.3	2.5	1.10	1.59%	Coarse Alluvium	0.056	111.0	1.42	0.000	1.42	0	0.70	37.759	3.62	46.25	37	1.63%	2.4	36%	2.26	0.000	2.26	0	0
25.426	6934.73	57.0	0.957	57.0	2.9	1.26	1.68%	Coarse Alluvium	0.056	111.0	1.43	0.000	1.43	0	0.70	39.658	3.80	48.58	39	1.72%	2.4	36%	2.27	0.000	2.27	0	0
25.590	6934.57	60.2	0.831	60.2	2.5	1.08	1.38%	Coarse Alluvium	0.056	111.0	1.44	0.000	1.44	0	0.70	42.001	4.02	51.44	41	1.41%	2.3	36%	2.27	0.000	2.27	0	0
25.754	6934.41	61.6	0.658	61.6	2.5	1.10	1.07%	Fine Alluvium	0.060	120.7	1.45	0.000	1.45	0	0.70	42.841	4.10	52.47	41	1.09%	2.2	76%	2.28	0.000	2.28	0	0
25.918	6934.24	52.0	0.903	52.0	2.6	1.14	1.74%	Fine Alluvium	0.060	120.7	1.46	0.000	1.46	0	0.68	35.256	3.38	43.19	35	1.79%	2.4	76%	2.29	0.000	2.29	0	0
26.082	6934.08	32.6	0.823	32.6	2.5	1.08	2.52%	Fine Alluvium	0.060	120.7	1.47	0.000	1.47	0	0.64	20.951	2.01	25.67	21	2.64%	2.7	76%	2.30	0.000	2.30	0	0
26.246	6933.91	24.2	0.702	24.2	2.7	1.18	2.90%	Fine Alluvium	0.060	120.7	1.48	0.000	1.48	0	0.63	15.159	1.45	18.58	15	3.09%	2.9	76%	2.31	0.000	2.31	0	0
26.410	6933.75	25.5	0.836	25.4	3.7	1.59	3.28%	Fine Alluvium	0.060	120.7	1.49	0.000	1.49	0	0.62	15.873	1.52	19.45	16	3.49%	2.9	76%	2.32	0.000	2.32	0	0
26.574	6933.59	16.9	0.905	16.9	2.4	1.02	5.35%	Fine Alluvium	0.060	120.7	1.50	0.000	1.50	0	0.62	10.488	1.00	12.85	10	5.88%	3.2	76%	2.33	0.000	2.33	0	0
26.739	6933.42	15.7	0.736	15.7	3.1	1.32	4.69%	Fine Alluvium	0.060	120.7	1.51	0.000	1.51	0	0.62	9.687	0.93	11.88	9	5.19%	3.2	76%	2.34	0.000	2.34	0	0
26.903	6933.26	15.0	0.577	15.0	3.9	1.71	3.85%	Fine Alluvium	0.060	120.7	1.52	0.000	1.52	0	0.61	9.207	0.88	11.29	9	4.28%	3.1	76%	2.35	0.000	2.35	0	0
27.067	6933.09	15.1	0.503	15.1	4.2	1.81	3.32%	Fine Alluvium	0.060	120.7	1.53	0.000	1.53	0	0.61	9.240	0.89	11.33	9	3.70%	3.1	76%	2.36	0.000	2.36	0	0
27.231	6932.93	18.4	0.498	18.4	4.4	1.91	2.70%	Fine Alluvium	0.060	120.7	1.54	0.000	1.54	0	0.61	11.208	1.07	13.74	11	2.95%	3.0	76%	2.37	0.000	2.37	0	0
27.395	6932.77	23.2	0.676	23.2	4.6	1.99	2.91%	Fine Alluvium	0.060	120.7	1.55	0.000	1.55	0	0.61	14.046	1.35	17.22	14	3.12%	2.9	76%	2.38	0.000	2.38	0	0
27.559	6932.60	27.1	0.811	27.0	5.3	2.30	3.00%	Fine Alluvium	0.060	120.7	1.56	0.000	1.56	0	0.60	16.277	1.56	19.96	16	3.18%	2.8	76%	2.39	0.000	2.39	0	0
27.723	6932.44	18.4	0.811	18.4	4.9	2.14	4.41%	Fine Alluvium	0.060	120.7	1.57	0.000	1.57	0	0.60	11.006	1.05	13.50	11	4.82%	3.1	76%	2.40	0.000	2.40	0	0
27.887	6932.27	13.3	0.646	13.3	4.7	2.03	4.86%	Fine Alluvium	0.060	120.7	1.58	0.000	1.58	0	0.60	7.910	0.76	9.71	7	5.52%	3.3	76%	2.41	0.000	2.41	0	0
28.051	6932.11	12.3	0.540	12.2	5.0	2.15	4.40%	Fine Alluvium	0.060	120.7	1.59	0.000	1.59	0	0.59	7.266	0.70	8.92	7	5.06%	3.3	76%	2.42	0.000	2.42	0	0
28.215	6931.95	12.7	0.537	12.6	5.4	2.34	4.24%	Fine Alluvium	0.060	120.7	1.60	0.000	1.60	0	0.59	7.455	0.71	9.15	7	4.86%	3.2	76%	2.43	0.000	2.43	0	0
28.379	6931.78	13.1	0.588	13.1	5.8	2.52	4.49%	Fine Alluvium	0.060	120.7	1.61	0.000	1.61	0	0.59	7.684	0.74	9.44	7	5.12%	3.3	76%	2.44	0.000	2.44	0	0
28.543	6931.62	13.2	0.612	13.2	6.2	2.67	4.63%	Fine Alluvium	0.060	120.7	1.62	0.000	1.62	0	0.59	7.717	0.74	9.48	7	5.27%	3.3	76%	2.45	0.000	2.45	0	0
28.707	6931.45	15.5	0.641	15.4	6.5	2.83	4.15%	Fine Alluvium	0.060	120.7	1.63	0.000	1.63	0	0.58	8.979	0.86	11.02	8	4.63%	3.2	76%	2.46	0.000	2.46	0	0
28.871	6931.29	15.3	0.550	15.3	6.7	2.91	3.58%	Fine Alluvium	0.060	120.7	1.64	0.000	1.64	0	0.58	8.867	0.85	10.89	8	4.01%	3.1	76%	2.47	0.000	2.47	0	0
29.035	6931.12	16.7	0.500	16.7	6.8	2.95	2.99%	Fine Alluvium	0.060	120.7	1.65	0.000	1.65	0	0.58	9.633	0.92	11.83	9	3.31%	3.1	76%	2.48	0.000	2.48	0	0
29.199	6930.96	18.1	0.478	18.1	7.1	3.07	2.63%	Fine Alluvium	0.060	120.7	1.66	0.000	1.66	0	0.57	10.392	1.00	12.76	10	2.90%	3.0	76%	2.49	0.000	2.49	0	0
29.363	6930.80	16.2	0.371	16.1	7.3	3.17	2.29%	Fine Alluvium	0.060	120.7	1.67	0.000	1.67	0	0.57	9.218	0.88	11.32	9	2.56%	3.0	76%	2.50	0.000	2.50	0	0
29.527	6930.63	14.7	0.269	14.7	7.3	3.17	1.83%	Fine Alluvium	0.060	120.7	1.68	0.000	1.68	0	0.57	8.339	0.80	10.24	8	2.07%	3.0	76%	2.51	0.000	2.51	0	0
29.691	6930.47	16.1	0.245	16.1	7.7	3.32	1.52%	Fine Alluvium	0.060	120.7	1.69	0.000	1.69	0	0.57	9.094	0.87	11.17	9	1.70%	2.9	76%	2.52	0.000	2.52	0	0
29.855	6930.30	20.1	0.520	20.1	8.1	3.52	2.58%	Fine Alluvium	0.060	120.7	1.70	0.000	1.70	0	0.56	11.319	1.08	13.89	11	2.82%	3.0	76%	2.53	0.000	2.53	0	0
30.019	6930.14	23.8	0.935	23.7	9.2	3.97	3.93%	Fine Alluvium	0.060	120.7	1.71	0.000	1.71	0	0.56	13.304	1.27	16.33	13	4.24%	3.0	76%	2.54	0.000	2.54	0	0
30.183	6929.98	27.4	1.385	27.2	24.5	10.60	5.06%	Fine Alluvium	0.060	120.7	1.72	0.000	1.72	0	0.56	15.205	1.46	18.72	15	5.40%	3.0	76%	2.55	0.000	2.55	0	0
30.347	6929.81	26.9	1.592	26.8	23.7	10.27	5.91%	Fine Alluvium	0.060	120.7	1.73	0.000	1.73	0	0.56	14.887	1.43	18.33	15	6.32%	3.1	76%	2.56	0.000	2.56	0	0
30.511	6929.65	25.0	1.361	24.9	23.3	10.09	5.44%	Fine Alluvium	0.060	120.7	1.74	0.000	1.74	0	0.55	13.763	1.32	16.95	13	5.85%	3.1	76%	2.57	0.000	2.57	0	0
30.675	6929.48	24.7	1.184	24.6	23.0	9.95	4.79%	Fine Alluvium	0.060	120.7	1.75	0.000	1.75	0	0.55	13.559	1.30	16.70	13	5.15%	3.0	76%	2.58	0.000	2.58	0	0
30.840	6929.32	19.5	0.964	19.4	22.3	9.66	4.94%	Fine Alluvium	0.060	120.7	1.76	0.000	1.76	0	0.55	10.635	1.02	13.12	10	5.43%	3.1	76%	2.59	0.000	2.59	0	0
31.004	6929.16	17.6	0.759	17.5	22.0	9.52	4.31%	Fine Alluvium	0.060	120.7	1.77	0.000	1.77	0	0.55	9.539	0.91	11.77	9	4.80%	3.2	76%	2.60	0.000	2.60	0	0
31.168	6928.99	16.6	0.537	16.4	21.6	9.36	3.24%	Fine Alluvium	0.060	120.7	1.78	0.000	1.78	0	0.54	8.943	0.86	11.04	8	3.63%	3.1	76%	2.61	0.000	2.61	0	0
31.332	6928.83	17.7	0.547	17.6	21.9	9.50	3.09%	Fine Alluvium	0.060	120.7	1.79	0.000	1.79	0	0.54	9.527	0.91	11.76	9	3.43%	3.1	76%	2.62	0.000	2.62	0	0
31.496	6928.66	19.8	0.587	19.7	22.2	9.64	2.96%	Fine Alluvium	0.060	120.7	1.80	0.000	1.80	0	0.54	10.618	1.02	13.09	10	3.26%	3.0	76%	2.63	0.000	2.63	0	0
31.660	6928.50	24.8	0.838	24.7	21.1	9.13	3.38%	Fine Alluvium	0.060	120.7	1.81	0.000	1.81	0	0.54	13.247	1.27	16.31	13	3.64%	3.0	76%	2.64	0.000	2.64	0	0
31.824	6928.34	28.9	1.130	28.8	20.7	8.97	3.91%	Fine Alluvium	0.060	120.7	1.82	0.000	1.82	0	0.53	15.372	1.47	18.91	15	4.18%	2.9	76%	2.65	0.000	2.65	0	0
31.988	6928.17	30.9	1.378	30.8	19.2	8.34	4.46%	Fine Alluvium	0.060	120.7	1.83	0.000	1.83	0	0.53	16.393	1.57	20.15	16	4.74%	3.0	76%	2.66	0.000	2.66	0	0
32.152	6928.01	29.1	1.583	29.0	17.1	7.42	5.44%	Fine Alluvium	0.060	120.7	1.84	0.000	1.84	0	0.53	15.375	1.47	18.90	15	5.81%	3.0	76%	2.67	0.000	2.67	0	0
32.316	6927.84	26.4	1.602	26.3	15.2	6.57	6.06%	Fine Alluvium	0.060	120.7	1.85	0.000	1.85	0	0.53	13.896	1.33	17.08	13	6.52%	3.1	76%	2.68	0.000	2.68	0	0
32.480	6927.68	23.5	1.399	23.4	13.3	5.78	5.96%	Fine Alluvium	0.060	120.7	1.86	0.000	1.86	0	0.53	12.298	1.18	15.11	12	6.47%	3.1	76%	2.69	0.000	2.69	0	0
32.644	6927.52	19.8	1.138	19.7	12.5	5.41	5.76%	Fine Alluvium	0.060	120.7	1.87	0.000	1.87	0	0.52	10.309	0.99	12.67	10	6.36%	3.2	76%	2.70	0.000	2.70	0	0

15.256	0.80	0.08	0.94	-0.19	1.00	0.098	52.67	119.00	0.177	N/A	0.93	0.47	0.76	0.84	1.00	0.135	1.48	97.89	0.167	N/A	N/A	N/A
15.420	0.80	0.07	0.95	-0.11	1.00	0.097	48.25	101.74	0.145	N/A	0.93	0.42	0.79	0.86	1.00	0.133	1.65	88.06	0.143	N/A	N/A	N/A
15.584	0.79	0.07	0.95	-0.06	1.00	0.097	45.84	92.37	0.130	N/A	0.93	0.39	0.80	0.86	1.00	0.132	1.79	83.13	0.133	N/A	N/A	N/A
15.748	0.79	0.07	0.95	-0.06	1.00	0.097	46.07	93.26	0.132	N/A	0.93	0.40	0.80	0.86	1.00	0.132	1.77	83.35	0.134	N/A	N/A	N/A
15.912	0.79	0.07	0.94	-0.12	1.00	0.097	48.71	103.56	0.148	N/A	0.93	0.43	0.79	0.85	1.00	0.133	1.61	88.36	0.144	N/A	N/A	N/A
16.076	0.79	0.08	0.94	-0.20	1.00	0.098	53.66	122.85	0.186	N/A	0.93	0.48	0.76	0.83	1.00	0.136	1.44	99.74	0.172	N/A	N/A	N/A
16.240	0.79	0.09	0.93	-0.24	1.00	0.098	55.68	130.74	0.205	N/A	0.93	0.50	0.75	0.83	1.00	0.137	1.41	105.93	0.191	N/A	N/A	N/A
16.404	0.79	0.08	0.94	-0.19	1.00	0.097	53.13	120.77	0.181	N/A	0.92	0.47	0.76	0.83	1.00	0.136	1.55	104.89	0.187	N/A	N/A	N/A
16.568	0.79	0.08	0.94	-0.16	1.00	0.097	51.18	113.19	0.166	N/A	0.92	0.45	0.77	0.84	1.00	0.135	1.71	106.23	0.191	N/A	N/A	N/A
16.732	0.78	0.07	0.94	-0.08	1.00	0.096	47.14	97.44	0.138	N/A	0.92	0.41	0.80	0.85	1.00	0.132	2.32	116.86	0.228	N/A	N/A	N/A
16.896	0.78	0.07	0.95	-0.04	1.00	0.096	44.99	89.05	0.125	N/A	0.92	0.38	0.80	0.85	1.00	0.132	2.74	120.68	0.243	N/A	N/A	N/A
17.060	0.78	0.07	0.94	-0.07	1.00	0.096	46.51	94.96	0.134	N/A	0.92	0.40	0.80	0.85	1.00	0.132	2.29	110.72	0.206	N/A	N/A	N/A
17.224	0.78	0.07	0.95	-0.06	1.00	0.095	45.81	92.24	0.130	N/A	0.92	0.39	0.80	0.85	1.00	0.132	2.12	98.34	0.168	N/A	N/A	N/A
17.388	0.78	0.07	0.95	-0.01	1.00	0.095	43.67	83.91	0.118	N/A	0.92	0.37	0.80	0.85	1.00	0.132	2.18	87.87	0.143	N/A	N/A	N/A
17.552	0.78	0.06	0.95	0.00	1.00	0.095	43.29	82.43	0.116	N/A	0.91	0.36	0.80	0.85	1.00	0.131	2.67	104.35	0.186	N/A	N/A	N/A
17.716	0.78	0.07	0.94	-0.05	1.00	0.095	45.76	92.04	0.130	N/A	0.91	0.39	0.80	0.85	1.00	0.131	2.42	112.06	0.211	N/A	N/A	N/A
17.880	0.77	0.07	0.94	-0.12	1.00	0.095	48.93	104.42	0.150	N/A	0.91	0.43	0.78	0.84	1.00	0.133	2.06	114.26	0.219	N/A	N/A	N/A
18.044	0.77	0.08	0.93	-0.20	1.00	0.096	53.67	122.89	0.186	N/A	0.91	0.48	0.76	0.82	1.00	0.136	1.57	108.54	0.199	N/A	N/A	N/A
18.208	0.77	0.10	0.92	-0.30	1.00	0.097	60.53	149.64	0.270	N/A	0.91	0.55	0.73	0.80	1.00	0.139	1.22	109.07	0.201	N/A	N/A	N/A
18.372	0.77	0.11	0.91	-0.35	1.00	0.098	63.95	162.98	0.347	N/A	0.91	0.57	0.71	0.79	1.00	0.141	1.24	123.18	0.254	N/A	N/A	N/A
18.537	0.77	0.12	0.90	-0.42	1.00	0.099	70.39	188.10	0.700	N/A	0.91	0.63	0.69	0.77	1.00	0.144	1.25	147.53	0.379	N/A	N/A	N/A
18.701	0.77	0.19	0.84	-0.59	1.00	0.105	87.78	255.90	1.000	N/A	0.91	0.75	0.63	0.73	1.00	0.152	1.12	188.75	1.000	N/A	N/A	N/A
18.865	0.77	0.30	0.75	-0.60	1.00	0.119	124.04	397.31	1.000	N/A	0.90	0.95	0.60	0.71	1.00	0.155	1.02	278.42	1.000	N/A	N/A	N/A
19.029	0.77	0.30	0.75	-0.60	1.00	0.119	119.40	379.23	1.000	N/A	0.90	0.93	0.60	0.71	1.00	0.155	1.07	278.57	1.000	N/A	N/A	N/A
19.193	0.76	0.20	0.83	-0.60	1.00	0.107	90.61	266.94	1.000	N/A	0.90	0.77	0.62	0.72	1.00	0.153	1.26	222.95	1.000	N/A	N/A	N/A
19.357	0.76	0.15	0.87	-0.50	1.00	0.101	77.85	217.19	1.000	N/A	0.90	0.68	0.66	0.75	1.00	0.148	1.36	190.09	1.000	N/A	N/A	N/A
19.521	0.76	0.08	0.93	-0.20	1.00	0.095	53.44	121.99	0.184	N/A	0.90	0.48	0.76	0.81	1.00	0.135	2.61	178.95	1.000	N/A	N/A	N/A
19.685	0.76	0.07	0.94	-0.10	1.00	0.094	48.03	100.88	0.144	N/A	0.90	0.42	0.79	0.83	1.00	0.132	2.63	139.04	0.330	N/A	N/A	N/A
19.849	0.76	0.07	0.94	-0.08	1.00	0.093	47.22	97.75	0.139	N/A	0.90	0.41	0.79	0.84	1.00	0.131	2.34	118.04	0.233	N/A	N/A	N/A
20.013	0.76	0.07	0.94	-0.04	1.00	0.093	45.30	90.26	0.127	N/A	0.89	0.39	0.80	0.84	1.00	0.130	2.53	113.52	0.216	N/A	N/A	N/A
20.177	0.76	0.07	0.94	-0.03	1.00	0.093	44.59	87.49	0.123	N/A	0.89	0.38	0.80	0.84	1.00	0.130	1.87	80.11	0.128	N/A	N/A	N/A
20.341	0.75	0.07	0.94	-0.03	1.00	0.093	44.94	88.85	0.125	N/A	0.89	0.38	0.80	0.84	1.00	0.130	1.18	51.81	0.093	N/A	N/A	N/A
20.505	0.75	0.07	0.94	-0.04	1.00	0.093	45.20	89.85	0.127	N/A	0.89	0.39	0.80	0.84	1.00	0.130	1.62	72.41	0.115	N/A	N/A	N/A
20.669	0.75	0.05	0.96	0.10	1.00	0.091	34.33	47.49	0.075	N/A	0.89	0.21	0.80	0.84	1.00	0.130	5.96	78.41	0.125	N/A	N/A	N/A
20.833	0.75	0.07	0.93	-0.10	1.00	0.093	47.99	100.74	0.144	N/A	0.89	0.42	0.79	0.83	1.00	0.131	1.42	74.73	0.119	N/A	N/A	N/A
20.997	0.75	0.07	0.93	-0.12	1.00	0.093	49.06	104.93	0.151	N/A	0.89	0.43	0.78	0.82	1.00	0.132	1.39	77.74	0.124	N/A	N/A	N/A
21.161	0.75	0.07	0.93	-0.11	1.00	0.093	48.83	104.01	0.149	N/A	0.89	0.43	0.79	0.82	1.00	0.132	1.43	79.18	0.126	N/A	N/A	N/A
21.325	0.75	0.08	0.93	-0.15	1.00	0.093	51.05	112.67	0.165	N/A	0.88	0.45	0.77	0.81	1.00	0.133	1.40	86.01	0.139	N/A	N/A	N/A
21.489	0.74	0.08	0.92	-0.19	1.00	0.093	53.23	121.19	0.182	N/A	0.88	0.48	0.76	0.80	1.00	0.134	1.38	93.83	0.157	N/A	N/A	N/A
21.653	0.74	0.08	0.92	-0.20	1.00	0.093	54.00	124.19	0.189	N/A	0.88	0.48	0.76	0.80	1.00	0.135	1.42	99.53	0.172	N/A	N/A	N/A
21.817	0.74	0.08	0.92	-0.20	1.00	0.093	53.82	123.49	0.187	N/A	0.88	0.48	0.76	0.80	1.00	0.135	1.48	102.99	0.182	N/A	N/A	N/A
21.981	0.74	0.08	0.92	-0.19	1.00	0.093	53.18	120.99	0.182	N/A	0.88	0.48	0.76	0.80	1.00	0.134	1.53	103.77	0.184	N/A	N/A	N/A
22.145	0.74	0.08	0.93	-0.16	1.00	0.092	51.68	115.12	0.170	N/A	0.88	0.46	0.77	0.81	1.00	0.133	1.62	102.52	0.180	N/A	N/A	N/A
22.309	0.74	0.08	0.93	-0.14	1.00	0.092	50.26	109.60	0.159	N/A	0.88	0.44	0.78	0.81	1.00	0.132	1.70	101.05	0.176	N/A	N/A	N/A
22.473	0.74	0.07	0.93	-0.10	1.00	0.091	48.26	101.80	0.146	N/A	0.87	0.42	0.79	0.82	1.00	0.131	1.82	97.24	0.166	N/A	N/A	N/A
22.638	0.73	0.07	0.93	-0.05	1.00	0.091	46.05	93.19	0.132	N/A	0.87	0.40	0.80	0.83	1.00	0.129	1.99	93.59	0.156	N/A	N/A	N/A
22.802	0.73	0.07	0.94	-0.02	1.00	0.091	44.54	87.28	0.123	N/A	0.87	0.38	0.80	0.83	1.00	0.129	2.12	90.47	0.149	N/A	N/A	N/A
22.966	0.73	0.07	0.93	-0.06	1.00	0.091	46.39	94.52	0.134	N/A	0.87	0.40	0.80	0.83	1.00	0.129	1.87	90.22	0.148	N/A	N/A	N/A
23.130	0.73	0.07	0.93	-0.12	1.00	0.091	49.19	105.41	0.152	N/A	0.87	0.43	0.78	0.81	1.00	0.131	1.63	91.49	0.151	N/A	N/A	N/A
23.294	0.73	0.08	0.93	-0.14	1.00	0.091	50.38	110.05	0.160	N/A	0.87	0.45	0.78	0.81	1.00	0.132	1.57	93.43	0.156	N/A	N/A	N/A
23.458	0.73	0.08	0.92	-0.15	1.00	0.091	50.97	112.37	0.164	N/A	0.87	0.45	0.77	0.80	1.00	0.132	1.54	94.57	0.159	N/A	N/A	N/A
23.622	0.73	0.08	0.92	-0.15	1.00	0.091	51.01	112.51	0.165	N/A	0.87	0.45	0.77	0.80	1.00	0.132	1.56	95.89	0.162	N/A	N/A	N/A
23.786	0.73	0.08	0.93	-0.13	1.00	0.091	49.68	107.33	0.155	N/A	0.86	0.44	0.78	0.81	1.00	0.131	1.73	99.93	0.173	N/A	N/A	N/A
23.950	0.72	0.07	0.93	-0.10	1.00	0.090	48.48	102.64	0.147	N/A	0.86	0.42	0.79	0.81	1.00	0.130	1.93	104.38	0.186	N/A	N/A	N/A
24.114	0.72	0.07	0.93	-0.07	1.00	0.090	47.05	97.10	0.138	N/A	0.86	0.41	0.80	0.82	1.00	0.129	2.11	105.73	0.190	N/A	N/A	N/A
24.278	0.72	0.07	0.93	-0.08	1.00	0.090	47.57	99.11	0.141	N/A	0.86	0.41	0.79	0.81	1.00	0.129	1.59	82.06	0.131	N/A	N/A	N/A
24.442	0.72	0.07	0.93	-0.07	1.00	0.090	46.87	96.37	0.137	N/A	0.86	0.41	0.80	0.82	1.00	0.129	1.59	78.81	0.126	N/A	N/A	N/A
24.606	0.72	0.07	0.93	-0.09	1.00	0.090	47.81	100.06	0.143	N/A	0.86	0.42	0.79	0.81	1.00	0.129	1.61	83.86	0.135	N/A	N/A	N/A
24.770	0.72	0.07	0.93	-0.09	1.00	0.089	47.73	99.74	0.142	N/A	0.86	0.42	0.79	0.81	1.00	0.129	1.71	88.90	0.145	N/A	N/A	N/A
24.934	0.72	0.07	0.93	-0.01	1.00	0.089	43.99	85.13	0.120	N/A	0.85	0.37	0.80	0.82	1.00	0.128	2.01	82.54	0.132	N/A	N/A	N/A
25.098	0.71	0.06	0.94	0.01	1.00	0.088	43.18	82.00	0.115	N/A	0.85	0.36	0.80	0.82	1.00	0.128	2.47	95.78	0.162	N/A	N/A	N/A
25.262	0.71	0.07	0.93	-0.05	1.00	0.089	45.75	92.00	0.130	N/A	0.85	0.39	0.80	0.82	1.00	0.128	2.23	103.17	0.182	N/A	N/A	N/A
25.426	0.71	0.07	0.93	-0.06	1.00	0.089	46.55	95.13	0.135	N/A	0.85	0.40	0.80	0.81	1.00	0.128	2.23	108.32	0.198	N/A	N/A	N/A
25.590	0.71	0.07	0.93	-0.08	1.00	0.089	47.54	98.98	0.141	N/A	0.85	0.41	0.79	0.81	1.00	0.128	1.98	101.94	0.179	N/A	N/A	N/A
25.754	0.71	0.07	0.93	-0.09	1.00	0.089	48.23	100.70	0.144	N/A	0.85	0.42	0.79	0.81	1.00	0.129	1.77	92.96	0.155	N/A	N/A	N/A
25.918	0.71	0.07	0.93	-0.02	1.00	0.088	45.00	88.19	0.124	N/A	0.85	0.38	0.80	0.81	1.00	0.127	2.43	105.13	0.188	N/A	N/A	N/A
26.082	0.71	0.06	0.94	0.10	1.00	0.087	38.92	64.59	0.093	N/A	0.85	0.29	0.80	0.81	1.00	0.127	4.00	102.67	0.181	N/A	N/A	N/A
26.246	0.70	0.05	0.95	0.10	1.00	0.086	36.46	55.03	0.083	N/A	0.84	0.25	0.80	0.81	1.00	0.127	5.26	97.79	0.167	N/A	N/A	N/A
26.410	0.70	0.05	0.95	0.10	1.00	0.086	36.76	56.21	0.084	N/A	0.84	0.25	0.80	0.81	1.00	0.127	5.41	105.18	0.188	N/A	N/A	N/A
26.574	0.70	0.05	0.95	0.10	1.00	0.085	34.47	47.32	0.075	N/A	0.84	0.21	0.80	0.81	1.00	0.127	8.74	112.36	0.212	N/A	N/A	N/A
26.739	0.70	0.05	0.95	0.10	1.00	0.085	34.13	46.00	0.074	N/A	0.84	0.20	0.80	0.81	1.00	0.127	8.70	103.29	0.182	N/A	N/A	N/A
26.903	0.70	0.05	0.95	0.10	1.00	0.085	33.93	45.22	0.073	N/A	0.84	0.19	0.80	0.81	1.00	0.127	8.30	93.70	0.157	N/A	N/A	N/A
27.067	0.70	0.05	0.95	0.10	1.00	0.085	33.94	45.27	0.073	N/A	0.84	0.19	0.80	0.81	1.00	0.127	7.82	88.58	0.145	N/A	N/A	N/A
27.231	0.70	0.05	0.95	0.10	1.00	0.085	34.78	48.52	0.076	N/A	0.84	0.21	0.80	0.81	1.00	0.127	6.30	86.64	0.140	N/A	N/A	N/A
27.395	0.70	0.05	0.95	0.10	1.00	0.085	35.98	53.21	0.081	N/A	0.83	0.24	0.80	0.81	1.00	0.127	5.58	96.17	0.163	N/A	N/A	N/A
27.559	0.69	0.05	0.94	0.10	1.00	0.085	36.93	56.89	0.084	N/A	0.83	0.26	0.80	0.81	1.00	0.126	5.13	102.36	0.180	N/A	N/A	N/A
27.723	0.69	0.05	0.95	0.10	1.00	0.084	34.69	48.19	0.076	N/A	0.83	0.21	0.80	0.81	1.00	0.126	7.86	106.14	0.191	N/A	N/A	N/A
27.887	0.69	0.04	0.95	0.10	1.00	0.084	33.38	43.08	0.071	N/A	0.83	0.18	0.80	0.81	1.00	0.126	10.08	97.80	0.167	N/A	N/A	N/A
28.051	0.69	0.04	0.95	0.10	1.00	0.084	33.10	42.02	0.070	N/A	0.83	0.17	0.80	0.80	1.00	0.126	10.25	91.42	0.151	N/A	N/A	N/A
28.215	0.69	0.04	0.95	0.10	1.00	0.084	33.18	42.34	0.071	N/A	0.83	0.17	0.80	0.80	1.00	0.126	9.95	91.09	0.150	N/A	N/A	N/A
28.379	0.69	0.04	0.95	0.10	1.00	0.084	33.28	42.72	0.071	N/A	0.83	0.18	0.80	0.80	1.00	0.126	9.98	94.12	0.158	N/A	N/A	N/A
28.543	0.69	0.04	0.95	0.10	1.00	0.083	33.30	42.77	0.071	N/A	0.83	0.18	0.80	0.80	1.00	0.126	10.07	95.46	0.161	N/A	N/A	N/A
28.707	0.68	0.05	0.95	0.10	1.00	0.083	33.83	44.86	0.073	N/A	0.82	0.19	0.80	0.80	1.00	0.126	8.77	96.68	0.164	N/A	N/A	N/A
28.871	0.68	0.05	0.95	0.10	1.00	0.083	33.79	44.67	0.073	N/A	0.82	0.19	0.80	0.80	1.00	0.126	8.36	90.97	0.150	N/A	N/A	N/A
29.035	0.68	0.05	0.95	0.10	1.00	0.083	34.11	45.94	0.074	N/A	0.82	0.20	0.80	0.80	1.00	0.126	7.36	87.02	0.141	N/A	N/A	N/A
29.199	0.68	0.05	0.95	0.10	1.00	0.083	34.43	47.19	0.075	N/A	0.82	0.21	0.80	0.80	1.00	0.125	6.65	84.79	0.137	N/A	N/A	N/A
29.363	0.68	0.05	0.95	0.10	1.00	0.083	33.94	45.26	0.073	N/A	0.82	0.19	0.80	0.80	1.00	0.125	6.85	77.56	0.123	N/A	N/A	N/A
29.527	0.68	0.05	0.95	0.10	1.00	0.083	33.56	43.81	0.072	N/A	0.82	0.18	0.80	0.80	1.00	0.125	6.77	69.38	0.111	N/A	N/A	N/A
29.691	0.68	0.05	0.95	0.10	1.00	0.083	33.88	45.05	0.073	N/A	0.82	0.19	0.80	0.80	1.00	0.125	5.94	66.32	0.107	N/A	N/A	N/A
29.855	0.68	0.05	0.95	0.10	1.00	0.083	34.83	48.72	0.076	N/A	0.81	0.22	0.80	0.80	1.00	0.125	6.23	86.63	0.140	N/A	N/A	N/A
30.019	0.67	0.05	0.94	0.10	1.00	0.083	35.68	52.01	0.079	N/A	0.81	0.23	0.80	0.80	1.00	0.125	6.71	109.51	0.202	N/A	N/A	N/A
30.183	0.67	0.05	0.94	0.10	1.00	0.083	36.51	55.23	0.083	N/A	0.81	0.25	0.80	0.80	1.00	0.125	6.90	129.24	0.281	N/A	N/A	N/A
30.347	0.67	0.05	0.94	0.10	1.00	0.083	36.37	54.70	0.082	N/A	0.81	0.25	0.80	0.80	1.00	0.125	7.52	137.80	0.323	N/A	N/A	N/A
30.511	0.67	0.05	0.94	0.10	1.00	0.082	35.89	52.84	0.080	N/A	0.81	0.24	0.80	0.80	1.00	0.125	7.59	128.68	0.278	N/A	N/A	N/A
30.675	0.67	0.05	0.94	0.10	1.00	0.082	35.80	52.50	0.080	N/A	0.81	0.24	0.80	0.79	1.00	0.124	7.24	120.85	0.244	N/A	N/A	N/A
30.840	0.67	0.05	0.94	0.10	1.00	0.082	34.56	47.68	0.075	N/A	0.81	0.21	0.80	0.79	1.00	0.124	8.53	111.83	0.210	N/A	N/A	N/A
31.004	0.67	0.05	0.95	0.10	1.00	0.081	34.09	45.87	0.074	N/A	0.81	0.20	0.80	0.79	1.00	0.124	8.64	101.71	0.178	N/A	N/A	N/A
31.168	0.67	0.05	0.95	0.10	1.00	0.081	33.84	44.88	0.073	N/A	0.80	0.19	0.80	0.79	1.00	0.124	8.05	88.88	0.145	N/A	N/A	N/A
31.332	0.66	0.05	0.95	0.10	1.00	0.081	34.09	45.84	0.074	N/A	0.80	0.20	0.80	0.79	1.00	0.124	7.57	89.05	0.146	N/A	N/A	N/A
31.496	0.66	0.05	0.94	0.10	1.00	0.081	34.55	47.65	0.075	N/A	0.80	0.21	0.80	0.79	1.00	0.124	6.93	90.72	0.149	N/A	N/A	N/A
31.660	0.66	0.05	0.94	0.10	1.00	0.081	35.67	51.98	0.079	N/A	0.80	0.23	0.80	0.79	1.00	0.124	6.33	103.19	0.182	N/A	N/A	N/A
31.824	0.66	0.05	0.94	0.10	1.00	0.081	36.57	55.48	0.083	N/A	0.80	0.25	0.80	0.79	1.00	0.124	6.14	116.12	0.226	N/A	N/A	N/A
31.988	0.66	0.05	0.94	0.10	1.00	0.081	37.00	57.15	0.085	N/A	0.80	0.26	0.80	0.79	1.00	0.124	6.27	126.37	0.268	N/A	N/A	N/A
32.152	0.66	0.05	0.94	0.10	1.00	0.081	36.57	55.46	0.083	N/A	0.80	0.25	0.80	0.79	1.00	0.123	7.16	135.29	0.310	N/A	N/A	N/A
32.316	0.66	0.05	0.94	0.10	1.00	0.081	35.93	53.01	0.080	N/A	0.79	0.24	0.80	0.79	1.00	0.123	8.00	136.56	0.317	N/A	N/A	N/A
32.480	0.66	0.05	0.94	0.10	1.00	0.080	35.25	50.36	0.078	N/A	0.79	0.22	0.80	0.79	1.00	0.123	8.54	129.01	0.280	N/A	N/A	N/A
32.644	0.65	0.05	0.94	0.10	1.00	0.080	34.41	47.08	0.075	N/A	0.79	0.21	0.80	0.79	1.00	0.123	9.35	118.53	0.235	N/A	N/A	N/A

0.96	54.16	5.19	66.33	15.256		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.96	43.69	4.18	53.49	15.420		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.95	38.00	3.64	46.53	15.584		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.94	38.54	3.69	47.19	15.748		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.94	44.79	4.29	54.85	15.912		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.94	56.51	5.41	69.19	16.076	12	0.95	10	7	0.41	0.57	0.65	5.5	12.3	0.13	N/A	5.00	1.20	13.17	0.142	N/A	N/A
0.93	61.29	5.87	75.06	16.240		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.93	55.24	5.29	67.64	16.404		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.92	50.64	4.85	62.01	16.568		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.91	41.08	3.93	50.30	16.732		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	35.98	3.44	44.06	16.896		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	39.57	3.79	48.45	17.060		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.89	37.92	3.63	46.43	17.224		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	32.86	3.15	40.23	17.388		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	31.96	3.06	39.13	17.552		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	37.80	3.62	46.28	17.716		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	45.32	4.34	55.49	17.880		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	56.53	5.41	69.22	18.044		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	72.77	6.97	89.11	18.208		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.89	80.87	7.74	99.03	18.372		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.89	96.13	9.20	117.71	18.537		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.91	137.30	13.14	168.12	18.701		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.93	223.17	21.37	273.27	18.865		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.93	212.19	20.31	259.83	19.029		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	144.00	13.79	176.33	19.193		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	113.79	10.89	139.34	19.357		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.84	55.98	5.36	68.55	19.521		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.82	43.16	4.13	52.85	19.685		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.82	41.27	3.95	50.53	19.849		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.81	36.71	3.51	44.96	20.013		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.80	35.03	3.35	42.90	20.177		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.80	35.86	3.43	43.91	20.341		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	36.46	3.49	44.65	20.505		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.76	10.74	1.03	13.15	20.669		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	43.08	4.12	52.75	20.833		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	45.62	4.37	55.87	20.997	10	0.95	9	5	0.36	0.60	0.58	5.5	10.6	0.12	N/A	5.00	1.20	11.10	0.123	N/A	N/A
0.79	45.06	4.31	55.18	21.161		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	50.33	4.82	61.62	21.325		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	55.50	5.31	67.96	21.489		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	57.32	5.49	70.19	21.653		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.79	56.89	5.45	69.67	21.817		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.78	55.37	5.30	67.80	21.981		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.78	51.81	4.96	63.44	22.145		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.77	48.46	4.64	59.34	22.309		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.76	43.72	4.19	53.54	22.473		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.75	38.50	3.69	47.14	22.638		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.74	34.91	3.34	42.74	22.802		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.74	39.30	3.76	48.13	22.966		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.75	45.91	4.40	56.22	23.130		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.75	48.73	4.67	59.67	23.294		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.75	50.14	4.80	61.40	23.458		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.75	50.23	4.81	61.50	23.622		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.74	47.08	4.51	57.65	23.786		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.73	44.23	4.23	54.16	23.950		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.72	40.87	3.91	50.04	24.114		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.72	42.09	4.03	51.54	24.278		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.71	40.43	3.87	49.50	24.442		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.72	42.66	4.08	52.24	24.606		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.71	42.47	4.07	52.00	24.770		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.69	33.60	3.22	41.14	24.934		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.69	31.70	3.03	38.81	25.098		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.70	37.77	3.62	46.25	25.262		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.70	39.67	3.80	48.58	25.426		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.70	42.01	4.02	51.44	25.590		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.70	42.85	4.10	52.47	25.754		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	35.27	3.38	43.19	25.918		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.64	20.96	2.01	25.67	26.082	12	0.95	10	6	0.38	0.59	0.54	5.6	11.3	0.13	N/A	5.00	1.20	11.84	0.130	N/A	N/A
0.63	15.17	1.45	18.58	26.246		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	15.89	1.52	19.45	26.410		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	10.50	1.00	12.85	26.574		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	9.70	0.93	11.88	26.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	9.22	0.88	11.29	26.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	9.26	0.89	11.33	27.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	11.22	1.07	13.74	27.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	14.06	1.35	17.22	27.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.60	16.30	1.56	19.96	27.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.60	11.02	1.06	13.50	27.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.60	7.93	0.76	9.71	27.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	7.28	0.70	8.92	28.051		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	7.48	0.72	9.15	28.215		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	7.71	0.74	9.44	28.379		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	7.74	0.74	9.48	28.543		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.58	9.00	0.86	11.02	28.707		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.58	8.89	0.85	10.89	28.871		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.58	9.66	0.92	11.83	29.035		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.57	10.42	1.00	12.76	29.199		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.57	9.24	0.89	11.32	29.363		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.57	8.37	0.80	10.24	29.527		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.57	9.12	0.87	11.17	29.691		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	11.35	1.09	13.89	29.855		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	13.34	1.28	16.33	30.019		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	15.29	1.46	18.72	30.183		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	14.97	1.43	18.33	30.347		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.55	13.84	1.33	16.95	30.511		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.55	13.64	1.31	16.70	30.675		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.55	10.71	1.03	13.12	30.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.55	9.61	0.92	11.77	31.004	23	1.00	21	12	0.54	0.50	0.56	5.6	17.4	0.18	N/A	5.00	1.20	19.22	0.206	N/A	N/A
0.54	9.02	0.86	11.04	31.168		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.54	9.60	0.92	11.76	31.332		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.54	10.69	1.02	13.09	31.496		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.54	13.32	1.28	16.31	31.660		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	15.44	1.48	18.91	31.824		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	16.46	1.58	20.15	31.988		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	15.43	1.48	18.90	32.152		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	13.95	1.34	17.08	32.316		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	12.34	1.18	15.11	32.480		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.52	10.35	0.99	12.67	32.644		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

32.808	6927.35	19.0	0.927	18.9	12.1	5.25	4.88%	Fine Alluvium	0.060	120.7	1.88	0.000	1.88	0	0.52	9.871	0.95	12.13	9	5.41%	3.2	76%
32.972	6927.19	17.2	0.805	17.1	11.9	5.14	4.69%	Fine Alluvium	0.060	120.7	1.89	0.000	1.89	0	0.52	8.869	0.85	10.91	8	5.27%	3.2	76%
33.136	6927.02	15.3	0.683	15.2	11.7	5.08	4.46%	Fine Alluvium	0.060	120.7	1.90	0.000	1.90	0	0.52	7.876	0.75	9.69	7	5.10%	3.3	76%
33.300	6926.86	15.2	0.540	15.2	11.8	5.10	3.54%	Fine Alluvium	0.060	120.7	1.91	0.000	1.91	0	0.52	7.814	0.75	9.61	7	4.05%	3.2	76%
33.464	6926.70	22.4	0.463	22.3	11.9	5.14	2.07%	Fine Alluvium	0.060	120.7	1.92	0.000	1.92	0	0.51	11.445	1.10	14.06	11	2.26%	2.9	76%

32.808	2.71	0.000	2.71	0	0	0.65	0.05	0.94	0.10	1.00	0.080	34.22	46.35	0.074	N/A
32.972	2.72	0.000	2.72	0	0	0.65	0.05	0.94	0.10	1.00	0.080	33.79	44.70	0.073	N/A
33.136	2.73	0.000	2.73	0	0	0.65	0.04	0.95	0.10	1.00	0.079	33.37	43.06	0.071	N/A
33.300	2.74	0.000	2.74	0	0	0.65	0.04	0.95	0.10	1.00	0.079	33.34	42.96	0.071	N/A
33.464	2.75	0.000	2.75	0	0	0.65	0.05	0.94	0.10	1.00	0.080	34.89	48.95	0.076	N/A

32.808	0.79	0.20	0.80	0.79	1.00	0.123	8.98	109.00	0.200	N/A	N/A	N/A	0.52	9.91	0.95	12.13	32.808
32.972	0.79	0.19	0.80	0.79	1.00	0.123	9.46	103.22	0.182	N/A	N/A	N/A	0.52	8.91	0.85	10.91	32.972
33.136	0.79	0.18	0.80	0.79	1.00	0.123	10.01	97.04	0.165	N/A	N/A	N/A	0.52	7.91	0.76	9.69	33.136
33.300	0.79	0.18	0.80	0.79	1.00	0.123	9.23	88.78	0.145	N/A	N/A	N/A	0.52	7.85	0.75	9.61	33.300
33.464	0.79	0.22	0.80	0.78	1.00	0.122	5.75	80.88	0.129	N/A	N/A	N/A	0.51	11.48	1.10	14.06	33.464

32.808	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.972	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.136	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.300	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.464	1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-08

Data File: 13-52118_RP08-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP08-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

Value	Parameter
0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N

Value	Parameter
6976.04	Ground Surface Elevation at time of CPT (ft amsl)
6990.26	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after Placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
0.83	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6931.50	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom of Layer (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6990.3	6989.5	6988.8	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6988.8	6987.3	6985.8	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6985.8	6980.9	6976.0	9.7	0.058	116.4	0.828	0.545	0.00	0.00	0.828	0.545

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Equil Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F_r (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)	Will soil behave as saturated during earthquake? 1=Yes 0=No	Is soil susceptible or mod susceptible to 1=Yes 0=No
0.164	6975.88	6.9	0.010	6.9	0.1	0.06	0.15%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	1.70	11.696	1.12	14.32	685	0.15%	0.7	59%	0.84	0.000	0.84	0	0
0.328	6975.71	23.1	0.045	23.1	0.3	0.14	0.19%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1.70	39.338	3.77	48.17	1153	0.19%	0.7	59%	0.85	0.000	0.85	0	0
0.492	6975.55	48.4	0.210	48.4	1.8	0.79	0.43%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1.70	82.246	7.88	100.73	1607	0.43%	0.9	59%	0.86	0.000	0.86	0	0
0.656	6975.38	65.4	0.422	65.4	1.5	0.65	0.65%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1.70	111.163	10.65	136.14	1629	0.65%	1.1	59%	0.87	0.000	0.87	0	0
0.820	6975.22	84.7	0.445	84.7	2.4	1.06	0.53%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	1.70	144.007	13.79	176.37	1688	0.53%	1.0	59%	0.88	0.000	0.88	0	0
0.984	6975.06	95.9	0.656	95.9	2.9	1.24	0.68%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1.70	163.064	15.62	199.71	1593	0.68%	1.1	59%	0.89	0.000	0.89	0	0
1.148	6974.89	91.0	0.730	91.0	3.5	1.53	0.80%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1.70	154.734	14.82	189.52	1296	0.80%	1.2	59%	0.90	0.000	0.90	0	0
1.312	6974.73	83.7	0.845	83.7	1.8	0.77	1.01%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1.70	142.273	13.63	174.24	1042	1.01%	1.3	59%	0.91	0.000	0.91	0	0
1.476	6974.56	88.8	1.305	88.8	0.9	0.39	1.47%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1.70	150.943	14.46	184.84	983	1.47%	1.5	59%	0.92	0.000	0.92	0	0
1.640	6974.40	111.4	1.803	111.4	1.2	0.51	1.62%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1.70	189.295	18.13	231.81	1109	1.62%	1.5	59%	0.93	0.000	0.93	0	0
1.804	6974.24	148.7	2.483	148.7	0.8	0.35	1.67%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1.70	252.146	24.15	308.77	1347	1.67%	1.5	59%	0.94	0.000	0.94	0	0
1.968	6974.07	180.4	2.837	180.4	0.4	0.16	1.57%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1.66	298.924	28.63	366.04	1498	1.57%	1.4	59%	0.95	0.000	0.95	0	0
2.133	6973.91	174.5	4.657	174.5	0.1	0.02	2.67%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1.62	283.554	27.16	347.22	1344	2.67%	1.7	48%	0.96	0.000	0.96	0	0
2.297	6973.74	218.5	6.727	218.5	-0.2	-0.08	3.08%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1.60	348.567	33.39	426.82	1570	3.08%	1.7	48%	0.97	0.000	0.97	0	0
2.461	6973.58	212.8	7.916	212.8	0.2	0.08	3.72%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1.57	333.751	31.97	408.68	1433	3.72%	1.8	48%	0.98	0.000	0.98	0	0
2.625	6973.42	184.0	7.494	184.0	-1.9	-0.81	4.07%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1.54	283.963	27.20	347.69	1166	4.08%	1.9	48%	0.99	0.000	0.99	0	0
2.789	6973.25	198.4	6.167	198.4	-1.0	-0.45	3.11%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1.52	301.576	28.89	369.27	1187	3.11%	1.8	48%	0.99	0.000	0.99	0	0
2.953	6973.09	204.8	6.219	204.8	5.8	2.52	3.04%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1.50	306.840	29.39	375.80	1160	3.04%	1.8	48%	1.00	0.000	1.00	0	0
3.117	6972.92	227.6	7.252	227.5	12.3	5.35	3.19%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1.48	336.232	32.21	411.86	1224	3.19%	1.8	48%	1.01	0.000	1.01	0	0
3.281	6972.76	245.8	8.737	245.8	3.9	1.67	3.55%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.46	358.597	34.35	439.15	1259	3.56%	1.8	48%	1.02	0.000	1.02	0	0
3.445	6972.60	236.6	9.263	236.6	0.0	0.00	3.92%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.44	340.971	32.66	417.52	1157	3.92%	1.9	48%	1.03	0.000	1.03	0	0
3.609	6972.43	220.6	8.373	220.6	-4.4	-1.91	3.80%	General Fill	0.057	113.8	0.21	0.000	0.21	0	1.42	314.189	30.09	384.68	1031	3.80%	1.9	48%	1.04	0.000	1.04	0	0
3.773	6972.27	192.2	7.383	192.2	-6.0	-2.58	3.84%	General Fill	0.057	113.8	0.22	0.000	0.22	0	1.41	270.725	25.93	331.44	861	3.85%	1.9	48%	1.05	0.000	1.05	0	0
3.937	6972.10	183.7	7.063	183.7	-4.0	-1.75	3.85%	General Fill	0.057	113.8	0.23	0.000	0.23	0	1.39	255.915	24.51	313.33	789	3.85%	1.9	48%	1.06	0.000	1.06	0	0
4.101	6971.94	162.2	6.620	162.2	-2.6	-1.12	4.08%	General Fill	0.057	113.8	0.24	0.000	0.24	0	1.38	223.654	21.42	273.84	670	4.09%	1.9	48%	1.07	0.000	1.07	0	0
4.265	6971.77	127.4	4.743	127.4	-2.1	-0.91	3.72%	General Fill	0.057	113.8	0.25	0.000	0.25	0	1.43	181.677	17.40	222.44	506	3.73%	1.9	48%	1.08	0.000	1.08	0	0
4.429	6971.61	108.7	3.056	108.7	-0.6	-0.24	2.81%	General Fill	0.057	113.8	0.26	0.000	0.26	0	1.47	159.597	15.29	195.42	417	2.82%	1.9	48%	1.09	0.000	1.09	0	0
4.593	6971.45	99.5	2.493	99.5	0.1	0.02	2.51%	General Fill	0.057	113.8	0.27	0.000	0.27	0	1.48	147.610	14.14	180.75	368	2.51%	1.9	48%	1.10	0.000	1.10	0	0
4.757	6971.28	92.4	2.478	92.4	-0.1	-0.02	2.68%	General Fill	0.057	113.8	0.28	0.000	0.28	0	1.49	138.008	13.22	168.99	330	2.69%	1.9	48%	1.11	0.000	1.11	0	0
4.921	6971.12	90.1	2.219	90.1	0.1	0.04	2.46%	General Fill	0.057	113.8	0.29	0.000	0.29	0	1.49	133.904	12.83	163.97	311	2.47%	1.9	48%	1.12	0.000	1.12	0	0
5.085	6970.95	96.8	2.321	96.8	0.1	0.02	2.40%	General Fill	0.057	113.8	0.30	0.000	0.30	0	1.45	140.480	13.46	172.02	324	2.40%	1.9	48%	1.13	0.000	1.13	0	0
5.249	6970.79	118.6	3.164	118.6	0.9	0.39	2.67%	General Fill	0.057	113.8	0.31	0.000	0.31	0	1.38	163.641	15.67	200.39	385	2.67%	1.9	48%	1.13	0.000	1.13	0	0
5.413	6970.63	183.5	4.921	183.5	1.2	0.51	2.68%	General Fill	0.057	113.8	0.32	0.000	0.32	0	1.28	235.663	22.57	288.58	579	2.69%	1.8	48%	1.14	0.000	1.14	0	0
5.577	6970.46	294.0	6.122	294.0	1.6	0.71	2.08%	General Fill	0.057	113.8	0.33	0.000	0.33	0	1.27	374.638	35.88	458.76	902	2.08%	1.6	48%	1.15	0.000	1.15	0	0
5.741	6970.30	434.2	6.829	434.2	0.7	0.30	1.57%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.26	549.232	52.61	672.55	1295	1.57%	1.5	48%	1.16	0.000	1.16	0	0
5.905	6970.13	475.3	6.720	475.3	0.8	0.36	1.41%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.26	596.893	57.17	730.91	1379	1.41%	1.4	48%	1.17	0.000	1.17	0	0
6.069	6969.97	468.2	7.237	468.2	0.7	0.30	1.55%	General Fill	0.057	113.8	0.35	0.000	0.35	0	1.25	583.793	55.92	714.87	1323	1.55%	1.5	48%	1.18	0.000	1.18	0	0
6.234	6969.81	455.7	7.556	455.7	0.9	0.39	1.66%	General Fill	0.057	113.8	0.36	0.000	0.36	0	1.24	564.401	54.06	691.12	1254	1.66%	1.5	48%	1.19	0.000	1.19	0	0
6.398	6969.64	424.2	7.443	424.2	0.6	0.24	1.75%	General Fill	0.057	113.8	0.37	0.000	0.37	0	1.23	521.895	49.99	639.07	1138	1.76%	1.5	48%	1.20	0.000	1.20	0	0
6.562	6969.48	382.1	7.390	382.1	0.6	0.26	1.93%	General Fill	0.057	113.8	0.38	0.000	0.38	0	1.22	467.006	44.73	571.86	1000	1.94%	1.6	48%	1.21	0.000	1.21	0	0
6.726	6969.31	362.3	7.001	362.3	-0.4	-0.16	1.93%	General Fill	0.057	113.8	0.39	0.000	0.39	0	1.21	439.968	42.14	538.74	925	1.93%	1.6	48%	1.22	0.000	1.22	0	0
6.890	6969.15	310.0	6.544	310.0	-1.9	-0.83	2.11%	General Fill	0.057	113.8	0.40	0.000	0.40	0	1.21	374.166	35.84	458.15	773	2.11%	1.7	48%	1.23	0.000	1.23	0	0
7.054	6968.99	241.5	5.781	241.5	-1.4	-0.61	2.39%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	1.20	289.789	27.76	354.84	589	2.40%	1.7	21%	1.24	0.000	1.24	0	0
7.218	6968.82	226.4	4.982	226.4	0.1	0.06	2.20%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	1.19	270.126	25.87	330.77	540	2.20%	1.7	21%	1.25	0.000	1.25	0	0
7.382	6968.66	150.1	4.120	150.1	-0.1	-0.04	2.74%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	1.21	182.314	17.46	223.24	351	2.75%	1.9	21%	1.25	0.000	1.25	0	0
7.546	6968.49	104.5	3.636	104.5	0.8	0.33	3.48%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	1.27	132.939	12.73	162.79	239	3.49%	2.1	21%	1.26	0.000	1.26	0	0
7.710	6968.33	92.0	3.561	92.0	12.0	5.19	3.87%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	1.28	118.139	11.32	144.78	206	3.89%	2.1	21%	1.27	0.000	1.27	0	0
7.874	6968.17	125.7	3.834	125.6	11.7	5.07	3.05%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	1.22	153.895	14.74	188.56	276	3.06%	2.0	21%	1.28	0.000	1.28	0	0
8.038	6968.00	160.9	4.546	160.8	11.5	4.96	2.83%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	1.18	189.535	18.15	232.19	347	2.83%	1.9	21%	1.29	0.000	1.29	0	0
8.202	6967.84	171.0	4.787	170.9	15.0	6.49	2.80%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	1.16	198.894	19.05	243.68	362	2.81%	1.9	21%	1.30	0.000	1.30	0	0
8.366	6967.67	318.5	4.550	318.3	39.6	17.14	1.43%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	1.15	366.174	35.07	448.73	662	1.43%	1.5	21%	1.31	0.000	1.31	0	0
8.530	6967.51	305.5	3.463	305.4	22.2	9.62	1.13%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	1.14	349.596	33.49	428.28	624	1.14%	1.4	21%	1.32	0.000	1.32	0	0
8.694	6967.35	303.3	3.117	303.3	14.4	6.22	1.03%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	1.14	345.550	33.10	423.25	608	1.03%	1.4	21%	1.33	0.000	1.33	0	0
8.858	6967.18	344.4	3.532	344.3	13.9	6.04	1.03%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	1.13	390.501	37.40	478.29	679	1.03%	1.4	21%	1.33	0.000	1.33	0	0
9.022	6967.02	373.0	4.256	372.9	14.6	6.31	1.14%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	1.13	420.951	40.32	515.58	722	1.14%	1.4	21%	1.34	0.000	1.34	0	0
9.186	6966.85	418.1	4.463	418.0	10.2	4.41	1.07%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	1.12	469.784	45.00	575.34	796	1.07%	1.4	21%	1.35	0.000	1.35	0	0
9.350	6966.69	435.2	4.356	435.1	7.9	3.41	1.00%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	1.12	486.890	46.64	596.27	815	1.00%	1.3	21%	1.36	0.000	1.36	0	0
9.514	6966.53	425.0	4.519	425.0	6.5	2.81	1.06%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	1.11	473.491	45.35	579.85	783	1.06%	1.4	21%	1.37	0.000	1.37	0	0
9.678	6966.36	395.7	4.420	395.7	5.0	2.15	1.12%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	1.11	438.943	42.04	537.53	717	1.12%	1.4	21%	1.38	0.000	1.38	0	0
9.842	6966.20	358.2	4.302	358.1	4.7	2.05	1.20%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	1.10	395.629	37.90	484.49	639	1.20%	1.5	21%	1.39	0.000	1.39	0	0
10.006	6966.03	343.0	4.019	343.0	4.3	1.85	1.17%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	1.10	377.304	36.14	462.05	602	1.17%	1.5	21%	1.40	0.000	1.40	0	0
10.170	6965.87	321.1	3.920	321.1	4.7	2.05	1.22%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	1.10	351.817	33.70	430.84	555	1.22%	1.5	21%	1.41	0.000	1.41	0	0
10.335	6965.71	310.1	3.631	310.1	3.8	1.65	1.17%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	1.09	338.370	32.41	414.37	528	1.17%	1.5	21%	1.41	0.000	1.41	0	0
10.499	6965.54	284.3	3.480	284.3	3.1	1.32	1.22%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	1.09	308.980	29.60	378.37	476	1.23%	1.5	21%	1.42	0.000	1.42	0	0
10.663	6965.38	270.7	3.081	270.7	2.8	1.20	1.14%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	1.08	293.074	28.07	358.90	447	1.14%	1.5	21%	1.43	0.000	1.43	0	0
10.827	6965.21	257.8	3.174	257.8	2.4	1.04	1.23%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	1.08	277.994	26.63	340.43	419	1.23%	1.6	21%	1.44	0.000	1.44	0	0
10.991	6965.05	228.0	3.932	228.0	2.4	1.02	1.72%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	1.07	244.967	23.46	299.98	366	1.73%	1.7	21%	1.45	0.000	1.45	0	0
11.155	6964.89	196.5	4.039	196.4	2.8	1.22	2.06%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	1.07	210.281	20.14	257.51	310	2.06%	1.8	21%	1.46	0.000	1.46	0	0
11.319	6964.72	180.6	3.584	180.6	3.1	1.32	1.98%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	1.07	193.501	18.53	236.97	281	1.99%	1.8	21%	1.47	0.000	1.47	0	0
11.483	6964.56	171.0	2.616	170.9	2.3	0.98	1.53%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	1.07	183.112	17.54	224.24	263	1.54%	1.8	21%	1.48	0.000	1.48	0	0
11.647	6964.39	149.9	1.910	149.9	1.9	0.83	1.27%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	1.07	161.074	15.43	197.25	227	1.28%	1.7	21%	1.49	0.000	1.49	0	0
11.811	6964.23	141.0	2.061	141.0	2.0	0.88	1.46%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	1.07	151.378	14.50	185.38	211	1.47%	1.8	21%	1.49	0.000	1.49	0	0
11.975	6964.07	141.3	2.024	141.3	1.7	0.73	1.43%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	1.07	151.039	14.47	184.96	208	1.44%	1.8	21%	1.50	0.000	1.50	0	0
12.139	6963.90	137.2	1.911	137.2	1.6	0.69	1.39%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	1.07	146.227	14.01	179.07	200	1.40%	1.8	21%	1.51	0.000	1.51	0	0
12.303	6963.74	148.3	1.655	148.3	1.6	0.71	1.12%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	1.06	156.773	15.02	191.98	213	1.12%	1.7	21%	1.52	0.000	1.52	0	0
12.467	6963.57	171.9	1.533	171.9	1.8	0.79	0.89%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	1.05	179.985	17.24	220.41	244	0.90%	1.6	21%	1.53	0.000	1.53	0	0
12.631	6963.41	177.1	1.749	177.1	1.9	0.81	0.99%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	1.04	184.579	17.68	226.03	248	0.99%	1.6	21%	1.54	0.000	1.54	0	0
12.795	6963.24	188.7	1.928	188.7	2.1	0.89	1.02%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	1.04	195.549	18.73	239.47	261	1.03%	1.6	21%	1.55	0.000	1.55	0	0
12.959	6963.08	214.1	2.066	214.1	1.9	0.81	0.96%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	1.03	220.646	21.13	270.20	293	0.97%	1.6	21%	1.56	0.000	1.56	0	0
13.123	6962.92	223.6	2.279	223.6	2.0	0.88	1.02%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	1.03	229.703	22.00	281.29	302	1.02%	1.6	21%	1.57	0.000	1.57	0	0
13.287	6962.75	247.1	2.375	247.1	1.8	0.79	0.96%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	1.02	253.066	24.24	309.90	330	0.96%	1.5	21%	1.57	0.000	1.57	0	0
13.451	6962.59	254.8	2.530	254.8	1.6	0.71	0.99%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	1.02	260.150	24.92	318.57	337	1.00%	1.5	21%	1.58	0.000	1.58	0	0
13.615	6962.42	246.9	2.534	246.9	1.8	0.77	1.03%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	1.02	251.310	24.07	307.75	322	1.03%	1.6	21%	1.59	0.000	1.59	0	0
13.779	6962.26	238.6	2.398	238.6	1.5	0.63	1.01%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	1.01	242.073	23.19	296.43	308	1.01%	1.6	21%	1.60	0.000	1.60	0	0
13.943	6962.10	226.5	2.107	226.5	1.5	0.63	0.93%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	1.01	229.155	21.95	280.61	289	0.93%	1.6	21%	1.61	0.000	1.61	0	0
14.107	6961.93	214.2	2.003	214.2	1.5	0.63	0.93%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	1.01	216.068	20.70	264.59	270	0.94%	1.6	21%	1.62	0.000	1.62	0	0
14.271	6961.77	200.1	1.891	200.1	2.1	0.89	0.95%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	1.01	201.240	19.28	246.44	249	0.95%	1.6	21%	1.63	0.000	1.63	0	0
14.436	6961.60	192.5	1.806	192.5	2.3	0.98	0.94%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	1.00	193.058	18.49	236.42	237	0.94%	1.6	21%	1.64	0.000	1.64	0	0
14.600	6961.44	184.8	1.764	184.8	1.6	0.67	0.95%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	1.00	184.741	17.70	226.23	225	0.96%	1.6	21%	1.64	0.000	1.64	0	0
14.764	6961.28	179.0	1.664	179.0	1.1	0.49	0.93%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	1.00	178.421	17.09	218.49	216	0.93%	1.6	21%	1.65	0.000	1.65	0	0
14.928	6961.11	176.7	1.460	176.7	1.3	0.55	0.83%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	0.99	175.538	16.81	214.96	211	0.83%	1.6	21%	1.66	0.000	1.66	0	0
15.092	6960.95	176.2	1.439	176.2	1.2	0.53	0.82%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0	0.99	174.390	16.70	213.55	208	0.82%	1.6	21%	1.67	0.000	1.67	0	0

Liquefaction Triggering Analyses Using CPT Data

Depth (ft)	I&B (2008) CSR: r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'=1atm	CRR: Δqc_{1N}	qc_{1N-cs}	CRR M=7.5, σ'=1atm	FoS	Youd (2001) CSR: r_d	D_r	f	K_σ	K_α	CSR M=7.5	K_c	qc_{1N-cs}	(CRR) M=7.5	FoS	Average FoS	Liquefiable? 1=Yes 0=No	I&B (2008): CN	qc1 TSF	qc1 MPa	qc1N
0.164	0.92	0.05	1.00	0.10	1.00	0.106	35.28	49.61	0.077	N/A	0.97	0.22	0.80	0.99	1.00	0.119	1.00	14.32	0.062	N/A	N/A	N/A	1.70	11.70	1.12	14.32
0.328	0.92	0.07	1.00	-0.09	1.00	0.106	47.14	95.31	0.135	N/A	0.97	0.40	0.80	0.99	1.00	0.119	1.00	48.17	0.090	N/A	N/A	N/A	1.70	39.34	3.77	48.17
0.492	0.92	0.11	0.99	-0.38	1.00	0.106	65.55	166.29	0.373	N/A	0.97	0.58	0.71	0.99	1.00	0.120	1.00	100.73	0.175	N/A	N/A	N/A	1.70	82.27	7.88	100.73
0.656	0.92	0.14	0.99	-0.51	1.00	0.105	77.95	214.09	1.000	N/A	0.97	0.67	0.66	0.98	1.00	0.121	1.00	136.14	0.315	N/A	N/A	N/A	1.70	111.18	10.64	136.14
0.820	0.91	0.20	0.99	-0.60	1.00	0.104	92.05	268.42	1.000	N/A	0.96	0.77	0.62	0.97	1.00	0.121	1.00	176.37	1.000	N/A	N/A	N/A	1.70	144.03	13.79	176.37
0.984	0.91	0.26	0.98	-0.60	1.00	0.103	100.22	299.93	1.000	N/A	0.96	0.82	0.60	0.97	1.00	0.122	1.00	199.71	1.000	N/A	N/A	N/A	1.70	163.09	15.61	199.71
1.148	0.91	0.23	0.98	-0.60	1.00	0.103	96.65	286.17	1.000	N/A	0.96	0.79	0.60	0.96	1.00	0.122	1.00	189.52	1.000	N/A	N/A	N/A	1.70	154.77	14.82	189.52
1.312	0.91	0.20	0.98	-0.60	1.00	0.103	91.30	265.54	1.000	N/A	0.96	0.76	0.62	0.96	1.00	0.123	1.00	174.24	1.000	N/A	N/A	N/A	1.70	142.29	13.62	174.24
1.476	0.91	0.22	0.97	-0.60	1.00	0.102	95.01	279.86	1.000	N/A	0.96	0.78	0.61	0.96	1.00	0.123	1.00	184.84	1.000	N/A	N/A	N/A	1.70	150.95	14.45	184.84
1.640	0.91	0.30	0.96	-0.60	1.00	0.101	111.47	343.27	1.000	N/A	0.96	0.88	0.60	0.95	1.00	0.124	1.00	231.81	1.000	N/A	N/A	N/A	1.70	189.31	18.12	231.81
1.804	0.91	0.30	0.96	-0.60	1.00	0.101	138.42	447.19	1.000	N/A	0.96	1.01	0.60	0.95	1.00	0.124	1.00	308.77	1.000	N/A	N/A	N/A	1.70	252.15	24.14	308.77
1.968	0.91	0.30	0.96	-0.60	1.00	0.100	158.48	524.53	1.000	N/A	0.96	1.10	0.60	0.94	1.00	0.125	1.00	366.04	1.000	N/A	N/A	N/A	1.66	298.93	28.62	366.04
2.133	0.90	0.30	0.95	-0.60	1.00	0.100	152.12	499.34	1.000	N/A	0.96	1.08	0.60	0.94	1.00	0.125	1.03	356.03	1.000	N/A	N/A	N/A	1.62	283.55	27.15	347.22
2.297	0.90	0.30	0.95	-0.60	1.00	0.099	180.05	606.87	1.000	N/A	0.96	1.19	0.60	0.93	1.00	0.126	1.06	451.74	1.000	N/A	N/A	N/A	1.60	348.57	33.37	426.82
2.461	0.90	0.30	0.95	-0.60	1.00	0.099	173.69	582.37	1.000	N/A	0.96	1.17	0.60	0.93	1.00	0.126	1.12	457.74	1.000	N/A	N/A	N/A	1.57	333.75	31.95	408.68
2.625	0.90	0.30	0.94	-0.60	1.00	0.098	152.29	499.99	1.000	N/A	0.96	1.08	0.60	0.93	1.00	0.127	1.17	405.23	1.000	N/A	N/A	N/A	1.54	283.95	27.18	347.69
2.789	0.90	0.30	0.94	-0.60	1.00	0.098	159.86	529.13	1.000	N/A	0.96	1.11	0.60	0.92	1.00	0.127	1.08	397.73	1.000	N/A	N/A	N/A	1.52	301.57	28.87	369.27
2.953	0.90	0.30	0.94	-0.60	1.00	0.097	162.15	537.95	1.000	N/A	0.96	1.12	0.60	0.92	1.00	0.128	1.07	402.78	1.000	N/A	N/A	N/A	1.50	306.89	29.38	375.80
3.117	0.90	0.30	0.94	-0.60	1.00	0.097	174.80	586.66	1.000	N/A	0.96	1.17	0.60	0.92	1.00	0.128	1.08	445.74	1.000	N/A	N/A	N/A	1.48	336.35	32.20	411.86
3.281	0.90	0.30	0.93	-0.60	1.00	0.097	184.38	623.52	1.000	N/A	0.96	1.21	0.60	0.91	1.00	0.128	1.11	489.00	1.000	N/A	N/A	N/A	1.46	358.63	34.34	439.15
3.445	0.89	0.30	0.93	-0.60	1.00	0.096	176.79	594.31	1.000	N/A	0.96	1.18	0.60	0.91	1.00	0.129	1.15	480.92	1.000	N/A	N/A	N/A	1.44	340.97	32.64	417.52
3.609	0.89	0.30	0.93	-0.60	1.00	0.096	165.27	549.95	1.000	N/A	0.96	1.13	0.60	0.91	1.00	0.129	1.15	442.65	1.000	N/A	N/A	N/A	1.42	314.15	30.08	384.68
3.773	0.89	0.30	0.93	-0.60	1.00	0.095	146.59	478.03	1.000	N/A	0.96	1.05	0.60	0.90	1.00	0.130	1.17	388.76	1.000	N/A	N/A	N/A	1.41	270.67	25.91	331.44
3.937	0.89	0.30	0.92	-0.60	1.00	0.095	140.24	453.56	1.000	N/A	0.96	1.02	0.60	0.90	1.00	0.130	1.18	370.79	1.000	N/A	N/A	N/A	1.39	255.88	24.50	313.33
4.101	0.89	0.30	0.92	-0.60	1.00	0.095	126.38	400.22	1.000	N/A	0.96	0.96	0.60	0.90	1.00	0.130	1.23	336.94	1.000	N/A	N/A	N/A	1.38	223.63	21.41	273.84
4.265	0.89	0.30	0.92	-0.60	1.00	0.094	108.35	330.79	1.000	N/A	0.96	0.86	0.60	0.89	1.00	0.131	1.24	275.41	1.000	N/A	N/A	N/A	1.43	181.66	17.39	222.44
4.429	0.89	0.25	0.93	-0.60	1.00	0.095	98.87	294.29	1.000	N/A	0.96	0.81	0.60	0.89	1.00	0.131	1.17	227.70	1.000	N/A	N/A	N/A	1.47	159.59	15.28	195.42
4.593	0.89	0.21	0.94	-0.60	1.00	0.096	93.72	274.47	1.000	N/A	0.96	0.78	0.61	0.89	1.00	0.131	1.15	207.78	1.000	N/A	N/A	N/A	1.48	147.61	14.13	180.75
4.757	0.88	0.19	0.94	-0.60	1.00	0.096	89.60	258.59	1.000	N/A	0.96	0.75	0.62	0.89	1.00	0.131	1.19	201.58	1.000	N/A	N/A	N/A	1.49	138.01	13.21	168.99
4.921	0.88	0.18	0.94	-0.59	1.00	0.096	87.84	251.80	1.000	N/A	0.96	0.74	0.63	0.89	1.00	0.131	1.18	192.78	1.000	N/A	N/A	N/A	1.49	133.90	12.82	163.97
5.085	0.88	0.20	0.94	-0.60	1.00	0.096	89.66	262.68	1.000	N/A	0.96	0.76	0.62	0.89	1.00	0.132	1.16	199.32	1.000	N/A	N/A	N/A	1.45	140.48	13.45	172.02
5.249	0.88	0.26	0.91	-0.60	1.00	0.093	100.61	301.00	1.000	N/A	0.95	0.82	0.60	0.88	1.00	0.133	1.16	232.74	1.000	N/A	N/A	N/A	1.38	163.65	15.67	200.39
5.413	0.88	0.30	0.90	-0.60	1.00	0.091	131.55	420.14	1.000	N/A	0.95	0.98	0.60	0.87	1.00	0.134	1.10	318.20	1.000	N/A	N/A	N/A	1.28	235.67	22.56	288.58
5.577	0.88	0.30	0.90	-0.60	1.00	0.091	191.26	650.02	1.000	N/A	0.95	1.24	0.60	0.87	1.00	0.134	1.00	458.76	1.000	N/A	N/A	N/A	1.27	374.65	35.87	458.76
5.741	0.88	0.30	0.89	-0.60	1.00	0.091	266.26	938.81	1.000	N/A	0.95	1.50	0.60	0.87	1.00	0.134	1.00	672.55	1.000	N/A	N/A	N/A	1.26	549.24	52.58	672.55
5.905	0.88	0.30	0.89	-0.60	1.00	0.091	286.73	######	1.000	N/A	0.95	1.56	0.60	0.87	1.00	0.135	1.00	730.91	1.000	N/A	N/A	N/A	1.26	596.90	57.15	730.91
6.069	0.87	0.30	0.89	-0.60	1.00	0.090	281.11	995.97	1.000	N/A	0.95	1.54	0.60	0.86	1.00	0.135	1.00	714.87	1.000	N/A	N/A	N/A	1.25	583.80	55.89	714.87
6.234	0.87	0.30	0.89	-0.60	1.00	0.089	272.78	963.90	1.000	N/A	0.95	1.52	0.60	0.86	1.00	0.135	1.00	691.12	1.000	N/A	N/A	N/A	1.24	564.41	54.04	691.12
6.398	0.87	0.30	0.88	-0.60	1.00	0.089	254.51	893.59	1.000	N/A	0.95	1.46	0.60	0.86	1.00	0.136	1.00	639.07	1.000	N/A	N/A	N/A	1.23	521.90	49.97	639.07
6.562	0.87	0.30	0.88	-0.60	1.00	0.089	230.93	802.79	1.000	N/A	0.95	1.38	0.60	0.85	1.00	0.136	1.00	571.86	1.000	N/A	N/A	N/A	1.22	467.01	44.71	571.86
6.726	0.87	0.30	0.88	-0.60	1.00	0.089	219.32	758.06	1.000	N/A	0.95	1.34	0.60	0.85	1.00	0.137	1.00	538.74	1.000	N/A	N/A	N/A	1.21	439.97	42.12	538.74
6.890	0.87	0.30	0.88	-0.60	1.00	0.088	191.04	649.20	1.000	N/A	0.95	1.24	0.60	0.85	1.00	0.137	1.00	459.97	1.000	N/A	N/A	N/A	1.21	374.15	35.82	458.15
7.054	0.87	0.30	0.88	-0.60	1.00	0.088	126.55	481.39	1.000	N/A	0.95	1.09	0.60	0.85	1.00	0.137	1.07	379.32	1.000	N/A	N/A	N/A	1.20	289.78	27.74	354.84
7.218	0.86	0.30	0.87	-0.60	1.00	0.087	119.65	450.43	1.000	N/A	0.95	1.05	0.60	0.84	1.00	0.138	1.06	349.63	1.000	N/A	N/A	N/A	1.19	270.13	25.86	330.77
7.382	0.86	0.30	0.88	-0.60	1.00	0.087	88.81	312.06	1.000	N/A	0.95	0.86	0.60	0.84	1.00	0.138	1.19	265.45	1.000	N/A	N/A	N/A	1.21	182.31	17.45	223.24
7.546	0.86	0.18	0.92	-0.59	1.00	0.092	71.47	234.26	1.000	N/A	0.95	0.74	0.63	0.85	1.00	0.136	1.41	229.43	1.000	N/A	N/A	N/A	1.27	132.94	12.73	162.79
7.710	0.86	0.15	0.93	-0.53	1.00	0.093	66.31	211.09	1.000	N/A	0.95	0.69	0.65	0.86	1.00	0.136	1.55	224.04	1.000	N/A	N/A	N/A	1.28	118.14	11.32	144.78
7.874	0.86	0.23	0.90	-0.60	1.00	0.089	78.86	267.42	1.000	N/A	0.95	0.79	0.60	0.84	1.00	0.138	1.29	243.21	1.000	N/A	N/A	N/A	1.22	153.98	14.74	188.56
8.038	0.86	0.30	0.86	-0.60	1.00	0.085	91.38	323.57	1.000	N/A	0.95	0.88	0.60	0.83	1.00	0.139	1.20	279.04	1.000	N/A	N/A	N/A	1.18	189.62	18.15	232.19
8.202	0.86	0.30	0.86	-0.60	1.00	0.085	94.67	338.35	1.000	N/A	0.95	0.90	0.60	0.83	1.00	0.140	1.19	289.91	1.000	N/A	N/A	N/A	1.16	199.00	19.05	243.68
8.366	0.86	0.30	0.86	-0.60	1.00	0.085	153.48	602.22	1.000	N/A	0.95	1.22	0.60	0.83	1.00	0.140	1.00	448.73	1.000	N/A	N/A	N/A	1.15	366.46	35.08	448.73
8.530	0.85	0.30	0.86	-0.60	1.00	0.085	147.62	575.90	1.000	N/A	0.95	1.19	0.60	0.83	1.00	0.140	1.00	428.28	1.000	N/A	N/A	N/A	1.14	349.75	33.49	428.28
8.694	0.85	0.30	0.85	-0.60	1.00	0.084	146.18	569.43	1.000	N/A	0.95	1.19	0.60	0.82	1.00	0.141	1.00	423.25	1.000	N/A	N/A	N/A	1.14	345.65	33.09	423.25
8.858	0.85	0.30	0.85	-0.60	1.00	0.084	161.96	640.26	1.000	N/A	0.95	1.26	0.60	0.82	1.00	0.141	1.00	478.29	1.000	N/A	N/A	N/A	1.13	390.60	37.40	478.29
9.022	0.85	0.30	0.85	-0.60	1.00	0.084	172.66	688.24	1.000	N/A	0.95	1.31	0.60	0.82	1.00	0.141	1.00	515.58	1.000	N/A	N/A	N/A	1.13	421.05	40.31	515.58
9.186	0.85	0.30	0.85	-0.60	1.00	0.084	189.80	765.14	1.000	N/A	0.95	1.38	0.60	0.82	1.00	0.141	1.00	575.34	1.000	N/A	N/A	N/A	1.12	469.86	44.98	575.34
9.350	0.85	0.30	0.85	-0.60	1.00	0.083	195.80	792.07	1.000	N/A	0.95	1.41	0.60	0.82	1.00	0.142	1.00	596.27	1.000	N/A	N/A	N/A	1.12	486.94	46.62	596.27
9.514	0.85	0.30	0.84	-0.60	1.00	0.083	191.09	770.94	1.000	N/A	0.94	1.39	0.60	0.81	1.00	0.142	1.00	579.85	1.000	N/A	N/A	N/A	1.11	473.54	45.34	579.85
9.678	0.84	0.30	0.84	-0.60	1.00	0.082	175.95	716.49	1.000	N/A	0.94	1.33	0.60	0.81	1.00	0.142	1.00	537.53	1.000	N/A	N/A	N/A	1.11	438.98	42.03	537.53
9.842	0.84	0.30	0.84	-0.60	1.00	0.082	163.74	648.23	1.000	N/A	0.94	1.27	0.60	0.81	1.00	0.143	1.00	484.49	1.000	N/A	N/A	N/A	1.10	395.66	37.88	484.49
10.006	0.84	0.30	0.84	-0.60	1.00	0.082	157.30	619.35	1.000	N/A	0.94	1.24	0.60	0.81	1.00	0.143	1.00	462.05	1.000	N/A	N/A	N/A	1.10	377.33	36.13	462.05
10.170	0.84	0.30	0.84	-0.60	1.00	0.081	148.35	579.20	1.000	N/A	0.94	1.20	0.60	0.80	1.00	0.143	1.00	430.84	1.000	N/A	N/A	N/A	1.10	351.85	33.69	430.84
10.335	0.84	0.30	0.84	-0.60	1.00	0.081	143.63	558.00	1.000	N/A	0.94	1.18	0.60	0.80	1.00	0.144	1.00	414.37	1.000	N/A	N/A	N/A	1.09	338.40	32.40	414.37
10.499	0.84	0.30	0.83	-0.60	1.00	0.081	133.30	511.68	1.000	N/A	0.94	1.12	0.60	0.80	1.00	0.144	1.00	378.37	1.000	N/A	N/A	N/A	1.09	309.00	29.58	378.37
10.663	0.84	0.30	0.83	-0.60	1.00	0.080	127.72	486.61	1.000	N/A	0.94	1.09	0.60	0.80	1.00	0.144	1.00	358.90	1.000	N/A	N/A	N/A	1.08	293.09	28.06	358.90
10.827	0.83	0.30	0.83	-0.60	1.00	0.080	122.42	462.85	1.000	N/A	0.94	1.07	0.60	0.80	1.00	0.145	1.00	340.43	1.000	N/A	N/A	N/A	1.08	278.01	26.62	340.43
10.991	0.83	0.30	0.83	-0.60	1.00	0.080	110.82	410.81	1.000	N/A	0.94	1.00	0.60	0.79	1.00	0.145	1.05	314.78	1.000	N/A	N/A	N/A	1.07	244.98	23.45	299.98
11.155	0.83	0.30	0.83	-0.60	1.00	0.079	98.64	356.15	1.000	N/A	0.94	0.93	0.60	0.79	1.00	0.145	1.12	288.73	1.000	N/A	N/A	N/A	1.07	210.30	20.13	257.51
11.319	0.83	0.30	0.82	-0.60	1.00	0.079	92.75	329.72	1.000	N/A	0.94	0.89	0.60	0.79	1.00	0.145	1.13	267.65	1.000	N/A	N/A	N/A	1.07	193.52	18.53	236.97
11.483	0.83	0.30	0.82	-0.60	1.00	0.079	89.10	313.34	1.000	N/A	0.94	0.86	0.60	0.79	1.00	0.146	1.08	241.75	1.000	N/A	N/A	N/A	1.07	183.13	17.53	224.24
11.647	0.83	0.25	0.85	-0.60	1.00	0.081	81.36	278.61	1.000	N/A	0.94	0.81	0.60	0.80	1.00	0.146	1.06	209.09	1.000	N/A	N/A	N/A	1.07	161.09	15.42	197.25
11.811	0.83	0.22	0.86	-0.60	1.00	0.083	77.95	263.33	1.000	N/A	0.94	0.79	0.61	0.80	1.00	0.146	1.11	205.08	1.000	N/A	N/A	N/A	1.07	151.39	14.49	185.38
11.975	0.83	0.22	0.86	-0.60	1.00	0.082	77.83	262.79	1.000	N/A	0.94	0.79	0.61	0.79	1.00	0.146	1.10	204.12	1.000	N/A	N/A	N/A	1.07	151.05	14.46	184.96
12.139	0.82	0.21	0.87	-0.60	1.00	0.083	76.14	255.21	1.000	N/A	0.94	0.77	0.61	0.80	1.00	0.146	1.11	197.96	1.000	N/A	N/A	N/A	1.07	146.24	14.00	179.07
12.303	0.82	0.24	0.85	-0.60	1.00	0.081	79.84	271.83	1.000	N/A	0.94	0.80	0.60	0.79	1.00	0.147	1.04	200.24	1.000	N/A	N/A	N/A	1.06	156.78	15.01	191.98
12.467	0.82	0.30	0.81	-0.60	1.00	0.077	88.00	308.41	1.000	N/A	0.94	0.86	0.60	0.78	1.00	0.147	1.00	220.41	1.000	N/A	N/A	N/A	1.05	180.00	17.23	220.41
12.631	0.82	0.30	0.81	-0.60	1.00	0.077	89.61	315.64	1.000	N/A	0.94	0.87	0.60	0.78	1.00	0.148	1.00	226.03	1.000	N/A	N/A	N/A	1.04	184.59	17.67	226.03
12.795	0.82	0.30	0.81	-0.60	1.00	0.076	93.46	332.93	1.000	N/A	0.94	0.89	0.60	0.77	1.00	0.148	1.00	239.47	1.000	N/A	N/A	N/A	1.04	195.56	18.72	239.47
12.959	0.82	0.30	0.80	-0.60	1.00	0.076	102.28	372.48	1.000	N/A	0.94	0.95	0.60	0.77	1.00	0.148	1.00	270.20	1.000	N/A	N/A	N/A	1.03	220.66	21.13	270.20
13.123	0.82	0.30	0.80	-0.60	1.00	0.076	105.46	386.75	1.000	N/A	0.94	0.97	0.60	0.77	1.00	0.149	1.00	281.29	1.000	N/A	N/A	N/A	1.03	229.72	21.99	281.29
13.287	0.81	0.30	0.80	-0.60	1.00	0.076	112.63	418.96	1.000	N/A	0.94	1.02	0.60	0.77	1.00	0.149	1.00	309.90	1.000	N/A	N/A	N/A	1.02	253.08	24.23	309.90
13.451	0.81	0.30	0.80	-0.60	1.00	0.075	116.15	434.72	1.000	N/A	0.94	1.03	0.60	0.77	1.00	0.149	1.00	318.57	1.000	N/A	N/A	N/A	1.02	260.16	24.91	318.57
13.615	0.81	0.30	0.80	-0.60	1.00	0.075	113.05	420.79	1.000	N/A	0.94	1.01	0.60	0.77	1.00	0.149	1.00	307.75	1.000	N/A	N/A	N/A	1.02	251.32	24.06	307.75
13.779	0.81	0.30	0.80	-0.60	1.00	0.075	109.80	406.23	1.000	N/A	0.94	0.99	0.60	0.77	1.00	0.150	1.00	296.43	1.000	N/A	N/A	N/A	1.01	242.08	23.18	296.43
13.943	0.81	0.30	0.80	-0.60	1.00	0.075	105.27	385.88	1.000	N/A	0.93	0.97	0.60	0.76	1.00	0.150	1.00	280.61	1.000	N/A	N/A	N/A	1.01	229.16	21.94	280.61
14.107	0.81	0.30	0.79	-0.60	1.00	0.075	100.67	365.26	1.000	N/A	0.93	0.94	0.60	0.76	1.00	0.150	1.00	264.59	1.000	N/A	N/A	N/A	1.01	216.08	20.69	264.59
14.271	0.81	0.30	0.79	-0.60	1.00	0.074	95.46	341.90	1.000	N/A	0.93	0.91	0.60	0.76	1.00	0.150	1.00	246.44	1.000	N/A	N/A	N/A	1.01	201.25	19.27	246.44
14.436	0.80	0.30	0.79	-0.60	1.00	0.074	92.59	329.01	1.000	N/A	0.93	0.89	0.60	0.76	1.00	0.151	1.00	236.42	1.000	N/A	N/A	N/A	1.00	193.07	18.48	236.42
14.600	0.80	0.30	0.79	-0.60	1.00	0.073	89.67	315.90	1.000	N/A	0.93	0.87	0.60	0.76	1.00	0.151	1.00	226.23	1.000	N/A	N/A	N/A	1.00	184.75	17.69	226.23
14.764	0.80	0.30	0.79	-0.60	1.00	0.073	87.46	306.00	1.000	N/A	0.93	0.86	0.60	0.76	1.00	0.151	1.00	218.49	1.000	N/A	N/A	N/A	1.00	178.43	17.08	218.49
14.928	0.80	0.30	0.79	-0.60	1.00	0.073	86.43	301.39	1.000	N/A	0.93	0.85	0.60	0.75	1.00	0.152	1.00	214.96	1.000	N/A	N/A	N/A	0.99	175.55	16.81	214.96
15.092	0.80	0.30	0.79	-0.60	1.00	0.073	86.03	299.58	1.000	N/A	0.93	0.84	0.60	0.75	1.00	0.152	1.00	213.55	1.000	N/A	N/A	N/A	0.99	174.40	16.70	213.55

Liquefaction Triggering Analyses Using SPT Data

Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$	Relative Density D_R	m	SPT Correction Factor C_N	I&B (2008): $\Delta(N_1)_{60}$	$(N_1)_{60cs}$	(CRR) M=7.5, σ'=1atm	FoS	Youd (2001): α	β	$(N_1)_{60cs}$	(CRR) M=7.5, σ'=1atm	FoS	Average FoS
0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.281		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.905		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.069		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.562		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.890		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.054		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.218		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.382		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.546		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.710		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.874		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.038		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.202		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.366		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.530		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.694		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.858		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.022		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.186		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.350		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.514		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.678		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.842		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.006		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.170		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.335		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.499		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.663		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.827		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.991		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.155		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.319		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.483		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.647		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.811		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.975		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.139		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.303		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.467		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.631		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.795		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.959		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.123		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.287		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.451		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.615		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.779		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.943		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.107		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.271		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.436		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.600		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.764		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.928		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.092		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

15.256	6960.78	172.2	1.406	172.2	1.1	0.49	0.82%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0	0.99	169.803	16.26	207.93	201	0.82%	1.6	21%	1.68	0.000	1.68	0
15.420	6960.62	168.5	1.435	168.5	1.2	0.51	0.85%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0	0.98	165.615	15.86	202.81	195	0.86%	1.6	21%	1.69	0.000	1.69	0
15.584	6960.46	163.4	1.381	163.4	1.1	0.47	0.85%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	0.98	159.975	15.32	195.90	187	0.85%	1.7	21%	1.70	0.000	1.70	0
15.748	6960.29	157.3	1.412	157.3	0.8	0.33	0.90%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	0.97	153.335	14.69	187.77	178	0.90%	1.7	21%	1.71	0.000	1.71	0
15.912	6960.13	157.8	1.527	157.8	0.8	0.36	0.97%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	0.97	153.239	14.68	187.65	177	0.97%	1.7	21%	1.72	0.000	1.72	0
16.076	6959.96	152.3	1.727	152.3	0.8	0.35	1.13%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	0.97	147.324	14.11	180.41	169	1.14%	1.8	21%	1.72	0.000	1.72	0
16.240	6959.80	132.3	1.869	132.3	0.6	0.26	1.41%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	0.96	126.958	12.16	155.47	145	1.42%	1.9	21%	1.73	0.000	1.73	0
16.404	6959.64	141.8	1.704	141.8	0.7	0.30	1.20%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	0.96	135.817	13.01	166.31	154	1.21%	1.8	21%	1.74	0.000	1.74	0
16.568	6959.47	155.5	1.609	155.5	0.8	0.35	1.03%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0	0.96	148.900	14.26	182.34	167	1.04%	1.8	21%	1.75	0.000	1.75	0
16.732	6959.31	154.0	1.336	154.0	0.9	0.39	0.87%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0	0.95	146.868	14.07	179.85	164	0.87%	1.7	21%	1.76	0.000	1.76	0
16.896	6959.14	148.4	1.184	148.4	0.8	0.36	0.80%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0	0.95	140.882	13.49	172.52	157	0.80%	1.7	21%	1.77	0.000	1.77	0
17.060	6958.98	135.6	1.078	135.6	0.8	0.35	0.79%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0	0.94	127.804	12.24	156.50	142	0.80%	1.7	21%	1.78	0.000	1.78	0
17.224	6958.82	126.4	0.950	126.4	0.8	0.33	0.75%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0	0.94	118.300	11.33	144.87	131	0.76%	1.7	21%	1.79	0.000	1.79	0
17.388	6958.65	119.8	1.008	119.8	0.7	0.29	0.84%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	0.93	111.394	10.67	136.41	123	0.85%	1.8	21%	1.80	0.000	1.80	0
17.552	6958.49	110.9	1.285	110.9	1.6	0.69	1.16%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0	0.92	102.384	9.81	125.38	113	1.17%	1.9	21%	1.80	0.000	1.80	0
17.716	6958.32	118.1	1.269	118.1	1.5	0.63	1.07%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	0.92	108.901	10.43	133.36	119	1.08%	1.9	21%	1.81	0.000	1.81	0
17.880	6958.16	121.2	1.323	121.2	1.5	0.65	1.09%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	0.92	111.401	10.67	136.42	121	1.10%	1.9	21%	1.82	0.000	1.82	0
18.044	6958.00	116.3	1.228	116.3	1.4	0.61	1.06%	General Fill	0.057	113.8	1.00	0.000	1.00	0	0.91	106.221	10.17	130.08	115	1.07%	1.9	48%	1.83	0.000	1.83	0
18.208	6957.83	107.6	1.104	107.6	1.2	0.53	1.03%	General Fill	0.057	113.8	1.01	0.000	1.01	0	0.91	97.477	9.34	119.37	105	1.04%	1.9	48%	1.84	0.000	1.84	0
18.372	6957.67	93.3	1.182	93.3	0.7	0.29	1.27%	General Fill	0.057	113.8	1.02	0.000	1.02	0	0.90	83.466	7.99	102.21	90	1.28%	2.0	48%	1.85	0.000	1.85	0
18.537	6957.50	67.8	1.399	67.8	0.8	0.35	2.06%	General Fill	0.057	113.8	1.03	0.000	1.03	0	0.88	59.417	5.69	72.76	65	2.09%	2.3	48%	1.86	0.000	1.86	0
18.701	6957.34	46.5	1.379	46.5	0.7	0.29	2.97%	General Fill	0.057	113.8	1.04	0.000	1.04	0	0.86	39.739	3.81	48.67	44	3.04%	2.5	48%	1.87	0.000	1.87	0
18.865	6957.18	58.5	1.191	58.5	0.8	0.36	2.04%	General Fill	0.057	113.8	1.05	0.000	1.05	0	0.86	50.267	4.81	61.56	55	2.07%	2.3	48%	1.88	0.000	1.88	0
19.029	6957.01	80.6	1.132	80.6	1.2	0.51	1.41%	General Fill	0.057	113.8	1.06	0.000	1.06	0	0.87	70.147	6.72	85.90	75	1.42%	2.1	48%	1.89	0.000	1.89	0
19.193	6956.85	90.3	0.855	90.3	0.6	0.26	0.95%	General Fill	0.057	113.8	1.07	0.000	1.07	0	0.87	78.748	7.54	96.43	83	0.96%	2.0	48%	1.90	0.000	1.90	0
19.357	6956.68	99.8	0.770	99.8	0.9	0.39	0.77%	General Fill	0.057	113.8	1.08	0.000	1.08	0	0.87	87.260	8.36	106.86	92	0.78%	1.9	48%	1.91	0.000	1.91	0
19.521	6956.52	113.2	0.883	113.2	0.7	0.30	0.78%	General Fill	0.057	113.8	1.09	0.000	1.09	0	0.88	99.403	9.52	121.73	103	0.79%	1.8	48%	1.92	0.000	1.92	0
19.685	6956.36	118.4	0.957	118.4	0.7	0.29	0.81%	General Fill	0.057	113.8	1.10	0.000	1.10	0	0.88	103.904	9.95	127.24	107	0.82%	1.8	48%	1.92	0.000	1.92	0
19.849	6956.19	119.3	0.860	119.3	1.0	0.43	0.72%	General Fill	0.057	113.8	1.11	0.000	1.11	0	0.87	104.332	9.99	127.76	107	0.73%	1.8	48%	1.93	0.000	1.93	0
20.013	6956.03	113.5	0.881	113.5	0.7	0.29	0.78%	General Fill	0.057	113.8	1.12	0.000	1.12	0	0.87	98.475	9.43	120.59	101	0.78%	1.8	48%	1.94	0.000	1.94	0
20.177	6955.86	99.2	0.867	99.2	0.8	0.35	0.87%	General Fill	0.057	113.8	1.13	0.000	1.13	0	0.85	84.775	8.12	103.81	87	0.88%	1.9	48%	1.95	0.000	1.95	0
20.341	6955.70	87.3	0.774	87.3	0.4	0.18	0.89%	General Fill	0.057	113.8	1.13	0.000	1.13	0	0.84	73.525	7.04	90.04	76	0.90%	2.0	48%	1.96	0.000	1.96	0
20.505	6955.54	80.4	0.637	80.4	0.4	0.18	0.79%	General Fill	0.057	113.8	1.14	0.000	1.14	0	0.83	66.982	6.42	82.02	69	0.80%	2.0	48%	1.97	0.000	1.97	0
20.669	6955.37	77.8	0.635	77.8	0.4	0.18	0.82%	General Fill	0.057	113.8	1.15	0.000	1.15	0	0.83	64.335	6.16	78.78	66	0.83%	2.0	48%	1.98	0.000	1.98	0
20.833	6955.21	78.7	0.644	78.7	0.9	0.39	0.82%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0	0.82	64.897	6.22	79.47	67	0.83%	2.0	21%	1.99	0.000	1.99	0
20.997	6955.04	81.7	0.665	81.7	0.7	0.30	0.81%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0	0.82	67.210	6.44	82.30	69	0.83%	2.0	21%	2.00	0.000	2.00	0
21.161	6954.88	84.4	0.673	84.4	0.9	0.39	0.80%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0	0.82	69.352	6.64	84.93	71	0.81%	2.0	21%	2.01	0.000	2.01	0
21.325	6954.71	84.5	0.697	84.5	0.5	0.23	0.83%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0	0.82	69.105	6.62	84.62	70	0.84%	2.0	21%	2.02	0.000	2.02	0
21.489	6954.55	79.7	0.727	79.7	0.3	0.12	0.91%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0	0.81	64.582	6.19	79.08	66	0.93%	2.0	21%	2.03	0.000	2.03	0
21.653	6954.39	70.9	0.684	70.9	0.8	0.35	0.96%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0	0.80	56.627	5.42	69.35	58	0.98%	2.1	21%	2.03	0.000	2.03	0
21.817	6954.22	65.1	0.587	65.1	0.4	0.16	0.90%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	0.79	51.430	4.93	62.98	53	0.92%	2.1	21%	2.04	0.000	2.04	0
21.981	6954.06	63.6	0.555	63.6	0.6	0.24	0.87%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0	0.78	49.885	4.78	61.09	51	0.89%	2.1	21%	2.05	0.000	2.05	0
22.145	6953.89	62.2	0.623	62.2	0.4	0.16	1.00%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0	0.78	48.464	4.64	59.35	49	1.02%	2.2	21%	2.06	0.000	2.06	0
22.309	6953.73	62.3	0.698	62.3	0.2	0.10	1.12%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0	0.78	48.336	4.63	59.19	49	1.14%	2.2	21%	2.07	0.000	2.07	0
22.473	6953.57	65.2	0.684	65.2	0.2	0.10	1.05%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0	0.77	50.530	4.84	61.88	51	1.07%	2.2	21%	2.08	0.000	2.08	0
22.638	6953.40	65.7	0.667	65.7	0.3	0.14	1.02%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0	0.77	50.727	4.86	62.12	51	1.03%	2.2	21%	2.09	0.000	2.09	0
22.802	6953.24	62.8	0.665	62.8	0.1	0.06	1.06%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0	0.77	48.088	4.61	58.89	49	1.08%	2.2	21%	2.10	0.000	2.10	0
22.966	6953.07	60.4	0.692	60.4	0.1	0.02	1.15%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0	0.76	45.854	4.39	56.15	46	1.17%	2.2	21%	2.11	0.000	2.11	0
23.130	6952.91	64.0	0.653	64.0	0.1	0.04	1.02%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	0.76	48.602	4.66	59.51	49	1.04%	2.2	21%	2.11	0.000	2.11	0
23.294	6952.75	65.5	0.613	65.5	0.4	0.16	0.94%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0	0.76	49.602	4.75	60.74	50	0.96%	2.1	21%	2.12	0.000	2.12	0
23.458	6952.58	67.5	0.578	67.5	0.5	0.20	0.86%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0	0.76	51.075	4.89	62.54	51	0.87%	2.1	21%	2.13	0.000	2.13	0
23.622	6952.42	68.5	0.607	68.5	0.1	0.06	0.89%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0	0.75	51.696	4.95	63.30	51	0.90%	2.1	21%	2.14	0.000	2.14	0
23.786	6952.25	68.5	0.554	68.5	0.2	0.08	0.81%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0	0.75	51.410	4.92	62.95	51	0.83%	2.1	21%	2.15	0.000	2.15	0
23.950	6952.09	68.7	0.540	68.7	0.4	0.16	0.79%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0	0.75	51.400	4.92	62.94	51	0.80%	2.1	21%	2.16	0.000	2.16	0
24.114	6951.93	66.6	0.509	66.6	1.0	0.45	0.76%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0	0.74	49.447	4.74	60.55	49	0.78%	2.1	21%	2.17	0.000	2.17	0
24.278	6951.76	67.3	0.501	67.3	0.8	0.35	0.74%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0	0.74	49.803	4.77	60.99	49	0.76%	2.1	21%	2.18	0.000	2.18	0
24.442	6951.60	67.6	0.479	67.6	0.9	0.39	0.71%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	0.74	49.791	4.77	60.97	49	0.72%	2.1	21%	2.18	0.000	2.18	0
24.606	6951.43	69.7	0.468	69.7	0.7	0.30	0.67%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	0.74	51.290	4.91	62.81	50	0.69%	2.1	21%	2.19	0.000	2.19	0
24.770	6951.27	73.4	0.534	73.4	0.8	0.35	0.73%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	0.74	54.161	5.19	66.33	52	0.74%	2.1	21%	2.20	0.000	2.20	0

0.99	169.81	16.26	207.93	15.256		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.98	165.62	15.86	202.81	15.420		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.98	159.98	15.32	195.90	15.584		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.97	153.34	14.68	187.77	15.748		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.97	153.24	14.67	187.65	15.912		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.97	147.33	14.11	180.41	16.076		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.96	126.96	12.16	155.47	16.240		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.96	135.82	13.00	166.31	16.404		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.96	148.90	14.26	182.34	16.568		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.95	146.87	14.06	179.85	16.732		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.95	140.89	13.49	172.52	16.896		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.94	127.81	12.24	156.50	17.060		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.94	118.30	11.33	144.87	17.224		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.93	111.40	10.67	136.41	17.388		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	102.39	9.80	125.38	17.552		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	108.91	10.43	133.36	17.716		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.92	111.41	10.67	136.42	17.880		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.91	106.23	10.17	130.08	18.044		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.91	97.48	9.33	119.37	18.208		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.90	83.47	7.99	102.21	18.372		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	59.42	5.69	72.76	18.537		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.86	39.74	3.80	48.67	18.701		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.86	50.27	4.81	61.56	18.865		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	70.15	6.72	85.90	19.029		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	78.75	7.54	96.43	19.193		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	87.26	8.35	106.86	19.357		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	99.41	9.52	121.73	19.521		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.88	103.91	9.95	127.24	19.685		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	104.34	9.99	127.76	19.849		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.87	98.48	9.43	120.59	20.013		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.85	84.78	8.12	103.81	20.177		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.84	73.53	7.04	90.04	20.341		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.83	66.98	6.41	82.02	20.505		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.83	64.34	6.16	78.78	20.669		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.82	64.90	6.21	79.47	20.833		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.82	67.21	6.44	82.30	20.997		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.82	69.36	6.64	84.93	21.161		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.82	69.11	6.62	84.62	21.325		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.81	64.58	6.18	79.08	21.489		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.80	56.63	5.42	69.35	21.653		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.79	51.43	4.92	62.98	21.817		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.78	49.89	4.78	61.09	21.981		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.78	48.47	4.64	59.35	22.145		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.78	48.34	4.63	59.19	22.309		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.77	50.53	4.84	61.88	22.473		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.77	50.73	4.86	62.12	22.638		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.77	48.09	4.60	58.89	22.802		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.76	45.85	4.39	56.15	22.966		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.76	48.60	4.65	59.51	23.130		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.76	49.60	4.75	60.74	23.294		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.76	51.08	4.89	62.54	23.458		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	51.70	4.95	63.30	23.622		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	51.41	4.92	62.95	23.786		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.75	51.40	4.92	62.94	23.950		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	49.45	4.73	60.55	24.114		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	49.81	4.77	60.99	24.278		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	49.79	4.77	60.97	24.442		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	51.29	4.91	62.81	24.606		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.74	54.16	5.19	66.33	24.770		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.73	49.15	4.71	60.19	24.934		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.70	36.50	3.49	44.70	25.098		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.67	22.48	2.15	27.53	25.262		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	13.72	1.31	16.80	25.426		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	9.65	0.92	11.81	25.590		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.65	8.86	0.85	10.85	25.754		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.64	8.41	0.81	10.30	25.918		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.64	8.24	0.79	10.09	26.082	17	0.95	15	9	0.46	0.54	0.57	4.6	13.1	0.14	N/A	3.73	1.08	12.96	0.140	N/A	N/A
0.64	8.41	0.80	10.30	26.246		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.63	8.55	0.82	10.47	26.410		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	9.56	0.92	11.70	26.574		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	9.91	0.95	12.14	26.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	8.46	0.81	10.37	26.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	7.60	0.73	9.31	27.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	7.71	0.74	9.45	27.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	8.11	0.78	9.93	27.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	8.14	0.78	9.96	27.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.63	7.17	0.69	8.78	27.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	7.12	0.68	8.72	27.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.79	0.65	8.31	28.051		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.51	0.62	7.97	28.215		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.22	0.60	7.61	28.379		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.36	0.61	7.79	28.543		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.48	0.62	7.93	28.707		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.90	0.66	8.44	28.871		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.62	6.61	0.63	8.10	29.035		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	6.21	0.59	7.60	29.199		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	6.51	0.62	7.98	29.363		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	8.61	0.82	10.54	29.527		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	6.57	0.63	8.04	29.691		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	8.78	0.84	10.75	29.855		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	9.58	0.92	11.74	30.019		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	7.09	0.68	8.68	30.183		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	6.48	0.62	7.94	30.347		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	6.10	0.58	7.47	30.511		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.60	5.93	0.57	7.27	30.675		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.60	5.86	0.56	7.17	30.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	5.28	0.51	6.46	31.004		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.56	5.91	0.57	7.24	31.168		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.56	7.75	0.74	9.49	31.332		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.57	21.40	2.05	26.21	31.496		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.57	23.43	2.24	28.69	31.660		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.59	30.33	2.90	37.13	31.824		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.58	26.62	2.55	32.60	31.988		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.58	26.85	2.57	32.87	32.152		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.56	22.14	2.12	27.11	32.316		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.54	13.88	1.33	16.99	32.480		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.54	8.75	0.84	10.72	32.644		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

32.808	6943.23	11.5	0.409	11.4	19.1	8.28	3.57%	Fine Tailings	0.054	107.6	1.81	0.010	1.80	1	0.54	6.123	0.59	7.58	5	4.23%	3.3	83%	2.64	0.010	2.63	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.51	40.08	0.069	N/A	0.79	0.16	0.80	0.79	1.00	0.123	10.78	81.67	0.131	N/A	N/A	N/A		0.54	6.19	0.59	7.58	32.808		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.972	6943.07	11.0	0.260	10.8	22.6	9.80	2.37%	Fine Tailings	0.054	107.6	1.82	0.015	1.80	1	0.54	5.839	0.56	7.24	5	2.84%	3.2	83%	2.64	0.015	2.63	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.39	39.64	0.068	N/A	0.79	0.16	0.80	0.79	1.00	0.123	9.68	70.12	0.112	N/A	N/A	N/A		0.54	5.91	0.57	7.24	32.972		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.136	6942.90	11.5	0.280	11.4	27.6	11.98	2.43%	Fine Tailings	0.054	107.6	1.83	0.020	1.81	1	0.54	6.104	0.58	7.59	5	2.89%	3.2	83%	2.65	0.020	2.63	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.51	40.10	0.069	N/A	0.79	0.16	0.80	0.79	1.00	0.123	9.45	71.71	0.114	N/A	N/A	N/A		0.54	6.20	0.59	7.59	33.136		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.300	6942.74	11.8	0.287	11.7	28.7	12.45	2.42%	Fine Tailings	0.054	107.6	1.83	0.025	1.81	1	0.54	6.260	0.60	7.78	6	2.87%	3.2	83%	2.66	0.025	2.64	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.58	40.36	0.069	N/A	0.79	0.16	0.80	0.79	1.00	0.123	9.28	72.21	0.115	N/A	N/A	N/A		0.54	6.36	0.61	7.78	33.300		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.464	6942.58	12.5	0.246	12.3	30.7	13.30	1.97%	Fine Tailings	0.054	107.6	1.84	0.030	1.81	1	0.54	6.593	0.63	8.20	6	2.31%	3.1	83%	2.67	0.030	2.64	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.72	40.92	0.069	N/A	0.79	0.17	0.80	0.79	1.00	0.123	8.32	68.25	0.110	N/A	N/A	N/A		0.54	6.70	0.64	8.20	33.464		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.628	6942.41	12.8	0.229	12.6	30.8	13.34	1.79%	Fine Tailings	0.054	107.6	1.85	0.035	1.82	1	0.54	6.754	0.65	8.40	6	2.09%	3.1	83%	2.68	0.035	2.64	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.79	41.19	0.070	N/A	0.78	0.17	0.80	0.79	1.00	0.123	7.92	66.47	0.107	N/A	N/A	N/A		0.54	6.86	0.66	8.40	33.628		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.792	6942.25	12.2	0.273	12.1	32.0	13.85	2.23%	Fine Tailings	0.054	107.6	1.86	0.040	1.82	1	0.53	6.439	0.62	8.01	6	2.63%	3.2	83%	2.69	0.040	2.65	1	0	0.65	0.04	0.95	0.10	1.00	0.072	32.66	40.67	0.069	N/A	0.78	0.16	0.80	0.79	1.00	0.123	8.84	70.89	0.113	N/A	N/A	N/A		0.53	6.55	0.63	8.01	33.792		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.956	6942.08	12.5	0.301	12.3	37.7	16.35	2.40%	Fine Tailings	0.054	107.6	1.87	0.045	1.82	1	0.53	6.562	0.63	8.19	6	2.82%	3.2	83%	2.70	0.045	2.65	1	0	0.64	0.04	0.95	0.10	1.00	0.072	32.72	40.91	0.069	N/A	0.78	0.17	0.80	0.79	1.00	0.123	8.94	73.22	0.117	N/A	N/A	N/A		0.53	6.69	0.64	8.19	33.956		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.120	6941.92	11.6	0.320	11.4	38.6	16.74	2.76%	Fine Tailings	0.054	107.6	1.88	0.051	1.83	1	0.53	6.046	0.58	7.56	5	3.29%	3.2	83%	2.71	0.051	2.66	1	0	0.64	0.04	0.95	0.10	1.00	0.072	32.50	40.06	0.069	N/A	0.78	0.16	0.80	0.79	1.00	0.123	9.94	75.17	0.120	N/A	N/A	N/A		0.53	6.17	0.59	7.56	34.120		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.284	6941.76	12.9	0.312	12.7	39.4	17.08	2.41%	Fine Tailings	0.054	107.6	1.89	0.056	1.83	1	0.53	6.743	0.65	8.42	6	2.83%	3.2	83%	2.72	0.056	2.66	1	0	0.64	0.04	0.95	0.10	1.00	0.072	32.80	41.22	0.070	N/A	0.78	0.17	0.80	0.79	1.00	0.123	8.79	74.03	0.118	N/A	N/A	N/A		0.53	6.87	0.66	8.42	34.284		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.448	6941.59	13.6	0.278	13.3	39.8	17.23	2.05%	Fine Tailings	0.054	107.6	1.90	0.061	1.84	1	0.53	7.072	0.68	8.82	6	2.38%	3.1	83%	2.72	0.061	2.66	1	0	0.64	0.04	0.95	0.10	1.00	0.072	32.94	41.76	0.070	N/A	0.78	0.17	0.80	0.79	1.00	0.123	8.03	70.83	0.113	N/A	N/A	N/A		0.53	7.20	0.69	8.82	34.448		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.612	6941.43	13.2	0.371	12.9	40.6	17.61	2.81%	Fine Tailings	0.054	107.6	1.90	0.066	1.84	1	0.53	6.860	0.66	8.56	6	3.29%	3.2	83%	2.73	0.066	2.67	1	0	0.64	0.04	0.95	0.10	1.00	0.072	32.85	41.41	0.070	N/A	0.78	0.17	0.80	0.79	1.00	0.123	9.18	78.64	0.125	N/A	N/A	N/A		0.53	6.99	0.67	8.56	34.612		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.776	6941.26	14.3	0.403	14.0	42.1	18.26	2.82%	Fine Tailings	0.054	107.6	1.91	0.071	1.84	1	0.53	7.421	0.71	9.26	7	3.26%	3.2	83%	2.74	0.071	2.67	1	0	0.64	0.04	0.95	0.10	1.00	0.072	33.09	42.35	0.071	N/A	0.78	0.18	0.80	0.79	1.00	0.123	8.71	80.64	0.129	N/A	N/A	N/A		0.53	7.56	0.72	9.26	34.776		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.941	6941.10	14.1	0.363	13.9	41.3	17.91	2.57%	Fine Tailings	0.054	107.6	1.92	0.076	1.85	1	0.53	7.340	0.70	9.16	7	2.97%	3.1	83%	2.75	0.076	2.67	1	0	0.64	0.04	0.95	0.10	1.00	0.072	33.05	42.21	0.070	N/A	0.77	0.17	0.80	0.79	1.00	0.123	8.49	77.70	0.124	N/A	N/A	N/A		0.53	7.48	0.72	9.16	34.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.105	6940.94	21.9	0.416	21.7	43.3	18.77	1.90%	Coarse/Fine Tailin	0.058	116.0	1.93	0.000	1.93	0	0.51	11.053	1.06	13.70	10	2.08%	2.9	52%	2.76	0.000	2.76	0	0	0.64	0.05	0.94	0.10	1.00	0.069	35.13	48.83	0.076	N/A	0.77	0.21	0.80	0.78	1.00	0.121	5.67	77.65	0.124	N/A	N/A	N/A		0.51	11.19	1.07	13.70	35.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.269	6940.77	32.9	0.772	32.8	21.2	9.17	2.35%	Coarse/Fine Tailin	0.058	116.0	1.94	0.000	1.94	0	0.51	16.645	1.59	20.46	16	2.49%	2.8	52%	2.77	0.000	2.77	0	0	0.63	0.05	0.94	0.10	1.00	0.069	37.50	57.96	0.086	N/A	0.77	0.26	0.80	0.78	1.00	0.120	4.66	95.33	0.161	N/A	N/A	N/A		0.51	16.71	1.60	20.46	35.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.433	6940.61	25.4	0.980	25.3	19.7	8.54	3.85%	Coarse/Fine Tailin	0.058	116.0	1.95	0.000	1.95	0	0.51	12.806	1.23	15.76	12	4.18%	3.0	52%	2.78	0.000	2.78	0	0	0.63	0.05	0.94	0.10	1.00	0.069	35.85	51.61	0.079	N/A	0.77	0.23	0.80	0.78	1.00	0.120	6.93	109.18	0.201	N/A	N/A	N/A		0.51	12.87	1.23	15.76	35.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.597	6940.44	17.2	0.791	17.1	18.4	7.99	4.60%	Coarse/Fine Tailin	0.058	116.0	1.96	0.000	1.96	0	0.50	8.612	0.82	10.62	8	5.19%	3.2	52%	2.79	0.000	2.79	0	0	0.63	0.05	0.94	0.10	1.00	0.069	34.04	44.66	0.073	N/A	0.77	0.19	0.80	0.78	1.00	0.120	9.60	101.93	0.178	N/A	N/A	N/A		0.50	8.67	0.83	10.62	35.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.761	6940.28	13.1	0.531	12.9	19.9	8.62	4.06%	Coarse/Fine Tailin	0.058	116.0	1.97	0.000	1.97	0	0.50	6.500	0.62	8.04	6	4.79%	3.3	52%	2.80	0.000	2.80	0	0	0.63	0.04	0.95	0.10	1.00	0.069	33.14	41.17	0.070	N/A	0.77	0.16	0.80	0.78	1.00	0.120	10.99	88.29	0.144	N/A	N/A	N/A		0.50	6.56	0.63	8.04	35.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.925	6940.12	12.3	0.358	12.2	22.7	9.84	2.91%	Coarse/Fine Tailin	0.058	116.0	1.98	0.000	1.98	0	0.50	6.090	0.58	7.54	5	3.46%	3.3	52%	2.81	0.000	2.81	0	0	0.63	0.04	0.95	0.10	1.00	0.069	32.97	40.51	0.069	N/A	0.77	0.16	0.80	0.78	1.00	0.120	10.21	77.06	0.123	N/A	N/A	N/A		0.50	6.16	0.59	7.54	35.925		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.089	6939.95	12.8	0.396	12.6	24.8	10.76	3.10%	Coarse/Fine Tailin	0.058	116.0	1.99	0.000	1.99	0	0.50	6.292	0.60	7.80	5	3.67%	3.3	52%	2.82	0.000	2.82	0	0	0.63	0.04	0.95	0.10	1.00	0.069	33.06	40.86	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.120	10.21	79.63	0.127	N/A	N/A	N/A		0.50	6.37	0.61	7.80	36.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.253	6939.79	14.1	0.352	13.9	27.8	12.04	2.50%	Coarse/Fine Tailin	0.058	116.0	2.00	0.000	2.00	0	0.50	6.899	0.66	8.55	6	2.92%	3.2	52%	2.83	0.000	2.83	0	0	0.63	0.04	0.95	0.10	1.00	0.069	33.32	41.87	0.070	N/A	0.76	0.17	0.80	0.78	1.00	0.120	8.89	76.01	0.121	N/A	N/A	N/A		0.50	6.99	0.67	8.55	36.253		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.417	6939.62	12.7	0.353	12.5	29.1	12.59	2.79%	Coarse/Fine Tailin	0.058	116.0	2.01	0.000	2.01	0	0.49	6.181	0.59	7.68	5	3.31%	3.2	52%	2.84	0.000	2.84	0	0	0.63	0.04	0.95	0.10	1.00	0.068	33.01	40.69	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.120	9.96	76.51	0.122	N/A	N/A	N/A		0.49	6.27	0.60	7.68	36.417		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.581	6939.46	12.6	0.400	12.4	32.0	13.87	3.17%	Coarse/Fine Tailin	0.058	116.0	2.02	0.000	2.02	0	0.49	6.129	0.59	7.63	5	3.77%	3.3	52%	2.85	0.000	2.85	0	0	0.62	0.04	0.95	0.10	1.00	0.068	32.99	40.62	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.119	10.47	79.84	0.127	N/A	N/A	N/A		0.49	6.23	0.60	7.63	36.581		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.745	6939.30	12.3	0.452	12.1	35.1	15.19	3.68%	Coarse/Fine Tailin	0.058	116.0	2.03	0.000	2.03	0	0.49	5.920	0.57	7.38	5	4.41%	3.3	52%	2.86	0.000	2.86	0	0	0.62	0.04	0.95	0.10	1.00	0.068	32.91	40.29	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.119	11.29	83.29	0.134	N/A	N/A	N/A		0.49	6.03	0.58	7.38	36.745		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.909	6939.13	19.1	0.504	18.9	31.6	13.71	2.63%	Coarse/Fine Tailin	0.058	116.0	2.04	0.000	2.04	0	0.49	9.265	0.89	11.46	8	2.95%	3.1	52%	2.86	0.000	2.86	0	0	0.62	0.05	0.94	0.10	1.00	0.068	34.34	45.81	0.074	N/A	0.76	0.20	0.80	0.78	1.00	0.119	7.39	84.68	0.136	N/A	N/A	N/A		0.49	9.36	0.90	11.46	36.909		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.073	6938.97	13.3	0.439	13.1	32.7	14.15	3.31%	Coarse/Fine Tailin	0.058	116.0	2.05	0.000	2.05	0	0.49	6.374	0.61	7.93	5	3.91%	3.3	52%	2.87	0.000	2.87	0	0	0.62	0.04	0.95	0.10	1.00	0.068	33.10	41.03	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.119	10.37	82.20	0.132	N/A	N/A	N/A		0.49	6.47	0.62	7.93	37.073		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.237	6938.80	11.7	0.354	11.5	38.2	16.53	3.02%	Coarse/Fine Tailin	0.058	116.0	2.06	0.000	2.06	0	0.49	5.573	0.53	6.97	5	3.67%	3.3	52%	2.88	0.000	2.88	0	0	0.62	0.04	0.95	0.10	1.00	0.068	32.76	39.73	0.068	N/A	0.76	0.15	0.80	0.78	1.00	0.119	11.01	76.69	0.122	N/A	N/A	N/A		0.49	5.69	0.54	6.97	37.237		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.401	6938.64	11.4	0.255	11.2	40.2	17.41	2.24%	Coarse/Fine Tailin	0.058	116.0	2.07	0.000	2.07	0	0.48	5.398	0.52	6.76	5	2.73%	3.3	52%	2.89	0.000	2.89	0	0	0.62	0.04	0.95	0.10	1.00	0.068	32.69	39.45	0.068	N/A	0.75	0.15	0.80	0.78	1.00	0.119	10.20	68.96	0.110	N/A	N/A	N/A		0.48	5.52	0.53	6.76	37.401		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.565	6938.47	12.1	0.256	11.9	41.8	18.10	2.11%	Coarse/Fine Tailin	0.058	116.0	2.07	0.000	2.07	0	0.48	5.721	0.55	7.16	5	2.55%	3.2	52%	2.90	0.000	2.90	0	0	0.62	0.04	0.95	0.10	1.00	0.068	32.83	39.99	0.069	N/A	0.75	0.15	0.80	0.78	1.00	0.119	9.60	68.76	0.110	N/A	N/A	N/A		0.48	5.85	0.56	7.16	37.565		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.729	6938.31	12.4	0.269	12.1	42.7	18.49	2.17%	Coarse/Fine Tailin	0.058	116.0	2.08	0.000	2.08	0	0.48	5.821	0.56	7.28	5	2.61%	3.2	52%	2.91	0.000	2.91	0	0	0.62	0.04	0.95	0.10	1.00	0.067	32.88	40.16	0.069	N/A	0.75	0.16	0.80	0.78	1.00	0.118	9.58	69.77	0.112	N/A	N/A	N/A		0.48	5.95	0.57	7.28	37.729		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.893	6938.15	12.7	0.266	12.4	44.0	19.08	2.09%	Coarse/Fine Tailin	0.058	116.0	2.09	0.000	2.09	0	0.48	5.954	0.57	7.45	5	2.51%	3.2	52%	2.92	0.000	2.92	0	0	0.62	0.04	0.95	0.10	1.00	0.067	32.93	40.39	0.069	N/A	0.75	0.16	0.80	0.77	1.00	0.118	9.31	69.38	0.111	N/A	N/A	N/A		0.48	6.09	0.58	7.45	37.893		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.057	6937.98	13.1	0.256	12.9	44.4	19.24	1.95%	Coarse/Fine Tailin	0.058	116.0	2.10	0.000	2.10	0	0.48	6.143	0.59	7.68	5	2.32%	3.2	52%	2.93	0.000	2.93	0	0	0.61	0.04	0.94	0.10	1.00	0.067	33.02	40.70	0.069	N/A	0.75	0.16	0.80	0.77	1.00	0.118	8.89	68.32	0.110	N/A	N/A	N/A		0.48	6.28	0.60	7.68	38.057		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.221	6937.82	13.4	0.205	13.1	45.1	19.54	1.54%	Coarse/Fine Tailin	0.058	116.0	2.11	0.000	2.11	0	0.48	6.216	0.60	7.78	5	1.82%	3.1	52%	2.94	0.000	2.94	0	0	0.61	0.04	0.94	0.10	1.00	0.067	33.05	40.82	0.069	N/A	0.75	0.16	0.80	0.77	1.00	0.118	8.16	63.44	0.104	N/A	N/A	N/A		0.48	6.35	0.61	7.78	38.221		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.385	6937.65	12.6	0.178	12.3	46.5	20.13	1.41%	Coarse/Fine Tailin	0.058	116.0	2.12	0.000	2.12	0	0.47	5.830	0.56	7.31	5	1.70%	3.1	52%	2.95	0.000	2.95	0	0	0.61	0.04	0.94	0.10	1.00	0.067	32.88	40.19	0.069	N/A	0.75	0.16	0.80	0.77	1.00	0.118	8.35	60.99	0.101	N/A	N/A	N/A		0.47	5.97	0.57	7.31	38.385		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.549	6937.49	12.0	0.236	11.7	52.9	22.92	1.97%	Coarse/Fine Tailin	0.058	116.0	2.13	0.000	2.13	0	0.47	5.507	0.53	6.93	5	2.39%	3.2	52%	2.96	0.000	2.96	0	0	0.61	0.04	0.95	0.10	1.00	0.067	32.75	39.69	0.068	N/A	0.74	0.15	0.80	0.77	1.00	0.118	9.66	66.96	0.108	N/A	N/A	N/A		0.47	5.66	0.54	6.93	38.549		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.713	6937.33	12.4	0.281	12.1	56.4	24.42	2.27%	Fine Tailings	0.054	107.6	2.14	0.004	2.14	1	0.47	5.680	0.54	7.16	5	2.74%	3.2	83%	2.97	0.004	2.97	1	1	0.61	0.04	0.94	0.10	1.00	0.067	32.36	39.52	0.068	1.02	0.74	0.15	0.80	0.77	1.00	0.118	9.88	70.71	0.113	0.96	0.99	1		0.47	5.85	0.56	7.16	38.713		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.877	6937.16	12.4	0.304	12.1	58.1	25.18	2.45%	Fine Tailings	0.054	107.6	2.15	0.009	2.14	1	0.47	5.672	0.54	7.15	5	2.96%	3.3	83%	2.98	0.009	2.97	1	1	0.61	0.04	0.94	0.10	1.00	0.067	32.36	39.52	0.068	1.02	0.74	0.15	0.80	0.77	1.00	0.118	10.14	72.58	0.116	0.98	1.00	0		0.47	5.84	0.56	7.15	38.877		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.042	6937.00	12.5	0.323	12.1	59.5	25.79	2.59%	Fine Tailings	0.054	107.6	2.16	0.014	2.14	1	0.47	5.693	0.55	7.18	5	3.13%	3.3	83%	2.99	0.014	2.97	1	1	0.61	0.04	0.94	0.10	1.00	0.067	32.37	39.56	0.068	1.02	0.74	0.15	0.80	0.77	1.00	0.118	10.31	74.05	0.118	1.00	1.01	0		0.47	5.87	0.56	7.18	39.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.206	6936.83	13.0	0.317	12.6	60.8	26.36	2.44%	Fine Tailings	0.054	107.6	2.17	0.019	2.15	1	0.47	5.925	0.57	7.47	5	2.93%	3.2	83%	3.00	0.019	2.98	1	1	0.61	0.04	0.94	0.10	1.00	0.067	32.47	39.95	0.069	1.03	0.74	0.16	0.80	0.77	1.00	0.118	9.83	73.45	0.117	0.99	1.01	0	1.013466	0.47	6.10	0.58	7.47	39.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.370	6936.67	13.9	0.354	13.5	63.3	27.43	2.55%	Fine Tailings	0.054	107.6	2.18	0.024	2.15	1	0.47	6.334	0.61	7.98	5	3.02%	3.2	83%	3.00	0.024	2.98	1	1	0.60	0.04	0.94	0.10	1.00	0.067	32.65	40.63	0.069	1.04	0.74	0.16	0.80	0.77	1.00	0.118	9.52	75.97	0.121	1.02	1.03	0		0.47	6.52	0.62	7.98	39.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.534	6936.51	13.2	0.359	12.8	63.9	27.68	2.72%	Fine Tailings	0.054	107.6	2.18	0.029	2.16	1	0.47	5.998	0.57	7.57	5	3.26%	3.3	83%	3.01	0.029	2.98	1	1	0.60	0.04	0.94	0.10	1.00	0.067	32.51	40.08	0.069	1.03	0.74	0.16	0.80	0.77	1.00	0.118	10.11	76.57	0.122	1.03	1.03	0		0.47	6.18	0.59	7.57	39.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.698	6936.34	26.5	0.601	26.1	67.9	29.43	2.27%	Fine Tailings	0.054	107.6	2.19	0.034	2.16	1	0.47	12.190	1.17	15.17	11	2.47%	2.9	83%	3.02	0.034	2.99	1	1	0.60	0.05	0.94	0.10	1.00	0.066	35.13	50.30	0.078	1.18	0.74	0.22	0.80	0.77	1.00	0.118	5.77	87.54	0.142	1.21	1.19	0		0.47	12.39	1.19	15.17	39.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.862	6936.18	24.6	0.611	24.4	36.8	15.93	2.48%	Fine Tailings	0.054	107.6	2.20	0.039	2.16	1	0.47	11.398	1.09	14.09	10	2.72%	3.0	83%	3.03	0.039	2.99	1	1	0.60	0.05	0.94	0.10	1.00	0.066	34.76	48.85	0.076	1.16	0.73	0.22	0.80	0.77	1.00	0.118	6.31	88.90	0.145	1.23	1.20	0		0.47	11.51	1.10	14.09	39.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.026	6936.01	20.7	0.747	20.5	30.1	13.03	3.61%	Fine Tailings	0.054	107.6	2.21	0.044	2.17	1	0.47	9.569	0.92	11.82	9	4.04%	3.1	83%	3.04	0.044	2.99	1	1	0.60	0.05	0.94	0.10	1.00	0.066	33.98	45.80	0.074	1.11	0.73	0.20	0.80	0.77	1.00	0.118	8.27	97.84	0.167	1.42	1.26	0		0.47	9.66	0.92	11.82	40.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.190	6935.85	20.7	0.634	20.5	28.6	12.41	3.06%	Fine Tailings	0.054	107.6	2.22	0.050	2.17	1	0.47	9.556	0.92	11.80	9	3.43%	3.1	83%	3.05	0.050	3.00	1	1	0.60	0.05	0.94	0.10	1.00	0.066	33.97	45.77	0.074	1.11	0.73	0.20	0.80	0.77	1.00	0.118	7.77	91.73	0.152	1.29	1.20	0		0.47	9.64	0.92	11.80	40.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.354	6935.69	20.7	0.720	20.5	26.8	11.59	3.48%	Fine Tailings	0.054	107.6	2.23	0.055	2.17	1	0.47	9.543	0.91	11.78	8	3.90%	3.1	83%	3.06	0.055	3.00	1	1	0.60	0.05	0.94	0.10	1.00	0.066	33.96	45.74	0.074	1.11	0.73	0.20	0.80	0.77	1.00	0.118	8.19	96.44	0.163	1.39	1.25	0		0.47	9.62	0.92	11.78	40.354		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.518	6935.52	15.0	0.602	14.7	50.2	21.76	4.02%	Fine Tailings	0.054	107.6	2.24	0.060	2.18	1	0.46	6.809	0.65	8.52	6	4.73%	3.3	83%	3.07	0.060	3.01	1	1	0.60	0.04	0.94	0.10	1.00	0.066	32.83	41.35	0.070	1.05	0.73	0.17	0.80	0.77	1.00	0.118	10.73	91.37	0.151	1.28	1.17	0		0.46	6.95	0.67	8.52	40.518		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.682	6935.36	13.1	0.409	12.7	60.9	26.39	3.13%	Fine Tailings	0.054	107.6	2.25	0.065	2.18	1	0.46	5.882	0.56	7.42	5	3.78%	3.3	83%	3.07	0.065	3.01	1	1	0.60	0.04	0.94	0.10	1.00	0.066	32.45	39.87	0.069	1.03	0.73	0.16	0.80	0.77	1.00	0.118	10.81	80.21	0.128	1.09	1.06	0		0.46	6.06	0.58	7.42	40.682		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.846	6935.19	13.1	0.370	12.7	71.3	30.89	2.82%	Fine Tailings	0.054	107.6	2.26	0.070	2.19	1	0.46	5.874	0.56	7.44	5	3.40%	3.3	83%	3.08	0.070	3.01	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.46	39.91	0.069	1.03	0.73	0.16	0.80	0.77	1.00	0.118	10.42	77.55	0.123	1.05	1.04	0		0.46	6.08	0.58	7.44	40.846		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.010	6935.03	13.8	0.383	13.3	79.0	34.25	2.78%	Fine Tailings	0.054	107.6	2.26	0.075	2.19	1	0.46	6.134	0.59	7.79	5	3.33%	3.3	83%	3.09	0.075	3.02	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.58	40.37	0.069	1.04	0.72	0.16	0.80	0.77	1.00	0.118	10.05	78.30	0.125	1.06	1.05	0		0.46	6.36	0.61	7.79	41.010		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.174	6934.87	13.5	0.420	13.0	81.1	35.14	3.11%	Fine Tailings	0.054	107.6	2.27	0.080	2.19	1	0.46	6.006	0.58	7.64	5	3.74%	3.3	83%	3.10	0.080	3.02	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.53	40.17	0.069	1.04	0.72	0.16	0.80	0.77	1.00	0.118	10.59	80.89	0.129	1.10	1.07	0		0.46	6.24	0.60	7.64	41.174		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.338	6934.70	13.5	0.417	12.9	81.7	35.40	3.10%	Fine Tailings	0.054	107.6	2.28	0.085	2.20	1	0.46	5.970	0.57	7.60	5	3.73%	3.3	83%	3.11	0.085	3.02	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.52	40.11	0.069	1.04	0.72	0.16	0.80	0.77	1.00	0.118	10.62	80.73	0.129	1.09	1.06	0		0.46	6.21	0.59	7.60	41.338		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.502	6934.54	13.1	0.315	12.6	80.2	34.75	2.41%	Fine Tailings	0.054	107.6	2.29	0.091	2.20	1	0.46	5.788	0.55	7.37	5	2.92%	3.3	83%	3.12	0.091	3.03	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.44	39.81	0.068	1.03	0.72	0.16	0.80	0.77	1.00	0.118	9.99	73.60	0.117	0.99	1.01	0		0.46	6.02	0.58	7.37	41.502		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.666	6934.37	13.1	0.247	12.6	80.3	34.78	1.88%	Fine Tailings	0.054	107.6	2.30	0.096	2.20	1	0.46	5.808	0.56	7.39	5	2.28%	3.2	83%	3.13	0.096	3.03	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.44	39.84	0.068	1.03	0.72	0.16	0.80	0.77	1.00	0.118	9.19	67.97	0.109	0.93	0.98	1		0.46	6.04	0.58	7.39	41.666		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.830	6934.21	13.8	0.279	13.3	84.1	36.42	2.02%	Fine Tailings	0.054	107.6	2.31	0.101	2.21	1	0.46	6.122	0.59	7.79	5	2.42%	3.2	83%	3.14	0.101	3.04	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.58	40.37	0.069	1.04	0.72	0.16	0.80	0.77	1.00	0.118	9.04	70.45	0.113	0.95	1.00	1		0.46	6.36	0.61	7.79	41.830		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.994	6934.05	14.1	0.381	13.6	90.1	39.04	2.69%	Fine Tailings	0.054	107.6	2.32	0.106	2.21	1	0.46	6.233	0.60	7.95	5	3.22%	3.2	83%	3.15	0.106	3.04	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.64	40.58	0.069	1.04	0.72	0.16	0.80	0.77	1.00	0.118	9.83	78.16	0.124	1.05	1.05	0		0.46	6.49	0.62	7.95	41.994		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.158	6933.88	14.4	0.449	13.8	94.1	40.77	3.11%	Fine Tailings	0.054	107.6	2.33	0.111	2.22	1	0.46	6.339	0.61	8.09	5	3.71%	3.3	83%	3.15	0.111	3.04	1	1	0.59	0.04	0.94	0.10	1.00	0.066	32.69	40.78	0.069	1.05	0.72	0.16	0.80	0.77	1.00	0.118	10.21	82.65	0.133	1.12	1.09	0		0.46	6.61	0.63	8.09	42.158		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.322	6933.72	15.6	0.532	15.0	97.1	42.08	3.40%	Fine Tailings	0.054	107.6	2.33	0.116	2.22	1	0.46	6.885	0.66	8.77	6	4.00%	3.3	83%	3.16	0.116	3.05	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.92	41.69	0.070	1.06	0.71	0.17	0.80	0.77	1.00	0.118	9.97	87.44	0.142	1.21	1.13	0		0.46	7.16	0.69	8.77	42.322		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.486	6933.55	17.9	0.500	17.3	84.3	36.52	2.80%	Fine Tailings	0.054	107.6	2.34	0.121	2.22	1	0.46	7.927	0.76	10.00	7	3.22%	3.1	83%	3.17	0.121	3.05	1	1	0.58	0.05	0.94	0.10	1.00	0.066	33.35	43.35	0.071	1.08	0.71	0.18	0.80	0.77	1.00	0.118	8.48	84.85	0.137	1.16	1.12	0		0.46	8.17	0.78	10.00	42.486		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.650	6933.39	15.3	0.515	14.9	74.9	32.47	3.36%	Fine Tailings	0.054	107.6	2.35	0.126	2.23	1	0.46	6.780	0.65	8.56	6	3.97%	3.3	83%	3.18	0.126	3.05	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.85	41.41	0.070	1.06	0.71	0.17	0.80	0.77	1.00	0.118	10.11	86.54	0.140	1.19	1.12	0		0.46	6.99	0.67	8.56	42.650		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.814	6933.23	15.2	0.477	14.7	78.7	34.10	3.15%	Fine Tailings	0.054	107.6	2.36	0.131	2.23	1	0.46	6.685	0.64	8.46	6	3.73%	3.2	83%	3.19	0.131	3.06	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.81	41.27	0.070	1.06	0.71	0.17	0.80	0.77	1.00	0.118	9.96	84.29	0.136	1.15	1.10	0		0.46	6.91	0.66	8.46	42.814		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.978	6933.06	15.3	0.468	14.8	80.3	34.81	3.06%	Fine Tailings	0.054	107.6	2.37	0.137	2.23	1	0.46	6.735	0.65	8.53	6	3.62%	3.2	83%	3.20	0.137	3.06	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.84	41.36	0.070	1.06	0.71	0.17	0.80	0.77	1.00	0.118	9.82	83.70	0.135	1.14	1.10	0		0.46	6.96	0.67	8.53	42.978		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.143	6932.90	15.0	0.419	14.5	82.5	35.75	2.80%	Fine Tailings	0.054	107.6	2.38	0.142	2.24	1	0.45	6.581	0.63	8.35	6	3.32%	3.2	83%	3.21	0.142	3.07	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.77	41.12	0.070	1.05	0.71	0.17	0.80	0.77	1.00	0.118	9.66	80.63	0.129	1.09	1.07	0		0.45	6.82	0.65	8.35	43.143		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.307	6932.73	15.3	0.417	14.8	87.5	37.93	2.72%	Fine Tailings	0.054	107.6	2.39	0.147	2.24	1	0.45	6.718	0.64	8.53	6	3.22%	3.2	83%	3.22	0.147	3.07	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.84	41.37	0.070	1.06	0.71	0.17	0.80	0.77	1.00	0.118	9.42	80.40	0.128	1.09	1.07	0		0.45	6.97	0.67	8.53	43.307		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.471	6932.57	16.5	0.398	15.9	92.2	39.96	2.41%	Fine Tailings	0.054	107.6	2.40	0.152	2.24	1	0.45	7.226	0.69	9.17	6	2.82%	3.2	83%	3.22	0.152	3.07	1	1	0.58	0.04	0.94	0.10	1.00	0.066	33.06	42.23	0.070	1.07	0.70	0.17	0.80	0.77	1.00	0.118	8.58	78.68	0.125	1.06	1.07	0		0.45	7.49	0.72	9.17	43.471		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.635	6932.41	16.1	0.465	15.5	95.5	41.38	2.89%	Fine Tailings	0.054	107.6	2.41	0.157	2.25	1	0.45	7.018	0.67	8.92	6	3.40%	3.2	83%	3.23	0.157	3.08	1	1	0.58	0.04	0.94	0.10	1.00	0.066	32.97	41.90	0.070	1.07	0.70	0.17	0.80	0.77	1.00	0.118	9.34	83.33	0.134	1.14	1.10	0		0.45	7.29	0.70	8.92	43.635		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.799	6932.24	18.1	0.444	17.4	111.2	48.17	2.45%	Fine Tailings	0.054	107.6	2.41	0.162	2.25	1	0.45	7.873	0.75	10.02	7	2.83%	3.1	83%	3.24	0.162	3.08	1	1	0.57	0.05	0.94	0.10	1.00	0.066	33.35	43.38	0.071	1.09	0.70	0.18	0.80	0.77	1.00	0.118	8.11	81.26	0.130	1.10	1.09	0		0.45	8.19	0.78	10.02	43.799		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.963	6932.08	19.0	0.520	18.3	117.4	50.86	2.73%	Fine Tailings	0.054	107.6	2.42	0.167	2.26	1	0.45	8.265	0.79	10.53	7	3.13%	3.1	83%	3.25	0.167	3.08	1	1	0.57	0.05	0.94	0.10	1.00	0.066	33.53	44.05	0.072	1.10	0.70	0.19	0.80	0.77	1.00	0.118	8.15	85.81	0.139	1.18	1.14	0		0.45	8.60	0.82	10.53	43.963		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.127	6931.91	20.2	0.560	19.4	124.0	53.73	2.78%	Fine Tailings	0.054	107.6	2.43	0.172	2.26	1	0.45	8.746	0.84	11.14	8	3.16%	3.1	83%	3.26	0.172	3.09	1	1	0.57	0.05	0.94	0.10	1.00	0.066	33.74	44.88	0.073	1.11	0.70	0.19	0.80	0.77	1.00	0.118	7.89	87.84	0.143	1.21	1.16	0		0.45	9.10	0.87	11.14	44.127		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.291	6931.75	25.6	0.692	24.7	134.5	58.30	2.71%	Fine Tailings	0.054	107.6	2.44	0.178	2.26	1	0.45	11.146	1.07	14.11	10	2.99%	3.0	83%	3.27	0.178	3.09	1	1	0.57	0.05	0.94	0.10	1.00	0.065	34.77	48.88	0.076	1.17	0.70	0.22	0.80	0.77	1.00	0.118	6.62	93.37	0.156	1.32	1.25	0		0.45	11.53	1.10	14.11	44.291		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.455	6931.59	27.8	1.020	27.3	71.6	31.03	3.67%	Fine Tailings	0.054	107.6	2.45	0.183	2.27	1	0.45	12.307	1.18	15.32	11	4.03%	3.0	83%	3.28	0.183	3.09	1	1	0.57	0.05	0.93	0.10	1.00	0.065	35.19	50.50	0.078	1.20	0.70	0.23	0.80	0.77	1.00	0.118	7.11	108.91	0.200	1.70	1.45	0		0.45	12.51	1.20	15.32	44.455		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.619	6931.42	36.0	1.122	35.6	53.2	23.04	3.12%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0	0.42	15.052	1.44	18.60	14	3.35%	2.9	36%	3.29	0.000	3.29	0	0	0.57	0.05	0.93	0.10	1.00	0.061	36.21	54.82	0.082	N/A	0.70	0.25	0.80	0.76	1.00	0.112	5.85	108.85	0.200	N/A	N/A	N/A		0.42	15.19	1.45	18.60	44.619		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.783	6931.26	27.3	1.106	27.0	39.9	17.29	4.06%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0	0.42	11.382	1.09	14.07	10	4.46%	3.1	36%	3.30	0.000	3.30	0	0	0.57	0.05	0.93	0.10	1.00	0.061	34.65	48.71	0.076	N/A	0.69	0.22	0.80	0.76	1.00	0.112	7.87	110.77	0.206	N/A	N/A	N/A		0.42	11.49	1.10	14.07	44.783		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.947	6931.09	22.2	0.929	21.9	40.7	17.65	4.19%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0	0.42	9.211	0.88	11.41	8	4.71%	3.2	36%	3.30	0.000	3.30	0	0	0.57	0.05	0.94	0.10	1.00	0.061	33.73	45.14	0.073	N/A	0.69	0.20	0.80	0.76	1.00	0.112	9.13	104.20	0.185	N/A	N/A	N/A		0.42	9.32	0.89	11.41	44.947		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.111	6930.93	21.9	0.815	21.6	49.3	21.35	3.72%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0	0.42	9.051	0.87	11.24	8	4.19%	3.2	36%	3.31	0.000	3.31	0	0	0.57	0.05	0.94	0.10	1.00	0.061	33.67	44.91	0.073	N/A	0.69	0.19	0.80	0.76	1.00	0.112	8.81	99.04	0.170	N/A	N/A	N/A		0.42	9.18	0.88	11.24	45.111		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.275	6930.76	22.5	0.843	22.2	50.9	22.07	3.75%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	0.42	9.263	0.89	11.51	8	4.21%	3.2	36%	3.32	0.000	3.32	0	0	0.56	0.05	0.93	0.10	1.00	0.061	33.77	45.27	0.073	N/A	0.69	0.20	0.80	0.76	1.00	0.112	8.71	100.18	0.173	N/A	N/A	N/A		0.42	9.40	0.90	11.51	45.275		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.439	6930.60	23.1	0.996	22.8	51.8	22.45	4.30%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	0.42	9.503	0.91	11.80	8	4.83%	3.2	36%	3.33	0.000	3.33	0	0	0.56	0.05	0.93	0.10	1.00	0.061	33.87	45.67	0.073	N/A	0.69	0.20	0.80	0.75	1.00	0.112	9.05	106.77	0.193	N/A	N/A	N/A		0.42	9.64	0.92	11.80	45.439		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.603	6930.44	26.7	1.087	26.3	54.9	23.77	4.08%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0	0.42	10.930	1.05	13.56	10	4.50%	3.1	36%	3.34	0.000	3.34	0	0	0.56	0.05	0.93	0.10	1.00	0.061	34.47	48.03	0.076	N/A	0.69	0.21	0.80	0.75	1.00	0.111	8.10	109.84	0.203	N/A	N/A	N/A		0.42	11.07	1.06	13.56	45.603		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.767	6930.27	28.6	1.134	28.3	52.8	22.86	3.96%	Coarse Alluvium	0.056	111.0	2.52	0.000	2.52	0	0.41	11.719	1.12	14.52	10	4.34%	3.1	36%	3.35	0.000	3.35	0	0	0.56	0.05	0.93	0.10	1.00	0.060	34.80	49.32	0.077	N/A	0.69	0.22	0.80	0.75	1.00	0.111	7.66	111.26	0.208	N/A	N/A	N/A		0.41	11.86	1.14	14.52	45.767		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.931	6930.11	27.1	1.214	26.8	47.3	20.48	4.48%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0	0.41	11.079	1.06	13.72	10	4.94%	3.1	36%	3.36	0.000	3.36	0	0	0.56	0.05	0.93	0.10	1.00	0.060	34.53	48.24	0.076	N/A	0.68	0.21	0.80	0.75	1.00	0.111	8.37	114.73	0.220	N/A	N/A	N/A		0.41	11.20	1.07	13.72	45.931	19	1.00	17	8	0.45	0.55	0.46	5.5	13.5	0.14	N/A	5.00	1.20	14.63	0.156	N/A	N/A
46.095	6929.94	30.2	1.531	29.9	49.5	21.45	5.07%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0	0.41	12.308	1.18	15.23	11	5.54%	3.1	36%	3.37	0.000	3.37	0	0	0.56	0.05	0.93	0.10	1.00	0.060	35.05	50.28	0.078	N/A	0.68	0.23	0.80	0.75	1.00	0.111	8.26	125.79	0.265	N/A	N/A	N/A		0.41	12.44	1.19	15.23	46.095		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.259	6929.78	30.9	1.733	30.6	42.2	18.30	5.62%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0	0.41	12.561	1.20	15.51	11	6.12%	3.1	36%	3.38	0.000	3.38	0	0	0.56	0.05	0.93	0.10	1.00	0.060	35.15	50.66	0.078	N/A	0.68	0.23	0.80	0.75	1.00	0.111	8.54	132.44	0.296	N/A	N/A	N/A		0.41	12.67	1.21	15.51	46.259		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.423	6929.62	33.6	1.621	33.4	33.7	14.58	4.82%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0	0.41	13.677	1.31	16.85	12	5.22%	3.1	36%	3.39	0.000	3.39	0	0	0.56	0.05	0.93	0.10	1.00	0.060	35.61	52.46	0.080	N/A	0.68	0.24	0.80	0.75	1.00	0.111	7.60	128.11	0.276	N/A	N/A	N/A		0.41	13.76	1.32	16.85	46.423		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.587	6929.45	29.4	1.438	29.1	39.2	16.98	4.90%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0	0.41	11.895	1.14	14.69	10	5.36%	3.1	36%	3.40	0.000	3.40	0	0	0.56	0.05	0.93	0.10	1.00	0.060	34.86	49.55	0.077	N/A	0.68	0.22	0.80	0.75	1.00	0.110	8.33	122.42	0.251	N/A	N/A	N/A		0.41	12.00	1.15	14.69	46.587		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.751	6929.29	40.0	1.422	39.6	52.2	22.61	3.56%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0	0.41	16.142	1.55	19.93	15	3.80%	2.9	36%	3.40	0.000	3.40	0	0	0.56	0.05	0.93	0.10	1.00	0.059	36.67	56.60	0.084	N/A	0.68	0.26	0.80	0.75	1.00	0.110	5.97	118.99	0.237	N/A	N/A	N/A		0.41	16.27	1.56	19.93	46.751		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.915	6929.12	57.2	1.642	56.9	40.4	17.51	2.87%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0	0.43	24.680	2.36	30.35	21	3.01%	2.7	36%	3.41	0.000	3.41	0	0	0.55	0.06	0.92	0.10	1.00	0.059	40.27	70.62	0.100	N/A	0.68	0.32	0.80	0.75	1.00	0.110	4.27	129.57	0.282	N/A	N/A	N/A		0.43	24.79	2.37	30.35	46.915		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.079	6928.96	62.4	2.131	62.2	32.4	14.05	3.41%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	0.44	27.447	2.63	33.72	23	3.56%	2.8	36%	3.42	0.000	3.42	0	0	0.55	0.06	0.91	0.08	1.00	0.058	41.43	75.14	0.106	N/A	0.68	0.34	0.80	0.75	1.00	0.110	4.40	148.36	0.384	N/A	N/A	N/A		0.44	27.54	2.64	33.72	47.079		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.244	6928.80	52.1	2.149	52.0	28.2	12.22	4.12%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0	0.42	21.921	2.10	26.93	19	4.34%	2.9	36%	3.43	0.000	3.43	0	0	0.55	0.06	0.92	0.10	1.00	0.059	39.09	66.02	0.095	N/A	0.67	0.30	0.80	0.75	1.00	0.110	5.43	146.31	0.371	N/A	N/A	N/A		0.42	22.00	2.11	26.93	47.244		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.408	6928.63	51.7	2.070	51.6	27.9	12.08	4.00%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0	0.42	21.651	2.07	26.60	19	4.21%	2.9	36%	3.44	0.000	3.44	0	0	0.55	0.06	0.92	0.10	1.00	0.059	38.97	65.57	0.094	N/A	0.67	0.30	0.80	0.75	1.00	0.110	5.39	143.42	0.354	N/A	N/A	N/A		0.42	21.72	2.08	26.60	47.408		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.572	6928.47	56.0	1.792	55.8	29.9	12.94	3.20%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0	0.43	23.794	2.28	29.23	20	3.36%	2.8	36%	3.45	0.000	3.45	0	0	0.55	0.06	0.92	0.10	1.00	0.058	39.88	69.11	0.099	N/A	0.67	0.31	0.80	0.75	1.00	0.110	4.60	134.56	0.307	N/A	N/A	N/A		0.43	23.87	2.29	29.23	47.572		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.736	6928.30	39.6	1.655	39.5	25.1	10.86	4.18%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0	0.40	15.803	1.51	19.43	14	4.48%	3.0	36%	3.46	0.000	3.46	0	0	0.55	0.05	0.92	0.10	1.00	0.059	36.50	55.93	0.083	N/A	0.67	0.25	0.80	0.75	1.00	0.109	6.55	127.22	0.271	N/A	N/A	N/A		0.40	15.87	1.52	19.43	47.736		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.900	6928.14	26.1	1.478	26.0	22.1	9.56	5.65%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0	0.40	10.387	0.99	12.79	9	6.29%	3.2	36%	3.47	0.000	3.47	0	0	0.55	0.05	0.93	0.10	1.00	0.059	34.21	46.99	0.075	N/A	0.67	0.21	0.80	0.75	1.00	0.109	9.67	123.59	0.256	N/A	N/A	N/A		0.40	10.44	1.00	12.79	47.900		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.064	6927.98	23.9	1.204	23.8	21.3	9.21	5.04%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0	0.40	9.471	0.91	11.66	8	5.67%	3.2	36%	3.48	0.000	3.48	0	0	0.55	0.05	0.93	0.10	1.00	0.059	33.82	45.48	0.073	N/A	0.67	0.20	0.80	0.75	1.00	0.109	9.77	113.97	0.218	N/A	N/A	N/A		0.40	9.52	0.91	11.66	48.064		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.228	6927.81	21.1	1.026	21.0	21.4	9.27	4.86%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0	0.40	8.333	0.80	10.27	7	5.56%	3.3	36%	3.49	0.000	3.49	0	0	0.55	0.05	0.93	0.10	1.00	0.059	33.34	43.61	0.072	N/A	0.67	0.19	0.80	0.75	1.00	0.109	10.45	107.26	0.195	N/A	N/A	N/A		0.40	8.39	0.80	10.27	48.228		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.392	6927.65	21.3	0.929	21.2	21.8	9.46	4.36%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0	0.40	8.386	0.80	10.33	7	4.99%	3.3	36%	3.50	0.000	3.50	0	0	0.55	0.05	0.93	0.10	1.00	0.059	33.36	43.70	0.072	N/A	0.66	0.19	0.80	0.75	1.00	0.109	9.99	103.26	0.182	N/A	N/A	N/A		0.40	8.44	0.81	10.33	48.392		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.556	6927.48	15.5	0.698	15.4	20.2	8.74	4.49%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0	0.40	6.095	0.58	7.52	5	5.42%	3.4	36%	3.51	0.000	3.51	0	0	0.54	0.04	0.94	0.10	1.00	0.059	32.39	39.92	0.069	N/A	0.66	0.16	0.80	0.75	1.00	0.109	12.41	93.38	0.156	N/A	N/A	N/A		0.40	6.14	0.59	7.52	48.556		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.720	6927.32	14.1	0.535	14.0	19.4	8.42	3.80%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0	0.39	5.503	0.53	6.80	4	4.70%	3.4	36%	3.51	0.000	3.51	0	0	0.54	0.04	0.94	0.10	1.00	0.059	32.14	38.94	0.068	N/A	0.66	0.15	0.80	0.75	1.00	0.108	12.57	85.46	0.138	N/A	N/A	N/A		0.39	5.55	0.53	6.80	48.720		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.884	6927.16	15.1	0.474	15.0	19.6	8.48	3.14%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	0.39	5.890	0.56	7.27	5	3.82%	3.3	36%	3.52	0.000	3.52	0	0	0.54	0.04	0.94	0.10	1.00	0.059	32.30	39.58	0.068	N/A	0.66	0.16	0.80	0.75	1.00	0.108	11.27	81.98	0.131	N/A	N/A	N/A		0.39	5.94	0.57	7.27	48.884		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.048	6926.99	18.7	0.603	18.6	20.5	8.89	3.22%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0	0.39	7.298	0.70	9.00	6	3.76%	3.2	36%	3.53	0.000	3.53	0	0	0.54	0.04	0.93	0.10	1.00	0.059	32.90	41.90	0.070	N/A	0.66	0.17	0.80	0.75	1.00	0.108	9.82	88.34	0.144	N/A	N/A	N/A		0.39	7.35	0.70	9.00	49.048		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.212	6926.83	19.1	0.732	18.9	20.7	8.97	3.84%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0	0.39	7.404	0.71	9.13	6	4.48%	3.3	36%	3.54	0.000	3.54	0	0	0.54	0.04	0.93	0.10	1.00	0.058	32.95	42.07	0.070	N/A	0.66	0.17	0.80	0.75	1.00	0.108	10.36	94.60	0.159	N/A	N/A	N/A		0.39	7.45	0.71	9.13	49.212		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.376	6926.66	21.5	0.901	21.4	20.3	8.81	4.20%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0	0.39	8.328	0.80	10.26	7	4.80%	3.2	36%	3.55	0.000	3.55	0	0	0.54	0.05	0.93	0.10	1.00	0.058	33.34	43.59	0.072	N/A	0.66	0.18	0.80	0.75	1.00	0.108	9.92	101.78	0.178	N/A	N/A	N/A		0.39	8.38	0.80	10.26	49.376		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.540	6926.50	20.7	0.896	20.6	19.8	8.56	4.33%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0	0.39	8.011	0.77	9.87	7	4.98%	3.3	36%	3.56	0.000	3.56	0	0	0.54	0.05	0.93	0.10	1.00	0.058	33.20	43.07	0.071	N/A	0.66	0.18	0.80	0.74	1.00	0.108	10.30	101.60	0.178	N/A	N/A	N/A		0.39	8.06	0.77	9.87	49.540		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.704	6926.34	21.3	0.999	21.2	19.9	8.62	4.69%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0	0.39	8.211	0.79	10.11	7	5.39%	3.3	36%	3.57	0.000	3.57	0	0	0.54	0.05	0.93	0.10	1.00	0.058	33.29	43.40	0.071	N/A	0.65	0.18	0.80	0.74	1.00	0.107	10.45	105.71	0.190	N/A	N/A	N/A		0.39	8.26	0.79	10.11	49.704		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.868	6926.17	21.9	0.987	21.7	20.1	8.71	4.52%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	0.39	8.411	0.81	10.36	7	5.17%	3.3	36%	3.58	0.000	3.58	0	0	0.54	0.05	0.93	0.10	1.00	0.058	33.37	43.73	0.072	N/A	0.65	0.19	0.80	0.74	1.00	0.107	10.15	105.14	0.188	N/A	N/A	N/A		0.39	8.46	0.81	10.36	49.868		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.032	6926.01	24.9	1.093	24.7	19.8	8.58	4.40%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	0.39	9.547	0.91	11.75	8	4.95%	3.2	36%	3.59	0.000	3.59	0	0	0.54	0.05	0.93	0.10	1.00	0.058	33.85	45.60	0.073	N/A	0.65	0.20	0.80	0.74	1.00	0.107	9.27	108.97	0.200	N/A	N/A	N/A		0.39	9.59	0.92	11.75	50.032		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.196	6925.84	29.3	1.131	29.2	19.3	8.36	3.86%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	0.39	11.240	1.08	13.82	10	4.26%	3.1	36%	3.60	0.000	3.60	0	0	0.53	0.05	0.93	0.10	1.00	0.057	34.56	48.38	0.076	N/A	0.65	0.21	0.80	0.74	1.00	0.107	7.93	109.61	0.202	N/A	N/A	N/A		0.39	11.29	1.08	13.82	50.196		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

50.360	6925.68	28.4	1.061	28.3	18.3	7.91	3.73%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	0.38	10.869	1.04	13.36	9	4.14%	3.1	36%	3.61	0.000	3.61	0	0	0.53	0.05	0.93	0.10	1.00	0.057	34.41	47.77	0.075	N/A	0.65	0.21	0.80	0.74	1.00	0.107	8.00	106.95	0.194	N/A	N/A	N/A	0.38	10.91	1.04	13.36	50.360		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.524	6925.52	24.9	0.932	24.8	17.3	7.48	3.74%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	0.38	9.497	0.91	11.68	8	4.22%	3.2	36%	3.61	0.000	3.61	0	0	0.53	0.05	0.93	0.10	1.00	0.057	33.83	45.50	0.073	N/A	0.65	0.20	0.80	0.74	1.00	0.107	8.76	102.26	0.179	N/A	N/A	N/A	0.38	9.54	0.91	11.68	50.524		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.688	6925.35	18.7	0.792	18.6	16.3	7.08	4.25%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	0.38	7.088	0.68	8.73	6	4.99%	3.3	36%	3.62	0.000	3.62	0	0	0.53	0.04	0.93	0.10	1.00	0.057	32.81	41.53	0.070	N/A	0.65	0.17	0.80	0.74	1.00	0.106	11.11	96.99	0.165	N/A	N/A	N/A	0.38	7.13	0.68	8.73	50.688		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.852	6925.19	16.3	0.711	16.3	15.7	6.81	4.35%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	0.38	6.194	0.59	7.63	5	5.25%	3.4	36%	3.63	0.000	3.63	0	0	0.53	0.04	0.94	0.10	1.00	0.057	32.43	40.06	0.069	N/A	0.64	0.16	0.80	0.74	1.00	0.106	12.25	93.44	0.156	N/A	N/A	N/A	0.38	6.23	0.60	7.63	50.852		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.016	6925.02	22.7	0.636	22.6	16.4	7.10	2.81%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	0.38	8.577	0.82	10.55	7	3.20%	3.1	36%	3.64	0.000	3.64	0	0	0.53	0.05	0.93	0.10	1.00	0.057	33.44	43.99	0.072	N/A	0.64	0.19	0.80	0.74	1.00	0.106	8.42	88.83	0.145	N/A	N/A	N/A	0.38	8.62	0.82	10.55	51.016	22	1.00	20	9	0.48	0.54	0.45	5.5	14.6	0.15	N/A	5.00	1.20	15.90	0.169	N/A	N/A
51.180	6924.86	32.8	0.634	32.7	16.9	7.34	1.93%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	0.38	12.401	1.19	15.23	11	2.11%	2.9	36%	3.65	0.000	3.65	0	0	0.53	0.05	0.93	0.10	1.00	0.057	35.05	50.28	0.078	N/A	0.64	0.23	0.80	0.74	1.00	0.106	5.61	85.53	0.138	N/A	N/A	N/A	0.38	12.44	1.19	15.23	51.180		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.345	6924.70	41.1	0.665	41.0	16.7	7.24	1.62%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	0.38	15.502	1.48	19.03	14	1.74%	2.8	36%	3.66	0.000	3.66	0	0	0.53	0.05	0.92	0.10	1.00	0.056	36.36	55.39	0.083	N/A	0.64	0.25	0.80	0.74	1.00	0.106	4.44	84.42	0.136	N/A	N/A	N/A	0.38	15.54	1.49	19.03	51.345		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.509	6924.53	41.8	0.943	41.7	17.0	7.38	2.26%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	0.38	15.727	1.51	19.31	14	2.42%	2.8	36%	3.67	0.000	3.67	0	0	0.53	0.05	0.92	0.10	1.00	0.056	36.46	55.76	0.083	N/A	0.64	0.25	0.80	0.74	1.00	0.106	5.06	97.62	0.167	N/A	N/A	N/A	0.38	15.77	1.51	19.31	51.509		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.673	6924.37	55.4	1.092	55.3	17.4	7.52	1.97%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	0.39	21.798	2.09	26.74	18	2.08%	2.7	36%	3.68	0.000	3.68	0	0	0.53	0.06	0.91	0.10	1.00	0.056	39.02	65.76	0.094	N/A	0.64	0.30	0.80	0.74	1.00	0.105	3.90	104.43	0.186	N/A	N/A	N/A	0.39	21.84	2.09	26.74	51.673		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.837	6924.20	60.7	1.308	60.6	17.4	7.54	2.15%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	0.40	24.357	2.33	29.88	20	2.26%	2.7	36%	3.69	0.000	3.69	0	0	0.53	0.06	0.91	0.10	1.00	0.055	40.10	69.98	0.100	N/A	0.64	0.32	0.80	0.74	1.00	0.105	3.82	114.27	0.219	N/A	N/A	N/A	0.40	24.40	2.34	29.88	51.837		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.001	6924.04	48.7	1.307	48.6	16.9	7.32	2.68%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	0.38	18.474	1.77	22.67	16	2.85%	2.8	36%	3.70	0.000	3.70	0	0	0.52	0.05	0.92	0.10	1.00	0.056	37.62	60.29	0.088	N/A	0.64	0.27	0.80	0.74	1.00	0.105	4.94	111.95	0.210	N/A	N/A	N/A	0.38	18.51	1.77	22.67	52.001		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.165	6923.88	35.0	1.231	34.9	16.5	7.16	3.51%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	0.37	13.049	1.25	16.03	11	3.83%	3.0	36%	3.71	0.000	3.71	0	0	0.52	0.05	0.92	0.10	1.00	0.056	35.32	51.35	0.079	N/A	0.63	0.23	0.80	0.74	1.00	0.105	6.96	111.55	0.209	N/A	N/A	N/A	0.37	13.09	1.25	16.03	52.165		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.329	6923.71	25.8	1.019	25.7	18.4	7.97	3.95%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	0.37	9.574	0.92	11.78	8	4.45%	3.2	36%	3.71	0.000	3.71	0	0	0.52	0.05	0.93	0.10	1.00	0.056	33.86	45.63	0.073	N/A	0.63	0.20	0.80	0.74	1.00	0.105	8.94	105.24	0.188	N/A	N/A	N/A	0.37	9.62	0.92	11.78	52.329		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.493	6923.55	27.7	1.001	27.5	21.5	9.31	3.62%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.37	10.234	0.98	12.59	9	4.04%	3.1	36%	3.72	0.000	3.72	0	0	0.52	0.05	0.93	0.10	1.00	0.056	34.14	46.73	0.074	N/A	0.63	0.20	0.80	0.74	1.00	0.105	8.27	104.11	0.185	N/A	N/A	N/A	0.37	10.28	0.98	12.59	52.493		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.657	6923.38	60.6	1.317	60.5	25.5	11.06	2.17%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.40	23.953	2.29	29.41	20	2.28%	2.7	36%	3.73	0.000	3.73	0	0	0.52	0.06	0.91	0.10	1.00	0.055	39.94	69.35	0.099	N/A	0.63	0.31	0.80	0.74	1.00	0.104	3.88	114.23	0.219	N/A	N/A	N/A	0.40	24.02	2.30	29.41	52.657		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.821	6923.22	49.3	1.528	49.1	22.5	9.76	3.10%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	0.38	18.438	1.77	22.64	16	3.30%	2.9	36%	3.74	0.000	3.74	0	0	0.52	0.05	0.92	0.10	1.00	0.055	37.61	60.25	0.088	N/A	0.63	0.27	0.80	0.74	1.00	0.104	5.29	119.88	0.240	N/A	N/A	N/A	0.38	18.49	1.77	22.64	52.821		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.985	6923.06	30.4	1.330	30.3	21.5	9.31	4.37%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	0.37	11.174	1.07	13.74	9	4.84%	3.1	36%	3.75	0.000	3.75	0	0	0.52	0.05	0.93	0.10	1.00	0.056	34.54	48.28	0.076	N/A	0.63	0.21	0.80	0.74	1.00	0.104	8.44	116.01	0.225	N/A	N/A	N/A	0.37	11.22	1.07	13.74	52.985		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.149	6922.89	22.3	0.950	22.1	23.0	9.96	4.27%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	0.37	8.143	0.78	10.04	7	4.91%	3.3	36%	3.76	0.000	3.76	0	0	0.52	0.05	0.93	0.10	1.00	0.056	33.26	43.29	0.071	N/A	0.63	0.18	0.80	0.74	1.00	0.104	10.23	102.71	0.181	N/A	N/A	N/A	0.37	8.20	0.78	10.04	53.149		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.313	6922.73	20.4	0.525	20.3	25.7	11.15	2.57%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	0.37	7.444	0.71	9.19	6	3.00%	3.2	36%	3.77	0.000	3.77	0	0	0.52	0.04	0.93	0.10	1.00	0.056	32.97	42.15	0.070	N/A	0.62	0.17	0.80	0.74	1.00	0.104	9.05	83.15	0.133	N/A	N/A	N/A	0.37	7.50	0.72	9.19	53.313		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.477	6922.56	18.8	0.445	18.6	27.4	11.88	2.37%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	0.37	6.818	0.65	8.43	5	2.81%	3.2	36%	3.78	0.000	3.78	0	0	0.52	0.04	0.93	0.10	1.00	0.056	32.70	41.13	0.070	N/A	0.62	0.17	0.80	0.74	1.00	0.104	9.37	78.94	0.126	N/A	N/A	N/A	0.37	6.88	0.66	8.43	53.477		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.641	6922.40	19.9	0.592	19.7	29.5	12.77	2.98%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	0.37	7.196	0.69	8.89	6	3.50%	3.2	36%	3.79	0.000	3.79	0	0	0.52	0.04	0.93	0.10	1.00	0.056	32.86	41.76	0.070	N/A	0.62	0.17	0.80	0.74	1.00	0.103	9.76	86.82	0.141	N/A	N/A	N/A	0.37	7.26	0.70	8.89	53.641		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.805	6922.23	19.2	0.692	19.1	29.6	12.83	3.60%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	0.36	6.949	0.67	8.59	5	4.25%	3.3	36%	3.80	0.000	3.80	0	0	0.51	0.04	0.93	0.10	1.00	0.055	32.76	41.35	0.070	N/A	0.62	0.17	0.80	0.74	1.00	0.103	10.68	91.78	0.152	N/A	N/A	N/A	0.36	7.02	0.67	8.59	53.805		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.969	6922.07	25.0	0.992	24.8	30.4	13.16	3.97%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	0.36	9.017	0.86	11.13	7	4.51%	3.2	36%	3.81	0.000	3.81	0	0	0.51	0.05	0.93	0.10	1.00	0.055	33.63	44.76	0.073	N/A	0.62	0.19	0.80	0.74	1.00	0.103	9.34	103.86	0.184	N/A	N/A	N/A	0.36	9.09	0.87	11.13	53.969		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.133	6921.91	55.5	0.983	55.3	32.3	13.99	1.77%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	0.38	20.875	2.00	25.65	18	1.87%	2.7	36%	3.81	0.000	3.81	0	0	0.51	0.06	0.91	0.10	1.00	0.054	38.64	64.30	0.093	N/A	0.62	0.29	0.80	0.73	1.00	0.103	3.84	98.63	0.169	N/A	N/A	N/A	0.38	20.95	2.01	25.65	54.133		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.297	6921.74	67.1	0.985	66.9	28.4	12.32	1.47%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	0.40	26.460	2.53	32.49	21	1.54%	2.6	36%	3.82	0.000	3.82	0	0	0.51	0.06	0.91	0.10	1.00	0.054	41.00	73.49	0.104	N/A	0.62	0.33	0.80	0.73	1.00	0.103	3.09	100.51	0.174	N/A	N/A	N/A	0.40	26.53	2.54	32.49	54.297		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.461	6921.58	69.8	0.720	69.6	25.3	10.94	1.03%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	0.40	27.739	2.66	34.04	22	1.08%	2.5	36%	3.83	0.000	3.83	0	0	0.51	0.06	0.91	0.08	1.00	0.053	41.54	75.58	0.107	N/A	0.62	0.34	0.80	0.73	1.00	0.102	2.60	88.51	0.144	N/A	N/A	N/A	0.40	27.80	2.66	34.04	54.461		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.625	6921.41	62.1	0.726	62.0	22.7	9.82	1.17%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	0.39	23.857	2.29	29.28	20	1.23%	2.5	36%	3.84	0.000	3.84	0	0	0.51	0.06	0.91	0.10	1.00	0.054	39.90	69.18	0.099	N/A	0.61	0.31	0.80	0.73	1.00	0.102	2.99	87.41	0.142	N/A	N/A	N/A	0.39	23.91	2.29	29.28	54.625		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.789	6921.25	52.4	0.899	52.3	5.0	2.18	1.72%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	0.37	19.238	1.84	23.57	16	1.82%	2.7	36%	3.85	0.000	3.85	0	0	0.51	0.05	0.92	0.10	1.00	0.054	37.93	61.50	0.090	N/A	0.61	0.28	0.80	0.73	1.00	0.102	3.99	94.11	0.158	N/A	N/A	N/A	0.37	19.25	1.84	23.57	54.789		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.953	6921.09	48.3	0.966	48.3	5.0	2.15	2.00%	Coarse Alluvium	0.056	111.0	3.03	0.000	3.03	0	0.36	17.368	1.66	21.28	15	2.13%	2.8	36%	3.86	0.000	3.86	0	0	0.51	0.05	0.92	0.10	1.00	0.054	37.14	58.42	0.086	N/A	0.61	0.27	0.80	0.73	1.00	0.102	4.53	96.37	0.163	N/A	N/A	N/A	0.36	17.38	1.66	21.28	54.953		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.117	6920.92	67.2	1.039	67.1	5.4	2.36	1.55%	Coarse Alluvium	0.056	111.0	3.04	0.000	3.04	0	0.39	26.183	2.51	32.08	21	1.62%	2.6	36%	3.87	0.000	3.87	0	0	0.51	0.06	0.91	0.10	1.00	0.053	40.86	72.94	0.103	N/A	0.61	0.33	0.80	0.73	1.00	0.102	3.20	102.62	0.180	N/A	N/A	N/A	0.39	26.20	2.51	32.08	55.117		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.281	6920.76	84.1	0.932	84.1	4.3	1.85	1.11%	Coarse Alluvium	0.056	111.0	3.05	0.000	3.05	0	0.42	34.911	3.34	42.76	27	1.15%	2.4	36%	3.88	0.000	3.88	0	0	0.51	0.07	0.90	0.01	1.00	0.053	44.54	87.31	0.123	N/A	0.61	0.38	0.80	0.73	1.00	0.102	2.37	101.27	0.177	N/A	N/A	N/A	0.42	34.92	3.34	42.76	55.281		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.446	6920.59	83.1	0.812	83.1	4.3	1.85	0.98%	Coarse Alluvium	0.056	111.0	3.06	0.000	3.06	0	0.41	34.270	3.28	41.98	26	1.01%	2.4	36%	3.89	0.000	3.89	0	0	0.51	0.07	0.90	0.01	1.00	0.052	44.27	86.25	0.121	N/A	0.61	0.37	0.80	0.73	1.00	0.101	2.28	95.54	0.161	N/A	N/A	N/A	0.41	34.28	3.28	41.98	55.446		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.610	6920.43	75.9	0.925	75.9	4.4	1.91	1.22%	Coarse Alluvium	0.056	111.0	3.07	0.000	3.07	0	0.40	30.417	2.91	37.26	24	1.27%	2.5	36%	3.90	0.000	3.90	0	0	0.51	0.06	0.90	0.05	1.00	0.053	42.65	79.91	0.113	N/A	0.61	0.35	0.80	0.73	1.00	0.101	2.66	99.02	0.170	N/A	N/A	N/A	0.40	30.43	2.91	37.26	55.610		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.774	6920.27	62.9	0.964	62.9	4.0	1.73	1.53%	Coarse Alluvium	0.056	111.0	3.08	0.000	3.08	0	0.38	23.848	2.28	29.21	19	1.61%	2.6	36%	3.91	0.000	3.91	0	0	0.50	0.06	0.91	0.10	1.00	0.053	39.87	69.09	0.098	N/A	0.60	0.31	0.80	0.73	1.00	0.101	3.37	98.35	0.168	N/A	N/A	N/A	0.38	23.86	2.28	29.21	55.774		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.938	6920.10	59.2	0.890	59.2	4.0	1.73	1.50%	Coarse Alluvium	0.056	111.0	3.09	0.000	3.09	0	0.37	22.024	2.11	26.98	18	1.59%	2.6	36%	3.91	0.000	3.91	0	0	0.50	0.06	0.91	0.10	1.00	0.053	39.10	66.08	0.095	N/A	0.60	0.30	0.80	0.73	1.00	0.101	3.50	94.34	0.158	N/A	N/A	N/A	0.37	22.03	2.11	26.98	55.938	16	1.00	15	6	0.38	0.58	0.40	5.5	11.4	0.13	N/A	5.00	1.20	12.07	0.132	N/A	N/A
56.102	6919.94	55.0	0.960	54.9	4.1	1.77	1.75%	Coarse Alluvium	0.056	111.0	3.10	0.000	3.10	0	0.36	19.987	1.91	24.49	17	1.85%	2.7	36%	3.92	0.000	3.92	0	0	0.50	0.06	0.91	0.10	1.00	0.053	38.24	62.73	0.091	N/A	0.60	0.29	0.80	0.73	1.00	0.101	3.95	96.74	0.164	N/A	N/A	N/A	0.36	20.00	1.91	24.49	56.102		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.266	6919.77	49.2	1.187	49.2	3.9	1.71	2.41%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	0.35	17.366	1.66	21.28	15	2.57%	2.8	36%	3.93	0.000	3.93	0	0	0.50	0.05	0.92	0.10	1.00	0.053	37.13	58.41	0.086	N/A	0.60	0.27	0.80	0.73	1.00	0.101	4.94	105.04	0.188	N/A	N/A	N/A	0.35	17.38	1.66	21.28	56.266		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.430	6919.61	42.4	1.546	42.4	3.9	1.71	3.64%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	0.35	14.887	1.43	18.24	13	3.93%	3.0	36%	3.94	0.000	3.94	0	0	0.50	0.05	0.92	0.10	1.00	0.053	36.09	54.33	0.082	N/A	0.60	0.25	0.80	0.73	1.00	0.100	6.57	119.84	0.240	N/A	N/A	N/A	0.35	14.90	1.43	18.24	56.430		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.594	6919.45	42.7	1.380	42.7	4.0	1.73	3.23%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	0.35	14.962	1.43	18.33	13	3.48%	3.0	36%	3.95	0.000	3.95	0	0	0.50	0.05	0.92	0.10	1.00	0.053	36.12	54.45	0.082	N/A	0.60	0.25	0.80	0.73	1.00	0.100	6.21	113.90	0.217	N/A	N/A	N/A	0.35	14.97	1.43	18.33	56.594		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.758	6919.28	65.0	1.396	65.0	4.0	1.75	2.15%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	0.38	24.434	2.34	29.93	20	2.26%	2.7	36%	3.96	0.000	3.96	0	0	0.50	0.06	0.91	0.10	1.00	0.052	40.12	70.05	0.100	N/A	0.60	0.32	0.80	0.73	1.00	0.100	3.88	116.22	0.226	N/A	N/A	N/A	0.38	24.44	2.34	29.93	56.758		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.922	6919.12	104.5	1.907	104.5	4.8	2.08	1.82%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	0.43	45.391	4.35	55.60	32	1.88%	2.5	36%	3.97	0.000	3.97	0	0	0.50	0.07	0.88	-0.08	1.00	0.051	48.97	104.57	0.150	N/A	0.60	0.43	0.78	0.71	1.00	0.102	2.60	144.63	0.361	N/A	N/A	N/A	0.43	45.40	4.35	55.60	56.922		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.086	6918.95	101.6	2.343	101.6	4.4	1.89	2.31%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	0.43	43.619	4.18	53.43	31	2.38%	2.5	36%	3.98	0.000	3.98	0	0	0.50	0.07	0.88	-0.07	1.00	0.051	48.22	101.65	0.145	N/A	0.59	0.42	0.79	0.72	1.00	0.101	2.98	159.04	0.454	N/A	N/A	N/A	0.43	43.63	4.18	53.43	57.086		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.250	6918.79	97.9	2.432	97.9	4.6	1.97	2.48%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	0.42	41.408	3.97	50.72	30	2.57%	2.6	36%	3.99	0.000	3.99	0	0	0.50	0.07	0.89	-0.05	1.00	0.051	47.29	98.01	0.139	N/A	0.59	0.41	0.79	0.72	1.00	0.100	3.17	160.91	1.000	N/A	N/A	N/A	0.42	41.42	3.97	50.72	57.250		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.414	6918.63	83.6	2.203	83.6	4.3	1.87	2.64%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	0.40	33.497	3.21	41.03	25	2.74%	2.6	36%	4.00	0.000	4.00	0	0	0.50	0.07	0.90	0.02	1.00	0.051	43.95	84.98	0.120	N/A	0.59	0.37	0.80	0.73	1.00	0.099	3.64	149.22	0.389	N/A	N/A	N/A	0.40	33.51	3.21	41.03	57.414		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.578	6918.46	62.2	1.815	62.2	3.7	1.59	2.92%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	0.37	22.817	2.19	27.95	19	3.07%	2.8	36%	4.01	0.000	4.01	0	0	0.50	0.06	0.91	0.10	1.00	0.052	39.44	67.39	0.096	N/A	0.59	0.31	0.80	0.73	1.00	0.099	4.66	130.35	0.286	N/A	N/A	N/A	0.37	22.83	2.19	27.95	57.578		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.742	6918.30	56.2	1.789	56.2	3.9	1.67	3.18%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	0.36	19.982	1.91	24.48	17	3.38%	2.8	36%	4.01	0.000	4.01	0	0	0.49	0.06	0.91	0.10	1.00	0.052	38.24	62.72	0.091	N/A	0.59	0.29	0.80	0.73	1.00	0.099	5.21	127.65	0.273	N/A	N/A	N/A	0.36	19.99	1.91	24.48	57.742		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.906	6918.13	72.6	1.932	72.6	4.2	1.81	2.66%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	0.38	27.675	2.65	33.90	22	2.78%	2.7	36%	4.02	0.000	4.02	0	0	0.49	0.06	0.90	0.09	1.00	0.052	41.49	75.39	0.106	N/A	0.59	0.34	0.80	0.73	1.00	0.099	4.04	136.87	0.318	N/A	N/A	N/A	0.38	27.69	2.65	33.90	57.906		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.070	6917.97	58.2	2.197	58.1	4.3	1.85	3.78%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	0.36	20.764	1.99	25.44	17	4.00%	2.9	36%	4.03	0.000	4.03	0	0	0.49	0.06	0.91	0.10	1.00	0.052	38.57	64.01	0.092	N/A	0.59	0.29	0.80	0.73	1.00	0.099	5.54	141.05	0.341	N/A	N/A	N/A	0.36	20.77	1.99	25.44	58.070		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.234	6917.81	45.7	1.766	45.6	4.1	1.77	3.87%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	0.34	15.637	1.50	19.16	13	4.16%	3.0	36%	4.04	0.000	4.04	0	0	0.49	0.05	0.92	0.10	1.00	0.052	36.40	55.56	0.083	N/A	0.58	0.25	0.80	0.73	1.00	0.098	6.56	125.71	0.265	N/A	N/A	N/A	0.34	15.65	1.50	19.16	58.234		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.398	6917.64	44.7	1.643	44.7	4.9	2.14	3.67%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	0.34	15.274	1.46	18.72	13	3.96%	3.0	36%	4.05	0.000	4.05	0	0	0.49	0.05	0.92	0.10	1.00	0.052	36.25	54.97	0.082	N/A	0.58	0.25	0.80	0.73	1.00	0.098	6.52	121.95	0.249	N/A	N/A	N/A	0.34	15.28	1.46	18.72	58.398		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.562	6917.48	121.5	2.456	121.5	6.8	2.95	2.02%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	0.45	54.444	5.21	66.69	37	2.08%	2.4	36%	4.06	0.000	4.06	0	0	0.49	0.08	0.87	-0.15	1.00	0.049	52.80	119.49	0.178	N/A	0.58	0.47	0.76	0.69	1.00	0.104	2.52	168.35	1.000	N/A	N/A	N/A	0.45	54.46	5.21	66.69	58.562		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.726	6917.31	252.7	2.868	252.7	7.4	3.21	1.13%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	0.63	158.765	15.21	194.44	77	1.15%	2.0	36%	4.07	0.000	4.07	0	0	0.49	0.25	0.60	-0.60	1.00	0.034	96.86	291.30	1.000	N/A	0.58	0.81	0.60	0.53	1.00	0.135	1.35	262.70	1.000	N/A	N/A	N/A	0.63	158.79	15.20	194.44	58.726		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.890	6917.15	290.8	4.380	290.8	8.2	3.54	1.51%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	0.68	198.567	19.02	243.19	88	1.52%	2.1	36%	4.08	0.000	4.08	0	0	0.49	0.30	0.52	-0.60	1.00	0.029	113.67	356.86	1.000	N/A	0.58	0.90	0.60	0.53	1.00	0.135	1.40	341.47	1.000	N/A	N/A	N/A	0.68	198.60	19.01	243.19	58.890		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.054	6916.99	233.5	4.940	233.5	8.2	3.54	2.12%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	0.60	139.934	13.40	171.39	71	2.15%	2.2	36%	4.09	0.000	4.09	0	0	0.49	0.19	0.69	-0.56	1.00	0.039	88.90	260.29	1.000	N/A	0.58	0.76	0.62	0.54	1.00	0.130	1.78	305.25	1.000	N/A	N/A	N/A	0.60	139.97	13.40	171.39	59.054		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.218	6916.82	179.0	4.573	178.9	7.9	3.44	2.56%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	0.52	93.558	8.96	114.59	54	2.60%	2.4	36%	4.10	0.000	4.10	0	0	0.49	0.12	0.81	-0.37	1.00	0.046	69.32	183.91	0.606	N/A	0.58	0.62	0.69	0.61	1.00	0.116	2.26	259.32	1.000	N/A	N/A	N/A	0.52	93.58	8.96	114.59	59.218		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.382	6916.66	125.7	3.556	125.7	7.6	3.28	2.83%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	0.45	56.434	5.41	69.13	37	2.90%	2.5	36%	4.11	0.000	4.11	0	0	0.49	0.08	0.87	-0.16	1.00	0.049	53.64	122.77	0.186	N/A	0.58	0.48	0.76	0.68	1.00	0.104	2.96	204.59	1.000	N/A	N/A	N/A	0.45	56.46	5.41	69.13	59.382		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.547	6916.49	86.3	3.115	86.3	7.2	3.13	3.61%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	0.39	33.835	3.24	41.45	25	3.75%	2.7	36%	4.12	0.000	4.12	0	0	0.49	0.07	0.89	0.02	1.00	0.050	44.09	85.55	0.120	N/A	0.57	0.37	0.80	0.72	1.00	0.097	4.28	177.26	1.000	N/A	N/A	N/A	0.39	33.85	3.24	41.45	59.547		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.711	6916.33	83.3	2.586	83.3	7.5	3.23	3.10%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	0.39	32.210	3.09	39.46	24	3.23%	2.7	36%	4.12	0.000	4.12	0	0	0.49	0.06	0.90	0.04	1.00	0.050	43.41	82.87	0.117	N/A	0.57	0.36	0.80	0.72	1.00	0.097	4.06	160.17	1.000	N/A	N/A	N/A	0.39	32.23	3.09	39.46	59.711		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.875	6916.17	121.5	1.784	121.5	8.1	3.52	1.47%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	0.44	53.474	5.12	65.51	36	1.51%	2.4	36%	4.13	0.000	4.13	0	0	0.48	0.08	0.87	-0.14	1.00	0.049	52.39	117.90	0.175	N/A	0.57	0.47	0.77	0.68	1.00	0.102	2.20	144.38	0.360	N/A	N/A	N/A	0.44	53.50	5.12	65.51	59.875		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.039	6916.00	134.5	2.632	134.4	8.2	3.54	1.96%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	0.46	61.442	5.89	75.26	40	2.01%	2.4	36%	4.14	0.000	4.14	0	0	0.48	0.09	0.86	-0.20	1.00	0.048	55.75	131.02	0.206	N/A	0.57	0.50	0.75	0.67	1.00	0.105	2.37	178.24	1.000	N/A	N/A	N/A	0.46	61.46	5.88	75.26	60.039		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.203	6915.84	119.0	3.618	119.0	7.9	3.44	3.04%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	0.43	51.739	4.96	63.38	35	3.13%	2.6	36%	4.15	0.000	4.15	0	0	0.48	0.08	0.87	-0.13	1.00	0.049	51.66	115.04	0.169	N/A	0.57	0.46	0.77	0.69	1.00	0.101	3.21	203.44	1.000	N/A	N/A	N/A	0.43	51.76	4.96	63.38	60.203		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.367	6915.67	101.5	4.702	101.5	8.0	3.48	4.63%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	0.41	41.518	3.98	50.86	29	4.79%	2.8	36%	4.16	0.000	4.16	0	0	0.48	0.07	0.88	-0.05	1.00	0.049	47.34	98.20	0.140	N/A	0.57	0.41	0.79	0.72	1.00	0.097	4.45	226.29	1.000	N/A	N/A	N/A	0.41	41.54	3.98	50.86	60.367		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-10

Data File: 13-52118_RP10-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP10-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

6883.40	Water surface elevation during CPT investigation (ft amsl)
6883.40	Water surface elevation at t_0 (ft amsl)
6883.40	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ratio, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6973.60	Ground Surface Elevation at time of CPT (ft amsl)
6994.60	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
1.22	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6929.06	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Midpoint	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6994.6	6993.9	6993.1	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6993.1	6991.6	6990.1	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6990.1	6981.9	6973.6	16.5	0.058	116.4	1.222	0.742	0.00	0.00	1.222	0.742

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at time of CPT (tsf)	Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q	Normalized Friction Ratio, F (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_0 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? 1=Yes 0=No	susceptible or mod susceptible to 1=Yes 0=No
0.164	6973.44	3.5	0.010	3.3	35.8	15.52	0.29%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	1.70	5.525	0.53	7.23	345	0.29%	1.2	59%	1.23	0.000	1.23	0	0
0.328	6973.27	4.6	0.108	4.5	8.5	3.66	2.36%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1.70	7.701	0.74	9.54	227	2.37%	1.9	59%	1.24	0.000	1.24	0	0
0.492	6973.11	11.3	0.106	11.3	5.3	2.28	0.94%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1.70	19.176	1.84	23.55	375	0.94%	1.5	59%	1.25	0.000	1.25	0	0
0.656	6972.94	30.1	0.223	30.0	9.0	3.90	0.74%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1.70	51.034	4.89	62.61	749	0.74%	1.2	59%	1.26	0.000	1.26	0	0
0.820	6972.78	48.2	0.257	48.2	1.7	0.73	0.53%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	1.70	81.923	7.85	100.34	960	0.53%	1.1	59%	1.27	0.000	1.27	0	0
0.984	6972.62	75.1	0.280	75.0	8.6	3.74	0.37%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1.70	127.534	12.22	156.28	1246	0.37%	0.9	59%	1.28	0.000	1.28	0	0
1.148	6972.45	70.6	0.336	70.6	2.4	1.02	0.48%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1.70	120.054	11.50	147.04	1005	0.48%	1.0	59%	1.29	0.000	1.29	0	0
1.312	6972.29	66.8	0.393	66.8	3.9	1.69	0.59%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1.70	113.560	10.88	139.11	832	0.59%	1.1	59%	1.30	0.000	1.30	0	0
1.476	6972.12	68.0	0.456	68.0	1.7	0.75	0.67%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1.70	115.617	11.07	141.60	752	0.67%	1.2	59%	1.31	0.000	1.31	0	0
1.640	6971.96	68.8	0.760	68.8	0.9	0.41	1.11%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1.70	116.909	11.20	143.17	685	1.11%	1.4	59%	1.32	0.000	1.32	0	0
1.804	6971.80	75.0	1.185	75.0	2.1	0.89	1.58%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1.70	127.534	12.22	156.19	679	1.58%	1.6	59%	1.33	0.000	1.33	0	0
1.968	6971.63	105.1	1.817	105.1	7.3	3.17	1.73%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1.70	178.670	17.11	218.88	873	1.73%	1.6	59%	1.34	0.000	1.34	0	0
2.133	6971.47	132.3	3.007	132.2	11.7	5.08	2.27%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1.62	214.790	20.57	263.16	1019	2.28%	1.6	48%	1.35	0.000	1.35	0	0
2.297	6971.30	159.7	4.044	159.6	17.5	7.57	2.53%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1.60	254.617	24.39	311.99	1148	2.53%	1.7	48%	1.36	0.000	1.36	0	0
2.461	6971.14	171.5	5.127	171.4	23.0	9.95	2.99%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1.57	268.780	25.75	329.40	1155	2.99%	1.7	48%	1.37	0.000	1.37	0	0
2.625	6970.98	168.1	5.694	168.1	11.6	5.02	3.39%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1.54	259.365	24.84	317.73	1065	3.39%	1.8	48%	1.38	0.000	1.38	0	0
2.789	6970.81	152.4	5.098	152.3	5.4	2.36	3.35%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1.52	231.536	22.18	283.58	911	3.35%	1.8	48%	1.39	0.000	1.39	0	0
2.953	6970.65	136.3	4.745	136.3	2.2	0.94	3.48%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1.51	205.149	19.65	251.23	772	3.49%	1.9	48%	1.40	0.000	1.40	0	0
3.117	6970.48	116.0	4.208	115.9	1.7	0.73	3.63%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1.56	181.194	17.36	221.89	623	3.63%	1.9	48%	1.41	0.000	1.41	0	0
3.281	6970.32	100.2	3.982	100.1	22.8	9.86	3.97%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.61	161.147	15.44	197.61	513	3.98%	2.0	48%	1.42	0.000	1.42	0	0
3.445	6970.16	91.8	3.420	91.7	5.0	2.15	3.73%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.63	149.505	14.32	183.13	448	3.74%	2.0	48%	1.43	0.000	1.43	0	0
3.609	6969.99	81.4	3.048	81.4	5.0	2.18	3.74%	General Fill	0.057	113.8	0.21	0.000	0.21	0	1.66	135.193	12.95	165.61	380	3.75%	2.0	48%	1.44	0.000	1.44	0	0
3.773	6969.83	82.5	2.961	82.4	20.8	9.01	3.59%	General Fill	0.057	113.8	0.22	0.000	0.22	0	1.64	134.774	12.91	165.29	369	3.60%	2.0	48%	1.45	0.000	1.45	0	0
3.937	6969.66	88.9	2.980	88.9	6.2	2.70	3.35%	General Fill	0.057	113.8	0.23	0.000	0.23	0	1.59	141.049	13.51	172.79	382	3.36%	2.0	48%	1.45	0.000	1.45	0	0
4.101	6969.50	94.1	3.569	94.1	6.1	2.64	3.79%	General Fill	0.057	113.8	0.24	0.000	0.24	0	1.55	145.714	13.96	178.50	388	3.80%	2.0	48%	1.46	0.000	1.46	0	0
4.265	6969.33	110.6	4.227	110.6	8.8	3.80	3.82%	General Fill	0.057	113.8	0.25	0.000	0.25	0	1.48	163.145	15.63	199.87	440	3.83%	2.0	48%	1.47	0.000	1.47	0	0
4.429	6969.17	119.7	4.319	119.6	5.1	2.22	3.61%	General Fill	0.057	113.8	0.26	0.000	0.26	0	1.44	171.691	16.45	210.29	459	3.62%	2.0	48%	1.48	0.000	1.48	0	0
4.593	6969.01	108.1	3.869	108.0	4.5	1.93	3.58%	General Fill	0.057	113.8	0.27	0.000	0.27	0	1.46	157.335	15.07	192.71	400	3.59%	2.0	48%	1.49	0.000	1.49	0	0
4.757	6968.84	88.7	3.214	88.7	1.7	0.75	3.62%	General Fill	0.057	113.8	0.28	0.000	0.28	0	1.51	133.571	12.79	163.58	317	3.64%	2.0	48%	1.50	0.000	1.50	0	0
4.921	6968.68	73.0	2.450	72.9	4.8	2.09	3.36%	General Fill	0.057	113.8	0.29	0.000	0.29	0	1.55	113.196	10.84	138.67	252	3.37%	2.0	48%	1.51	0.000	1.51	0	0
5.085	6968.51	67.2	2.274	67.2	1.4	0.61	3.38%	General Fill	0.057	113.8	0.30	0.000	0.30	0	1.56	104.826	10.04	128.38	225	3.40%	2.1	48%	1.52	0.000	1.52	0	0
5.249	6968.35	70.1	2.479	70.1	1.2	0.53	3.54%	General Fill	0.057	113.8	0.31	0.000	0.31	0	1.53	107.329	10.28	131.44	227	3.55%	2.1	48%	1.53	0.000	1.53	0	0
5.413	6968.19	79.2	2.592	79.2	2.5	1.10	3.27%	General Fill	0.057	113.8	0.32	0.000	0.32	0	1.48	117.308	11.24	143.67	249	3.28%	2.0	48%	1.54	0.000	1.54	0	0
5.577	6968.02	117.1	2.461	117.1	6.0	2.58	2.10%	General Fill	0.057	113.8	0.33	0.000	0.33	0	1.36	159.437	15.27	195.29	359	2.11%	1.8	48%	1.55	0.000	1.55	0	0
5.741	6967.86	136.7	2.097	136.7	4.2	1.83	1.53%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.31	179.302	17.17	219.60	407	1.54%	1.6	48%	1.56	0.000	1.56	0	0
5.905	6967.69	145.9	1.683	145.9	5.5	2.38	1.15%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.29	187.688	17.98	229.88	423	1.16%	1.5	48%	1.57	0.000	1.57	0	0
6.069	6967.53	149.2	1.876	149.2	5.4	2.34	1.26%	General Fill	0.057	113.8	0.35	0.000	0.35	0	1.27	189.880	18.19	232.56	421	1.26%	1.6	48%	1.58	0.000	1.58	0	0
6.234	6967.37	147.6	1.838	147.6	4.2	1.83	1.25%	General Fill	0.057	113.8	0.36	0.000	0.36	0	1.27	187.064	17.92	229.10	406	1.25%	1.6	48%	1.59	0.000	1.59	0	0
6.398	6967.20	145.8	2.024	145.8	3.0	1.30	1.39%	General Fill	0.057	113.8	0.37	0.000	0.37	0	1.26	184.143	17.64	225.51	391	1.39%	1.6	48%	1.59	0.000	1.59	0	0
6.562	6967.04	139.7	2.297	139.7	2.9	1.26	1.64%	General Fill	0.057	113.8	0.38	0.000	0.38	0	1.26	176.580	16.91	216.25	365	1.65%	1.7	48%	1.60	0.000	1.60	0	0
6.726	6966.87	120.4	3.073	120.4	2.8	1.22	2.55%	General Fill	0.057	113.8	0.39	0.000	0.39	0	1.29	155.028	14.85	189.86	307	2.56%	1.9	48%	1.61	0.000	1.61	0	0
6.890	6966.71	92.0	3.381	92.0	3.3	1.42	3.68%	Coarse Tailings	0.054	108.1	0.40	0.000	0.40	0	1.33	122.629	11.75	150.19	229	3.69%	2.1	21%	1.62	0.000	1.62	0	0
7.054	6966.55	74.6	2.934	74.6	7.3	3.15	3.93%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	1.36	101.675	9.74	124.58	182	3.95%	2.2	21%	1.63	0.000	1.63	0	0
7.218	6966.38	196.1	3.150	195.9	28.4	12.30	1.61%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	1.19	233.850	22.40	286.61	410	1.61%	1.6	21%	1.64	0.000	1.64	0	0
7.382	6966.22	197.9	3.377	197.8	12.8	5.53	1.71%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	1.19	234.754	22.49	287.57	463	1.71%	1.7	21%	1.65	0.000	1.65	0	0
7.546	6966.05	115.4	2.830	115.4	0.7	0.30	2.45%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	1.25	144.853	13.87	177.38	264	2.46%	1.9	21%	1.66	0.000	1.66	0	0
7.710	6965.89	74.5	3.389	74.5	0.1	0.06	4.55%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	1.32	98.260	9.41	120.35	167	4.58%	2.3	21%	1.67	0.000	1.67	0	0
7.874	6965.73	70.5	3.113	70.5	4.7	2.03	4.41%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	1.32	92.919	8.90	113.83	155	4.44%	2.3	21%	1.68	0.000	1.68	0	0
8.038	6965.56	78.3	3.495	78.0	46.7	20.25	4.46%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	1.29	100.770	9.65	123.86	168	4.49%	2.2	21%	1.68	0.000	1.68	0	0
8.202	6965.40	192.2	4.149	191.3	155.3	67.31	2.16%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	1.16	221.192	21.19	272.22	407	2.16%	1.8	21%	1.69	0.000	1.69	0	0
8.366	6965.23	278.0	3.670	277.8	25.1	10.88	1.32%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	1.15	319.699	30.62	391.70	579	1.32%	1.5	21%	1.70	0.000	1.70	0	0
8.530	6965.07	312.7	4.080	312.7	6.6	2.87	1.30%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	1.15	358.078	34.30	438.53	639	1.31%	1.5	21%	1.71	0.000	1.71	0	0
8.694	6964.91	305.6	3.655	305.5	16.0	6.93	1.20%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	1.14	348.177	33.35	426.49	613	1.20%	1.5	21%	1.72	0.000	1.72	0	0
8.858	6964.74	279.3	3.841	279.2	3.2	1.40	1.38%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	1.13	316.767	30.34	387.91	551	1.38%	1.5	21%	1.73	0.000	1.73	0	0
9.022	6964.58	219.5	3.165	219.5	0.0	0.00	1.44%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	1.13	247.814	23.74	303.45	425	1.45%	1.6	21%	1.74	0.000	1.74	0	0
9.186	6964.41	163.2	3.657	163.2	-0.9	-0.41	2.24%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	1.14	185.938	17.81	227.67	310	2.25%	1.9	21%	1.75	0.000	1.75	0	0
9.350	6964.25	138.1	3.792	138.1	7.2	3.13	2.75%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	1.15	159.341	15.26	195.18	258	2.76%	2.0	21%	1.75	0.000	1.75	0	0
9.514	6964.09	119.6	3.094	119.5	21.7	9.42	2.59%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	1.16	139.162	13.33	170.60	220	2.60%	2.0	21%	1.76	0.000	1.76	0	0
9.678	6963.92	93.6	1.788	93.6	2.6	1.12	1.91%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	1.18	110.755	10.61	135.64	169	1.92%	2.0	21%	1.77	0.000	1.77	0	0
9.842	6963.76	75.5	0.790	75.5	0.4	0.16	1.05%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	1.20	90.403	8.66	110.70	134	1.05%	1.8	21%	1.78	0.000	1.78	0	0
10.006	6963.59	64.4	0.843	64.4	1.4	0.59	1.31%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	1.20	77.435	7.42	94.83	112	1.32%	2.0	21%	1.79	0.000	1.79	0	0
10.170	6963.43	57.8	0.915	57.8	2.6	1.12	1.58%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	1.20	69.485	6.66	85.11	99	1.60%	2.0	21%	1.80	0.000	1.80	0	0
10.335	6963.27	55.1	0.973	55.1	0.5	0.23	1.76%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	1.20	66.032	6.32	80.86	93	1.78%	2.1	21%	1.81	0.000	1.81	0	0
10.499	6963.10	51.6	0.881	51.6	-0.1	-0.02	1.71%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	1.19	61.617	5.90	75.45	86	1.73%	2.1	21%	1.82	0.000	1.82	0	0
10.663	6962.94	49.0	0.661	49.0	0.4	0.18	1.35%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	1.19	58.146	5.57	71.20	80	1.37%	2.0	21%	1.83	0.000	1.83	0	0
10.827	6962.77	50.0	0.437	50.0	-1.6	-0.67	0.87%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	1.18	58.894	5.64	72.10	81	0.88%	1.8	21%	1.84	0.000	1.84	0	0
10.991	6962.61	52.0	0.400	52.0	0.8	0.33	0.77%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	1.17	60.628	5.81	74.25	83	0.78%	1.7	21%	1.84	0.000	1.84	0	0
11.155	6962.45	56.5	0.416	56.5	-1.3	-0.55	0.74%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	1.15	65.126	6.24	79.74	89	0.74%	1.7	21%	1.85	0.000	1.85	0	0
11.319	6962.28	66.0	0.471	66.0	-0.7	-0.29	0.71%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	1.13	74.941	7.18	91.76	102	0.72%	1.6	21%	1.86	0.000	1.86	0	0
11.483	6962.12	84.8	0.502	84.8	0.6	0.26	0.59%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	1.11	94.395	9.04	115.59	130	0.60%	1.4	21%	1.87	0.000	1.87	0	0
11.647	6961.95	91.2	0.499	91.2	1.4	0.59	0.55%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	1.10	100.601	9.64	123.20	138	0.55%	1.6	21%	1.88	0.000	1.88	0	0
11.811	6961.79	88.1	0.486	88.1	-0.3	-0.12	0.55%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	1.10	96.744	9.27	118.46	131	0.56%	1.7	21%	1.89	0.000	1.89	0	0
11.975	6961.63	77.7	0.504	77.7	-1.0	-0.43	0.65%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	1.10	85.293	8.17	104.43	114	0.65%	1.8	21%	1.90	0.000	1.90	0	0
12.139	6961.46	69.6	0.473	69.6	-0.9	-0.40	0.68%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	1.10	76.250	7.30	93.36	101	0.69%	1.8	21%	1.91	0.000	1.91	0	0
12.303	6961.30	60.0	0.435	60.0	-1.2	-0.51	0.72%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	1.09	65.687	6.29	80.43	86	0.73%	1.9	21%	1.91	0.000	1.91	0	0
12.467	6961.13	54.6	0.370	54.6	-0.8	-0.36	0.68%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	1.09	59.529	5.70	72.89	77	0.69%	1.9	21%	1.92	0.000	1.92	0	0
12.631	6960.97	50.6	0.332	50.6	-0.9	-0.39	0.66%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	1.08	54.893	5.26	67.21	70	0.67%	1.9	21%	1.93	0.000	1.93	0	0
12.795	6960.80	48.2	0.317	48.3	-0.9	-0.39	0.66%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	1.08	52.027	4.98	63.70	66	0.67%	2.0	21%	1.94	0.000	1.94	0	0
12.959	6960.64	47.5	0.298	47.5	-0.9	-0.41	0.63%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	1.07	50.853	4.87	62.26	64	0.64%	2.0	21%	1.95	0.000	1.95	0	0
13.123	6960.48	46.3	0.361	46.3	-1.0	-0.43	0.78%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	1.06	49.305	4.72	60.37	62	0.79%	2.0	21%	1.96	0.000	1.96	0	0
13.287	6960.31	45.1	0.318	45.1	-0.4	-0.16	0.70%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	1.06	47.700	4.57	58.41	60	0.72%	2.0	21%	1.97	0.000	1.97	0	0
13.451	6960.15	44.2	0.310	44.2	0.2	0.08	0.70%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	1.05	46.432	4.45	56.86	58	0.71%	2.0	21%	1.98	0.000	1.98	0	0
13.615	6959.98	42.6	0.299	42.6	-0.3	-0.12	0.70%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	1.04	44.468	4.26	54.45	55	0.71%	2.0	21%	1.99	0.000	1.99	0	0
13.779	6959.82	37.7	0.382	37.7	-1.1	-0.49	1.01%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	1.04	39.117	3.75	47.89	48	1.03%	2.2	21%	2.00	0.000	2.00	0	0
13.943	6959.66	34.4	0.553	34.4	0.5	0.23	1.61%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	1.03	35.451	3.40	43.41	43	1.64%	2.3	21%	2.00	0.000	2.00	0	0
14.107	6959.49	34.0	0.524	34.0	0.5	0.23	1.54%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	1.02	34.731	3.33	42.53	42	1.46%	2.3	21%	2.01	0.000	2.01	0	0
14.271	6959.33	34.0	0.409	34.0	-0.2	-0.10	1.20%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	1.01	34.474	3.30	42.21	42	1.23%	2.3	21%	2.02	0.000	2.02	0	0
14.436	6959.16	37.3	0.267	37.3	0.1	0.06	0.72%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	1.01	37.558	3.60	45.99	46	0.73%	2.1	21%	2.03	0.000	2.03	0	0
14.600	6959.00	40.5	0.207	40.5	0.4	0.16	0.51%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	1.00	40.541	3.88	49.65	49	0.52%	2.0	21%	2.04	0.000	2.04	0	0
14.764	6958.84	42.1	0.212	42.1	0.2	0.09	0.50%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	0.99	41.784	4.00	51.17	50	0.51%	2.0	21%	2.05	0.000	2.05	0	0
14.928	6958.67	44.0	0.175	44.0	-0.1	-0.04	0.40%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	0.99	43.392	4.16	53.13	52	0.41%	1.9	21%	2.06	0.000	2.06	0	0
15.092	6958.51	48.6	0.191	48.6	0.3	0.14	0.39%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0	0.98	47.631	4.56	58.33	57	0.40%	1.9	21%	2.07	0.000	2.07	0	0

Liquefaction Triggering Analyses Using CPT Data (Idriss & Boulanger (2008); Youd et al. (2001); Idriss & Boulanger (2008))

Depth (ft)	I&B r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, s'v=1atm	Δqc_{1n}	qc_{1n-cs}	CRR M=7.5, s'v=1atm	FoS	Youd r_d	D_r	f	K_σ	K_α	CSR M=7.5, s'v=1atm	Kc	qc_{1n-cs}	(CRR) M=7.5, s'v=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No	CN	qc1 TSF	qc1 MPa	qc1N
0.164	0.87	0.04	0.98	0.10	1.00	0.102	32.80	40.03	0.069	N/A	0.95	0.16	0.80	0.92	1.00	0.126	1.00	7.23	0.056	N/A	N/A	N/A	1.70	5.91	0.57	7.23
0.328	0.87	0.04	0.98	0.10	1.00	0.102	33.61	43.15	0.071	N/A	0.95	0.18	0.80	0.92	1.00	0.126	1.23	11.77	0.060	N/A	N/A	N/A	1.70	7.79	0.75	9.54
0.492	0.86	0.05	0.98	0.10	1.00	0.102	38.51	62.06	0.090	N/A	0.95	0.28	0.80	0.92	1.00	0.127	1.00	23.55	0.070	N/A	N/A	N/A	1.70	19.23	1.84	23.55
0.656	0.86	0.08	0.97	-0.18	1.00	0.103	52.20	114.80	0.169	N/A	0.95	0.46	0.77	0.91	1.00	0.128	1.00	62.61	0.103	N/A	N/A	N/A	1.70	51.13	4.90	62.61
0.820	0.86	0.11	0.95	-0.37	1.00	0.105	65.41	165.75	0.369	N/A	0.95	0.58	0.71	0.88	1.00	0.132	1.00	100.34	0.174	N/A	N/A	N/A	1.70	81.94	7.85	100.34
0.984	0.86	0.17	0.92	-0.57	1.00	0.108	85.01	241.29	1.000	N/A	0.95	0.72	0.64	0.85	1.00	0.137	1.00	156.28	0.435	N/A	N/A	N/A	1.70	127.63	12.22	156.28
1.148	0.86	0.16	0.93	-0.54	1.00	0.107	81.77	228.81	1.000	N/A	0.95	0.70	0.65	0.85	1.00	0.136	1.00	147.04	0.376	N/A	N/A	N/A	1.70	120.08	11.50	147.04
1.312	0.86	0.15	0.93	-0.51	1.00	0.106	78.99	218.10	1.000	N/A	0.95	0.68	0.66	0.85	1.00	0.136	1.00	139.11	0.330	N/A	N/A	N/A	1.70	113.60	10.88	139.11
1.476	0.86	0.15	0.93	-0.52	1.00	0.107	79.86	221.46	1.000	N/A	0.95	0.69	0.66	0.85	1.00	0.136	1.00	141.60	0.344	N/A	N/A	N/A	1.70	115.64	11.07	141.60
1.640	0.85	0.15	0.93	-0.52	1.00	0.107	80.42	223.58	1.000	N/A	0.95	0.69	0.65	0.85	1.00	0.137	1.00	143.17	0.353	N/A	N/A	N/A	1.70	116.92	11.19	143.17
1.804	0.85	0.17	0.92	-0.56	1.00	0.108	84.98	241.17	1.000	N/A	0.95	0.72	0.64	0.84	1.00	0.138	1.00	156.19	0.434	N/A	N/A	N/A	1.70	127.56	12.21	156.19
1.968	0.85	0.30	0.85	-0.60	1.00	0.116	106.94	325.81	1.000	N/A	0.95	0.85	0.60	0.82	1.00	0.141	1.00	218.88	1.000	N/A	N/A	N/A	1.70	178.75	17.11	218.88
2.133	0.85	0.30	0.85	-0.60	1.00	0.116	122.63	385.79	1.000	N/A	0.95	0.94	0.60	0.82	1.00	0.142	1.00	262.79	1.000	N/A	N/A	N/A	1.62	214.91	20.58	263.16
2.297	0.85	0.30	0.85	-0.60	1.00	0.116	139.77	451.76	1.000	N/A	0.95	1.02	0.60	0.82	1.00	0.142	1.02	318.46	1.000	N/A	N/A	N/A	1.60	254.79	24.39	311.99
2.461	0.85	0.30	0.84	-0.60	1.00	0.116	145.87	475.27	1.000	N/A	0.95	1.05	0.60	0.81	1.00	0.142	1.07	351.67	1.000	N/A	N/A	N/A	1.57	269.00	25.75	329.40
2.625	0.85	0.30	0.84	-0.60	1.00	0.116	141.78	459.51	1.000	N/A	0.94	1.03	0.60	0.81	1.00	0.143	1.11	352.84	1.000	N/A	N/A	N/A	1.54	259.48	24.84	317.73
2.789	0.85	0.30	0.84	-0.60	1.00	0.116	129.80	413.38	1.000	N/A	0.94	0.97	0.60	0.81	1.00	0.143	1.12	317.63	1.000	N/A	N/A	N/A	1.52	231.59	22.17	283.58
2.953	0.84	0.30	0.84	-0.60	1.00	0.116	118.45	369.68	1.000	N/A	0.94	0.92	0.60	0.81	1.00	0.143	1.15	288.95	1.000	N/A	N/A	N/A	1.51	205.17	19.64	251.23
3.117	0.84	0.30	0.84	-0.60	1.00	0.116	108.16	330.05	1.000	N/A	0.94	0.86	0.60	0.80	1.00	0.144	1.19	264.69	1.000	N/A	N/A	N/A	1.56	181.21	17.35	221.89
3.281	0.84	0.26	0.86	-0.60	1.00	0.113	99.64	297.24	1.000	N/A	0.94	0.81	0.60	0.80	1.00	0.144	1.27	250.07	1.000	N/A	N/A	N/A	1.61	161.38	15.45	197.61
3.445	0.84	0.22	0.88	-0.60	1.00	0.111	94.56	277.69	1.000	N/A	0.94	0.78	0.61	0.80	1.00	0.143	1.26	231.36	1.000	N/A	N/A	N/A	1.63	149.56	14.32	183.13
3.609	0.84	0.18	0.90	-0.59	1.00	0.108	88.41	254.02	1.000	N/A	0.94	0.74	0.63	0.81	1.00	0.142	1.30	215.97	1.000	N/A	N/A	N/A	1.66	135.24	12.95	165.61
3.773	0.84	0.18	0.90	-0.59	1.00	0.108	88.30	253.59	1.000	N/A	0.94	0.74	0.63	0.81	1.00	0.142	1.29	213.24	1.000	N/A	N/A	N/A	1.64	134.99	12.92	165.29
3.937	0.84	0.20	0.89	-0.60	1.00	0.109	90.93	263.72	1.000	N/A	0.94	0.76	0.62	0.80	1.00	0.143	1.25	216.08	1.000	N/A	N/A	N/A	1.59	141.11	13.51	172.79
4.101	0.83	0.21	0.88	-0.60	1.00	0.110	92.93	271.43	1.000	N/A	0.94	0.77	0.61	0.80	1.00	0.144	1.31	232.97	1.000	N/A	N/A	N/A	1.55	145.77	13.96	178.50
4.265	0.83	0.26	0.85	-0.60	1.00	0.114	100.43	300.30	1.000	N/A	0.94	0.82	0.60	0.79	1.00	0.146	1.28	255.68	1.000	N/A	N/A	N/A	1.48	163.23	15.63	199.87
4.429	0.83	0.30	0.82	-0.60	1.00	0.117	104.09	314.38	1.000	N/A	0.94	0.84	0.60	0.79	1.00	0.146	1.24	261.57	1.000	N/A	N/A	N/A	1.44	171.74	16.44	210.29
4.593	0.83	0.24	0.85	-0.60	1.00	0.112	97.92	290.63	1.000	N/A	0.94	0.80	0.60	0.79	1.00	0.146	1.27	244.72	1.000	N/A	N/A	N/A	1.46	157.38	15.07	192.71
4.757	0.83	0.18	0.89	-0.58	1.00	0.108	87.70	251.28	1.000	N/A	0.94	0.74	0.63	0.80	1.00	0.144	1.34	218.77	1.000	N/A	N/A	N/A	1.51	133.59	12.79	163.58
4.921	0.83	0.15	0.91	-0.50	1.00	0.105	78.96	217.63	1.000	N/A	0.94	0.68	0.66	0.81	1.00	0.142	1.37	189.83	1.000	N/A	N/A	N/A	1.55	113.24	10.84	138.67
5.085	0.83	0.13	0.92	-0.47	1.00	0.104	75.35	203.73	1.000	N/A	0.94	0.65	0.67	0.82	1.00	0.141	1.42	181.83	1.000	N/A	N/A	N/A	1.56	104.84	10.04	128.38
5.249	0.82	0.14	0.91	-0.48	1.00	0.104	76.42	207.86	1.000	N/A	0.94	0.66	0.67	0.81	1.00	0.141	1.44	189.17	1.000	N/A	N/A	N/A	1.53	107.34	10.28	131.44
5.413	0.82	0.15	0.90	-0.52	1.00	0.105	80.72	224.39	1.000	N/A	0.94	0.69	0.65	0.80	1.00	0.143	1.36	195.05	1.000	N/A	N/A	N/A	1.48	117.33	11.23	143.67
5.577	0.82	0.25	0.84	-0.60	1.00	0.113	98.83	294.12	1.000	N/A	0.94	0.81	0.60	0.77	1.00	0.148	1.10	215.37	1.000	N/A	N/A	N/A	1.36	159.49	15.27	195.29
5.741	0.82	0.30	0.81	-0.60	1.00	0.118	107.35	326.95	1.000	N/A	0.94	0.86	0.60	0.77	1.00	0.148	1.00	220.16	1.000	N/A	N/A	N/A	1.31	179.34	17.17	219.60
5.905	0.82	0.30	0.80	-0.60	1.00	0.118	110.96	340.84	1.000	N/A	0.94	0.88	0.60	0.77	1.00	0.149	1.00	229.88	1.000	N/A	N/A	N/A	1.29	187.73	17.97	229.88
6.069	0.82	0.30	0.80	-0.60	1.00	0.118	111.90	344.46	1.000	N/A	0.94	0.88	0.60	0.77	1.00	0.149	1.00	232.56	1.000	N/A	N/A	N/A	1.27	189.92	18.18	232.56
6.234	0.82	0.30	0.80	-0.60	1.00	0.118	110.69	339.79	1.000	N/A	0.94	0.87	0.60	0.77	1.00	0.149	1.00	229.10	1.000	N/A	N/A	N/A	1.27	187.10	17.91	229.10
6.398	0.82	0.30	0.80	-0.60	1.00	0.118	109.43	334.94	1.000	N/A	0.94	0.87	0.60	0.77	1.00	0.150	1.00	225.51	1.000	N/A	N/A	N/A	1.26	184.17	17.63	225.51
6.562	0.81	0.30	0.80	-0.60	1.00	0.118	106.18	322.43	1.000	N/A	0.94	0.85	0.60	0.76	1.00	0.150	1.04	224.43	1.000	N/A	N/A	N/A	1.26	176.60	16.91	216.25
6.726	0.81	0.23	0.84	-0.60	1.00	0.112	96.92	286.78	1.000	N/A	0.94	0.80	0.60	0.76	1.00	0.150	1.19	226.07	1.000	N/A	N/A	N/A	1.29	155.05	14.84	189.86
6.890	0.81	0.16	0.89	-0.54	1.00	0.105	67.86	218.05	1.000	N/A	0.93	0.71	0.65	0.78	1.00	0.146	1.46	219.56	1.000	N/A	N/A	N/A	1.33	122.66	11.74	150.19
7.054	0.81	0.13	0.91	-0.45	1.00	0.103	60.51	185.09	0.630	N/A	0.93	0.64	0.68	0.80	1.00	0.143	1.63	202.76	1.000	N/A	N/A	N/A	1.36	101.74	9.74	124.58
7.218	0.81	0.30	0.79	-0.60	1.00	0.118	106.99	393.60	1.000	N/A	0.93	0.98	0.60	0.76	1.00	0.151	1.00	286.61	1.000	N/A	N/A	N/A	1.19	234.06	22.41	286.61
7.382	0.81	0.30	0.79	-0.60	1.00	0.118	107.26	394.84	1.000	N/A	0.93	0.98	0.60	0.75	1.00	0.151	1.01	290.76	1.000	N/A	N/A	N/A	1.19	234.85	22.48	287.57
7.546	0.81	0.21	0.85	-0.60	1.00	0.109	75.66	253.04	1.000	N/A	0.93	0.77	0.62	0.76	1.00	0.150	1.21	214.69	1.000	N/A	N/A	N/A	1.25	144.86	13.87	177.38
7.710	0.80	0.12	0.91	-0.44	1.00	0.102	59.30	179.64	0.530	N/A	0.93	0.63	0.68	0.80	1.00	0.143	1.82	218.94	1.000	N/A	N/A	N/A	1.32	98.28	9.41	120.35
7.874	0.80	0.12	0.91	-0.41	1.00	0.101	57.43	171.26	0.420	N/A	0.93	0.62	0.69	0.80	1.00	0.142	1.84	209.46	1.000	N/A	N/A	N/A	1.32	92.96	8.90	113.83
8.038	0.80	0.13	0.91	-0.45	1.00	0.102	60.30	184.16	0.611	N/A	0.93	0.64	0.68	0.79	1.00	0.144	1.79	221.86	1.000	N/A	N/A	N/A	1.29	101.15	9.68	123.86
8.202	0.80	0.30	0.78	-0.60	1.00	0.118	102.86	375.08	1.000	N/A	0.93	0.95	0.60	0.75	1.00	0.153	1.09	296.81	1.000	N/A	N/A	N/A	1.16	222.31	21.28	272.22
8.366	0.80	0.30	0.78	-0.60	1.00	0.118	137.13	528.82	1.000	N/A	0.93	1.14	0.60	0.75	1.00	0.153	1.00	391.70	1.000	N/A	N/A	N/A	1.15	319.88	30.63	391.70
8.530	0.80	0.30	0.78	-0.60	1.00	0.118	150.56	589.09	1.000	N/A	0.93	1.21	0.60	0.74	1.00	0.153	1.00	438.53	1.000	N/A	N/A	N/A	1.15	358.13	34.29	438.53
8.694	0.80	0.30	0.78	-0.60	1.00	0.118	147.10	573.59	1.000	N/A	0.93	1.19	0.60	0.74	1.00	0.153	1.00	426.49	1.000	N/A	N/A	N/A	1.14	348.29	33.35	426.49
8.858	0.79	0.30	0.78	-0.60	1.00	0.118	136.04	523.95	1.000	N/A	0.93	1.14	0.60	0.74	1.00	0.154	1.00	387.91	1.000	N/A	N/A	N/A	1.13	316.79	30.33	387.91
9.022	0.79	0.30	0.77	-0.60	1.00	0.119	111.82	415.27	1.000	N/A	0.93	1.01	0.60	0.74	1.00	0.154	1.00	303.45	1.000	N/A	N/A	N/A	1.13	247.81	23.73	303.45
9.186	0.79	0.30	0.77	-0.60	1.00	0.119	90.08	317.76	1.000	N/A	0.93	0.87	0.60	0.74	1.00	0.154	1.15	260.96	1.000	N/A	N/A	N/A	1.14	185.93	17.80	227.67
9.350	0.79	0.25	0.81	-0.60	1.00	0.113	80.76	275.94	1.000	N/A	0.93	0.81	0.60	0.74	1.00	0.154	1.26	246.20	1.000	N/A	N/A	N/A	1.15	159.39	15.26	195.18
9.514	0.79	0.19	0.85	-0.60	1.00	0.107	73.71	244.31	1.000	N/A	0.93	0.75	0.62	0.75	1.00	0.151	1.28	218.72	1.000	N/A	N/A	N/A	1.16	139.32	13.34	170.60
9.678	0.79	0.14	0.89	-0.49	1.00	0.102	63.69	199.33	1.000	N/A	0.92	0.67	0.66	0.77	1.00	0.147	1.24	168.25	1.000	N/A	N/A	N/A	1.18	110.77	10.61	135.64
9.842	0.79	0.12	0.91	-0.40	1.00	0.100	56.53	167.24	0.381	N/A	0.92	0.61	0.70	0.79	1.00	0.143	1.13	124.98	0.262	N/A	N/A	N/A	1.20	90.41	8.66	110.70
10.006	0.78	0.10	0.92	-0.33	1.00	0.099	51.98	146.81	0.258	N/A	0.92	0.56	0.72	0.80	1.00	0.141	1.24	117.88	0.232	N/A	N/A	N/A	1.20	77.45	7.41	94.83
10.170	0.78	0.09	0.93	-0.28	1.00	0.098	49.19	134.30	0.215	N/A	0.92	0.53	0.73	0.81	1.00	0.139	1.37	116.64	0.228	N/A	N/A	N/A	1.20	69.50	6.65	85.11
10.335	0.78	0.09	0.93	-0.26	1.00	0.097	47.97	128.84	0.200	N/A	0.92	0.52	0.74	0.81	1.00	0.138	1.46	117.93	0.233	N/A	N/A	N/A	1.20	66.04	6.32	80.86
10.499	0.78	0.09	0.93	-0.24	1.00	0.097	46.42	121.87	0.184	N/A	0.92	0.50	0.75	0.82	1.00	0.137	1.49	112.24	0.212	N/A	N/A	N/A	1.19	61.62	5.90	75.45
10.663	0.78	0.08	0.93	-0.21	1.00	0.097	45.20	116.41	0.172	N/A	0.92	0.49	0.76	0.82	1.00	0.136	1.41	100.10	0.173	N/A	N/A	N/A	1.19	58.15	5.57	71.20
10.827	0.78	0.09	0.93	-0.22	1.00	0.097	45.46	117.56	0.174	N/A	0.92	0.49	0.75	0.82	1.00	0.136	1.24	89.46	0.147	N/A	N/A	N/A	1.18	58.88	5.64	72.10
10.991	0.78	0.09	0.93	-0.23	1.00	0.097	46.08	120.32	0.180	N/A	0.91	0.50	0.75	0.82	1.00	0.137	1.20	88.92	0.145	N/A	N/A	N/A	1.17	60.63	5.81	74.25
11.155	0.77	0.09	0.93	-0.26	1.00	0.097	47.65	127.39	0.196	N/A	0.91	0.52	0.74	0.81	1.00	0.138	1.16	92.87	0.154	N/A	N/A	N/A	1.15	65.12	6.23	79.74
11.319	0.77	0.10	0.92	-0.31	1.00	0.097	51.10	142.86	0.242	N/A	0.91	0.55	0.72	0.80	1.00	0.140	1.12	102.55	0.180	N/A	N/A	N/A	1.13	74.94	7.17	91.76
11.483	0.77	0.12	0.90	-0.41	1.00	0.099	57.93	173.53	0.446	N/A	0.91	0.62	0.69	0.77	1.00	0.144	1.03	118.63	0.235	N/A	N/A	N/A	1.11	94.40	9.04	115.59
11.647	0.77	0.13	0.89	-0.44	1.00	0.100	60.12	183.32	0.594	N/A	0.91	0.64	0.68	0.77	1.00	0.145	1.00	122.86	0.252	N/A	N/A	N/A	1.10	100.61	9.63	123.20
11.811	0.77	0.12	0.90	-0.42	1.00	0.099	58.76	177.22	0.494	N/A	0.91	0.63	0.69	0.77	1.00	0.144	1.01	119.77	0.240	N/A	N/A	N/A	1.10	96.74	9.26	118.46
11.975	0.77	0.11	0.91	-0.37	1.00	0.098	54.73	159.17	0.321	N/A	0.91	0.59	0.70	0.78	1.00	0.142	1.07	112.03	0.211	N/A	N/A	N/A	1.10	85.29	8.17	104.43
12.139	0.77	0.10	0.91	-0.32	1.00	0.097	51.56	144.92	0.250	N/A	0.90	0.56	0.72	0.79	1.00	0.140	1.11	103.83	0.184	N/A	N/A	N/A	1.10	76.24	7.30	93.36
12.303	0.77	0.09	0.92	-0.26	1.00	0.096	47.85	128.27	0.199	N/A	0.90	0.52	0.74	0.80	1.00	0.138	1.17	94.25	0.158	N/A	N/A	N/A	1.09	65.68	6.29	80.43
12.467	0.76	0.09	0.93	-0.22	1.00	0.095	45.69	118.57	0.177	N/A	0.90	0.49	0.75	0.81	1.00	0.136	1.19	86.94	0.141	N/A	N/A	N/A	1.09	59.52	5.70	72.89
12.631	0.76	0.08	0.93	-0.19	1.00	0.095	44.06	111.27	0.162	N/A	0.90	0.47	0.76	0.82	1.00	0.135	1.22	81.86	0.131	N/A	N/A	N/A	1.08	54.89	5.25	67.21
12.795	0.76	0.08	0.93	-0.17	1.00	0.095	43.05	106.75	0.154	N/A	0.90	0.46	0.77	0.82	1.00	0.134	1.24	79.16	0.126	N/A	N/A	N/A	1.08	52.02	4.98	63.70
12.959	0.76	0.08	0.93	-0.16	1.00	0.094	42.64	104.90	0.151	N/A	0.90	0.46	0.77	0.82	1.00	0.134	1.24	77.38	0.123	N/A	N/A	N/A	1.07	50.85	4.87	62.26
13.123	0.76	0.08	0.93	-0.15	1.00	0.094	42.10	102.46	0.147	N/A	0.90	0.45	0.78	0.82	1.00	0.133	1.32	79.86	0.127	N/A	N/A	N/A	1.06	49.30	4.72	60.37
13.287	0.76	0.08	0.93	-0.13	1.00	0.094	41.53	99.94	0.142	N/A	0.89	0.44	0.78	0.82	1.00	0.133	1.31	76.51	0.122	N/A	N/A	N/A	1.06	47.70	4.57	58.41
13.451	0.76	0.08	0.93	-0.12	1.00	0.094	41.09	97.95	0.139	N/A	0.89	0.44	0.78	0.82	1.00	0.133	1.32	75.32	0.120	N/A	N/A	N/A	1.05	46.43	4.45	56.86
13.615	0.75	0.07	0.93	-0.11	1.00	0.093	40.40	94.85	0.134	N/A	0.89	0.43	0.79	0.83	1.00	0.132	1.35	73.57	0.117	N/A	N/A	N/A	1.04	44.47	4.26	54.45
13.779	0.75	0.07	0.94	-0.06	1.00	0.093	38.52	86.41	0.122	N/A	0.89	0.40	0.80	0.84	1.00	0.130	1.61	76.94	0.122	N/A	N/A	N/A	1.04	39.11	3.74	47.89
13.943	0.75	0.07	0.94	-0.03	1.00	0.092	37.23	80.65	0.114	N/A	0.89	0.38	0.80	0.84	1.00	0.130	2.05	89.04	0.146	N/A	N/A	N/A	1.03	35.45	3.39	43.41
14.107	0.75	0.07	0.94	-0.02	1.00	0.092	36.98	79.51	0.112	N/A	0.89	0.38	0.80	0.83	1.00	0.130	1.97	83.95	0.135	N/A	N/A	N/A	1.02	34.73	3.33	42.53
14.271	0.75	0.07	0.94	-0.02	1.00	0.092	36.89	79.10	0.111	N/A	0.89	0.38	0.80	0.83	1.00	0.130	1.85	78.20	0.124	N/A	N/A	N/A	1.01	34.47	3.30	42.21
14.436	0.75	0.07	0.94	-0.05	1.00	0.092	37.97	83.96	0.118	N/A	0.89	0.39	0.80	0.83	1.00	0.130	1.48	68.14	0.109	N/A	N/A	N/A	1.01	37.56	3.60	45.99
14.600	0.75	0.07	0.94	-0.07	1.00	0.092	39.02	88.67	0.125	N/A	0.88	0.41	0.80	0.83	1.00	0.130	1.32	65.48	0.106	N/A	N/A	N/A	1.00	40.54	3.88	49.65
14.764	0.74	0.07	0.93	-0.09	1.00	0.092	39.46	90.62	0.128	N/A	0.88	0.41	0.79	0.83	1.00	0.131	1.30	66.59	0.107	N/A	N/A	N/A	0.99	41.79	4.00	51.17
14.928	0.74	0.07	0.93	-0.10	1.00	0.092	40.02	93.15	0.132	N/A	0.88	0.42	0.79	0.82	1.00	0.131	1.23	65.41	0.106	N/A	N/A	N/A	0.99	43.39	4.15	53.13
15.092	0.74	0.08	0.93	-0.13	1.00	0.092	41.51	99.84	0.142	N/A	0.88	0.44	0.78	0.81	1.00	0.132	1.19	69.56	0.111	N/A	N/A	N/A	0.98	47.63	4.56	58.33

Liquefaction Triggering Analyses Using SPT Data (General Data; Idriss & Boulanger (2008); Youd et al. (2001))

Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, s'v=1atm	FoS	α	β	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, s'v=1atm	FoS	Average FoS
0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.281		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.905		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.069	32	0.80	24	18	0.66	0.44	0.75	5.6	23.3	0.25	N/A	5.00	1.20	26.19	0.318	N/A	N/A
6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.562		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.890		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.054		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.218		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.382		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.546		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.710		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
7.874		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.038		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.202		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.366		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.530		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.694		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
8.858		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.022		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.186		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.350		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.514		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.678		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
9.842		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.006		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.170		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.335		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.499		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.663		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.827		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
10.991		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.155		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.319		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.483		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.647		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.811		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
11.975		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.139		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.303		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.467		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.631		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.795		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
12.959		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.123		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.287		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.451		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.615		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.779		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
13.943		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.107		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.271		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.436		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.600		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.764		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
14.928		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.092		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

15.256	6958.34	53.3	0.228	53.3	0.7	0.30	0.43%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0	0.98	51.956	4.98	63.63	62	0.43%	1.9	21%	2.07	0.000	2.07	0	0	0.74	0.08	0.93	-0.16	1.00	0.092	43.03	106.66	0.154	N/A	0.88	0.46	0.77	0.81	1.00	0.133	1.18	74.90	0.119	N/A	N/A	N/A	0.98	51.96	4.97	63.63	15.256		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.420	6958.18	57.4	0.286	57.4	0.4	0.16	0.50%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0	0.97	55.701	5.34	68.21	66	0.51%	1.9	21%	2.08	0.000	2.08	0	0	0.74	0.08	0.92	-0.19	1.00	0.093	44.34	112.55	0.165	N/A	0.88	0.48	0.76	0.80	1.00	0.134	1.18	80.65	0.129	N/A	N/A	N/A	0.97	55.70	5.33	68.21	15.420		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.584	6958.02	58.2	0.349	58.2	0.1	0.06	0.60%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	0.96	56.109	5.37	68.71	66	0.61%	1.9	21%	2.09	0.000	2.09	0	0	0.74	0.08	0.92	-0.19	1.00	0.093	44.49	113.19	0.166	N/A	0.88	0.48	0.76	0.80	1.00	0.134	1.22	83.91	0.135	N/A	N/A	N/A	0.96	56.11	5.37	68.71	15.584		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.748	6957.85	59.2	0.386	59.2	0.5	0.20	0.65%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	0.96	56.769	5.44	69.52	66	0.66%	1.9	21%	2.10	0.000	2.10	0	0	0.74	0.08	0.92	-0.20	1.00	0.092	44.72	114.24	0.168	N/A	0.87	0.48	0.76	0.80	1.00	0.134	1.24	86.12	0.139	N/A	N/A	N/A	0.96	56.77	5.44	69.52	15.748		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.912	6957.69	59.6	0.376	59.6	0.0	0.00	0.63%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	0.95	56.805	5.44	69.56	66	0.64%	1.9	21%	2.11	0.000	2.11	0	0	0.73	0.08	0.92	-0.20	1.00	0.092	44.73	114.29	0.168	N/A	0.87	0.48	0.76	0.80	1.00	0.134	1.23	85.70	0.139	N/A	N/A	N/A	0.95	56.81	5.44	69.56	15.912		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.076	6957.52	57.6	0.338	57.6	-0.2	-0.08	0.59%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	0.95	54.573	5.23	66.82	63	0.60%	1.9	21%	2.12	0.000	2.12	0	0	0.73	0.08	0.92	-0.18	1.00	0.092	43.95	110.77	0.161	N/A	0.87	0.47	0.76	0.80	1.00	0.134	1.23	82.34	0.132	N/A	N/A	N/A	0.95	54.57	5.22	66.82	16.076	10	0.95	9	5	0.35	0.60	0.56	4.6	9.5	0.11	N/A	3.73	1.08	9.07	0.105	N/A	N/A
16.240	6957.36	55.6	0.319	55.6	-0.2	-0.10	0.57%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	0.94	52.294	5.01	64.03	60	0.58%	2.0	21%	2.13	0.000	2.13	0	0	0.73	0.08	0.92	-0.17	1.00	0.092	43.15	107.18	0.155	N/A	0.87	0.46	0.77	0.80	1.00	0.133	1.25	79.80	0.127	N/A	N/A	N/A	0.94	52.29	5.01	64.03	16.240		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.404	6957.20	54.2	0.330	54.2	-0.3	-0.14	0.61%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	0.93	50.646	4.85	62.02	58	0.62%	2.0	21%	2.14	0.000	2.14	0	0	0.73	0.08	0.92	-0.15	1.00	0.091	42.57	104.59	0.150	N/A	0.87	0.45	0.77	0.80	1.00	0.132	1.28	79.24	0.126	N/A	N/A	N/A	0.93	50.65	4.85	62.02	16.404		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.568	6957.03	54.3	0.324	54.3	-0.1	-0.02	0.60%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0	0.93	50.464	4.83	61.79	58	0.61%	2.0	21%	2.15	0.000	2.15	0	0	0.73	0.08	0.92	-0.15	1.00	0.091	42.50	104.30	0.150	N/A	0.87	0.45	0.77	0.80	1.00	0.132	1.28	78.82	0.126	N/A	N/A	N/A	0.93	50.46	4.83	61.79	16.568		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.732	6956.87	57.8	0.349	57.8	0.1	0.04	0.60%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0	0.93	53.501	5.12	65.51	61	0.61%	2.0	21%	2.15	0.000	2.15	0	0	0.73	0.08	0.92	-0.17	1.00	0.091	43.57	109.08	0.158	N/A	0.87	0.47	0.77	0.80	1.00	0.133	1.25	82.18	0.132	N/A	N/A	N/A	0.93	53.50	5.12	65.51	16.732		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.896	6956.70	58.1	0.381	58.1	0.1	0.06	0.66%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0	0.92	53.433	5.12	65.43	61	0.67%	2.0	21%	2.16	0.000	2.16	0	0	0.73	0.08	0.92	-0.17	1.00	0.091	43.55	108.98	0.158	N/A	0.87	0.47	0.77	0.80	1.00	0.133	1.28	83.70	0.135	N/A	N/A	N/A	0.92	53.43	5.12	65.43	16.896		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.060	6956.54	43.5	0.597	43.5	-1.2	-0.53	1.37%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0	0.91	39.496	3.78	48.35	45	1.40%	2.3	21%	2.17	0.000	2.17	0	0	0.73	0.07	0.93	-0.06	1.00	0.090	38.65	87.00	0.122	N/A	0.86	0.40	0.80	0.82	1.00	0.129	1.87	90.45	0.149	N/A	N/A	N/A	0.91	39.49	3.78	48.35	17.060		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.224	6956.38	20.6	0.532	20.7	-2.0	-0.85	2.58%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0	0.88	18.247	1.75	22.33	21	2.70%	2.7	21%	2.18	0.000	2.18	0	0	0.72	0.05	0.95	0.10	1.00	0.088	31.19	53.52	0.081	N/A	0.86	0.27	0.80	0.82	1.00	0.128	4.12	92.09	0.153	N/A	N/A	N/A	0.88	18.24	1.75	22.33	17.224		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.388	6956.21	9.2	0.329	9.3	-16.9	-7.32	3.57%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0	0.88	8.156	0.78	9.87	9	3.99%	3.1	21%	2.19	0.000	2.19	0	0	0.72	0.05	0.96	0.10	1.00	0.087	27.61	37.49	0.067	N/A	0.86	0.18	0.80	0.82	1.00	0.128	8.25	81.45	0.130	N/A	N/A	N/A	0.88	8.06	0.77	9.87	17.388		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.552	6956.05	8.0	0.192	8.0	-1.9	-0.83	2.41%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0	0.87	6.932	0.66	8.48	7	2.75%	3.1	21%	2.20	0.000	2.20	0	0	0.72	0.04	0.96	0.10	1.00	0.087	27.21	35.69	0.065	N/A	0.86	0.17	0.80	0.82	1.00	0.128	7.90	66.92	0.108	N/A	N/A	N/A	0.87	6.92	0.66	8.48	17.552		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.716	6955.88	9.3	0.141	8.9	58.9	25.52	1.52%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	0.86	7.704	0.74	9.82	8	1.70%	2.9	21%	2.21	0.000	2.21	0	0	0.72	0.05	0.96	0.10	1.00	0.087	27.60	37.42	0.067	N/A	0.86	0.18	0.80	0.82	1.00	0.128	5.98	58.76	0.099	N/A	N/A	N/A	0.86	8.02	0.77	9.82	17.716		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
17.880	6955.72	13.1	0.175	12.9	43.8	18.99	1.33%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0	0.86	11.038	1.06	13.80	12	1.44%	2.8	21%	2.22	0.000	2.22	0	0	0.72	0.05	0.95	0.10	1.00	0.087	28.74	42.54	0.071	N/A	0.86	0.21	0.80	0.82	1.00	0.128	4.40	60.69	0.101	N/A	N/A	N/A	0.86	11.27	1.08	13.80	17.880		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.044	6955.56	10.4	0.143	10.3	18.0	7.81	1.38%	Coarse Tailings	0.054	108.1	1.00	0.000	1.00	0	0.85	8.738	0.84	10.82	9	1.53%	2.9	21%	2.23	0.000	2.23	0	0	0.72	0.05	0.95	0.10	1.00	0.087	27.88	38.70	0.068	N/A	0.86	0.19	0.80	0.82	1.00	0.128	5.38	58.19	0.098	N/A	N/A	N/A	0.85	8.83	0.85	10.82	18.044		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.208	6955.39	7.6	0.129	7.5	18.8	8.16	1.70%	Coarse Tailings	0.054	108.1	1.01	0.000	1.01	0	0.85	6.310	0.60	7.85	6	1.96%	3.1	21%	2.23	0.000	2.23	0	0	0.72	0.04	0.96	0.10	1.00	0.087	27.03	34.88	0.065	N/A	0.85	0.16	0.80	0.82	1.00	0.128	7.42	58.22	0.098	N/A	N/A	N/A	0.85	6.41	0.61	7.85	18.208		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.372	6955.23	6.7	0.101	6.6	26.6	11.53	1.50%	Coarse Tailings	0.054	108.1	1.02	0.000	1.02	0	0.84	5.511	0.53	6.92	6	1.77%	3.1	21%	2.24	0.000	2.24	0	0	0.71	0.04	0.96	0.10	1.00	0.086	26.77	33.68	0.064	N/A	0.85	0.15	0.80	0.82	1.00	0.128	7.84	54.25	0.095	N/A	N/A	N/A	0.84	5.65	0.54	6.92	18.372		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.537	6955.06	6.8	0.080	6.6	34.8	15.07	1.18%	Coarse Tailings	0.054	108.1	1.03	0.000	1.03	0	0.83	5.474	0.52	6.92	6	1.39%	3.0	21%	2.25	0.000	2.25	0	0	0.71	0.04	0.96	0.10	1.00	0.086	26.77	33.69	0.064	N/A	0.85	0.15	0.80	0.82	1.00	0.128	7.26	50.30	0.092	N/A	N/A	N/A	0.83	5.66	0.54	6.92	18.537		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.701	6954.90	6.4	0.069	6.2	33.7	14.60	1.08%	Coarse Tailings	0.054	108.1	1.04	0.000	1.04	0	0.83	5.122	0.49	6.49	5	1.29%	3.1	21%	2.26	0.000	2.26	0	0	0.71	0.04	0.96	0.10	1.00	0.086	26.64	33.13	0.063	N/A	0.85	0.15	0.80	0.82	1.00	0.128	7.46	48.38	0.090	N/A	N/A	N/A	0.83	5.30	0.51	6.49	18.701		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
18.865	6954.74	7.3	0.110	7.1	40.7	17.65	1.50%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0	0.82	5.821	0.56	7.38	6	1.75%	3.1	21%	2.27	0.000	2.27	0	0	0.71	0.04	0.96	0.10	1.00	0.086	26.90	34.28	0.064	N/A	0.85	0.16	0.80	0.82	1.00	0.127	7.49	55.30	0.096	N/A	N/A	N/A	0.82	6.03	0.58	7.38	18.865		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
19.029	6954.57	8.2	0.108	8.0	30.0	13.01	1.31%	Fine Tailings	0.054	107.6	1.06	0.004	1.05	1	0.82	6.588	0.63	8.26	7	1.51%	3.0	83%	2.28	0.004	2.27	1	0	0.71	0.04	0.96	0.10	1.00	0.086	32.74	41.00	0.069	N/A	0.85	0.17	0.80	0.81	1.00	0.128	6.58	54.29	0.095	N/A	N/A	N/A	0.82	6.74	0.65	8.26	19.029		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.193	6954.41	7.2	0.091	7.1	13.6	5.88	1.26%	Fine Tailings	0.054	107.6	1.06	0.009	1.06	1	0.82	5.842	0.56	7.24	6	1.48%	3.0	83%	2.29	0.009	2.28	1	0	0.71	0.04	0.96	0.10	1.00	0.086	32.39	39.63	0.068	N/A	0.85	0.16	0.80	0.81	1.00	0.128	7.20	52.12	0.093	N/A	N/A	N/A	0.82	5.91	0.57	7.24	19.193		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.357	6954.24	7.2	0.094	7.1	15.2	6.59	1.31%	Fine Tailings	0.054	107.6	1.07	0.014	1.06	1	0.82	5.769	0.55	7.16	6	1.54%	3.1	83%	2.30	0.014	2.28	1	0	0.71	0.04	0.96	0.10	1.00	0.086	32.36	39.52	0.068	N/A	0.85	0.15	0.80	0.81	1.00	0.128	7.37	52.76	0.094	N/A	N/A	N/A	0.82	5.85	0.56	7.16	19.357		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.521	6954.08	7.7	0.091	7.6	22.9	9.90	1.18%	Fine Tailings	0.054	107.6	1.08	0.019	1.06	1	0.81	6.168	0.59	7.69	6	1.37%	3.0	83%	2.30	0.019	2.29	1	0	0.70	0.04	0.96	0.10	1.00	0.086	32.55	40.24	0.069	N/A	0.84	0.16	0.80	0.81	1.00	0.128	6.73	51.80	0.093	N/A	N/A	N/A	0.81	6.28	0.60	7.69	19.521		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.685	6953.92	8.6	0.102	8.5	14.6	6.32	1.19%	Fine Tailings	0.054	107.6	1.09	0.024	1.07	1	0.81	6.881	0.66	8.52	7	1.36%	3.0	83%	2.31	0.024	2.29	1	0	0.70	0.04	0.95	0.10	1.00	0.086	32.83	41.35	0.070	N/A	0.84	0.17	0.80	0.81	1.00	0.128	6.24	53.13	0.094	N/A	N/A	N/A	0.81	6.96	0.67	8.52	19.685		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.849	6953.75	9.0	0.122	8.9	16.9	7.30	1.35%	Fine Tailings	0.054	107.6	1.10	0.030	1.07	1	0.81	7.219	0.69	8.94	7	1.54%	3.0	83%	2.32	0.030	2.29	1	0	0.70	0.04	0.95	0.10	1.00	0.086	32.98	41.92	0.070	N/A	0.84	0.17	0.80	0.81	1.00	0.128	6.28	56.15	0.096	N/A	N/A	N/A	0.81	7.30	0.70	8.94	19.849		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.013	6953.59	8.5	0.126	8.3	32.8	14.21	1.48%	Fine Tailings	0.054	107.6	1.11	0.035	1.07	1	0.81	6.691	0.64	8.40	7	1.71%	3.0	83%	2.33	0.035	2.30	1	0	0.70	0.04	0.95	0.10	1.00	0.086	32.79	41.19	0.070	N/A	0.84	0.17	0.80	0.81	1.00	0.128	6.82	57.23	0.097	N/A	N/A	N/A	0.81	6.86	0.66	8.40	20.013		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.177	6953.42	7.8	0.103	7.7	20.8	9.03	1.32%	Fine Tailings	0.054	107.6	1.12	0.040	1.08	1	0.80	6.158	0.59	7.67	6	1.55%	3.0	83%	2.34	0.040	2.30	1	0	0.70	0.04	0.96	0.10	1.00	0.086	32.54	40.21	0.069	N/A	0.84	0.16	0.80	0.81	1.00	0.128	7.05	54.06	0.095	N/A	N/A	N/A	0.80	6.26	0.60	7.67	20.177		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.341	6953.26	6.9	0.100	6.8	26.5	11.47	1.44%	Fine Tailings	0.054	107.6	1.13	0.045	1.08	1	0.80	5.427	0.52	6.81	5	1.72%	3.1	83%	2.35	0.045	2.30	1	0	0.70	0.04	0.96	0.10	1.00	0.086	32.24	39.05	0.068	N/A	0.84	0.15	0.80	0.81	1.00	0.129	7.97	54.28	0.095	N/A	N/A	N/A	0.80	5.56	0.53	6.81	20.341		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.505	6953.10	6.5	0.098	6.3	30.6	13.24	1.51%	Fine Tailings	0.054	107.6	1.14	0.050	1.09	1	0.80	5.052	0.48	6.37	5	1.83%	3.1	83%	2.36	0.050	2.31	1	0	0.70	0.04	0.96	0.10	1.00	0.086	32.09	38.46	0.067	N/A	0.84	0.15	0.80	0.81	1.00	0.129	8.53	54.33	0.095	N/A	N/A	N/A	0.80	5.20	0.50	6.37	20.505		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.669	6952.93	6.3	0.091	6.1	31.2	13.52	1.44%	Fine Tailings	0.054	107.6	1.14	0.055	1.09	1	0.80	4.887	0.47	6.17	5	1.76%	3.2	83%	2.37	0.055	2.31	1	0	0.70	0.04	0.96	0.10	1.00	0.086	32.02	38.20	0.067	N/A	0.83	0.14	0.80	0.81	1.00	0.129	8.63	53.29	0.094	N/A	N/A	N/A	0.80	5.04	0.48	6.17	20.669		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.833	6952.77	6.3	0.137	6.1	35.9	15.56	2.18%	Fine Tailings	0.054	107.6	1.15	0.060	1.09	1	0.80	4.826	0.46	6.13	5	2.67%	3.2	83%	2.38	0.060	2.32	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.01	38.14	0.067	N/A	0.83	0.14	0.80	0.81	1.00	0.129	9.92	60.78	0.101	N/A	N/A	N/A	0.80	5.00	0.48	6.13	20.833		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.997	6952.60	7.8	0.124	7.5	39.0	16.88	1.60%	Fine Tailings	0.054	107.6	1.16	0.065	1.10	1	0.79	5.973	0.57	7.55	6	1.88%	3.1	83%	2.38	0.065	2.32	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.50	40.05	0.069	N/A	0.83	0.16	0.80	0.81	1.00	0.129	7.65	57.72	0.098	N/A	N/A	N/A	0.79	6.17	0.59	7.55	20.997		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.161	6952.44	7.3	0.071	7.1	27.6	11.98	0.97%	Fine Tailings	0.054	107.6	1.17	0.071	1.10	1	0.79	5.656	0.54	7.09	6	1.16%	3.0	83%	2.39	0.071	2.32	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.34	39.43	0.068	N/A	0.83	0.15	0.80	0.81	1.00	0.129	6.86	48.65	0.091	N/A	N/A	N/A	0.79	5.79	0.55	7.09	21.161		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.325	6952.27	7.6	0.135	7.4	33.1	14.36	1.78%	Fine Tailings	0.054	107.6	1.18	0.076	1.10	1	0.79	5.839	0.56	7.35	6	2.10%	3.1	83%	2.40	0.076	2.33	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.43	39.78	0.068	N/A	0.83	0.16	0.80	0.81	1.00	0.129	8.11	59.61	0.100	N/A	N/A	N/A	0.79	6.00	0.57	7.35	21.325		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.489	6952.11	11.5	0.156	11.3	33.2	14.38	1.36%	Fine Tailings	0.054	107.6	1.19	0.081	1.11	1	0.79	8.889	0.85	11.08	9	1.51%	2.9	83%	2.41	0.081	2.33	1	0	0.69	0.05	0.95	0.10	1.00	0.087	33.72	44.81	0.073	N/A	0.83	0.19	0.80	0.81	1.00	0.129	5.38	59.65	0.100	N/A	N/A	N/A	0.79	9.05	0.87	11.08	21.489		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.653	6951.95	9.0	0.134	8.9	18.5	8.03	1.48%	Fine Tailings	0.054	107.6	1.20	0.086	1.11	1	0.79	7.011	0.67	8.70	7	1.71%	3.0	83%	2.42	0.086	2.33	1	0	0.69	0.04	0.95	0.10	1.00	0.086	32.90	41.59	0.070	N/A	0.83	0.17	0.80	0.81	1.00	0.129	6.71	58.38	0.099	N/A	N/A	N/A	0.79	7.10	0.68	8.70	21.653		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.817	6951.78	7.3	0.253	7.1	32.2	13.97	3.48%	Fine Tailings	0.054	107.6	1.21	0.091	1.11	1	0.78	5.542	0.53	6.98	5	4.17%	3.3	83%	2.43	0.091	2.34	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.30	39.28	0.068	N/A	0.83	0.15	0.80	0.81	1.00	0.129	10.65	74.37	0.118	N/A	N/A	N/A	0.78	5.70	0.55	6.98	21.817		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.981	6951.62	6.9	0.209	6.7	40.8	17.69	3.01%	Fine Tailings	0.054	107.6	1.21	0.096	1.12	1	0.78	5.231	0.50	6.65	5	3.65%	3.3	83%	2.44	0.096	2.34	1	0	0.69	0.04	0.96	0.10	1.00	0.086	32.19	38.84	0.068	N/A	0.82	0.15	0.80	0.81	1.00	0.130	10.50	69.81	0.112	N/A	N/A	N/A	0.78	5.43	0.52	6.65	21.981		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.145	6951.45	8.7	0.210	8.7	6.2	2.67	2.41%	Fine Tailings	0.054	107.6	1.22	0.101	1.12	1	0.78	6.762	0.65	8.32	7	2.81%	3.1	83%	2.45	0.101	2.34	1	0	0.68	0.04	0.95	0.10	1.00	0.086	32.76	41.08	0.069	N/A	0.82	0.17	0.80	0.81	1.00	0.130	8.28	68.87	0.110	N/A	N/A	N/A	0.78	6.79	0.65	8.32	22.145		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.309	6951.29	9.4	0.231	9.4	10.4	4.52	2.45%	Fine Tailings	0.054	107.6	1.23	0.106	1.13	1	0.78	7.289	0.70	8.99	7	2.82%	3.1	83%	2.45	0.106	2.35	1	0	0.68	0.04	0.95	0.10	1.00	0.087	33.00	41.98	0.070	N/A	0.82	0.17	0.80	0.81	1.00	0.130	7.88	70.83	0.113	N/A	N/A	N/A	0.78	7.34	0.70	8.99	22.309		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.473	6951.13	11.6	0.199	11.5	14.6	6.34	1.71%	Fine Tailings	0.054	107.6	1.24	0.111	1.13	1	0.78	8.954	0.86	11.05	9	1.92%	2.9	83%	2.46	0.111	2.35	1	0	0.68	0.05	0.95	0.10	1.00	0.087	33.71	44.76	0.073	N/A	0.82	0.19	0.80	0.81	1.00	0.130	5.92	65.40	0.106	N/A	N/A	N/A	0.78	9.02	0.86	11.05	22.473		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.638	6950.96	9.2	0.173	9.1	19.2	8.34	1.87%	Fine Tailings	0.054	107.6	1.25	0.117	1.13	1	0.77	7.050	0.68	8.75	7	2.17%	3.0	83%	2.47	0.117	2.36	1	0	0.68	0.04	0.95	0.10	1.00	0.087	32.91	41.66	0.070	N/A	0.82	0.17	0.80	0.81	1.00	0.130	7.31	63.94	0.104	N/A	N/A	N/A	0.77	7.14	0.68	8.75	22.638		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.802	6950.80	9.0	0.171	8.7	47.4	20.52	1.89%	Fine Tailings	0.054	107.6	1.26	0.122	1.14	1	0.77	6.739	0.65	8.53	7	2.20%	3.1	83%	2.48	0.122	2.36	1	0	0.68	0.04	0.95	0.10	1.00	0.087	32.84	41.37	0.070	N/A	0.82	0.17	0.80	0.81	1.00	0.130	7.49	63.86	0.104	N/A	N/A	N/A	0.77	6.97	0.67	8.53	22.802		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.966	6950.63	8.5	0.164	8.2	54.3	23.55	1.93%	Fine Tailings	0.054	107.6	1.27	0.127	1.14	1	0.77	6.283	0.60	8.01	6	2.27%	3.1	83%	2.49	0.127	2.36	1	0	0.68	0.04	0.95	0.10	1.00	0.086	32.66	40.67	0.069	N/A	0.82	0.16	0.80	0.81	1.00	0.130	7.91	63.37	0.104	N/A	N/A	N/A	0.77	6.54	0.63	8.01	22.966		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.130	6950.47	10.1	0.170	9.9	42.1	18.22	1.68%	Fine Tailings	0.054	107.6	1.28	0.132	1.14	1	0.77	7.588	0.73	9.54	8	1.92%	3.0	83%	2.50	0.132	2.37	1	0	0.68	0.04	0.95	0.10	1.00	0.087	33.19	42.73	0.071	N/A	0.81	0.18	0.80	0.81	1.00	0.130	6.60	62.91	0.103	N/A	N/A	N/A	0.77	7.79	0.75	9.54	23.130		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.294	6950.31	11.0	0.208	10.8	25.2	10.90	1.89%	Fine Tailings	0.054	107.6	1.29	0.137	1.15	1	0.77	8.304	0.80	10.32	8	2.14%	3.0	83%	2.51	0.137	2.37	1	0	0.67	0.05	0.95	0.10	1.00	0.087	33.46	43.77	0.072	N/A	0.81	0.19	0.80	0.81	1.00	0.130	6.51	67.12	0.108	N/A	N/A	N/A	0.77	8.42	0.81	10.32	23.294		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.458	6950.14	18.7	0.228	18.2	91.8	39.80	1.22%	Fine Tailings	0.054	107.6	1.29	0.142	1.15	1	0.76	13.885	1.33	17.54	15	1.31%	2.7	83%	2.52	0.142	2.37	1	0	0.67	0.05	0.95	0.10	1.00	0.087	35.95	53.49	0.081	N/A	0.81	0.24	0.80	0.81	1.00	0.130	3.65	64.09	0.104	N/A	N/A	N/A	0.76	14.32	1.37	17.54	23.458		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.622	6949.98	25.0	0.246	24.8	28.4	12.30	0.99%	Fine Tailings	0.054	107.6	1.30	0.147	1.16	1	0.77	19.003	1.82	23.44	20	1.04%	2.5	83%	2.53	0.147	2.38	1	0	0.67	0.05	0.94	0.10	1.00	0.088	37.99	61.43	0.089	N/A	0.81	0.28	0.80	0.81	1.00	0.130	2.71	63.48	0.104	N/A	N/A	N/A	0.77	19.14	1.83	23.44	23.622		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.786	6949.81	27.6	0.308	27.5	17.4	7.52	1.12%	Fine Tailings	0.054	107.6	1.31	0.152	1.16	1	0.77	21.122	2.02	25.97	23	1.17%	2.5	83%	2.53	0.152	2.38	1	0	0.67	0.06	0.94	0.10	1.00	0.088	38.87	64.84	0.093	N/A	0.81	0.29	0.80	0.81	1.00	0.131	2.65	68.91	0.110	N/A	N/A	N/A	0.77	21.21	2.03	25.97	23.786		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.950	6949.65	24.2	0.338	24.2	11.4	4.94	1.39%	Fine Tailings	0.054	107.6	1.32	0.158	1.16	1	0.76	18.394	1.76	22.59	20	1.48%	2.6	83%	2.54	0.158	2.39	1	0	0.67	0.05	0.94	0.10	1.00	0.088	37.70	60.29	0.088	N/A	0.81	0.27	0.80	0.81	1.00	0.131	3.21	72.59	0.116	N/A	N/A	N/A	0.76	18.45	1.77	22.59	23.950		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.114	6949.49	22.9	0.395	22.8	9.9	4.29	1.73%	Fine Tailings	0.054	107.6	1.33	0.163	1.17	1	0.76	17.273	1.65	21.21	18	1.83%	2.7	83%	2.55	0.163	2.39	1	0	0.67	0.05	0.94	0.10	1.00	0.088	37.22	58.43	0.086	N/A	0.81	0.27	0.80	0.81	1.00	0.131	3.69	78.23	0.125	N/A	N/A	N/A	0.76	17.32	1.66	21.21	24.114		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.278	6949.32	20.9	0.416	20.8	8.9	3.84	1.99%	Fine Tailings	0.054	107.6	1.34	0.168	1.17	1	0.75	15.727	1.51	19.31	17	2.13%	2.7	83%	2.56	0.168	2.39	1	0	0.67	0.05	0.94	0.10	1.00	0.087	36.57	55.88	0.083	N/A	0.81	0.25	0.80	0.81	1.00	0.131	4.21	81.27	0.130	N/A	N/A	N/A	0.75	15.77	1.51	19.31	24.278		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.442	6949.16	23.1	0.444	23.0	7.7	3.34	1.93%	Fine Tailings	0.054	107.6	1.35	0.000	1.35	0	0.68	15.558	1.49	19.09	16	2.05%	2.7	83%	2.57	0.000	2.57	0	0	0.67	0.05	0.94	0.10	1.00	0.082	36.49	55.58	0.083	N/A	0.80	0.25	0.80	0.80	1.00	0.124	4.23	80.83	0.129	N/A	N/A	N/A	0.68	15.59	1.49	19.09	24.442		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.606	6948.99	25.3	0.519	25.2	7.0	3.03	2.05%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	0.67	16.979	1.63	20.83	18	2.17%	2.7	21%	2.58	0.000	2.58	0	0	0.66	0.05	0.94	0.10	1.00	0.082	30.75	51.58	0.079	N/A	0.80	0.26	0.80	0.79	1.00	0.124	4.10	85.36	0.138	N/A	N/A	N/A	0.67	17.01	1.63	20.83	24.606		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
24.770	6948.83	16.2	0.500	16.2	5.7	2.48	3.08%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0	0.67	10.836	1.04	13.30	11	3.36%	3.0	21%	2.59	0.000	2.59	0	0	0.66	0.05	0.94	0.10	1.00	0.081	28.59	41.89	0.070	N/A	0.80	0.21	0.80	0.79	1.00	0.123	6.69	88.98	0.146	N/A	N/A	N/A	0.67	10.86	1.04	13.30	24.770		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
24.934	6948.67	10.7	0.338	10.6	5.8	2.52	3.17%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0	0.67	7.085	0.68	8.71	7	3.63%	3.2	21%	2.60	0.000	2.60	0	0	0.66	0.04	0.95	0.10	1.00	0.081	27.28	35.98	0.065	N/A	0.80	0.17	0.80	0.79	1.00	0.123	9.02	78.55	0.125	N/A	N/A	N/A	0.67	7.11	0.68	8.71	24.934		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.098	6948.50	8.6	0.263	8.5	8.3	3.58	3.06%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0	0.66	5.658	0.54	6.97	5	3.65%	3.3	21%	2.61	0.000	2.61	0	0	0.66	0.04	0.95	0.10	1.00	0.080	26.78	33.75	0.064	N/A	0.80	0.15	0.80	0.79	1.00	0.123	10.40	72.50	0.115	N/A	N/A	N/A	0.66	5.69	0.54	6.97	25.098		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.262	6948.34	9.6	0.146	9.4	42.8	18.53	1.52%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0	0.66	6.177	0.59	7.78	6	1.77%	3.1	21%	2.61	0.000	2.61	0	0	0.66	0.04	0.95	0.10	1.00	0.080	27.01	34.79	0.065	N/A	0.80	0.16	0.80	0.79	1.00	0.123	7.57	58.88	0.099	N/A	N/A	N/A	0.66	6.35	0.61	7.78	25.262		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.426	6948.17	9.6	0.131	9.3	46.3	20.07	1.36%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0	0.66	6.107	0.58	7.71	6	1.60%	3.1	21%	2.62	0.000	2.62	0	0	0.66	0.04	0.95	0.10	1.00	0.080	26.99	34.70	0.065	N/A	0.80	0.16	0.80	0.79	1.00	0.123	7.37	56.84	0.097	N/A	N/A	N/A	0.66	6.30	0.60	7.71	25.426		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.590	6948.01	9.2	0.124	8.9	50.5	21.90	1.34%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0	0.65	5.823	0.56	7.38	6	1.58%	3.1	21%	2.63	0.000	2.63	0	0	0.66	0.04	0.95	0.10	1.00	0.080	26.90	34.28	0.064	N/A	0.79	0.16	0.80	0.79	1.00	0.123	7.59	56.07	0.096	N/A	N/A	N/A	0.65	6.03	0.58	7.38	25.590		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.754	6947.85	9.4	0.116	9.1	60.6	26.25	1.23%	Coarse Tailings	0.054	108.1	1.42	0.002	1.42	1	0.65	5.884	0.56	7.51	6	1.45%	3.0	21%	2.64	0.002	2.64	1	0	0.66	0.04	0.95	0.10	1.00	0.080	26.93	34.44	0.064	N/A	0.79	0.16	0.80	0.79	1.00	0.123	7.30	54.77	0.095	N/A	N/A	N/A	0.65	6.13	0.59	7.51	25.754		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
25.918	6947.68	8.3	0.114	7.9	57.1	24.73	1.38%	Fine Tailings	0.054	107.6	1.43	0.007	1.42	1	0.65	5.126	0.49	6.56	5	1.67%	3.1	83%	2.65	0.007	2.64	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.16	38.72	0.068	N/A	0.79	0.15	0.80	0.79	1.00	0.123	8.43	55.27	0.096	N/A	N/A	N/A	0.65	5.36	0.51	6.56	25.918		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.082	6947.52	7.7	0.112	7.3	71.0	30.77	1.45%	Fine Tailings	0.054	107.6	1.44	0.012	1.42	1	0.65	4.708	0.45	6.12	4	1.78%	3.2	83%	2.66	0.012	2.65	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.00	38.12	0.067	N/A	0.79	0.14	0.80	0.79	1.00	0.123	9.05	55.37	0.096	N/A	N/A	N/A	0.65	4.99	0.48	6.12	26.082	5	0.95	4	2	0.22	0.67	0.46	5.5	7.5	0.10	N/A	5.00	1.20	7.39	0.091	N/A	N/A
26.246	6947.35	7.7	0.108	7.3	63.1	27.35	1.40%	Fine Tailings	0.054	107.6	1.44	0.017	1.43	1	0.65	4.737	0.45	6.11	4	1.72%	3.2	83%	2.67	0.017	2.65	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.00	38.11	0.067	N/A	0.79	0.14	0.80	0.79	1.00	0.123	8.97	54.80	0.095	N/A	N/A	N/A	0.65	4.99	0.48	6.11	26.246		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.410	6947.19	7.5	0.085	7.1	52.0	22.53	1.14%	Fine Tailings	0.054	107.6	1.45	0.022	1.43	1	0.64	4.605	0.44	5.89	4	1.41%	3.2	83%	2.68	0.022	2.65	1	0	0.65	0.04	0.95	0.10	1.00	0.080	31.93	37.82	0.067	N/A	0.79	0.14	0.80	0.79	1.00	0.123	8.70	51.26	0.093	N/A	N/A	N/A	0.64	4.81	0.46	5.89	26.410		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.574	6947.03	8.0	0.101	7.6	67.8	29.36	1.26%	Fine Tailings	0.054	107.6	1.46	0.027	1.43	1	0.64	4.879	0.47	6.31	5	1.54%	3.1	83%	2.68	0.027	2.66	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.07	38.38	0.067	N/A	0.79	0.14	0.80	0.79	1.00	0.123	8.50	53.59	0.094	N/A	N/A	N/A	0.64	5.15	0.49	6.31	26.574		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.739	6946.86	8.8	0.168	8.4	69.2	30.00	1.91%	Fine Tailings	0.054	107.6	1.47	0.032	1.44	1	0.64	5.363	0.51	6.91	5	2.30%	3.2	83%	2.69	0.032	2.66	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.28	39.18	0.068	N/A	0.79	0.15	0.80	0.79	1.00	0.123	9.03	62.39	0.103	N/A	N/A	N/A	0.64	5.64	0.54	6.91	26.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.903	6946.70	9.5	0.168	9.1	67.4	29.20	1.77%	Fine Tailings	0.054	107.6	1.48	0.038	1.44	1	0.64	5.801	0.56	7.43	6	2.10%	3.1	83%	2.70	0.038	2.66	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.46	39.89	0.069	N/A	0.78	0.16	0.80	0.79	1.00	0.123	8.34	62.02	0.102	N/A	N/A	N/A	0.64	6.07	0.58	7.43	26.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.067	6946.53	8.1	0.176	7.7	72.9	31.60	2.17%	Fine Tailings	0.054	107.6	1.49	0.043	1.45	1	0.64	4.894	0.47	6.35	5	2.66%	3.3	83%	2.71	0.043	2.67	1	0	0.65	0.04	0.95	0.10	1.00	0.080	32.08	38.43	0.067	N/A	0.78	0.15	0.80	0.79	1.00	0.123	10.05	63.80	0.104	N/A	N/A	N/A	0.64	5.19	0.50	6.35	27.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.231	6946.37	9.1	0.146	8.6	87.3	37.83	1.60%	Fine Tailings	0.054	107.6	1.50	0.048	1.45	1	0.64	5.491	0.53	7.15	5	1.91%	3.1	83%	2.72	0.048	2.67	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.36	39.51	0.068	N/A	0.78	0.15	0.80	0.79	1.00	0.123	8.32	59.49	0.100	N/A	N/A	N/A	0.64	5.84	0.56	7.15	27.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.395	6946.21	8.9	0.194	8.3	97.2	42.14	2.18%	Fine Tailings	0.054	107.6	1.51	0.053	1.45	1	0.64	5.282	0.51	6.94	5	2.62%	3.2	83%	2.73	0.053	2.68	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.29	39.23	0.068	N/A	0.78	0.15	0.80	0.79	1.00	0.123	9.44	65.50	0.106	N/A	N/A	N/A	0.64	5.67	0.54	6.94	27.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.559	6946.04	10.1	0.182	9.4	105.1	45.53	1.80%	Fine Tailings	0.054	107.6	1.52	0.058	1.46	1	0.64	5.997	0.57	7.85	6	2.12%	3.1	83%	2.74	0.058	2.68	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.60	40.46	0.069	N/A	0.78	0.16	0.80	0.79	1.00	0.123	8.08	63.46	0.104	N/A	N/A	N/A	0.64	6.41	0.61	7.85	27.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.723	6945.88	9.1	0.160	8.4	111.3	48.23	1.76%	Fine Tailings	0.054	107.6	1.52	0.063	1.46	1	0.63	5.337	0.51	7.08	5	2.11%	3.2	83%	2.75	0.063	2.68	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.33	39.41	0.068	N/A	0.78	0.15	0.80	0.79	1.00	0.123	8.68	61.42	0.102	N/A	N/A	N/A	0.63	5.78	0.55	7.08	27.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.887	6945.71	9.0	0.156	8.3	118.2	51.21	1.73%	Fine Tailings	0.054	107.6	1.53	0.068	1.46	1	0.63	5.251	0.50	7.00	5	2.08%	3.2	83%	2.76	0.068	2.69	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.31	39.31	0.068	N/A	0.78	0.15	0.80	0.79	1.00	0.124	8.71	61.00	0.101	N/A	N/A	N/A	0.63	5.72	0.55	7.00	27.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.051	6945.55	9.0	0.173	8.3	114.9	49.78	1.92%	Fine Tailings	0.054	107.6	1.54	0.073	1.47	1	0.63	5.240	0.50	6.97	5	2.32%	3.2	83%	2.76	0.073	2.69	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.30	39.27	0.068	N/A	0.77	0.15	0.80	0.79	1.00	0.124	9.06	63.14	0.103	N/A	N/A	N/A	0.63	5.69	0.55	6.97	28.051		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.215	6945.39	8.7	0.177	8.0	104.5	45.29	2.04%	Fine Tailings	0.054	107.6	1.55	0.078	1.47	1	0.63	5.066	0.49	6.71	5	2.48%	3.2	83%	2.77	0.078	2.69	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.21	38.91	0.068	N/A	0.77	0.15	0.80	0.79	1.00	0.124	9.52	63.84	0.104	N/A	N/A	N/A	0.63	5.48	0.52	6.71	28.215		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.379	6945.22	8.4	0.157	7.7	114.3	49.54	1.86%	Fine Tailings	0.054	107.6	1.56	0.084	1.48	1	0.63	4.855	0.47	6.49	5	2.29%	3.2	83%	2.78	0.084	2.70	1	0	0.64	0.04	0.95	0.10	1.00	0.080	32.13	38.63	0.068	N/A	0.77	0.15	0.80	0.79	1.00	0.124	9.49	61.61	0.102	N/A	N/A	N/A	0.63	5.30	0.51	6.49	28.379		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.543	6945.06	8.3	0.157	7.7	108.9	47.20	1.88%	Fine Tailings	0.054	107.6	1.57	0.089	1.48	1	0.63	4.807	0.46	6.41	5	2.32%	3.2	83%	2.79	0.089	2.70	1	0	0.63	0.04	0.95	0.10	1.00	0.080	32.10	38.51	0.067	N/A	0.77	0.15	0.80	0.79	1.00	0.124	9.63	61.70	0.102	N/A	N/A	N/A	0.63	5.23	0.50	6.41	28.543		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.707	6944.89	7.6	0.159	7.0	102.2	44.29	2.10%	Fine Tailings	0.054	107.6	1.58	0.094	1.48	1	0.63	4.359	0.42	5.83	4	2.65%	3.3	83%	2.80	0.094	2.71	1	0	0.63	0.04	0.95	0.10	1.00	0.080	31.90	37.73	0.067	N/A	0.77	0.14	0.80	0.79	1.00	0.124	10.72	62.45	0.103	N/A	N/A	N/A	0.63	4.76	0.46	5.83	28.707		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.871	6944.73	7.6	0.138	7.0	99.8	43.23	1.81%	Fine Tailings	0.054	107.6	1.59	0.099	1.49	1	0.63	4.388	0.42	5.85	4	2.28%	3.3	83%	2.81	0.099	2.71	1	0	0.63	0.04	0.95	0.10	1.00	0.080	31.91	37.76	0.067	N/A	0.77	0.14	0.80	0.79	1.00	0.124	10.22	59.79	0.100	N/A	N/A	N/A	0.63	4.78	0.46	5.85	28.871		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.035	6944.56	8.0	0.129	7.5	84.9	36.77	1.60%	Fine Tailings	0.054	107.6	1.59	0.104	1.49	1	0.62	4.698	0.45	6.16	4	2.00%	3.2	83%	2.82	0.104	2.71	1	0	0.63	0.04	0.95	0.10	1.00	0.080	32.02	38.18	0.067	N/A	0.77	0.14	0.80	0.79	1.00	0.124	9.47	58.32	0.098	N/A	N/A	N/A	0.62	5.03	0.48	6.16	29.035		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.199	6944.40	7.9	0.135	7.3	90.8	39.35	1.71%	Fine Tailings	0.054	107.6	1.60	0.109	1.49	1	0.62	4.571	0.44	6.03	4	2.15%	3.2	83%	2.83	0.109	2.72	1	0	0.63	0.04	0.95	0.10	1.00	0.080	31.97	38.00	0.067	N/A	0.77	0.14	0.80	0.79	1.00	0.124	9.83	59.29	0.099	N/A	N/A	N/A	0.62	4.92	0.47	6.03	29.199		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.363	6944.24	8.7	0.135	8.2	88.4	38.29	1.55%	Fine Tailings	0.054	107.6	1.61	0.114	1.50	1	0.62	5.078	0.49	6.64	5	1.90%	3.2	83%	2.83	0.114	2.72	1	0	0.63	0.04	0.95	0.10	1.00	0.080	32.18	38.82	0.068	N/A	0.76	0.15	0.80	0.79	1.00	0.124	8.85	58.76	0.099	N/A	N/A	N/A	0.62	5.42	0.52	6.64	29.363		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.527	6944.07	11.1	0.278	10.7	69.6	30.14	2.49%	Fine Tailings	0.054	107.6	1.62	0.119	1.50	1	0.62	6.652	0.64	8.48	6	2.92%	3.2	83%	2.84	0.119	2.72	1	0	0.63	0.04	0.95	0.10	1.00	0.080	32.82	41.30	0.070	N/A	0.76	0.17	0.80	0.79	1.00	0.124	8.64	73.26	0.117	N/A	N/A	N/A	0.62	6.92	0.66	8.48	29.527		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.691	6943.91	13.1	0.268	12.8	49.5	21.43	2.05%	Fine Tailings	0.054	107.6	1.63	0.125	1.51	1	0.62	7.904	0.76	9.91	8	2.34%	3.0	83%	2.85	0.125	2.73	1	0	0.63	0.05	0.95	0.10	1.00	0.080	33.32	43.23	0.071	N/A	0.76	0.18	0.80	0.79	1.00	0.124	7.19	71.25	0.114	N/A	N/A	N/A	0.62	8.10	0.78	9.91	29.691		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.855	6943.74	9.9	0.285	9.6	47.3	20.50	2.89%	Fine Tailings	0.054	107.6	1.64	0.130	1.51	1	0.62	5.915	0.57	7.47	5	3.47%	3.3	83%	2.86	0.130	2.73	1	0	0.62	0.04	0.95	0.10	1.00	0.080	32.47	39.94	0.069	N/A	0.76	0.16	0.80	0.79	1.00	0.124	9.99	74.58	0.119	N/A	N/A	N/A	0.62	6.10	0.58	7.47	29.855		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.019	6943.58	8.2	0.258	7.8	53.8	23.30	3.16%	Fine Tailings	0.054	107.6	1.65	0.135	1.51	1	0.62	4.842	0.46	6.18	4	3.95%	3.4	83%	2.87	0.135	2.74	1	0	0.62	0.04	0.95	0.10	1.00	0.080	32.03	38.21	0.067	N/A	0.76	0.14	0.80	0.79	1.00	0.124	11.78	72.85	0.116	N/A	N/A	N/A	0.62	5.05	0.48	6.18	30.019		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.183	6943.42	8.3	0.182	7.7	91.8	39.80	2.20%	Fine Tailings	0.054	107.6	1.66	0.140	1.52	1	0.62	4.752	0.46	6.25	4	2.75%	3.3	83%	2.88	0.140	2.74	1	0	0.62	0.04	0.95	0.10	1.00	0.080	32.05	38.30	0.067	N/A	0.76	0.14	0.80	0.79	1.00	0.124	10.41	65.08	0.106	N/A	N/A	N/A	0.62	5.11	0.49	6.25	30.183		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.347	6943.25	7.2	0.145	6.6	97.3	42.18	2.02%	Fine Tailings	0.054	107.6	1.67	0.145	1.52	1	0.62	4.036	0.39	5.40	4	2.64%	3.3	83%	2.89	0.145	2.74	1	0	0.62	0.04	0.95	0.10	1.00	0.080	31.75	37.15	0.066	N/A	0.76	0.13	0.80	0.78	1.00	0.124	11.37	61.41	0.102	N/A	N/A	N/A	0.62	4.41	0.42	5.40	30.347		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.511	6943.09	8.1	0.132	7.5	100.3	43.48	1.63%	Fine Tailings	0.054	107.6	1.67	0.150	1.52	1	0.61	4.581	0.44	6.08	4	2.06%	3.2	83%	2.90	0.150	2.75	1	0	0.62	0.04	0.95	0.10	1.00	0.080	31.99	38.07	0.067	N/A	0.75	0.14	0.80	0.78	1.00	0.124	9.72	59.07	0.099	N/A	N/A	N/A	0.61	4.97	0.48	6.08	30.511		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.675	6942.92	8.0	0.136	7.3	100.8	43.66	1.71%	Fine Tailings	0.054	107.6	1.68	0.155	1.53	1	0.61	4.492	0.43	5.97	4	2.17%	3.3	83%	2.91	0.155	2.75	1	0	0.62	0.04	0.95	0.10	1.00	0.080	31.95	37.93	0.067	N/A	0.75	0.14	0.80	0.78	1.00	0.124	10.00	59.75	0.100	N/A	N/A	N/A	0.61	4.88	0.47	5.97	30.675		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.840	6942.76	7.3	0.135	6.7	90.1	39.03	1.86%	Fine Tailings	0.054	107.6	1.69	0.160	1.53	1	0.61	4.092	0.39	5.43	4	2.43%	3.3	83%	2.91	0.160	2.75	1	0	0.62	0.04	0.95	0.10	1.00	0.079	31.77	37.20	0.066	N/A	0.75	0.13	0.80	0.78	1.00	0.124	11.08	60.19	0.100	N/A	N/A	N/A	0.61	4.44	0.42	5.43	30.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.004	6942.60	7.3	0.136	6.7	92.9	40.24	1.87%	Coarse Tailings	0.054	108.1	1.70	0.000	1.70	0	0.56	3.770	0.36	5.02	3	2.44%	3.4	21%	2.92	0.000	2.92	0	0	0.62	0.04	0.95	0.10	1.00	0.075	26.22	31.24	0.062	N/A	0.75	0.13	0.80	0.77	1.00	0.119	11.73	58.85	0.099	N/A	N/A	N/A	0.56	4.10	0.39	5.02	31.004		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.168	6942.43	7.9	0.125	7.3	95.4	41.34	1.59%	Coarse Tailings	0.054	108.1	1.71	0.000	1.71	0	0.56	4.081	0.39	5.41	4	2.03%	3.3	21%	2.93	0.000	2.93	0	0	0.61	0.04	0.95	0.10	1.00	0.075	26.33	31.74	0.062	N/A	0.75	0.13	0.80	0.77	1.00	0.118	10.56	57.08	0.097	N/A	N/A	N/A	0.56	4.41	0.42	5.41	31.168		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.332	6942.27	7.6	0.119	7.0	87.5	37.90	1.57%	Coarse Tailings	0.054	108.1	1.72	0.000	1.72	0	0.56	3.919	0.38	5.17	3	2.04%	3.3	21%	2.94	0.000	2.94	0	0	0.61	0.04	0.95	0.10	1.00	0.075	26.26	31.44	0.062	N/A	0.75	0.13	0.80	0.77	1.00	0.118	10.92	56.47	0.097	N/A	N/A	N/A	0.56	4.22	0.40	5.17	31.332		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.496	6942.10	6.4	0.096	5.9	81.3	35.22	1.49%	Coarse Tailings	0.054	108.1	1.73	0.000	1.73	0	0.56	3.302	0.32	4.39	3	2.04%	3.4	21%	2.95	0.000	2.95	0	0	0.61	0.04	0.95	0.10	1.00	0.075	26.04	30.43	0.062	N/A	0.75	0.12	0.80	0.77	1.00	0.118	12.29	53.95	0.095	N/A	N/A	N/A	0.56	3.58	0.34	4.39	31.496		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.660	6941.94	7.3	0.083	6.8	81.4	35.28	1.14%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	0.55	3.749	0.36	4.94	3	1.50%	3.3	21%	2.96	0.000	2.96	0	0	0.61	0.04	0.95	0.10	1.00	0.075	26.20	31.13	0.062	N/A	0.75	0.13	0.80	0.77	1.00	0.118	10.39	51.30	0.093	N/A	N/A	N/A	0.55	4.03	0.39	4.94	31.660		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.824	6941.78	7.3	0.082	6.8	88.6	38.39	1.12%	Coarse Tailings	0.054	108.1	1.74	0.000	1.74	0	0.55	3.734	0.36	4.95	3	1.47%	3.3	21%	2.97	0.000	2.97	0	0	0.61	0.04	0.95	0.10	1.00	0.074	26.20	31.15	0.062	N/A	0.74	0.13	0.80	0.77	1.00	0.118	10.33	51.11	0.092	N/A	N/A	N/A	0.55	4.04	0.39	4.95	31.824		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
31.988	6941.61	7.2	0.092	6.6	90.8	39.33	1.28%	Coarse Tailings	0.054	108.1	1.75	0.000	1.75	0	0.55	3.648	0.35	4.85	3	1.69%	3.3	21%	2.98	0.000	2.98	0	0	0.61	0.04	0.95	0.10	1.00	0.074	26.17	31.02	0.062	N/A	0.74	0.13	0.80	0.77	1.00	0.118	10.89	52.82	0.094	N/A	N/A	N/A	0.55	3.96	0.38	4.85	31.988		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
32.152	6941.45	6.8	0.110	6.3	93.8	40.65	1.61%	Coarse Tailings	0.054	108.1	1.76	0.000	1.76	0	0.55	3.425	0.33	4.59	3	2.17%	3.4	21%	2.99	0.000	2.99	0	0	0.61	0.04	0.95	0.10	1.00	0.074	26.10	30.68	0.062	N/A	0.74	0.12	0.80	0.77	1.00	0.118	12.15	55.72	0.096	N/A	N/A	N/A	0.55	3.75	0.36	4.59	32.152		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
32.316	6941.28	7.8	0.112	7.3	84.7	36.69	1.44%	Coarse Tailings	0.054	108.1	1.77	0.000	1.77	0	0.55	3.968	0.38	5.21	3	1.86%	3.3	21%	2.99	0.000	2.99	0	0	0.61	0.04	0.95	0.10	1.00	0.074	26.28	31.49	0.062	N/A	0.74	0.13	0.80	0.77	1.00	0.117	10.62	55.38	0.096	N/A	N/A	N/A	0.55	4.26	0.41	5.21	32.316		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
32.480	6941.12	8.0	0.130	7.5	81.4	35.26	1.63%	Coarse Tailings	0.054	108.1	1.78	0.000	1.78	0	0.54	4.056	0.39	5.31	3	2.10%	3.3	21%	3.00	0.000	3.00	0	0	0.61	0.04	0.95	0.10	1.00	0.074	26.30	31.61	0.062	N/A	0.74	0.13	0.80	0.77	1.00	0.117	10.88	57.70	0.098	N/A	N/A	N/A	0.54	4.33	0.41	5.31	32.480		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
32.644	6940.96	7.2	0.134	6.6	87.1	37.74	1.87%	Coarse Tailings	0.054	108.1	1.79	0.000	1.79	0	0.54	3.591	0.34	4.76	3	2.49%	3.4	21%	3.01	0.000	3.01	0	0	0.60	0.04	0.95	0.10	1.00	0.074	26.15	30.90	0.062	N/A	0.74	0.13	0.80	0.77	1.00	0.117	12.33	58.66	0.099	N/A	N/A	N/A	0.54	3.89	0.37	4.76	32.644		1.00	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

32.808	6940.79	8.1	0.101	7.7	70.0	30.32	1.25%	Coarse Tailings	0.054	108.1	1.80	0.000	1.80	0
32.972	6940.63	7.9	0.083	7.5	65.6	28.43	1.05%	Coarse Tailings	0.054	108.1	1.81	0.000	1.81	0
33.136	6940.46	9.0	0.122	8.5	77.4	33.54	1.36%	Coarse Tailings	0.054	108.1	1.82	0.000	1.82	0
33.300	6940.30	9.9	0.152	9.3	95.5	41.38	1.53%	Fine Tailings	0.054	107.6	1.82	0.003	1.82	1
33.464	6940.14	20.0	0.225	19.4	86.7	37.58	1.13%	Fine Tailings	0.054	107.6	1.83	0.008	1.83	1
33.628	6939.97	24.7	0.393	24.5	18.9	8.18	1.59%	Fine Tailings	0.054	107.6	1.84	0.013	1.83	1
33.792	6939.81	21.2	0.550	21.1	9.4	4.09	2.60%	Fine Tailings	0.054	107.6	1.85	0.018	1.83	1
33.956	6939.64	17.4	0.630	17.3	14.0	6.06	3.62%	Fine Tailings	0.054	107.6	1.86	0.024	1.84	1
34.120	6939.48	16.1	0.498	15.9	20.3	8.81	3.10%	Fine Tailings	0.054	107.6	1.87	0.029	1.84	1
34.284	6939.32	10.1	0.240	9.9	25.5	11.04	2.38%	Fine Tailings	0.054	107.6	1.88	0.034	1.84	1
34.448	6939.15	7.8	0.180	7.5	52.2	22.61	2.29%	Fine Tailings	0.054	107.6	1.89	0.039	1.85	1
34.612	6938.99	6.6	0.135	6.3	61.8	26.78	2.03%	Fine Tailings	0.054	107.6	1.90	0.044	1.85	1
34.776	6938.82	7.3	0.122	6.9	65.9	28.57	1.67%	Fine Tailings	0.054	107.6	1.90	0.049	1.85	1
34.941	6938.66	7.5	0.130	7.1	70.1	30.38	1.73%	Fine Tailings	0.054	107.6	1.91	0.054	1.86	1
35.105	6938.50	6.9	0.137	6.4	74.0	32.05	1.99%	Fine Tailings	0.054	107.6	1.92	0.059	1.86	1
35.269	6938.33	7.4	0.147	7.0	78.1	33.84	1.98%	Fine Tailings	0.054	107.6	1.93	0.065	1.87	1
35.433	6938.17	7.6	0.150	7.0	94.5	40.94	1.97%	Fine Tailings	0.054	107.6	1.94	0.070	1.87	1
35.597	6938.00	8.4	0.150	7.8	100.9	43.72	1.78%	Fine Tailings	0.054	107.6	1.95	0.075	1.87	1
35.761	6937.84	8.3	0.143	7.7	97.6	42.30	1.72%	Fine Tailings	0.054	107.6	1.96	0.080	1.88	1
35.925	6937.68	8.6	0.122	8.0	97.4	42.22	1.41%	Fine Tailings	0.054	107.6	1.97	0.085	1.88	1
36.089	6937.51	7.6	0.134	7.0	104.9	45.45	1.76%	Fine Tailings	0.054	107.6	1.97	0.090	1.88	1
36.253	6937.35	8.3	0.161	7.7	106.2	46.00	1.94%	Fine Tailings	0.054	107.6	1.98	0.095	1.89	1
36.417	6937.18	9.5	0.161	8.9	96.9	41.99	1.69%	Fine Tailings	0.054	107.6	1.99	0.100	1.89	1
36.581	6937.02	11.0	0.514	10.4	91.6	39.69	4.69%	Fine Tailings	0.054	107.6	2.00	0.105	1.90	1
36.745	6936.86	12.2	0.543	11.6	95.0	41.18	4.45%	Fine Tailings	0.054	107.6	2.01	0.111	1.90	1
36.909	6936.69	11.1	0.408	10.8	49.7	21.52	3.68%	Fine Tailings	0.054	107.6	2.02	0.116	1.90	1
37.073	6936.53	9.1	0.257	8.6	87.9	38.11	2.81%	Fine Tailings	0.054	107.6	2.03	0.121	1.91	1
37.237	6936.36	9.5	0.185	8.9	90.0	39.00	1.95%	Fine Tailings	0.054	107.6	2.04	0.126	1.91	1
37.401	6936.20	9.2	0.138	8.6	91.6	39.68	1.50%	Fine Tailings	0.054	107.6	2.05	0.131	1.91	1
37.565	6936.03	9.9	0.149	9.4	92.3	39.98	1.50%	Fine Tailings	0.054	107.6	2.05	0.136	1.92	1
37.729	6935.87	10.3	0.186	9.7	98.0	42.48	1.81%	Fine Tailings	0.054	107.6	2.06	0.141	1.92	1
37.893	6935.71	10.4	0.235	9.8	99.4	43.09	2.25%	Fine Tailings	0.054	107.6	2.07	0.146	1.93	1
38.057	6935.54	9.9	0.261	9.4	90.1	39.04	2.63%	Fine Tailings	0.054	107.6	2.08	0.152	1.93	1
38.221	6935.38	10.1	0.207	9.5	92.4	40.02	2.05%	Fine Tailings	0.054	107.6	2.09	0.157	1.93	1
38.385	6935.21	9.3	0.187	8.7	83.9	36.34	2.02%	Fine Tailings	0.054	107.6	2.10	0.162	1.94	1
38.549	6935.05	10.0	0.192	9.4	96.0	41.59	1.93%	Fine Tailings	0.054	107.6	2.11	0.167	1.94	1
38.713	6934.89	10.1	0.189	9.5	99.9	43.29	1.87%	Fine Tailings	0.054	107.6	2.12	0.172	1.94	1
38.877	6934.72	10.1	0.174	9.5	100.2	43.44	1.72%	Fine Tailings	0.054	107.6	2.12	0.177	1.95	1
39.042	6934.56	10.2	0.185	9.5	104.2	45.14	1.82%	Fine Tailings	0.054	107.6	2.13	0.182	1.95	1
39.206	6934.39	10.0	0.172	9.3	103.9	45.02	1.73%	Fine Tailings	0.054	107.6	2.14	0.187	1.96	1
39.370	6934.23	9.6	0.179	8.9	103.1	44.66	1.87%	Fine Tailings	0.054	107.6	2.15	0.192	1.96	1
39.534	6934.07	10.1	0.186	9.4	105.8	45.86	1.84%	Fine Tailings	0.054	107.6	2.16	0.198	1.96	1
39.698	6933.90	11.1	0.218	10.5	111.9	48.48	1.96%	Fine Tailings	0.054	107.6	2.17	0.203	1.97	1
39.862	6933.74	10.9	0.250	10.2	112.4	48.69	2.29%	Fine Tailings	0.054	107.6	2.18	0.208	1.97	1
40.026	6933.57	11.2	0.266	10.5	111.8	48.46	2.37%	Fine Tailings	0.054	107.6	2.19	0.213	1.97	1
40.190	6933.41	11.4	0.259	10.6	114.6	49.64	2.28%	Fine Tailings	0.054	107.6	2.20	0.218	1.98	1
40.354	6933.25	11.1	0.254	10.4	115.1	49.89	2.29%	Fine Tailings	0.054	107.6	2.20	0.223	1.98	1
40.518	6933.08	11.2	0.254	10.5	117.1	50.74	2.27%	Fine Tailings	0.054	107.6	2.21	0.228	1.98	1
40.682	6932.92	11.0	0.256	10.3	117.2	50.80	2.33%	Fine Tailings	0.054	107.6	2.22	0.233	1.99	1
40.846	6932.75	10.5	0.259	9.8	118.3	51.25	2.47%	Fine Tailings	0.054	107.6	2.23	0.239	1.99	1
41.010	6932.59	11.1	0.263	10.4	119.3	51.69	2.36%	Fine Tailings	0.054	107.6	2.24	0.244	2.00	1
41.174	6932.43	11.1	0.273	10.3	119.3	51.69	2.47%	Fine Tailings	0.054	107.6	2.25	0.249	2.00	1
41.338	6932.26	11.1	0.294	10.3	120.1	52.04	2.65%	Fine Tailings	0.054	107.6	2.26	0.254	2.00	1
41.502	6932.10	11.8	0.323	11.0	119.6	51.81	2.74%	Fine Tailings	0.054	107.6	2.27	0.259	2.01	1
41.666	6931.93	12.6	0.398	11.9	113.1	49.01	3.17%	Fine Tailings	0.054	107.6	2.27	0.264	2.01	1
41.830	6931.77	16.4	0.408	15.9	76.9	33.33	2.49%	Fine Tailings	0.054	107.6	2.28	0.269	2.01	1
41.994	6931.61	15.4	0.291	15.1	54.3	23.55	1.88%	Fine Tailings	0.054	107.6	2.29	0.274	2.02	1
42.158	6931.44	13.6	0.304	13.1	70.5	30.56	2.24%	Fine Tailings	0.054	107.6	2.30	0.279	2.02	1
42.322	6931.28	12.3	0.310	11.7	90.1	39.03	2.52%	Fine Tailings	0.054	107.6	2.31	0.285	2.03	1
42.486	6931.11	12.2	0.307	11.6	95.9	41.57	2.52%	Fine Tailings	0.054	107.6	2.32	0.290	2.03	1
42.650	6930.95	12.5	0.307	11.9	100.1	43.38	2.45%	Fine Tailings	0.054	107.6	2.33	0.295	2.03	1
42.814	6930.79	13.9	0.349	13.3	110.2	47.75	2.50%	Fine Tailings	0.054	107.6	2.34	0.300	2.04	1
42.978	6930.62	13.8	0.399	13.1	115.0	49.84	2.88%	Fine Tailings	0.054	107.6	2.35	0.305	2.04	1
43.143	6930.46	15.0	0.333	14.3	117.8	51.04	2.22%	Fine Tailings	0.054	107.6	2.35	0.310	2.04	1
43.307	6930.29	21.0	0.524	20.1	144.2	62.47	2.50%	Fine Tailings	0.054	107.6	2.36	0.315	2.05	1
43.471	6930.13	38.1	0.656	37.7	75.7	32.82	1.72%	Fine Tailings	0.054	107.6	2.37	0.320	2.05	1
43.635	6929.97	63.5	0.655	63.4	29.0	12.55	1.03%	Fine Tailings	0.054	107.6	2.38	0.326	2.06	1
43.799	6929.80	97.7	0.867	97.6	14.8	6.40	0.89%	Fine Tailings	0.054	107.6	2.39	0.331	2.06	1
43.963	6929.64	98.3	1.272	98.2	14.9	6.45	1.29%	Fine Tailings	0.054	107.6	2.40	0.336	2.06	1
44.127	6929.47	112.0	2.010	111.9	12.3	5.31	1.79%	Fine Tailings	0.054	107.6	2.41	0.341	2.07	1
44.291	6929.31	109.6	2.524	109.5	15.0	6.49	2.30%	Fine Tailings	0.054	107.6	2.42	0.346	2.07	1
44.455	6929.15	113.0	2.656	112.9	16.0	6.93	2.35%	Fine Tailings	0.054	107.6	2.42	0.351	2.07	1
44.619	6928.98	111.7	2.084	111.6	14.1	6.12	1.87%	Coarse Alluvium	0.056	111.0	2.43	0.000	2.43	0
44.783	6928.82	105.8	1.834	105.7	12.0	5.20	1.73%	Coarse Alluvium	0.056	111.0	2.44	0.000	2.44	0
44.947	6928.65	95.7	1.621	95.6	11.1	4.82	1.69%	Coarse Alluvium	0.056	111.0	2.45	0.000	2.45	0
45.111	6928.49	89.1	1.414	89.0	12.7	5.49	1.59%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0
45.275	6928.32	88.3	1.068	88.2	11.6	5.04	1.21%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0
45.439	6928.16	85.7	0.869	85.6	10.8	4.68	1.01%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0
45.603	6928.00	80.0	0.831	79.9	10.2	4.41	1.04%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0
45.767	6927.83	76.4	0.827	76.3	10.8	4.66	1.08%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0
45.931	6927.67	70.7	0.768	70.7	9.6	4.17	1.09%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0
46.095	6927.50	66.2	0.658	66.1	9.2	3.97	0.99%	Coarse Alluvium	0.056	111.0	2.52	0.000	2.52	0
46.259	6927.34	64.2	0.624	64.2	9.3	4.05	0.97%	Coarse Alluvium	0.056	111.0	2.52	0.000	2.52	0
46.423	6927.18	63.2	0.598	63.1	12.7	5.51	0.95%	Coarse Alluvium	0.056	111.0	2.53	0.000	2.53	0
46.587	6927.01	63.7	0.522	63.7	11.5	4.98	0.82%	Coarse Alluvium	0.056	111.0	2.54	0.000	2.54	0
46.751	6926.85	60.0	0.517	60.0	10.0	4.33	0.86%	Coarse Alluvium	0.056	111.0	2.55	0.000	2.55	0
46.915	6926.68	58.4	0.517	58.3	8.8	3.80	0.89%	Coarse Alluvium	0.056	111.0	2.56	0.000	2.56	0
47.079	6926.52	57.5	0.506	57.5	8.5	3.68	0.88%	Coarse Alluvium	0.056	111.0	2.57	0.000	2.57	0
47.244	6926.36	58.1	0.513	58.0	8.4	3.64	0.88%	Coarse Alluvium	0.056	111.0	2.58	0.000	2.58	0
47.408	6926.19	58.5	0.511	58.5	8.0	3.48	0.87%	Coarse Alluvium	0.056	111.0	2.59	0.000	2.59	0
47.572	6926.03	59.3	0.543	59.2	8.1	3.52	0.92%	Coarse Alluvium	0.056	111.0	2.60	0.000	2.60	0
47.736	6925.86	63.7	0.567	63.7	8.1	3.50	0.89%	Coarse Alluvium	0.056	111.0	2.61	0.000	2.61	0
47.900	6925.70	67.9	0.588	67.8	7.7	3.34	0.87%	Coarse Alluvium	0.056	111.0	2.62	0.000	2.62	0
48.064	6925.54	72.3	0.652	72.3	7.6	3.29	0.90%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0
48.228	6925.37	73.8	0.711	73.7	7.2	3.13	0.96%	Coarse Alluvium	0.056	111.0	2.63	0.000	2.63	0
48.392	6925.21	72.5	0.758	72.4	6.7	2.91	1.05%	Coarse Alluvium	0.056	111.0	2.64	0.000	2.64	0
48.556	6925.04	74.7	0.785	74.6	7.2	3.11	1.05%	Coarse Alluvium	0.056	111.0	2.65	0.000	2.65	0
48.720	6924.88	83.5	0.818	83.4	6.8	2.93	0.98%	Coarse Alluvium	0.056	111.0	2.66	0.000	2.66	0
48.884	6924.72	82.2	0.779	82.2	6.3	2.73	0.95%	Coarse Alluvium	0.056	111.0	2.67	0.000	2.67	0
49.048	6924.55	82.3	0.757	82.3	6.2	2.70	0.92%	Coarse Alluvium	0.056	111.0	2.68	0.000	2.68	0
49.212	6924.39	85.3	0.769	85.3	6.0	2.60	0.90%	Coarse Alluvium	0.056	111.0	2.69	0.000	2.69	0
49.376	6924.22	84.0	0.824	83.9	6.0	2.58	0.98%	Coarse Alluvium	0.056	111.0	2.70	0.000	2.70	0
49.540	6924.06	84.5	0.859	84.5	6.2	2.67	1.02%	Coarse Alluvium	0.056	111.0	2.71	0.000	2.71	0
49.704	6923.90	82.6	0.825	82.6	6.1	2.64	1.00%	Coarse Alluvium	0.056	111.0	2.72	0.000	2.72	0
49.868	6923.73	80.2	0.595	80.1	5.7	2.46	0.74%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0
50.032	6923.57	76.8	0.605	76.8	5.5	2.40	0.79%	Coarse Alluvium	0.056	111.0	2.73	0.000	2.73	0
50.196	6923.40	76.5	0.611	76.4	5.6	2.44	0.80%	Coarse Alluvium	0.056	111.0	2.74	0.000	2.74	0

50.360	6923.24	73.7	0.656	73.7	4.8	2.09	0.89%	Coarse Alluvium	0.056	111.0	2.75	0.000	2.75	0	0.44	32.211	3.09	39.46	26	0.92%	2.4	36%	3.97	0.000	3.97	0	0
50.524	6923.08	76.5	0.669	76.5	4.9	2.11	0.87%	Coarse Alluvium	0.056	111.0	2.76	0.000	2.76	0	0.44	33.677	3.23	41.25	27	0.91%	2.4	36%	3.98	0.000	3.98	0	0
50.688	6922.91	79.2	0.663	79.2	5.6	2.42	0.84%	Coarse Alluvium	0.056	111.0	2.77	0.000	2.77	0	0.44	35.089	3.36	42.99	28	0.87%	2.3	36%	3.99	0.000	3.99	0	0
50.852	6922.75	81.9	0.668	81.9	4.7	2.05	0.82%	Coarse Alluvium	0.056	111.0	2.78	0.000	2.78	0	0.45	36.548	3.50	44.77	28	0.84%	2.3	36%	4.00	0.000	4.00	0	0
51.016	6922.58	81.3	0.656	81.3	3.8	1.63	0.81%	Coarse Alluvium	0.056	111.0	2.79	0.000	2.79	0	0.44	36.082	3.46	44.20	28	0.84%	2.3	36%	4.01	0.000	4.01	0	0
51.180	6922.42	81.3	0.639	81.3	0.3	0.14	0.79%	Coarse Alluvium	0.056	111.0	2.80	0.000	2.80	0	0.44	35.979	3.45	44.06	28	0.81%	2.3	36%	4.02	0.000	4.02	0	0
51.345	6922.26	80.6	0.649	80.6	3.3	1.42	0.81%	Coarse Alluvium	0.056	111.0	2.81	0.000	2.81	0	0.44	35.487	3.40	43.47	28	0.83%	2.3	36%	4.03	0.000	4.03	0	0
51.509	6922.09	81.0	0.644	81.0	3.5	1.50	0.79%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	0.44	35.643	3.41	43.66	28	0.82%	2.3	36%	4.04	0.000	4.04	0	0
51.673	6921.93	80.1	0.626	80.1	3.6	1.55	0.78%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	0.44	35.006	3.35	42.88	27	0.81%	2.3	36%	4.05	0.000	4.05	0	0
51.837	6921.76	81.9	0.764	81.9	3.7	1.61	0.93%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	0.44	35.949	3.44	44.03	28	0.97%	2.4	36%	4.06	0.000	4.06	0	0
52.001	6921.60	77.2	0.870	77.2	3.5	1.53	1.13%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	0.43	33.229	3.18	40.70	26	1.17%	2.4	36%	4.07	0.000	4.07	0	0
52.165	6921.44	74.2	0.943	74.1	4.1	1.77	1.27%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	0.42	31.469	3.01	38.55	25	1.32%	2.5	36%	4.08	0.000	4.08	0	0
52.329	6921.27	77.0	0.912	76.9	3.9	1.67	1.19%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	0.43	32.903	3.15	40.30	26	1.23%	2.4	36%	4.08	0.000	4.08	0	0
52.493	6921.11	71.8	0.996	71.8	3.0	1.30	1.39%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	0.42	30.061	2.88	36.82	24	1.44%	2.5	36%	4.09	0.000	4.09	0	0
52.657	6920.94	56.5	1.402	56.5	2.6	1.14	2.48%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	0.39	22.170	2.12	27.15	19	2.61%	2.7	36%	4.10	0.000	4.10	0	0
52.821	6920.78	42.0	1.549	42.0	3.1	1.34	3.69%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	0.37	15.641	1.50	19.16	14	3.96%	3.0	36%	4.11	0.000	4.11	0	0
52.985	6920.62	39.3	1.641	39.3	5.6	2.42	4.18%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.37	14.585	1.40	17.88	13	4.51%	3.0	36%	4.12	0.000	4.12	0	0
53.149	6920.45	38.8	1.586	38.8	6.5	2.81	4.09%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	0.37	14.360	1.38	17.60	12	4.42%	3.0	36%	4.13	0.000	4.13	0	0
53.313	6920.29	40.7	1.370	40.6	8.2	3.54	3.37%	Coarse Alluvium	0.056	111.0	2.92	0.000	2.92	0	0.37	15.009	1.44	18.40	13	3.63%	3.0	36%	4.14	0.000	4.14	0	0
53.477	6920.12	41.8	1.035	41.8	6.2	2.70	2.47%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	0.37	15.419	1.48	18.90	13	2.66%	2.9	36%	4.15	0.000	4.15	0	0
53.641	6919.96	52.0	0.917	52.0	4.9	2.11	1.76%	Coarse Alluvium	0.056	111.0	2.93	0.000	2.93	0	0.38	19.639	1.88	24.06	17	1.87%	2.7	36%	4.16	0.000	4.16	0	0
53.805	6919.79	53.2	0.932	53.2	4.5	1.95	1.75%	Coarse Alluvium	0.056	111.0	2.94	0.000	2.94	0	0.38	20.149	1.93	24.69	17	1.85%	2.7	36%	4.17	0.000	4.17	0	0
53.969	6919.63	60.2	0.957	60.2	4.5	1.95	1.59%	Coarse Alluvium	0.056	111.0	2.95	0.000	2.95	0	0.39	23.425	2.24	28.70	19	1.67%	2.6	36%	4.18	0.000	4.18	0	0
54.133	6919.47	78.9	1.096	78.8	5.6	2.42	1.39%	Coarse Alluvium	0.056	111.0	2.96	0.000	2.96	0	0.42	32.957	3.16	40.37	26	1.44%	2.5	36%	4.18	0.000	4.18	0	0
54.297	6919.30	84.2	1.495	84.2	5.4	2.34	1.77%	Coarse Alluvium	0.056	111.0	2.97	0.000	2.97	0	0.43	35.790	3.43	43.84	27	1.84%	2.5	36%	4.19	0.000	4.19	0	0
54.461	6919.14	100.2	1.165	100.2	5.4	2.36	1.16%	Coarse Alluvium	0.056	111.0	2.98	0.000	2.98	0	0.45	44.842	4.30	54.93	33	1.20%	2.3	36%	4.20	0.000	4.20	0	0
54.625	6918.97	105.0	1.871	105.0	2.6	1.14	1.78%	Coarse Alluvium	0.056	111.0	2.99	0.000	2.99	0	0.45	47.590	4.56	58.28	34	1.83%	2.4	36%	4.21	0.000	4.21	0	0
54.789	6918.81	94.5	2.569	94.5	4.1	1.77	2.72%	Coarse Alluvium	0.056	111.0	3.00	0.000	3.00	0	0.44	41.310	3.96	50.60	31	2.81%	2.6	36%	4.22	0.000	4.22	0	0
54.953	6918.65	130.0	1.676	130.0	0.9	0.41	1.29%	Coarse Alluvium	0.056	111.0	3.01	0.000	3.01	0	0.49	63.230	6.06	77.43	42	1.32%	2.3	36%	4.23	0.000	4.23	0	0
55.117	6918.48	207.7	2.402	207.7	4.2	1.81	1.16%	Coarse Alluvium	0.056	111.0	3.02	0.000	3.02	0	0.59	122.716	11.75	150.29	68	1.17%	2.1	36%	4.24	0.000	4.24	0	0
55.281	6918.32	275.5	2.556	275.5	3.2	1.40	0.93%	Coarse Alluvium	0.056	111.0	3.03	0.000	3.03	0	0.68	188.142	18.02	230.40	90	0.94%	1.9	36%	4.25	0.000	4.25	0	0
55.446	6918.15	247.8	2.916	247.8	4.2	1.83	1.18%	Coarse Alluvium	0.056	111.0	3.03	0.000	3.03	0	0.64	159.462	15.27	195.28	81	1.19%	2.0	36%	4.26	0.000	4.26	0	0
55.610	6917.99	223.1	2.610	223.1	2.5	1.10	1.17%	Coarse Alluvium	0.056	111.0	3.04	0.000	3.04	0	0.61	135.745	13.00	166.23	72	1.19%	2.1	36%	4.27	0.000	4.27	0	0
55.774	6917.83	196.9	2.377	196.9	2.4	1.02	1.21%	Coarse Alluvium	0.056	111.0	3.05	0.000	3.05	0	0.57	112.582	10.78	137.87	63	1.23%	2.1	36%	4.28	0.000	4.28	0	0
55.938	6917.66	173.9	2.254	173.9	1.5	0.65	1.30%	Coarse Alluvium	0.056	111.0	3.06	0.000	3.06	0	0.54	93.871	8.99	114.95	56	1.32%	2.2	36%	4.28	0.000	4.28	0	0
56.102	6917.50	155.8	2.130	155.8	2.5	1.10	1.37%	Coarse Alluvium	0.056	111.0	3.07	0.000	3.07	0	0.51	80.055	7.67	98.04	50	1.39%	2.2	36%	4.29	0.000	4.29	0	0
56.266	6917.33	152.5	2.824	152.5	3.2	1.40	1.85%	Coarse Alluvium	0.056	111.0	3.08	0.000	3.08	0	0.51	77.503	7.42	94.92	49	1.89%	2.3	36%	4.30	0.000	4.30	0	0
56.430	6917.17	159.2	2.616	159.2	4.3	1.85	1.64%	Coarse Alluvium	0.056	111.0	3.09	0.000	3.09	0	0.52	82.235	7.88	100.71	51	1.68%	2.3	36%	4.31	0.000	4.31	0	0
56.594	6917.01	178.1	2.995	178.0	6.2	2.70	1.68%	Coarse Alluvium	0.056	111.0	3.10	0.000	3.10	0	0.54	96.305	9.22	117.95	56	1.71%	2.3	36%	4.32	0.000	4.32	0	0
56.758	6916.84	217.7	3.115	217.6	9.2	4.00	1.43%	Coarse Alluvium	0.056	111.0	3.11	0.000	3.11	0	0.59	129.229	12.38	158.28	69	1.45%	2.1	36%	4.33	0.000	4.33	0	0
56.922	6916.68	187.3	2.881	187.3	0.4	0.16	1.54%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	0.55	103.250	9.89	126.43	59	1.56%	2.2	36%	4.34	0.000	4.34	0	0
57.086	6916.51	134.1	2.669	134.1	3.1	1.34	1.99%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	0.48	64.075	6.14	78.47	42	2.04%	2.4	36%	4.35	0.000	4.35	0	0
57.250	6916.35	94.2	2.226	94.2	1.9	0.83	2.36%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	0.42	39.602	3.79	48.50	29	2.44%	2.6	36%	4.36	0.000	4.36	0	0
57.414	6916.19	84.5	2.004	84.5	3.7	1.59	2.37%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	0.40	34.202	3.28	41.89	26	2.46%	2.6	36%	4.37	0.000	4.37	0	0
57.578	6916.02	88.0	1.613	88.0	3.5	1.50	1.83%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	0.41	35.991	3.45	44.08	27	1.90%	2.5	36%	4.38	0.000	4.38	0	0
57.742	6915.86	88.0	1.218	88.0	3.0	1.28	1.38%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	0.41	35.933	3.44	44.01	27	1.44%	2.5	36%	4.38	0.000	4.38	0	0
57.906	6915.69	91.9	0.957	91.9	2.9	1.24	1.04%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	0.41	37.919	3.63	46.44	28	1.08%	2.4	36%	4.39	0.000	4.39	0	0
58.070	6915.53	92.6	0.962	92.6	2.8	1.20	1.04%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	0.41	38.241	3.66	46.84	28	1.08%	2.4	36%	4.40	0.000	4.40	0	0
58.234	6915.37	92.3	1.379	92.3	2.7	1.18	1.49%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	0.41	37.972	3.64	46.51	28	1.55%	2.5	36%	4.41	0.000	4.41	0	0
58.398	6915.20	99.2	1.033	99.2	4.6	1.97	1.04%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	0.42	41.698	3.99	51.07	30	1.08%	2.4	36%	4.42	0.000	4.42	0	0
58.562	6915.04	107.2	1.156	107.2	1.8	0.79	1.08%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	0.43	46.192	4.42	56.57	32	1.11%	2.3	36%	4.43	0.000	4.43	0	0
58.726	6914.87	106.8	1.129	106.8	2.0	0.85	1.06%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	0.43	45.822	4.39	56.12	32	1.09%	2.3	36%	4.44	0.000	4.44	0	0
58.890	6914.71	104.4	1.226	104.3	2.6	1.12	1.17%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	0.42	44.319	4.25	54.28	31	1.21%	2.4	36%	4.45	0.000	4.45	0	0
59.054	6914.55	104.5	1.098	104.5	3.0	1.30	1.05%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	0.42	44.289	4.24	54.24	31	1.08%	2.3	36%	4.46	0.000	4.46	0	0
59.218	6914.38	100.5	0.946	100.5	2.7	1.16	0.94%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	0.42	41.941	4.02	51.37	30	0.97%	2.3	36%	4.47	0.000	4.47	0	0
59.382	6914.22	96.8	0.760	96.8	2.6	1.14	0.78%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	0.41	39.792	3.81	48.73	29	0.81%	2.3	36%	4.48	0.000	4.48	0	0
59.547	6914.05	91.5	0.756	91.5	2.1	0.89	0.83%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	0.40	36.788	3.52	45.05	27	0.86%	2.3	36%	4.48	0.000	4.48	0	0
59.711	6913.89	86.1	0.908	86.1	2.2	0.96	1.06%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	0.39	33.846	3.24	41.45	25	1.10%	2.4	36%	4.49	0.000	4.49	0	0
59.875	6913.73	81.4	0.709	81.4	2.2	0.96	0.87%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	0.39	31.372	3.00	38.42	24	0.91%	2.4	36%	4.50	0.000	4.50	0	0
60.039	6913.56	83.4	0.536	83.4	2.6	1.14	0.64%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	0.39	32.331	3.10	39.60	24	0.67%	2.3	36%	4.51	0.000	4.51	0	0
60.203	6913.40	88.2	0.485	88.2	1.8	0.79	0.55%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	0.39	34.719	3.33	42.52	26	0.57%	2.3	36%	4.52	0.000	4.52	0	0
60.367	6913.23	90.8	0.512	90.8	1.2	0.51	0.56%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	0.40	36.009	3.45	44.10	26	0.58%	2.3	36%	4.53	0.000	4.53	0	0
60.531	6913.07	96.7	0.526	96.7	0.8	0.36	0.54%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	0.40	39.057	3.74	47.83	28	0.56%	2.2	36%	4.54	0.000	4.54	0	0
60.695	6912.91	96.9	0.567	96.9	0.7	0.29	0.58%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	0.40	39.099	3.75	47.88	28	0.61%	2.3	36%	4.55	0.000	4.55	0	0
60.859	6912.74	96.8	0.627	96.8	0.4	0.18	0.65%	Coarse Alluvium	0.056	111.0	3.34	0.000	3.34	0	0.40	38.941	3.73	47.69	28	0.67%	2.3	36%	4.56	0.000	4.56	0	0
61.023	6912.58	95.9	0.676	95.9	0.6	0.26	0.71%	Coarse Alluvium	0.056	111.0	3.34	0.000	3.34	0	0.40	38.332	3.67	46.94	28	0.73%	2.3	36%	4.57	0.000	4.57	0	0
61.187	6912.41	91.6	0.709	91.6	0.7	0.30	0.77%	Coarse Alluvium	0.056	111.0	3.35	0.000	3.35	0	0.39	35.974	3.45	44.05	26	0.80%	2.3	36%	4.58	0.000	4.58	0	0
61.351	6912.25	92.4	0.700	92.4	0.5	0.23	0.76%	Coarse Alluvium	0.056	111.0	3.36	0.000	3.36	0	0.39	36.324	3.48	44.48	26	0.79%	2.3	36%	4.58	0.000	4.58	0	0
61.515	6912.09	97.1	0.651	97.1	1.1	0.47	0.67%	Coarse Alluvium	0.056	111.0	3.37	0.000	3.37	0	0.40	38.747	3.71	47.45	28	0.69%	2.3	36%	4.59	0.000	4.59	0	0
61.679	6911.92	102.2	0.641	102.2	1.0	0.45	0.63%	Coarse Alluvium	0.056	111.0	3.38	0.000	3.38	0	0.41	41.421	3.97	50.72	29	0.65%	2.3	36%	4.60	0.000	4.60	0	0
61.843	6911.76	109.5	0.711	109.5	1.6	0.69	0.65%	Coarse Alluvium	0.056	111.0	3.39	0.000	3.39	0	0.41	45.385	4.35	55.58	31	0.67%	2.2	36%	4.61	0.000	4.61	0	0
62.007	6911.59	136.9	0.854	136.8	3.6	1.55	0.62%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	0.45	61.767	5.92	75.65	39	0.64%	2.1	36%	4.62	0.000	4.62	0	0
62.171	6911.43	180.0	1.173	179.9	3.3	1.42	0.65%	Coarse Alluvium	0.056	111.0	3.41	0.000	3.41	0	0.51	91.653	8.78	112.24	52	0.66%	2.0	36%	4.63	0.000	4.63	0	0
62.335	6911.26	197.5	1.539	197.5	3.0	1.30	0.78%	Coarse Alluvium	0.056	111.0	3.42	0.000	3.42	0	0.53	105.214	10.08	128.85	57	0.79%	2.0	36%	4.64	0.000	4.64	0	0
62.499	6911.10	231.8	1.879	231.8	4.8	2.08	0.81%	Coarse Alluvium	0.056	111.0	3.43	0.000	3.43	0	0.58	134.415	12.88	164.61	67	0.82%	2.0	36%	4.65	0.000	4.65	0	0
62.663	6910.94	299.8	2.207	299.8	3.1	1.36	0.74%	Coarse Alluvium	0.056	111.0	3.44	0.000	3.44	0	0.68	203.754	19.52	249.52	86	0.74%	1.9	36%	4.66	0.000	4.66	0	0
62.827	6910.77	375.2	2.317	375.2	6.9	2.97	0.62%	Coarse Alluvium	0.056	111.0	3.44	0.000	3.44	0	0.68	256.628	24.58	314.28	108	0.62%	1.8	36%	4.67	0.000	4.67	0	0
62.991	6910.61	490.4	2.317	490.4	9.6	4.15	0.47%	Coarse Alluvium	0.056	111.0	3.45	0.000	3.45	0	0.68	335.217	32.11	410.53	141	0.48%	1.6	36%	4.68	0.000	4.68	0	0
63.155	6910.44	502.6	2.317	502.5	8.6	3.72	0.46%	Coarse Alluvium	0.056	111.0	3.46	0.000	3.46	0	0.68	343.257	32.88	420.37	144	0.46%	1.6	36%	4.69	0.000	4.69	0	0

50.360	0.50	0.06	0.90	0.04	1.00	0.064	43.41	82.86	0.117	N/A	0.59	0.36	0.80	0.73	1.00	0.100	2.22	87.46	0.142	N/A	N/A	N/A
50.524	0.50	0.07	0.90	0.02	1.00	0.064	44.02	85.28	0.120	N/A	0.59	0.37	0.80	0.73	1.00	0.099	2.15	88.73	0.145	N/A	N/A	N/A
50.688	0.50	0.07	0.89	0.01	1.00	0.064	44.62	87.61	0.123	N/A	0.59	0.38	0.80	0.73	1.00	0.099	2.07	89.07	0.146	N/A	N/A	N/A
50.852	0.50	0.07	0.89	-0.01	1.00	0.064	45.24	90.01	0.127	N/A	0.59	0.39	0.80	0.73	1.00	0.099	2.01	90.00	0.148	N/A	N/A	N/A
51.016	0.49	0.07	0.89	0.00	1.00	0.064	45.04	89.23	0.126	N/A	0.59	0.38	0.80	0.73	1.00	0.099	2.02	89.19	0.146	N/A	N/A	N/A
51.180	0.49	0.07	0.89	0.00	1.00	0.064	44.99	89.05	0.125	N/A	0.59	0.38	0.80	0.73	1.00	0.099	2.00	88.30	0.144	N/A	N/A	N/A
51.345	0.49	0.07	0.89	0.00	1.00	0.064	44.79	88.25	0.124	N/A	0.59	0.38	0.80	0.73	1.00	0.099	2.04	88.55	0.145	N/A	N/A	N/A
51.509	0.49	0.07	0.89	0.00	1.00	0.064	44.85	88.51	0.125	N/A	0.58	0.38	0.80	0.73	1.00	0.098	2.02	88.38	0.144	N/A	N/A	N/A
51.673	0.49	0.07	0.89	0.01	1.00	0.064	44.58	87.46	0.123	N/A	0.58	0.38	0.80	0.73	1.00	0.098	2.03	87.18	0.142	N/A	N/A	N/A
51.837	0.49	0.07	0.89	0.00	1.00	0.064	44.98	89.02	0.125	N/A	0.58	0.38	0.80	0.73	1.00	0.098	2.14	94.28	0.158	N/A	N/A	N/A
52.001	0.49	0.07	0.90	0.03	1.00	0.063	43.83	84.53	0.119	N/A	0.58	0.37	0.80	0.73	1.00	0.098	2.41	98.07	0.168	N/A	N/A	N/A
52.165	0.49	0.06	0.90	0.05	1.00	0.063	43.09	81.64	0.115	N/A	0.58	0.36	0.80	0.73	1.00	0.098	2.61	100.76	0.175	N/A	N/A	N/A
52.329	0.49	0.07	0.90	0.03	1.00	0.063	43.70	84.00	0.118	N/A	0.58	0.37	0.80	0.72	1.00	0.097	2.48	99.85	0.173	N/A	N/A	N/A
52.493	0.49	0.06	0.90	0.06	1.00	0.063	42.50	79.32	0.112	N/A	0.58	0.35	0.80	0.72	1.00	0.097	2.79	102.62	0.181	N/A	N/A	N/A
52.657	0.49	0.06	0.91	0.10	1.00	0.062	39.16	66.32	0.095	N/A	0.57	0.30	0.80	0.72	1.00	0.097	4.31	117.10	0.229	N/A	N/A	N/A
52.821	0.49	0.05	0.92	0.10	1.00	0.061	36.41	55.57	0.083	N/A	0.57	0.25	0.80	0.72	1.00	0.097	6.33	121.22	0.246	N/A	N/A	N/A
52.985	0.48	0.05	0.92	0.10	1.00	0.061	35.96	53.84	0.081	N/A	0.57	0.24	0.80	0.72	1.00	0.097	7.00	125.04	0.262	N/A	N/A	N/A
53.149	0.48	0.05	0.92	0.10	1.00	0.061	35.87	53.47	0.081	N/A	0.57	0.24	0.80	0.72	1.00	0.097	7.00	123.25	0.254	N/A	N/A	N/A
53.313	0.48	0.05	0.92	0.10	1.00	0.061	36.14	54.55	0.082	N/A	0.57	0.25	0.80	0.72	1.00	0.096	6.25	115.04	0.222	N/A	N/A	N/A
53.477	0.48	0.05	0.92	0.10	1.00	0.061	36.31	55.21	0.083	N/A	0.57	0.25	0.80	0.72	1.00	0.096	5.36	101.38	0.177	N/A	N/A	N/A
53.641	0.48	0.06	0.91	0.10	1.00	0.061	38.10	62.16	0.090	N/A	0.57	0.28	0.80	0.72	1.00	0.096	3.97	95.51	0.161	N/A	N/A	N/A
53.805	0.48	0.06	0.91	0.10	1.00	0.061	38.31	63.00	0.091	N/A	0.57	0.29	0.80	0.72	1.00	0.096	3.90	96.31	0.163	N/A	N/A	N/A
53.969	0.48	0.06	0.91	0.10	1.00	0.061	39.69	68.39	0.098	N/A	0.56	0.31	0.80	0.72	1.00	0.096	3.43	98.41	0.169	N/A	N/A	N/A
54.133	0.48	0.07	0.89	0.03	1.00	0.062	43.72	84.09	0.118	N/A	0.56	0.37	0.80	0.72	1.00	0.095	2.67	107.63	0.197	N/A	N/A	N/A
54.297	0.48	0.07	0.89	0.00	1.00	0.062	44.92	88.76	0.125	N/A	0.56	0.38	0.80	0.72	1.00	0.095	2.86	125.32	0.263	N/A	N/A	N/A
54.461	0.48	0.07	0.88	-0.08	1.00	0.063	48.74	103.67	0.149	N/A	0.56	0.43	0.79	0.70	1.00	0.097	2.11	116.04	0.225	N/A	N/A	N/A
54.625	0.48	0.08	0.87	-0.10	1.00	0.063	49.90	108.18	0.157	N/A	0.48	0.44	0.78	0.70	1.00	0.084	2.48	144.66	0.362	N/A	N/A	N/A
54.789	0.48	0.07	0.88	-0.05	1.00	0.062	47.25	97.85	0.139	N/A	0.48	0.41	0.79	0.71	1.00	0.082	3.28	166.18	1.000	N/A	N/A	N/A
54.953	0.48	0.09	0.85	-0.21	1.00	0.064	56.50	133.93	0.214	N/A	0.48	0.51	0.75	0.66	1.00	0.088	1.89	146.04	0.370	N/A	N/A	N/A
55.117	0.48	0.16	0.74	-0.49	1.00	0.075	81.63	231.91	1.000	N/A	0.48	0.71	0.65	0.56	1.00	0.104	1.43	214.61	1.000	N/A	N/A	N/A
55.281	0.47	0.30	0.51	-0.60	1.00	0.109	109.26	339.65	1.000	N/A	0.47	0.88	0.60	0.52	1.00	0.112	1.22	280.32	1.000	N/A	N/A	N/A
55.446	0.47	0.25	0.59	-0.60	1.00	0.093	97.15	292.43	1.000	N/A	0.47	0.81	0.60	0.52	1.00	0.112	1.34	262.10	1.000	N/A	N/A	N/A
55.610	0.47	0.19	0.69	-0.54	1.00	0.079	87.13	253.36	1.000	N/A	0.47	0.74	0.63	0.54	1.00	0.107	1.40	232.22	1.000	N/A	N/A	N/A
55.774	0.47	0.14	0.76	-0.45	1.00	0.072	77.34	215.21	1.000	N/A	0.47	0.68	0.66	0.57	1.00	0.101	1.49	205.58	1.000	N/A	N/A	N/A
55.938	0.47	0.12	0.80	-0.37	1.00	0.068	69.44	184.39	0.616	N/A	0.47	0.62	0.69	0.60	1.00	0.096	1.63	186.96	1.000	N/A	N/A	N/A
56.102	0.47	0.10	0.83	-0.30	1.00	0.066	63.61	161.65	0.337	N/A	0.47	0.57	0.71	0.62	1.00	0.093	1.76	172.94	1.000	N/A	N/A	N/A
56.266	0.47	0.10	0.83	-0.29	1.00	0.066	62.53	157.45	0.310	N/A	0.47	0.56	0.72	0.63	1.00	0.092	2.04	194.05	1.000	N/A	N/A	N/A
56.430	0.47	0.11	0.82	-0.31	1.00	0.066	64.53	165.25	0.364	N/A	0.47	0.58	0.71	0.62	1.00	0.093	1.89	190.42	1.000	N/A	N/A	N/A
56.594	0.47	0.12	0.80	-0.38	1.00	0.068	70.48	188.43	0.709	N/A	0.47	0.63	0.69	0.59	1.00	0.097	1.80	212.28	1.000	N/A	N/A	N/A
56.758	0.47	0.17	0.71	-0.52	1.00	0.076	84.39	242.67	1.000	N/A	0.47	0.73	0.64	0.55	1.00	0.105	1.53	241.73	1.000	N/A	N/A	N/A
56.922	0.47	0.13	0.78	-0.41	1.00	0.069	73.40	199.83	1.000	N/A	0.47	0.65	0.68	0.58	1.00	0.098	1.69	213.98	1.000	N/A	N/A	N/A
57.086	0.47	0.09	0.85	-0.21	1.00	0.064	56.86	135.33	0.218	N/A	0.47	0.51	0.74	0.65	1.00	0.088	2.31	180.94	1.000	N/A	N/A	N/A
57.250	0.47	0.07	0.88	-0.03	1.00	0.061	46.52	95.02	0.135	N/A	0.47	0.40	0.80	0.71	1.00	0.080	3.16	153.14	0.414	N/A	N/A	N/A
57.414	0.47	0.07	0.89	0.02	1.00	0.061	44.24	86.14	0.121	N/A	0.47	0.37	0.80	0.72	1.00	0.080	3.41	142.83	0.351	N/A	N/A	N/A
57.578	0.47	0.07	0.89	0.00	1.00	0.061	45.00	89.08	0.126	N/A	0.47	0.38	0.80	0.71	1.00	0.080	2.93	129.34	0.281	N/A	N/A	N/A
57.742	0.46	0.07	0.89	0.00	1.00	0.061	44.97	88.98	0.125	N/A	0.46	0.38	0.80	0.71	1.00	0.080	2.58	113.74	0.217	N/A	N/A	N/A
57.906	0.46	0.07	0.88	-0.01	1.00	0.061	45.81	92.26	0.130	N/A	0.46	0.39	0.80	0.71	1.00	0.079	2.23	103.67	0.184	N/A	N/A	N/A
58.070	0.46	0.07	0.88	-0.02	1.00	0.061	45.95	92.78	0.131	N/A	0.46	0.40	0.80	0.71	1.00	0.079	2.22	104.04	0.185	N/A	N/A	N/A
58.234	0.46	0.07	0.88	-0.01	1.00	0.061	45.84	92.34	0.130	N/A	0.46	0.39	0.80	0.71	1.00	0.079	2.60	121.09	0.245	N/A	N/A	N/A
58.398	0.46	0.07	0.88	-0.05	1.00	0.061	47.41	98.49	0.140	N/A	0.46	0.41	0.79	0.71	1.00	0.080	2.13	108.86	0.200	N/A	N/A	N/A
58.562	0.46	0.08	0.87	-0.08	1.00	0.061	49.31	105.88	0.152	N/A	0.46	0.43	0.78	0.69	1.00	0.081	2.06	116.38	0.227	N/A	N/A	N/A
58.726	0.46	0.07	0.87	-0.08	1.00	0.061	49.15	105.27	0.151	N/A	0.46	0.43	0.78	0.69	1.00	0.081	2.05	115.09	0.222	N/A	N/A	N/A
58.890	0.46	0.07	0.88	-0.07	1.00	0.061	48.52	102.79	0.147	N/A	0.46	0.43	0.79	0.70	1.00	0.081	2.18	118.15	0.233	N/A	N/A	N/A
59.054	0.46	0.07	0.87	-0.07	1.00	0.061	48.50	102.75	0.147	N/A	0.46	0.43	0.79	0.70	1.00	0.081	2.08	112.96	0.214	N/A	N/A	N/A
59.218	0.46	0.07	0.88	-0.05	1.00	0.060	47.51	98.88	0.141	N/A	0.46	0.41	0.79	0.70	1.00	0.080	2.05	105.32	0.189	N/A	N/A	N/A
59.382	0.46	0.07	0.88	-0.03	1.00	0.060	46.60	95.34	0.135	N/A	0.46	0.40	0.80	0.71	1.00	0.079	1.97	96.02	0.162	N/A	N/A	N/A
59.547	0.46	0.07	0.88	0.00	1.00	0.060	45.33	90.39	0.127	N/A	0.46	0.39	0.80	0.71	1.00	0.079	2.09	94.13	0.158	N/A	N/A	N/A
59.711	0.46	0.07	0.89	0.03	1.00	0.060	44.09	85.54	0.120	N/A	0.46	0.37	0.80	0.71	1.00	0.079	2.40	99.42	0.171	N/A	N/A	N/A
59.875	0.46	0.06	0.89	0.05	1.00	0.059	43.05	81.47	0.115	N/A	0.46	0.36	0.80	0.71	1.00	0.079	2.32	89.13	0.146	N/A	N/A	N/A
60.039	0.46	0.06	0.89	0.04	1.00	0.059	43.45	83.05	0.117	N/A	0.46	0.36	0.80	0.71	1.00	0.078	2.05	81.22	0.130	N/A	N/A	N/A
60.203	0.46	0.07	0.89	0.02	1.00	0.059	44.46	86.98	0.122	N/A	0.46	0.38	0.80	0.71	1.00	0.078	1.88	80.10	0.128	N/A	N/A	N/A
60.367	0.45	0.07	0.88	0.01	1.00	0.059	45.00	89.10	0.126	N/A	0.45	0.38	0.80	0.71	1.00	0.078	1.86	82.23	0.132	N/A	N/A	N/A
60.531	0.45	0.07	0.88	-0.02	1.00	0.060	46.29	94.12	0.133	N/A	0.45	0.40	0.80	0.71	1.00	0.078	1.77	84.89	0.137	N/A	N/A	N/A
60.695	0.45	0.07	0.88	-0.02	1.00	0.060	46.31	94.19	0.133	N/A	0.45	0.40	0.80	0.71	1.00	0.078	1.81	86.84	0.141	N/A	N/A	N/A
60.859	0.45	0.07	0.88	-0.02	1.00	0.059	46.24	93.93	0.133	N/A	0.45	0.40	0.80	0.71	1.00	0.078	1.88	89.52	0.147	N/A	N/A	N/A
61.023	0.45	0.07	0.88	-0.02	1.00	0.059	45.99	92.93	0.131	N/A	0.45	0.40	0.80	0.71	1.00	0.078	1.95	91.39	0.151	N/A	N/A	N/A
61.187	0.45	0.07	0.88	0.01	1.00	0.059	44.99	89.04	0.125	N/A	0.45	0.38	0.80	0.71	1.00	0.078	2.08	91.52	0.151	N/A	N/A	N/A
61.351	0.45	0.07	0.88	0.00	1.00	0.059	45.14	89.62	0.126	N/A	0.45	0.39	0.80	0.71	1.00	0.078	2.05	91.31	0.151	N/A	N/A	N/A
61.515	0.45	0.07	0.88	-0.02	1.00	0.059	46.16	93.61	0.132	N/A	0.45	0.40	0.80	0.71	1.00	0.078	1.91	90.52	0.149	N/A	N/A	N/A
61.679	0.45	0.07	0.88	-0.04	1.00	0.059	47.29	98.01	0.139	N/A	0.45	0.41	0.79	0.70	1.00	0.078	1.81	91.80	0.152	N/A	N/A	N/A
61.843	0.45	0.07	0.87	-0.07	1.00	0.060	48.97	104.55	0.150	N/A	0.45	0.43	0.78	0.69	1.00	0.080	1.76	97.55	0.166	N/A	N/A	N/A
62.007	0.45	0.09	0.85	-0.19	1.00	0.061	55.89	131.53	0.207	N/A	0.45	0.50	0.75	0.65	1.00	0.085	1.53	115.62	0.224	N/A	N/A	N/A
62.171	0.45	0.12	0.80	-0.36	1.00	0.065	68.51	180.75	0.548	N/A	0.45	0.61	0.69	0.59	1.00	0.093	1.36	152.49	0.410	N/A	N/A	N/A
62.335	0.45	0.13	0.77	-0.42	1.00	0.067	74.23	203.08	1.000	N/A	0.45	0.66	0.67	0.57	1.00	0.097	1.37	176.33	1.000	N/A	N/A	N/A
62.499	0.45	0.18	0.68	-0.53	1.00	0.076	86.57	251.18	1.000	N/A	0.45	0.74	0.63	0.53	1.00	0.104	1.30	213.91	1.000	N/A	N/A	N/A
62.663	0.45	0.30	0.48	-0.60	1.00	0.108	115.85	365.36	1.000	N/A	0.45	0.91	0.60	0.50	1.00	0.110	1.17	292.74	1.000	N/A	N/A	N/A
62.827	0.45	0.30	0.48	-0.60	1.00	0.108	138.18	452.46	1.000	N/A	0.45	1.02	0.60	0.50	1.00	0.110	1.08	338.72	1.000	N/A	N/A	N/A
62.991	0.45	0.30	0.48	-0.60	1.00	0.108	171.38	581.90	1.000	N/A	0.45	1.17	0.60	0.50	1.00	0.109	1.00	410.53	1.000	N/A	N/A	N/A
63.155	0.44	0.30	0.48	-0.60	1.00	0.108	174.77	595.14	1.000	N/A	0.44	1.18	0.60	0.50	1.00	0.109	1.00	420.37	1.000	N/A	N/A	N/A

0.44	32.22	3.09	39.46	50.360		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	33.69	3.23	41.25	50.524		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	35.10	3.36	42.99	50.688		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	36.56	3.50	44.77	50.852		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	36.09	3.46	44.20	51.016	25	1.00	23	10	0.50	0.52	0.43	5.5	15.5	0.16	N/A	5.00	1.20	16.99	0.181	N/A	N/A
0.44	35.98	3.44	44.06	51.180		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	35.50	3.40	43.47	51.345		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	35.65	3.41	43.66	51.509		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	35.02	3.35	42.88	51.673		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	35.96	3.44	44.03	51.837		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	33.24	3.18	40.70	52.001		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	31.48	3.01	38.55	52.165		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	32.91	3.15	40.30	52.329		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	30.07	2.88	36.82	52.493		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	22.18	2.12	27.15	52.657		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	15.65	1.50	19.16	52.821		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	14.60	1.40	17.88	52.985		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	14.38	1.38	17.60	53.149		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	15.03	1.44	18.40	53.313		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	15.43	1.48	18.90	53.477		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	19.65	1.88	24.06	53.641		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	20.16	1.93	24.69	53.805		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	23.44	2.24	28.70	53.969		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	32.97	3.16	40.37	54.133		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	35.80	3.43	43.84	54.297		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	44.86	4.29	54.93	54.461		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	47.60	4.56	58.28	54.625		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	41.32	3.96	50.60	54.789		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.49	63.23	6.05	77.43	54.953		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	122.73	11.75	150.29	55.117		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	188.16	18.01	230.40	55.281		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.64	159.48	15.27	195.28	55.446		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	135.75	13.00	166.23	55.610		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.57	112.59	10.78	137.87	55.774		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.54	93.88	8.99	114.95	55.938		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.51	80.06	7.67	98.04	56.102		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.51	77.51	7.42	94.92	56.266		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.52	82.25	7.87	100.71	56.430		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.54	96.33	9.22	117.95	56.594		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.59	129.26	12.38	158.28	56.758		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.55	103.25	9.89	126.43	56.922		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.48	64.08	6.14	78.47	57.086		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	39.61	3.79	48.50	57.250		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	34.21	3.28	41.89	57.414		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	36.00	3.45	44.08	57.578		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	35.94	3.44	44.01	57.742		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	37.93	3.63	46.44	57.906		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	38.25	3.66	46.84	58.070		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	37.98	3.64	46.51	58.234		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	41.71	3.99	51.07	58.398		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	46.20	4.42	56.57	58.562		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	45.83	4.39	56.12	58.726		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	44.33	4.24	54.28	58.890		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	44.30	4.24	54.24	59.054		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	41.95	4.02	51.37	59.218		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	39.80	3.81	48.73	59.382		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	36.79	3.52	45.05	59.547		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	33.85	3.24	41.45	59.711		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	31.38	3.00	38.42	59.875		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	32.34	3.10	39.60	60.039		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	34.72	3.32	42.52	60.203		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	36.01	3.45	44.10	60.367		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	39.06	3.74	47.83	60.531		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	39.10	3.74	47.88	60.695		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	38.94	3.73	47.69	60.859		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	38.33	3.67	46.94	61.023	25	1.00	23	9	0.48	0.53	0.40	5.5	14.7	0.15	N/A	5.00	1.20	16.00	0.170	N/A	N/A
0.39	35.98	3.44	44.05	61.187		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	36.33	3.48	44.48	61.351		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	38.75	3.71	47.45	61.515		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	41.42	3.97	50.72	61.679		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	45.39	4.35	55.58	61.843		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	61.78	5.91	75.65	62.007		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.51	91.66	8.78	112.24	62.171		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.53	105.22	10.07	128.85	62.335		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.58	134.43	12.87	164.61	62.499		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	203.77	19.51	249.52	62.663		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	256.66	24.57	314.28	62.827		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	335.26	32.10	410.53	62.991		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.68	343.29	32.87	420.37	63.155		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-11

Data File: 13-52118_RP11-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP11-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

6887.43	Water surface elevation during CPT investigation (ft amsl)
6887.43	Water surface elevation at t_0 (ft amsl)
6887.43	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6977.43	Ground Surface Elevation at time of CPT (ft amsl)
6981.71	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after Placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
0.25	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6923.54	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom of Layer (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6981.7	6981.0	6980.2	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6980.2	6978.7	6977.2	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6977.2	6977.3	6977.4	-0.2	0.058	116.4	0.249	0.256	0.00	0.00	0.249	0.256

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Total Stress at time of CPT (tsf)	Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q_t	Normalized Friction Ratio, F, (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? 1=Yes 0=No	susceptible or mod susceptible to 1=Yes 0=No
0.164	6977.27	6.5	0.212	6.4	2.1	0.91	3.29%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	1.70	10.948	1.05	13.43	642	3.29%	1.9	59%	0.26	0.000	0.26	0	0
0.328	6977.10	29.7	0.150	29.7	3.2	1.40	0.50%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1.70	50.490	4.84	61.87	1480	0.51%	1.0	59%	0.27	0.000	0.27	0	0
0.492	6976.94	35.1	0.256	35.1	3.3	1.42	0.73%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1.70	59.602	5.71	73.03	1165	0.73%	1.2	59%	0.28	0.000	0.28	0	0
0.656	6976.77	33.5	0.409	33.5	3.6	1.55	1.22%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1.70	56.882	5.45	69.70	833	1.22%	1.4	59%	0.29	0.000	0.29	0	0
0.820	6976.61	25.8	0.463	25.8	5.9	2.56	1.80%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	1.70	43.775	4.19	53.68	513	1.80%	1.7	59%	0.30	0.000	0.30	0	0
0.984	6976.45	26.6	0.869	26.6	5.8	2.50	3.26%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1.70	45.186	4.33	55.41	441	3.27%	1.9	59%	0.31	0.000	0.31	0	0
1.148	6976.28	30.7	1.085	30.7	6.5	2.83	3.53%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1.70	52.122	4.99	63.91	436	3.54%	2.0	59%	0.32	0.000	0.32	0	0
1.312	6976.12	41.4	1.070	41.4	4.0	1.75	2.58%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1.70	70.329	6.74	86.17	515	2.59%	1.8	59%	0.33	0.000	0.33	0	0
1.476	6975.95	56.7	1.208	56.7	2.3	0.98	2.13%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1.70	96.441	9.24	118.12	628	2.13%	1.7	59%	0.34	0.000	0.34	0	0
1.640	6975.79	84.8	1.832	84.8	2.7	1.16	2.16%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1.70	144.109	13.80	176.50	844	2.16%	1.6	59%	0.35	0.000	0.35	0	0
1.804	6975.63	103.7	2.230	103.6	3.7	1.59	2.15%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1.70	176.188	16.88	215.79	938	2.15%	1.6	59%	0.36	0.000	0.36	0	0
1.968	6975.46	128.1	3.024	128.1	4.4	1.89	2.36%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1.66	212.203	20.33	259.90	1063	2.36%	1.7	59%	0.37	0.000	0.37	0	0
2.133	6975.30	163.8	4.014	163.8	4.6	1.99	2.45%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1.62	266.152	25.49	325.96	1262	2.45%	1.7	48%	0.38	0.000	0.38	0	0
2.297	6975.13	183.5	4.842	183.5	4.1	1.77	2.64%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1.60	292.746	28.04	358.52	1319	2.64%	1.7	48%	0.39	0.000	0.39	0	0
2.461	6974.97	174.0	5.348	174.0	3.0	1.28	3.07%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1.57	272.873	26.14	334.17	1172	3.08%	1.8	48%	0.40	0.000	0.40	0	0
2.625	6974.81	163.0	4.389	163.0	1.8	0.79	2.69%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1.54	251.510	24.09	308.00	1033	2.70%	1.7	48%	0.41	0.000	0.41	0	0
2.789	6974.64	171.9	3.486	171.8	2.5	1.08	2.03%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1.52	261.191	25.02	319.86	1028	2.03%	1.6	48%	0.42	0.000	0.42	0	0
2.953	6974.48	198.9	4.100	198.9	3.4	1.49	2.06%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1.50	297.955	28.54	364.89	1127	2.06%	1.6	48%	0.43	0.000	0.43	0	0
3.117	6974.31	196.5	4.240	196.4	4.3	1.87	2.16%	General Fill	0.057	113.8	0.19	0.000	0.19	0	1.48	290.352	27.81	355.59	1057	2.16%	1.6	48%	0.44	0.000	0.44	0	0
3.281	6974.15	180.5	5.026	180.5	5.1	2.20	2.78%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.46	263.363	25.23	322.55	925	2.79%	1.7	48%	0.44	0.000	0.44	0	0
3.445	6973.99	187.8	5.784	187.7	7.9	3.44	3.08%	General Fill	0.057	113.8	0.20	0.000	0.20	0	1.44	270.526	25.91	331.35	918	3.08%	1.8	48%	0.45	0.000	0.45	0	0
3.609	6973.82	192.6	6.317	192.6	6.3	2.73	3.28%	General Fill	0.057	113.8	0.21	0.000	0.21	0	1.42	274.251	26.27	335.89	900	3.28%	1.8	48%	0.46	0.000	0.46	0	0
3.773	6973.66	175.9	6.887	175.9	6.1	2.64	3.91%	General Fill	0.057	113.8	0.22	0.000	0.22	0	1.41	247.741	23.73	303.43	788	3.92%	1.9	48%	0.47	0.000	0.47	0	0
3.937	6973.49	158.4	7.100	158.4	6.5	2.83	4.48%	General Fill	0.057	113.8	0.23	0.000	0.23	0	1.39	220.667	21.14	270.28	681	4.49%	2.0	48%	0.48	0.000	0.48	0	0
4.101	6973.33	136.0	5.102	136.0	3.7	1.59	3.75%	General Fill	0.057	113.8	0.24	0.000	0.24	0	1.41	192.413	18.43	235.65	562	3.76%	1.9	48%	0.49	0.000	0.49	0	0
4.265	6973.16	162.5	3.670	162.5	3.3	1.42	2.26%	General Fill	0.057	113.8	0.25	0.000	0.25	0	1.37	221.784	21.24	271.61	646	2.26%	1.7	48%	0.50	0.000	0.50	0	0
4.429	6973.00	197.6	3.387	197.6	5.2	2.26	1.71%	General Fill	0.057	113.8	0.26	0.000	0.26	0	1.35	267.140	25.59	327.17	758	1.72%	1.6	48%	0.51	0.000	0.51	0	0
4.593	6972.84	159.1	3.789	159.1	5.5	2.40	2.38%	General Fill	0.057	113.8	0.27	0.000	0.27	0	1.34	213.099	20.41	261.00	589	2.39%	1.7	48%	0.52	0.000	0.52	0	0
4.757	6972.67	157.2	4.277	157.2	5.2	2.24	2.72%	General Fill	0.057	113.8	0.28	0.000	0.28	0	1.33	208.660	19.99	255.56	562	2.73%	1.8	48%	0.53	0.000	0.53	0	0
4.921	6972.51	161.7	3.962	161.6	4.7	2.03	2.45%	General Fill	0.057	113.8	0.29	0.000	0.29	0	1.32	212.726	20.38	260.53	560	2.46%	1.8	48%	0.54	0.000	0.54	0	0
5.085	6972.34	146.0	4.376	146.0	3.5	1.50	3.00%	General Fill	0.057	113.8	0.30	0.000	0.30	0	1.33	194.161	18.60	237.79	490	3.00%	1.9	48%	0.55	0.000	0.55	0	0
5.249	6972.18	130.3	4.272	130.3	1.5	0.63	3.28%	General Fill	0.057	113.8	0.31	0.000	0.31	0	1.35	176.325	16.89	215.93	424	3.29%	1.9	48%	0.56	0.000	0.56	0	0
5.413	6972.02	113.9	3.835	113.9	1.1	0.49	3.37%	General Fill	0.057	113.8	0.32	0.000	0.32	0	1.38	157.184	15.06	192.49	359	3.38%	2.0	48%	0.57	0.000	0.57	0	0
5.577	6971.85	109.6	3.261	109.6	1.2	0.51	2.98%	General Fill	0.057	113.8	0.33	0.000	0.33	0	1.38	151.132	14.48	185.08	335	2.99%	1.9	48%	0.58	0.000	0.58	0	0
5.741	6971.69	102.2	2.794	102.2	0.2	0.10	2.73%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.39	141.720	13.57	173.54	304	2.74%	1.9	48%	0.58	0.000	0.58	0	0
5.905	6971.52	90.4	2.521	90.4	0.1	0.04	2.79%	General Fill	0.057	113.8	0.34	0.000	0.34	0	1.41	127.034	12.17	155.56	261	2.80%	2.0	48%	0.59	0.000	0.59	0	0
6.069	6971.36	84.6	3.166	84.6	0.2	0.08	3.74%	General Fill	0.057	113.8	0.35	0.000	0.35	0	1.41	119.265	11.42	146.04	238	3.76%	2.1	48%	0.60	0.000	0.60	0	0
6.234	6971.20	79.1	3.569	79.1	0.1	0.06	4.51%	General Fill	0.057	113.8	0.36	0.000	0.36	0	1.41	111.706	10.70	136.79	217	4.53%	2.2	48%	0.61	0.000	0.61	0	0
6.398	6971.03	84.5	3.568	84.5	0.3	0.12	4.22%	General Fill	0.057	113.8	0.37	0.000	0.37	0	1.38	116.954	11.20	143.21	226	4.24%	2.2	48%	0.62	0.000	0.62	0	0
6.562	6970.87	86.3	2.929	86.3	0.6	0.24	3.39%	General Fill	0.057	113.8	0.38	0.000	0.38	0	1.37	118.084	11.31	144.60	225	3.41%	2.1	48%	0.63	0.000	0.63	0	0
6.726	6970.70	85.5	2.271	85.5	0.2	0.08	2.65%	General Fill	0.057	113.8	0.39	0.000	0.39	0	1.36	116.217	11.13	142.31	218	2.67%	2.0	48%	0.64	0.000	0.64	0	0
6.890	6970.54	72.2	2.136	72.2	0.2	0.10	2.96%	General Fill	0.057	113.8	0.40	0.000	0.40	0	1.38	99.711	9.55	122.10	179	2.97%	2.1	48%	0.65	0.000	0.65	0	0
7.054	6970.38	61.6	1.956	61.6	-0.1	-0.06	3.18%	General Fill	0.057	113.8	0.41	0.000	0.41	0	1.40	86.111	8.25	105.44	149	3.20%	2.2	48%	0.66	0.000	0.66	0	0
7.218	6970.21	51.9	1.726	52.0	-0.4	-0.16	3.32%	General Fill	0.057	113.8	0.42	0.000	0.42	0	1.42	73.550	7.04	90.06	123	3.35%	2.2	48%	0.67	0.000	0.67	0	0
7.382	6970.05	52.9	1.618	52.9	-0.3	-0.14	3.06%	General Fill	0.057	113.8	0.43	0.000	0.43	0	1.40	73.980	7.09	90.59	122	3.08%	2.2	48%	0.68	0.000	0.68	0	0
7.546	6969.88	61.3	1.441	61.3	0.4	0.18	2.35%	General Fill	0.057	113.8	0.44	0.000	0.44	0	1.36	83.333	7.98	102.05	139	2.37%	2.1	48%	0.69	0.000	0.69	0	0
7.710	6969.72	73.4	1.832	73.4	0.1	0.04	2.50%	General Fill	0.057	113.8	0.45	0.000	0.45	0	1.32	96.773	9.27	118.50	163	2.51%	2.1	48%	0.70	0.000	0.70	0	0
7.874	6969.56	83.7	2.162	83.7	0.3	0.14	2.58%	General Fill	0.057	113.8	0.46	0.000	0.46	0	1.29	107.758	10.32	131.95	182	2.60%	2.0	48%	0.71	0.000	0.71	0	0
8.038	6969.39	69.9	2.409	69.9	0.0	0.00	3.45%	General Fill	0.057	113.8	0.47	0.000	0.47	0	1.30	91.142	8.73	111.60	149	3.47%	2.2	48%	0.72	0.000	0.72	0	0
8.202	6969.23	54.0	2.303	54.0	0.7	0.29	4.27%	General Fill	0.057	113.8	0.48	0.000	0.48	0	1.33	71.802	6.88	87.93	113	4.30%	2.3	48%	0.72	0.000	0.72	0	0
8.366	6969.06	45.6	2.005	45.6	0.5	0.23	4.39%	General Fill	0.057	113.8	0.48	0.000	0.48	0	1.34	61.146	5.86	74.88	93	4.44%	2.4	48%	0.73	0.000	0.73	0	0
8.530	6968.90	40.8	1.495	40.8	-0.2	-0.08	3.67%	General Fill	0.057	113.8	0.49	0.000	0.49	0	1.34	54.687	5.24	66.96	82	3.71%	2.4	48%	0.74	0.000	0.74	0	0
8.694	6968.74	37.5	1.102	37.5	-0.1	-0.04	2.94%	General Fill	0.057	113.8	0.50	0.000	0.50	0	1.34	50.119	4.80	61.37	74	2.98%	2.3	48%	0.75	0.000	0.75	0	0
8.858	6968.57	39.9	1.002	39.9	-0.1	-0.02	2.51%	General Fill	0.057	113.8	0.51	0.000	0.51	0	1.32	52.543	5.03	64.34	77	2.54%	2.3	48%	0.76	0.000	0.76	0	0
9.022	6968.41	39.5	0.994	39.5	-0.2	-0.08	2.52%	General Fill	0.057	113.8	0.52	0.000	0.52	0	1.31	51.576	4.94	63.15	75	2.55%	2.3	48%	0.77	0.000	0.77	0	0
9.186	6968.24	40.3	1.022	40.3	-0.2	-0.08	2.54%	General Fill	0.057	113.8	0.53	0.000	0.53	0	1.29	51.982	4.98	63.65	75	2.57%	2.3	48%	0.78	0.000	0.78	0	0
9.350	6968.08	44.3	1.319	44.3	-0.2	-0.08	2.98%	General Fill	0.057	113.8	0.54	0.000	0.54	0	1.27	56.220	5.39	68.84	81	3.01%	2.3	48%	0.79	0.000	0.79	0	0
9.514	6967.92	53.5	1.414	53.5	0.2	0.10	2.64%	General Fill	0.057	113.8	0.55	0.000	0.55	0	1.24	66.375	6.36	81.28	96	2.67%	2.2	48%	0.80	0.000	0.80	0	0
9.678	6967.75	54.8	1.346	54.8	0.2	0.08	2.46%	General Fill	0.057	113.8	0.56	0.000	0.56	0	1.23	67.192	6.44	82.28	97	2.48%	2.2	48%	0.81	0.000	0.81	0	0
9.842	6967.59	48.8	1.158	48.8	-0.5	-0.23	2.38%	General Fill	0.057	113.8	0.57	0.000	0.57	0	1.23	59.828	5.73	73.26	85	2.40%	2.2	48%	0.82	0.000	0.82	0	0
10.006	6967.42	44.9	1.071	44.9	-0.3	-0.14	2.39%	General Fill	0.057	113.8	0.58	0.000	0.58	0	1.22	54.881	5.26	67.20	77	2.42%	2.3	48%	0.83	0.000	0.83	0	0
10.170	6967.26	40.7	0.971	40.7	0.0	0.00	2.38%	General Fill	0.057	113.8	0.59	0.000	0.59	0	1.22	49.676	4.76	60.83	68	2.42%	2.3	48%	0.84	0.000	0.84	0	0
10.335	6967.10	38.7	0.941	38.8	-0.3	-0.14	2.43%	General Fill	0.057	113.8	0.60	0.000	0.60	0	1.21	46.974	4.50	57.52	64	2.47%	2.3	48%	0.85	0.000	0.85	0	0
10.499	6966.93	39.2	0.954	39.2	-0.4	-0.16	2.43%	General Fill	0.057	113.8	0.61	0.000	0.61	0	1.20	47.065	4.51	57.63	64	2.47%	2.3	48%	0.86	0.000	0.86	0	0
10.663	6966.77	44.1	0.988	44.1	-0.5	-0.20	2.24%	General Fill	0.057	113.8	0.62	0.000	0.62	0	1.18	52.170	5.00	63.88	71	2.27%	2.3	48%	0.86	0.000	0.86	0	0
10.827	6966.60	54.5	1.270	54.5	0.1	0.06	2.33%	General Fill	0.057	113.8	0.62	0.000	0.62	0	1.16	63.224	6.06	77.42	86	2.36%	2.2	48%	0.87	0.000	0.87	0	0
10.991	6966.44	62.1	1.974	62.1	0.3	0.12	3.18%	General Fill	0.057	113.8	0.63	0.000	0.63	0	1.14	70.988	6.80	86.93	97	3.21%	2.3	48%	0.88	0.000	0.88	0	0
11.155	6966.28	61.7	2.643	61.7	-0.1	-0.06	4.28%	General Fill	0.057	113.8	0.64	0.000	0.64	0	1.14	70.058	6.71	85.79	95	4.33%	2.4	48%	0.89	0.000	0.89	0	0
11.319	6966.11	58.6	2.825	58.6	0.3	0.12	4.82%	General Fill	0.057	113.8	0.65	0.000	0.65	0	1.13	66.251	6.35	81.13	89	4.87%	2.4	48%	0.90	0.000	0.90	0	0
11.483	6965.95	62.0	2.694	62.0	0.5	0.23	4.34%	General Fill	0.057	113.8	0.66	0.000	0.66	0	1.12	69.388	6.65	84.97	93	4.39%	2.4	48%	0.91	0.000	0.91	0	0
11.647	6965.78	72.6	2.346	72.6	0.2	0.08	3.23%	General Fill	0.057	113.8	0.67	0.000	0.67	0	1.10	80.128	7.68	98.12	107	3.26%	2.3	48%	0.92	0.000	0.92	0	0
11.811	6965.62	70.7	2.347	70.7	0.1	0.04	3.32%	General Fill	0.057	113.8	0.68	0.000	0.68	0	1.10	77.571	7.43	94.99	103	3.35%	2.3	48%	0.93	0.000	0.93	0	0
11.975	6965.46	57.0	2.344	57.0	-0.2	-0.10	4.11%	General Fill	0.057	113.8	0.69	0.000	0.69	0	1.10	62.647	6.00	76.71	82	4.16%	2.4	48%	0.94	0.000	0.94	0	0
12.139	6965.29	46.1	2.132	46.2	-0.4	-0.18	4.62%	General Fill	0.057	113.8	0.70	0.000	0.70	0	1.10	50.646	4.85	62.01	65	4.69%	2.5	48%	0.95	0.000	0.95	0	0
12.303	6965.13	38.0	1.770	38.0	-0.2	-0.10	4.66%	General Fill	0.057	113.8	0.71	0.000	0.71	0	1.09	41.583	3.98	50.92	53	4.75%	2.6	48%	0.96	0.000	0.96	0	0
12.467	6964.96	34.0	1.387	34.0	-0.6	-0.24	4.08%	General Fill	0.057	113.8	0.72	0.000	0.72	0	1.09	36.977	3.54	45.27	46	4.17%	2.6	48%	0.97	0.000	0.97	0	0
12.631	6964.80	33.8	0.990	33.8	-0.5	-0.20	2.93%	General Fill	0.057	113.8	0.73	0.000	0.73	0	1.08	36.470	3.49	44.65	45	3.00%	2.5	48%	0.98	0.000	0.98	0	0
12.795	6964.63	35.2	0.855	35.3	-0.5	-0.20	2.43%	General Fill	0.057	113.8	0.74	0.000	0.74	0	1.07	37.715	3.61	46.18	47	2.48%	2.4	48%	0.99	0.000	0.99	0	0
12.959	6964.47	38.4	0.748	38.4	-0.5	-0.23	1.95%	General Fill	0.057	113.8	0.75	0.000	0.75	0	1.06	40.666	3.90	49.79	50	1.99%	2.3	48%	1.00	0.000	1.00	0	0
13.123	6964.31	38.4	0.813	38.4	-0.4	-0.16	2.12%	General Fill	0.057	113.8	0.76	0.000	0.76	0	1.05	40.411	3.87	49.48	50	2.16%	2.4	48%	1.00	0.000	1.00	0	0
13.287	6964.14	40.0	0.924	40.0	-0.4	-0.18	2.31%	General Fill	0.057	113.8	0.76	0.000	0.76	0	1.04	41.675	3.99	51.03	51	2.36%	2.4	48%	1.01	0.000	1.01	0	0
13.451	6963.98	41.2	1.059	41.2	-0.2	-0.10	2.57%	General Fill	0.057	113.8	0.77	0.000	0.77	0	1.03	42.669	4.09	52.25	52	2.62%	2.4	48%	1.02	0.000	1.02	0	0
13.615	6963.81	42.6	1.130	42.6	-0.4	-0.16	2.65%	General Fill	0.057	113.8	0.78	0.000	0.78	0	1.03	43.777	4.19	53.60	53	2.70%	2.4	48%	1.03	0.000	1.03	0	0
13.779	6963.65	42.1	1.133	42.1	-0.3	-0.12	2.69%	General Fill	0.057	113.8	0.79	0.000	0.79	0	1.02	42.877	4.11	52.50	52	2.74%	2.4	48%	1.04	0.000	1.04	0	0
13.943	6963.49	42.6	0.951	42.6	-0.6	-0.26	2.23%	General Fill	0.057	113.8	0.80	0.000	0.80	0	1.01	43.078	4.13	52.74	52	2.28%	2.4	48%	1.05	0.000	1.05	0	0
14.107	6963.32	46.4	0.948	46.4	-0.1	-0.04	2.04%	General Fill	0.057	113.8	0.81	0.000	0.81	0	1.00	46.597	4.46	57.06	56	2.08%	2.3	48%	1.06	0.000	1.06	0	0
14.271	6963.16	43.4	0.939	43.4	-0.3	-0.12	2.16%	General Fill	0.057	113.8	0.82	0.000	0.82	0	1.00	43.287	4.15	53.00	52	2.20%	2.4	48%	1.07	0.000	1.07	0	0
14.436	6962.99	41.3	0.907	41.3	-0.1	-0.06	2.20%	General Fill	0.057	113.8	0.83	0.000	0.83	0	0.99	40.885	3.92	50.06	49	2.24%	2.4	48%	1.08	0.000	1.08	0	0
14.600	6962.83	46.0	1.104	46.0	0.1	0.02	2.40%	General Fill	0.057	113.8	0.84	0.000	0.84	0	0.98	45.256	4.33	55.42	54	2.44%	2.4	48%	1.09	0.000	1.09	0	0
14.764	6962.67	68.8	1.832	68.8	0.6	0.24	2.66%	General Fill	0.057	113.8	0.85	0.000	0.85	0	0.98	67.440	6.46	82.58	80	2.69%	2.3	48%	1.10	0.000	1.10	0	0
14.928	6962.50	139.9	2.813	139.9	2.2	0.96	2.01%	General Fill	0.057	113.8	0.86	0.000	0.86	0	0.98	137.354	13.16	168.21	162	2.02%	2.0	48%	1.11	0.000	1.11	0	0
15.092	6962.34	251.0	3.685	251.0	3.9	1.67	1.47%	General Fill	0.057	113.8	0.87	0.000	0.87	0	0.98	247.068	23.67	302.57	289	1.47%	1.7	48%	1.12	0.000	1.12	0	0

Liquefaction Triggering Analyses Using CPT Data

Depth (ft)	I&B (2008) r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'v=1atm	Δq_{c1n}	$q_{c1n\text{-}cs}$	CRR M=7.5, σ'v=1atm	FoS	Youd (2001) r_d	D_r	f	K_σ	K_α	CSR M=7.5, σ'v=1atm	Kc	$q_{c1n\text{-}cs}$	(CRR) M=7.5, σ'v=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No	I&B (2008) CN	qc1 TSF	qc1 MPa	qc1N
0.164	0.99	0.05	1.05	0.10	1.00	0.108	34.97	48.40	0.076	N/A	0.99	0.21	0.80	1.26	1.00	0.096	1.15	15.48	0.063	N/A	N/A	N/A	1.70	10.97	1.05	13.43
0.328	0.98	0.08	1.09	-0.21	1.00	0.105	51.94	113.80	0.167	N/A	0.99	0.45	0.77	1.29	1.00	0.094	1.00	61.87	0.102	N/A	N/A	N/A	1.70	50.52	4.84	61.87
0.492	0.98	0.08	1.09	-0.28	1.00	0.104	55.85	128.87	0.200	N/A	0.99	0.49	0.75	1.30	1.00	0.093	1.00	73.03	0.116	N/A	N/A	N/A	1.70	59.64	5.71	73.03
0.656	0.98	0.08	1.09	-0.26	1.00	0.105	54.68	124.38	0.189	N/A	0.99	0.48	0.76	1.28	1.00	0.094	1.00	69.70	0.111	N/A	N/A	N/A	1.70	56.92	5.45	69.70
0.820	0.98	0.07	1.07	-0.16	1.00	0.106	49.07	102.75	0.147	N/A	0.99	0.42	0.79	1.24	1.00	0.098	1.01	54.21	0.095	N/A	N/A	N/A	1.70	43.84	4.20	53.68
0.984	0.98	0.07	1.07	-0.17	1.00	0.106	49.67	105.08	0.151	N/A	0.99	0.43	0.79	1.23	1.00	0.098	1.21	67.01	0.108	N/A	N/A	N/A	1.70	45.25	4.33	55.41
1.148	0.98	0.08	1.07	-0.22	1.00	0.105	52.65	116.56	0.172	N/A	0.99	0.46	0.77	1.24	1.00	0.097	1.24	79.55	0.127	N/A	N/A	N/A	1.70	52.19	5.00	63.91
1.312	0.98	0.10	1.09	-0.34	1.00	0.104	60.45	146.62	0.257	N/A	0.99	0.54	0.73	1.28	1.00	0.095	1.11	95.41	0.161	N/A	N/A	N/A	1.70	70.37	6.74	86.17
1.476	0.98	0.12	1.10	-0.47	1.00	0.103	71.64	189.76	0.744	N/A	0.99	0.63	0.69	1.32	1.00	0.092	1.03	121.67	0.248	N/A	N/A	N/A	1.70	96.46	9.24	118.12
1.640	0.98	0.20	1.10	-0.60	1.00	0.103	92.09	268.59	1.000	N/A	0.99	0.77	0.62	1.38	1.00	0.087	1.00	176.75	1.000	N/A	N/A	N/A	1.70	144.14	13.80	176.50
1.804	0.98	0.30	1.10	-0.60	1.00	0.103	105.85	321.65	1.000	N/A	0.99	0.85	0.60	1.39	1.00	0.087	1.00	215.79	1.000	N/A	N/A	N/A	1.70	176.23	16.87	215.79
1.968	0.98	0.30	1.10	-0.60	1.00	0.102	121.31	381.21	1.000	N/A	0.99	0.93	0.60	1.37	1.00	0.088	1.01	261.52	1.000	N/A	N/A	N/A	1.66	212.25	20.32	259.90
2.133	0.97	0.30	1.10	-0.60	1.00	0.102	144.67	470.63	1.000	N/A	0.99	1.04	0.60	1.36	1.00	0.089	1.00	327.34	1.000	N/A	N/A	N/A	1.62	266.20	25.49	325.96
2.297	0.97	0.30	1.10	-0.60	1.00	0.102	156.09	514.61	1.000	N/A	0.99	1.09	0.60	1.35	1.00	0.089	1.02	366.85	1.000	N/A	N/A	N/A	1.60	292.79	28.03	358.52
2.461	0.97	0.30	1.10	-0.60	1.00	0.102	147.55	481.72	1.000	N/A	0.98	1.06	0.60	1.33	1.00	0.090	1.07	359.11	1.000	N/A	N/A	N/A	1.57	272.90	26.13	334.17
2.625	0.97	0.30	1.10	-0.60	1.00	0.102	138.37	446.36	1.000	N/A	0.98	1.01	0.60	1.32	1.00	0.091	1.05	322.25	1.000	N/A	N/A	N/A	1.54	251.53	24.08	308.00
2.789	0.97	0.30	1.10	-0.60	1.00	0.102	142.53	462.39	1.000	N/A	0.98	1.03	0.60	1.31	1.00	0.092	1.00	319.86	1.000	N/A	N/A	N/A	1.52	261.21	25.01	319.86
2.953	0.97	0.30	1.10	-0.60	1.00	0.102	158.32	523.21	1.000	N/A	0.98	1.10	0.60	1.30	1.00	0.093	1.00	364.89	1.000	N/A	N/A	N/A	1.50	297.99	28.53	364.89
3.117	0.97	0.30	1.10	-0.60	1.00	0.102	155.06	510.65	1.000	N/A	0.98	1.09	0.60	1.29	1.00	0.093	1.00	355.59	1.000	N/A	N/A	N/A	1.48	290.39	27.80	355.59
3.281	0.97	0.30	1.10	-0.60	1.00	0.102	143.47	466.02	1.000	N/A	0.98	1.04	0.60	1.28	1.00	0.094	1.06	343.40	1.000	N/A	N/A	N/A	1.46	263.41	25.22	322.55
3.445	0.97	0.30	1.10	-0.60	1.00	0.102	146.56	477.91	1.000	N/A	0.98	1.05	0.60	1.27	1.00	0.095	1.09	362.60	1.000	N/A	N/A	N/A	1.44	270.60	25.91	331.35
3.609	0.96	0.30	1.10	-0.60	1.00	0.101	148.15	484.04	1.000	N/A	0.98	1.06	0.60	1.25	1.00	0.096	1.11	374.52	1.000	N/A	N/A	N/A	1.42	274.31	26.26	335.89
3.773	0.96	0.30	1.10	-0.60	1.00	0.101	136.76	440.19	1.000	N/A	0.98	1.01	0.60	1.24	1.00	0.096	1.19	361.23	1.000	N/A	N/A	N/A	1.41	247.79	23.72	303.43
3.937	0.96	0.30	1.10	-0.60	1.00	0.101	125.13	395.41	1.000	N/A	0.98	0.95	0.60	1.24	1.00	0.097	1.27	343.70	1.000	N/A	N/A	N/A	1.39	220.72	21.13	270.28
4.101	0.96	0.30	1.10	-0.60	1.00	0.101	112.98	348.64	1.000	N/A	0.98	0.89	0.60	1.23	1.00	0.098	1.22	288.12	1.000	N/A	N/A	N/A	1.41	192.45	18.42	235.65
4.265	0.96	0.30	1.10	-0.60	1.00	0.101	125.60	397.21	1.000	N/A	0.98	0.95	0.60	1.22	1.00	0.099	1.04	283.19	1.000	N/A	N/A	N/A	1.37	221.81	21.24	271.61
4.429	0.96	0.30	1.10	-0.60	1.00	0.101	145.09	472.26	1.000	N/A	0.98	1.04	0.60	1.21	1.00	0.099	1.00	327.17	1.000	N/A	N/A	N/A	1.35	267.18	25.58	327.17
4.593	0.96	0.30	1.10	-0.60	1.00	0.101	121.88	382.88	1.000	N/A	0.98	0.93	0.60	1.20	1.00	0.100	1.07	278.64	1.000	N/A	N/A	N/A	1.34	213.15	20.41	261.00
4.757	0.96	0.30	1.10	-0.60	1.00	0.101	119.97	375.53	1.000	N/A	0.98	0.92	0.60	1.19	1.00	0.101	1.11	283.79	1.000	N/A	N/A	N/A	1.33	208.70	19.98	255.56
4.921	0.96	0.30	1.10	-0.60	1.00	0.101	121.71	382.25	1.000	N/A	0.98	0.93	0.60	1.18	1.00	0.101	1.08	281.79	1.000	N/A	N/A	N/A	1.32	212.76	20.37	260.53
5.085	0.96	0.30	1.10	-0.60	1.00	0.100	113.73	351.52	1.000	N/A	0.98	0.89	0.60	1.17	1.00	0.102	1.16	275.90	1.000	N/A	N/A	N/A	1.33	194.19	18.59	237.79
5.249	0.95	0.30	1.10	-0.60	1.00	0.100	106.06	321.99	1.000	N/A	0.98	0.85	0.60	1.17	1.00	0.103	1.22	263.19	1.000	N/A	N/A	N/A	1.35	176.34	16.88	215.93
5.413	0.95	0.24	1.09	-0.60	1.00	0.101	97.84	290.33	1.000	N/A	0.98	0.80	0.60	1.16	1.00	0.103	1.27	243.81	1.000	N/A	N/A	N/A	1.38	157.19	15.05	192.49
5.577	0.95	0.22	1.08	-0.60	1.00	0.102	95.24	280.32	1.000	N/A	0.98	0.79	0.61	1.15	1.00	0.104	1.23	227.48	1.000	N/A	N/A	N/A	1.38	151.14	14.47	185.08
5.741	0.95	0.20	1.07	-0.60	1.00	0.103	91.19	264.73	1.000	N/A	0.98	0.76	0.62	1.14	1.00	0.105	1.22	211.37	1.000	N/A	N/A	N/A	1.39	141.72	13.57	173.54
5.905	0.95	0.17	1.05	-0.59	1.00	0.104	84.88	240.44	1.000	N/A	0.98	0.72	0.64	1.12	1.00	0.106	1.26	196.73	1.000	N/A	N/A	N/A	1.41	127.04	12.16	155.56
6.069	0.95	0.15	1.05	-0.56	1.00	0.105	81.55	227.59	1.000	N/A	0.98	0.70	0.65	1.11	1.00	0.107	1.46	212.80	1.000	N/A	N/A	N/A	1.41	119.27	11.42	146.04
6.234	0.95	0.14	1.04	-0.53	1.00	0.105	78.30	215.09	1.000	N/A	0.98	0.68	0.66	1.10	1.00	0.108	1.65	225.44	1.000	N/A	N/A	N/A	1.41	111.71	10.69	136.79
6.398	0.95	0.15	1.04	-0.55	1.00	0.105	80.56	223.77	1.000	N/A	0.98	0.69	0.65	1.10	1.00	0.109	1.57	225.07	1.000	N/A	N/A	N/A	1.38	116.96	11.20	143.21
6.562	0.95	0.15	1.04	-0.55	1.00	0.105	81.04	225.64	1.000	N/A	0.98	0.69	0.65	1.09	1.00	0.109	1.42	204.95	1.000	N/A	N/A	N/A	1.37	118.09	11.31	144.60
6.726	0.94	0.15	1.04	-0.54	1.00	0.105	80.24	222.55	1.000	N/A	0.97	0.69	0.66	1.09	1.00	0.110	1.30	184.58	1.000	N/A	N/A	N/A	1.36	116.22	11.13	142.31
6.890	0.94	0.13	1.03	-0.47	1.00	0.106	73.15	195.25	0.924	N/A	0.97	0.64	0.68	1.08	1.00	0.111	1.43	174.37	1.000	N/A	N/A	N/A	1.38	99.71	9.55	122.10
7.054	0.94	0.11	1.02	-0.41	1.00	0.106	67.30	172.75	0.437	N/A	0.97	0.59	0.70	1.07	1.00	0.112	1.57	165.43	1.000	N/A	N/A	N/A	1.40	86.11	8.24	105.44
7.218	0.94	0.10	1.02	-0.34	1.00	0.107	61.91	151.96	0.281	N/A	0.97	0.55	0.73	1.06	1.00	0.113	1.73	155.79	0.432	N/A	N/A	N/A	1.42	73.55	7.04	90.06
7.382	0.94	0.10	1.02	-0.34	1.00	0.107	62.09	152.68	0.284	N/A	0.97	0.55	0.73	1.05	1.00	0.113	1.66	150.51	0.397	N/A	N/A	N/A	1.40	73.98	7.08	90.59
7.546	0.94	0.11	1.02	-0.39	1.00	0.107	66.11	168.16	0.390	N/A	0.97	0.58	0.71	1.05	1.00	0.113	1.41	143.95	0.357	N/A	N/A	N/A	1.36	83.34	7.98	102.05
7.710	0.94	0.12	1.02	-0.46	1.00	0.106	71.88	190.38	0.762	N/A	0.97	0.63	0.69	1.05	1.00	0.113	1.37	162.63	1.000	N/A	N/A	N/A	1.32	96.77	9.27	118.50
7.874	0.94	0.14	1.02	-0.50	1.00	0.106	76.60	208.56	1.000	N/A	0.97	0.66	0.67	1.05	1.00	0.113	1.35	177.57	1.000	N/A	N/A	N/A	1.29	107.76	10.32	131.95
8.038	0.93	0.12	1.02	-0.43	1.00	0.107	69.47	181.07	0.554	N/A	0.97	0.61	0.70	1.04	1.00	0.114	1.63	182.42	1.000	N/A	N/A	N/A	1.30	91.14	8.73	111.60
8.202	0.93	0.10	1.01	-0.33	1.00	0.107	61.16	149.09	0.267	N/A	0.97	0.54	0.73	1.03	1.00	0.115	2.06	181.39	1.000	N/A	N/A	N/A	1.33	71.81	6.87	87.93
8.366	0.93	0.09	1.01	-0.26	1.00	0.107	56.58	131.46	0.207	N/A	0.97	0.50	0.75	1.03	1.00	0.116	2.29	171.78	1.000	N/A	N/A	N/A	1.34	61.15	5.85	74.88
8.530	0.93	0.08	1.01	-0.22	1.00	0.107	53.80	120.77	0.181	N/A	0.97	0.47	0.76	1.02	1.00	0.116	2.20	147.62	0.379	N/A	N/A	N/A	1.34	54.68	5.24	66.96
8.694	0.93	0.08	1.01	-0.19	1.00	0.107	51.84	113.21	0.166	N/A	0.97	0.45	0.77	1.02	1.00	0.116	2.06	126.34	0.268	N/A	N/A	N/A	1.34	50.12	4.80	61.37
8.858	0.93	0.08	1.01	-0.20	1.00	0.107	52.88	117.22	0.174	N/A	0.97	0.46	0.77	1.02	1.00	0.117	1.86	119.38	0.238	N/A	N/A	N/A	1.32	52.54	5.03	64.34
9.022	0.93	0.08	1.00	-0.20	1.00	0.107	52.47	115.62	0.171	N/A	0.97	0.46	0.77	1.01	1.00	0.117	1.88	118.91	0.236	N/A	N/A	N/A	1.31	51.57	4.94	63.15
9.186	0.93	0.08	1.00	-0.20	1.00	0.107	52.64	116.29	0.172	N/A	0.97	0.46	0.77	1.01	1.00	0.117	1.89	120.29	0.242	N/A	N/A	N/A	1.29	51.98	4.98	63.65
9.350	0.93	0.08	1.00	-0.23	1.00	0.107	54.46	123.30	0.187	N/A	0.97	0.48	0.76	1.01	1.00	0.117	1.97	135.89	0.313	N/A	N/A	N/A	1.27	56.22	5.38	68.84
9.514	0.92	0.09	1.00	-0.29	1.00	0.107	58.83	140.11	0.233	N/A	0.97	0.52	0.74	1.01	1.00	0.118	1.71	139.08	0.330	N/A	N/A	N/A	1.24	66.38	6.35	81.28
9.678	0.92	0.09	1.00	-0.30	1.00	0.107	59.18	141.46	0.237	N/A	0.97	0.52	0.74	1.00	1.00	0.118	1.65	135.75	0.313	N/A	N/A	N/A	1.23	67.19	6.43	82.28
9.842	0.92	0.09	1.00	-0.25	1.00	0.107	56.01	129.27	0.201	N/A	0.97	0.49	0.75	1.00	1.00	0.118	1.72	126.26	0.267	N/A	N/A	N/A	1.23	59.82	5.73	73.26
10.006	0.92	0.08	1.00	-0.22	1.00	0.107	53.89	121.09	0.182	N/A	0.97	0.47	0.76	1.00	1.00	0.119	1.81	121.78	0.248	N/A	N/A	N/A	1.22	54.88	5.25	67.20
10.170	0.92	0.08	1.00	-0.18	1.00	0.106	51.65	112.48	0.164	N/A	0.97	0.45	0.77	0.99	1.00	0.119	1.92	116.65	0.228	N/A	N/A	N/A	1.22	49.68	4.76	60.83
10.335	0.92	0.08	1.00	-0.17	1.00	0.106	50.49	108.01	0.156	N/A	0.97	0.44	0.78	0.99	1.00	0.119	2.00	115.26	0.222	N/A	N/A	N/A	1.21	46.97	4.50	57.52
10.499	0.92	0.08	1.00	-0.16	1.00	0.106	50.53	108.16	0.156	N/A	0.97	0.44	0.78	0.99	1.00	0.119	2.01	115.86	0.225	N/A	N/A	N/A	1.20	47.06	4.51	57.63
10.663	0.92	0.08	1.00	-0.20	1.00	0.106	52.72	116.60	0.173	N/A	0.97	0.46	0.77	0.99	1.00	0.120	1.83	116.82	0.228	N/A	N/A	N/A	1.18	52.17	4.99	63.88
10.827	0.91	0.09	0.99	-0.27	1.00	0.106	57.47	134.89	0.218	N/A	0.96	0.51	0.75	0.98	1.00	0.120	1.69	131.18	0.290	N/A	N/A	N/A	1.16	63.22	6.05	77.42
10.991	0.91	0.10	0.99	-0.32	1.00	0.106	60.81	147.74	0.261	N/A	0.96	0.54	0.73	0.98	1.00	0.120	1.88	163.03	1.000	N/A	N/A	N/A	1.14	70.99	6.80	86.93
11.155	0.91	0.10	0.99	-0.31	1.00	0.106	60.41	146.19	0.255	N/A	0.96	0.53	0.73	0.98	1.00	0.121	2.24	192.17	1.000	N/A	N/A	N/A	1.14	70.06	6.71	85.79
11.319	0.91	0.10	0.99	-0.29	1.00	0.106	58.77	139.90	0.232	N/A	0.96	0.52	0.74	0.97	1.00	0.121	2.48	201.41	1.000	N/A	N/A	N/A	1.13	66.25	6.34	81.13
11.483	0.91	0.09	0.99	-0.31	1.00	0.106	60.12	145.09	0.251	N/A	0.96	0.53	0.73	0.97	1.00	0.121	2.28	194.13	1.000	N/A	N/A	N/A	1.12	69.39	6.64	84.97
11.647	0.91	0.11	0.99	-0.37	1.00	0.106	64.73	162.85	0.346	N/A	0.96	0.57	0.71	0.97	1.00	0.122	1.81	177.39	1.000	N/A	N/A	N/A	1.10	80.13	7.67	98.12
11.811	0.91	0.10	0.99	-0.35	1.00	0.106	63.64	158.62	0.317	N/A	0.96	0.56	0.72	0.96	1.00	0.122	1.87	177.44	1.000	N/A	N/A	N/A	1.10	77.57	7.43	94.99
11.975	0.91	0.09	0.99	-0.27	1.00	0.106	57.22	133.93	0.214	N/A	0.96	0.51	0.75	0.97	1.00	0.122	2.35	180.60	1.000	N/A	N/A	N/A	1.10	62.65	6.00	76.71
12.139	0.90	0.08	0.99	-0.18	1.00	0.106	52.07	114.08	0.168	N/A	0.96	0.45	0.77	0.96	1.00	0.122	2.84	176.28	1.000	N/A	N/A	N/A	1.10	50.64	4.85	62.01
12.303	0.90	0.07	0.99	-0.10	1.00	0.106	48.17	99.09	0.141	N/A	0.96	0.41	0.79	0.97	1.00	0.122	3.20	163.16	1.000	N/A	N/A	N/A	1.09	41.58	3.98	50.92
12.467	0.90	0.07	0.99	-0.07	1.00	0.105	46.19	91.47	0.129	N/A	0.96	0.39	0.80	0.97	1.00	0.122	3.19	144.41	0.360	N/A	N/A	N/A	1.09	36.97	3.54	45.27
12.631	0.90	0.07	0.99	-0.08	1.00	0.105	45.98	90.63	0.128	N/A	0.96	0.39	0.80	0.96	1.00	0.122	2.68	119.74	0.240	N/A	N/A	N/A	1.08	36.47	3.49	44.65
12.795	0.90	0.07	0.99	-0.08	1.00	0.105	46.51	92.69	0.131	N/A	0.96	0.39	0.80	0.96	1.00	0.122	2.38	110.05	0.204	N/A	N/A	N/A	1.07	37.71	3.61	46.18
12.959	0.90	0.07	0.99	-0.10	1.00	0.105	47.78	97.57	0.139	N/A	0.96	0.41	0.80	0.96	1.00	0.122	2.05	102.00	0.179	N/A	N/A	N/A	1.06	40.66	3.89	49.79
13.123	0.90	0.07	0.99	-0.10	1.00	0.105	47.67	97.15	0.138	N/A	0.96	0.41	0.80	0.96	1.00	0.122	2.14	106.13	0.191	N/A	N/A	N/A	1.05	40.41	3.87	49.48
13.287	0.90	0.07	0.99	-0.11	1.00	0.105	48.21	99.24	0.141	N/A	0.96	0.41	0.79	0.96	1.00	0.123	2.21	112.65	0.212	N/A	N/A	N/A	1.04	41.67	3.99	51.03
13.451	0.89	0.07	0.98	-0.12	1.00	0.105	48.64	100.89	0.144	N/A	0.96	0.42	0.79	0.95	1.00	0.123	2.30	120.38	0.242	N/A	N/A	N/A	1.03	42.67	4.09	52.25
13.615	0.89	0.07	0.98	-0.13	1.00	0.105	49.12	102.72	0.147	N/A	0.96	0.42	0.79	0.95	1.00	0.123	2.31	124.02	0.257	N/A	N/A	N/A	1.03	43.77	4.19	53.60
13.779	0.89	0.07	0.98	-0.12	1.00	0.105	48.73	101.23	0.145	N/A	0.96	0.42	0.79	0.95	1.00	0.123	2.37	124.32	0.259	N/A	N/A	N/A	1.02	42.88	4.10	52.50
13.943	0.89	0.07	0.98	-0.12	1.00	0.105	48.82	101.56	0.145	N/A	0.96	0.42	0.79	0.95	1.00	0.123	2.15	113.39	0.216	N/A	N/A	N/A	1.01	43.07	4.12	52.74
14.107	0.89	0.08	0.98	-0.15	1.00	0.105	50.33	107.39	0.155	N/A	0.96	0.44	0.78	0.94	1.00	0.124	1.97	112.57	0.213	N/A	N/A	N/A	1.00	46.60	4.46	57.06
14.271	0.89	0.07	0.98	-0.12	1.00	0.105	48.91	101.91	0.146	N/A	0.96	0.42	0.79	0.94	1.00	0.124	2.12	112.38	0.212	N/A	N/A	N/A	1.00	43.29	4.14	53.00
14.436	0.89	0.07	0.98	-0.11	1.00	0.105	47.97	98.30	0.139	N/A	0.96	0.41	0.79	0.94	1.00	0.124	2.21	110.82	0.207	N/A	N/A	N/A	0.99	40.88	3.91	50.06
14.600	0.89	0.07	0.98	-0.14	1.00	0.105	49.75	105.17	0.151	N/A	0.96	0.43	0.79	0.94	1.00	0.124	2.19	121.24	0.246	N/A	N/A	N/A	0.98	45.26	4.33	55.42
14.764	0.89	0.09	0.97	-0.29	1.00	0.105	59.28	141.87	0.239	N/A	0.96	0.52	0.74	0.93	1.00	0.124	1.87	154.57	0.423	N/A	N/A	N/A	0.98	67.44	6.46	82.58
14.928	0.88	0.19	0.94	-0.60	1.00	0.108	89.32	257.53	1.000	N/A	0.96	0.75	0.63	0.89	1.00	0.131	1.27	214.22	1.000	N/A	N/A	N/A	0.98	137.37	13.15	168.21
15.092	0.88	0.30	0.91	-0.60	1.00	0.112	136.46	439.03	1.000	N/A	0.95	1.00	0.60	0.88	1.00	0.132	1.05	316.67	1.000	N/A	N/A	N/A	0.98	247.09	23.66	302.57

Liquefaction Triggering Analyses Using SPT Data

Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'v=1atm	FoS	α	β	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'v=1atm	FoS	Average FoS
0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.281		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
5.905		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.069	31	0.80	23	26	0.80	0.37	1.12	5.6	31.1	0.56	N/A	5.00	1.20	35.61	N/A	N/A	N/A
6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.562		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
6.890		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.054		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.218		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.382		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.546		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.710		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
7.874		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.038		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.202		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.366		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.530		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.694		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
8.858		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.022		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.186		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.350		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.514		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.678		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
9.842		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.006		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.170		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.335		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.499		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.663		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.827		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
10.991	15	0.85	12	11	0.53	0.51	0.96	5.6	16.9	0.17	N/A	5.00	1.20	18.53	0.198	N/A	N/A
11.155		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.319		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.483		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.647		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.811		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
11.975		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.139		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.303		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.467		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.631		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.795		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
12.959		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.123		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.287		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.451		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.615		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.779		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
13.943		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.107		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.271		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.436		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.600		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.764		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
14.928		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
15.092		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

15.256	6962.17	335.8	5.525	335.8	4.4	1.89	1.65%	General Fill	0.057	113.8	0.88	0.000	0.88	0	0.98	329.577	31.57	403.60	382	1.65%	1.7	48%	1.13	0.000	1.13	0	0	0.88	0.30	0.90	-0.60	1.00	0.113	171.91
15.420	6962.01	348.9	6.990	348.9	3.5	1.50	2.00%	General Fill	0.057	113.8	0.89	0.000	0.89	0	0.98	341.509	32.71	418.21	393	2.01%	1.8	48%	1.14	0.000	1.14	0	0	0.88	0.30	0.90	-0.60	1.00	0.113	177.03
15.584	6961.85	335.1	8.254	335.1	2.8	1.20	2.46%	General Fill	0.057	113.8	0.90	0.000	0.90	0	0.98	327.125	31.33	400.59	373	2.47%	1.8	48%	1.14	0.000	1.14	0	0	0.88	0.30	0.90	-0.60	1.00	0.113	170.85
15.748	6961.68	313.5	8.912	313.5	2.2	0.94	2.84%	General Fill	0.057	113.8	0.90	0.000	0.90	0	0.97	305.195	29.23	373.73	346	2.85%	1.9	48%	1.15	0.000	1.15	0	0	0.88	0.30	0.90	-0.60	1.00	0.113	161.43
15.912	6961.52	283.3	7.971	283.3	1.7	0.73	2.81%	General Fill	0.057	113.8	0.91	0.000	0.91	0	0.97	275.041	26.34	336.80	309	2.82%	1.9	48%	1.16	0.000	1.16	0	0	0.87	0.30	0.89	-0.60	1.00	0.113	148.47
16.076	6961.35	244.1	6.188	244.1	2.8	1.22	2.53%	General Fill	0.057	113.8	0.92	0.000	0.92	0	0.97	236.351	22.64	289.43	263	2.54%	1.9	48%	1.17	0.000	1.17	0	0	0.87	0.30	0.89	-0.60	1.00	0.113	131.85
16.240	6961.19	239.4	5.322	239.3	3.9	1.69	2.22%	General Fill	0.057	113.8	0.93	0.000	0.93	0	0.97	231.108	22.14	283.02	256	2.23%	1.9	48%	1.18	0.000	1.18	0	0	0.87	0.30	0.89	-0.60	1.00	0.113	129.60
16.404	6961.03	272.1	5.977	272.0	3.3	1.44	2.20%	General Fill	0.057	113.8	0.94	0.000	0.94	0	0.96	261.996	25.10	320.84	288	2.20%	1.9	48%	1.19	0.000	1.19	0	0	0.87	0.30	0.89	-0.60	1.00	0.114	142.87
16.568	6960.86	206.3	5.625	206.3	3.8	1.63	2.73%	General Fill	0.057	113.8	0.95	0.000	0.95	0	0.96	197.790	18.95	242.22	216	2.74%	2.0	48%	1.20	0.000	1.20	0	0	0.87	0.30	0.88	-0.60	1.00	0.114	115.29
16.732	6960.70	129.5	5.206	129.5	5.2	2.26	4.02%	General Fill	0.057	113.8	0.96	0.000	0.96	0	0.94	121.268	11.62	148.53	134	4.05%	2.3	48%	1.21	0.000	1.21	0	0	0.87	0.16	0.94	-0.54	1.00	0.107	82.42
16.896	6960.53	109.6	1.599	109.6	7.1	3.07	1.46%	General Fill	0.057	113.8	0.97	0.000	0.97	0	0.93	101.435	9.72	124.26	112	1.47%	2.0	48%	1.22	0.000	1.22	0	0	0.87	0.13	0.95	-0.46	1.00	0.106	73.90
17.060	6960.37	71.9	1.296	71.9	2.5	1.10	1.80%	General Fill	0.057	113.8	0.98	0.000	0.98	0	0.91	65.112	6.24	79.75	72	1.83%	2.2	48%	1.23	0.000	1.23	0	0	0.87	0.09	0.96	-0.27	1.00	0.104	58.29
17.224	6960.21	59.0	1.102	59.0	1.8	0.77	1.87%	General Fill	0.057	113.8	0.99	0.000	0.99	0	0.89	52.739	5.05	64.59	59	1.90%	2.3	48%	1.24	0.000	1.24	0	0	0.86	0.08	0.97	-0.19	1.00	0.103	52.97
17.388	6960.04	64.5	1.458	64.4	2.2	0.96	2.26%	General Fill	0.057	113.8	1.00	0.000	1.00	0	0.89	57.460	5.50	70.38	64	2.30%	2.3	48%	1.25	0.000	1.25	0	0	0.86	0.08	0.96	-0.22	1.00	0.103	55.00
17.552	6959.88	88.0	1.984	88.0	4.2	1.81	2.25%	General Fill	0.057	113.8	1.01	0.000	1.01	0	0.90	79.184	7.58	96.99	86	2.28%	2.2	48%	1.26	0.000	1.26	0	0	0.86	0.10	0.96	-0.35	1.00	0.104	64.34
17.716	6959.71	100.0	3.078	99.9	8.9	3.87	3.08%	General Fill	0.057	113.8	1.02	0.000	1.02	0	0.90	90.055	8.63	110.34	97	3.11%	2.3	48%	1.27	0.000	1.27	0	0	0.86	0.12	0.95	-0.41	1.00	0.105	69.02
17.880	6959.55	106.9	3.615	106.9	7.7	3.35	3.38%	General Fill	0.057	113.8	1.03	0.000	1.03	0	0.90	96.233	9.22	117.89	103	3.41%	2.3	48%	1.28	0.000	1.28	0	0	0.86	0.12	0.95	-0.44	1.00	0.105	71.67
18.044	6959.39	107.4	3.421	107.3	9.3	4.05	3.19%	General Fill	0.057	113.8	1.04	0.000	1.04	0	0.90	96.226	9.22	117.89	103	3.22%	2.3	48%	1.28	0.000	1.28	0	0	0.86	0.12	0.94	-0.44	1.00	0.105	71.67
18.208	6959.22	109.7	3.159	109.6	11.3	4.90	2.88%	General Fill	0.057	113.8	1.04	0.000	1.04	0	0.89	97.985	9.39	120.06	104	2.91%	2.2	48%	1.29	0.000	1.29	0	0	0.86	0.12	0.94	-0.44	1.00	0.105	72.43
18.372	6959.06	96.5	2.430	96.4	8.1	3.50	2.52%	General Fill	0.057	113.8	1.05	0.000	1.05	0	0.88	85.137	8.15	104.31	91	2.55%	2.2	48%	1.30	0.000	1.30	0	0	0.85	0.11	0.95	-0.38	1.00	0.104	66.90
18.537	6958.89	72.3	1.823	72.3	4.6	1.97	2.52%	General Fill	0.057	113.8	1.06	0.000	1.06	0	0.86	62.432	5.98	76.48	67	2.56%	2.3	48%	1.31	0.000	1.31	0	0	0.85	0.09	0.96	-0.25	1.00	0.103	57.14
18.701	6958.73	49.0	1.056	49.0	2.3	0.98	2.16%	General Fill	0.057	113.8	1.07	0.000	1.07	0	0.84	41.151	3.94	50.40	45	2.20%	2.4	48%	1.32	0.000	1.32	0	0	0.85	0.07	0.97	-0.10	1.00	0.102	47.99
18.865	6958.57	40.9	0.614	40.9	1.2	0.51	1.50%	General Fill	0.057	113.8	1.08	0.000	1.08	0	0.83	33.823	3.24	41.42	37	1.54%	2.4	48%	1.33	0.000	1.33	0	0	0.85	0.07	0.97	-0.03	1.00	0.102	44.84
19.029	6958.40	30.4	0.597	30.4	0.3	0.12	1.96%	General Fill	0.057	113.8	1.09	0.000	1.09	0	0.81	24.635	2.36	30.17	27	2.04%	2.6	48%	1.34	0.000	1.34	0	0	0.85	0.06	0.97	0.07	1.00	0.101	40.90
19.193	6958.24	27.7	0.626	27.7	-0.3	-0.12	2.26%	General Fill	0.057	113.8	1.10	0.000	1.10	0	0.80	22.165	2.12	27.14	24	2.36%	2.6	48%	1.35	0.000	1.35	0	0	0.85	0.06	0.97	0.10	1.00	0.101	39.83
19.357	6958.07	24.7	0.669	24.7	-0.7	-0.30	2.71%	General Fill	0.057	113.8	1.11	0.000	1.11	0	0.79	19.528	1.87	23.91	21	2.84%	2.7	48%	1.36	0.000	1.36	0	0	0.85	0.05	0.97	0.10	1.00	0.101	38.70
19.521	6957.91	26.7	0.645	26.7	-0.3	-0.12	2.41%	General Fill	0.057	113.8	1.12	0.000	1.12	0	0.79	21.086	2.02	25.82	23	2.52%	2.7	48%	1.37	0.000	1.37	0	0	0.85	0.06	0.97	0.10	1.00	0.101	39.37
19.685	6957.75	21.7	0.567	21.7	-0.5	-0.20	2.61%	General Fill	0.057	113.8	1.13	0.000	1.13	0	0.78	16.877	1.62	20.66	18	2.75%	2.8	48%	1.38	0.000	1.38	0	0	0.84	0.05	0.97	0.10	1.00	0.100	37.56
19.849	6957.58	21.7	0.601	21.7	-0.6	-0.26	2.77%	General Fill	0.057	113.8	1.14	0.000	1.14	0	0.77	16.769	1.61	20.53	18	2.92%	2.8	48%	1.39	0.000	1.39	0	0	0.84	0.05	0.97	0.10	1.00	0.100	37.51
20.013	6957.42	25.1	0.891	25.1	-1.0	-0.43	3.55%	General Fill	0.057	113.8	1.15	0.000	1.15	0	0.77	19.373	1.86	23.72	21	3.72%	2.8	48%	1.40	0.000	1.40	0	0	0.84	0.05	0.97	0.10	1.00	0.100	38.63
20.177	6957.25	38.9	1.167	38.9	-0.3	-0.14	3.00%	General Fill	0.057	113.8	1.16	0.000	1.16	0	0.79	30.635	2.93	37.51	33	3.09%	2.6	48%	1.41	0.000	1.41	0	0	0.84	0.06	0.97	0.01	1.00	0.101	43.47
20.341	6957.09	38.3	1.198	38.3	-0.6	-0.26	3.13%	General Fill	0.057	113.8	1.17	0.000	1.17	0	0.78	29.930	2.87	36.65	32	3.23%	2.6	48%	1.42	0.000	1.42	0	0	0.84	0.06	0.97	0.01	1.00	0.100	43.17
20.505	6956.93	31.6	0.945	31.6	-1.1	-0.49	2.99%	General Fill	0.057	113.8	1.18	0.000	1.18	0	0.77	24.250	2.32	29.69	26	3.11%	2.7	48%	1.42	0.000	1.42	0	0	0.84	0.06	0.97	0.08	1.00	0.100	40.73
20.669	6956.76	29.7	0.711	29.7	-0.7	-0.29	2.39%	General Fill	0.057	113.8	1.18	0.000	1.18	0	0.76	22.557	2.16	27.62	24	2.49%	2.6	48%	1.43	0.000	1.43	0	0	0.84	0.06	0.97	0.10	1.00	0.100	40.00
20.833	6956.60	28.2	0.539	28.2	-0.8	-0.33	1.91%	General Fill	0.057	113.8	1.19	0.000	1.19	0	0.75	21.192	2.03	25.95	23	2.00%	2.6	48%	1.44	0.000	1.44	0	0	0.83	0.06	0.97	0.10	1.00	0.100	39.41
20.997	6956.43	24.4	0.441	24.4	-0.9	-0.41	1.81%	General Fill	0.057	113.8	1.20	0.000	1.20	0	0.74	18.087	1.73	22.14	19	1.90%	2.6	48%	1.45	0.000	1.45	0	0	0.83	0.05	0.97	0.10	1.00	0.099	38.08
21.161	6956.27	23.3	0.371	23.3	-1.0	-0.43	1.60%	General Fill	0.057	113.8	1.21	0.000	1.21	0	0.73	17.079	1.64	20.91	18	1.68%	2.6	48%	1.46	0.000	1.46	0	0	0.83	0.05	0.97	0.10	1.00	0.099	37.65
21.325	6956.10	24.6	0.312	24.6	-1.3	-0.57	1.27%	General Fill	0.057	113.8	1.22	0.000	1.22	0	0.73	18.007	1.72	22.04	19	1.34%	2.6	48%	1.47	0.000	1.47	0	0	0.83	0.05	0.97	0.10	1.00	0.099	38.04
21.489	6955.94	20.9	0.348	20.9	-0.6	-0.26	1.66%	General Fill	0.057	113.8	1.23	0.000	1.23	0	0.73	15.171	1.45	18.57	16	1.77%	2.7	48%	1.48	0.000	1.48	0	0	0.83	0.05	0.97	0.10	1.00	0.099	36.83
21.653	6955.78	18.7	0.388	18.7	-0.2	-0.10	2.08%	General Fill	0.057	113.8	1.24	0.000	1.24	0	0.72	13.466	1.29	16.49	14	2.23%	2.8	48%	1.49	0.000	1.49	0	0	0.83	0.05	0.97	0.10	1.00	0.099	36.10
21.817	6955.61	20.5	0.564	20.5	-0.3	-0.12	2.75%	General Fill	0.057	113.8	1.25	0.000	1.25	0	0.72	14.714	1.41	18.02	15	2.93%	2.8	48%	1.50	0.000	1.50	0	0	0.83	0.05	0.97	0.10	1.00	0.099	36.63
21.981	6955.45	31.5	1.036	31.5	-0.2	-0.10	3.29%	General Fill	0.057	113.8	1.26	0.000	1.26	0	0.73	22.881	2.19	28.02	24	3.43%	2.7	48%	1.51	0.000	1.51	0	0	0.82	0.06	0.96	0.10	1.00	0.099	40.14
22.145	6955.28	59.7	1.551	59.7	0.1	0.02	2.60%	General Fill	0.057	113.8	1.27	0.000	1.27	0	0.76	45.437	4.35	55.64	46	2.66%	2.4	48%	1.52	0.000	1.52	0	0	0.82	0.07	0.95	-0.13	1.00	0.100	49.83
22.309	6955.12	68.0	1.307	67.9	2.5	1.10	1.92%	General Fill	0.057	113.8	1.28	0.000	1.28	0	0.77	52.126	4.99	63.84	52	1.96%	2.3	48%	1.53	0.000	1.53	0	0	0.82	0.08	0.95	-0.18	1.00	0.100	52.71
22.473	6954.96	74.8	1.320	74.8	1.9	0.81	1.76%	General Fill	0.057	113.8	1.29	0.000	1.29	0	0.77	57.694	5.53	70.66	57	1.79%	2.3	48%	1.54	0.000	1.54	0	0	0.82	0.08	0.95	-0.22	1.00	0.100	55.10
22.638	6954.79	95.7	1.688	95.7	1.3	0.57	1.76%	General Fill	0.057	113.8	1.30	0.000	1.30	0	0.79	75.437	7.23	92.38	73	1.79%	2.2	48%	1.55	0.000	1.55	0	0	0.82	0.10	0.94	-0.32	1.00	0.101	62.72
22.802	6954.63	101.9	2.104	101.9	1.8	0.77	2.07%	General Fill	0.057	113.8	1.31	0.000	1.31	0	0.79	80.500	7.71	98.58	77	2.09%	2.2	48%	1.56	0.000	1.56	0	0	0.82	0.11	0.93	-0.35	1.00	0.101	64.90
22.966	6954.46	113.3	3.005	113.3	2.2	0.96	2.65%	General Fill	0.057	113.8	1.32	0.000	1.32	0	0.80	90.354	8.65	110.65	85	2.68%	2.3	48%	1.56	0.000	1.56	0	0	0.82	0.12	0.92	-0.40	1.00	0.102	69.13
23.130	6954.30	137.6	3.634	137.6	3.5	1.50	2.64%	General Fill	0.057	113.8	1.32	0.000	1.32	0	0.81	112.053	10.73	137.23	103	2.67%	2.2	48%	1.57	0.000	1.57	0	0	0.82	0.14	0.91	-0.50	1.00	0.104	78.46
23.294	6954.14	144.6	4.151	144.6	4.5	1.93	2.87%	General Fill	0.057	113.8	1.33	0.000	1.33	0	0.82	118.154	11.32	144.71	107	2.90%	2.2	48%	1.58	0.000	1.58	0	0	0.81	0.15	0.90	-0.52	1.00	0.105	81.08
23.458	6953.97	138.7	4.271	138.7	5.4	2.32	3.08%	General Fill	0.057	113.8	1.34	0.000	1.34	0	0.81	112.292	10.76	137.54	102	3.11%	2.3	48%	1.59	0.000	1.59	0	0	0.81	0.14	0.90	-0.50	1.00	0.104	78.56
23.622	6953.81	127.0	4.370	127.0	4.6	1.99	3.44%	General Fill	0.057	113.8	1.35	0.000	1.35	0	0.80	101.225	9.70	123.98	93	3.48%	2.3	48%	1.60	0.000	1.60	0	0	0.81	0.13	0.91	-0.45	1.00	0.103	73.81
23.786	6953.64	105.8	3.484	105.7	3.6	1.55	3.29%	General Fill	0.057	113.8	1.36	0.000	1.36	0	0.78	82.006	7.85	100.44	77	3.34%	2.4	48%	1.61	0.000	1.61	0	0	0.81	0.11	0.93	-0.36	1.00	0.101	65.55
23.950	6953.48	104.9	3.193	104.9	3.9	1.69	3.04%	General Fill	0.057	113.8	1.37	0.000	1.37	0	0.77	80.968	7.76	99.17	76	3.08%	2.3	48%	1.62	0.000	1.62	0	0	0.81	0.11	0.93	-0.35	1.00	0.101	65.10
24.114	6953.32	100.0	2.838	99.9	3.3	1.44	2.84%	General Fill	0.057	113.8	1.38	0.000	1.38	0	0.76	76.353	7.31	93.51	71	2.88%	2.3	48%	1.63	0.000	1.63	0	0	0.81	0.10	0.93	-0.33	1.00	0.100	63.12
24.278	6953.15	77.9	2.845	77.9	2.2	0.94	3.65%	General Fill	0.057	113.8	1.39	0.000	1.39	0	0.74	57.449	5.50	70.36	55	3.72%	2.5	48%	1.64	0.000	1.64	0	0	0.81	0.08	0.94	-0.21	1.00	0.099	55.00
24.442	6952.99	67.3	2.777	67.3	1.8	0.77	4.13%	General Fill	0.057	113.8	1.40	0.000	1.40	0	0.72	48.581	4.65	59.50	47	4.21%	2.6	48%	1.65	0.000	1.65	0	0	0.80	0.08	0.95	-0.15	1.00	0.098	51.18
24.606	6952.82	58.9	2.669	58.9	1.9	0.81	4.53%	General Fill	0.057	113.8	1.41	0.000	1.41	0	0.71	41.668	3.99	51.03	41	4.64%	2.6	48%	1.66	0.000	1.66	0	0	0.80	0.07	0.95	-0.09	1.00	0.098	48.22
24.770	6952.66	49.3	2.288	49.3	1.7	0.75	4.64%	General Fill	0.057	113.8	1.42	0.000	1.42	0	0.69	34.021	3.26	41.67	34	4.78%	2.7	48%	1.67	0.000	1.67	0	0	0.80	0.07	0.95	-0.02	1.00	0.097	44.93
24.934	6952.50	52.0	1.715	52.0	1.9	0.83	3.30%	General Fill	0.057	113.8	1.43	0.000	1.43	0	0.69	35.904	3.44	43.98	35	3.39%	2.6	48%	1.68	0.000	1.68	0	0	0.80	0.07	0.95	-0.04	1.00	0.097	45.74
25.098	6952.33	45.4	1.412	45.4	1.6	0.71	3.11%	General Fill	0.057	113.8	1.44	0.000	1.44	0	0.68	30.755	2.95	37.67	31	3.21%	2.6	48%	1.69	0.000	1.69	0	0	0.80	0.06	0.95	0.01	1.00	0.097	43.53
25.262	6952.17	38.8	1.265	38.8	-0.5	-0.20	3.26%	General Fill	0.057	113.8	1.45	0.000	1.45	0	0.66	25.750	2.47	31.53	26	3.38%	2.7	48%	1.69	0.000	1.69	0	0	0.80	0.06	0.96	0.07	1.00	0.096	41.37
25.426	6952.00	37.9	1.312	37.9	-0.5	-0.23	3.47%	General Fill	0.057	113.8	1.46	0.000	1.46	0	0.66	24.921	2.39	30.51	25	3.60%	2.7	48%	1.70	0.000	1.70	0	0	0.80	0.06	0.96	0.08	1.00	0.096	41.02
25.590	6951.84	38.4	1.611	38.4	-0.6	-0.26	4.19%	General Fill	0.057	113.8	1.46	0.000	1.46	0	0.66	25.206	2.41	30.86	25	4.36%	2.8	48%	1.71	0.000	1.71	0	0	0.79	0.06	0.96	0.08	1.00	0.096	41.14
25.754	6951.68	47.0	1.787	47.0	-0.5	-0.23	3.80%	General Fill	0.057	113.8	1.47	0.000	1.47	0	0.67	31.385	3.01	38.43	31	3.92%	2.7	48%	1.72	0.000	1.72	0	0	0.79	0.06	0.95	0.01	1.00	0.096	43.79
25.918	6951.51	49.2	1.819	49.2	-0.6	-0.26	3.70%	General Fill	0.057	113.8	1.48	0.000	1.48	0	0.67	32.845	3.15	40.22	32	3.81%	2.7	48%	1.73	0.000	1.73	0	0	0.79	0.07	0.95	-0.01	1.00	0.096	44.42
26.082	6951.35	50.7	1.690	50.7	-0.5	-0.23	3.33%	General Fill	0.057	113.8	1.49	0.000	1.49	0	0.67	33.820	3.24	41.41	33	3.43%	2.6	48%	1.74	0.000	1.74	0	0	0.79	0.07	0.95	-0.02	1.00	0.096	44.84
26.246	6951.18	53.8	1.866	53.8	-0.5	-0.20	3.47%	General Fill	0.057	113.8	1.50	0.000	1.50	0	0.67	35.945	3.44	44.01	35	3.57%	2.6	48%	1.75	0.000	1.75	0	0	0.79	0.07	0.95	-0.04	1.00	0.096	45.75
26.410	6951.02	59.2	2.031	59.2	-0.5	-0.23	3.43%	General Fill	0.057	113.8	1.51	0.000	1.51	0	0.67	39.862	3.82	48.81	38	3.52%	2.6	48%	1.76	0.000	1.76	0	0	0.79	0.07	0.95	-0.07	1.00	0.096	47.43
26.574	6950.86	60.6	1.994	60.6	-0.1	-0.06	3.29%	General Fill	0.057	113.8	1.52	0.000	1.52	0	0.67	40.745	3.90	49.89	39	3.37%	2.6	48%	1.77	0.000	1.77	0	0	0.79	0.07	0.95	-0.08	1.00	0.096	47.81
26.739	6950.69	64.6	2.277	64.6	-0.3	-0.12	3.53%	General Fill	0.057	113.8	1.53	0.000	1.53	0	0.67	43.579	4.17	53.36	41	3.61%	2.6	48%	1.78	0.000	1.78	0	0	0.78	0.07	0.94	-0.11	1.00	0.096	49.03
26.903	6950.53	68.4	2.223	68.5	-0.4	-0.16	3.25%	General Fill	0.057	113.8	1.54	0.000	1.54	0	0.68	46.365	4.44	56.77	43	3.32%	2.5	48%	1.79	0.000	1.79	0	0	0.78	0.08	0.94	-0.13	1.00	0.096	50.23
27.067	6950.36	64.6	2.093	64.6	0.1	0.04	3.24%	General Fill	0.057	113.8	1.55	0.000	1.55	0	0.67	43.250	4.14	52.96	41	3.32%	2.5	48%	1.80	0.000	1.80	0	0	0.78	0.07	0.94	-0.10	1.00	0.096	48.89
27.231	6950.20	67.9	2.017	67.9	-0.1	-0.02	2.97%	General Fill	0.057	113.8	1.56	0.000	1.56	0	0.67	45.585	4.37	55.82	43	3.04%	2.5	48%	1.81	0.000	1.81	0	0	0.78	0.07	0.94	-0.12	1.00	0.096	49.89
27.395	6950.04	71.5	1.948	71.5	0.1	0.04	2.72%	General Fill	0.057	113.8	1.57	0.000	1.57	0	0.67	48.129	4.61	58.93	45	2.79%	2.5	48%	1.82	0.000	1.82	0	0	0.78	0.08	0.94	-0.14	1.00	0.096	50.99
27.559	6949.87	71.8	2.207	71.8	-0.2	-0.08	3.07%	General Fill	0.057	113.8	1.58	0.000	1.58	0	0.67	48.176	4.61	58.99	45	3.14%	2.5	48%	1.83	0.000	1.83	0	0	0.78	0.08	0.94	-0.14	1.00	0.096	51.01
27.723	6949.71	81.8	2.242	81.8	0.3	0.14	2.74%	General Fill	0.057	113.8	1.59	0.000	1.59	0	0.68	55.744	5.34	68.26	51	2.79%	2.4	48%	1.83	0.000	1.83	0	0	0.78	0.08	0.93	-0.20	1.00	0.096	54.26
27.887	6949.54	102.4	2.701	102.4	1.2	0.51	2.64%	General Fill	0.057	113.8	1.60	0.000	1.60	0	0.70	71.998	6.90	88.17	63	2.68%	2.3	48%	1.84	0.000	1.84	0	0	0.77	0.10	0.92	-0.30	1.00	0.097	61.24
28.051	6949.38	105.0	3.171	105.0	0.8	0.35	3.02%	General Fill	0.057	113.8	1.60	0.000	1.60	0	0.70	73.893	7.08	90.49	64	3.07%	2.4	48%	1.85	0.000	1.85	0	0	0.77	0.10	0.92	-0.31	1.00	0.097	62.06
28.215	6949.22	93.3	3.179	93.3	1.5	0.63	3.41%	General Fill	0.057	113.8	1.61	0.000	1.61	0	0.69	64.160	6.15	78.57	57	3.47%	2.5	48%	1.86	0.000	1.86	0	0	0.77	0.09	0.93	-0.25	1.00	0.096	57.88
28.379	6949.05	93.5	3.284	93.4	3.7	1.59	3.51%	General Fill	0.057	113.8	1.62	0.000	1.62	0	0.69	64.028	6.13	78.42	57	3.58%	2.5	48%	1.87	0.000	1.87	0	0	0.77	0.09	0.93	-0.25	1.00	0.096	57.82
28.543	6948.89	99.1	3.151	99.1	2.4	1.04	3.18%	General Fill	0.057	113.8	1.63	0.000	1.63	0	0.69	68.343	6.55	83.70	60	3.23%	2.4	48%	1.88	0.000	1.88	0	0	0.77	0.09	0.92	-0.28	1.00	0.096	59.68
28.707	6948.72	90.4	2.720	90.4	2.6	1.12	3.01%	General Fill	0.057	113.8	1.64	0.000	1.64	0	0.68	61.133	5.86	74.87	54	3.06%	2.4	48%	1.89	0.000	1.89	0	0	0.77	0.09	0.93	-0.23	1.00	0.096	56.58
28.871	6948.56	76.4	2.454	76.4	1.6	0.67	3.21%	General Fill	0.057	113.8	1.65	0.000	1.65	0	0.66	50.102	4.80	61.36	45	3.28%	2.5	48%	1.90	0.000	1.90	0	0	0.77	0.08	0.93	-0.15	1.00	0.095	51.84
29.035	6948.39	71.0	2.498	70.9	2.7	1.18	3.52%	General Fill	0.057	113.8	1.66	0.000	1.66	0	0.65	45.786	4.39	56.08	42	3.60%	2.6	48%	1.91	0.000	1.91	0	0	0.77	0.07	0.94	-0.12	1.00	0.094	49.99
29.199	6948.23	72.3	2.818	72.3	3.4	1.49	3.90%	General Fill	0.057	113.8	1.67	0.000	1.67	0	0.64	46.602	4.46	57.08	42	3.99%	2.6	48%	1.92	0.000	1.92	0	0	0.76	0.08	0.94	-0.13	1.00	0.094	50.34
29.363	6948.07	70.5	3.251	70.5	3.1	1.34	4.61%	General Fill	0.057	113.8	1.68	0.000	1.68	0	0.64	45.088	4.32	55.23	41	4.72%	2.7	48%	1.93	0.000	1.93	0	0	0.76	0.07	0.94	-0.12	1.00	0.094	49.69
29.527	6947.90	69.6	3.140	69.6	3.3	1.42	4.51%	General Fill	0.057	113.8	1.69	0.000	1.69	0	0.64	44.252	4.24	54.20	40	4.62%	2.7	48%	1.94	0.000	1.94	0	0	0.76	0.07	0.94	-0.11	1.00	0.094	49.33
29.691	6947.74	63.5	2.815	63.5	3.0	1.30	4.43%	General Fill	0.057	113.8	1.70	0.000	1.70	0	0.62	39.622	3.80	48.53	36	4.55%	2.7	48%	1.95	0.000	1.95	0	0	0.76	0.07	0.94	-0.07	1.00	0.094	47.34
29.855	6947.57	52.6	2.351	52.6	1.7	0.73	4.47%	General Fill	0.057	113.8	1.71	0.000	1.71	0	0.60	31.768	3.04	38.91	30	4.62%	2.7	48%	1.96	0.000	1.96	0	0	0.76	0.06	0.94	0.01	1.00	0.093	43.96
30.019	6947.41	47.7	2.008	47.7	1.2	0.53	4.21%	General Fill	0.057	113.8	1.72	0.000	1.72	0	0.59	28.282	2.71	34.64	27	4.37%	2.8	48%	1.97	0.000	1.97	0	0	0.76	0.06	0.95	0.05	1.00	0.093	42.46
30.183	6947.25	37.1	1.824	37.1	-0.3	-0.12	4.92%	General Fill	0.057	113.8	1.73	0.000	1.73	0	0.57	21.169	2.03	25.92	20	5.16%	2.9	48%	1.97	0.000	1.97	0	0	0.76	0.06	0.95	0.10	1.00	0.092	39.40
30.347	6947.08	42.0	1.881	42.0	-0.2	-0.08	4.48%	General Fill	0.057	113.8	1.74	0.000	1.74	0	0.58	24.258	2.32	29.70	23	4.67%	2.8	48%	1.98	0.000	1.98	0	0	0.75	0.06	0.95	0.09	1.00	0.092	40.73
30.511	6946.92	42.1	1.882	42.1	-0.2	-0.10	4.47%	General Fill	0.057	113.8	1.74	0.000	1.74	0	0.58	24.236	2.32	29.68	23	4.66%	2.8	48%	1.99	0.000	1.99	0	0	0.75	0.06	0.95	0.09	1.00	0.092	40.72
30.675	6946.75	42.4	2.072	42.4	0.1	0.06	4.89%	General Fill	0.057	113.8	1.75	0.000	1.75	0	0.57	24.299	2.33	29.75	23	5.10%	2.9	48%	2.00	0.000	2.00	0	0	0.75	0.06	0.95	0.09	1.00	0.092	40.75
30.840	6946.59	38.2	2.014	38.2	-0.1	-0.04	5.27%	General Fill	0.057	113.8	1.76	0.000	1.76	0	0.56	21.513	2.06	26.34	21	5.52%	2.9	48%	2.01	0.000	2.01	0	0	0.75	0.06	0.95	0.10	1.00	0.091	39.55
31.004	6946.43	31.1	1.839	31.1	-0.4	-0.16	5.91%	General Fill	0.057	113.8	1.77	0.000	1.77	0	0.55	16.970	1.63	20.78	17	6.27%	3.0	48%	2.02	0.000	2.02	0	0	0.75	0.05	0.95	0.10	1.00	0.091	37.60
31.168	6946.26	27.2	1.562	27.2	-0.7	-0.30	5.74%	General Fill	0.057	113.8	1.78	0.000	1.78	0	0.54	14.792	1.42	18.11	14	6.14%	3.1	48%	2.03	0.000	2.03	0	0	0.75	0.05	0.95	0.10	1.00	0.091	36.67
31.332	6946.10	23.8	1.225	23.8	-0.3	-0.14	5.14%	General Fill	0.057	113.8	1.79	0.000	1.79	0	0.54	12.903	1.24	15.80	12	5.56%	3.1	48%	2.04	0.000	2.04	0	0	0.75	0.05	0.95	0.10	1.00	0.090	35.85
31.496	6945.93	19.6	1.043	19.6	0.8	0.33	5.31%	General Fill	0.057	113.8	1.80	0.000	1.80	0	0.54	10.581	1.01	12.96	10	5.85%	3.2	48%	2.05	0.000	2.05	0	0	0.74	0.05	0.96	0.10	1.00	0.090	34.86
31.660	6945.77	20.9	0.989	20.9	1.0	0.43	4.73%	General Fill	0.057	113.8	1.81	0.000	1.81	0	0.54	11.226	1.08	13.75	11	5.18%	3.1	48%	2.06	0.000	2.06	0	0	0.74	0.05	0.96	0.10	1.00	0.090	35.14
31.824	6945.61	22.7	0.955	22.7	1.8	0.77	4.21%	General Fill	0.057	113.8	1.82	0.000	1.82	0	0.53	12.132	1.16	14.86	11	4.57%	3.1	48%	2.07	0.000	2.07	0	0	0.74	0.05	0.95	0.10	1.00	0.090	35.53
31.988	6945.44	34.2	1.725	34.2	2.8	1.20	5.04%	General Fill	0.057	113.8	1.83	0.000	1.83	0	0.54	18.383	1.76	22.52	18	5.32%	3.0	48%	2.08	0.000	2.08	0	0	0.74	0.05	0.95	0.10	1.00	0.090	38.21
32.152	6945.28	167.5	3.581	167.5	7.1	3.09	2.14%	General Fill	0.057	113.8	1.84	0.000	1.84	0	0.72	120.355	11.53	147.42	90	2.16%	2.2	48%	2.09	0.000	2.09	0	0	0.74	0.16	0.85	-0.52	1.00	0.100	82.03
32.316	6945.11	321.8	6.023	321.8	6.2	2.70	1.87%	General Fill	0.057	113.8	1.85	0.000	1.85	0	0.81	259.425	24.85	317.71	173	1.88%	1.9	48%	2.10	0.000	2.10	0	0	0.74	0.30	0.72	-0.60	1.00	0.119	141.77
32.480	6944.95	380.3	7.789	380.2	9.9	4.29	2.05%	General Fill	0.057	113.8	1.86	0.000	1.86	0	0.81	306.137	29.32	374.93	204	2.06%	1.9	48%	2.11	0.000	2.11	0	0	0.74	0.30	0.72	-0.60	1.00	0.119	161.85
32.644	6944.79	371.5	7.460	371.5	11.0	4.78	2.01%	General Fill	0.057	113.8	1.87	0.000	1.87	0	0.80	298.712	28.61	365.84	198	2.02%	1.9	48%	2.11	0.000	2.11	0	0	0.73	0.30	0.71	-0.60	1.00	0.119	158.66

575.51	1.000	N/A	0.95	1.16	0.60	0.88	1.00	0.133	1.03	415.99	1.000	N/A	N/A	N/A	0.98	329.60	31.56	403.60	15.256		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
595.24	1.000	N/A	0.95	1.18	0.60	0.88	1.00	0.133	1.08	450.05	1.000	N/A	N/A	N/A	0.98	341.53	32.70	418.21	15.420		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
571.44	1.000	N/A	0.95	1.16	0.60	0.87	1.00	0.134	1.14	457.29	1.000	N/A	N/A	N/A	0.98	327.14	31.32	400.59	15.584		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
535.16	1.000	N/A	0.95	1.12	0.60	0.87	1.00	0.134	1.20	450.25	1.000	N/A	N/A	N/A	0.97	305.21	29.22	373.73	15.748		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
485.27	1.000	N/A	0.95	1.06	0.60	0.87	1.00	0.134	1.23	412.79	1.000	N/A	N/A	N/A	0.97	275.05	26.33	336.80	15.912		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
421.29	1.000	N/A	0.95	0.98	0.60	0.87	1.00	0.135	1.22	354.11	1.000	N/A	N/A	N/A	0.97	236.37	22.63	289.43	16.076		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
412.63	1.000	N/A	0.95	0.97	0.60	0.86	1.00	0.135	1.18	335.03	1.000	N/A	N/A	N/A	0.97	231.13	22.13	283.02	16.240		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
463.71	1.000	N/A	0.95	1.03	0.60	0.86	1.00	0.135	1.15	370.48	1.000	N/A	N/A	N/A	0.96	262.02	25.09	320.84	16.404		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
357.51	1.000	N/A	0.95	0.90	0.60	0.86	1.00	0.136	1.31	317.86	1.000	N/A	N/A	N/A	0.96	197.81	18.94	242.22	16.568		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
230.95	1.000	N/A	0.95	0.70	0.65	0.87	1.00	0.134	1.85	274.77	1.000	N/A	N/A	N/A	0.94	121.30	11.61	148.53	16.732		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
198.16	1.000	N/A	0.95	0.64	0.68	0.88	1.00	0.132	1.28	159.33	0.456	N/A	N/A	N/A	0.93	101.48	9.72	124.26	16.896		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
138.04	0.226	N/A	0.95	0.52	0.74	0.90	1.00	0.129	1.64	130.62	0.287	N/A	N/A	N/A	0.91	65.13	6.24	79.75	17.060		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
117.56	0.174	N/A	0.95	0.46	0.77	0.91	1.00	0.128	1.85	119.31	0.238	N/A	N/A	N/A	0.89	52.75	5.05	64.59	17.224		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
125.38	0.192	N/A	0.95	0.48	0.76	0.90	1.00	0.129	1.94	136.54	0.317	N/A	N/A	N/A	0.89	57.47	5.50	70.38	17.388		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
161.33	0.335	N/A	0.95	0.57	0.72	0.88	1.00	0.131	1.67	161.69	1.000	N/A	N/A	N/A	0.90	79.21	7.58	96.99	17.552		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
179.36	0.525	N/A	0.95	0.61	0.70	0.88	1.00	0.133	1.84	203.02	1.000	N/A	N/A	N/A	0.90	90.11	8.63	110.34	17.716		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
189.56	0.739	N/A	0.95	0.63	0.69	0.87	1.00	0.133	1.88	221.99	1.000	N/A	N/A	N/A	0.90	96.28	9.22	117.89	17.880		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
189.57	0.739	N/A	0.95	0.63	0.69	0.87	1.00	0.134	1.83	215.57	1.000	N/A	N/A	N/A	0.90	96.28	9.22	117.89	18.044		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
192.49	0.826	N/A	0.95	0.63	0.68	0.86	1.00	0.134	1.73	207.32	1.000	N/A	N/A	N/A	0.89	98.05	9.39	120.06	18.208		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
171.21	0.420	N/A	0.95	0.59	0.71	0.87	1.00	0.133	1.72	179.39	1.000	N/A	N/A	N/A	0.88	85.18	8.16	104.31	18.372		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
133.62	0.213	N/A	0.95	0.50	0.75	0.89	1.00	0.131	1.99	152.42	0.409	N/A	N/A	N/A	0.86	62.46	5.98	76.48	18.537		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
98.40	0.140	N/A	0.95	0.41	0.80	0.91	1.00	0.128	2.31	116.42	0.227	N/A	N/A	N/A	0.84	41.16	3.94	50.40	18.701		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
86.27	0.121	N/A	0.95	0.37	0.80	0.91	1.00	0.128	2.19	90.67	0.149	N/A	N/A	N/A	0.83	33.83	3.24	41.42	18.865		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.06	0.101	N/A	0.95	0.32	0.80	0.91	1.00	0.128	3.03	91.54	0.151	N/A	N/A	N/A	0.81	24.64	2.36	30.17	19.029		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.97	0.096	N/A	0.95	0.30	0.80	0.90	1.00	0.128	3.49	94.60	0.159	N/A	N/A	N/A	0.80	22.16	2.12	27.14	19.193		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.61	0.091	N/A	0.94	0.28	0.80	0.90	1.00	0.128	4.14	98.89	0.170	N/A	N/A	N/A	0.79	19.52	1.87	23.91	19.357		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.19	0.094	N/A	0.94	0.29	0.80	0.90	1.00	0.128	3.73	96.20	0.163	N/A	N/A	N/A	0.79	21.08	2.02	25.82	19.521		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.22	0.086	N/A	0.94	0.26	0.80	0.90	1.00	0.128	4.48	92.49	0.154	N/A	N/A	N/A	0.78	16.87	1.62	20.66	19.685		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.04	0.086	N/A	0.94	0.26	0.80	0.90	1.00	0.128	4.63	94.98	0.160	N/A	N/A	N/A	0.77	16.77	1.61	20.53	19.849		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.35	0.090	N/A	0.94	0.28	0.80	0.90	1.00	0.128	4.77	113.06	0.214	N/A	N/A	N/A	0.77	19.37	1.85	23.72	20.013		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.98	0.114	N/A	0.94	0.35	0.80	0.90	1.00	0.129	3.31	124.28	0.259	N/A	N/A	N/A	0.79	30.63	2.93	37.51	20.177		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.81	0.112	N/A	0.94	0.35	0.80	0.90	1.00	0.129	3.44	126.12	0.267	N/A	N/A	N/A	0.78	29.93	2.87	36.65	20.341		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.41	0.100	N/A	0.94	0.31	0.80	0.89	1.00	0.129	3.83	113.58	0.216	N/A	N/A	N/A	0.77	24.24	2.32	29.69	20.505		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.62	0.097	N/A	0.94	0.30	0.80	0.89	1.00	0.129	3.59	99.10	0.171	N/A	N/A	N/A	0.76	22.55	2.16	27.62	20.669		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.36	0.094	N/A	0.94	0.29	0.80	0.89	1.00	0.129	3.36	87.23	0.142	N/A	N/A	N/A	0.75	21.19	2.03	25.95	20.833		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.22	0.088	N/A	0.94	0.27	0.80	0.89	1.00	0.129	3.64	80.68	0.129	N/A	N/A	N/A	0.74	18.08	1.73	22.14	20.997	17	0.95	15	11	0.53	0.51	0.75	5.6	16.7	0.17	N/A	5.00	1.20	18.29	0.195	N/A	N/A
58.55	0.086	N/A	0.94	0.26	0.80	0.89	1.00	0.129	3.59	75.06	0.119	N/A	N/A	N/A	0.73	17.07	1.63	20.91	21.161		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.09	0.088	N/A	0.94	0.27	0.80	0.89	1.00	0.129	3.14	69.24	0.111	N/A	N/A	N/A	0.73	18.00	1.72	22.04	21.325		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.40	0.083	N/A	0.94	0.25	0.80	0.89	1.00	0.129	4.00	74.23	0.118	N/A	N/A	N/A	0.73	15.17	1.45	18.57	21.489		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.58	0.080	N/A	0.94	0.23	0.80	0.89	1.00	0.130	4.80	79.14	0.126	N/A	N/A	N/A	0.72	13.47	1.29	16.49	21.653		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.65	0.082	N/A	0.94	0.25	0.80	0.89	1.00	0.130	5.11	92.10	0.153	N/A	N/A	N/A	0.72	14.71	1.41	18.02	21.817		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.16	0.097	N/A	0.94	0.31	0.80	0.88	1.00	0.130	4.21	117.96	0.233	N/A	N/A	N/A	0.73	22.88	2.19	28.02	21.981		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
105.47	0.152	N/A	0.94	0.43	0.78	0.88	1.00	0.131	2.50	138.91	0.329	N/A	N/A	N/A	0.76	45.44	4.35	55.64	22.145		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
116.55	0.172	N/A	0.94	0.46	0.77	0.87	1.00	0.133	2.00	127.49	0.273	N/A	N/A	N/A	0.77	52.14	4.99	63.84	22.309		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
125.76	0.192	N/A	0.94	0.49	0.76	0.86	1.00	0.134	1.83	129.04	0.280	N/A	N/A	N/A	0.77	57.70	5.52	70.66	22.473		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
155.10	0.297	N/A	0.94	0.55	0.72	0.84	1.00	0.137	1.62	149.54	0.391	N/A	N/A	N/A	0.79	75.44	7.22	92.38	22.638		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
163.48	0.351	N/A	0.94	0.57	0.71	0.83	1.00	0.138	1.69	166.58	1.000	N/A	N/A	N/A	0.79	80.51	7.71	98.58	22.802		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
179.78	0.532	N/A	0.94	0.61	0.70	0.82	1.00	0.140	1.81	200.77	1.000	N/A	N/A	N/A	0.80	90.37	8.65	110.65	22.966		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
215.69	1.000	N/A	0.94	0.68	0.66	0.80	1.00	0.143	1.66	228.21	1.000	N/A	N/A	N/A	0.81	112.07	10.73	137.23	23.130		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
225.79	1.000	N/A	0.94	0.69	0.65	0.79	1.00	0.144	1.70	246.00	1.000	N/A	N/A	N/A	0.82	118.18	11.31	144.71	23.294		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
216.10	1.000	N/A	0.94	0.68	0.66	0.80	1.00	0.143	1.80	247.55	1.000	N/A	N/A	N/A	0.81	112.32	10.75	137.54	23.458		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
197.79	1.000	N/A	0.93	0.64	0.68	0.81	1.00	0.142	2.00	247.61	1.000	N/A	N/A	N/A	0.80	101.25	9.69	123.98	23.622		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
165.99	0.371	N/A	0.93	0.58	0.71	0.82	1.00	0.139	2.14	215.26	1.000	N/A	N/A	N/A	0.78	82.02	7.85	100.44	23.786		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
164.27	0.357	N/A	0.93	0.57	0.71	0.82	1.00	0.139	2.07	205.07	1.000	N/A	N/A	N/A	0.77	80.99	7.75	99.17	23.950		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
156.63	0.305	N/A	0.93	0.56	0.72	0.82	1.00	0.139	2.05	191.79	1.000	N/A	N/A	N/A	0.76	76.37	7.31	93.51	24.114		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
125.35	0.192	N/A	0.93	0.48	0.76	0.84	1.00	0.135	2.71	190.93	1.000	N/A	N/A	N/A	0.74	57.46	5.50	70.36	24.278		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
110.68	0.161	N/A	0.93	0.45	0.78	0.86	1.00	0.133	3.18	189.04	1.000	N/A	N/A	N/A	0.72	48.59	4.65	59.50	24.442		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
99.25	0.141	N/A	0.93	0.41	0.79	0.86	1.00	0.132	3.64	185.70	1.000	N/A	N/A	N/A	0.71	41.68	3.99	51.03	24.606		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
86.60	0.122	N/A	0.93	0.37	0.80	0.87	1.00	0.132	4.12	171.48	1.000	N/A	N/A	N/A	0.69	34.03	3.26	41.67	24.770		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
89.71	0.126	N/A	0.93	0.38	0.80	0.87	1.00	0.132	3.32	146.01	0.369	N/A	N/A	N/A	0.69	35.91	3.44	43.98	24.934		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.19	0.114	N/A	0.93	0.35	0.80	0.87	1.00	0.132	3.52	132.53	0.296	N/A	N/A	N/A	0.68	30.76	2.95	37.67	25.098		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.90	0.103	N/A	0.93	0.32	0.80	0.86	1.00	0.132	4.00	126.18	0.267	N/A	N/A	N/A	0.66	25.75	2.47	31.53	25.262		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.53	0.102	N/A	0.93	0.32	0.80	0.86	1.00	0.132	4.21	128.60	0.278	N/A	N/A	N/A	0.66	24.92	2.39	30.51	25.426		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.00	0.102	N/A	0.93	0.32	0.80	0.86	1.00	0.132	4.62	142.71	0.350	N/A	N/A	N/A	0.66	25.20	2.41	30.86	25.590		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.22	0.116	N/A	0.93	0.36	0.80	0.86	1.00	0.132	3.89	149.38	0.390	N/A	N/A	N/A	0.67	31.38	3.00	38.43	25.754		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.64	0.119	N/A	0.93	0.37	0.80	0.86	1.00	0.132	3.74	150.38	0.396	N/A	N/A	N/A	0.67	32.84	3.14	40.22	25.918		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
86.25	0.121	N/A	0.93	0.37	0.80	0.86	1.00	0.132	3.48	144.26	0.359	N/A	N/A	N/A	0.67	33.82	3.24	41.41	26.082	21	0.95	18	13	0.56	0.49	0.69	5.6	18.3	0.19	N/A	5.00	1.20	20.19	0.218	N/A	N/A
89.77	0.127	N/A	0.93	0.38	0.80	0.86	1.00	0.132	3.45	151.66	0.404	N/A	N/A	N/A	0.67	35.94	3.44	44.01	26.246		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
96.24	0.136	N/A	0.92	0.40	0.80	0.86	1.00	0.132	3.24	158.15	0.448	N/A	N/A	N/A	0.67	39.86	3.82	48.81	26.410		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
97.71	0.139	N/A	0.92	0.41	0.80	0.85	1.00	0.132	3.13	156.35	0.435	N/A	N/A	N/A	0.67	40.74	3.90	49.89	26.574		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
102.39	0.147	N/A	0.92	0.42	0.79	0.85	1.00	0.133	3.14	167.77	1.000	N/A	N/A	N/A	0.67	43.58	4.17	53.36	26.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
107.00	0.154	N/A	0.92	0.44	0.78	0.84	1.00	0.133	2.91	165.27	1.000	N/A	N/A	N/A	0.68	46.36	4.44	56.77	26.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
101.85	0.146	N/A	0.92	0.42	0.79	0.85	1.00	0.133	3.02	159.97	0.461	N/A	N/A	N/A	0.67	43.25	4.14	52.96	27.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
105.71	0.152	N/A	0.92	0.43	0.78	0.84	1.00	0.133	2.81	156.59	0.437	N/A	N/A	N/A	0.67	45.58	4.36	55.82	27.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
109.92	0.160	N/A	0.92	0.44	0.78	0.84	1.00	0.134	2.61	153.60	0.417	N/A	N/A	N/A	0.67	48.13	4.61	58.93	27.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
110.00	0.160	N/A	0.91	0.44	0.78	0.84	1.00	0.134	2.78	164.18	1.000	N/A	N/A	N/A	0.67	48.17	4.61	58.99	27.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
122.52	0.185	N/A	0.91	0.48	0.76	0.82	1.00	0.136	2.43	165.82	1.000	N/A	N/A	N/A	0.68	55.75	5.34	68.26	27.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
149.41	0.269	N/A	0.91	0.54	0.73	0.80	1.00	0.139	2.11	185.60	1.000	N/A	N/A	N/A	0.70	72.00	6.89	88.17	27.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
152.54	0.283	N/A	0.91	0.55	0.73	0.80	1.00	0.140	2.24	202.54	1.000	N/A	N/A	N/A	0.70	73.90	7.07	90.49	28.051		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
136.45	0.221	N/A	0.91	0.51	0.74	0.81	1.00	0.137	2.56	201.40	1.000	N/A	N/A	N/A	0.69	64.17	6.14	78.57	28.215		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
136.25	0.220	N/A	0.91	0.51	0.74	0.81	1.00	0.137	2.61	205.04	1.000	N/A	N/A	N/A	0.69	64.04	6.13	78.42	28.379		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
143.37	0.244	N/A	0.91	0.53	0.74	0.80	1.00	0.138	2.40	200.81	1.000	N/A	N/A	N/A	0.69	68.35	6.54	83.70	28.543		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
131.45	0.207	N/A	0.91	0.50	0.75	0.81	1.00	0.137	2.46	184.26	1.000	N/A	N/A	N/A	0.68	61.14	5.85	74.87	28.707		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
113.20	0.166	N/A	0.90	0.45	0.77	0.83	1.00	0.134	2.82	173.28	1.000	N/A	N/A	N/A	0.66	50.11	4.80	61.36	28.871		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
106.06	0.153	N/A	0.90	0.43	0.78	0.83	1.00	0.133	3.12	174.83	1.000	N/A	N/A	N/A	0.65	45.80	4.38	56.08	29.035		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
107.42	0.155	N/A	0.90	0.44	0.78	0.83	1.00	0.133	3.27	186.87	1.000	N/A	N/A	N/A	0.64	46.62	4.46	57.08	29.199		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
104.91	0.151	N/A	0.90	0.43	0.79	0.83	1.00	0.132	3.67	202.46	1.000	N/A	N/A	N/A	0.64	45.10	4.32	55.23	29.363		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
103.53	0.148	N/A	0.90	0.43	0.79	0.83	1.00	0.132	3.66	198.35	1.000	N/A	N/A	N/A	0.64	44.26	4.24	54.20	29.527		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
95.87	0.136	N/A	0.90	0.40	0.80	0.84	1.00	0.131	3.84	186.36	1.000	N/A	N/A	N/A	0.62	39.63	3.79	48.53	29.691		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.87	0.117	N/A	0.90	0.36	0.80	0.84	1.00	0.131	4.34	168.67	1.000	N/A	N/A	N/A	0.60	31.77	3.04	38.91	29.855		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.10	0.109	N/A	0.89	0.34	0.80	0.84	1.00	0.130	4.47	154.95	0.426	N/A	N/A	N/A	0.59	28.29	2.71	34.64	30.019		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.32	0.094	N/A	0.89	0.29	0.80	0.84	1.00	0.130	5.67	146.92	0.375	N/A	N/A	N/A	0.57	21.17	2.03	25.92	30.183		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.44	0.100	N/A	0.89	0.31	0.80	0.84	1.00	0.130	5.03	149.37	0.390	N/A	N/A	N/A	0.58	24.26	2.32	29.70	30.347		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.40	0.100	N/A	0.89	0.31	0.80	0.84	1.00	0.130	5.03	149.25	0.389	N/A	N/A	N/A	0.58	24.23	2.32	29.68	30.511		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.50	0.100	N/A	0.89	0.31	0.80	0.84	1.00	0.130	5.26	156.61	0.437	N/A	N/A	N/A	0.57	24.30	2.33	29.75	30.675		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.90	0.095	N/A	0.89	0.30	0.80	0.83	1.00	0.130	5.83	153.71	0.418	N/A	N/A	N/A	0.56	21.51	2.06	26.34	30.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.38	0.086	N/A	0.89	0.26	0.80	0.83	1.00	0.130	7.00	145.51	0.367	N/A	N/A	N/A	0.55	16.97	1.62	20.78	31.004		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.78	0.082	N/A	0.89	0.25	0.80	0.83	1.00	0.130	7.50	135.77	0.313	N/A	N/A	N/A	0.54	14.79	1.42	18.11	31.168		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.65	0.079	N/A	0.88	0.23	0.80	0.83	1.00	0.130	7.75	122.48	0.251	N/A	N/A	N/A	0.54	12.90	1.24	15.80	31.332		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.82	0.075	N/A	0.88	0.21	0.80	0.83	1.00	0.130	8.88	115.10	0.222	N/A	N/A	N/A	0.54	10.58	1.01	12.96	31.496		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.89	0.076	N/A	0.88	0.21	0.80	0.83	1.00	0.130	8.16	112.21	0.211	N/A	N/A	N/A	0.54	11.23	1.08	13.75	31.660		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.39	0.078	N/A	0.88	0.22	0.80	0.83	1.00	0.130	7.40	109.96	0.204	N/A	N/A	N/A	0.53	12.14	1.16	14.86	31.824		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.73	0.089	N/A	0.88	0.27	0.80	0.83	1.00	0.130	6.24	140.46	0.338	N/A	N/A	N/A	0.54	18.39	1.76	22.52	31.988		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
229.44	1.000	N/A	0.88	0.70	0.65	0.72	1.00	0.149	1.60	235.57	1.000	N/A	N/A	N/A	0.72	120.39	11.53	147.42	32.152		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
459.48	1.000	N/A	0.88	1.03	0.60	0.69	1.00	0.156	1.23	389.32	1.000	N/A	N/A	N/A	0.81	259.46	24.84	317.71	32.316		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
536.78	1.000	N/A	0.87	1.12	0.60	0.68	1.00	0.156	1.21	454.25	1.000	N/A	N/A	N/A	0.81	306.19	29.31	374.93	32.480		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
524.50	1.000	N/A	0.87	1.10	0.60	0.68	1.00	0.156	1.21	443.48	1.000	N/A	N/A	N/A	0.80	298.77	28.60	365.84	32.644		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

32.808	6944.62	321.0	6.963	320.9	9.8	4.25	2.17%	General Fill	0.057	113.8	1.88	0.000	1.88	0	0.80	257.730	24.69	315.65	170	2.18%	2.0	48%	2.12	0.000	2.12	0	0	0.73	0.30	0.71	-0.60	1.00	0.119	141.05	456.71	1.000	N/A	0.87	1.03	0.60	0.68	1.00	0.156	1.29	406.82	1.000	N/A	N/A	N/A	0.80	257.78	24.68	315.65	32.808		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.972	6944.46	254.9	5.341	254.9	7.6	3.28	2.10%	General Fill	0.057	113.8	1.88	0.000	1.88	0	0.80	203.526	19.49	249.27	134	2.11%	2.0	48%	2.13	0.000	2.13	0	0	0.73	0.30	0.71	-0.60	1.00	0.119	117.76	367.03	1.000	N/A	0.87	0.91	0.60	0.68	1.00	0.156	1.36	340.22	1.000	N/A	N/A	N/A	0.80	203.56	19.49	249.27	32.972		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.136	6944.29	162.1	3.841	162.1	7.2	3.13	2.37%	General Fill	0.057	113.8	1.89	0.000	1.89	0	0.70	113.714	10.89	139.28	85	2.40%	2.2	48%	2.14	0.000	2.14	0	0	0.73	0.15	0.86	-0.49	1.00	0.098	79.18	218.46	1.000	N/A	0.87	0.68	0.66	0.72	1.00	0.148	1.72	240.00	1.000	N/A	N/A	N/A	0.70	113.75	10.89	139.28	33.136		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.300	6944.13	118.1	2.119	118.1	5.1	2.22	1.79%	General Fill	0.057	113.8	1.90	0.000	1.90	0	0.65	76.575	7.33	93.79	61	1.82%	2.2	48%	2.15	0.000	2.15	0	0	0.73	0.10	0.90	-0.32	1.00	0.093	63.22	157.01	0.308	N/A	0.87	0.56	0.72	0.76	1.00	0.139	1.78	166.71	1.000	N/A	N/A	N/A	0.65	76.60	7.33	93.79	33.300		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.464	6943.97	95.9	1.236	95.9	2.8	1.20	1.29%	General Fill	0.057	113.8	1.91	0.000	1.91	0	0.62	59.196	5.67	72.50	49	1.32%	2.2	48%	2.16	0.000	2.16	0	0	0.73	0.09	0.92	-0.21	1.00	0.092	55.75	128.25	0.199	N/A	0.87	0.49	0.75	0.79	1.00	0.135	1.73	125.69	0.265	N/A	N/A	N/A	0.62	59.21	5.67	72.50	33.464		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.628	6943.80	88.4	0.623	88.4	2.4	1.04	0.70%	General Fill	0.057	113.8	1.92	0.000	1.92	0	0.61	53.500	5.12	65.52	45	0.72%	2.1	48%	2.17	0.000	2.17	0	0	0.73	0.08	0.92	-0.17	1.00	0.091	53.30	118.82	0.177	N/A	0.87	0.47	0.77	0.80	1.00	0.133	1.48	96.80	0.164	N/A	N/A	N/A	0.61	53.51	5.12	65.52	33.628		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.792	6943.64	88.6	1.921	88.6	2.0	0.85	2.17%	General Fill	0.057	113.8	1.93	0.000	1.93	0	0.60	53.455	5.12	65.47	45	2.22%	2.4	48%	2.18	0.000	2.18	0	0	0.73	0.08	0.92	-0.17	1.00	0.091	53.28	118.74	0.177	N/A	0.86	0.47	0.77	0.80	1.00	0.133	2.31	151.16	0.401	N/A	N/A	N/A	0.60	53.46	5.12	65.47	33.792		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.956	6943.47	51.6	2.126	51.6	0.2	0.08	4.12%	General Fill	0.057	113.8	1.94	0.000	1.94	0	0.54	28.062	2.69	34.36	26	4.28%	2.8	48%	2.19	0.000	2.19	0	0	0.72	0.06	0.94	0.05	1.00	0.089	42.37	76.73	0.108	N/A	0.86	0.34	0.80	0.82	1.00	0.129	4.54	156.06	0.433	N/A	N/A	N/A	0.54	28.06	2.69	34.36	33.956		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.120	6943.31	55.2	2.273	55.2	1.8	0.79	4.12%	General Fill	0.057	113.8	1.95	0.000	1.95	0	0.55	30.230	2.90	37.03	27	4.27%	2.7	48%	2.20	0.000	2.20	0	0	0.72	0.06	0.94	0.03	1.00	0.089	43.30	80.33	0.113	N/A	0.86	0.35	0.80	0.82	1.00	0.128	4.37	161.77	1.000	N/A	N/A	N/A	0.55	30.24	2.89	37.03	34.120		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.284	6943.15	65.5	1.245	65.5	2.5	1.10	1.90%	General Fill	0.057	113.8	1.96	0.000	1.96	0	0.56	36.869	3.53	45.16	32	1.96%	2.5	48%	2.21	0.000	2.21	0	0	0.72	0.07	0.93	-0.04	1.00	0.089	46.15	91.31	0.129	N/A	0.86	0.39	0.80	0.82	1.00	0.128	2.64	119.31	0.238	N/A	N/A	N/A	0.56	36.88	3.53	45.16	34.284		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.448	6942.98	74.8	1.921	74.8	2.9	1.26	2.57%	General Fill	0.057	113.8	1.97	0.000	1.97	0	0.58	42.989	4.12	52.65	37	2.64%	2.5	48%	2.22	0.000	2.22	0	0	0.72	0.07	0.93	-0.09	1.00	0.090	48.78	101.44	0.145	N/A	0.86	0.42	0.79	0.81	1.00	0.130	2.83	149.06	0.388	N/A	N/A	N/A	0.58	43.00	4.12	52.65	34.448		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.612	6942.82	71.5	2.842	71.5	3.4	1.46	3.97%	General Fill	0.057	113.8	1.98	0.000	1.98	0	0.57	40.618	3.89	49.75	35	4.09%	2.7	48%	2.23	0.000	2.23	0	0	0.72	0.07	0.93	-0.07	1.00	0.089	47.77	97.52	0.139	N/A	0.86	0.41	0.80	0.82	1.00	0.129	3.69	183.48	1.000	N/A	N/A	N/A	0.57	40.63	3.89	49.75	34.612		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.776	6942.65	84.4	3.493	84.4	4.1	1.79	4.14%	General Fill	0.057	113.8	1.99	0.000	1.99	0	0.59	49.388	4.73	60.49	41	4.24%	2.6	48%	2.24	0.000	2.24	0	0	0.72	0.08	0.92	-0.14	1.00	0.090	51.53	112.03	0.164	N/A	0.86	0.45	0.78	0.80	1.00	0.131	3.42	207.17	1.000	N/A	N/A	N/A	0.59	49.40	4.73	60.49	34.776		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.941	6942.49	101.3	3.063	101.3	4.3	1.85	3.02%	General Fill	0.057	113.8	2.00	0.000	2.00	0	0.61	61.460	5.89	75.28	50	3.08%	2.5	48%	2.25	0.000	2.25	0	0	0.72	0.09	0.91	-0.23	1.00	0.091	56.72	132.00	0.208	N/A	0.85	0.50	0.75	0.78	1.00	0.135	2.59	194.79	1.000	N/A	N/A	N/A	0.61	61.48	5.89	75.28	34.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.105	6942.33	76.9	2.935	76.9	4.1	1.77	3.82%	General Fill	0.057	113.8	2.01	0.000	2.01	0	0.57	43.826	4.20	53.68	37	3.92%	2.6	48%	2.25	0.000	2.25	0	0	0.71	0.07	0.93	-0.10	1.00	0.089	49.14	102.83	0.147	N/A	0.85	0.42	0.79	0.81	1.00	0.129	3.48	186.92	1.000	N/A	N/A	N/A	0.57	43.84	4.20	53.68	35.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.269	6942.16	70.8	2.707	70.8	2.0	0.85	3.83%	General Fill	0.057	113.8	2.01	0.000	2.01	0	0.56	39.529	3.79	48.41	34	3.94%	2.7	48%	2.26	0.000	2.26	0	0	0.71	0.07	0.93	-0.06	1.00	0.089	47.30	95.71	0.136	N/A	0.85	0.40	0.80	0.81	1.00	0.128	3.68	178.07	1.000	N/A	N/A	N/A	0.56	39.54	3.79	48.41	35.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.433	6942.00	58.4	2.667	58.4	1.6	0.71	4.57%	General Fill	0.057	113.8	2.02	0.000	2.02	0	0.54	31.324	3.00	38.36	28	4.73%	2.8	48%	2.27	0.000	2.27	0	0	0.71	0.06	0.93	0.02	1.00	0.088	43.77	82.13	0.116	N/A	0.85	0.36	0.80	0.81	1.00	0.128	4.56	175.09	1.000	N/A	N/A	N/A	0.54	31.33	3.00	38.36	35.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.597	6941.83	59.7	2.886	59.7	1.7	0.75	4.84%	General Fill	0.057	113.8	2.03	0.000	2.03	0	0.54	32.021	3.07	39.22	28	5.01%	2.8	48%	2.28	0.000	2.28	0	0	0.71	0.06	0.93	0.01	1.00	0.088	44.07	83.29	0.117	N/A	0.85	0.36	0.80	0.81	1.00	0.128	4.66	182.63	1.000	N/A	N/A	N/A	0.54	32.03	3.07	39.22	35.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.761	6941.67	63.6	2.755	63.6	1.9	0.81	4.33%	General Fill	0.057	113.8	2.04	0.000	2.04	0	0.54	34.433	3.30	42.17	30	4.47%	2.7	48%	2.29	0.000	2.29	0	0	0.71	0.07	0.93	-0.01	1.00	0.088	45.11	87.28	0.123	N/A	0.85	0.37	0.80	0.81	1.00	0.128	4.23	178.54	1.000	N/A	N/A	N/A	0.54	34.44	3.30	42.17	35.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.925	6941.51	70.6	2.388	70.6	2.1	0.91	3.38%	General Fill	0.057	113.8	2.05	0.000	2.05	0	0.55	38.885	3.72	47.62	33	3.48%	2.6	48%	2.30	0.000	2.30	0	0	0.71	0.07	0.93	-0.05	1.00	0.088	47.02	94.64	0.134	N/A	0.85	0.40	0.80	0.81	1.00	0.127	3.48	165.92	1.000	N/A	N/A	N/A	0.55	38.89	3.72	47.62	35.925		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.089	6941.34	65.9	1.886	65.8	1.8	0.77	2.86%	General Fill	0.057	113.8	2.06	0.000	2.06	0	0.54	35.622	3.41	43.63	31	2.96%	2.6	48%	2.31	0.000	2.31	0	0	0.71	0.07	0.93	-0.02	1.00	0.088	45.62	89.24	0.126	N/A	0.85	0.38	0.80	0.81	1.00	0.127	3.35	146.01	0.370	N/A	N/A	N/A	0.54	35.63	3.41	43.63	36.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.253	6941.18	62.3	1.502	62.3	1.3	0.57	2.41%	General Fill	0.057	113.8	2.07	0.000	2.07	0	0.53	33.242	3.18	40.71	29	2.49%	2.6	48%	2.32	0.000	2.32	0	0	0.70	0.07	0.93	0.00	1.00	0.087	44.59	85.30	0.120	N/A	0.84	0.37	0.80	0.81	1.00	0.127	3.19	129.67	0.283	N/A	N/A	N/A	0.53	33.25	3.18	40.71	36.253		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.417	6941.01	60.4	1.486	60.4	0.8	0.35	2.46%	General Fill	0.057	113.8	2.08	0.000	2.08	0	0.53	31.875	3.05	39.03	28	2.55%	2.6	48%	2.33	0.000	2.33	0	0	0.70	0.06	0.93	0.01	1.00	0.087	44.01	83.04	0.117	N/A	0.84	0.36	0.80	0.81	1.00	0.127	3.30	128.77	0.279	N/A	N/A	N/A	0.53	31.88	3.05	39.03	36.417		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.581	6940.85	59.2	1.748	59.2	0.8	0.36	2.95%	General Fill	0.057	113.8	2.09	0.000	2.09	0	0.52	31.001	2.97	37.96	27	3.06%	2.7	48%	2.34	0.000	2.34	0	0	0.70	0.06	0.93	0.02	1.00	0.087	43.63	81.59	0.115	N/A	0.84	0.36	0.80	0.81	1.00	0.127	3.68	139.63	0.333	N/A	N/A	N/A	0.52	31.00	2.97	37.96	36.581		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.745	6940.69	54.6	1.994	54.6	0.6	0.26	3.65%	General Fill	0.057	113.8	2.10	0.000	2.10	0	0.51	28.056	2.69	34.36	25	3.80%	2.7	48%	2.35	0.000	2.35	0	0	0.70	0.06	0.94	0.06	1.00	0.087	42.36	76.72	0.108	N/A	0.84	0.34	0.80	0.81	1.00	0.127	4.33	148.87	0.387	N/A	N/A	N/A	0.51	28.06	2.69	34.36	36.745		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.909	6940.52	48.6	1.774	48.6	0.6	0.26	3.65%	General Fill	0.057	113.8	2.11	0.000	2.11	0	0.50	24.356	2.33	29.83	22	3.82%	2.8	48%	2.36	0.000	2.36	0	0	0.70	0.06	0.94	0.10	1.00	0.086	40.78	70.60	0.100	N/A	0.84	0.32	0.80	0.81	1.00	0.127	4.68	139.54	0.333	N/A	N/A	N/A	0.50	24.36	2.33	29.83	36.909		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.073	6940.36	54.7	1.759	54.7	1.1	0.49	3.22%	General Fill	0.057	113.8	2.12	0.000	2.12	0	0.51	27.928	2.68	34.20	25	3.35%	2.7	48%	2.37	0.000	2.37	0	0	0.70	0.06	0.93	0.06	1.00	0.086	42.31	76.51	0.108	N/A	0.84	0.34	0.80	0.81	1.00	0.127	4.08	139.41	0.332	N/A	N/A	N/A	0.51	27.93	2.67	34.20	37.073		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.237	6940.19	50.4	1.722	50.4	0.5	0.23	3.42%	General Fill	0.057	113.8	2.13	0.000	2.13	0	0.50	25.265	2.42	30.94	23	3.57%	2.8	48%	2.38	0.000	2.38	0	0	0.70	0.06	0.94	0.09	1.00	0.086	41.17	72.10	0.102	N/A	0.84	0.32	0.80	0.81	1.00	0.127	4.44	137.41	0.321	N/A	N/A	N/A	0.50	25.27	2.42	30.94	37.237		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.401	6940.03	45.6	1.817	45.6	1.0	0.43	3.98%	General Fill	0.057	113.8	2.14	0.000	2.14	0	0.49	22.375	2.14	27.40	20	4.18%	2.8	48%	2.39	0.000	2.39	0	0	0.70	0.06	0.94	0.10	1.00	0.086	39.92	67.33	0.096	N/A	0.83	0.30	0.80	0.81	1.00	0.127	5.12	140.40	0.337	N/A	N/A	N/A	0.49	22.38	2.14	27.40	37.401		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.565	6939.86	38.9	1.931	38.9	0.5	0.23	4.97%	General Fill	0.057	113.8	2.15	0.000	2.15	0	0.47	18.466	1.77	22.61	17	5.26%	3.0	48%	2.39	0.000	2.39	0	0	0.69	0.05	0.94	0.10	1.00	0.085	38.24	60.86	0.089	N/A	0.83	0.27	0.80	0.81	1.00	0.126	6.32	142.94	0.352	N/A	N/A	N/A	0.47	18.47	1.77	22.61	37.565		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.729	6939.70	37.5	1.975	37.5	0.6	0.24	5.27%	General Fill	0.057	113.8	2.15	0.000	2.15	0	0.47	17.622	1.69	21.58	16	5.59%	3.0	48%	2.40	0.000	2.40	0	0	0.69	0.05	0.94	0.10	1.00	0.085	37.88	59.46	0.087	N/A	0.83	0.27	0.80	0.81	1.00	0.126	6.67	143.83	0.357	N/A	N/A	N/A	0.47	17.62	1.69	21.58	37.729		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.893	6939.54	41.1	1.391	41.1	0.8	0.35	3.38%	General Fill	0.057	113.8	2.16	0.000	2.16	0	0.48	19.560	1.87	23.95	18	3.57%	2.8	48%	2.41	0.000	2.41	0	0	0.69	0.06	0.94	0.10	1.00	0.085	38.72	62.67	0.091	N/A	0.83	0.28	0.80	0.81	1.00	0.126	5.11	122.33	0.250	N/A	N/A	N/A	0.48	19.56	1.87	23.95	37.893		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.057	6939.37	60.9	1.509	60.9	-0.6	-0.24	2.48%	General Fill	0.057	113.8	2.17	0.000	2.17	0	0.51	31.058	2.97	38.03	27	2.57%	2.6	48%	2.42	0.000	2.42	0	0	0.69	0.06	0.93	0.02	1.00	0.086	43.65	81.68	0.115	N/A	0.83	0.36	0.80	0.80	1.00	0.126	3.39	128.91	0.279	N/A	N/A	N/A	0.51	31.06	2.97	38.03	38.057		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.221	6939.21	82.0	1.841	82.0	0.8	0.33	2.25%	General Fill	0.057	113.8	2.18	0.000	2.18	0	0.54	44.433	4.26	54.41	37	2.31%	2.5	48%	2.43	0.000	2.43	0	0	0.69	0.07	0.92	-0.10	1.00	0.087	49.40	103.81	0.149	N/A	0.83	0.43	0.79	0.79	1.00	0.128	2.66	144.86	0.363	N/A	N/A	N/A	0.54	44.44	4.25	54.41	38.221		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.385	6939.04	55.6	2.193	55.6	0.5	0.23	3.95%	General Fill	0.057	113.8	2.19	0.000	2.19	0	0.50	27.651	2.65	33.86	24	4.11%	2.8	48%	2.44	0.000	2.44	0	0	0.69	0.06	0.93	0.06	1.00	0.085	42.19	76.05	0.107	N/A	0.83	0.34	0.80	0.80	1.00	0.126	4.58	155.04	0.427	N/A	N/A	N/A	0.50	27.65	2.65	33.86	38.385		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.549	6938.88	56.7	2.214	56.7	2.8	1.20	3.91%	General Fill	0.057	113.8	2.20	0.000	2.20	0	0.50	28.196	2.70	34.54	25	4.06%	2.8	48%	2.45	0.000	2.45	0	0	0.69	0.06	0.93	0.06	1.00	0.085	42.43	76.97	0.109	N/A	0.83	0.34	0.80	0.80	1.00	0.126	4.51	155.83	0.432	N/A	N/A	N/A	0.50	28.20	2.70	34.54	38.549		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.713	6938.72	47.8	1.786	47.7	2.8	1.22	3.74%	General Fill	0.057	113.8	2.21	0.000	2.21	0	0.48	22.901	2.19	28.05	21	3.92%	2.8	48%	2.46	0.000	2.46	0	0	0.68	0.06	0.94	0.10	1.00	0.085	40.15	68.21	0.097	N/A	0.82	0.31	0.80	0.80	1.00	0.126	4.93	138.40	0.327	N/A	N/A	N/A	0.48	22.91	2.19	28.05	38.713		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.877	6938.55	39.5	1.625	39.5	4.2	1.81	4.12%	General Fill	0.057	113.8	2.22	0.000	2.22	0	0.46	18.213	1.74	22.32	17	4.36%	2.9	48%	2.47	0.000	2.47	0	0	0.68	0.05	0.94	0.10	1.00	0.084	38.14	60.46	0.088	N/A	0.82	0.27	0.80	0.80	1.00	0.125	5.85	130.56	0.287	N/A	N/A	N/A	0.46	18.22	1.74	22.32	38.877		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.042	6938.39	36.7	1.507	36.7	3.3	1.44	4.10%	General Fill	0.057	113.8	2.23	0.000	2.23	0	0.46	16.741	1.60	20.51	15	4.37%	2.9	48%	2.48	0.000	2.48	0	0	0.68	0.05	0.94	0.10	1.00	0.084	37.51	58.02	0.086	N/A	0.82	0.26	0.80	0.80	1.00	0.125	6.13	125.75	0.265	N/A	N/A	N/A	0.46	16.75	1.60	20.51	39.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.206	6938.22	37.9	1.421	37.9	3.3	1.42	3.75%	General Fill	0.057	113.8	2.24	0.000	2.24	0	0.45	17.253	1.65	21.14	16	3.98%	2.9	48%	2.49	0.000	2.49	0	0	0.68	0.05	0.94	0.10	1.00	0.084	37.73	58.87	0.087	N/A	0.82	0.27	0.80	0.80	1.00	0.125	5.77	121.99	0.249	N/A	N/A	N/A	0.45	17.26	1.65	21.14	39.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.370	6938.06	36.3	1.375	36.3	2.2	0.96	3.79%	General Fill	0.057	113.8	2.25	0.000	2.25	0	0.45	16.433	1.57	20.13	15	4.04%	2.9	48%	2.50	0.000	2.50	0	0	0.68	0.05	0.94	0.10	1.00	0.083	37.37	57.50	0.085	N/A	0.82	0.26	0.80	0.80	1.00	0.125	5.99	120.55	0.243	N/A	N/A	N/A	0.45	16.44	1.57	20.13	39.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.534	6937.90	38.1	1.361	38.1	2.7	1.16	3.58%	General Fill	0.057	113.8	2.26	0.000	2.26	0	0.45	17.191	1.65	21.06	16	3.80%	2.9	48%	2.51	0.000	2.51	0	0	0.68	0.05	0.94	0.10	1.00	0.083	37.70	58.76	0.086	N/A	0.82	0.26	0.80	0.80	1.00	0.125	5.67	119.33	0.238	N/A	N/A	N/A	0.45	17.20	1.65	21.06	39.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.698	6937.73	45.3	1.490	45.3	2.4	1.02	3.29%	General Fill	0.057	113.8	2.27	0.000	2.27	0	0.46	21.019	2.01	25.75	19	3.47%	2.8	48%	2.52	0.000	2.52	0	0	0.68	0.06	0.94	0.10	1.00	0.084	39.34	65.09	0.094	N/A	0.82	0.29	0.80	0.80	1.00	0.125	4.88	125.60	0.264	N/A	N/A	N/A	0.46	21.03	2.01	25.75	39.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.862	6937.57	46.0	1.458	46.0	2.4	1.04	3.17%	General Fill	0.057	113.8	2.28	0.000	2.28	0	0.46	21.328	2.04	26.12	19	3.34%	2.8	48%	2.53	0.000	2.53	0	0	0.68	0.06	0.94	0.10	1.00	0.084	39.48	65.60	0.094	N/A	0.81	0.30	0.80	0.80	1.00	0.125	4.76	124.27	0.258	N/A	N/A	N/A	0.46	21.33	2.04	26.12	39.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.026	6937.40	37.9	1.662	37.9	2.2	0.96	4.39%	General Fill	0.057	113.8	2.29	0.000	2.29	0	0.45	16.934	1.62	20.74	16	4.67%	3.0	48%	2.53	0.000	2.53	0	0	0.67	0.05	0.94	0.10	1.00	0.083	37.59	58.33	0.086	N/A	0.81	0.26	0.80	0.80	1.00	0.125	6.30	130.73	0.288	N/A	N/A	N/A	0.45	16.94	1.62	20.74	40.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.190	6937.24	34.3	1.625	34.3	2.5	1.08	4.74%	General Fill	0.057	113.8	2.29	0.000	2.29	0	0.45	15.288	1.46	18.73	14	5.08%	3.0	48%	2.54	0.000	2.54	0	0	0.67	0.05	0.94	0.10	1.00	0.083	36.88	55.61	0.083	N/A	0.81	0.26	0.80	0.80	1.00	0.125	6.96	130.36	0.286	N/A	N/A	N/A	0.45	15.30	1.46	18.73	40.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.354	6937.08	36.5	1.530	36.5	2.4	1.04	4.19%	General Fill	0.057	113.8	2.30	0.000	2.30	0	0.44	16.231	1.55	19.88	15	4.47%	3.0	48%	2.55	0.000	2.55	0	0	0.67	0.05	0.94	0.10	1.00	0.083	37.29	57.17	0.085	N/A	0.81	0.26	0.80	0.80	1.00	0.125	6.34	126.09	0.266	N/A	N/A	N/A	0.44	16.24	1.55	19.88	40.354		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.518	6936.91	38.6	1.514	38.6	3.1	1.36	3.92%	General Fill	0.057	113.8	2.31	0.000	2.31	0	0.44	17.110	1.64	20.96	16	4.17%	2.9	48%	2.56	0.000	2.56	0	0	0.67	0.05	0.94	0.10	1.00	0.083	37.67	58.63	0.086	N/A	0.81	0.26	0.80	0.80	1.00	0.124	5.95	124.70	0.260	N/A	N/A	N/A	0.44	17.12	1.64	20.96	40.518		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.682	6936.75	40.1	1.406	40.1	2.7	1.16	3.51%	General Fill	0.057	113.8	2.32	0.000	2.32	0	0.44	17.810	1.71	21.82	16	3.72%	2.9	48%	2.57	0.000	2.57	0	0	0.67	0.05	0.94	0.10	1.00	0.082	37.97	59.78	0.088	N/A	0.81	0.27	0.80	0.79	1.00	0.124	5.53	120.62	0.243	N/A	N/A	N/A	0.44	17.82	1.71	21.82	40.682		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.846	6936.58	45.4	1.394	45.4	2.8	1.22	3.07%	General Fill	0.057	113.8	2.33	0.000	2.33	0	0.45	20.561	1.97	25.19	18	3.24%	2.8	48%	2.58	0.000	2.58	0	0	0.67	0.06	0.94	0.10	1.00	0.082	39.15	64.33	0.093	N/A	0.81	0.29	0.80	0.79	1.00	0.124	4.80	120.86	0.244	N/A	N/A	N/A	0.45	20.57	1.97	25.19	40.846		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.010	6936.42	43.1	1.454	43.1	2.6	1.12	3.37%	General Fill	0.057	113.8	2.34	0.000	2.34	0	0.45	19.261	1.84	23.59	17	3.57%	2.8	48%	2.59	0.000	2.59	0	0	0.67	0.05	0.94	0.10	1.00	0.082	38.59	62.18	0.090	N/A	0.81	0.28	0.80	0.79	1.00	0.124	5.21	122.83	0.252	N/A	N/A	N/A	0.45	19.27	1.84	23.59	41.010		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.174	6936.26	36.9	1.481	36.8	2.2	0.94	4.02%	General Fill	0.057	113.8	2.35	0.000	2.35	0	0.44	16.119	1.54	19.74	15	4.29%	3.0	48%	2.60	0.000	2.60	0	0	0.67	0.05	0.94	0.10	1.00	0.082	37.24	56.98	0.085	N/A	0.80	0.26	0.80	0.79	1.00	0.124	6.27	123.75	0.256	N/A	N/A	N/A	0.44	16.12	1.54	19.74	41.174		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.338	6936.09	30.0	1.456	30.0	2.7	1.16	4.85%	General Fill	0.057	113.8	2.36	0.000	2.36	0	0.44	13.094	1.25	16.04	12	5.26%	3.1	48%	2.61	0.000	2.61	0	0	0.66	0.05	0.94	0.10	1.00	0.081	35.94	51.98	0.079	N/A	0.80	0.23	0.80	0.79	1.00	0.124	7.77	124.64	0.260	N/A	N/A	N/A	0.44	13.10	1.25	16.04	41.338		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.502	6935.93	24.0	1.284	24.0	3.0	1.28	5.35%	General Fill	0.057	113.8	2.37	0.000	2.37	0	0.43	10.423	1.00	12.77	9	5.94%	3.2	48%	2.62	0.000	2.62	0	0	0.66	0.05	0.94	0.10	1.00	0.081	34.79	47.57	0.075	N/A	0.80	0.21	0.80	0.79	1.00	0.124	9.32	119.10	0.237	N/A	N/A	N/A	0.43	10.43	1.00	12.77	41.502		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.666	6935.76	24.9	1.103	24.9	3.9	1.71	4.43%	General Fill	0.057	113.8	2.38	0.000	2.38	0	0.43	10.777	1.03	13.21	10	4.90%	3.1	48%	2.63	0.000	2.63	0	0	0.66	0.05	0.94	0.10	1.00	0.081	34.95	48.15	0.076	N/A	0.80	0.21	0.80	0.79	1.00	0.124	8.46	111.75	0.210	N/A	N/A	N/A	0.43	10.79	1.03	13.21	41.666		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.830	6935.60	30.8	1.070	30.7	5.1	2.20	3.48%	General Fill	0.057	113.8	2.39	0.000	2.39	0	0.43	13.276	1.27	16.27	12	3.77%	3.0	48%	2.64	0.000	2.64	0	0	0.66	0.05	0.94	0.10	1.00	0.081	36.02	52.29	0.080	N/A	0.80	0.24	0.80	0.79	1.00	0.124	6.68	108.71	0.199	N/A	N/A	N/A	0.43	13.29	1.27	16.27	41.830		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.994	6935.44	40.2	1.115	40.2	4.7	2.03	2.78%	General Fill	0.057	113.8	2.40	0.000	2.40	0	0.43	17.330	1.66	21.24	16	2.95%	2.8	48%	2.65	0.000	2.65	0	0	0.66	0.05	0.94	0.10	1.00	0.081	37.76	59.00	0.087	N/A	0.80	0.27	0.80	0.79	1.00	0.123	5.06	107.52	0.196	N/A	N/A	N/A	0.43	17.34	1.66	21.24	41.994		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.158	6935.27	27.8	1.095	27.8	3.4	1.46	3.94%	General Fill	0.057	113.8	2.41	0.000	2.41	0	0.43	11.937	1.14	14.63	11	4.31%	3.1	48%	2.66	0.000	2.66	0	0	0.66	0.05	0.94	0.10	1.00	0.081	35.44	50.07	0.078	N/A	0.80	0.22	0.80	0.79	1.00	0.123	7.56	110.55	0.206	N/A	N/A	N/A	0.43	11.95	1.14	14.63	42.158		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.322	6935.11	23.4	1.016	23.4	3.4	1.46	4.34%	General Fill	0.057	113.8	2.42	0.000	2.42	0	0.43	10.017	0.96	12.28	9	4.84%	3.2	48%	2.67	0.000	2.67	0	0	0.66	0.05	0.94	0.10	1.00	0.080	34.62	46.90	0.075	N/A	0.79	0.20	0.80	0.79	1.00	0.123	8.81	108.12	0.198	N/A	N/A	N/A	0.43	10.03	0.96	12.28	42.322		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.486	6934.94	17.1	0.778	17.1	2.8	1.22	4.55%	General Fill	0.057	113.8	2.43	0.000	2.43	0	0.43	7.293	0.70	8.94	6	5.30%	3.3	48%	2.67	0.000	2.67	0	0	0.66	0.04	0.95	0.10	1.00	0.080	33.45	42.39	0.071	N/A	0.79	0.17	0.80	0.79	1.00	0.123	10.99	98.27	0.168	N/A	N/A	N/A	0.43	7.30	0.70	8.94	42.486		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.650	6934.78	7.8	0.469	7.8	2.4	1.02	6.02%	General Fill	0.057	113.8	2.43	0.000	2.43	0	0.43	3.312	0.32	4.06	2	8.75%	3.8	48%	2.68	0.000	2.68	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.74	35.80	0.065	N/A	0.79	0.12	0.80	0.79	1.00	0.123	20.29	82.42	0.132	N/A	N/A	N/A	0.43	3.32	0.32	4.06	42.650		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.814	6934.62	7.0	0.165	7.0	3.4	1.49	2.35%	General Fill	0.057	113.8	2.44	0.000	2.44	0	0.42	2.975	0.28	3.65	2	3.60%	3.7	48%	2.69	0.000	2.69	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.59	35.25	0.065	N/A	0.79	0.11	0.80	0.79	1.00	0.123	17.14	62.64	0.103	N/A	N/A	N/A	0.42	2.98	0.29	3.65	42.814		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.978	6934.45	6.1	0.088	6.1	4.9	2.14	1.44%	General Fill	0.057	113.8	2.45	0.000	2.45	0	0.42	2.564	0.25	3.16	1	2.42%	3.7	48%	2.70	0.000	2.70	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.42	34.57	0.064	N/A	0.79	0.10	0.80	0.79	1.00	0.123	17.38	54.84	0.095	N/A	N/A	N/A	0.42	2.58	0.25	3.16	42.978		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.143	6934.29	6.4	0.064	6.3	6.6	2.87	1.01%	General Fill	0.057	113.8	2.46	0.000	2.46	0	0.42	2.662	0.25	3.28	2	1.65%	3.6	48%	2.71	0.000	2.71	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.46	34.74	0.065	N/A	0.79	0.10	0.80	0.79	1.00	0.123	15.47	50.75	0.092	N/A	N/A	N/A	0.42	2.68	0.26	3.28	43.143		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.307	6934.12	6.1	0.056	6.1	9.3	4.05	0.92%	General Fill	0.057	113.8	2.47	0.000	2.47	0	0.42	2.549	0.24	3.15	1	1.54%	3.6	48%	2.72	0.000	2.72	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.42	34.57	0.064	N/A	0.79	0.10	0.80	0.79	1.00	0.122	15.76	49.68	0.091	N/A	N/A	N/A	0.42	2.57	0.25	3.15	43.307		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.471	6933.96	6.6	0.054	6.5	12.4	5.37	0.82%	General Fill	0.057	113.8	2.48	0.000	2.48	0	0.42	2.726	0.26	3.38	2	1.32%	3.5	48%	2.73	0.000	2.73	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.50	34.87	0.065	N/A	0.79	0.11	0.80	0.79	1.00	0.122	14.41	48.69	0.091	N/A	N/A	N/A	0.42	2.76	0.26	3.38	43.471		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.635	6933.80	6.8	0.062	6.7	15.7	6.79	0.91%	General Fill	0.057	113.8	2.49	0.000	2.49	0	0.42	2.798	0.27	3.48	2	1.44%	3.5	48%	2.74	0.000	2.74	0	0	0.65	0.04	0.95	0.10	1.00	0.079	31.53	35.01	0.065	N/A	0.78	0.11	0.80	0.78	1.00	0.122	14.37	49.94	0.092	N/A	N/A	N/A	0.42	2.84	0.27	3.48	43.635		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.799	6933.63	7.7	0.068	7.3	52.7	22.82	0.89%	General Fill	0.057	113.8	2.50	0.000	2.50	0	0.42	3.056	0.29	3.91	2	1.32%	3.4	48%	2.75	0.000	2.75	0	0	0.65	0.04	0.95	0.10	1.00	0.078	31.68	35.59	0.065	N/A	0.78	0.11	0.80	0.78	1.00	0.122	12.81	50.09	0.092	N/A	N/A	N/A	0.42	3.19	0.31	3.91	43.799		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.963	6933.47	8.3	0.087	7.9	59.1	25.60	1.05%	General Fill	0.057	113.8	2.51	0.000	2.51	0	0.42	3.284	0.31	4.21	2	1.51%	3.4	48%	2.76	0.000	2.76	0	0	0.64	0.04	0.95	0.10	1.00	0.078	31.79	36.00	0.065	N/A	0.78	0.12	0.80	0.78	1.00	0.122	12.49	52.58	0.094	N/A	N/A	N/A	0.42	3.44	0.33	4.21	43.963		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.127	6933.30	9.0	0.095	8.5	68.2	29.55	1.06%	General Fill	0.057	113.8	2.52	0.000	2.52	0	0.41	3.540	0.34	4.55	3	1.47%	3.4	48%	2.77	0.000	2.77	0	0	0.64	0.04	0.95	0.10	1.00	0.078	31.91	36.46	0.066	N/A	0.78	0.12	0.80	0.78	1.00	0.122	11.70	53.24	0.094	N/A	N/A	N/A	0.41	3.72	0.36	4.55	44.127		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.291	6933.14	8.7	0.099	8.2	81.6	35.34	1.13%	General Fill	0.057	113.8	2.53	0.000	2.53	0	0.41	3.398	0.33	4.42	2	1.60%	3.4	48%	2.78	0.000	2.78	0	0	0.64	0.04	0.95	0.10	1.00	0.078	31.86	36.28	0.066	N/A	0.78	0.12	0.80	0.78	1.00	0.122	12.22	53.97	0.095	N/A	N/A	N/A	0.41	3.61	0.35	4.42	44.291		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.455	6932.98	8.5	0.095	7.9	92.9	40.27	1.12%	General Fill	0.057	113.8	2.54	0.000	2.54	0	0.41	3.256	0.31	4.28	2	1.60%	3.4	48%	2.79	0.000	2.79	0	0	0.64	0.04	0.95	0.10	1.00	0.078	31.81	36.09	0.066	N/A	0.78	0.12	0.80	0.78	1.00	0.122	12.53	53.62	0.094	N/A	N/A	N/A	0.41	3.50	0.33	4.28	44.455		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.619	6932.81	9.1	0.098	8.5	103.8	44.96	1.07%	General Fill	0.057	113.8	2.55	0.004	2.54	1	0.41	3.489	0.33	4.60	3	1.49%	3.4	48%	2.80	0.004	2.79	1	0	0.64	0.04	0.95	0.10	1.00	0.078	31.92	36.52	0.066	N/A	0.78	0.12	0.80	0.78	1.00	0.122	11.66	53.61	0.094	N/A	N/A	N/A	0.41	3.76	0.36	4.60	44.619		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.783	6932.65	9.6	0.106	8.9	115.0	49.82	1.11%	General Fill	0.057	113.8	2.56	0.009	2.55	1	0.41	3.641	0.35	4.82	3	1.51%	3.3	48%	2.81	0.009	2.80	1	0	0.64	0.04	0.95	0.10	1.00	0.078	32.00	36.82	0.066	N/A	0.77	0.13	0.80	0.78	1.00	0.122	11.30	54.44	0.095	N/A	N/A	N/A	0.41	3.94	0.38	4.82	44.783		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.947	6932.48	10.3	0.140	9.5	125.6	54.44	1.36%	General Fill	0.057	113.8	2.57	0.014	2.55	1	0.41	3.899	0.37	5.17	3	1.81%	3.3	48%	2.81	0.014	2.80	1	0	0.64	0.04	0.95	0.10	1.00	0.078	32.12	37.29	0.066	N/A	0.77	0.13	0.80	0.78	1.00	0.122	11.26	58.21	0.098	N/A	N/A	N/A	0.41	4.22	0.40	5.17	44.947		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.111	6932.32	10.6	0.141	9.7	140.1	60.72	1.33%	General Fill	0.057	113.8	2.57	0.019	2.56	1	0.41	3.972	0.38	5.30	3	1.76%	3.3	48%	2.82	0.019	2.81	1	0	0.64	0.04	0.95	0.10	1.00	0.078	32.17	37.47	0.067	N/A	0.77	0.13	0.80	0.78	1.00	0.122	10.98	58.21	0.098	N/A	N/A	N/A	0.41	4.33	0.41	5.30	45.111		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.275	6932.15	11.5	0.162	10.5	161.3	69.89	1.41%	General Fill	0.057	113.8	2.58	0.024	2.56	1	0.41	4.277	0.41	5.74	3	1.83%	3.3	48%	2.83	0.024	2.81	1	0	0.63	0.04	0.95	0.10	1.00	0.078	32.33	38.07	0.067	N/A	0.77	0.14	0.80	0.78	1.00	0.122	10.46	60.08	0.100	N/A	N/A	N/A	0.41	4.69	0.45	5.74	45.275		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.439	6931.99	11.6	0.215	10.5	179.2	77.64	1.85%	General Fill	0.057	113.8	2.59	0.029	2.56	1	0.41	4.301	0.41	5.83	4	2.38%	3.3	48%	2.84	0.029	2.81	1	0	0.63	0.04	0.95	0.10	1.00	0.078	32.36	38.18	0.067	N/A	0.77	0.14	0.80	0.78	1.00	0.122	11.18	65.16	0.106	N/A	N/A	N/A	0.41	4.76	0.46	5.83	45.439		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.603	6931.83	11.6	0.223	10.5	165.2	71.58	1.93%	Fine Tailings	0.054	107.6	2.60	0.034	2.57	1	0.41	4.296	0.41	5.78	3	2.49%	3.3	83%	2.85	0.034	2.82	1	0	0.63	0.04	0.95	0.10	1.00	0.078	31.89	37.66	0.067	N/A	0.77	0.14	0.80	0.78	1.00	0.122	11.42	65.93	0.107	N/A	N/A	N/A	0.41	4.72	0.45	5.78	45.603		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.767	6931.66	11.5	0.211	10.5	170.6	73.94	1.83%	Fine Tailings	0.054	107.6	2.61	0.040	2.57	1	0.41	4.262	0.41	5.75	3	2.37%	3.3	83%	2.86	0.040	2.82	1	0	0.63	0.04	0.95	0.10	1.00	0.078	31.88	37.63	0.067	N/A	0.77	0.14	0.80	0.78	1.00	0.122	11.29	64.91	0.105	N/A	N/A	N/A	0.41	4.70	0.45	5.75	45.767		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.931	6931.50	11.6	0.226	10.4	186.7	80.92	1.96%	Fine Tailings	0.054	107.6	2.62	0.045	2.58	1	0.41	4.233	0.41	5.77	3	2.53%	3.3	83%	2.87	0.045	2.82	1	0	0.63	0.04	0.95	0.10	1.00	0.078	31.88	37.65	0.067	N/A	0.77	0.14	0.80	0.78	1.00	0.122	11.49	66.25	0.107	N/A	N/A	N/A	0.41	4.71	0.45	5.77	45.931	15	1.00	14	7	0.41	0.57	0.49	5.5	12.3	0.14	N/A	5.00	1.20	13.17	0.142	N/A	N/A
46.095	6931.33	11.2	0.204	9.9	195.9	84.90	1.83%	Fine Tailings	0.054	107.6	2.63	0.050	2.58	1	0.41	4.045	0.39	5.56	3	2.39%	3.4	83%	2.88	0.050	2.83	1	0	0.63	0.04	0.95	0.10	1.00	0.078	31.81	37.37	0.067	N/A	0.76	0.14	0.80	0.78	1.00	0.122	11.59	64.49	0.105	N/A	N/A	N/A	0.41	4.54	0.43	5.56	46.095		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.259	6931.17	11.4	0.160	10.2	189.8	82.26	1.41%	Fine Tailings	0.054	107.6	2.64	0.055	2.58	1	0.41	4.146	0.40	5.67	3	1.83%	3.3	83%	2.89	0.055	2.83	1	0	0.63	0.04	0.95	0.10	1.00	0.078	31.85	37.51	0.067	N/A	0.76	0.14	0.80	0.78	1.00	0.122	10.60	60.10	0.100	N/A	N/A	N/A	0.41	4.63	0.44	5.67	46.259		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.423	6931.01	12.4	0.164	11.2	207.6	89.96	1.32%	Fine Tailings	0.054	107.6	2.65	0.060	2.59	1	0.41	4.527	0.43	6.19	4	1.67%	3.2	83%	2.90	0.060	2.84	1	0	0.63	0.04	0.95	0.10	1.00	0.078	32.03	38.22	0.067	N/A	0.76	0.14	0.80	0.78	1.00	0.122	9.70	60.03	0.100	N/A	N/A	N/A	0.41	5.05	0.48	6.19	46.423		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.587	6930.84	13.8	0.292	12.4	222.1	96.25	2.11%	Fine Tailings	0.054	107.6	2.66	0.065	2.59	1	0.41	5.042	0.48	6.86	4	2.62%	3.3	83%	2.90	0.065	2.84	1	0	0.62	0.04	0.95	0.10	1.00	0.078	32.26	39.12	0.068	N/A	0.76	0.15	0.80	0.78	1.00	0.122	10.33	70.88	0.113	N/A	N/A	N/A	0.41	5.60	0.54	6.86	46.587		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.751	6930.68	18.8	0.393	18.0	122.6	53.14	2.09%	Fine Tailings	0.054	107.6	2.66	0.070	2.59	1	0.41	7.309	0.70	9.33	6	2.43%	3.1	83%	2.91	0.070	2.84	1	0	0.62	0.04	0.94	0.10	1.00	0.078	33.11	42.44	0.071	N/A	0.76	0.18	0.80	0.78	1.00	0.122	8.19	76.45	0.122	N/A	N/A	N/A	0.41	7.62	0.73	9.33	46.751		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.915	6930.51	15.5	0.317	14.4	183.4	79.49	2.04%	Fine Tailings	0.054	107.6	2.67	0.075	2.60	1	0.40	5.828	0.56	7.70	5	2.46%	3.2	83%	2.92	0.075	2.85	1	0	0.62	0.04	0.95	0.10	1.00	0.078	32.55	40.26	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.122	9.37	72.21	0.115	N/A	N/A	N/A	0.40	6.29	0.60	7.70	46.915		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.079	6930.35	15.2	0.169	13.6	259.6	#####	1.11%	Fine Tailings	0.054	107.6	2.68	0.080	2.60	1	0.40	5.490	0.53	7.52	5	1.35%	3.1	83%	2.93	0.080	2.85	1	0	0.62	0.04	0.95	0.10	1.00	0.078	32.49	40.01	0.069	N/A	0.76	0.16	0.80	0.78	1.00	0.122	7.90	59.40	0.099	N/A	N/A	N/A	0.40	6.14	0.59	7.52	47.079		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.244	6930.19	15.8	0.164	14.2	270.2	#####	1.04%	Fine Tailings	0.054	107.6	2.69	0.086	2.61	1	0.40	5.714	0.55	7.83	5	1.25%	3.1	83%	2.94	0.086	2.85	1	0	0.62	0.04	0.95	0.10	1.00	0.078	32.60	40.43	0.069	N/A	0.75	0.16	0.80	0.78	1.00	0.122	7.49	58.61	0.099	N/A	N/A	N/A	0.40	6.39	0.61	7.83	47.244		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.408	6930.02	16.8	0.209	15.0	292.3	#####	1.24%	Fine Tailings	0.054	107.6	2.70	0.091	2.61	1	0.40	6.042	0.58	8.30	5	1.48%	3.1	83%	2.95	0.091	2.86	1	0	0.62	0.04	0.95	0.10	1.00	0.078	32.76	41.06	0.069	N/A	0.75	0.17	0.80	0.78	1.00	0.122	7.56	62.74	0.103	N/A	N/A	N/A	0.40	6.78	0.65	8.30	47.408		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.572	6929.86	18.1	0.233	16.1	312.3	#####	1.29%	Fine Tailings	0.054	107.6	2.71	0.096	2.61	1	0.40	6.499	0.62	8.92	6	1.52%	3.0	83%	2.96	0.096	2.86	1	0	0.62	0.04	0.94	0.10	1.00	0.078	32.97	41.89	0.070	N/A	0.75	0.17	0.80	0.78	1.00	0.122	7.22	64.43	0.105	N/A	N/A	N/A	0.40	7.28	0.70	8.92	47.572		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.736	6929.69	18.7	0.236	16.6	325.0	#####	1.26%	Fine Tailings	0.054	107.6	2.72	0.101	2.62	1	0.40	6.697	0.64	9.20	6	1.48%	3.0	83%	2.97	0.101	2.87	1	0	0.62	0.04	0.94	0.10	1.00	0.078	33.07	42.27	0.070	N/A	0.75	0.18	0.80	0.78	1.00	0.122	7.01	64.48	0.105	N/A	N/A	N/A	0.40	7.51	0.72	9.20	47.736		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.900	6929.53	19.5	0.247	17.5	320.4	#####	1.27%	Fine Tailings	0.054	107.6	2.73	0.106	2.62	1	0.40	7.019	0.67	9.58	6	1.48%	3.0	83%	2.98	0.106	2.87	1	0	0.61	0.04	0.94	0.10	1.00	0.078	33.20	42.78	0.071	N/A	0.75	0.18	0.80	0.78	1.00	0.122	6.80	65.14	0.106	N/A	N/A	N/A	0.40	7.82	0.75	9.58	47.900		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.064	6929.37	18.5	0.268	16.5	316.4	#####	1.45%	Fine Tailings	0.054	107.6	2.73	0.111	2.62	1	0.40	6.630	0.64	9.09	6	1.70%	3.1	83%	2.98	0.111	2.87	1	0	0.61	0.04	0.94	0.10	1.00	0.078	33.03	42.12	0.070	N/A	0.75	0.17	0.80	0.78	1.00	0.122	7.41	67.35	0.108	N/A	N/A	N/A	0.40	7.42	0.71	9.09	48.064		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.228	6929.20	20.1	0.311	17.9	356.7	#####	1.55%	Fine Tailings	0.054	107.6	2.74	0.116	2.63	1	0.40	7.160	0.69	9.86	7	1.79%	3.0	83%	2.99	0.116	2.88	1	0	0.61	0.05	0.94	0.10	1.00	0.078	33.30	43.16	0.071	N/A	0.75	0.18	0.80	0.78	1.00	0.122	7.12	70.18	0.112	N/A	N/A	N/A	0.40	8.05	0.77	9.86	48.228		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.392	6929.04	16.8	0.391	15.0	275.0	#####	2.33%	Fine Tailings	0.054	107.6	2.75	0.121	2.63	1	0.40	6.026	0.58	8.22	5	2.79%	3.2	83%	3.00	0.121	2.88	1	0	0.61	0.04	0.94	0.10	1.00	0.078	32.73	40.95	0.069	N/A	0.75	0.17	0.80	0.78	1.00	0.122	9.39	77.20	0.123	N/A	N/A	N/A	0.40	6.71	0.64	8.22	48.392		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.556	6928.87	15.0	0.412	13.5	249.3	#####	2.75%	Fine Tailings	0.054	107.6	2.76	0.127	2.63	1	0.40	5.383	0.52	7.35	5	3.36%	3.3	83%	3.01	0.127	2.88	1	0	0.61	0.04	0.95	0.10	1.00	0.078	32.43	39.79	0.068	N/A	0.74	0.16	0.80	0.78	1.00	0.122	10.76	79.11	0.126	N/A	N/A	N/A	0.40	6.01	0.58	7.35	48.556		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.720	6928.71	16.1	0.364	14.4	269.7	#####	2.26%	Fine Tailings	0.054	107.6	2.77	0.132	2.64	1	0.40	5.757	0.55	7.87	5	2.73%	3.2	83%	3.02	0.132	2.89	1	0	0.61	0.04	0.95	0.10	1.00	0.078	32.61	40.48	0.069	N/A	0.74	0.16	0.80	0.78	1.00	0.122	9.60	75.63	0.120	N/A	N/A	N/A	0.40	6.43	0.62	7.87	48.720		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.884	6928.55	15.5	0.340	14.0	245.2	#####	2.19%	Fine Tailings	0.054	107.6	2.78	0.137	2.64	1	0.40	5.575	0.53	7.58	5	2.67%	3.2	83%	3.03	0.137	2.89	1	0	0.61	0.04	0.95	0.10	1.00	0.078	32.51	40.08	0.069	N/A	0.74	0.16	0.80	0.78	1.00	0.122	9.79	74.17	0.118	N/A	N/A	N/A	0.40	6.19	0.59	7.58	48.884		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.048	6928.38	14.5	0.364	13.1	235.4	#####	2.50%	Fine Tailings	0.054	107.6	2.79	0.142	2.65	1	0.40	5.214	0.50	7.10	4	3.10%	3.3	83%	3.04	0.142	2.90	1	0	0.61	0.04	0.95	0.10	1.00	0.078	32.34	39.45	0.068	N/A	0.74	0.15	0.80	0.78	1.00	0.122	10.73	76.17	0.121	N/A	N/A	N/A	0.40	5.80	0.56	7.10	49.048		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.212	6928.22	13.9	0.345	12.6	209.7	90.88	2.49%	Fine Tailings	0.054	107.6	2.80	0.147	2.65	1	0.40	5.005	0.48	6.77	4	3.12%	3.3	83%	3.05	0.147	2.90	1	0	0.61	0.04	0.95	0.10	1.00	0.078	32.23	39.00	0.068	N/A	0.74	0.15	0.80	0.78	1.00	0.122	11.10	75.11	0.119	N/A	N/A	N/A	0.40	5.53	0.53	6.77	49.212		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.376	6928.05	13.5	0.324	12.2	202.6	87.81	2.40%	Fine Tailings	0.054	107.6	2.81	0.152	2.65	1	0.40	4.872	0.47	6.58	4	3.03%	3.3	83%	3.05	0.152	2.90	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.16	38.75	0.068	N/A	0.74	0.15	0.80	0.78	1.00	0.122	11.21	73.78	0.117	N/A	N/A	N/A	0.40	5.38	0.51	6.58	49.376		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.540	6927.89	12.2	0.315	10.9	202.2	87.62	2.59%	Fine Tailings	0.054	107.6	2.81	0.157	2.66	1	0.40	4.334	0.42	5.92	4	3.37%	3.4	83%	3.06	0.157	2.91	1	0	0.60	0.04	0.95	0.10	1.00	0.078	31.94	37.86	0.067	N/A	0.74	0.14	0.80	0.78	1.00	0.122	12.43	73.62	0.117	N/A	N/A	N/A	0.40	4.84	0.46	5.92	49.540		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.704	6927.73	12.5	0.319	11.2	202.5	87.77	2.56%	Fine Tailings	0.054	107.6	2.82	0.162	2.66	1	0.40	4.456	0.43	6.07	4	3.30%	3.4	83%	3.07	0.162	2.91	1	0	0.60	0.04	0.95	0.10	1.00	0.078	31.99	38.06	0.067	N/A	0.73	0.14	0.80	0.78	1.00	0.122	12.16	73.82	0.117	N/A	N/A	N/A	0.40	4.96	0.47	6.07	49.704		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.868	6927.56	12.6	0.307	11.3	206.1	89.31	2.44%	Fine Tailings	0.054	107.6	2.83	0.167	2.66	1	0.40	4.475	0.43	6.11	4	3.15%	3.4	83%	3.08	0.167	2.91	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.00	38.10	0.067	N/A	0.73	0.14	0.80	0.78	1.00	0.122	11.95	72.96	0.116	N/A	N/A	N/A	0.40	4.99	0.48	6.11	49.868		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.032	6927.40	13.1	0.334	11.8	204.5	88.62	2.56%	Fine Tailings	0.054	107.6	2.84	0.173	2.67	1	0.40	4.673	0.45	6.34	4	3.27%	3.4	83%	3.09	0.173	2.92	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.08	38.42	0.067	N/A	0.73	0.15	0.80	0.78	1.00	0.122	11.79	74.73	0.119	N/A	N/A	N/A	0.40	5.18	0.50	6.34	50.032		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.196	6927.23	13.9	0.358	12.7	200.5	86.87	2.57%	Fine Tailings	0.054	107.6	2.85	0.178	2.67	1	0.40	5.020	0.48	6.75	4	3.23%	3.3	83%	3.10	0.178	2.92	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.22	38.98	0.068	N/A	0.73	0.15	0.80	0.77	1.00	0.122	11.27	76.12	0.121	N/A	N/A	N/A	0.40	5.52	0.53	6.75	50.196		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

50.360	6927.07	14.2	0.369	12.9	209.8	90.90	2.59%	Fine Tailings	0.054	107.6	2.86	0.183	2.68	1	0.40	5.117	0.49	6.90	4	3.24%	3.3	83%	3.11	0.183	2.92	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.27	39.17	0.068	N/A	0.73	0.15	0.80	0.77	1.00	0.122	11.13	76.78	0.122	N/A	N/A	N/A	0.40	5.64	0.54	6.90	50.360		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.524	6926.91	14.3	0.368	13.0	213.5	92.51	2.57%	Fine Tailings	0.054	107.6	2.87	0.188	2.68	1	0.40	5.135	0.49	6.93	4	3.21%	3.3	83%	3.12	0.188	2.93	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.29	39.22	0.068	N/A	0.73	0.15	0.80	0.77	1.00	0.122	11.06	76.71	0.122	N/A	N/A	N/A	0.40	5.66	0.54	6.93	50.524		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.688	6926.74	13.6	0.372	12.3	210.7	91.31	2.73%	Fine Tailings	0.054	107.6	2.88	0.193	2.68	1	0.39	4.854	0.46	6.58	4	3.46%	3.4	83%	3.13	0.193	2.93	1	0	0.60	0.04	0.95	0.10	1.00	0.078	32.16	38.74	0.068	N/A	0.73	0.15	0.80	0.77	1.00	0.122	11.74	77.22	0.123	N/A	N/A	N/A	0.39	5.37	0.51	6.58	50.688		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.852	6926.58	13.5	0.365	12.2	205.0	88.85	2.70%	Fine Tailings	0.054	107.6	2.88	0.198	2.69	1	0.39	4.825	0.46	6.53	4	3.43%	3.4	83%	3.13	0.198	2.94	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.14	38.67	0.068	N/A	0.73	0.15	0.80	0.77	1.00	0.122	11.77	76.82	0.122	N/A	N/A	N/A	0.39	5.33	0.51	6.53	50.852		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.016	6926.41	13.8	0.358	12.4	215.9	93.54	2.60%	Fine Tailings	0.054	107.6	2.89	0.203	2.69	1	0.39	4.894	0.47	6.64	4	3.29%	3.3	83%	3.14	0.203	2.94	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.18	38.83	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.48	76.29	0.121	N/A	N/A	N/A	0.39	5.42	0.52	6.64	51.016		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.180	6926.25	14.1	0.345	12.8	213.5	92.51	2.44%	Fine Tailings	0.054	107.6	2.90	0.208	2.69	1	0.39	5.039	0.48	6.81	4	3.07%	3.3	83%	3.15	0.208	2.94	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.24	39.05	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.06	75.30	0.120	N/A	N/A	N/A	0.39	5.56	0.53	6.81	51.180		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.345	6926.09	14.1	0.366	12.8	217.8	94.36	2.59%	Fine Tailings	0.054	107.6	2.91	0.214	2.70	1	0.39	5.010	0.48	6.79	4	3.27%	3.3	83%	3.16	0.214	2.95	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.24	39.02	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.31	76.77	0.122	N/A	N/A	N/A	0.39	5.54	0.53	6.79	51.345		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.509	6925.92	14.3	0.372	12.9	231.0	#####	2.60%	Fine Tailings	0.054	107.6	2.92	0.219	2.70	1	0.39	5.051	0.48	6.88	4	3.27%	3.3	83%	3.17	0.219	2.95	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.27	39.14	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.21	77.12	0.123	N/A	N/A	N/A	0.39	5.62	0.54	6.88	51.509		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.673	6925.76	14.4	0.384	12.9	229.7	99.52	2.67%	Fine Tailings	0.054	107.6	2.93	0.224	2.71	1	0.39	5.073	0.49	6.90	4	3.36%	3.3	83%	3.18	0.224	2.95	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.27	39.17	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.29	77.91	0.124	N/A	N/A	N/A	0.39	5.64	0.54	6.90	51.673		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.837	6925.59	14.9	0.395	13.3	246.7	#####	2.66%	Fine Tailings	0.054	107.6	2.94	0.229	2.71	1	0.39	5.217	0.50	7.13	4	3.31%	3.3	83%	3.19	0.229	2.96	1	0	0.59	0.04	0.95	0.10	1.00	0.077	32.35	39.48	0.068	N/A	0.72	0.15	0.80	0.77	1.00	0.122	11.01	78.50	0.125	N/A	N/A	N/A	0.39	5.82	0.56	7.13	51.837		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.001	6925.43	16.1	0.433	14.6	241.5	#####	2.69%	Fine Tailings	0.054	107.6	2.95	0.234	2.71	1	0.39	5.712	0.55	7.72	5	3.29%	3.3	83%	3.20	0.234	2.96	1	0	0.59	0.04	0.94	0.10	1.00	0.077	32.56	40.27	0.069	N/A	0.72	0.16	0.80	0.77	1.00	0.122	10.44	80.53	0.129	N/A	N/A	N/A	0.39	6.30	0.60	7.72	52.001		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.165	6925.27	19.4	0.543	18.0	220.4	95.52	2.80%	Fine Tailings	0.054	107.6	2.96	0.239	2.72	1	0.39	7.050	0.68	9.29	6	3.30%	3.2	83%	3.20	0.239	2.97	1	0	0.58	0.04	0.94	0.10	1.00	0.078	33.10	42.39	0.071	N/A	0.71	0.18	0.80	0.77	1.00	0.122	9.26	86.04	0.139	N/A	N/A	N/A	0.39	7.59	0.73	9.29	52.165		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.329	6925.10	20.7	0.636	19.8	146.1	63.31	3.08%	Fine Tailings	0.054	107.6	2.96	0.244	2.72	1	0.39	7.714	0.74	9.88	7	3.59%	3.2	83%	3.21	0.244	2.97	1	0	0.58	0.05	0.94	0.10	1.00	0.078	33.31	43.19	0.071	N/A	0.71	0.18	0.80	0.77	1.00	0.122	9.18	90.72	0.149	N/A	N/A	N/A	0.39	8.07	0.77	9.88	52.329		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.493	6924.94	21.4	0.788	20.1	208.1	90.17	3.69%	Fine Tailings	0.054	107.6	2.97	0.249	2.72	1	0.39	7.831	0.75	10.21	7	4.28%	3.2	83%	3.22	0.249	2.97	1	0	0.58	0.05	0.94	0.10	1.00	0.078	33.42	43.63	0.072	N/A	0.71	0.18	0.80	0.77	1.00	0.122	9.60	98.00	0.168	N/A	N/A	N/A	0.39	8.34	0.80	10.21	52.493		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.657	6924.77	23.1	0.866	21.7	213.1	92.33	3.76%	Fine Tailings	0.054	107.6	2.98	0.254	2.73	1	0.39	8.465	0.81	11.00	7	4.31%	3.2	83%	3.23	0.254	2.98	1	0	0.58	0.05	0.94	0.10	1.00	0.078	33.69	44.69	0.073	N/A	0.71	0.19	0.80	0.77	1.00	0.122	9.20	101.17	0.176	N/A	N/A	N/A	0.39	8.98	0.86	11.00	52.657		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.821	6924.61	24.4	1.078	23.3	183.3	79.43	4.42%	Fine Tailings	0.054	107.6	2.99	0.260	2.73	1	0.39	9.052	0.87	11.63	8	5.03%	3.2	83%	3.24	0.260	2.98	1	0	0.58	0.05	0.94	0.10	1.00	0.078	33.91	45.54	0.073	N/A	0.71	0.20	0.80	0.77	1.00	0.122	9.44	109.80	0.203	N/A	N/A	N/A	0.39	9.50	0.91	11.63	52.821		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.985	6924.45	28.8	1.315	28.0	126.1	54.62	4.56%	Fine Tailings	0.054	107.6	3.00	0.265	2.73	1	0.39	10.900	1.04	13.72	9	5.09%	3.2	83%	3.25	0.265	2.98	1	0	0.58	0.05	0.94	0.10	1.00	0.078	34.63	48.36	0.076	N/A	0.71	0.21	0.80	0.77	1.00	0.122	8.60	118.02	0.233	N/A	N/A	N/A	0.39	11.21	1.07	13.72	52.985		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.149	6924.28	30.6	1.722	30.3	36.8	15.96	5.63%	Fine Tailings	0.054	107.6	3.01	0.270	2.74	1	0.39	11.782	1.13	14.54	10	6.25%	3.2	83%	3.26	0.270	2.99	1	0	0.58	0.05	0.94	0.10	1.00	0.078	34.92	49.45	0.077	N/A	0.71	0.22	0.80	0.77	1.00	0.122	9.06	131.63	0.292	N/A	N/A	N/A	0.39	11.87	1.14	14.54	53.149		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.313	6924.12	26.6	1.938	26.5	11.0	4.78	7.29%	Fine Tailings	0.054	107.6	3.02	0.275	2.74	1	0.39	10.284	0.99	12.63	9	8.23%	3.3	83%	3.27	0.275	2.99	1	0	0.58	0.05	0.94	0.10	1.00	0.078	34.25	46.88	0.075	N/A	0.71	0.21	0.80	0.77	1.00	0.122	10.95	138.24	0.326	N/A	N/A	N/A	0.39	10.31	0.99	12.63	53.313		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.477	6923.95	22.4	1.813	22.3	18.9	8.19	8.08%	Fine Tailings	0.054	107.6	3.03	0.280	2.75	1	0.39	8.645	0.83	10.64	7	9.34%	3.4	83%	3.28	0.280	3.00	1	0	0.58	0.05	0.94	0.10	1.00	0.077	33.57	44.21	0.072	N/A	0.70	0.19	0.80	0.77	1.00	0.122	12.60	134.05	0.304	N/A	N/A	N/A	0.39	8.69	0.83	10.64	53.477		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.641	6923.79	20.1	1.307	19.8	48.4	20.96	6.50%	Fine Tailings	0.054	107.6	3.03	0.285	2.75	1	0.39	7.672	0.73	9.54	6	7.65%	3.4	83%	3.28	0.285	3.00	1	0	0.58	0.04	0.94	0.10	1.00	0.077	33.19	42.72	0.071	N/A	0.70	0.18	0.80	0.77	1.00	0.122	12.40	118.29	0.234	N/A	N/A	N/A	0.39	7.79	0.75	9.54	53.641		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.805	6923.62	18.1	0.954	17.5	84.0	36.40	5.28%	Fine Tailings	0.054	107.6	3.04	0.290	2.75	1	0.39	6.779	0.65	8.55	5	6.36%	3.4	83%	3.29	0.290	3.00	1	0	0.57	0.04	0.94	0.10	1.00	0.077	32.84	41.39	0.070	N/A	0.70	0.17	0.80	0.77	1.00	0.122	12.34	105.50	0.189	N/A	N/A	N/A	0.39	6.98	0.67	8.55	53.805		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.969	6923.46	17.7	0.885	17.4	40.9	17.71	5.01%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	0.36	6.205	0.59	7.71	5	6.06%	3.4	76%	3.30	0.000	3.30	0	0	0.57	0.04	0.94	0.10	1.00	0.071	32.68	40.39	0.069	N/A	0.70	0.16	0.80	0.76	1.00	0.113	12.92	99.62	0.172	N/A	N/A	N/A	0.36	6.30	0.60	7.71	53.969		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.133	6923.30	18.0	1.099	17.7	42.0	18.18	6.11%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	0.36	6.304	0.60	7.83	5	7.37%	3.5	76%	3.31	0.000	3.31	0	0	0.57	0.04	0.94	0.10	1.00	0.070	32.72	40.56	0.069	N/A	0.70	0.16	0.80	0.76	1.00	0.113	13.69	107.27	0.195	N/A	N/A	N/A	0.36	6.40	0.61	7.83	54.133		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.297	6923.13	27.8	1.519	27.3	77.6	33.61	5.46%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	0.35	9.701	0.93	12.09	8	6.14%	3.3	76%	3.32	0.000	3.32	0	0	0.57	0.05	0.93	0.10	1.00	0.071	34.20	46.29	0.074	N/A	0.70	0.20	0.80	0.76	1.00	0.113	10.06	121.66	0.247	N/A	N/A	N/A	0.35	9.87	0.95	12.09	54.297		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.461	6922.97	48.6	2.094	48.1	74.9	32.46	4.31%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	0.35	17.043	1.63	21.07	15	4.60%	3.0	76%	3.33	0.000	3.33	0	0	0.57	0.05	0.93	0.10	1.00	0.071	37.32	58.40	0.086	N/A	0.70	0.27	0.80	0.75	1.00	0.113	6.45	135.93	0.314	N/A	N/A	N/A	0.35	17.21	1.65	21.07	54.461		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.625	6922.80	52.8	2.211	52.7	17.4	7.52	4.19%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	0.36	18.999	1.82	23.31	16	4.45%	2.9	76%	3.34	0.000	3.34	0	0	0.57	0.05	0.92	0.10	1.00	0.071	38.10	61.41	0.089	N/A	0.69	0.28	0.80	0.75	1.00	0.113	6.05	141.03	0.341	N/A	N/A	N/A	0.36	19.04	1.82	23.31	54.625		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.789	6922.64	74.5	1.977	74.4	12.3	5.33	2.66%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	0.39	29.338	2.81	35.96	23	2.77%	2.7	76%	3.35	0.000	3.35	0	0	0.57	0.06	0.91	0.06	1.00	0.072	42.49	78.46	0.111	N/A	0.69	0.35	0.80	0.75	1.00	0.112	3.89	139.84	0.334	N/A	N/A	N/A	0.39	29.37	2.81	35.96	54.789		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.953	6922.48	86.2	0.896	86.1	7.7	3.35	1.04%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	0.41	35.395	3.39	43.37	27	1.08%	2.4	76%	3.36	0.000	3.36	0	0	0.57	0.07	0.91	0.00	1.00	0.072	45.06	88.43	0.125	N/A	0.69	0.38	0.80	0.75	1.00	0.112	2.30	99.81	0.172	N/A	N/A	N/A	0.41	35.41	3.39	43.37	54.953		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.117	6922.31	98.4	1.047	98.4	8.0	3.46	1.06%	Coarse Alluvium	0.056	111.0	3.12	0.000	3.12	0	0.43	42.089	4.03	51.57	31	1.10%	2.4	36%	3.37	0.000	3.37	0	0	0.57	0.07	0.90	-0.07	1.00	0.073	47.58	99.15	0.141	N/A	0.69	0.41	0.79	0.75	1.00	0.113	2.13	109.68	0.203	N/A	N/A	N/A	0.43	42.11	4.03	51.57	55.117		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.281	6922.15	122.4	1.603	122.3	20.7	8.95	1.31%	Coarse Alluvium	0.056	111.0	3.13	0.000	3.13	0	0.46	56.383	5.40	69.11	38	1.34%	2.3	36%	3.38	0.000	3.38	0	0	0.56	0.08	0.88	-0.17	1.00	0.074	53.63	122.75	0.186	N/A	0.69	0.48	0.76	0.71	1.00	0.119	2.02	139.43	0.332	N/A	N/A	N/A	0.46	56.44	5.40	69.11	55.281		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.446	6921.98	175.1	1.595	175.0	16.6	7.18	0.91%	Coarse Alluvium	0.056	111.0	3.14	0.000	3.14	0	0.53	93.091	8.92	114.06	55	0.93%	2.1	36%	3.39	0.000	3.39	0	0	0.56	0.12	0.83	-0.38	1.00	0.078	69.13	183.19	0.592	N/A	0.69	0.62	0.69	0.64	1.00	0.131	1.45	165.86	1.000	N/A	N/A	N/A	0.53	93.15	8.92	114.06	55.446		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.610	6921.82	169.2	2.120	169.1	13.5	5.84	1.25%	Coarse Alluvium	0.056	111.0	3.15	0.000	3.15	0	0.52	88.436	8.47	108.34	53	1.28%	2.2	36%	3.40	0.000	3.40	0	0	0.56	0.11	0.84	-0.36	1.00	0.078	67.16	175.51	0.470	N/A	0.69	0.60	0.70	0.65	1.00	0.129	1.65	179.05	1.000	N/A	N/A	N/A	0.52	88.48	8.47	108.34	55.610		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.774	6921.66	157.0	2.567	156.9	8.2	3.54	1.64%	Coarse Alluvium	0.056	111.0	3.16	0.000	3.16	0	0.51	79.298	7.60	97.13	49	1.67%	2.3	36%	3.41	0.000	3.41	0	0	0.56	0.10	0.85	-0.31	1.00	0.076	63.30	160.43	0.329	N/A	0.69	0.57	0.72	0.67	1.00	0.126	1.93	187.13	1.000	N/A	N/A	N/A	0.51	79.32	7.59	97.13	55.774		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.938	6921.49	142.0	2.604	141.9	6.2	2.70	1.83%	Coarse Alluvium	0.056	111.0	3.17	0.000	3.17	0	0.48	68.669	6.58	84.11	44	1.88%	2.4	36%	3.42	0.000	3.42	0	0	0.56	0.09	0.87	-0.25	1.00	0.075	58.80	142.91	0.243	N/A	0.68	0.53	0.74	0.68	1.00	0.122	2.16	181.56	1.000	N/A	N/A	N/A	0.48	68.69	6.58	84.11	55.938		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.102	6921.33	122.9	2.604	122.8	5.1	2.22	2.12%	Coarse Alluvium	0.056	111.0	3.18	0.000	3.18	0	0.46	56.045	5.37	68.65	38	2.18%	2.5	36%	3.43	0.000	3.43	0	0	0.56	0.08	0.88	-0.17	1.00	0.073	53.47	122.12	0.184	N/A	0.68	0.48	0.76	0.71	1.00	0.118	2.54	174.25	1.000	N/A	N/A	N/A	0.46	56.06	5.37	68.65	56.102		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.266	6921.16	108.3	2.477	108.3	4.7	2.03	2.29%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	0.43	47.093	4.51	57.68	33	2.36%	2.5	36%	3.44	0.000	3.44	0	0	0.56	0.08	0.89	-0.10	1.00	0.072	49.69	107.37	0.155	N/A	0.68	0.44	0.78	0.73	1.00	0.114	2.86	165.21	1.000	N/A	N/A	N/A	0.43	47.11	4.51	57.68	56.266		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.430	6921.00	99.3	2.397	99.2	5.1	2.20	2.41%	Coarse Alluvium	0.056	111.0	3.19	0.000	3.19	0	0.42	41.773	4.00	51.17	30	2.49%	2.6	36%	3.44	0.000	3.44	0	0	0.56	0.07	0.90	-0.06	1.00	0.072	47.44	98.61	0.140	N/A	0.68	0.41	0.79	0.74	1.00	0.112	3.12	159.78	0.459	N/A	N/A	N/A	0.42	41.79	4.00	51.17	56.430		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.594	6920.84	88.6	2.278	88.5	5.0	2.18	2.57%	Coarse Alluvium	0.056	111.0	3.20	0.000	3.20	0	0.40	35.796	3.43	43.85	27	2.67%	2.6	36%	3.45	0.000	3.45	0	0	0.56	0.07	0.90	-0.01	1.00	0.071	44.92	88.77	0.125	N/A	0.68	0.38	0.80	0.75	1.00	0.111	3.48	152.71	0.411	N/A	N/A	N/A	0.40	35.81	3.43	43.85	56.594		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.758	6920.67	79.2	1.818	79.2	5.0	2.15	2.30%	Coarse Alluvium	0.056	111.0	3.21	0.000	3.21	0	0.39	30.823	2.95	37.76	24	2.39%	2.6	36%	3.46	0.000	3.46	0	0	0.56	0.06	0.91	0.04	1.00	0.071	42.82	80.58	0.113	N/A	0.68	0.35	0.80	0.75	1.00	0.111	3.56	134.31	0.305	N/A	N/A	N/A	0.39	30.83	2.95	37.76	56.758		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
56.922	6920.51	78.3	1.667	78.3	7.6	3.29	2.13%	Coarse Alluvium	0.056	111.0	3.22	0.000	3.22	0	0.39	30.296	2.90	37.12	23	2.22%	2.6	36%	3.47	0.000	3.47	0	0	0.55	0.06	0.91	0.05	1.00	0.071	42.60	79.72	0.112	N/A	0.68	0.35	0.80	0.75	1.00	0.110	3.46	128.55	0.278	N/A	N/A	N/A	0.39	30.31	2.90	37.12	56.922		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.086	6920.34	78.1	1.590	78.0	7.1	3.07	2.04%	Coarse Alluvium	0.056	111.0	3.23	0.000	3.23	0	0.39	30.087	2.88	36.86	23	2.13%	2.6	36%	3.48	0.000	3.48	0	0	0.55	0.06	0.91	0.05	1.00	0.070	42.51	79.37	0.112	N/A	0.67	0.35	0.80	0.75	1.00	0.110	3.41	125.56	0.264	N/A	N/A	N/A	0.39	30.10	2.88	36.86	57.086		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.250	6920.18	79.5	1.632	79.4	6.5	2.81	2.05%	Coarse Alluvium	0.056	111.0	3.24	0.000	3.24	0	0.39	30.721	2.94	37.64	24	2.14%	2.6	36%	3.49	0.000	3.49	0	0	0.55	0.06	0.91	0.04	1.00	0.070	42.78	80.42	0.113	N/A	0.67	0.35	0.80	0.75	1.00	0.110	3.38	127.37	0.272	N/A	N/A	N/A	0.39	30.74	2.94	37.64	57.250		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.414	6920.02	90.2	1.782	90.2	6.8	2.93	1.97%	Coarse Alluvium	0.056	111.0	3.25	0.000	3.25	0	0.40	36.238	3.47	44.40	27	2.05%	2.6	36%	3.50	0.000	3.50	0	0	0.55	0.07	0.90	-0.01	1.00	0.071	45.11	89.50	0.126	N/A	0.67	0.38	0.80	0.75	1.00	0.110	3.05	135.40	0.311	N/A	N/A	N/A	0.40	36.26	3.47	44.40	57.414		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.578	6919.85	98.3	1.799	98.3	6.8	2.93	1.83%	Coarse Alluvium	0.056	111.0	3.26	0.000	3.26	0	0.41	40.544	3.88	49.67	29	1.89%	2.5	36%	3.51	0.000	3.51	0	0	0.55	0.07	0.90	-0.05	1.00	0.071	46.93	96.59	0.137	N/A	0.67	0.41	0.80	0.74	1.00	0.110	2.78	138.07	0.325	N/A	N/A	N/A	0.41	40.56	3.88	49.67	57.578		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.742	6919.69	100.9	1.873	100.8	6.4	2.76	1.86%	Coarse Alluvium	0.056	111.0	3.27	0.000	3.27	0	0.42	41.864	4.01	51.28	30	1.92%	2.5	36%	3.52	0.000	3.52	0	0	0.55	0.07	0.90	-0.06	1.00	0.071	47.48	98.77	0.141	N/A	0.67	0.41	0.79	0.74	1.00	0.111	2.76	141.38	0.343	N/A	N/A	N/A	0.42	41.88	4.01	51.28	57.742		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
57.906	6919.52	102.1	1.920	102.1	6.4	2.76	1.88%	Coarse Alluvium	0.056	111.0	3.28	0.000	3.28	0	0.42	42.481	4.07	52.04	30	1.94%	2.5	36%	3.53	0.000	3.53	0	0	0.55	0.07	0.89	-0.07	1.00	0.071	47.74	99.78	0.142	N/A	0.67	0.42	0.79	0.74	1.00	0.111	2.75	143.35	0.354	N/A	N/A	N/A	0.42	42.50	4.07	52.04	57.906		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.070	6919.36	96.5	1.922	96.5	5.8	2.50	1.99%	Coarse Alluvium	0.056	111.0	3.29	0.000	3.29	0	0.41	39.277	3.76	48.11	28	2.06%	2.5	36%	3.54	0.000	3.54	0	0	0.55	0.07	0.90	-0.04	1.00	0.070	46.39	94.50	0.134	N/A	0.67	0.40	0.80	0.75	1.00	0.109	2.95	141.79	0.345	N/A	N/A	N/A	0.41	39.29	3.76	48.11	58.070		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.234	6919.20	83.6	1.922	83.6	5.1	2.20	2.30%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	0.39	32.351	3.10	39.63	24	2.39%	2.6	36%	3.54	0.000	3.54	0	0	0.55	0.06	0.91	0.03	1.00	0.070	43.46	83.09	0.117	N/A	0.67	0.36	0.80	0.75	1.00	0.109	3.49	138.33	0.326	N/A	N/A	N/A	0.39	32.36	3.10	39.63	58.234		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.398	6919.03	69.4	1.998	69.4	4.8	2.09	2.88%	Coarse Alluvium	0.056	111.0	3.30	0.000	3.30	0	0.36	25.294	2.42	30.99	20	3.02%	2.8	36%	3.55	0.000	3.55	0	0	0.55	0.06	0.91	0.10	1.00	0.069	40.48	71.47	0.101	N/A	0.66	0.32	0.80	0.75	1.00	0.109	4.42	137.08	0.320	N/A	N/A	N/A	0.36	25.30	2.42	30.99	58.398		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.562	6918.87	52.8	2.089	52.8	5.0	2.18	3.96%	Coarse Alluvium	0.056	111.0	3.31	0.000	3.31	0	0.34	17.794	1.70	21.80	15	4.22%	2.9	36%	3.56	0.000	3.56	0	0	0.54	0.05	0.92	0.10	1.00	0.068	37.32	59.12	0.087	N/A	0.66	0.27	0.80	0.74	1.00	0.109	6.16	134.25	0.305	N/A	N/A	N/A	0.34	17.80	1.70	21.80	58.562		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.726	6918.70	54.1	2.266	54.1	6.2	2.68	4.19%	Coarse Alluvium	0.056	111.0	3.32	0.000	3.32	0	0.34	18.292	1.75	22.41	15	4.46%	3.0	36%	3.57	0.000	3.57	0	0	0.54	0.05	0.92	0.10	1.00	0.068	37.53	59.94	0.088	N/A	0.66	0.27	0.80	0.74	1.00	0.109	6.24	139.80	0.334	N/A	N/A	N/A	0.34	18.31	1.75	22.41	58.726		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
58.890	6918.54	64.3	2.249	64.3	6.0	2.58	3.50%	Coarse Alluvium	0.056	111.0	3.33	0.000	3.33	0	0.35	22.744	2.18	27.87	18	3.69%	2.8	36%	3.58	0.000	3.58	0	0	0.54	0.06	0.92	0.10	1.00	0.069	39.41	67.27	0.096	N/A	0.66	0.30	0.80	0.74	1.00	0.108	5.14	143.14	0.353	N/A	N/A	N/A	0.35	22.76	2.18	27.87	58.890		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.054	6918.38	83.2	2.213	83.2	6.8	2.95	2.66%	Coarse Alluvium	0.056	111.0	3.34	0.000	3.34	0	0.38	31.764	3.04	38.91	24	2.77%	2.7	36%	3.59	0.000	3.59	0	0	0.54	0.06	0.90	0.04	1.00	0.069	43.22	82.13	0.116	N/A	0.66	0.36	0.80	0.74	1.00	0.108	3.79	147.67	0.379	N/A	N/A	N/A	0.38	31.78	3.04	38.91	59.054		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.218	6918.21	99.1	1.992	99.1	6.7	2.91	2.01%	Coarse Alluvium	0.056	111.0	3.35	0.000	3.35	0	0.40	40.009	3.83	49.01	29	2.08%	2.5	36%	3.60	0.000	3.60	0	0	0.54	0.07	0.90	-0.04	1.00	0.070	46.70	95.71	0.136	N/A	0.66	0.40	0.80	0.74	1.00	0.108	2.95	144.44	0.360	N/A	N/A	N/A	0.40	40.03	3.83	49.01	59.218		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.382	6918.05	91.2	1.743	91.2	5.6	2.44	1.91%	Coarse Alluvium	0.056	111.0	3.36	0.000	3.36	0	0.39	35.728	3.42	43.77	26	1.98%	2.6	36%	3.61	0.000	3.61	0	0	0.54	0.07	0.90	0.00	1.00	0.069	44.89	88.66	0.125	N/A	0.66	0.38	0.80	0.74	1.00	0.108	3.05	133.36	0.301	N/A	N/A	N/A	0.39	35.74	3.42	43.77	59.382		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.547	6917.88	89.9	1.702	89.9	5.6	2.44	1.89%	Coarse Alluvium	0.056	111.0	3.37	0.000	3.37	0	0.39	34.944	3.35	42.81	26	1.97%	2.6	36%	3.62	0.000	3.62	0	0	0.54	0.07	0.90	0.00	1.00	0.069	44.56	87.37	0.123	N/A	0.65	0.38	0.80	0.74	1.00	0.108	3.07	131.45	0.291	N/A	N/A	N/A	0.39	34.96	3.35	42.81	59.547		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.711	6917.72	91.8	1.836	91.8	6.1	2.62	2.00%	Coarse Alluvium	0.056	111.0	3.38	0.000	3.38	0	0.39	35.855	3.43	43.92	26	2.08%	2.6	36%	3.63	0.000	3.63	0	0	0.54	0.07	0.90	-0.01	1.00	0.069	44.95	88.87	0.125	N/A	0.65	0.38	0.80	0.74	1.00	0.108	3.11	136.71	0.318	N/A	N/A	N/A	0.39	35.87	3.43	43.92	59.711		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
59.875	6917.56	94.4	1.834	94.3	5.8	2.52	1.94%	Coarse Alluvium	0.056	111.0	3.39	0.000	3.39	0	0.39	37.109	3.55	45.46	27	2.02%	2.5	36%	3.64	0.000	3.64	0	0	0.54	0.07	0.90	-0.02	1.00	0.069	45.47	90.93	0.128	N/A	0.65	0.39	0.80	0.74	1.00	0.107	3.02	137.24	0.320	N/A	N/A	N/A	0.39	37.12	3.55	45.46	59.875		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.039	6917.39	92.1	1.915	92.1	5.4	2.32	2.08%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	0.39	35.851	3.43	43.92	26	2.16%	2.6	36%	3.64	0.000	3.64	0	0	0.54	0.07	0.90	0.00	1.00	0.069	44.94	88.86	0.125	N/A	0.65	0.38	0.80	0.74	1.00	0.107	3.18	139.44	0.332	N/A	N/A	N/A	0.39	35.86	3.43	43.92	60.039		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.203	6917.23	84.6	2.042	84.5	5.2	2.26	2.42%	Coarse Alluvium	0.056	111.0	3.40	0.000	3.40	0	0.38	31.892	3.05	39.07	24	2.52%	2.6	36%	3.65	0.000	3.65	0	0	0.53	0.06	0.90	0.03	1.00	0.068	43.27	82.34	0.116	N/A	0.65	0.36	0.80	0.74	1.00	0.107	3.63	141.69	0.345	N/A	N/A	N/A	0.38	31.90	3.05	39.07	60.203		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.367	6917.06	86.8	2.158	86.8	5.4	2.34	2.48%	Coarse Alluvium	0.056	111.0	3.41	0.000	3.41	0	0.38	32.967	3.16	40.38	24	2.59%	2.6	36%	3.66	0.000	3.66	0	0	0.53	0.07	0.90	0.02	1.00	0.068	43.72	84.11	0.118	N/A	0.65	0.37	0.80	0.74	1.00	0.107	3.62	146.14	0.370	N/A	N/A	N/A	0.38	32.98	3.16	40.38	60.367		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.531	6916.90	93.5	2.428	93.5	5.4	2.36	2.60%	Coarse Alluvium	0.056	111.0	3.42	0.000	3.42	0	0.39	36.325	3.48	44.50	26	2.69%	2.6	36%	3.67	0.000	3.67	0	0	0.53	0.07	0.90	-0.01	1.00	0.069	45.14	89.64	0.126	N/A	0.65	0.39	0.80	0.74	1.00	0.107	3.53	156.86	0.439	N/A	N/A	N/A	0.39	36.34	3.48	44.50	60.531		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.695	6916.74	73.1	2.546	73.1	3.8	1.65	3.48%	Coarse Alluvium	0.056	111.0	3.43	0.000	3.43	0	0.36	26.149	2.50	32.03	20	3.65%	2.8	36%	3.68	0.000	3.68	0	0	0.53	0.06	0.91	0.10	1.00	0.068	40.84	72.87	0.103	N/A	0.65	0.33	0.80	0.74	1.00	0.107	4.80	153.88	0.419	N/A	N/A	N/A	0.36	26.16	2.50	32.03	60.695		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
60.859	6916.57	54.9	2.741	54.9	3.9	1.67	4.99%	Coarse Alluvium	0.056	111.0	3.44	0.000	3.44	0	0.33	18.018	1.73	22.07	15	5.33%	3.0	36%	3.69	0.000	3.69	0	0	0.53	0.05	0.92	0.10	1.00	0.067	37.41	59.48	0.087	N/A	0.64	0.27	0.80	0.74	1.00	0.106	6.85	151.18	0.401	N/A	N/A	N/A	0.33	18.03	1.73	22.07	60.859		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
61.023	6916.41	47.0	2.681	47.0	4.7	2.02	5.70%	Coarse Alluvium	0.056	111.0	3.45	0.000	3.45	0	0.32	15.227	1.46	18.66	13	6.16%	3.1	36%	3.70	0.000	3.70	0	0	0.53	0.05	0.92	0.10	1.00	0.066	36.23	54.89	0.082	N/A	0.64	0.25	0.80	0.74	1.00	0.106	8.00	149.35	0.390	N/A	N/A	N/A	0.32	15.24	1.46	18.66	61.023	23	1.00	21	10	0.49	0.53	0.45	5.5	15.0	0.16	N/A	5.00	1.20	16.40	0.174	N/A	N/A
61.187	6916.24	59.9	2.474	59.9	7.6	3.28	4.13%	Coarse Alluvium	0.056	111.0	3.46	0.000	3.46	0	0.33	20.027	1.92	24.54	16	4.38%	2.9	36%	3.71	0.000	3.71	0	0	0.53	0.06	0.92	0.10	1.00	0.067	38.26	62.80	0.091	N/A	0.64	0.29	0.80	0.74	1.00	0.106	5.96	146.24	0.371	N/A	N/A	N/A	0.33	20.04	1.92	24.54	61.187		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
61.351	6916.08	57.7	2.418	57.6	5.5	2.38	4.19%	Coarse Alluvium	0.056	111.0	3.47	0.000	3.47	0	0.33	19.026	1.82	23.31	16	4.46%	2.9	36%	3.72	0.000	3.72	0	0	0.53	0.05	0.92	0.10	1.00	0.067	37.84	61.15	0.089	N/A	0.64	0.28	0.80	0.74	1.00	0.106	6.16	143.56	0.355	N/A	N/A	N/A	0.33	19.04	1.82	23.31	61.351		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
61.515	6915.92	50.8	2.422	50.7	4.9	2.11	4.77%	Coarse Alluvium	0.056	111.0	3.48	0.000	3.48	0	0.32	16.345	1.57	20.03	14	5.12%	3.0	36%	3.73	0.000	3.73	0	0	0.53	0.05	0.92	0.10	1.00	0.066	36.70	56.73	0.084	N/A	0.64	0.26	0.80	0.74	1.00	0.106	7.09	141.92	0.346	N/A	N/A	N/A	0.32	16.35	1.57	20.03	61.515		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
61.679	6915.75	45.5	2.292	45.5	5.8	2.52	5.03%	Coarse Alluvium	0.056	111.0	3.49	0.000	3.49	0	0.32	14.633	1.40	17.93	12	5.45%	3.1	36%	3.74	0.000	3.74	0	0	0.53	0.05	0.92	0.10	1.00	0.066	35.98	53.91	0.081	N/A	0.64	0.24	0.80	0.74	1.00	0.106	7.77	139.34	0.332	N/A	N/A	N/A	0.32	14.65	1.40	17.93	61.679		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
61.843	6915.59	49.3	2.345	49.2	7.1	3.07	4.76%	Coarse Alluvium	0.056	111.0	3.50	0.000	3.50	0	0.32	15.791	1.51	19.35	13	5.12%	3.0	36%	3.74	0.000	3.74	0	0	0.53	0.05	0.92	0.10	1.00	0.066	36.47	55.83	0.083	N/A	0.64	0.25	0.80	0.74	1.00	0.105	7.24	140.05	0.335	N/A	N/A	N/A	0.32	15.80	1.51	19.35	61.843		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.007	6915.42	62.8	2.091	62.8	8.0	3.48	3.33%	Coarse Alluvium	0.056	111.0	3.50	0.000	3.50	0	0.33	21.030	2.01	25.77	17	3.52%	2.9	36%	3.75	0.000	3.75	0	0	0.52	0.06	0.91	0.10	1.00	0.066	38.69	64.46	0.093	N/A	0.63	0.29	0.80	0.74	1.00	0.105	5.26	135.65	0.312	N/A	N/A	N/A	0.33	21.05	2.01	25.77	62.007		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.171	6915.26	81.9	2.022	81.9	7.3	3.17	2.47%	Coarse Alluvium	0.056	111.0	3.51	0.000	3.51	0	0.36	29.715	2.85	36.41	22	2.58%	2.7	36%	3.76	0.000	3.76	0	0	0.52	0.06	0.90	0.06	1.00	0.067	42.35	78.76	0.111	N/A	0.63	0.35	0.80	0.74	1.00	0.105	3.82	139.25	0.331	N/A	N/A	N/A	0.36	29.73	2.85	36.41	62.171		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.335	6915.09	94.4	1.820	94.4	6.3	2.75	1.93%	Coarse Alluvium	0.056	111.0	3.52	0.000	3.52	0	0.38	35.859	3.43	43.93	26	2.00%	2.6	36%	3.77	0.000	3.77	0	0	0.52	0.07	0.90	0.00	1.00	0.067	44.95	88.87	0.125	N/A	0.63	0.38	0.80	0.74	1.00	0.105	3.09	135.66	0.312	N/A	N/A	N/A	0.38	35.87	3.43	43.93	62.335		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.499	6914.93	97.3	1.785	97.3	6.1	2.62	1.83%	Coarse Alluvium	0.056	111.0	3.53	0.000	3.53	0	0.38	37.259	3.57	45.64	27	1.90%	2.5	36%	3.78	0.000	3.78	0	0	0.52	0.07	0.90	-0.02	1.00	0.067	45.54	91.18	0.129	N/A	0.63	0.39	0.80	0.74	1.00	0.105	2.96	135.14	0.310	N/A	N/A	N/A	0.38	37.27	3.57	45.64	62.499		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.663	6914.77	90.0	2.240	90.0	5.3	2.30	2.49%	Coarse Alluvium	0.056	111.0	3.54	0.000	3.54	0	0.37	33.470	3.21	41.00	24	2.59%	2.6	36%	3.79	0.000	3.79	0	0	0.52	0.07	0.90	0.02	1.00	0.067	43.94	84.94	0.120	N/A	0.63	0.37	0.80	0.74	1.00	0.105	3.62	148.51	0.385	N/A	N/A	N/A	0.37	33.48	3.21	41.00	62.663		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.827	6914.60	81.6	2.978	81.6	5.1	2.20	3.65%	Coarse Alluvium	0.056	111.0	3.55	0.000	3.55	0	0.36	29.279	2.80	35.87	22	3.81%	2.8	36%	3.80	0.000	3.80	0	0	0.52	0.06	0.90	0.06	1.00	0.066	42.17	78.03	0.110	N/A	0.63	0.35	0.80	0.74	1.00	0.104	4.68	167.96	1.000	N/A	N/A	N/A	0.36	29.29	2.80	35.87	62.827		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
62.991	6914.44	85.3	3.029	85.2	6.2	2.67	3.55%	Coarse Alluvium	0.056	111.0	3.56	0.000	3.56	0	0.36	30.962	2.97	37.93	23	3.71%	2.8	36%	3.81	0.000	3.81	0	0	0.52	0.06	0.90	0.05	1.00	0.066	42.88	80.81	0.114	N/A	0.63	0.36	0.80	0.73	1.00	0.104	4.50	170.70	1.000	N/A	N/A	N/A	0.36	30.98	2.97	37.93	62.991		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.155	6914.27	104.6	2.560	104.5	7.0	3.01	2.45%	Coarse Alluvium	0.056	111.0	3.57	0.000	3.57	0	0.39	40.744	3.90	49.91	28	2.53%	2.6	36%	3.82	0.000	3.82	0	0	0.52	0.07	0.89	-0.05	1.00	0.067	47.01	96.92	0.138	N/A	0.63	0.41	0.80	0.73	1.00	0.105	3.27	163.11	1.000	N/A	N/A	N/A	0.39	40.76	3.90	49.91	63.155		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.319	6914.11	113.6	2.098	113.5	6.5	2.83	1.85%	Coarse Alluvium	0.056	111.0	3.58	0.000	3.58	0	0.40	45.563	4.36	55.81	31	1.91%	2.5	36%	3.83	0.000	3.83	0	0	0.52	0.07	0.88	-0.09	1.00	0.068	49.05	104.86	0.151	N/A	0.62	0.43	0.78	0.72	1.00	0.106	2.70	150.65	0.398	N/A	N/A	N/A	0.40	45.58	4.36	55.81	63.319		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.483	6913.95	113.9	2.009	113.8	6.7	2.89	1.76%	Coarse Alluvium	0.056	111.0	3.59	0.000	3.59	0	0.40	45.637	4.37	55.90	31	1.82%	2.5	36%	3.84	0.000	3.84	0	0	0.52	0.07	0.88	-0.09	1.00	0.067	49.08	104.98	0.151	N/A	0.62	0.43	0.78	0.72	1.00	0.106	2.64	147.61	0.379	N/A	N/A	N/A	0.40	45.65	4.37	55.90	63.483		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.648	6913.78	95.7	2.337	95.7	5.5	2.40	2.44%	Coarse Alluvium	0.056	111.0	3.60	0.000	3.60	0	0.37	35.854	3.43	43.92	26	2.54%	2.6	36%	3.84	0.000	3.84	0	0	0.52	0.07	0.90	0.00	1.00	0.066	44.94	88.86	0.125	N/A	0.62	0.38	0.80	0.73	1.00	0.104	3.48	152.86	0.412	N/A	N/A	N/A	0.37	35.87	3.43	43.92	63.648		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.812	6913.62	77.3	2.500	77.3	5.3	2.28	3.23%	Coarse Alluvium	0.056	111.0	3.60	0.000	3.60	0	0.35	26.847	2.57	32.89	20	3.39%	2.8	36%	3.85	0.000	3.85	0	0	0.51	0.06	0.91	0.09	1.00	0.066	41.14	74.03	0.105	N/A	0.62	0.33	0.80	0.73	1.00	0.103	4.62	151.83	0.405	N/A	N/A	N/A	0.35	26.86	2.57	32.89	63.812		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
63.976	6913.45	65.3	2.806	65.3	5.2	2.24	4.30%	Coarse Alluvium	0.056	111.0	3.61	0.000	3.61	0	0.33	21.466	2.06	26.30	17	4.55%	2.9	36%	3.86	0.000	3.86	0	0	0.51	0.06	0.91	0.10	1.00	0.065	38.87	65.16	0.094	N/A	0.62	0.30	0.80	0.73	1.00	0.103	5.91	155.42	0.429	N/A	N/A	N/A	0.33	21.48	2.06	26.30	63.976		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.140	6913.29	62.1	2.838	62.1	7.6	3.28	4.57%	Coarse Alluvium	0.056	111.0	3.62	0.000	3.62	0	0.32	20.066	1.92	24.59	16	4.85%	3.0	36%	3.87	0.000	3.87	0	0	0.51	0.06	0.91	0.10	1.00	0.065	38.28	62.87	0.091	N/A	0.62	0.29	0.80	0.73	1.00	0.103	6.29	154.56	0.423	N/A	N/A	N/A	0.32	20.08	1.92	24.59	64.140		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.304	6913.13	62.1	2.935	62.0	7.3	3.17	4.73%	Coarse Alluvium	0.056	111.0	3.63	0.000	3.63	0	0.32	19.991	1.91	24.50	16	5.02%	3.0	36%	3.88	0.000	3.88	0	0	0.51	0.06	0.91	0.10	1.00	0.065	38.25	62.74	0.091	N/A	0.62	0.29	0.80	0.73	1.00	0.103	6.40	156.84	0.439	N/A	N/A	N/A	0.32	20.01	1.92	24.50	64.304		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.468	6912.96	60.8	2.689	60.7	6.7	2.91	4.42%	Coarse Alluvium	0.056	111.0	3.64	0.000	3.64	0	0.32	19.410	1.86	23.78	16	4.71%	3.0	36%	3.89	0.000	3.89	0	0	0.51	0.05	0.91	0.10	1.00	0.065	38.00	61.78	0.090	N/A	0.61	0.28	0.80	0.73	1.00	0.103	6.30	149.77	0.392	N/A	N/A	N/A	0.32	19.42	1.86	23.78	64.468		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.632	6912.80	64.0	2.694	63.9	7.3	3.15	4.21%	Coarse Alluvium	0.056	111.0	3.65	0.000	3.65	0	0.32	20.692	1.98	25.36	17	4.47%	2.9	36%	3.90	0.000	3.90	0	0	0.51	0.06	0.91	0.10	1.00	0.065	38.54	63.90	0.092	N/A	0.61	0.29	0.80	0.73	1.00	0.103	5.97	151.30	0.402	N/A	N/A	N/A	0.32	20.71	1.98	25.36	64.632		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.796	6912.63	51.7	2.453	51.6	6.5	2.83	4.75%	Coarse Alluvium	0.056	111.0	3.66	0.000	3.66	0	0.31	15.984	1.53	19.59	13	5.11%	3.0	36%	3.91	0.000	3.91	0	0	0.51	0.05	0.92	0.10	1.00	0.064	36.55	56.14	0.084	N/A	0.61	0.26	0.80	0.73	1.00	0.102	7.22	141.39	0.343	N/A	N/A	N/A	0.31	16.00	1.53	19.59	64.796		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
64.960	6912.47	58.3	2.154	58.3	7.8	3.40	3.69%	Coarse Alluvium	0.056	111.0	3.67	0.000	3.67	0	0.31	18.258	1.75	22.38	15	3.94%	2.9	36%	3.92	0.000	3.92	0	0	0.51	0.05	0.92	0.10	1.00	0.064	37.51	59.89	0.088	N/A	0.61	0.27	0.80	0.73	1.00	0.102	5.98	133.74	0.302	N/A	N/A	N/A	0.31	18.27	1.75	22.38	64.960		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.124	6912.31	62.3	2.066	62.2	6.8	2.95	3.32%	Coarse Alluvium	0.056	111.0	3.68	0.000	3.68	0	0.32	19.825	1.90	24.29	16	3.53%	2.9	36%	3.93	0.000	3.93	0	0	0.51	0.06	0.91	0.10	1.00	0.064	38.18	62.47	0.091	N/A	0.61	0.28	0.80	0.73	1.00	0.102	5.46	132.63	0.297	N/A	N/A	N/A	0.32	19.84	1.90	24.29	65.124		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.288	6912.14	62.0	1.918	62.0	7.0	3.05	3.09%	Coarse Alluvium	0.056	111.0	3.69	0.000	3.69	0	0.32	19.670	1.88	24.10	16	3.29%	2.9	36%	3.94	0.000	3.94	0	0	0.51	0.06	0.91	0.10	1.00	0.064	38.11	62.21	0.090	N/A	0.61	0.28	0.80	0.73	1.00	0.102	5.31	127.97	0.275	N/A	N/A	N/A	0.32	19.68	1.88	24.10	65.288		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.452	6911.98	66.9	1.901	66.9	8.6	3.72	2.84%	Coarse Alluvium	0.056	111.0	3.70	0.000	3.70	0	0.32	21.674	2.08	26.56	17	3.01%	2.8	36%	3.95	0.000	3.95	0	0	0.51	0.06	0.91	0.10	1.00	0.064	38.96	65.52	0.094	N/A	0.61	0.30	0.80	0.73	1.00	0.102	4.86	128.99	0.280	N/A	N/A	N/A	0.32	21.69	2.08	26.56	65.452		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.616	6911.81	88.3	1.871	88.3	7.1	3.09	2.12%	Coarse Alluvium	0.056	111.0	3.70	0.000	3.70	0	0.35	31.286	3.00	38.33	23	2.21%	2.6	36%	3.95	0.000	3.95	0	0	0.50	0.06	0.90	0.05	1.00	0.065	43.02	81.35	0.114	N/A	0.61	0.36	0.80	0.73	1.00	0.101	3.50	134.21	0.305	N/A	N/A	N/A	0.35	31.30	3.00	38.33	65.616		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.780	6911.65	107.8	1.886	107.8	6.5	2.81	1.75%	Coarse Alluvium	0.056	111.0	3.71	0.000	3.71	0	0.38	41.030	3.93	50.26	28	1.81%	2.5	36%	3.96	0.000	3.96	0	0	0.50	0.07	0.89	-0.05	1.00	0.066	47.13	97.39	0.138	N/A	0.60	0.41	0.80	0.72	1.00	0.102	2.79	140.40	0.337	N/A	N/A	N/A	0.38	41.05	3.93	50.26	65.780		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
65.944	6911.49	120.1	2.143	120.0	6.2	2.70	1.78%	Coarse Alluvium	0.056	111.0	3.72	0.000	3.72	0	0.40	47.597	4.56	58.30	31	1.84%	2.5	36%	3.97	0.000	3.97	0	0	0.50	0.08	0.88	-0.10	1.00	0.066	49.90	108.21	0.157	N/A	0.60	0.44	0.78	0.71	1.00	0.104	2.63	153.20	0.414	N/A	N/A	N/A	0.40	47.61	4.56	58.30	65.944	19	1.00	17	7	0.42	0.56	0.41	5.5	12.7	0.14	N/A	5.00	1.20	13.60	0.146	N/A	N/A
66.108	6911.32	120.9	2.433	120.9	6.2	2.70	2.01%	Coarse Alluvium	0.056	111.0	3.73	0.000	3.73	0	0.40	47.996	4.60	58.79	31	2.08%	2.5	36%	3.98	0.000	3.98	0	0	0.50	0.08	0.88	-0.10	1.00	0.066	50.07	108.86	0.158	N/A	0.60	0.44	0.78	0.70	1.00	0.104	2.77	163.08	1.000	N/A	N/A	N/A	0.40	48.01	4.60	58.79	66.108		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.272	6911.16	120.6	2.662	120.6	6.1	2.64	2.21%	Coarse Alluvium	0.056	111.0	3.74	0.000	3.74	0	0.40	47.716	4.57	58.45	31	2.28%	2.5	36%	3.99	0.000	3.99	0	0	0.50	0.08	0.88	-0.10	1.00	0.066	49.95	108.40	0.157	N/A	0.60	0.44	0.78	0.70	1.00	0.104	2.91	170.26	1.000	N/A	N/A	N/A	0.40	47.73	4.57	58.45	66.272		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.436	6910.99	113.0	2.772	113.0	6.0	2.58	2.45%	Coarse Alluvium	0.056	111.0	3.75	0.000	3.75	0	0.38	43.457	4.16	53.23	29	2.54%	2.6	36%	4.00	0.000	4.00	0	0	0.50	0.07	0.88	-0.07	1.00	0.065	48.16	101.39	0.145	N/A	0.60	0.42	0.79	0.72	1.00	0.102	3.21	170.90	1.000	N/A	N/A	N/A	0.38	43.47	4.16	53.23	66.436		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.600	6910.83	108.1	2.836	108.0	6.0	2.58	2.62%	Coarse Alluvium	0.056	111.0	3.76	0.000	3.76	0	0.38	40.719	3.90	49.88	28	2.72%	2.6	36%	4.01	0.000	4.01	0	0	0.50	0.07	0.89	-0.04	1.00	0.065	47.00	96.88	0.137	N/A	0.60	0.41	0.80	0.72	1.00	0.101	3.43	170.98	1.000	N/A	N/A	N/A	0.38	40.73	3.90	49.88	66.600		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.764	6910.67	108.1	2.718	108.0	7.9	3.41	2.51%	Coarse Alluvium	0.056	111.0	3.77	0.000	3.77	0	0.38	40.634	3.89	49.78	28	2.61%	2.6	36%	4.02	0.000	4.02	0	0	0.50	0.07	0.89	-0.04	1.00	0.065	46.96	96.74	0.137	N/A	0.60	0.41	0.80	0.72	1.00	0.101	3.36	167.27	1.000	N/A	N/A	N/A	0.38	40.65	3.89	49.78	66.764		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
66.928	6910.50	104.4	2.567	104.4	6.6	2.87	2.46%	Coarse Alluvium	0.056	111.0	3.78	0.000	3.78	0	0.37	38.664	3.70	47.36	27	2.55%	2.6	36%	4.03	0.000	4.03	0	0	0.50	0.07	0.89	-0.03	1.00	0.065	46.13	93.50	0.132	N/A	0.59	0.40	0.80	0.73	1.00	0.100	3.40	161.23	1.000	N/A	N/A	N/A	0.37	38.68	3.70	47.36	66.928		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.092	6910.34	99.3	2.456	99.3	6.2	2.70	2.47%	Coarse Alluvium	0.056	111.0	3.79	0.000	3.79	0	0.36	36.000	3.45	44.10	25	2.57%	2.6	36%	4.04	0.000	4.04	0	0	0.50	0.07	0.89	0.00	1.00	0.064	45.01	89.11	0.126	N/A	0.59	0.38	0.80	0.73	1.00	0.100	3.54	155.94	0.433	N/A	N/A	N/A	0.36	36.01	3.45	44.10	67.092		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.256	6910.17	97.1	2.223	97.1	6.3	2.75	2.29%	Coarse Alluvium	0.056	111.0	3.80	0.000	3.80	0	0.36	34.816	3.33	42.65	25	2.38%	2.6	36%	4.05	0.000	4.05	0	0	0.50	0.07	0.89	0.01	1.00	0.064	44.51	87.16	0.123	N/A	0.59	0.38	0.80	0.73	1.00	0.100	3.46	147.71	0.380	N/A	N/A	N/A	0.36	34.83	3.33	42.65	67.256		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.420	6910.01	94.4	2.017	94.3	6.2	2.67	2.14%	Coarse Alluvium	0.056	111.0	3.80	0.000	3.80	0	0.35	33.402	3.20	40.92	24	2.23%	2.6	36%	4.05	0.000	4.05	0	0	0.50	0.07	0.90	0.02	1.00	0.064	43.91	84.83	0.119	N/A	0.59	0.37	0.80	0.73	1.00	0.100	3.42	140.03	0.335	N/A	N/A	N/A	0.35	33.42	3.20	40.92	67.420		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.584	6909.85	91.1	1.874	91.1	6.2	2.67	2.06%	Coarse Alluvium	0.056	111.0	3.81	0.000	3.81	0	0.35	31.770	3.04	38.92	23	2.15%	2.6	36%	4.06	0.000	4.06	0	0	0.50	0.06	0.90	0.04	1.00	0.064	43.22	82.14	0.116	N/A	0.59	0.36	0.80	0.73	1.00	0.099	3.45	134.19	0.305	N/A	N/A	N/A	0.35	31.78	3.04	38.92	67.584		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
67.749	6909.68	84.0	1.676	83.9	6.0	2.60	2.00%	Coarse Alluvium	0.056	111.0	3.82	0.000	3.82	0	0.34	28.377	2.72	34.76	21	2.09%	2.6	36%	4.07	0.000	4.07	0	0	0.49	0.06	0.90	0.08	1.00	0.063	41.79	76.55	0.108	N/A	0.59	0.34	0.80	0.73	1.00	0.099	3.60	125.30	0.263	N/A	N/A	N/A	0.34	28.39	2.72	34.76	67.749		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

67.913	6909.52	77.2	1.655	77.2	5.8	2.50	2.14%	Coarse Alluvium	0.056	111.0	3.83	0.000	3.83	0	0.33	25.298	2.42	30.99	19	2.25%	2.7	36%	4.08	0.000	4.08	0	0	0.49	0.06	0.90	0.10	1.00	0.063	40.49	71.48	0.101	N/A	0.59	0.32	0.80	0.72	1.00	0.099	3.96	122.65	0.252	N/A	N/A	N/A	0.33	25.31	2.42	30.99	67.913		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.077	6909.35	71.7	2.027	71.6	5.8	2.50	2.83%	Coarse Alluvium	0.056	111.0	3.84	0.000	3.84	0	0.32	22.855	2.19	28.00	18	2.99%	2.8	36%	4.09	0.000	4.09	0	0	0.49	0.06	0.91	0.10	1.00	0.063	39.45	67.45	0.096	N/A	0.59	0.31	0.80	0.72	1.00	0.099	4.75	132.95	0.299	N/A	N/A	N/A	0.32	22.87	2.19	28.00	68.077		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.241	6909.19	67.3	2.078	67.2	6.3	2.73	3.09%	Coarse Alluvium	0.056	111.0	3.85	0.000	3.85	0	0.31	20.971	2.01	25.69	16	3.28%	2.8	36%	4.10	0.000	4.10	0	0	0.49	0.06	0.91	0.10	1.00	0.063	38.66	64.35	0.093	N/A	0.58	0.29	0.80	0.72	1.00	0.099	5.17	132.86	0.298	N/A	N/A	N/A	0.31	20.98	2.01	25.69	68.241		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.405	6909.03	69.6	1.971	69.6	6.1	2.62	2.83%	Coarse Alluvium	0.056	111.0	3.86	0.000	3.86	0	0.31	21.896	2.10	26.83	17	3.00%	2.8	36%	4.11	0.000	4.11	0	0	0.49	0.06	0.91	0.10	1.00	0.063	39.05	65.88	0.095	N/A	0.58	0.30	0.80	0.72	1.00	0.098	4.86	130.36	0.286	N/A	N/A	N/A	0.31	21.91	2.10	26.83	68.405		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.569	6908.86	85.5	1.780	85.4	6.4	2.79	2.08%	Coarse Alluvium	0.056	111.0	3.87	0.000	3.87	0	0.34	28.727	2.75	35.19	21	2.18%	2.7	36%	4.12	0.000	4.12	0	0	0.49	0.06	0.90	0.08	1.00	0.063	41.93	77.13	0.109	N/A	0.58	0.34	0.80	0.72	1.00	0.098	3.66	128.91	0.279	N/A	N/A	N/A	0.34	28.74	2.75	35.19	68.569		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.733	6908.70	98.8	1.776	98.7	7.2	3.11	1.80%	Coarse Alluvium	0.056	111.0	3.88	0.000	3.88	0	0.35	34.947	3.35	42.81	24	1.87%	2.6	36%	4.13	0.000	4.13	0	0	0.49	0.07	0.89	0.01	1.00	0.063	44.56	87.37	0.123	N/A	0.58	0.38	0.80	0.72	1.00	0.098	3.10	132.55	0.297	N/A	N/A	N/A	0.35	34.96	3.35	42.81	68.733		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
68.897	6908.53	97.2	1.825	97.1	6.7	2.89	1.88%	Coarse Alluvium	0.056	111.0	3.89	0.000	3.89	0	0.35	34.099	3.27	41.77	24	1.96%	2.6	36%	4.14	0.000	4.14	0	0	0.49	0.07	0.89	0.02	1.00	0.063	44.20	85.98	0.121	N/A	0.58	0.37	0.80	0.72	1.00	0.098	3.20	133.70	0.302	N/A	N/A	N/A	0.35	34.11	3.27	41.77	68.897		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.061	6908.37	91.4	1.844	91.4	6.4	2.76	2.02%	Coarse Alluvium	0.056	111.0	3.90	0.000	3.90	0	0.34	31.294	3.00	38.34	22	2.11%	2.6	36%	4.15	0.000	4.15	0	0	0.49	0.06	0.90	0.05	1.00	0.063	43.02	81.36	0.114	N/A	0.58	0.36	0.80	0.72	1.00	0.098	3.46	132.58	0.297	N/A	N/A	N/A	0.34	31.31	3.00	38.34	69.061		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.225	6908.21	95.7	2.058	95.7	6.2	2.67	2.15%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	0.35	33.245	3.18	40.73	24	2.24%	2.6	36%	4.15	0.000	4.15	0	0	0.49	0.07	0.89	0.03	1.00	0.063	43.84	84.57	0.119	N/A	0.58	0.37	0.80	0.72	1.00	0.098	3.46	140.92	0.340	N/A	N/A	N/A	0.35	33.26	3.18	40.73	69.225		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.389	6908.04	97.0	2.048	96.9	6.9	2.99	2.11%	Coarse Alluvium	0.056	111.0	3.91	0.000	3.91	0	0.35	33.782	3.24	41.39	24	2.20%	2.6	36%	4.16	0.000	4.16	0	0	0.49	0.07	0.89	0.02	1.00	0.063	44.07	85.45	0.120	N/A	0.57	0.37	0.80	0.72	1.00	0.097	3.40	140.91	0.340	N/A	N/A	N/A	0.35	33.80	3.24	41.39	69.389		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.553	6907.88	88.5	1.961	88.5	6.1	2.64	2.22%	Coarse Alluvium	0.056	111.0	3.92	0.000	3.92	0	0.34	29.736	2.85	36.43	22	2.32%	2.7	36%	4.17	0.000	4.17	0	0	0.49	0.06	0.90	0.07	1.00	0.063	42.36	78.79	0.111	N/A	0.57	0.35	0.80	0.72	1.00	0.097	3.72	135.37	0.311	N/A	N/A	N/A	0.34	29.75	2.85	36.43	69.553		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.717	6907.71	86.1	1.567	86.1	6.0	2.60	1.82%	Coarse Alluvium	0.056	111.0	3.93	0.000	3.93	0	0.33	28.598	2.74	35.03	21	1.91%	2.6	36%	4.18	0.000	4.18	0	0	0.48	0.06	0.90	0.08	1.00	0.062	41.88	76.91	0.108	N/A	0.57	0.34	0.80	0.72	1.00	0.097	3.46	121.22	0.246	N/A	N/A	N/A	0.33	28.61	2.74	35.03	69.717		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
69.881	6907.55	83.7	1.456	83.7	6.0	2.60	1.74%	Coarse Alluvium	0.056	111.0	3.94	0.000	3.94	0	0.33	27.453	2.63	33.63	20	1.82%	2.6	36%	4.19	0.000	4.19	0	0	0.48	0.06	0.90	0.09	1.00	0.062	41.40	75.03	0.106	N/A	0.57	0.33	0.80	0.72	1.00	0.097	3.47	116.54	0.227	N/A	N/A	N/A	0.33	27.46	2.63	33.63	69.881		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.045	6907.38	75.7	1.403	75.7	6.4	2.76	1.85%	Coarse Alluvium	0.056	111.0	3.95	0.000	3.95	0	0.32	23.914	2.29	29.30	18	1.96%	2.7	36%	4.20	0.000	4.20	0	0	0.48	0.06	0.90	0.10	1.00	0.062	39.90	69.20	0.099	N/A	0.57	0.31	0.80	0.72	1.00	0.097	3.84	112.47	0.212	N/A	N/A	N/A	0.32	23.93	2.29	29.30	70.045		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.209	6907.22	78.4	1.601	78.4	5.7	2.46	2.04%	Coarse Alluvium	0.056	111.0	3.96	0.000	3.96	0	0.32	25.026	2.40	30.66	19	2.15%	2.7	36%	4.21	0.000	4.21	0	0	0.48	0.06	0.90	0.10	1.00	0.062	40.37	71.03	0.101	N/A	0.57	0.32	0.80	0.72	1.00	0.096	3.92	120.08	0.241	N/A	N/A	N/A	0.32	25.04	2.40	30.66	70.209		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.373	6907.06	89.0	1.829	89.0	5.6	2.44	2.05%	Coarse Alluvium	0.056	111.0	3.97	0.000	3.97	0	0.33	29.644	2.84	36.31	21	2.15%	2.6	36%	4.22	0.000	4.22	0	0	0.48	0.06	0.90	0.07	1.00	0.062	42.32	78.63	0.111	N/A	0.57	0.35	0.80	0.72	1.00	0.096	3.60	130.76	0.288	N/A	N/A	N/A	0.33	29.66	2.84	36.31	70.373		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.537	6906.89	85.0	2.108	85.0	4.8	2.09	2.48%	Coarse Alluvium	0.056	111.0	3.98	0.000	3.98	0	0.33	27.772	2.66	34.02	20	2.60%	2.7	36%	4.23	0.000	4.23	0	0	0.48	0.06	0.90	0.09	1.00	0.062	41.53	75.55	0.107	N/A	0.57	0.34	0.80	0.72	1.00	0.096	4.07	138.47	0.327	N/A	N/A	N/A	0.33	27.78	2.66	34.02	70.537		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.701	6906.73	72.9	2.513	72.9	4.0	1.75	3.45%	Coarse Alluvium	0.056	111.0	3.99	0.000	3.99	0	0.31	22.558	2.16	27.63	17	3.64%	2.9	36%	4.24	0.000	4.24	0	0	0.48	0.06	0.91	0.10	1.00	0.061	39.33	66.96	0.096	N/A	0.56	0.30	0.80	0.72	1.00	0.096	5.28	145.88	0.369	N/A	N/A	N/A	0.31	22.57	2.16	27.63	70.701		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
70.865	6906.56	72.8	2.090	72.7	5.2	2.26	2.87%	Coarse Alluvium	0.056	111.0	4.00	0.000	4.00	0	0.31	22.426	2.15	27.47	17	3.04%	2.8	36%	4.25	0.000	4.25	0	0	0.48	0.06	0.91	0.10	1.00	0.061	39.27	66.74	0.096	N/A	0.56	0.30	0.80	0.72	1.00	0.096	4.86	133.61	0.302	N/A	N/A	N/A	0.31	22.44	2.15	27.47	70.865		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.029	6906.40	77.2	2.061	77.1	5.0	2.18	2.67%	Coarse Alluvium	0.056	111.0	4.01	0.000	4.01	0	0.31	24.206	2.32	29.65	18	2.82%	2.8	36%	4.25	0.000	4.25	0	0	0.48	0.06	0.90	0.10	1.00	0.061	40.02	69.68	0.099	N/A	0.56	0.31	0.80	0.72	1.00	0.095	4.52	134.16	0.305	N/A	N/A	N/A	0.31	24.22	2.32	29.65	71.029	19	1.00	17	7	0.41	0.57	0.39	5.5	12.4	0.14	N/A	5.00	1.20	13.21	0.143	N/A	N/A
71.193	6906.24	80.6	1.837	80.6	5.7	2.46	2.28%	Coarse Alluvium	0.056	111.0	4.01	0.000	4.01	0	0.32	25.616	2.45	31.38	19	2.40%	2.7	36%	4.26	0.000	4.26	0	0	0.48	0.06	0.90	0.10	1.00	0.061	40.62	72.00	0.102	N/A	0.48	0.32	0.80	0.72	1.00	0.081	4.08	128.12	0.276	N/A	N/A	N/A	0.32	25.63	2.45	31.38	71.193		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.357	6906.07	81.9	2.006	81.8	5.8	2.50	2.45%	Coarse Alluvium	0.056	111.0	4.02	0.000	4.02	0	0.32	26.110	2.50	31.99	19	2.58%	2.7	36%	4.27	0.000	4.27	0	0	0.48	0.06	0.90	0.10	1.00	0.061	40.83	72.81	0.103	N/A	0.48	0.33	0.80	0.72	1.00	0.081	4.18	133.83	0.303	N/A	N/A	N/A	0.32	26.12	2.50	31.99	71.357		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.521	6905.91	89.4	2.071	89.4	5.8	2.50	2.32%	Coarse Alluvium	0.056	111.0	4.03	0.000	4.03	0	0.33	29.368	2.81	35.98	21	2.43%	2.7	36%	4.28	0.000	4.28	0	0	0.48	0.06	0.90	0.07	1.00	0.061	42.20	78.18	0.110	N/A	0.48	0.35	0.80	0.72	1.00	0.081	3.84	138.21	0.326	N/A	N/A	N/A	0.33	29.38	2.81	35.98	71.521		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.685	6905.74	85.4	1.670	85.4	4.7	2.02	1.95%	Coarse Alluvium	0.056	111.0	4.04	0.000	4.04	0	0.32	27.548	2.64	33.74	20	2.05%	2.7	36%	4.29	0.000	4.29	0	0	0.48	0.06	0.90	0.09	1.00	0.061	41.43	75.18	0.106	N/A	0.48	0.34	0.80	0.72	1.00	0.081	3.67	123.76	0.256	N/A	N/A	N/A	0.32	27.56	2.64	33.74	71.685		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
71.850	6905.58	75.7	1.569	75.7	4.4	1.89	2.07%	Coarse Alluvium	0.056	111.0	4.05	0.000	4.05	0	0.31	23.332	2.23	28.58	18	2.19%	2.7	36%	4.30	0.000	4.30	0	0	0.48	0.06	0.90	0.10	1.00	0.061	39.65	68.23	0.097	N/A	0.48	0.31	0.80	0.72	1.00	0.081	4.11	117.48	0.231	N/A	N/A	N/A	0.31	23.34	2.23	28.58	71.850		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.014	6905.42	75.3	1.992	75.3	5.4	2.34	2.65%	Coarse Alluvium	0.056	111.0	4.06	0.000	4.06	0	0.31	23.120	2.21	28.32	18	2.80%	2.8	36%	4.31	0.000	4.31	0	0	0.47	0.06	0.90	0.10	1.00	0.061	39.57	67.89	0.097	N/A	0.47	0.31	0.80	0.72	1.00	0.081	4.62	130.89	0.289	N/A	N/A	N/A	0.31	23.13	2.21	28.32	72.014		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.178	6905.25	63.4	2.295	63.4	4.6	1.97	3.62%	Coarse Alluvium	0.056	111.0	4.07	0.000	4.07	0	0.29	18.345	1.76	22.47	15	3.87%	2.9	36%	4.32	0.000	4.32	0	0	0.47	0.05	0.91	0.10	1.00	0.060	37.55	60.02	0.088	N/A	0.47	0.27	0.80	0.72	1.00	0.081	6.00	134.88	0.308	N/A	N/A	N/A	0.29	18.35	1.76	22.47	72.178		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.342	6905.09	46.8	2.246	46.8	4.3	1.87	4.80%	Coarse Alluvium	0.056	111.0	4.08	0.000	4.08	0	0.28	13.307	1.27	16.30	10	5.26%	3.1	36%	4.33	0.000	4.33	0	0	0.47	0.05	0.92	0.10	1.00	0.060	35.42	51.72	0.079	N/A	0.47	0.23	0.80	0.72	1.00	0.081	8.25	134.46	0.306	N/A	N/A	N/A	0.28	13.31	1.27	16.30	72.342		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.506	6904.92	47.8	1.964	47.8	5.7	2.46	4.11%	Coarse Alluvium	0.056	111.0	4.09	0.000	4.09	0	0.28	13.573	1.30	16.63	11	4.49%	3.1	36%	4.34	0.000	4.34	0	0	0.47	0.05	0.92	0.10	1.00	0.060	35.53	52.17	0.080	N/A	0.47	0.24	0.80	0.72	1.00	0.081	7.63	126.88	0.270	N/A	N/A	N/A	0.28	13.58	1.30	16.63	72.506		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.670	6904.76	84.5	1.695	84.5	7.4	3.19	2.01%	Coarse Alluvium	0.056	111.0	4.10	0.000	4.10	0	0.32	26.779	2.57	32.81	20	2.11%	2.7	36%	4.35	0.000	4.35	0	0	0.47	0.06	0.90	0.10	1.00	0.061	41.11	73.92	0.105	N/A	0.47	0.33	0.80	0.72	1.00	0.081	3.78	123.89	0.257	N/A	N/A	N/A	0.32	26.79	2.57	32.81	72.670		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.834	6904.60	95.9	1.774	95.9	5.9	2.56	1.85%	Coarse Alluvium	0.056	111.0	4.11	0.000	4.11	0	0.33	31.807	3.05	38.96	22	1.93%	2.6	36%	4.35	0.000	4.35	0	0	0.47	0.06	0.89	0.05	1.00	0.061	43.23	82.20	0.116	N/A	0.47	0.36	0.80	0.72	1.00	0.081	3.33	129.86	0.284	N/A	N/A	N/A	0.33	31.82	3.05	38.96	72.834		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
72.998	6904.43	104.6	1.651	104.5	5.7	2.48	1.58%	Coarse Alluvium	0.056	111.0	4.11	0.000	4.11	0	0.34	35.819	3.43	43.88	24	1.64%	2.5	36%	4.36	0.000	4.36	0	0	0.47	0.07	0.89	0.01	1.00	0.061	44.93	88.80	0.125	N/A	0.47	0.38	0.80	0.72	1.00	0.080	2.92	128.18	0.276	N/A	N/A	N/A	0.34	35.83	3.43	43.88	72.998		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.162	6904.27	88.9	1.047	88.9	4.8	2.09	1.18%	Coarse Alluvium	0.056	111.0	4.12	0.000	4.12	0	0.32	28.547	2.73	34.97	21	1.23%	2.5	36%	4.37	0.000	4.37	0	0	0.47	0.06	0.90	0.08	1.00	0.061	41.86	76.82	0.108	N/A	0.47	0.34	0.80	0.71	1.00	0.080	2.89	101.19	0.176	N/A	N/A	N/A	0.32	28.56	2.73	34.97	73.162		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.326	6904.10	93.6	1.342	93.6	-2.6	-1.14	1.43%	Coarse Alluvium	0.056	111.0	4.13	0.000	4.13	0	0.33	30.586	2.93	37.45	22	1.50%	2.6	36%	4.38	0.000	4.38	0	0	0.47	0.06	0.89	0.06	1.00	0.061	42.71	80.16	0.113	N/A	0.47	0.35	0.80	0.71	1.00	0.080	3.04	113.72	0.217	N/A	N/A	N/A	0.33	30.58	2.93	37.45	73.326		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.490	6903.94	80.1	1.507	80.1	-0.7	-0.30	1.88%	Coarse Alluvium	0.056	111.0	4.14	0.000	4.14	0	0.31	24.657	2.36	30.19	18	1.98%	2.7	36%	4.39	0.000	4.39	0	0	0.47	0.06	0.90	0.10	1.00	0.060	40.21	70.40	0.100	N/A	0.47	0.32	0.80	0.71	1.00	0.080	3.84	115.89	0.225	N/A	N/A	N/A	0.31	24.66	2.36	30.19	73.490		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.654	6903.78	81.8	1.537	81.8	2.4	1.06	1.88%	Coarse Alluvium	0.056	111.0	4.15	0.000	4.15	0	0.31	25.296	2.42	30.98	19	1.98%	2.7	36%	4.40	0.000	4.40	0	0	0.47	0.06	0.90	0.10	1.00	0.060	40.48	71.46	0.101	N/A	0.47	0.32	0.80	0.71	1.00	0.080	3.79	117.32	0.230	N/A	N/A	N/A	0.31	25.30	2.42	30.98	73.654		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.818	6903.61	85.0	1.434	85.0	2.4	1.06	1.69%	Coarse Alluvium	0.056	111.0	4.16	0.000	4.16	0	0.31	26.624	2.55	32.61	19	1.77%	2.6	36%	4.41	0.000	4.41	0	0	0.47	0.06	0.90	0.10	1.00	0.060	41.04	73.65	0.104	N/A	0.47	0.33	0.80	0.71	1.00	0.080	3.51	114.54	0.220	N/A	N/A	N/A	0.31	26.63	2.55	32.61	73.818		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
73.982	6903.45	88.0	1.420	88.0	2.0	0.85	1.61%	Coarse Alluvium	0.056	111.0	4.17	0.000	4.17	0	0.32	27.855	2.67	34.11	20	1.69%	2.6	36%	4.42	0.000	4.42	0	0	0.47	0.06	0.90	0.09	1.00	0.060	41.56	75.68	0.107	N/A	0.47	0.34	0.80	0.71	1.00	0.080	3.37	114.80	0.221	N/A	N/A	N/A	0.32	27.86	2.67	34.11	73.982		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.146	6903.28	93.1	1.520	93.1	2.2	0.94	1.63%	Coarse Alluvium	0.056	111.0	4.18	0.000	4.18	0	0.32	30.016	2.88	36.76	21	1.71%	2.6	36%	4.43	0.000	4.43	0	0	0.47	0.06	0.89	0.07	1.00	0.060	42.47	79.23	0.112	N/A	0.47	0.35	0.80	0.71	1.00	0.080	3.26	119.70	0.240	N/A	N/A	N/A	0.32	30.02	2.87	36.76	74.146		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.310	6903.12	92.1	1.544	92.1	2.1	0.89	1.68%	Coarse Alluvium	0.056	111.0	4.19	0.000	4.19	0	0.32	29.526	2.83	36.16	21	1.76%	2.6	36%	4.44	0.000	4.44	0	0	0.47	0.06	0.89	0.07	1.00	0.060	42.27	78.43	0.111	N/A	0.47	0.35	0.80	0.71	1.00	0.080	3.32	120.21	0.242	N/A	N/A	N/A	0.32	29.53	2.83	36.16	74.310		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.474	6902.96	88.4	1.592	88.4	1.7	0.73	1.80%	Coarse Alluvium	0.056	111.0	4.20	0.000	4.20	0	0.31	27.844	2.67	34.10	20	1.89%	2.6	36%	4.45	0.000	4.45	0	0	0.46	0.06	0.90	0.09	1.00	0.060	41.56	75.66	0.107	N/A	0.46	0.34	0.80	0.71	1.00	0.080	3.54	120.75	0.244	N/A	N/A	N/A	0.31	27.85	2.67	34.10	74.474		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.638	6902.79	86.2	1.643	86.2	1.9	0.81	1.91%	Coarse Alluvium	0.056	111.0	4.21	0.000	4.21	0	0.31	26.827	2.57	32.85	19	2.00%	2.7	36%	4.45	0.000	4.45	0	0	0.46	0.06	0.90	0.10	1.00	0.060	41.13	73.98	0.105	N/A	0.46	0.33	0.80	0.71	1.00	0.080	3.71	121.77	0.248	N/A	N/A	N/A	0.31	26.83	2.57	32.85	74.638		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.802	6902.63	86.5	1.678	86.5	1.2	0.53	1.94%	Coarse Alluvium	0.056	111.0	4.21	0.000	4.21	0	0.31	26.906	2.58	32.95	20	2.04%	2.7	36%	4.46	0.000	4.46	0	0	0.46	0.06	0.90	0.10	1.00	0.060	41.16	74.11	0.105	N/A	0.46	0.33	0.80	0.71	1.00	0.080	3.73	122.97	0.253	N/A	N/A	N/A	0.31	26.91	2.58	32.95	74.802		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
74.966	6902.46	77.0	1.381	77.0	0.9	0.39	1.79%	Coarse Alluvium	0.056	111.0	4.22	0.000	4.22	0	0.30	22.913	2.19	28.06	17	1.90%	2.7	36%	4.47	0.000	4.47	0	0	0.46	0.06	0.90	0.10	1.00	0.059	39.47	67.53	0.097	N/A	0.46	0.31	0.80	0.71	1.00	0.079	3.92	110.03	0.204	N/A	N/A	N/A	0.30	22.92	2.19	28.06	74.966		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.130	6902.30	72.0	1.337	72.0	1.0	0.45	1.86%	Coarse Alluvium	0.056	111.0	4.23	0.000	4.23	0	0.29	20.875	2.00	25.56	16	1.97%	2.7	36%	4.48	0.000	4.48	0	0	0.46	0.06	0.90	0.10	1.00	0.059	38.61	64.18	0.093	N/A	0.46	0.29	0.80	0.71	1.00	0.079	4.19	107.06	0.194	N/A	N/A	N/A	0.29	20.88	2.00	25.56	75.130		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.294	6902.14	68.0	1.301	68.0	1.0	0.45	1.91%	Coarse Alluvium	0.056	111.0	4.24	0.000	4.24	0	0.28	19.316	1.85	23.65	15	2.04%	2.8	36%	4.49	0.000	4.49	0	0	0.46	0.05	0.91	0.10	1.00	0.059	37.95	61.61	0.090	N/A	0.46	0.28	0.80	0.71	1.00	0.079	4.42	104.67	0.187	N/A	N/A	N/A	0.28	19.32	1.85	23.65	75.294		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.458	6901.97	70.1	1.272	70.1	0.8	0.36	1.81%	Coarse Alluvium	0.056	111.0	4.25	0.000	4.25	0	0.29	20.072	1.92	24.58	15	1.93%	2.7	36%	4.50	0.000	4.50	0	0	0.46	0.06	0.91	0.10	1.00	0.059	38.27	62.85	0.091	N/A	0.46	0.29	0.80	0.71	1.00	0.079	4.24	104.15	0.185	N/A	N/A	N/A	0.29	20.07	1.92	24.58	75.458		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.622	6901.81	69.4	1.196	69.4	0.6	0.24	1.72%	Coarse Alluvium	0.056	111.0	4.26	0.000	4.26	0	0.28	19.739	1.89	24.17	15	1.84%	2.7	36%	4.51	0.000	4.51	0	0	0.46	0.06	0.91	0.10	1.00	0.059	38.13	62.30	0.090	N/A	0.46	0.28	0.80	0.71	1.00	0.079	4.19	101.16	0.176	N/A	N/A	N/A	0.28	19.74	1.89	24.17	75.622		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.786	6901.64	72.3	1.167	72.3	0.7	0.29	1.61%	Coarse Alluvium	0.056	111.0	4.27	0.000	4.27	0	0.29	20.842	2.00	25.52	16	1.71%	2.7	36%	4.52	0.000	4.52	0	0	0.46	0.06	0.90	0.10	1.00	0.059	38.60	64.12	0.093	N/A	0.46	0.29	0.80	0.71	1.00	0.079	3.95	100.80	0.175	N/A	N/A	N/A	0.29	20.84	2.00	25.52	75.786		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
75.951	6901.48	81.3	1.280	81.3	1.2	0.51	1.58%	Coarse Alluvium	0.056	111.0	4.28	0.000	4.28	0	0.30	24.343	2.33	29.81	18	1.66%	2.6	36%	4.53	0.000	4.53	0	0	0.46	0.06	0.90	0.10	1.00	0.059	40.08	69.89	0.099	N/A	0.46	0.32	0.80	0.71	1.00	0.079	3.60	107.18	0.195	N/A	N/A	N/A	0.30	24.35	2.33	29.81	75.951	19	1.00	17	7	0.40	0.57	0.37	5.5	12.1	0.13	N/A	5.00	1.20	12.86	0.139	N/A	N/A
76.115	6901.32	82.5	1.372	82.5	1.1	0.49	1.66%	Coarse Alluvium	0.056	111.0	4.29	0.000	4.29	0	0.30	24.816	2.38	30.39	18	1.75%	2.6	36%	4.54	0.000	4.54	0	0	0.46	0.06	0.90	0.10	1.00	0.059	40.28	70.67	0.100	N/A	0.46	0.32	0.80	0.71	1.00	0.079	3.65	110.77	0.206	N/A	N/A	N/A	0.30	24.82	2.38	30.39	76.115		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
76.279	6901.15	81.5	1.347	81.5	0.8	0.35	1.65%	Coarse Alluvium	0.056	111.0	4.30	0.000	4.30	0	0.30	24.346	2.33	29.81	18	1.74%	2.7	36%	4.55	0.000	4.55	0	0	0.46	0.06	0.90	0.10	1.00	0.059	40.08	69.89	0.099	N/A	0.46	0.32	0.80	0.71	1.00	0.079	3.67	109.54	0.202	N/A	N/A	N/A	0.30	24.35	2.33	29.81	76.279		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
76.443	6900.99	83.7	1.312	83.7	1.1	0.49	1.57%	Coarse Alluvium	0.056	111.0	4.31	0.000	4.31	0	0.30	25.184	2.41	30.84	18	1.65%	2.6	36%	4.56	0.000	4.56	0	0	0.46	0.06	0.90	0.10	1.00	0.059	40.43	71.27	0.101	N/A	0.46	0.32	0.80	0.71	1.00	0.079	3.53	108.81	0.200	N/A	N/A	N/A	0.30	25.19	2.41	30.84	76.443		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
76.607	6900.82	86.8	1.384	86.8	2.2	0.96	1.59%	Coarse Alluvium	0.056	111.0	4.31	0.000	4.31	0	0.30	26.428	2.53	32.37	19	1.68%	2.6	36%	4.56	0.000	4.56	0	0	0.46	0.06	0.90	0.10	1.00	0.059	40.96	73.33	0.104	N/A	0.46	0.33	0.80	0.71	1.00	0.079	3.47	112.18	0.211	N/A	N/A	N/A	0.30	26.43	2.53	32.37	76.607		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
76.771	6900.66	102.4	1.512	102.4	2.0	0.85	1.48%	Coarse Alluvium	0.056	111.0	4.32	0.000	4.32	0	0.32	33.216	3.18	40.68	23	1.54%	2.5	36%	4.57	0.000	4.57	0	0	0.46	0.07	0.89	0.03	1.00	0.059	43.83	84.50	0.119	N/A	0.46	0.37	0.80	0.71	1.00	0.079	2.98	121.17	0.245	N/A	N/A	N/A	0.32	33.22	3.18	40.68	76.771		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
76.935	6900.50	113.5	0.957	113.5	1.5	0.63	0.84%	Coarse Alluvium	0.056	111.0	4.33	0.000	4.33	0	0.34	38.337	3.67	46.95	25	0.88%	2.4	36%	4.58	0.000	4.58	0	0	0.46	0.07	0.88	-0.02	1.00	0.060	45.99	92.94	0.131	N/A	0.46	0.40	0.80	0.71	1.00	0.079	2.21	103.61	0.183	N/A	N/A	N/A	0.34	38.34	3.67	46.95	76.935		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.099	6900.33	111.7	1.361	111.7	1.2	0.53	1.22%	Coarse Alluvium	0.056	111.0	4.34	0.000	4.34	0	0.33	37.405	3.58	45.81	25	1.27%	2.5	36%	4.59	0.000	4.59	0	0	0.45	0.07	0.88	-0.01	1.00	0.060	45.59	91.40	0.129	N/A	0.45	0.39	0.80	0.71	1.00	0.079	2.59	118.47	0.235	N/A	N/A	N/A	0.33	37.41	3.58	45.81	77.099		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.263	6900.17	106.8	1.506	106.8	4.4	1.91	1.41%	Coarse Alluvium	0.056	111.0	4.35	0.000	4.35	0	0.33	35.042	3.36	42.92	24	1.47%	2.5	36%	4.60	0.000	4.60	0	0	0.45	0.07	0.88	0.02	1.00	0.059	44.60	87.52	0.123	N/A	0.45	0.38	0.80	0.71	1.00	0.078	2.85	122.13	0.249	N/A	N/A	N/A	0.33	35.05	3.36	42.92	77.263		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.427	6900.00	86.2	1.982	86.2	0.4	0.16	2.30%	Coarse Alluvium	0.056	111.0	4.36	0.000	4.36	0	0.30	25.919	2.48	31.74	19	2.42%	2.7	36%	4.61	0.000	4.61	0	0	0.45	0.06	0.90	0.10	1.00	0.058	40.74	72.48	0.103	N/A	0.45	0.33	0.80	0.71	1.00	0.078	4.14	131.44	0.291	N/A	N/A	N/A	0.30	25.92	2.48	31.74	77.427		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.591	6899.84	88.7	1.678	88.7	2.9	1.26	1.89%	Coarse Alluvium	0.056	111.0	4.37	0.000	4.37	0	0.30	26.875	2.57	32.92	19	1.99%	2.7	36%	4.62	0.000	4.62	0	0	0.45	0.06	0.89	0.10	1.00	0.058	41.15	74.06	0.105	N/A	0.45	0.33	0.80	0.71	1.00	0.078	3.72	122.42	0.251	N/A	N/A	N/A	0.30	26.88	2.57	32.92	77.591		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.755	6899.68	120.4	1.831	120.3	4.2	1.83	1.52%	Coarse Alluvium	0.056	111.0	4.38	0.000	4.38	0	0.34	41.342	3.96	50.63	26	1.58%	2.5	36%	4.63	0.000	4.63	0	0	0.45	0.07	0.88	-0.04	1.00	0.060	47.26	97.89	0.139	N/A	0.45	0.41	0.79	0.70	1.00	0.079	2.72	137.71	0.323	N/A	N/A	N/A	0.34	41.35	3.96	50.63	77.755		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
77.919	6899.51	145.7	2.244	145.6	2.1	0.89	1.54%	Coarse Alluvium	0.056	111.0	4.39	0.000	4.39	0	0.38	54.698	5.24	66.98	32	1.59%	2.4	36%	4.64	0.000	4.64	0	0	0.45	0.08	0.86	-0.14	1.00	0.061	52.90	119.88	0.179	N/A	0.45	0.47	0.76	0.66	1.00	0.083	2.41	161.26	1.000	N/A	N/A	N/A	0.38	54.70	5.24	66.98	77.919		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.083	6899.35	137.9	2.233	137.9	1.0	0.43	1.62%	Coarse Alluvium	0.056	111.0	4.40	0.000	4.40	0	0.36	50.328	4.82	61.63	30	1.67%	2.5	36%	4.65	0.000	4.65	0	0	0.45	0.08	0.86	-0.11	1.00	0.060	51.05	112.68	0.165	N/A	0.45	0.45	0.77	0.67	1.00	0.082	2.56	157.59	0.444	N/A	N/A	N/A	0.36	50.33	4.82	61.63	78.083		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.247	6899.18	122.6	2.131	122.6	2.5	1.08	1.74%	Coarse Alluvium	0.056	111.0	4.41	0.000	4.41	0	0.34	42.246	4.05	51.74	27	1.80%	2.5	36%	4.66	0.000	4.66	0	0	0.45	0.07	0.87	-0.05	1.00	0.060	47.64	99.38	0.142	N/A	0.45	0.42	0.79	0.70	1.00	0.079	2.87	148.27	0.383	N/A	N/A	N/A	0.34	42.25	4.05	51.74	78.247		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.411	6899.02	112.8	1.876	112.8	0.5	0.23	1.66%	Coarse Alluvium	0.056	111.0	4.41	0.000	4.41	0	0.33	37.365	3.58	45.75	25	1.73%	2.5	36%	4.66	0.000	4.66	0	0	0.45	0.07	0.88	-0.01	1.00	0.059	45.58	91.33	0.129	N/A	0.45	0.39	0.80	0.71	1.00	0.078	2.98	136.34	0.316	N/A	N/A	N/A	0.33	37.37	3.58	45.75	78.411		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.575	6898.85	108.9	1.646	108.9	1.6	0.71	1.51%	Coarse Alluvium	0.056	111.0	4.42	0.000	4.42	0	0.33	35.435	3.39	43.39	24	1.58%	2.5	36%	4.67	0.000	4.67	0	0	0.45	0.07	0.88	0.01	1.00	0.059	44.76	88.16	0.124	N/A	0.45	0.38	0.80	0.71	1.00	0.078	2.93	127.18	0.271	N/A	N/A	N/A	0.33	35.44	3.39	43.39	78.575		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.739	6898.69	104.2	1.479	104.2	1.6	0.67	1.42%	Coarse Alluvium	0.056	111.0	4.43	0.000	4.43	0	0.32	33.233	3.18	40.70	23	1.48%	2.5	36%	4.68	0.000	4.68	0	0	0.45	0.07	0.89	0.03	1.00	0.059	43.83	84.53	0.119	N/A	0.45	0.37	0.80	0.71	1.00	0.078	2.94	119.82	0.240	N/A	N/A	N/A	0.32	33.24	3.18	40.70	78.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
78.903	6898.53	107.9	1.467	107.9	1.1	0.49	1.36%	Coarse Alluvium	0.056	111.0	4.44	0.000	4.44	0	0.32	34.857	3.34	42.69	23	1.42%	2.5	36%	4.69	0.000	4.69	0	0	0.45	0.07	0.88	0.02	1.00	0.059	44.52	87.20	0.123	N/A	0.45	0.38	0.80	0.70	1.00	0.078	2.82	120.48	0.243	N/A	N/A	N/A	0.32	34.86	3.34	42.69	78.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.067	6898.36	116.8	1.667	116.8	1.4	0.59	1.43%	Coarse Alluvium	0.056	111.0	4.45	0.000	4.45	0	0.33	38.999	3.74	47.76	25	1.48%	2.5	36%	4.70	0.000	4.70	0	0	0.45	0.07	0.88	-0.02	1.00	0.059	46.27	94.03	0.133	N/A	0.45	0.40	0.80	0.70	1.00	0.078	2.73	130.35	0.286	N/A	N/A	N/A	0.33	39.00	3.73	47.76	79.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.231	6898.20	140.5	1.836	140.5	1.2	0.51	1.31%	Coarse Alluvium	0.056	111.0	4.46	0.000	4.46	0	0.36	51.064	4.89	62.53	30	1.35%	2.4	36%	4.71	0.000	4.71	0	0	0.45	0.08	0.86	-0.12	1.00	0.060	51.36	113.89	0.167	N/A	0.45	0.46	0.77	0.67	1.00	0.082	2.32	144.94	0.363	N/A	N/A	N/A	0.36	51.07	4.89	62.53	79.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.395	6898.03	140.6	1.890	140.6	1.4	0.59	1.34%	Coarse Alluvium	0.056	111.0	4.47	0.000	4.47	0	0.36	51.037	4.89	62.50	30	1.39%	2.4	36%	4.72	0.000	4.72	0	0	0.45	0.08	0.86	-0.12	1.00	0.060	51.35	113.85	0.167	N/A	0.45	0.46	0.77	0.67	1.00	0.081	2.35	146.75	0.374	N/A	N/A	N/A	0.36	51.04	4.89	62.50	79.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.559	6897.87	161.2	1.585	161.2	3.3	1.44	0.98%	Coarse Alluvium	0.056	111.0	4.48	0.000	4.48	0	0.39	62.715	6.01	76.81	35	1.01%	2.3	36%	4.73	0.000	4.73	0	0	0.45	0.09	0.84	-0.20	1.00	0.061	56.29	133.09	0.211	N/A	0.45	0.51	0.75	0.64	1.00	0.085	1.89	145.45	0.366	N/A	N/A	N/A	0.39	62.72	6.01	76.81	79.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.723	6897.71	172.6	1.841	172.5	2.7	1.18	1.07%	Coarse Alluvium	0.056	111.0	4.49	0.000	4.49	0	0.40	69.595	6.67	85.23	37	1.10%	2.3	36%	4.74	0.000	4.74	0	0	0.45	0.09	0.83	-0.24	1.00	0.062	59.19	144.42	0.248	N/A	0.45	0.53	0.73	0.63	1.00	0.087	1.88	159.90	0.460	N/A	N/A	N/A	0.40	69.60	6.66	85.23	79.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
79.887	6897.54	164.9	2.077	164.9	4.3	1.85	1.26%	Coarse Alluvium	0.056	111.0	4.50	0.000	4.50	0	0.39	64.733	6.20	79.28	36	1.29%	2.3	36%	4.75	0.000	4.75	0	0	0.44	0.09	0.84	-0.21	1.00	0.061	57.14	136.42	0.221	N/A	0.44	0.51	0.74	0.64	1.00	0.086	2.07	163.80	1.000	N/A	N/A	N/A	0.39	64.74	6.20	79.28	79.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.052	6897.38	128.8	1.981	128.8	1.4	0.59	1.54%	Coarse Alluvium	0.056	111.0	4.51	0.000	4.51	0	0.35	44.475	4.26	54.46	28	1.59%	2.5	36%	4.76	0.000	4.76	0	0	0.44	0.07	0.87	-0.07	1.00	0.059	48.58	103.04	0.148	N/A	0.44	0.43	0.79	0.69	1.00	0.079	2.66	144.89	0.363	N/A	N/A	N/A	0.35	44.48	4.26	54.46	80.052		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.216	6897.21	193.6	3.060	193.6	2.7	1.16	1.58%	Coarse Alluvium	0.056	111.0	4.52	0.000	4.52	0	0.43	83.156	7.97	101.83	42	1.62%	2.3	36%	4.76	0.000	4.76	0	0	0.44	0.11	0.81	-0.31	1.00	0.063	64.92	166.75	0.377	N/A	0.44	0.58	0.71	0.60	1.00	0.091	2.07	210.81	1.000	N/A	N/A	N/A	0.43	83.16	7.96	101.83	80.216		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.380	6897.05	234.3	3.869	234.2	3.9	1.71	1.65%	Coarse Alluvium	0.056	111.0	4.52	0.000	4.52	0	0.49	113.937	10.91	139.53	51	1.68%	2.3	36%	4.77	0.000	4.77	0	0	0.44	0.15	0.74	-0.45	1.00	0.069	77.92	217.45	1.000	N/A	0.44	0.68	0.66	0.55	1.00	0.099	1.89	263.78	1.000	N/A	N/A	N/A	0.49	113.95	10.91	139.53	80.380		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.544	6896.89	232.5	3.947	232.5	3.4	1.46	1.70%	Coarse Alluvium	0.056	111.0	4.53	0.000	4.53	0	0.48	112.299	10.76	137.52	50	1.73%	2.3	36%	4.78	0.000	4.78	0	0	0.44	0.14	0.75	-0.45	1.00	0.069	77.23	214.75	1.000	N/A	0.44	0.68	0.66	0.55	1.00	0.098	1.92	264.67	1.000	N/A	N/A	N/A	0.48	112.31	10.75	137.52	80.544		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.708	6896.72	201.0	3.303	201.0	2.8	1.20	1.64%	Coarse Alluvium	0.056	111.0	4.54	0.000	4.54	0	0.44	87.953	8.42	107.71	43	1.68%	2.3	36%	4.79	0.000	4.79	0	0	0.44	0.11	0.80	-0.34	1.00	0.064	66.94	174.65	0.460	N/A	0.44	0.60	0.70	0.59	1.00	0.092	2.07	222.67	1.000	N/A	N/A	N/A	0.44	87.96	8.42	107.71	80.708		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
80.872	6896.56	174.7	2.828	174.6	1.9	0.83	1.62%	Coarse Alluvium	0.056	111.0	4.55	0.000	4.55	0	0.40	70.099	6.71	85.84	37	1.66%	2.4	36%	4.80	0.000	4.80	0	0	0.44	0.10	0.83	-0.24	1.00	0.061	59.40	145.24	0.251	N/A	0.44	0.53	0.73	0.62	1.00	0.087	2.24	192.48	1.000	N/A	N/A	N/A	0.40	70.10	6.71	85.84	80.872		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.036	6896.39	175.9	2.247	175.9	1.4	0.59	1.28%	Coarse Alluvium	0.056	111.0	4.56	0.000	4.56	0	0.40	70.748	6.78	86.64	38	1.31%	2.3	36%	4.81	0.000	4.81	0	0	0.44	0.10	0.83	-0.24	1.00	0.061	59.68	146.31	0.256	N/A	0.44	0.54	0.73	0.62	1.00	0.087	2.01	174.50	1.000	N/A	N/A	N/A	0.40	70.75	6.77	86.64	81.036	42	1.00	39	18	0.67	0.44	0.46	5.5	23.3	0.26	N/A	5.00	1.20	26.40	0.323	N/A	N/A
81.200	6896.23	180.5	3.641	180.5	6.9	2.97	2.02%	Coarse Alluvium	0.056	111.0	4.57	0.000	4.57	0	0.41	73.623	7.05	90.17	39	2.07%	2.4	36%	4.82	0.000	4.82	0	0	0.44	0.10	0.83	-0.26	1.00	0.062	60.90	151.07	0.276	N/A	0.44	0.55	0.73	0.61	1.00	0.088	2.44	220.33	1.000	N/A	N/A	N/A	0.41	73.64	7.05	90.17	81.200		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.364	6896.07	176.2	4.838	176.2	5.7	2.46	2.75%	Coarse Alluvium	0.056	111.0	4.58	0.000	4.58	0	0.40	70.721	6.77	86.62	37	2.82%	2.5	36%	4.83	0.000	4.83	0	0	0.44	0.10	0.83	-0.24	1.00	0.061	59.67	146.29	0.255	N/A	0.44	0.54	0.73	0.62	1.00	0.087	2.91	251.84	1.000	N/A	N/A	N/A	0.40	70.74	6.77	86.62	81.364		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.528	6895.90	162.7	4.408	162.7	0.2	0.10	2.71%	Coarse Alluvium	0.056	111.0	4.59	0.000	4.59	0	0.38	62.330	5.97	76.32	34	2.79%	2.6	36%	4.84	0.000	4.84	0	0	0.44	0.09	0.84	-0.19	1.00	0.060	56.12	132.44	0.210	N/A	0.44	0.50	0.75	0.64	1.00	0.084	3.04	232.03	1.000	N/A	N/A	N/A	0.38	62.33	5.97	76.32	81.528		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.692	6895.74	178.8	3.777	178.8	4.5	1.93	2.11%	Coarse Alluvium	0.056	111.0	4.60	0.000	4.60	0	0.40	72.148	6.91	88.36	38	2.17%	2.4	36%	4.85	0.000	4.85	0	0	0.44	0.10	0.83	-0.25	1.00	0.061	60.27	148.63	0.265	N/A	0.44	0.54	0.73	0.62	1.00	0.087	2.52	223.09	1.000	N/A	N/A	N/A	0.40	72.16	6.91	88.36	81.692		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
81.856	6895.57	192.8	3.206	192.7	4.9	2.14	1.66%	Coarse Alluvium	0.056	111.0	4.61	0.000	4.61	0	0.42	81.269	7.78	99.53	41	1.70%	2.4	36%	4.86	0.000	4.86	0	0	0.44	0.11	0.81	-0.30	1.00	0.062	64.12	163.65	0.352	N/A	0.44	0.58	0.71	0.60	1.00	0.090	2.15	214.02	1.000	N/A	N/A	N/A	0.42	81.28	7.78	99.53	81.856		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.020	6895.41	196.4	3.155	196.4	5.6	2.42	1.61%	Coarse Alluvium	0.056	111.0	4.62	0.000	4.62	0	0.43	83.639	8.01	102.44	42	1.65%	2.3	36%	4.86	0.000	4.86	0	0	0.44	0.11	0.81	-0.31	1.00	0.063	65.12	167.56	0.384	N/A	0.44	0.58	0.71	0.59	1.00	0.090	2.09	214.58	1.000	N/A	N/A	N/A	0.43	83.65	8.01	102.44	82.020		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.184	6895.25	175.8	2.856	175.8	6.8	2.93	1.62%	Coarse Alluvium	0.056	111.0	4.62	0.000	4.62	0	0.40	69.898	6.70	85.61	37	1.67%	2.4	36%	4.87	0.000	4.87	0	0	0.44	0.09	0.83	-0.24	1.00	0.061	59.32	144.93	0.250	N/A	0.44	0.53	0.73	0.62	1.00	0.086	2.26	193.35	1.000	N/A	N/A	N/A	0.40	69.91	6.69	85.61	82.184		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.348	6895.08	165.6	2.303	165.6	4.7	2.05	1.39%	Coarse Alluvium	0.056	111.0	4.63	0.000	4.63	0	0.38	63.514	6.08	77.79	35	1.43%	2.4	36%	4.88	0.000	4.88	0	0	0.44	0.09	0.84	-0.20	1.00	0.060	56.62	134.41	0.215	N/A	0.44	0.51	0.75	0.63	1.00	0.084	2.19	170.46	1.000	N/A	N/A	N/A	0.38	63.53	6.08	77.79	82.348		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.512	6894.92	158.2	2.014	158.1	3.9	1.69	1.27%	Coarse Alluvium	0.056	111.0	4.64	0.000	4.64	0	0.37	59.019	5.65	72.28	33	1.31%	2.4	36%	4.89	0.000	4.89	0	0	0.44	0.09	0.85	-0.17	1.00	0.060	54.72	127.00	0.195	N/A	0.44	0.49	0.75	0.64	1.00	0.083	2.18	157.32	0.442	N/A	N/A	N/A	0.37	59.03	5.65	72.28	82.512		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.676	6894.75	153.2	2.228	153.2	3.2	1.38	1.45%	Coarse Alluvium	0.056	111.0	4.65	0.000	4.65	0	0.37	56.085	5.37	68.69	32	1.50%	2.4	36%	4.90	0.000	4.90	0	0	0.44	0.08	0.85	-0.15	1.00	0.059	53.49	122.17	0.184	N/A	0.44	0.48	0.76	0.65	1.00	0.082	2.36	161.98	1.000	N/A	N/A	N/A	0.37	56.09	5.37	68.69	82.676		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
82.840	6894.59	166.2	2.685	166.2	3.4	1.46	1.62%	Coarse Alluvium	0.056	111.0	4.66	0.000	4.66	0	0.38	63.531	6.09	77.80	35	1.66%	2.4	36%	4.91	0.000	4.91	0	0	0.44	0.09	0.84	-0.20	1.00	0.060	56.63	134.43	0.215	N/A	0.44	0.51	0.75	0.63	1.00	0.084	2.35	182.68	1.000	N/A	N/A	N/A	0.38	63.54	6.08	77.80	82.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.004	6894.43	149.4	2.829	149.4	5.3	2.28	1.89%	Coarse Alluvium	0.056	111.0	4.67	0.000	4.67	0	0.36	53.803	5.15	65.90	31	1.95%	2.5	36%	4.92	0.000	4.92	0	0	0.43	0.08	0.85	-0.13	1.00	0.059	52.52	118.42	0.176	N/A	0.43	0.47	0.77	0.66	1.00	0.081	2.72	179.00	1.000	N/A	N/A	N/A	0.36	53.81	5.15	65.90	83.004		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.168	6894.26	213.0	4.207	213.0	10.1	4.37	1.97%	Coarse Alluvium	0.056	111.0	4.68	0.000	4.68	0	0.44	94.593	9.06	115.86	45	2.02%	2.4	36%	4.93	0.000	4.93	0	0	0.43	0.12	0.78	-0.37	1.00	0.064	69.76	185.62	0.642	N/A	0.43	0.62	0.69	0.57	1.00	0.093	2.22	256.72	1.000	N/A	N/A	N/A	0.44	94.62	9.06	115.86	83.168		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.332	6894.10	304.4	5.876	304.3	12.0	5.20	1.93%	Coarse Alluvium	0.056	111.0	4.69	0.000	4.69	0	0.59	178.311	17.08	218.40	64	1.96%	2.2	36%	4.94	0.000	4.94	0	0	0.43	0.30	0.46	-0.60	1.00	0.109	105.12	323.51	1.000	N/A	0.43	0.85	0.60	0.49	1.00	0.109	1.80	392.06	1.000	N/A	N/A	N/A	0.59	178.36	17.08	218.40	83.332		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.496	6893.93	237.4	6.993	237.3	12.3	5.35	2.95%	Coarse Alluvium	0.056	111.0	4.70	0.000	4.70	0	0.48	113.400	10.86	138.90	50	3.01%	2.5	36%	4.95	0.000	4.95	0	0	0.43	0.15	0.74	-0.45	1.00	0.068	77.70	216.61	1.000	N/A	0.43	0.68	0.66	0.54	1.00	0.098	2.56	355.26	1.000	N/A	N/A	N/A	0.48	113.44	10.86	138.90	83.496		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.660	6893.77	206.9	5.430	206.8	9.3	4.03	2.62%	Coarse Alluvium	0.056	111.0	4.71	0.000	4.71	0	0.43	89.692	8.59	109.86	43	2.69%	2.5	36%	4.96	0.000	4.96	0	0	0.43	0.11	0.79	-0.34	1.00	0.063	67.68	177.54	0.498	N/A	0.43	0.61	0.70	0.58	1.00	0.091	2.61	287.22	1.000	N/A	N/A	N/A	0.43	89.72	8.59	109.86	83.660		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.824	6893.61	187.5	4.225	187.5	5.7	2.46	2.25%	Coarse Alluvium	0.056	111.0	4.72	0.000	4.72	0	0.41	76.250	7.30	93.39	39	2.31%	2.5	36%	4.96	0.000	4.96	0	0	0.43	0.10	0.82	-0.27	1.00	0.061	62.00	155.39	0.298	N/A	0.43	0.56	0.72	0.60	1.00	0.088	2.57	240.11	1.000	N/A	N/A	N/A	0.41	76.26	7.30	93.39	83.824		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
83.988	6893.44	174.8	3.938	174.8	5.4	2.32	2.25%	Coarse Alluvium	0.056	111.0	4.72	0.000	4.72	0	0.39	68.005	6.51	83.29	36	2.32%	2.5	36%	4.97	0.000	4.97	0	0	0.43	0.09	0.83	-0.23	1.00	0.060	58.52	141.81	0.239	N/A	0.43	0.53	0.74	0.62	1.00	0.085	2.69	224.20	1.000	N/A	N/A	N/A	0.39	68.02	6.51	83.29	83.988		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.153	6893.28	194.7	4.146	194.7	9.0	3.90	2.13%	Coarse Alluvium	0.056	111.0	4.73	0.000	4.73	0	0.41	80.777	7.74	98.94	40	2.18%	2.4	36%	4.98	0.000	4.98	0	0	0.43	0.11	0.81	-0.30	1.00	0.062	63.92	162.86	0.346	N/A	0.43	0.57	0.71	0.59	1.00	0.089	2.45	242.14	1.000	N/A	N/A	N/A	0.41	80.80	7.74	98.94	84.153		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.317	6893.11	198.1	3.974	198.0	7.0	3.01	2.01%	Coarse Alluvium	0.056	111.0	4.74	0.000	4.74	0	0.42	82.955	7.95	101.60	41	2.06%	2.4	36%	4.99	0.000	4.99	0	0	0.43	0.11	0.81	-0.31	1.00	0.062	64.84	166.44	0.374	N/A	0.43	0.58	0.71	0.59	1.00	0.089	2.35	239.17	1.000	N/A	N/A	N/A	0.42	82.97	7.94	101.60	84.317		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.481	6892.95	219.7	2.921	219.7	5.0	2.15	1.33%	Coarse Alluvium	0.056	111.0	4.75	0.000	4.75	0	0.45	98.501	9.43	120.63	45	1.36%	2.3	36%	5.00	0.000	5.00	0	0	0.43	0.13	0.77	-0.38	1.00	0.064	71.40	192.03	0.811	N/A	0.43	0.63	0.68	0.56	1.00	0.094	1.84	221.58	1.000	N/A	N/A	N/A	0.45	98.51	9.43	120.63	84.481		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.645	6892.79	241.9	2.807	241.8	5.9	2.54	1.16%	Coarse Alluvium	0.056	111.0	4.76	0.000	4.76	0	0.48	116.035	11.11	142.11	50	1.18%	2.2	36%	5.01	0.000	5.01	0	0	0.43	0.15	0.73	-0.46	1.00	0.068	78.81	220.91	1.000	N/A	0.43	0.69	0.66	0.54	1.00	0.098	1.65	234.93	1.000	N/A	N/A	N/A	0.48	116.05	11.11	142.11	84.645		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.809	6892.62	275.3	2.947	275.2	5.8	2.52	1.07%	Coarse Alluvium	0.056	111.0	4.77	0.000	4.77	0	0.53	146.145	14.00	178.98	57	1.09%	2.1	36%	5.02	0.000	5.02	0	0	0.43	0.21	0.62	-0.57	1.00	0.080	91.52	270.50	1.000	N/A	0.43	0.77	0.61	0.50	1.00	0.106	1.51	269.71	1.000	N/A	N/A	N/A	0.53	146.16	13.99	178.98	84.809		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
84.973	6892.46	304.3	2.706	304.2	7.2	3.11	0.89%	Coarse Alluvium	0.056	111.0	4.78	0.000	4.78	0	0.58	176.220	16.88	215.82	63	0.90%	2.0	36%	5.03	0.000	5.03	0	0	0.43	0.30	0.45	-0.60	1.00	0.109	104.23	320.04	1.000	N/A	0.43	0.85	0.60	0.48	1.00	0.109	1.36	294.22	1.000	N/A	N/A	N/A	0.58	176.25	16.87	215.82	84.973		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
85.137	6892.29	326.3	3.161	326.3	6.3	2.75	0.97%	Coarse Alluvium	0.056	111.0	4.79	0.000	4.79	0	0.62	201.853	19.33	247.20	67	0.98%	2.0	36%	5.04	0.000	5.04	0	0	0.43	0.30	0.45	-0.60	1.00	0.109	115.05	362.25	1.000	N/A	0.43	0.91	0.60	0.48	1.00	0.109	1.36	335.92	1.000	N/A	N/A	N/A	0.62	201.88	19.33	247.20	85.137		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
85.301	6892.13	317.5	3.308	317.5	6.2	2.68	1.04%	Coarse Alluvium	0.056	111.0	4.80	0.000	4.80	0	0.60	191.021	18.30	233.94	65	1.06%	2.1	36%	5.05	0.000	5.05	0	0	0.43	0.30	0.45	-0.60	1.00	0.109	110.48	344.41	1.000	N/A	0.43	0.88	0.60	0.48	1.00	0.109	1.41	328.71	1.000	N/A	N/A	N/A	0.60	191.04	18.29	233.94	85.301		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

85.465	6891.97	305.3	2.983	305.2	4.4	1.91	0.98%	Coarse Alluvium	0.056	111.0	4.81	0.000	4.81	0	0.58	176.751	16.93	216.45	63	0.99%	2.1	36%	5.06	0.000	5.06	0	0	0.43	0.30	0.45	-0.60	1.00	0.109	104.45	320.90	1.000	N/A	0.43	0.85	0.60	0.48	1.00	0.109	1.40	303.52	1.000	N/A	N/A	N/A
85.629	6891.80	253.4	2.720	253.4	3.1	1.34	1.07%	Coarse Alluvium	0.056	111.0	4.82	0.000	4.82	0	0.49	125.021	11.98	153.10	52	1.09%	2.2	36%	5.06	0.000	5.06	0	0	0.43	0.16	0.70	-0.49	1.00	0.071	82.60	235.70	1.000	N/A	0.43	0.71	0.64	0.52	1.00	0.100	1.58	241.56	1.000	N/A	N/A	N/A
85.793	6891.64	227.0	3.377	227.0	3.0	1.30	1.49%	Coarse Alluvium	0.056	111.0	4.82	0.000	4.82	0	0.45	102.964	9.86	126.09	46	1.52%	2.3	36%	5.07	0.000	5.07	0	0	0.43	0.13	0.76	-0.40	1.00	0.065	73.28	199.37	1.000	N/A	0.43	0.65	0.68	0.55	1.00	0.094	1.91	240.42	1.000	N/A	N/A	N/A
85.957	6891.47	217.9	3.663	217.9	2.9	1.26	1.68%	Coarse Alluvium	0.056	111.0	4.83	0.000	4.83	0	0.44	95.810	9.18	117.33	44	1.72%	2.3	36%	5.08	0.000	5.08	0	0	0.43	0.12	0.78	-0.37	1.00	0.064	70.26	187.59	0.688	N/A	0.43	0.63	0.69	0.56	1.00	0.092	2.07	242.38	1.000	N/A	N/A	N/A
86.121	6891.31	222.3	5.234	222.3	5.5	2.40	2.35%	Coarse Alluvium	0.056	111.0	4.84	0.000	4.84	0	0.45	98.991	9.48	121.23	45	2.41%	2.4	36%	5.09	0.000	5.09	0	0	0.43	0.13	0.77	-0.38	1.00	0.064	71.61	192.84	0.838	N/A	0.43	0.64	0.68	0.56	1.00	0.093	2.41	291.81	1.000	N/A	N/A	N/A
86.285	6891.14	253.5	4.559	253.5	6.5	2.83	1.80%	Coarse Alluvium	0.056	111.0	4.85	0.000	4.85	0	0.49	124.412	11.92	152.37	51	1.83%	2.3	36%	5.10	0.000	5.10	0	0	0.43	0.16	0.70	-0.49	1.00	0.070	82.34	234.71	1.000	N/A	0.43	0.71	0.64	0.52	1.00	0.100	1.95	297.85	1.000	N/A	N/A	N/A
86.449	6890.98	158.9	3.725	158.9	6.2	2.67	2.34%	Coarse Alluvium	0.056	111.0	4.86	0.000	4.86	0	0.36	57.092	5.47	69.93	32	2.42%	2.5	36%	5.11	0.000	5.11	0	0	0.43	0.08	0.85	-0.16	1.00	0.058	53.91	123.84	0.188	N/A	0.43	0.48	0.76	0.64	1.00	0.081	2.97	208.02	1.000	N/A	N/A	N/A
86.613	6890.82	134.2	2.265	134.2	3.8	1.65	1.69%	Coarse Alluvium	0.056	111.0	4.87	0.000	4.87	0	0.33	43.969	4.21	53.85	27	1.75%	2.5	36%	5.12	0.000	5.12	0	0	0.43	0.07	0.87	-0.06	1.00	0.057	48.37	102.22	0.146	N/A	0.43	0.42	0.79	0.68	1.00	0.077	2.85	153.33	0.415	N/A	N/A	N/A
86.777	6890.65	124.3	2.022	124.3	3.0	1.30	1.63%	Coarse Alluvium	0.056	111.0	4.88	0.000	4.88	0	0.31	39.146	3.75	47.94	24	1.69%	2.5	36%	5.13	0.000	5.13	0	0	0.42	0.07	0.87	-0.02	1.00	0.056	46.33	94.27	0.133	N/A	0.42	0.40	0.80	0.69	1.00	0.075	2.96	141.72	0.345	N/A	N/A	N/A
86.941	6890.49	131.8	2.125	131.7	3.0	1.28	1.61%	Coarse Alluvium	0.056	111.0	4.89	0.000	4.89	0	0.32	42.625	4.08	52.20	26	1.67%	2.5	36%	5.14	0.000	5.14	0	0	0.42	0.07	0.87	-0.05	1.00	0.057	47.80	100.00	0.143	N/A	0.42	0.42	0.79	0.68	1.00	0.076	2.83	147.80	0.380	N/A	N/A	N/A
87.105	6890.32	130.9	1.817	130.9	1.0	0.45	1.39%	Coarse Alluvium	0.056	111.0	4.90	0.000	4.90	0	0.32	42.151	4.04	51.62	26	1.44%	2.5	36%	5.15	0.000	5.15	0	0	0.42	0.07	0.87	-0.04	1.00	0.057	47.60	99.22	0.141	N/A	0.42	0.41	0.79	0.68	1.00	0.076	2.66	137.40	0.321	N/A	N/A	N/A
87.269	6890.16	107.8	1.588	107.8	-0.4	-0.18	1.47%	Coarse Alluvium	0.056	111.0	4.91	0.000	4.91	0	0.29	31.590	3.03	38.68	21	1.54%	2.6	36%	5.16	0.000	5.16	0	0	0.42	0.06	0.88	0.06	1.00	0.056	43.14	81.82	0.115	N/A	0.42	0.36	0.80	0.69	1.00	0.075	3.14	121.56	0.247	N/A	N/A	N/A
87.433	6890.00	125.8	1.786	125.8	0.3	0.14	1.42%	Coarse Alluvium	0.056	111.0	4.92	0.000	4.92	0	0.31	39.579	3.79	48.47	25	1.48%	2.5	36%	5.17	0.000	5.17	0	0	0.42	0.07	0.87	-0.02	1.00	0.056	46.51	94.98	0.135	N/A	0.42	0.40	0.80	0.69	1.00	0.075	2.77	134.34	0.305	N/A	N/A	N/A
87.597	6889.83	178.9	2.091	178.9	2.0	0.85	1.17%	Coarse Alluvium	0.056	111.0	4.92	0.000	4.92	0	0.38	68.083	6.52	83.37	35	1.20%	2.3	36%	5.17	0.000	5.17	0	0	0.42	0.09	0.83	-0.22	1.00	0.059	58.55	141.92	0.239	N/A	0.42	0.53	0.74	0.61	1.00	0.084	2.02	168.06	1.000	N/A	N/A	N/A
87.761	6889.67	182.9	2.239	182.9	1.6	0.69	1.22%	Coarse Alluvium	0.056	111.0	4.93	0.000	4.93	0	0.39	70.455	6.75	86.28	36	1.26%	2.3	36%	5.18	0.000	5.18	0	0	0.42	0.10	0.82	-0.24	1.00	0.059	59.55	145.83	0.254	N/A	0.42	0.54	0.73	0.61	1.00	0.085	2.03	174.99	1.000	N/A	N/A	N/A
87.925	6889.50	184.0	1.863	184.0	1.0	0.45	1.01%	Coarse Alluvium	0.056	111.0	4.94	0.000	4.94	0	0.39	71.062	6.81	87.02	36	1.04%	2.3	36%	5.19	0.000	5.19	0	0	0.42	0.10	0.82	-0.24	1.00	0.059	59.81	146.83	0.258	N/A	0.42	0.54	0.73	0.61	1.00	0.085	1.88	163.21	1.000	N/A	N/A	N/A
88.089	6889.34	198.0	1.832	198.0	0.5	0.20	0.93%	Coarse Alluvium	0.056	111.0	4.95	0.000	4.95	0	0.40	80.045	7.67	98.02	39	0.95%	2.2	36%	5.20	0.000	5.20	0	0	0.42	0.10	0.81	-0.29	1.00	0.060	63.60	161.62	0.337	N/A	0.42	0.57	0.71	0.59	1.00	0.088	1.74	170.37	1.000	N/A	N/A	N/A
88.254	6889.18	175.0	2.037	175.0	-0.5	-0.20	1.16%	Coarse Alluvium	0.056	111.0	4.96	0.000	4.96	0	0.37	65.328	6.26	79.99	34	1.20%	2.3	36%	5.21	0.000	5.21	0	0	0.42	0.09	0.83	-0.21	1.00	0.059	57.38	137.38	0.224	N/A	0.42	0.52	0.74	0.62	1.00	0.083	2.05	163.95	1.000	N/A	N/A	N/A
88.418	6889.01	159.1	1.975	159.2	-0.6	-0.24	1.24%	Coarse Alluvium	0.056	111.0	4.97	0.000	4.97	0	0.35	56.089	5.37	68.68	31	1.28%	2.4	36%	5.22	0.000	5.22	0	0	0.42	0.08	0.85	-0.15	1.00	0.058	53.48	122.16	0.184	N/A	0.42	0.48	0.76	0.64	1.00	0.080	2.24	154.01	0.420	N/A	N/A	N/A
88.582	6888.85	165.7	1.897	165.7	-0.4	-0.18	1.14%	Coarse Alluvium	0.056	111.0	4.98	0.000	4.98	0	0.36	59.685	5.72	73.08	32	1.18%	2.3	36%	5.23	0.000	5.23	0	0	0.42	0.09	0.84	-0.17	1.00	0.058	55.00	128.09	0.198	N/A	0.42	0.49	0.75	0.63	1.00	0.081	2.11	154.48	0.423	N/A	N/A	N/A
88.746	6888.68	178.8	1.899	178.8	-0.2	-0.08	1.06%	Coarse Alluvium	0.056	111.0	4.99	0.000	4.99	0	0.38	67.280	6.44	82.38	35	1.09%	2.3	36%	5.24	0.000	5.24	0	0	0.42	0.09	0.83	-0.22	1.00	0.059	58.21	140.59	0.234	N/A	0.42	0.52	0.74	0.61	1.00	0.084	1.96	161.17	1.000	N/A	N/A	N/A
88.910	6888.52	198.4	1.887	198.4	-0.6	-0.24	0.95%	Coarse Alluvium	0.056	111.0	5.00	0.000	5.00	0	0.40	79.686	7.63	97.58	39	0.98%	2.2	36%	5.25	0.000	5.25	0	0	0.42	0.10	0.81	-0.29	1.00	0.060	63.45	161.02	0.333	N/A	0.42	0.57	0.71	0.59	1.00	0.087	1.76	172.03	1.000	N/A	N/A	N/A
89.074	6888.36	193.1	1.716	193.1	-0.8	-0.36	0.89%	Coarse Alluvium	0.056	111.0	5.01	0.000	5.01	0	0.39	76.039	7.28	93.11	38	0.91%	2.2	36%	5.26	0.000	5.26	0	0	0.42	0.10	0.81	-0.27	1.00	0.060	61.91	155.02	0.296	N/A	0.42	0.56	0.72	0.60	1.00	0.086	1.75	163.01	1.000	N/A	N/A	N/A
89.238	6888.19	190.0	1.544	190.0	-1.3	-0.57	0.81%	Coarse Alluvium	0.056	111.0	5.02	0.000	5.02	0	0.39	73.947	7.08	90.55	37	0.83%	2.2	36%	5.27	0.000	5.27	0	0	0.42	0.10	0.82	-0.26	1.00	0.059	61.02	151.57	0.279	N/A	0.42	0.55	0.73	0.60	1.00	0.086	1.72	155.32	0.428	N/A	N/A	N/A
89.402	6888.03	188.9	1.368	188.9	-1.1	-0.47	0.72%	Coarse Alluvium	0.056	111.0	5.02	0.000	5.02	0	0.39	73.144	7.01	89.56	37	0.74%	2.2	36%	5.27	0.000	5.27	0	0	0.42	0.10	0.82	-0.25	1.00	0.059	60.68	150.25	0.272	N/A	0.42	0.55	0.73	0.60	1.00	0.085	1.66	148.61	0.385	N/A	N/A	N/A
89.566	6887.86	188.1	1.479	188.1	-1.3	-0.55	0.79%	Coarse Alluvium	0.056	111.0	5.03	0.000	5.03	0	0.39	72.504	6.94	88.78	36	0.81%	2.2	36%	5.28	0.000	5.28	0	0	0.42	0.10	0.82	-0.25	1.00	0.059	60.41	149.19	0.268	N/A	0.42	0.54	0.73	0.60	1.00	0.085	1.71	151.84	0.406	N/A	N/A	N/A
89.730	6887.70	164.1	1.834	164.1	-0.8	-0.36	1.12%	Coarse Alluvium	0.056	111.0	5.04	0.000	5.04	0	0.35	58.072	5.56	71.11	32	1.15%	2.4	36%	5.29	0.000	5.29	0	0	0.42	0.08	0.84	-0.16	1.00	0.057	54.32	125.43	0.192	N/A	0.42	0.49	0.76	0.63	1.00	0.081	2.12	151.10	0.401	N/A	N/A	N/A
89.894	6887.54	147.7	1.329	147.7	-1.5	-0.65	0.90%	Coarse Alluvium	0.056	111.0	5.05	0.000	5.05	0	0.33	49.205	4.71	60.25	28	0.93%	2.3	36%	5.30	0.000	5.30	0	0	0.42	0.08	0.85	-0.10	1.00	0.056	50.58	110.82	0.161	N/A	0.42	0.45	0.78	0.66	1.00	0.078	2.10	126.25	0.267	N/A	N/A	N/A
90.058	6887.37	148.4	1.521	148.4	-1.6	-0.71	1.02%	Coarse Alluvium	0.056	111.0	5.06	0.000	5.06	0	0.33	49.483	4.74	60.59	28	1.06%	2.4	36%	5.31	0.000	5.31	0	0	0.42	0.08	0.85	-0.10	1.00	0.056	50.69	111.28	0.162	N/A	0.42	0.45	0.78	0.66	1.00	0.078	2.20	133.24	0.300	N/A	N/A	N/A
90.222	6887.21	181.2	1.550	181.2	-1.7	-0.75	0.86%	Coarse Alluvium	0.056	111.0	5.07	0.000	5.07	0	0.37	67.788	6.49	83.00	35	0.88%	2.3	36%	5.32	0.000	5.32	0	0	0.42	0.09	0.83	-0.22	1.00	0.058	58.42	141.42	0.237	N/A	0.42	0.53	0.74	0.61	1.00	0.083	1.81	150.07	0.394	N/A	N/A	N/A
90.386	6887.04	193.4	1.996	193.4	-1.6	-0.69	1.03%	Coarse Alluvium	0.056	111.0	5.08	0.000	5.08	0	0.39	75.314	7.21	92.22	37	1.06%	2.3	36%	5.33	0.000	5.33	0	0	0.42	0.10	0.81	-0.26	1.00	0.059	61.60	153.82	0.290	N/A	0.42	0.55	0.72	0.59	1.00	0.086	1.86	171.87	1.000	N/A	N/A	N/A
90.550	6886.88	200.4	1.665	200.4	-2.5	-1.08	0.83%	Coarse Alluvium	0.056	111.0	5.09	0.000	5.09	0	0.40	79.795	7.64	97.70	38	0.85%	2.2	36%	5.34	0.000	5.34	0	0	0.42	0.10	0.80	-0.29	1.00	0.060	63.49	161.19	0.334	N/A	0.42	0.57	0.71	0.59	1.00	0.087	1.69	165.10	1.000	N/A	N/A	N/A
90.714	6886.72	240.4	1.781	240.4	-1.7	-0.75	0.74%	Coarse Alluvium	0.056	111.0	5.10	0.000	5.10	0	0.45	109.106	10.45	133.59	46	0.76%	2.1	36%	5.35	0.000	5.35	0	0	0.42	0.14	0.74	-0.43	1.00	0.065	75.87	209.47	1.000	N/A	0.42	0.67	0.67	0.53	1.00	0.095	1.48	197.78	1.000	N/A	N/A	N/A
90.878	6886.55	240.0	2.697	240.0	-1.7	-0.73	1.12%	Coarse Alluvium	0.056	111.0	5.11	0.000	5.11	0	0.45	108.593	10.40	132.97	46	1.15%	2.2	36%	5.36	0.000	5.36	0	0	0.42	0.14	0.74	-0.42	1.00	0.065	75.65	208.62	1.000	N/A	0.42	0.67	0.67	0.53	1.00	0.095	1.70	226.54	1.000	N/A	N/A	N/A
91.042	6886.39	225.2	3.396	225.2	-1.9	-0.81	1.51%	Coarse Alluvium	0.056	111.0	5.12	0.000	5.12	0	0.43	96.953	9.29	118.71	43	1.54%	2.3	36%	5.37	0.000	5.37	0	0	0.42	0.12	0.77	-0.37	1.00	0.063	70.74	189.45	0.736	N/A	0.42	0.63	0.69	0.55	1.00	0.092	2.00	236.90	1.000	N/A	N/A	N/A
91.206	6886.22	213.7	3.313	213.7	-1.5	-0.65	1.55%	Coarse Alluvium	0.056	111.0	5.13	0.000	5.13	0	0.41	88.458	8.47	108.31	41	1.59%	2.3	36%	5.37	0.000	5.37	0	0	0.42	0.11	0.79	-0.33	1.00	0.061	67.15	175.47	0.470	N/A	0.42	0.60	0.70	0.57	1.00	0.089	2.09	226.09	1.000	N/A	N/A	N/A
91.370	6886.06	200.7	3.490	200.7	-1.6	-0.71	1.74%	Coarse Alluvium	0.056	111.0	5.13	0.000	5.13	0	0.40	79.411	7.61	97.23	38	1.78%	2.4	36%	5.38	0.000	5.38	0	0	0.41	0.10	0.80	-0.29	1.00	0.060	63.33	160.56	0.330	N/A	0.41	0.57	0.72	0.58	1.00	0.087	2.29	222.74	1.000	N/A	N/A	N/A
91.534	6885.90	123.1	3.538	123.1	-2.7	-1.16	2.87%	Coarse Alluvium	0.056	111.0	5.14	0.000	5.14	0	0.30	36.650	3.51	44.87	23	3.00%	2.7	36%	5.39	0.000	5.39	0	0	0.41	0.07	0.87	0.01	1.00	0.055	45.27	90.15	0.127	N/A	0.41	0.39	0.80	0.69	1.00	0.074	4.05	181.81	1.000	N/A	N/A	N/A
91.698	6885.73	64.5	3.045	64.5	-3.7	-1.59	4.72%	Coarse Alluvium	0.056	111.0	5.15	0.000	5.15	0	0.24	15.282	1.46	18.71	12	5.13%	3.1	36%	5.40	0.000	5.40	0	0	0.41	0.05	0.90	0.10	1.00	0.053	36.25	54.95	0.082	N/A	0.41	0.25	0.80	0.69	1.00	0.074	7.76	145.21	0.365	N/A	N/A	N/A
91.862	6885.57	47.7	2.189	47.7	-3.3	-1.44	4.59%	Coarse Alluvium	0.056	111.0	5.16	0.000	5.16	0	0.24	11.295	1.08	13.83	8	5.14%	3.2	36%	5.41	0.000	5.41	0	0	0.41	0.05	0.91	0.10	1.00	0.053	34.57	48.39	0.076	N/A	0.41	0.21	0.80	0.69	1.00	0.074	9.27	128.23	0.276	N/A	N/A	N/A
92.026	6885.40	99.9	1.913	99.9	1.2	0.51	1.92%	Coarse Alluvium	0.056	111.0	5.17	0.000	5.17	0	0.27	26.848	2.57	32.88	18	2.02%	2.7	36%	5.42	0.000	5.42	0	0	0.41	0.06	0.89	0.10	1.00	0.054	41.14	74.01	0.105	N/A	0.41	0.33	0.80	0.68	1.00	0.074	3.87	127.34	0.272	N/A	N/A	N/A
92.190	6885.24	142.8	1.768	142.8	1.3	0.55	1.24%	Coarse Alluvium	0.056	111.0	5.18	0.000	5.18	0	0.32	45.592	4.37	55.83	27	1.28%	2.4	36%	5.43	0.000	5.43	0	0	0.41	0.07	0.86	-0.07	1.00	0.056	49.05	104.88	0.151	N/A	0.41	0.43	0.78	0.66	1.00	0.076	2.48	138.49	0.327	N/A	N/A	N/A
92.355	6885.08	144.2	1.412	144.2	0.1	0.02	0.98%	Coarse Alluvium	0.056	111.0	5.19	0.000	5.19	0	0.32	46.240	4.43	56.62	27	1.02%	2.4	36%	5.44	0.000	5.44	0	0	0.41	0.08	0.86	-0.07	1.00	0.056	49.32	105.95	0.153	N/A	0.41	0.43	0.78	0.66	1.00	0.076	2.24	126.86	0.270	N/A	N/A	N/A
92.519	6884.91	142.1	0.308	142.1	-0.7	-0.30	0.22%	Coarse Alluvium	0.056	111.0	5.20	0.000	5.20	0	0.32	45.095	4.32	55.22	26	0.23%	2.1	36%	5.45	0.000	5.45	0	0	0.41	0.07	0.86	-0.06	1.00	0.056	48.84	104.06	0.149	N/A	0.41	0.43	0.79	0.67	1.00	0.076	1.51	83.25	0.134	N/A	N/A	N/A
92.683	6884.75	135.4	0.530	135.4	-0.8	-0.35	0.39%	Coarse Alluvium	0.056	111.0	5.21	0.000	5.21	0	0.31	41.840	4.01	51.23	25	0.41%	2.2	36%	5.46	0.000	5.46	0	0	0.41	0.07	0.86	-0.04	1.00	0.055	47.47	98.70	0.140	N/A	0.41	0.41	0.79	0.68	1.00	0.075	1.75	89.56	0.147	N/A	N/A	N/A
92.847	6884.58	138.6	0.653	138.5	8.5	3.66	0.47%	Coarse Alluvium	0.056	111.0	5.22	0.000	5.22	0	0.31	43.230	4.14	52.96	26	0.49%	2.3	36%	5.47	0.000	5.47	0	0	0.41	0.07	0.86	-0.05	1.00	0.055	48.06	101.02	0.144	N/A	0.41	0.42	0.79	0.67	1.00	0.075	1.81	95.86	0.162	N/A	N/A	N/A
93.011	6884.42	131.0	0.808	131.0	0.9	0.39	0.62%	Coarse Alluvium	0.056	111.0	5.23	0.000	5.23	0	0.30	39.658	3.80	48.56	24	0.64%	2.3	36%	5.47	0.000	5.47	0	0	0.41	0.07	0.87	-0.02	1.00	0.055	46.55	95.11	0.135	N/A	0.41	0.40	0.80	0.68	1.00	0.074	2.04	99.08	0.170	N/A	N/A	N/A
93.175	6884.26	122.0	0.867	122.0	-0.6	-0.26	0.71%	Coarse Alluvium	0.056	111.0	5.23	0.000	5.23	0	0.29	35.547	3.40	43.53	22	0.74%	2.4	36%	5.48	0.000	5.48	0	0	0.41	0.07	0.87	0.02	1.00	0.055	44.81	88.34	0.124	N/A	0.41	0.38	0.80	0.68	1.00	0.074	2.25	98.13	0.168	N/A	N/A	N/A
93.339	6884.09	134.9	1.098	134.9	-4.0	-1.75	0.81%	Coarse Alluvium	0.056	111.0	5.24	0.000	5.24	0	0.31	41.316	3.96	50.58	25	0.85%	2.4	36%	5.49	0.000	5.49	0	0	0.41	0.07	0.86	-0.03	1.00	0.055	47.24	97.82	0.139	N/A	0.41	0.41	0.79	0.68	1.00	0.074	2.21	111.54	0.209	N/A	N/A	N/A
93.503	6883.93	163.2	1.641	163.2	-3.4	-1.46	1.01%	Coarse Alluvium	0.056	111.0	5.25	0.000	5.25	0	0.34	55.500	5.32	67.95	30	1.04%	2.3	36%	5.50	0.000	5.50	0	0	0.41	0.08	0.84	-0.14	1.00	0.056	53.23	121.18	0.182	N/A	0.41	0.48	0.76	0.64	1.00	0.079	2.10	142.68	0.350	N/A	N/A	N/A
93.667	6883.76	186.9	1.857	186.9	-2.7	-1.18	0.99%	Coarse Alluvium	0.056	111.0	5.26	0.000	5.26	0	0.37	69.058	6.61	84.55	35	1.02%	2.3	36%	5.51	0.000	5.51	0	0	0.41	0.09	0.82	-0.23	1.00	0.058	58.96	143.51	0.245	N/A	0.41	0.53	0.73	0.60	1.00	0.083	1.92	162.08	1.000	N/A	N/A	N/A
93.831	6883.60	193.0	2.073	193.0	-2.5	-1.08	1.07%	Coarse Alluvium	0.056	111.0	5.27	0.000	5.27	0	0.38	72.706	6.96	89.02	36	1.10%	2.3	36%	5.52	0.000	5.52	0	0	0.41	0.10	0.81	-0.25	1.00	0.058	60.50	149.52	0.269	N/A	0.41	0.54	0.73	0.59	1.00	0.084	1.94	172.59	1.000	N/A	N/A	N/A
93.995	6883.44	199.4	2.059	199.4	-2.3	-0.98	1.03%	Coarse Alluvium	0.056	111.0	5.28	0.000	5.28	0	0.38	76.702	7.35	93.92	37	1.06%	2.3	36%	5.53	0.000	5.53	0	0	0.41	0.10	0.81	-0.27	1.00	0.059	62.19	156.10	0.302	N/A	0.41	0.56	0.72	0.59	1.00	0.086	1.87	175.90	1.000	N/A	N/A	N/A
94.159	6883.27	204.2	2.008	204.2	-2.5	-1.08	0.98%	Coarse Alluvium	0.056	111.0	5.29	0.000	5.29	0	0.39	79.721	7.64	97.61	38	1.01%	2.3	36%	5.54	0.000	5.54	0	0	0.41	0.10	0.80	-0.29	1.00	0.059	63.46	161.07	0.333	N/A	0.41	0.57	0.71	0.58	1.00	0.087	1.81	177.13	1.000	N/A	N/A	N/A
94.323	6883.11	190.8	2.045	190.8	-2.7	-1.16	1.07%	Coarse Alluvium	0.056	111.0	5.30	0.000	5.30	0	0.37	70.988	6.80	86.92	35	1.10%	2.3	36%	5.55	0.000	5.55	0	0	0.41	0.10	0.82	-0.24	1.00	0.058	59.77	146.69	0.257	N/A	0.41	0.54	0.73	0.60	1.00	0.084	1.96	170.16	1.000	N/A	N/A	N/A
94.487	6882.94	178.7	2.495	178.7	-2.6	-1.14	1.40%	Coarse Alluvium	0.056	111.0	5.31	0.000	5.31	0	0.36	63.644	6.10	77.93	33	1.44%	2.4	36%	5.56	0.000	5.56	0	0	0.41	0.09	0.83	-0.19	1.00	0.057	56.67	134.60	0.216	N/A	0.41	0.51	0.75	0.61	1.00	0.082	2.28	177.84	1.000	N/A	N/A	N/A
94.651	6882.78	195.5	2.741	195.5	-2.4	-1.02	1.40%	Coarse Alluvium	0.056	111.0	5.32	0.000	5.32	0	0.38	73.721	7.06	90.27	36	1.44%	2.4	36%	5.57	0.000	5.57	0	0	0.41	0.10	0.81	-0.25	1.00	0.058	60.93	151.19	0.277	N/A	0.41	0.55	0.73	0.59	1.00	0.085	2.16	194.97	1.000	N/A	N/A	N/A
94.815	6882.61	211.8	2.345	211.8	-2.0	-0.85	1.11%	Coarse Alluvium	0.056	111.0	5.33	0.000	5.33	0	0.40	84.364	8.08	103.30	39	1.14%	2.3	36%	5.57	0.000	5.57	0	0	0.41	0.11	0.79	-0.31	1.00	0.060	65.42	168.72	0.395	N/A	0.41	0.59	0.71	0.57	1.00	0.088	1.86	192.65	1.000	N/A	N/A	N/A
94.979	6882.45	225.9	1.664	225.9	-1.8	-0.77	0.74%	Coarse Alluvium	0.056	111.0	5.33	0.000	5.33	0	0.42	94.235	9.03	115.39	41	0.75%	2.2	36%	5.58	0.000	5.58	0	0	0.41	0.12	0.77	-0.36	1.00	0.061	69.59	184.98	0.628	N/A	0.41	0.62	0.69	0.55	1.00	0.091	1.56	180.21	1.000	N/A	N/A	N/A
95.143	6882.29	230.2	1.833	230.2	-1.8	-0.77	0.80%	Coarse Alluvium	0.056	111.0	5.34	0.000	5.34	0	0.42	97.323	9.32	119.17	42	0.82%	2.2	36%	5.59	0.000	5.59	0	0	0.41	0.12	0.76	-0.37	1.00	0.062	70.89	190.06	0.752	N/A	0.41	0.63	0.68	0.55	1.00	0.092	1.59	188.90	1.000	N/A	N/A	N/A
95.307	6882.12	227.9	2.613	227.9	1.1	0.49	1.15%	Coarse Alluvium	0.056	111.0	5.35	0.000	5.35	0	0.42	95.481	9.15	116.92	42	1.17%	2.3	36%	5.60	0.000	5.60	0	0	0.41	0.12	0.77	-0.36	1.00	0.062	70.12	187.04	0.674	N/A	0.41	0.62	0.69	0.55	1.00	0.091	1.82	212.26	1.000	N/A	N/A	N/A
95.471	6881.96	243.4	3.006	243.4	-0.1	-0.06	1.23%	Coarse Alluvium	0.056	111.0	5.36	0.000	5.36	0	0.44	107.258	10.27	131.34	44	1.26%	2.3	36%	5.61	0.000	5.61	0	0	0.41	0.14	0.74	-0.41	1.00	0.064	75.09	206.43	1.000	N/A	0.41	0.66	0.67	0.53	1.00	0.094	1.80	236.63	1.000	N/A	N/A	N/A
95.635	6881.79	218.2	3.094	218.2	-1.6	-0.71	1.42%	Coarse Alluvium	0.056	111.0	5.37	0.000	5.37	0	0.40	88.174	8.45	107.97	40	1.45%	2.3	36%	5.62	0.000	5.62	0	0	0.41	0.11	0.78	-0.33	1.00	0.060	67.03	175.00	0.464	N/A	0.41	0.60	0.70	0.56	1.00	0.089	2.04	220.18	1.000	N/A	N/A	N/A
95.799	6881.63	215.0	2.465	215.1	-2.6	-1.12	1.15%	Coarse Alluvium	0.056	111.0	5.38	0.000	5.38	0	0.40	85.869	8.23	105.14	39	1.18%	2.3	36%	5.63	0.000	5.63	0	0	0.41	0.11	0.79	-0.32	1.00	0.060	66.06	171.20	0.420	N/A	0.41	0.59	0.70	0.56	1.00	0.088	1.88	198.18	1.000	N/A	N/A	N/A
95.963	6881.47	213.1	2.470	213.1	-2.5	-1.08	1.16%	Coarse Alluvium	0.056	111.0	5.39	0.000	5.39	0	0.40	84.383	8.08	103.32	39	1.19%	2.3	36%	5.64	0.000	5.64	0	0	0.41	0.11	0.79	-0.31	1.00	0.060	65.43	168.75	0.395	N/A	0.41	0.59	0.71	0.57	1.00	0.088	1.91	196.93	1.000	N/A	N/A	N/A
96.127	6881.30	211.8	2.873	211.8	-1.5	-0.63	1.36%	Coarse Alluvium	0.056	111.0	5.40	0.000	5.40	0	0.39	83.398	7.99	102.12	38	1.39%	2.3	36%	5.65	0.000	5.65	0	0	0.41	0.11	0.79	-0.30	1.00	0.059	65.01	167.13	0.380	N/A	0.41	0.58	0.71	0.57	1.00	0.088	2.04	208.72	1.000	N/A	N/A	N/A
96.291	6881.14	226.5	2.890	226.5	-1.5	-0.65	1.28%	Coarse Alluvium	0.056	111.0	5.41	0.000	5.41	0	0.41	93.656	8.97	114.68	41	1.31%	2.3	36%	5.66	0.000	5.66	0	0	0.41	0.12	0.77	-0.35	1.00	0.061	69.35	184.02	0.608	N/A	0.41	0.62	0.69	0.55	1.00	0.091	1.91	219.47	1.000	N/A	N/A	N/A
96.456	6880.97	281.9	2.957	281.9	-0.8	-0.36	1.05%	Coarse Alluvium	0.056	111.0	5.42	0.000	5.42	0	0.50	140.116	13.42	171.57	51	1.07%	2.2	36%	5.67	0.000	5.67	0	0	0.41	0.19	0.62	-0.54	1.00	0.075	88.97	260.54	1.000	N/A	0.41	0.76	0.62	0.48	1.00	0.103	1.57	270.06	1.000	N/A	N/A	N/A
96.620	6880.81	407.5	2.957	407.5	-0.1	-0.04	0.73%	Coarse Alluvium	0.056	111.0	5.43	0.000	5.43	0	0.61	247.244	23.68	302.75	74	0.74%	1.9	36%	5.67	0.000	5.67	0	0	0.41	0.30	0.42	-0.60	1.00	0.112	134.21	436.96	1.000	N/A	0.41	1.00	0.60	0.46	1.00	0.108	1.22	370.22	1.000	N/A	N/A	N/A
96.784	6880.65	434.6	2.957	434.6	0.0	0.00	0.68%	Coarse Alluvium	0.056	111.0	5.43	0.000	5.43	0	0.61	263.601	25.25	322.78	79	0.69%	1.9	36%	5.68	0.000	5.68	0	0	0.41	0.30	0.42	-0.60	1.00	0.112	141.12	463.90	1.000	N/A	0.41	1.04	0.60	0.46	1.00	0.108	1.18	382.36	1.000	N/A	N/A	N/A

0.58	176.77	16.92	216.45	85.465		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.49	125.03	11.97	153.10	85.629		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	102.97	9.86	126.09	85.793		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	95.82	9.17	117.33	85.957	40	1.00	37	16	0.63	0.45	0.44	5.5	21.6	0.23	N/A	5.00	1.20	24.25	0.278	N/A	N/A
0.45	99.01	9.48	121.23	86.121		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.49	124.43	11.91	152.37	86.285		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	57.11	5.47	69.93	86.449		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	43.98	4.21	53.85	86.613		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	39.15	3.75	47.94	86.777		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	42.63	4.08	52.20	86.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	42.15	4.04	51.62	87.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.29	31.59	3.02	38.68	87.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	39.58	3.79	48.47	87.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	68.09	6.52	83.37	87.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	70.46	6.75	86.28	87.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	71.06	6.80	87.02	87.925		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	80.05	7.66	98.02	88.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	65.33	6.25	79.99	88.254		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	56.09	5.37	68.68	88.418		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	59.68	5.71	73.08	88.582		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	67.28	6.44	82.38	88.746		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	79.69	7.63	97.58	88.910		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	76.04	7.28	93.11	89.074		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	73.94	7.08	90.55	89.238		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	73.14	7.00	89.56	89.402		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	72.50	6.94	88.78	89.566		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.35	58.07	5.56	71.11	89.730		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	49.20	4.71	60.25	89.894		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.33	49.48	4.74	60.59	90.058		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	67.78	6.49	83.00	90.222		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	75.31	7.21	92.22	90.386		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	79.79	7.64	97.70	90.550		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	109.10	10.45	133.59	90.714		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.45	108.59	10.40	132.97	90.878		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.43	96.95	9.28	118.71	91.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	88.45	8.47	108.31	91.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	79.41	7.60	97.23	91.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	36.65	3.51	44.87	91.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.24	15.28	1.46	18.71	91.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.24	11.29	1.08	13.83	91.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.27	26.85	2.57	32.88	92.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	45.59	4.37	55.83	92.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	46.24	4.43	56.62	92.355		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.32	45.09	4.32	55.22	92.519		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	41.84	4.01	51.23	92.683		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	43.25	4.14	52.96	92.847		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.30	39.66	3.80	48.56	93.011		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.29	35.55	3.40	43.53	93.175		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.31	41.31	3.95	50.58	93.339		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.34	55.49	5.31	67.95	93.503		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	69.05	6.61	84.55	93.667		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	72.70	6.96	89.02	93.831		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	76.70	7.34	93.92	93.995		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	79.72	7.63	97.61	94.159		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.37	70.98	6.80	86.92	94.323		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.36	63.64	6.09	77.93	94.487		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.38	73.72	7.06	90.27	94.651		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	84.36	8.08	103.30	94.815		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	94.23	9.02	115.39	94.979		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	97.32	9.32	119.17	95.143		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.42	95.48	9.14	116.92	95.307		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.44	107.26	10.27	131.34	95.471		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	88.17	8.44	107.97	95.635	38	1.00	35	14	0.59	0.48	0.40	5.5	19.5	0.20	N/A	5.00	1.20	21.74	0.238	N/A	N/A
0.40	85.86	8.22	105.14	95.799		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.40	84.38	8.08	103.32	95.963		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.39	83.39	7.98	102.12	96.127		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.41	93.65	8.97	114.68	96.291		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.50	140.11	13.41	171.57	96.456		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	247.24	23.67	302.75	96.620		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
0.61	263.60	25.24	322.78	96.784		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-15

Data File: 13-52118_RP11-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP15-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)

Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69

Youd, et al (2001)

Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6976.64	Ground Surface Elevation at time of CPT (ft amsl)
6981.71	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after Placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
0.30	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6946.54	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom of Layer (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	e Stress at Midpoi
Erosion Protection	6981.7	6981.0	6980.2	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6980.2	6978.7	6977.2	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6977.2	6976.9	6976.6	0.6	0.058	116.4	0.295	0.279	0.00	0.00	0.295	0.279

2013 CPT Data from ConeTec / CPT Data Interpretations / Conditions at t_1

Depth at time of CPT (ft)	Elevation (ft amsl)	qt TSF	fs TSF	qc TSF	Pw (u2) (ft)	Pw (u2) PSI	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at time of CPT (tsf)	Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT 1=Yes 0=No	CN	qc1 TSF	qc1 MPa	qc1N	Normalized Cone Penetration Resistance, Q	Normalized Friction Ratio, F (%)	Type Index, I_c	FC %	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_1 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? 1=Yes 0=No	susceptible or mod susceptible to 1=Yes 0=No
0.164	6976.48	38.9	0.066	38.9	-1.2	-0.51	0.17%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0	1.70	66.198	6.34	81.04	3880	0.17%	0.5	59%	0.31	0.000	0.31	0	0
0.328	6976.31	68.5	0.255	68.5	2.0	0.88	0.37%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0	1.70	116.365	11.15	142.52	3412	0.37%	0.8	59%	0.32	0.000	0.32	0	0
0.492	6976.15	153.5	0.385	153.4	13.3	5.78	0.25%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0	1.70	260.814	24.98	319.54	5100	0.25%	0.7	59%	0.33	0.000	0.33	0	0
0.656	6975.98	198.9	0.493	198.8	18.4	7.95	0.25%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0	1.70	337.960	32.37	414.07	4956	0.25%	0.7	59%	0.34	0.000	0.34	0	0
0.820	6975.82	209.2	0.964	209.1	15.8	6.85	0.46%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0	1.70	355.504	34.05	435.52	4170	0.46%	0.9	59%	0.35	0.000	0.35	0	0
0.984	6975.66	202.0	1.632	201.9	16.8	7.26	0.81%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0	1.70	343.162	32.87	420.42	3355	0.81%	1.1	59%	0.36	0.000	0.36	0	0
1.148	6975.49	194.1	2.159	194.0	11.1	4.82	1.11%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0	1.70	329.834	31.59	404.03	2763	1.11%	1.3	59%	0.37	0.000	0.37	0	0
1.312	6975.33	176.4	2.758	176.4	8.4	3.64	1.56%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0	1.70	299.812	28.72	367.23	2197	1.56%	1.4	59%	0.38	0.000	0.38	0	0
1.476	6975.16	172.4	3.280	172.4	6.6	2.87	1.90%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0	1.70	292.995	28.06	358.86	1909	1.90%	1.5	59%	0.39	0.000	0.39	0	0
1.640	6975.00	175.7	3.694	175.7	5.8	2.52	2.10%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0	1.70	298.622	28.60	365.74	1751	2.10%	1.6	59%	0.40	0.000	0.40	0	0
1.804	6974.84	161.9	4.117	161.8	5.5	2.40	2.54%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0	1.70	274.411	26.28	336.09	1466	2.55%	1.7	59%	0.41	0.000	0.41	0	0
1.968	6974.67	134.1	3.840	134.0	4.1	1.77	2.86%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0	1.66	222.130	21.28	272.05	1113	2.87%	1.7	59%	0.42	0.000	0.42	0	0
2.133	6974.51	120.5	3.293	120.5	2.1	0.91	2.73%	General Fill	0.057	113.8	0.13	0.000	0.13	0	1.66	199.722	19.13	244.59	928	2.73%	1.7	48%	0.43	0.000	0.43	0	0
2.297	6974.34	114.6	3.096	114.6	0.9	0.41	2.70%	General Fill	0.057	113.8	0.14	0.000	0.14	0	1.66	190.645	18.26	233.46	845	2.70%	1.7	48%	0.43	0.000	0.43	0	0
2.461	6974.18	125.5	3.340	125.5	0.8	0.33	2.66%	General Fill	0.057	113.8	0.15	0.000	0.15	0	1.60	200.200	19.18	245.16	845	2.66%	1.7	48%	0.44	0.000	0.44	0	0
2.625	6974.02	220.2	4.154	220.2	2.4	1.06	1.89%	General Fill	0.057	113.8	0.16	0.000	0.16	0	1.54	339.734	32.54	416.04	1395	1.89%	1.5	48%	0.45	0.000	0.45	0	0
2.789	6973.85	256.4	4.727	256.4	2.5	1.10	1.84%	General Fill	0.057	113.8	0.17	0.000	0.17	0	1.52	389.734	37.33	477.26	1534	1.84%	1.5	48%	0.46	0.000	0.46	0	0
2.953	6973.69	305.1	5.216	305.1	4.8	2.09	1.71%	General Fill	0.057	113.8	0.18	0.000	0.18	0	1.50	457.062	43.78	559.73	1729	1.71%	1.5	48%	0.47	0.000	0.47	0	0
3.117	6973.52	377.3	5.421	377.3	5.4	2.36	1.44%	Coarse Tailings	0.054	108.1	0.19	0.000	0.19	0	1.48	557.988	53.45	683.32	2036	1.44%	1.4	21%	0.48	0.000	0.48	0	0
3.281	6973.36	421.6	5.598	421.6	5.3	2.30	1.33%	Coarse Tailings	0.054	108.1	0.19	0.000	0.19	0	1.46	615.866	58.99	754.19	2171	1.33%	1.3	21%	0.49	0.000	0.49	0	0
3.445	6973.20	430.2	5.857	430.2	4.4	1.89	1.36%	Coarse Tailings	0.054	108.1	0.20	0.000	0.20	0	1.44	621.068	59.49	760.55	2118	1.36%	1.4	21%	0.50	0.000	0.50	0	0
3.609	6973.03	431.5	5.893	431.4	4.1	1.77	1.37%	Coarse Tailings	0.054	108.1	0.21	0.000	0.21	0	1.43	615.929	59.00	754.26	2036	1.37%	1.4	21%	0.51	0.000	0.51	0	0
3.773	6972.87	421.6	5.896	421.6	3.6	1.56	1.40%	Coarse Tailings	0.054	108.1	0.22	0.000	0.22	0	1.41	595.434	57.03	729.15	1909	1.40%	1.4	21%	0.52	0.000	0.52	0	0
3.937	6972.70	400.9	5.806	400.9	3.2	1.40	1.45%	Coarse Tailings	0.054	108.1	0.23	0.000	0.23	0	1.40	560.333	53.67	686.17	1745	1.45%	1.4	21%	0.52	0.000	0.52	0	0
4.101	6972.54	372.4	5.108	372.4	2.5	1.08	1.37%	Coarse Tailings	0.054	108.1	0.24	0.000	0.24	0	1.38	515.336	49.36	631.06	1561	1.37%	1.4	21%	0.53	0.000	0.53	0	0
4.265	6972.37	342.8	4.671	342.8	2.4	1.04	1.36%	Coarse Tailings	0.054	108.1	0.25	0.000	0.25	0	1.37	469.775	45.00	575.27	1385	1.36%	1.4	21%	0.54	0.000	0.54	0	0
4.429	6972.21	307.9	4.013	307.9	3.9	1.71	1.30%	Coarse Tailings	0.054	108.1	0.26	0.000	0.26	0	1.36	418.001	40.04	511.89	1201	1.30%	1.4	21%	0.55	0.000	0.55	0	0
4.593	6972.05	291.4	3.536	291.3	3.1	1.32	1.21%	Coarse Tailings	0.054	108.1	0.27	0.000	0.27	0	1.35	392.049	37.55	480.10	1098	1.21%	1.4	21%	0.56	0.000	0.56	0	0
4.757	6971.88	272.4	3.513	272.4	2.9	1.24	1.29%	Coarse Tailings	0.054	108.1	0.27	0.000	0.27	0	1.33	363.406	34.81	445.02	994	1.29%	1.4	21%	0.57	0.000	0.57	0	0
4.921	6971.72	249.3	3.044	249.3	2.1	0.91	1.22%	Coarse Tailings	0.054	108.1	0.28	0.000	0.28	0	1.32	329.767	31.59	403.82	881	1.22%	1.4	21%	0.58	0.000	0.58	0	0
5.085	6971.55	231.8	2.683	231.8	1.9	0.81	1.16%	Coarse Tailings	0.054	108.1	0.29	0.000	0.29	0	1.31	304.168	29.13	372.48	794	1.16%	1.4	21%	0.59	0.000	0.59	0	0
5.249	6971.39	201.6	2.341	201.6	1.6	0.71	1.16%	Coarse Tailings	0.054	108.1	0.30	0.000	0.30	0	1.30	262.447	25.14	321.38	670	1.16%	1.4	21%	0.60	0.000	0.60	0	0
5.413	6971.23	185.0	2.137	185.0	1.0	0.45	1.15%	Coarse Tailings	0.054	108.1	0.31	0.000	0.31	0	1.29	239.035	22.90	292.71	597	1.16%	1.5	21%	0.60	0.000	0.60	0	0
5.577	6971.06	170.7	1.978	170.7	0.3	0.12	1.16%	Coarse Tailings	0.054	108.1	0.32	0.000	0.32	0	1.28	218.871	20.96	268.01	535	1.16%	1.5	21%	0.61	0.000	0.61	0	0
5.741	6970.90	159.5	1.744	159.5	0.2	0.10	1.09%	Coarse Tailings	0.054	108.1	0.33	0.000	0.33	0	1.28	203.909	19.53	249.69	487	1.10%	1.5	21%	0.62	0.000	0.62	0	0
5.905	6970.73	146.7	1.630	146.7	-0.2	-0.10	1.11%	Coarse Tailings	0.054	108.1	0.34	0.000	0.34	0	1.29	189.648	18.17	232.22	436	1.11%	1.5	21%	0.63	0.000	0.63	0	0
6.069	6970.57	132.1	1.490	132.1	-0.7	-0.29	1.13%	Coarse Tailings	0.054	108.1	0.34	0.000	0.34	0	1.31	173.181	16.59	212.06	382	1.13%	1.6	21%	0.64	0.000	0.64	0	0
6.234	6970.41	121.9	1.332	121.9	-0.8	-0.33	1.09%	Coarse Tailings	0.054	108.1	0.35	0.000	0.35	0	1.32	161.128	15.43	197.30	344	1.10%	1.6	21%	0.65	0.000	0.65	0	0
6.398	6970.24	113.3	1.179	113.3	-0.7	-0.30	1.04%	Coarse Tailings	0.054	108.1	0.36	0.000	0.36	0	1.33	150.599	14.43	184.40	311	1.04%	1.6	21%	0.66	0.000	0.66	0	0
6.562	6970.08	104.1	1.031	104.0	-0.9	-0.41	0.99%	Coarse Tailings	0.054	108.1	0.37	0.000	0.37	0	1.34	139.263	13.34	170.52	279	1.00%	1.6	21%	0.67	0.000	0.67	0	0
6.726	6969.91	96.0	0.935	96.0	-0.7	-0.30	0.97%	Coarse Tailings	0.054	108.1	0.38	0.000	0.38	0	1.35	129.306	12.39	158.33	251	0.98%	1.6	21%	0.68	0.000	0.68	0	0
6.890	6969.75	85.1	0.824	85.2	-1.0	-0.45	0.97%	Coarse Tailings	0.054	108.1	0.39	0.000	0.39	0	1.36	115.965	11.11	141.99	218	0.97%	1.7	21%	0.68	0.000	0.68	0	0
7.054	6969.59	76.4	0.714	76.4	-1.0	-0.45	0.93%	Coarse Tailings	0.054	108.1	0.40	0.000	0.40	0	1.37	104.902	10.05	128.44	191	0.94%	1.7	21%	0.69	0.000	0.69	0	0
7.218	6969.42	71.0	0.633	71.0	-1.0	-0.45	0.89%	Coarse Tailings	0.054	108.1	0.41	0.000	0.41	0	1.38	97.656	9.35	119.57	173	0.90%	1.7	21%	0.70	0.000	0.70	0	0
7.382	6969.26	66.5	0.428	66.5	-1.3	-0.55	0.64%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	1.38	91.540	8.77	112.08	159	0.65%	1.6	21%	0.71	0.000	0.71	0	0
7.546	6969.09	59.5	0.458	59.5	-1.4	-0.61	0.77%	Coarse Tailings	0.054	108.1	0.42	0.000	0.42	0	1.38	82.285	7.88	100.74	139	0.78%	1.7	21%	0.72	0.000	0.72	0	0
7.710	6968.93	54.6	0.414	54.6	-0.8	-0.35	0.76%	Coarse Tailings	0.054	108.1	0.43	0.000	0.43	0	1.39	75.605	7.24	92.57	125	0.76%	1.8	21%	0.73	0.000	0.73	0	0
7.874	6968.77	49.6	0.356	49.6	-0.9	-0.39	0.72%	Coarse Tailings	0.054	108.1	0.44	0.000	0.44	0	1.39	68.848	6.59	84.30	111	0.72%	1.8	21%	0.74	0.000	0.74	0	0
8.038	6968.60	48.4	0.337	48.4	-1.1	-0.49	0.70%	Coarse Tailings	0.054	108.1	0.45	0.000	0.45	0	1.38	66.794	6.40	81.78	106	0.70%	1.8	21%	0.75	0.000	0.75	0	0
8.202	6968.44	46.7	0.323	46.7	-1.2	-0.51	0.69%	Coarse Tailings	0.054	108.1	0.46	0.000	0.46	0	1.37	63.994	6.13	78.35	100	0.70%	1.8	21%	0.76	0.000	0.76	0	0
8.366	6968.27	45.0	0.310	45.0	-1.3	-0.55	0.69%	Coarse Tailings	0.054	108.1	0.47	0.000	0.47	0	1.36	61.366	5.88	75.13	95	0.70%	1.8	21%	0.76	0.000	0.76	0	0
8.530	6968.11	43.4	0.279	43.4	-1.3	-0.57	0.64%	Coarse Tailings	0.054	108.1	0.48	0.000	0.48	0	1.36	58.851	5.64	72.05	90	0.65%	1.8	21%	0.77	0.000	0.77	0	0
8.694	6967.95	40.9	0.242	40.9	-1.2	-0.53	0.59%	Coarse Tailings	0.054	108.1	0.49	0.000	0.49	0	1.35	55.187	5.29	67.56	83	0.60%	1.8	21%	0.78	0.000	0.78	0	0
8.858	6967.78	40.2	0.221	40.2	-1.5	-0.67	0.55%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	1.34	53.884	5.16	65.97	80	0.56%	1.8	21%	0.79	0.000	0.79	0	0
9.022	6967.62	40.3	0.211	40.4	-1.7	-0.73	0.52%	Coarse Tailings	0.054	108.1	0.50	0.000	0.50	0	1.33	53.534	5.13	65.54	79	0.53%	1.8	21%	0.80	0.000	0.80	0	0
9.186	6967.45	39.9	0.208	39.9	-1.4	-0.61	0.52%	Coarse Tailings	0.054	108.1	0.51	0.000	0.51	0	1.32	52.493	5.03	64.26	77	0.53%	1.8	21%	0.81	0.000	0.81	0	0
9.350	6967.29	39.4	0.199	39.5	-1.4	-0.61	0.50%	Coarse Tailings	0.054	108.1	0.52	0.000	0.52	0	1.30	51.467	4.93	63.01	75	0.51%	1.8	21%	0.82	0.000	0.82	0	0
9.514	6967.13	39.1	0.194	39.1	-1.8	-0.77	0.50%	Coarse Tailings	0.054	108.1	0.53	0.000	0.53	0	1.29	50.542	4.84	61.87	73	0.50%	1.9	21%	0.83	0.000	0.83	0	0
9.678	6966.96	37.3	0.190	37.4	-1.8	-0.79	0.51%	Coarse Tailings	0.054	108.1	0.54	0.000	0.54	0	1.29	48.036	4.60	58.80	68	0.52%	1.9	21%	0.84	0.000	0.84	0	0
9.842	6966.80	37.0	0.193	37.0	-1.9	-0.83	0.52%	Coarse Tailings	0.054	108.1	0.55	0.000	0.55	0	1.28	47.217	4.52	57.80	66	0.53%	1.9	21%	0.84	0.000	0.84	0	0
10.006	6966.63	39.4	0.210	39.5	-1.8	-0.79	0.53%	Coarse Tailings	0.054	108.1	0.56	0.000	0.56	0	1.26	49.630	4.75	60.75	70	0.54%	1.9	21%	0.85	0.000	0.85	0	0
10.170	6966.47	37.7	0.215	37.7	-0.6	-0.24	0.57%	Coarse Tailings	0.054	108.1	0.57	0.000	0.57	0	1.25	47.185	4.52	57.77	66	0.58%	1.9	21%	0.86	0.000	0.86	0	0
10.335	6966.31	35.4	0.207	35.4	-0.8	-0.35	0.59%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	1.24	44.019	4.22	53.89	60	0.60%	2.0	21%	0.87	0.000	0.87	0	0
10.499	6966.14	33.6	0.194	33.7	-0.9	-0.39	0.58%	Coarse Tailings	0.054	108.1	0.58	0.000	0.58	0	1.24	41.626	3.99	50.96	56	0.59%	2.0	21%	0.88	0.000	0.88	0	0
10.663	6965.98	33.1	0.190	33.1	-1.3	-0.57	0.57%	Coarse Tailings	0.054	108.1	0.59	0.000	0.59	0	1.23	40.592	3.89	49.69	55	0.58%	2.0	21%	0.89	0.000	0.89	0	0
10.827	6965.81	32.8	0.193	32.8	-1.3	-0.57	0.59%	Coarse Tailings	0.054	108.1	0.60	0.000	0.60	0	1.22	39.860	3.82	48.80	53	0.60%	2.0	21%	0.90	0.000	0.90	0	0
10.991	6965.65	32.4	0.189	32.4	-1.5	-0.63	0.58%	Coarse Tailings	0.054	108.1	0.61	0.000	0.61	0	1.21	39.139	3.75	47.91	52	0.59%	2.0	21%	0.91	0.000	0.91	0	0
11.155	6965.49	31.7	0.178	31.7	-1.9	-0.83	0.56%	Coarse Tailings	0.054	108.1	0.62	0.000	0.62	0	1.20	37.996	3.64	46.51	50	0.57%	2.0	21%	0.91	0.000	0.91	0	0
11.319	6965.32	31.0	0.176	31.0	-1.6	-0.71	0.57%	Coarse Tailings	0.054	108.1	0.63	0.000	0.63	0	1.19	36.800	3.52	45.05	48	0.58%	2.0	21%	0.92	0.000	0.92	0	0
11.483	6965.16	30.8	0.169	30.8	-1.8	-0.77	0.55%	Coarse Tailings	0.054	108.1	0.64	0.000	0.64	0	1.18	36.263	3.47	44.39	47	0.56%	2.0	21%	0.93	0.000	0.93	0	0
11.647	6964.99	30.2	0.170	30.2	-1.6	-0.67	0.56%	Coarse Tailings	0.054	108.1	0.65	0.000	0.65	0	1.17	35.296	3.38	43.21	46	0.58%	2.1	21%	0.94	0.000	0.94	0	0
11.811	6964.83	30.5	0.175	30.5	-1.4	-0.61	0.57%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	1.16	35.279	3.38	43.19	45	0.58%	2.1	21%	0.95	0.000	0.95	0	0
11.975	6964.67	29.2	0.173	29.2	-1.8	-0.79	0.59%	Coarse Tailings	0.054	108.1	0.66	0.000	0.66	0	1.15	33.558	3.21	41.08	43	0.61%	2.1	21%	0.96	0.000	0.96	0	0
12.139	6964.50	26.9	0.168	27.0	-2.0	-0.86	0.62%	Coarse Tailings	0.054	108.1	0.67	0.000	0.67	0	1.14	30.807	2.95	37.71	39	0.64%	2.2	21%	0.97	0.000	0.97	0	0
12.303	6964.34	23.4	0.280	23.4	-1.2	-0.51	1.20%	Coarse Tailings	0.054	108.1	0.68	0.000	0.68	0	1.14	26.605	2.55	32.57	33	1.23%	2.3	21%	0.98	0.000	0.98	0	0
12.467	6964.17	16.2	0.310	16.3	-0.7	-0.30	1.91%	Coarse Tailings	0.054	108.1	0.69	0.000	0.69	0	1.14	18.491	1.77	22.64	23	1.99%	2.6	21%	0.99	0.000	0.99	0	0
12.631	6964.01	12.4	0.349	12.4	-0.7	-0.29	2.81%	Coarse Tailings	0.054	108.1	0.70	0.000	0.70	0	1.13	14.030	1.34	17.17	17	2.98%	2.8	21%	0.99	0.000	0.99	0	0
12.795	6963.84	15.2	0.291	15.2	-1.0	-0.45	1.91%	Coarse Tailings	0.054	108.1	0.71	0.000	0.71	0	1.12	17.022	1.63	20.83	20	2.00%	2.6	21%	1.00	0.000	1.00	0	0
12.959	6963.68	20.6	0.228	20.6	-0.9	-0.39	1.11%	Coarse Tailings	0.054	108.1	0.72	0.000	0.72	0	1.10	22.664	2.17	27.75	28	1.15%	2.4	21%	1.01	0.000	1.01	0	0
13.123	6963.52	24.8	0.134	24.8	-0.8	-0.35	0.54%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	1.09	26.952	2.58	33.00	33	0.56%	2.2	21%	1.02	0.000	1.02	0	0
13.287	6963.35	26.3	0.145	26.3	-1.2	-0.51	0.55%	Coarse Tailings	0.054	108.1	0.73	0.000	0.73	0	1.08	28.271	2.71	34.62	35	0.57%	2.2	21%	1.03	0.000	1.03	0	0
13.451	6963.19	22.3	0.254	22.3	-1.2	-0.53	1.14%	Coarse Tailings	0.054	108.1	0.74	0.000	0.74	0	1.07	23.887	2.29	29.24	29	1.18%	2.4	21%	1.04	0.000	1.04	0	0
13.615	6963.02	19.6	0.294	19.6	-0.5	-0.23	1.50%	Coarse Tailings	0.054	108.1	0.75	0.000	0.75	0	1.06	20.872	2.00	25.55	25	1.56%	2.5	21%	1.05	0.000	1.05	0	0
13.779	6962.86	25.8	0.270	25.8	-0.7	-0.29	1.05%	Coarse Tailings	0.054	108.1	0.76	0.000	0.76	0	1.05	27.123	2.60	33.21	33	1.08%	2.3	21%	1.06	0.000	1.06	0	0
13.943	6962.70	27.2	0.156	27.2	-0.6	-0.26	0.57%	Coarse Tailings	0.054	108.1	0.77	0.000	0.77	0	1.04	28.358	2.72	34.72	34	0.59%	2.2	21%	1.07	0.000	1.07	0	0
14.107	6962.53	28.2	0.119	28.2	-1.2	-0.51	0.42%	Coarse Tailings	0.054	108.1	0.78	0.000	0.78	0	1.03	29.107	2.79	35.63	35	0.43%	2.1	21%	1.08	0.000	1.08	0	0
14.271	6962.37	28.9	0.121	28.9	-0.5	-0.23	0.42%	Coarse Tailings	0.054	108.1	0.79	0.000	0.79	0	1.03	29.664	2.84	36.32	36	0.43%	2.1	21%	1.08	0.000	1.08	0	0
14.436	6962.20	30.1	0.133	30.1	-0.7	-0.29	0.44%	Coarse Tailings	0.054	108.1	0.80	0.000	0.80	0	1.02	30.589	2.93	37.45	37	0.45%	2.1	21%	1.09	0.000	1.09	0	0
14.600	6962.04	30.0	0.143	30.0	-0.6	-0.26	0.48%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	1.01	30.236	2.90	37.02	36	0.49%	2.1	21%	1.10	0.000	1.10	0	0
14.764	6961.88	29.6	0.161	29.6	-0.9	-0.41	0.54%	Coarse Tailings	0.054	108.1	0.81	0.000	0.81	0	1.00	29.688	2.84	36.35	35	0.56%	2.2	21%	1.11	0.000	1.11	0	0
14.928	6961.71	27.3	0.174	27.3	-1.1	-0.47	0.64%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0	1.00	27.173	2.60	33.27	32	0.66%	2.2	21%	1.12	0.000	1.12	0	0
15.092	6961.55	22.9	0.199	22.9	-1.4	-0.59	0.87%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0	0.99	22.557	2.16	27.61	26	0.90%	2.4	21%	1.13	0.000	1.13	0	0

Liquefaction Triggering Analyses Using CPT Data

Depth (ft)	Idriss & Boulanger (2008) r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'vc=1atm	Δq_{c1N}	q_{c1N-cs}	CRR M=7.5, σ'vc=1atm	FoS	Youd et al. (2001) r_d	D_r	f	K_σ	K_α	CSR M=7.5, σ'vc=1atm	Kc	q_{c1N-cs}	(CRR) M=7.5, σ'vc=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No
0.164	0.98	0.09	1.09	-0.32	1.00	0.104	58.65	139.70	0.231	N/A	0.99	0.52	0.74	1.29	1.00	0.094	1.00	81.04	0.130	N/A	N/A	N/A
0.328	0.98	0.15	1.10	-0.56	1.00	0.103	80.19	222.70	1.000	N/A	0.99	0.69	0.66	1.39	1.00	0.087	1.00	142.52	0.349	N/A	N/A	N/A
0.492	0.98	0.30	1.10	-0.60	1.00	0.103	142.20	461.74	1.000	N/A	0.99	1.03	0.48	1.61	1.00	0.075	1.00	319.54	1.000	N/A	N/A	N/A
0.656	0.98	0.30	1.10	-0.60	1.00	0.103	175.31	589.38	1.000	N/A	0.99	1.17	0.60	1.43	1.00	0.085	1.00	414.07	1.000	N/A	N/A	N/A
0.820	0.98	0.30	1.10	-0.60	1.00	0.103	182.82	618.35	1.000	N/A	0.99	1.20	0.60	1.41	1.00	0.086	1.00	435.52	1.000	N/A	N/A	N/A
0.984	0.98	0.30	1.10	-0.60	1.00	0.103	177.53	597.96	1.000	N/A	0.99	1.18	0.60	1.39	1.00	0.086	1.00	420.42	1.000	N/A	N/A	N/A
1.148	0.98	0.30	1.10	-0.60	1.00	0.103	171.79	575.82	1.000	N/A	0.99	1.16	0.60	1.38	1.00	0.087	1.00	404.03	1.000	N/A	N/A	N/A
1.312	0.97	0.30	1.10	-0.60	1.00	0.102	158.90	526.13	1.000	N/A	0.99	1.11	0.60	1.36	1.00	0.088	1.00	367.23	1.000	N/A	N/A	N/A
1.476	0.97	0.30	1.10	-0.60	1.00	0.102	155.97	514.83	1.000	N/A	0.98	1.09	0.60	1.35	1.00	0.089	1.00	358.86	1.000	N/A	N/A	N/A
1.640	0.97	0.30	1.10	-0.60	1.00	0.102	158.38	524.12	1.000	N/A	0.98	1.10	0.60	1.34	1.00	0.090	1.00	365.74	1.000	N/A	N/A	N/A
1.804	0.97	0.30	1.10	-0.60	1.00	0.102	147.99	484.08	1.000	N/A	0.98	1.06	0.60	1.32	1.00	0.091	1.01	338.14	1.000	N/A	N/A	N/A
1.968	0.97	0.30	1.10	-0.60	1.00	0.102	125.56	397.61	1.000	N/A	0.98	0.95	0.60	1.31	1.00	0.092	1.06	287.86	1.000	N/A	N/A	N/A
2.133	0.97	0.30	1.10	-0.60	1.00	0.102	116.12	360.71	1.000	N/A	0.98	0.90	0.60	1.30	1.00	0.093	1.06	259.02	1.000	N/A	N/A	N/A
2.297	0.97	0.30	1.10	-0.60	1.00	0.102	112.21	345.67	1.000	N/A	0.98	0.88	0.60	1.29	1.00	0.093	1.07	249.01	1.000	N/A	N/A	N/A
2.461	0.97	0.30	1.10	-0.60	1.00	0.102	116.32	361.47	1.000	N/A	0.98	0.90	0.60	1.28	1.00	0.094	1.06	259.87	1.000	N/A	N/A	N/A
2.625	0.97	0.30	1.10	-0.60	1.00	0.102	176.27	592.31	1.000	N/A	0.98	1.18	0.60	1.27	1.00	0.095	1.00	416.04	1.000	N/A	N/A	N/A
2.789	0.97	0.30	1.10	-0.60	1.00	0.101	197.75	675.01	1.000	N/A	0.98	1.26	0.60	1.26	1.00	0.096	1.00	477.26	1.000	N/A	N/A	N/A
2.953	0.96	0.30	1.10	-0.60	1.00	0.101	226.68	786.41	1.000	N/A	0.98	1.37	0.60	1.25	1.00	0.096	1.00	559.73	1.000	N/A	N/A	N/A
3.117	0.96	0.30	1.10	-0.60	1.00	0.101	220.77	904.09	1.000	N/A	0.98	1.51	0.60	1.24	1.00	0.097	1.00	683.32	1.000	N/A	N/A	N/A
3.281	0.96	0.30	1.10	-0.60	1.00	0.101	241.10	995.29	1.000	N/A	0.98	1.59	0.60	1.23	1.00	0.098	1.00	754.19	1.000	N/A	N/A	N/A
3.445	0.96	0.30	1.10	-0.60	1.00	0.101	242.92	######	1.000	N/A	0.98	1.59	0.60	1.22	1.00	0.098	1.00	760.55	1.000	N/A	N/A	N/A
3.609	0.96	0.30	1.10	-0.60	1.00	0.101	241.11	995.37	1.000	N/A	0.98	1.59	0.60	1.21	1.00	0.099	1.00	754.26	1.000	N/A	N/A	N/A
3.773	0.96	0.30	1.10	-0.60	1.00	0.101	233.91	963.07	1.000	N/A	0.98	1.56	0.60	1.20	1.00	0.099	1.00	729.15	1.000	N/A	N/A	N/A
3.937	0.96	0.30	1.10	-0.60	1.00	0.101	221.59	907.75	1.000	N/A	0.98	1.51	0.60	1.19	1.00	0.100	1.00	686.17	1.000	N/A	N/A	N/A
4.101	0.96	0.30	1.10	-0.60	1.00	0.101	205.78	836.84	1.000	N/A	0.98	1.45	0.60	1.19	1.00	0.101	1.00	631.06	1.000	N/A	N/A	N/A
4.265	0.96	0.30	1.10	-0.60	1.00	0.100	189.78	765.05	1.000	N/A	0.98	1.38	0.60	1.18	1.00	0.102	1.00	575.27	1.000	N/A	N/A	N/A
4.429	0.95	0.30	1.10	-0.60	1.00	0.100	171.60	683.49	1.000	N/A	0.98	1.31	0.60	1.17	1.00	0.102	1.00	511.89	1.000	N/A	N/A	N/A
4.593	0.95	0.30	1.10	-0.60	1.00	0.100	162.48	642.58	1.000	N/A	0.98	1.27	0.60	1.16	1.00	0.103	1.00	480.10	1.000	N/A	N/A	N/A
4.757	0.95	0.30	1.10	-0.60	1.00	0.100	152.42	597.45	1.000	N/A	0.98	1.22	0.60	1.16	1.00	0.103	1.00	445.02	1.000	N/A	N/A	N/A
4.921	0.95	0.30	1.10	-0.60	1.00	0.100	140.60	544.43	1.000	N/A	0.98	1.16	0.60	1.15	1.00	0.104	1.00	403.82	1.000	N/A	N/A	N/A
5.085	0.95	0.30	1.10	-0.60	1.00	0.100	131.61	504.09	1.000	N/A	0.98	1.11	0.60	1.14	1.00	0.105	1.00	372.48	1.000	N/A	N/A	N/A
5.249	0.95	0.30	1.09	-0.60	1.00	0.100	116.96	438.34	1.000	N/A	0.98	1.04	0.60	1.13	1.00	0.105	1.00	321.38	1.000	N/A	N/A	N/A
5.413	0.95	0.30	1.09	-0.60	1.00	0.101	108.74	401.45	1.000	N/A	0.98	0.99	0.60	1.13	1.00	0.106	1.00	292.71	1.000	N/A	N/A	N/A
5.577	0.95	0.30	1.09	-0.60	1.00	0.101	101.65	369.66	1.000	N/A	0.98	0.95	0.60	1.12	1.00	0.106	1.00	268.01	1.000	N/A	N/A	N/A
5.741	0.95	0.30	1.08	-0.60	1.00	0.101	96.40	346.09	1.000	N/A	0.97	0.91	0.60	1.11	1.00	0.107	1.00	249.69	1.000	N/A	N/A	N/A
5.905	0.94	0.30	1.08	-0.60	1.00	0.101	91.39	323.61	1.000	N/A	0.97	0.88	0.60	1.11	1.00	0.108	1.00	232.22	1.000	N/A	N/A	N/A
6.069	0.94	0.30	1.07	-0.60	1.00	0.102	85.60	297.66	1.000	N/A	0.97	0.84	0.60	1.10	1.00	0.108	1.00	212.06	1.000	N/A	N/A	N/A
6.234	0.94	0.25	1.06	-0.60	1.00	0.103	81.37	278.66	1.000	N/A	0.97	0.81	0.60	1.10	1.00	0.109	1.00	197.30	1.000	N/A	N/A	N/A
6.398	0.94	0.22	1.05	-0.60	1.00	0.104	77.67	262.07	1.000	N/A	0.97	0.78	0.61	1.09	1.00	0.109	1.00	184.40	1.000	N/A	N/A	N/A
6.562	0.94	0.19	1.04	-0.60	1.00	0.105	73.69	244.21	1.000	N/A	0.97	0.75	0.62	1.08	1.00	0.110	1.00	170.52	1.000	N/A	N/A	N/A
6.726	0.94	0.17	1.03	-0.59	1.00	0.105	70.19	228.52	1.000	N/A	0.97	0.73	0.64	1.07	1.00	0.111	1.00	158.33	0.449	N/A	N/A	N/A
6.890	0.94	0.15	1.03	-0.54	1.00	0.106	65.51	207.50	1.000	N/A	0.97	0.69	0.66	1.06	1.00	0.112	1.01	143.00	0.352	N/A	N/A	N/A
7.054	0.94	0.13	1.02	-0.49	1.00	0.106	61.62	190.06	0.753	N/A	0.97	0.65	0.67	1.06	1.00	0.113	1.03	131.93	0.294	N/A	N/A	N/A
7.218	0.94	0.12	1.02	-0.46	1.00	0.106	59.08	178.65	0.514	N/A	0.97	0.63	0.68	1.05	1.00	0.113	1.04	124.10	0.258	N/A	N/A	N/A
7.382	0.93	0.12	1.02	-0.43	1.00	0.106	56.93	169.01	0.398	N/A	0.97	0.61	0.69	1.04	1.00	0.114	1.00	112.08	0.211	N/A	N/A	N/A
7.546	0.93	0.11	1.01	-0.39	1.00	0.106	53.68	154.42	0.293	N/A	0.97	0.58	0.71	1.04	1.00	0.114	1.06	106.58	0.193	N/A	N/A	N/A
7.710	0.93	0.10	1.01	-0.35	1.00	0.106	51.33	143.90	0.246	N/A	0.97	0.56	0.72	1.03	1.00	0.115	1.08	99.96	0.173	N/A	N/A	N/A
7.874	0.93	0.09	1.01	-0.31	1.00	0.107	48.96	133.25	0.212	N/A	0.97	0.53	0.73	1.03	1.00	0.115	1.10	92.53	0.154	N/A	N/A	N/A
8.038	0.93	0.09	1.01	-0.30	1.00	0.107	48.24	130.01	0.203	N/A	0.97	0.52	0.74	1.02	1.00	0.116	1.10	90.18	0.148	N/A	N/A	N/A
8.202	0.93	0.09	1.01	-0.28	1.00	0.107	47.25	125.60	0.192	N/A	0.97	0.51	0.74	1.02	1.00	0.116	1.12	87.49	0.142	N/A	N/A	N/A
8.366	0.93	0.09	1.01	-0.26	1.00	0.107	46.33	121.46	0.183	N/A	0.97	0.50	0.75	1.02	1.00	0.117	1.13	84.97	0.137	N/A	N/A	N/A
8.530	0.93	0.09	1.00	-0.25	1.00	0.107	45.45	117.50	0.174	N/A	0.97	0.49	0.75	1.01	1.00	0.117	1.13	81.63	0.131	N/A	N/A	N/A
8.694	0.92	0.08	1.00	-0.22	1.00	0.106	44.16	111.72	0.163	N/A	0.97	0.47	0.76	1.01	1.00	0.117	1.14	77.06	0.123	N/A	N/A	N/A
8.858	0.92	0.08	1.00	-0.21	1.00	0.106	43.70	109.67	0.159	N/A	0.97	0.47	0.77	1.01	1.00	0.117	1.14	75.00	0.119	N/A	N/A	N/A
9.022	0.92	0.08	1.00	-0.21	1.00	0.106	43.58	109.11	0.158	N/A	0.97	0.47	0.77	1.00	1.00	0.118	1.13	74.21	0.118	N/A	N/A	N/A
9.186	0.92	0.08	1.00	-0.20	1.00	0.106	43.21	107.48	0.155	N/A	0.97	0.46	0.77	1.00	1.00	0.118	1.14	73.29	0.117	N/A	N/A	N/A
9.350	0.92	0.08	1.00	-0.19	1.00	0.106	42.85	105.86	0.152	N/A	0.97	0.46	0.77	1.00	1.00	0.118	1.14	72.04	0.115	N/A	N/A	N/A
9.514	0.92	0.08	1.00	-0.19	1.00	0.106	42.53	104.40	0.150	N/A	0.97	0.45	0.77	1.00	1.00	0.118	1.15	71.09	0.113	N/A	N/A	N/A
9.678	0.92	0.08	1.00	-0.17	1.00	0.106	41.65	100.45	0.143	N/A	0.97	0.44	0.78	1.00	1.00	0.119	1.17	69.03	0.111	N/A	N/A	N/A
9.842	0.92	0.08	1.00	-0.16	1.00	0.106	41.36	99.16	0.141	N/A	0.97	0.44	0.78	0.99	1.00	0.119	1.19	68.64	0.110	N/A	N/A	N/A
10.006	0.91	0.08	1.00	-0.18	1.00	0.106	42.21	102.96	0.147	N/A	0.96	0.45	0.77	0.99	1.00	0.119	1.18	71.39	0.114	N/A	N/A	N/A
10.170	0.91	0.08	1.00	-0.16	1.00	0.106	41.35	99.12	0.141	N/A	0.96	0.44	0.78	0.99	1.00	0.119	1.21	69.98	0.112	N/A	N/A	N/A
10.335	0.91	0.07	1.00	-0.13	1.00	0.106	40.24	94.13	0.133	N/A	0.96	0.42	0.79	0.99	1.00	0.120	1.25	67.40	0.108	N/A	N/A	N/A
10.499	0.91	0.07	0.99	-0.11	1.00	0.106	39.40	90.36	0.127	N/A	0.96	0.41	0.79	0.98	1.00	0.120	1.28	65.05	0.106	N/A	N/A	N/A
10.663	0.91	0.07	0.99	-0.10	1.00	0.106	39.03	88.73	0.125	N/A	0.96	0.41	0.80	0.98	1.00	0.120	1.29	64.16	0.105	N/A	N/A	N/A
10.827	0.91	0.07	0.99	-0.10	1.00	0.106	38.78	87.57	0.123	N/A	0.96	0.40	0.80	0.98	1.00	0.120	1.31	63.96	0.104	N/A	N/A	N/A
10.991	0.91	0.07	0.99	-0.09	1.00	0.106	38.52	86.44	0.122	N/A	0.96	0.40	0.80	0.98	1.00	0.120	1.32	63.27	0.104	N/A	N/A	N/A
11.155	0.91	0.07	0.99	-0.08	1.00	0.106	38.12	84.63	0.119	N/A	0.96	0.39	0.80	0.98	1.00	0.120	1.33	61.81	0.102	N/A	N/A	N/A
11.319	0.90	0.07	0.99	-0.07	1.00	0.105	37.70	82.75	0.116	N/A	0.96	0.39	0.80	0.98	1.00	0.121	1.35	61.02	0.101	N/A	N/A	N/A
11.483	0.90	0.07	0.99	-0.06	1.00	0.105	37.51	81.90	0.115	N/A	0.96	0.38	0.80	0.97	1.00	0.121	1.36	60.18	0.100	N/A	N/A	N/A
11.647	0.90	0.07	0.99	-0.05	1.00	0.105	37.17	80.38	0.113	N/A	0.96	0.38	0.80	0.97	1.00	0.121	1.38	59.78	0.100	N/A	N/A	N/A
11.811	0.90	0.07	0.99	-0.05	1.00	0.105	37.17	80.36	0.113	N/A	0.96	0.38	0.80	0.97	1.00	0.121	1.39	60.18	0.100	N/A	N/A	N/A
11.975	0.90	0.07	0.99	-0.04	1.00	0.105	36.56	77.64	0.109	N/A	0.96	0.37	0.80	0.97	1.00	0.121	1.44	59.25	0.099	N/A	N/A	N/A
12.139	0.90	0.06	0.99	-0.01	1.00	0.105	35.60	73.30	0.104	N/A	0.96	0.35	0.80	0.97	1.00	0.121	1.53	57.78	0.098	N/A	N/A	N/A
12.303	0.90	0.06	0.99	0.04	1.00	0.105	34.12	66.69	0.096	N/A	0.96	0.33	0.80	0.96	1.00	0.122	2.11	68.77	0.110	N/A	N/A	N/A
12.467	0.90	0.05	0.99	0.10	1.00	0.105	31.27	53.91	0.081	N/A	0.96	0.27	0.80	0.96	1.00	0.122	3.36	76.16	0.121	N/A	N/A	N/A
12.631	0.89	0.05	0.99	0.10	1.00	0.104	29.71	46.88	0.075	N/A	0.96	0.24	0.80	0.96	1.00	0.122	4.89	84.04	0.135	N/A	N/A	N/A
12.795	0.89	0.05	0.99	0.10	1.00	0.104	30.76	51.59	0.079	N/A	0.96	0.26	0.80	0.96	1.00	0.122	3.59	74.75	0.119	N/A	N/A	N/A
12.959	0.89	0.06	0.99	0.09	1.00	0.104	32.74	60.48	0.088	N/A	0.96	0.30	0.80	0.96	1.00	0.122	2.30	63.89	0.104	N/A	N/A	N/A
13.123	0.89	0.06	0.99	0.04	1.00	0.104	34.24	67.24	0.096	N/A	0.96	0.33	0.80	0.96	1.00	0.122	1.61	53.11	0.094	N/A	N/A	N/A
13.287	0.89	0.06	0.99	0.02	1.00	0.104	34.71	69.33	0.099	N/A	0.96	0.34	0.80	0.95	1.00	0.123	1.58	54.62	0.095	N/A	N/A	N/A
13.451	0.89	0.06	0.99	0.08	1.00	0.104	33.17	62.41	0.091	N/A	0.96	0.31	0.80	0.95	1.00	0.123	2.26	66.11	0.107	N/A	N/A	N/A
13.615	0.89	0.06	0.99	0.10	1.00	0.104	32.11	57.66	0.085	N/A	0.96	0.29	0.80	0.95	1.00	0.123	2.80	71.60	0.114	N/A	N/A	N/A
13.779	0.89	0.06	0.98	0.04	1.00	0.104	34.31	67.51	0.097	N/A	0.96	0.33	0.80	0.95	1.00	0.123	2.02	66.92	0.108	N/A	N/A	N/A
13.943	0.88	0.06	0.98	0.02	1.00	0.104	34.74	69.46	0.099	N/A	0.96	0.34	0.80	0.95	1.00	0.123	1.60	55.69	0.096	N/A	N/A	N/A
14.107	0.88	0.06	0.98	0.01	1.00	0.104	35.00	70.63	0.100	N/A	0.96	0.34	0.80	0.95	1.00	0.123	1.47	52.28	0.093	N/A	N/A	N/A
14.271	0.88	0.06	0.98	0.01	1.00	0.104	35.20	71.52	0.101	N/A	0.95	0.35	0.80	0.95	1.00	0.124	1.45	52.74	0.094	N/A	N/A	N/A
14.436	0.88	0.06	0.98	0.00	1.00	0.104	35.52	72.97	0.103	N/A	0.95	0.35	0.80	0.94	1.00	0.124	1.45	54.30	0.095	N/A	N/A	N/A
14.600	0.88	0.06	0.98	0.00	1.00	0.104	35.40	72.42	0.103	N/A	0.95	0.35	0.80	0.94	1.00	0.124	1.49	55.06	0.096	N/A	N/A	N/A
14.764	0.88	0.06	0.98	0.01	1.00	0.103	35.21	71.55	0.102	N/A	0.95	0.35	0.80	0.94	1.00	0.124	1.55	56.52	0.097	N/A	N/A	N/A
14.928	0.88	0.06	0.98	0.04	1.00	0.103	34.32	67.59	0.097	N/A	0.95	0.33	0.80	0.94	1.00	0.124	1.72	57.09	0.097	N/A	N/A	N/A
15.092	0.88	0.06	0.98	0.10	1.00	0.103	32.70	60.31	0.088	N/A	0.95	0.30	0.80	0.94	1.00	0.124	2.16	59.62	0.100	N/A	N/A	N/A

Idriss & Boulanger (2008) / Liquefaction Triggering Analyses Using SPT Data

CN	qc1 TSF	qc1 MPa	qc1N	Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	$\Delta(N_1)_{60}$ (blows/ft)	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'vc=1atm	FoS	α	β	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'vc=1atm	FoS	Average FoS
1.70	66.19	6.34	81.04	0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	116.39	11.14	142.52	0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	260.96	24.98	319.54	0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	338.15	32.37	414.07	0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	355.67	34.05	435.52	0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	343.34	32.87	420.42	0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	329.95	31.59	404.03	1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	299.90	28.71	367.23	1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	293.07	28.06	358.86	1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	298.68	28.60	365.74	1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	274.47	26.28	336.09	1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.66	222.17	21.27	272.05	1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.66	199.74	19.12	244.59	2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.66	190.65	18.25	233.46	2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.60	200.21	19.17	245.16	2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.54	339.76	32.53	416.04	2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.52	389.76	37.32	477.26	2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.50	457.11	43.76	559.73	2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.48	558.04	53.43	683.32	3.117		0.75	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.46	615.91	58.97	754.19	3.281		0.75	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.44	621.11	59.46	760.55	3.445		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.43	615.97	58.97	754.26	3.609		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.41	595.47	57.01	729.15	3.773		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.40	560.36	53.65	686.17	3.937		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.38	515.36	49.34	631.06	4.101		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.37	469.80	44.98	575.27	4.265		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.36	418.03	40.02	511.89	4.429		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.35	392.07	37.54	480.10	4.593		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.33	363.43	34.79	445.02	4.757		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.32	329.78	31.57	403.82	4.921		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.31	304.18	29.12	372.48	5.085		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.30	262.46	25.13	321.38	5.249		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.29	239.04	22.89	292.71	5.413		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.28	218.87	20.95	268.01	5.577		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.28	203.91	19.52	249.69	5.741		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.29	189.65	18.16	232.22	5.905		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.31	173.18	16.58	212.06	6.069	23	0.80	17	19	0.69	0.43	1.11	4.6	23.4	0.26	N/A	3.73	1.08	24.09	0.275	N/A	N/A
1.32	161.12	15.43	197.30	6.234		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.33	150.59	14.42	184.40	6.398		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.34	139.26	13.33	170.52	6.562		0.80	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.35	129.30	12.38	158.33	6.726		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.36	115.96	11.10	141.99	6.890		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.37	104.89	10.04	128.44	7.054		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.38	97.65	9.35	119.57	7.218		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.38	91.53	8.76	112.08	7.382		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.38	82.27	7.88	100.74	7.546		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.39	75.60	7.24	92.57	7.710		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.39	68.84	6.59	84.30	7.874		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.38	66.78	6.39	81.78	8.038		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.37	63.98	6.13	78.35	8.202		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.36	61.36	5.87	75.13	8.366		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.36	58.84	5.63	72.05	8.530		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.35	55.18	5.28	67.56	8.694		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.34	53.87	5.16	65.97	8.858		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.33	53.52	5.12	65.54	9.022		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.32	52.48	5.02	64.26	9.186		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.30	51.46	4.93	63.01	9.350		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.29	50.53	4.84	61.87	9.514		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.29	48.02	4.60	58.80	9.678		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.28	47.20	4.52	57.80	9.842		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.26	49.62	4.75	60.75	10.006		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.25	47.18	4.52	57.77	10.170		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.24	44.01	4.21	53.89	10.335		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.24	41.62	3.98	50.96	10.499		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.23	40.58	3.89	49.69	10.663		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.22	39.85	3.82	48.80	10.827		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.21	39.13	3.75	47.91	10.991	6	0.85	5	4	0.33	0.61	0.94	4.6	9.0	0.11	N/A	3.73	1.08	8.50	0.100	N/A	N/A
1.20	37.98	3.64	46.51	11.155		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.19	36.79	3.52	45.05	11.319		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.18	36.25	3.47	44.39	11.483		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.17	35.28	3.38	43.21	11.647		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.16	35.27	3.38	43.19	11.811		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.15	33.54	3.21	41.08	11.975		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.14	30.79	2.95	37.71	12.139		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.14	26.60	2.55	32.57	12.303		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.14	18.49	1.77	22.64	12.467		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.13	14.03	1.34	17.17	12.631		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.12	17.01	1.63	20.83	12.795		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.10	22.66	2.17	27.75	12.959		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.09	26.95	2.58	33.00	13.123		0.85	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.08	28.27	2.71	34.62	13.287		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.07	23.88	2.29	29.24	13.451		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.06	20.87	2.00	25.55	13.615		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.05	27.12	2.60	33.21	13.779		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.04	28.35	2.71	34.72	13.943		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.03	29.10	2.79	35.63	14.107		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.03	29.66	2.84	36.32	14.271		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.02	30.59	2.93	37.45	14.436		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.01	30.23	2.89	37.02	14.600		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
1.00	29.68	2.84	36.35	14.764		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.99	27.17	2.60	33.27	14.928		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.99	22.55	2.16	27.61	15.092		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

(Columns $\Delta(N_1)_{60}$ through FoS: Idriss & Boulanger (2008); columns α through FoS: Youd et al. (2001).)

15.256	6961.38	23.2	0.232	23.2	-0.6	-0.26	1.00%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0
15.420	6961.22	22.4	0.309	22.4	-0.5	-0.20	1.38%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0
15.584	6961.06	23.3	0.405	23.3	-0.7	-0.29	1.74%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0
15.748	6960.89	15.4	0.397	15.4	-0.6	-0.24	2.59%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0
15.912	6960.73	13.8	0.342	13.8	-0.9	-0.39	2.48%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0
16.076	6960.56	24.9	0.307	24.9	-2.3	-0.98	1.23%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0
16.240	6960.40	27.6	0.207	27.6	-1.5	-0.63	0.75%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0
16.404	6960.24	25.9	0.126	25.9	-0.6	-0.24	0.49%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0
16.568	6960.07	25.7	0.147	25.8	-0.7	-0.29	0.57%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0
16.732	6959.91	25.9	0.208	25.9	-0.8	-0.35	0.80%	Coarse Tailings	0.054	108.1	0.92	0.000	0.92	0
16.896	6959.74	26.6	0.292	26.6	-0.7	-0.30	1.10%	Coarse Tailings	0.054	108.1	0.93	0.000	0.93	0
17.060	6959.58	26.6	0.305	26.6	-0.9	-0.39	1.15%	Coarse Tailings	0.054	108.1	0.94	0.000	0.94	0
17.224	6959.42	30.6	0.205	30.6	-1.0	-0.45	0.67%	Coarse Tailings	0.054	108.1	0.95	0.000	0.95	0
17.388	6959.25	34.6	0.189	34.6	-1.1	-0.49	0.55%	Coarse Tailings	0.054	108.1	0.96	0.000	0.96	0
17.552	6959.09	29.3	0.215	29.3	-0.8	-0.35	0.73%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0
17.716	6958.92	28.8	0.301	28.8	-0.4	-0.16	1.04%	Coarse Tailings	0.054	108.1	0.97	0.000	0.97	0
17.880	6958.76	23.4	0.344	23.4	-0.9	-0.41	1.47%	Coarse Tailings	0.054	108.1	0.98	0.000	0.98	0
18.044	6958.60	30.1	0.314	30.2	-0.6	-0.26	1.04%	Coarse Tailings	0.054	108.1	0.99	0.000	0.99	0
18.208	6958.43	32.4	0.276	32.4	-0.3	-0.14	0.85%	Coarse Tailings	0.054	108.1	1.00	0.000	1.00	0
18.372	6958.27	38.3	0.198	38.3	0.0	0.00	0.52%	Coarse Tailings	0.054	108.1	1.01	0.000	1.01	0
18.537	6958.10	36.6	0.196	36.6	-1.0	-0.43	0.54%	Coarse Tailings	0.054	108.1	1.02	0.000	1.02	0
18.701	6957.94	28.5	0.312	28.6	-1.0	-0.43	1.09%	Coarse Tailings	0.054	108.1	1.03	0.000	1.03	0
18.865	6957.78	18.4	0.298	18.4	-0.8	-0.36	1.62%	Coarse Tailings	0.054	108.1	1.04	0.000	1.04	0
19.029	6957.61	14.8	0.326	14.9	-1.2	-0.53	2.20%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0
19.193	6957.45	22.6	0.299	22.6	-1.1	-0.47	1.32%	Coarse Tailings	0.054	108.1	1.05	0.000	1.05	0
19.357	6957.28	33.4	0.289	33.4	-1.1	-0.47	0.87%	Coarse Tailings	0.054	108.1	1.06	0.000	1.06	0
19.521	6957.12	33.8	0.240	33.8	-1.3	-0.55	0.71%	Coarse Tailings	0.054	108.1	1.07	0.000	1.07	0
19.685	6956.96	32.5	0.185	32.5	-1.1	-0.47	0.57%	Coarse Tailings	0.054	108.1	1.08	0.000	1.08	0
19.849	6956.79	30.8	0.173	30.9	-0.9	-0.41	0.56%	Coarse Tailings	0.054	108.1	1.09	0.000	1.09	0
20.013	6956.63	28.7	0.272	28.7	-1.4	-0.59	0.95%	Coarse Tailings	0.054	108.1	1.10	0.000	1.10	0
20.177	6956.46	22.4	0.323	22.4	-0.8	-0.36	1.44%	Coarse Tailings	0.054	108.1	1.11	0.000	1.11	0
20.341	6956.30	22.0	0.349	22.1	-0.7	-0.30	1.58%	Coarse Tailings	0.054	108.1	1.12	0.000	1.12	0
20.505	6956.14	20.1	0.349	20.1	-0.9	-0.41	1.74%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0
20.669	6955.97	22.7	0.229	22.8	-0.8	-0.33	1.01%	Coarse Tailings	0.054	108.1	1.13	0.000	1.13	0
20.833	6955.81	28.8	0.238	28.8	-0.5	-0.20	0.83%	Coarse Tailings	0.054	108.1	1.14	0.000	1.14	0
20.997	6955.64	27.8	0.178	27.9	-0.6	-0.26	0.64%	Coarse Tailings	0.054	108.1	1.15	0.000	1.15	0
21.161	6955.48	29.6	0.154	29.6	-0.8	-0.35	0.52%	Coarse Tailings	0.054	108.1	1.16	0.000	1.16	0
21.325	6955.31	31.3	0.170	31.3	-0.8	-0.35	0.54%	Coarse Tailings	0.054	108.1	1.17	0.000	1.17	0
21.489	6955.15	32.4	0.181	32.4	-0.7	-0.29	0.56%	Coarse Tailings	0.054	108.1	1.18	0.000	1.18	0
21.653	6954.99	32.8	0.193	32.8	-0.5	-0.20	0.59%	Coarse Tailings	0.054	108.1	1.19	0.000	1.19	0
21.817	6954.82	34.4	0.196	34.4	-0.6	-0.24	0.57%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0
21.981	6954.66	34.7	0.203	34.7	-0.5	-0.23	0.58%	Coarse Tailings	0.054	108.1	1.20	0.000	1.20	0
22.145	6954.49	35.6	0.204	35.6	-0.7	-0.29	0.57%	Coarse Tailings	0.054	108.1	1.21	0.000	1.21	0
22.309	6954.33	37.2	0.010	37.2	-0.9	-0.39	0.03%	Coarse Tailings	0.054	108.1	1.22	0.000	1.22	0
22.473	6954.17	40.2	0.156	40.2	-0.7	-0.30	0.39%	Coarse Tailings	0.054	108.1	1.23	0.000	1.23	0
22.638	6954.00	6.0	0.203	6.0	-1.9	-0.81	3.40%	Coarse Tailings	0.054	108.1	1.24	0.000	1.24	0
22.802	6953.84	46.1	0.268	46.2	-0.5	-0.23	0.58%	Coarse Tailings	0.054	108.1	1.25	0.000	1.25	0
22.966	6953.67	40.5	0.458	40.5	-0.6	-0.26	1.13%	Coarse Tailings	0.054	108.1	1.26	0.000	1.26	0
23.130	6953.51	26.1	0.611	26.1	-1.1	-0.49	2.34%	Coarse Tailings	0.054	108.1	1.27	0.000	1.27	0
23.294	6953.35	19.6	0.570	19.6	-0.6	-0.24	2.91%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0
23.458	6953.18	22.0	0.558	22.0	-0.3	-0.14	2.54%	Coarse Tailings	0.054	108.1	1.28	0.000	1.28	0
23.622	6953.02	21.9	0.547	21.9	-0.6	-0.26	2.50%	Coarse Tailings	0.054	108.1	1.29	0.000	1.29	0
23.786	6952.85	17.1	0.379	17.2	-0.2	-0.08	2.21%	Coarse Tailings	0.054	108.1	1.30	0.000	1.30	0
23.950	6952.69	20.5	0.361	20.5	0.4	0.18	1.76%	Coarse Tailings	0.054	108.1	1.31	0.000	1.31	0
24.114	6952.53	28.3	0.331	28.2	2.4	1.02	1.17%	Coarse Tailings	0.054	108.1	1.32	0.000	1.32	0
24.278	6952.36	32.1	0.263	32.1	2.1	0.91	0.82%	Coarse Tailings	0.054	108.1	1.33	0.000	1.33	0
24.442	6952.20	34.6	0.308	34.6	1.8	0.79	0.89%	Coarse Tailings	0.054	108.1	1.34	0.000	1.34	0
24.606	6952.03	31.4	0.412	31.4	1.3	0.57	1.31%	Coarse Tailings	0.054	108.1	1.35	0.000	1.35	0
24.770	6951.87	19.6	0.574	19.6	1.3	0.57	2.92%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0
24.934	6951.71	28.9	0.546	28.9	1.2	0.51	1.89%	Coarse Tailings	0.054	108.1	1.36	0.000	1.36	0
25.098	6951.54	21.7	0.511	21.7	0.8	0.36	2.35%	Coarse Tailings	0.054	108.1	1.37	0.000	1.37	0
25.262	6951.38	29.9	0.463	29.9	0.1	0.04	1.55%	Coarse Tailings	0.054	108.1	1.38	0.000	1.38	0
25.426	6951.21	41.6	0.432	41.6	0.2	0.10	1.04%	Coarse Tailings	0.054	108.1	1.39	0.000	1.39	0
25.590	6951.05	37.9	0.373	37.9	0.7	0.30	0.98%	Coarse Tailings	0.054	108.1	1.40	0.000	1.40	0
25.754	6950.89	35.0	0.602	35.0	0.0	0.00	1.72%	Coarse Tailings	0.054	108.1	1.41	0.000	1.41	0
25.918	6950.72	28.9	0.617	28.9	0.5	0.23	2.14%	Coarse Tailings	0.054	108.1	1.42	0.000	1.42	0
26.082	6950.56	17.6	0.606	17.6	0.4	0.18	3.44%	Coarse Tailings	0.054	108.1	1.43	0.000	1.43	0
26.246	6950.39	32.7	0.775	32.7	0.8	0.35	2.37%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0
26.410	6950.23	24.9	0.769	24.9	0.6	0.24	3.09%	Coarse Tailings	0.054	108.1	1.44	0.000	1.44	0
26.574	6950.07	22.2	0.776	22.2	0.4	0.16	3.50%	Coarse Tailings	0.054	108.1	1.45	0.000	1.45	0
26.739	6949.90	34.4	0.919	34.4	0.8	0.33	2.68%	Coarse Tailings	0.054	108.1	1.46	0.000	1.46	0
26.903	6949.74	21.7	0.997	21.7	0.8	0.35	4.59%	Coarse Tailings	0.054	108.1	1.47	0.000	1.47	0
27.067	6949.57	16.1	0.792	16.1	0.4	0.16	4.93%	Coarse Tailings	0.054	108.1	1.48	0.000	1.48	0
27.231	6949.41	26.1	0.589	26.1	0.8	0.35	2.25%	Coarse Tailings	0.054	108.1	1.49	0.000	1.49	0
27.395	6949.25	45.0	0.692	45.0	1.9	0.81	1.54%	Coarse Tailings	0.054	108.1	1.50	0.000	1.50	0
27.559	6949.08	33.5	0.889	33.5	1.9	0.81	2.65%	Coarse Tailings	0.054	108.1	1.51	0.000	1.51	0
27.723	6948.92	26.5	0.744	26.5	1.9	0.81	2.81%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0
27.887	6948.75	35.5	0.749	35.4	2.1	0.89	2.11%	Coarse Tailings	0.054	108.1	1.52	0.000	1.52	0
28.051	6948.59	28.6	0.945	28.6	1.8	0.77	3.30%	Coarse Tailings	0.054	108.1	1.53	0.000	1.53	0
28.215	6948.43	30.2	0.826	30.2	1.8	0.77	2.74%	Coarse Tailings	0.054	108.1	1.54	0.000	1.54	0
28.379	6948.26	22.5	0.783	22.5	2.3	0.98	3.48%	Coarse Tailings	0.054	108.1	1.55	0.000	1.55	0
28.543	6948.10	21.3	0.651	21.3	3.1	1.34	3.05%	Coarse Tailings	0.054	108.1	1.56	0.000	1.56	0
28.707	6947.93	24.7	0.647	24.7	4.2	1.81	2.62%	Coarse Tailings	0.054	108.1	1.57	0.000	1.57	0
28.871	6947.77	24.5	0.677	24.5	5.4	2.32	2.76%	Coarse Tailings	0.054	108.1	1.58	0.000	1.58	0
29.035	6947.60	25.4	0.771	25.4	6.2	2.70	3.03%	Coarse Tailings	0.054	108.1	1.59	0.000	1.59	0
29.199	6947.44	23.8	0.792	23.8	7.8	3.40	3.33%	Coarse Tailings	0.054	108.1	1.59	0.000	1.59	0
29.363	6947.28	28.9	0.798	28.8	9.2	3.99	2.76%	Coarse Tailings	0.054	108.1	1.60	0.000	1.60	0
29.527	6947.11	27.0	0.867	26.9	9.3	4.05	3.22%	Coarse Tailings	0.054	108.1	1.61	0.000	1.61	0
29.691	6946.95	26.4	0.820	26.3	9.8	4.23	3.11%	Coarse Tailings	0.054	108.1	1.62	0.000	1.62	0
29.855	6946.78	24.9	0.848	24.8	10.0	4.35	3.41%	Coarse Tailings	0.054	108.1	1.63	0.000	1.63	0
30.019	6946.62	27.9	1.013	27.9	10.8	4.66	3.63%	Coarse Tailings	0.054	108.1	1.64	0.000	1.64	0
30.183	6946.46	35.8	1.269	35.7	16.7	7.24	3.55%	Fine Alluvium	0.060	120.7	1.65	0.000	1.65	0
30.347	6946.29	45.7	1.550	45.6	16.4	7.12	3.39%	Fine Alluvium	0.060	120.7	1.66	0.000	1.66	0
30.511	6946.13	73.1	1.680	73.0	16.2	7.04	2.30%	Fine Alluvium	0.060	120.7	1.67	0.000	1.67	0
30.675	6945.96	84.5	1.591	84.4	15.5	6.71	1.88%	Fine Alluvium	0.060	120.7	1.68	0.000	1.68	0
30.840	6945.80	83.2	1.767	83.1	13.7	5.94	2.12%	Fine Alluvium	0.060	120.7	1.69	0.000	1.69	0
31.004	6945.64	70.2	2.017	70.2	12.4	5.37	2.87%	Fine Alluvium	0.060	120.7	1.70	0.000	1.70	0
31.168	6945.47	62.2	2.343	62.1	12.1	5.23	3.77%	Fine Alluvium	0.060	120.7	1.71	0.000	1.71	0
31.332	6945.31	61.1	2.427	61.0	12.1	5.23	3.97%	Fine Alluvium	0.060	120.7	1.72	0.000	1.72	0
31.496	6945.14	42.6	2.177	42.5	11.3	4.88	5.11%	Fine Alluvium	0.060	120.7	1.73	0.000	1.73	0
31.660	6944.98	45.4	2.130	45.3	11.3	4.90	4.69%	Fine Alluvium	0.060	120.7	1.74	0.000	1.74	0
31.824	6944.82	35.2	1.773	35.2	10.9	4.72	5.03%	Fine Alluvium	0.060	120.7	1.75	0.000	1.75	0
31.988	6944.65	31.1	1.490	31.0	11.1	4.82	4.79%	Fine Alluvium	0.060	120.7	1.76	0.000	1.76	0
32.152	6944.49	22.7	1.147	22.6	10.5	4.55	5.05%	Fine Alluvium	0.060	120.7	1.77	0.000	1.77	0
32.316	6944.32	20.0	1.124	19.9	10.7	4.62	5.63%	Fine Alluvium	0.060	120.7	1.78	0.000	1.78	0
32.480	6944.16	21.9	1.247	21.9	12.0	5.20	5.68%	Fine Alluvium	0.060	120.7	1.79	0.000	1.79	0
32.644	6944.00	22.4	1.225	22.4	11.7	5.08	5.46%	Fine Alluvium	0.060	120.7	1.80	0.000	1.80	0

32.808	6943.83	30.9	1.665	30.8	13.0	5.63	5.39%	Fine Alluvium	0.060	120.7	1.81	0.000	1.81	0	0.54	16.544	1.58	20.31	16	5.73%	3.0	76%	2.10	0.000	2.10	1	0	0.73	0.05	0.95	0.10	1.00	0.088	37.06	57.37	0.085	N/A	0.87	0.26	0.80	0.83	1.00	0.128	6.81	138.40	0.327	N/A	N/A	N/A	0.54	16.59	1.59	20.31	32.808		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.972	6943.67	25.6	1.719	25.5	13.3	5.78	6.72%	Fine Alluvium	0.060	120.7	1.82	0.000	1.82	0	0.54	13.638	1.31	16.75	13	7.24%	3.1	76%	2.11	0.000	2.11	1	0	0.73	0.05	0.95	0.10	1.00	0.088	35.82	52.58	0.080	N/A	0.86	0.24	0.80	0.83	1.00	0.128	8.45	141.55	0.344	N/A	N/A	N/A	0.54	13.68	1.31	16.75	32.972		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.136	6943.50	20.0	1.559	20.0	13.1	5.66	7.78%	Fine Alluvium	0.060	120.7	1.83	0.000	1.83	0	0.53	10.629	1.02	13.07	10	8.56%	3.3	76%	2.12	0.000	2.12	1	0	0.72	0.05	0.95	0.10	1.00	0.088	34.54	47.61	0.075	N/A	0.86	0.21	0.80	0.83	1.00	0.128	10.38	135.60	0.312	N/A	N/A	N/A	0.53	10.67	1.02	13.07	33.136		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.300	6943.34	17.7	1.093	17.7	14.0	6.08	6.16%	Fine Alluvium	0.060	120.7	1.84	0.000	1.84	0	0.53	9.369	0.90	11.53	9	6.87%	3.3	76%	2.13	0.000	2.13	1	0	0.72	0.05	0.96	0.10	1.00	0.087	34.01	45.54	0.073	N/A	0.86	0.20	0.80	0.83	1.00	0.128	10.15	117.03	0.229	N/A	N/A	N/A	0.53	9.42	0.90	11.53	33.300		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.464	6943.18	17.0	0.903	17.0	14.2	6.16	5.30%	Fine Alluvium	0.060	120.7	1.85	0.000	1.85	0	0.53	8.955	0.86	11.02	8	5.94%	3.2	76%	2.14	0.000	2.14	1	0	0.72	0.05	0.96	0.10	1.00	0.087	33.83	44.86	0.073	N/A	0.86	0.19	0.80	0.82	1.00	0.128	9.83	108.38	0.198	N/A	N/A	N/A	0.53	9.00	0.86	11.02	33.464		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.628	6943.01	17.2	0.875	17.2	14.6	6.32	5.08%	Fine Alluvium	0.060	120.7	1.86	0.000	1.86	0	0.53	9.023	0.86	11.11	8	5.69%	3.2	76%	2.15	0.000	2.15	1	0	0.72	0.05	0.96	0.10	1.00	0.087	33.86	44.97	0.073	N/A	0.86	0.19	0.80	0.82	1.00	0.128	9.63	106.93	0.194	N/A	N/A	N/A	0.53	9.07	0.87	11.11	33.628		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.792	6942.85	20.8	1.542	20.7	15.1	6.55	7.41%	Fine Alluvium	0.060	120.7	1.87	0.000	1.87	0	0.52	10.850	1.04	13.35	10	8.14%	3.3	76%	2.16	0.000	2.16	1	0	0.72	0.05	0.95	0.10	1.00	0.087	34.64	47.99	0.076	N/A	0.86	0.21	0.80	0.82	1.00	0.127	10.07	134.45	0.306	N/A	N/A	N/A	0.52	10.90	1.04	13.35	33.792		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.956	6942.68	28.3	2.137	28.2	15.4	6.67	7.56%	Fine Alluvium	0.060	120.7	1.88	0.000	1.88	0	0.52	14.698	1.41	18.06	14	8.10%	3.1	76%	2.17	0.000	2.17	1	0	0.72	0.05	0.95	0.10	1.00	0.087	36.28	54.34	0.082	N/A	0.86	0.25	0.80	0.82	1.00	0.127	8.57	154.74	0.425	N/A	N/A	N/A	0.52	14.75	1.41	18.06	33.956		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.120	6942.52	37.8	2.783	37.7	16.5	7.16	7.36%	Fine Alluvium	0.060	120.7	1.89	0.000	1.89	0	0.53	19.993	1.92	24.55	19	7.74%	3.0	76%	2.18	0.000	2.18	1	0	0.72	0.06	0.95	0.10	1.00	0.088	38.53	63.08	0.091	N/A	0.86	0.29	0.80	0.82	1.00	0.127	7.20	176.86	1.000	N/A	N/A	N/A	0.53	20.05	1.92	24.55	34.120		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.284	6942.36	39.2	2.940	39.1	16.9	7.30	7.50%	Fine Alluvium	0.060	120.7	1.90	0.000	1.90	0	0.53	20.716	1.98	25.44	20	7.89%	3.0	76%	2.19	0.000	2.19	1	0	0.71	0.06	0.94	0.10	1.00	0.087	38.84	64.27	0.093	N/A	0.85	0.29	0.80	0.82	1.00	0.127	7.16	182.02	1.000	N/A	N/A	N/A	0.53	20.77	1.99	25.44	34.284		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.448	6942.19	37.7	2.870	37.6	16.9	7.34	7.61%	Fine Alluvium	0.060	120.7	1.91	0.000	1.91	0	0.52	19.734	1.89	24.23	19	8.02%	3.1	76%	2.20	0.000	2.20	1	0	0.71	0.06	0.95	0.10	1.00	0.087	38.42	62.65	0.091	N/A	0.85	0.28	0.80	0.82	1.00	0.127	7.38	178.88	1.000	N/A	N/A	N/A	0.52	19.79	1.89	24.23	34.448		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.612	6942.03	37.3	2.586	37.2	17.5	7.58	6.93%	Fine Alluvium	0.060	120.7	1.92	0.000	1.92	0	0.52	19.417	1.86	23.85	18	7.30%	3.0	76%	2.21	0.000	2.21	1	0	0.71	0.05	0.95	0.10	1.00	0.087	38.29	62.13	0.090	N/A	0.85	0.28	0.80	0.82	1.00	0.127	7.11	169.60	1.000	N/A	N/A	N/A	0.52	19.47	1.86	23.85	34.612		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.776	6941.86	35.2	2.418	35.1	18.0	7.81	6.87%	Fine Alluvium	0.060	120.7	1.93	0.000	1.93	0	0.51	18.048	1.73	22.17	17	7.27%	3.1	76%	2.22	0.000	2.22	1	0	0.71	0.05	0.95	0.10	1.00	0.087	37.70	59.88	0.088	N/A	0.85	0.27	0.80	0.82	1.00	0.127	7.35	162.99	1.000	N/A	N/A	N/A	0.51	18.11	1.73	22.17	34.776		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.941	6941.70	30.8	2.126	30.7	17.7	7.65	6.90%	Fine Alluvium	0.060	120.7	1.94	0.000	1.94	0	0.51	15.643	1.50	19.22	15	7.36%	3.1	76%	2.23	0.000	2.23	1	0	0.71	0.05	0.95	0.10	1.00	0.087	36.68	55.90	0.083	N/A	0.85	0.25	0.80	0.82	1.00	0.127	7.96	153.03	0.413	N/A	N/A	N/A	0.51	15.70	1.50	19.22	34.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.105	6941.54	30.1	2.298	30.0	17.7	7.69	7.64%	Fine Alluvium	0.060	120.7	1.95	0.000	1.95	0	0.51	15.195	1.46	18.68	14	8.17%	3.1	76%	2.24	0.000	2.24	1	0	0.71	0.05	0.95	0.10	1.00	0.086	36.49	55.17	0.083	N/A	0.85	0.25	0.80	0.82	1.00	0.127	8.49	158.51	0.450	N/A	N/A	N/A	0.51	15.25	1.46	18.68	35.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.269	6941.37	32.5	2.207	32.4	22.2	9.64	6.79%	Fine Alluvium	0.060	120.7	1.96	0.000	1.96	0	0.51	16.357	1.57	20.12	16	7.22%	3.1	76%	2.25	0.000	2.25	1	0	0.71	0.05	0.95	0.10	1.00	0.086	36.99	57.11	0.085	N/A	0.85	0.26	0.80	0.82	1.00	0.127	7.71	155.08	0.427	N/A	N/A	N/A	0.51	16.43	1.57	20.12	35.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.433	6941.21	34.8	2.574	34.7	23.9	10.35	7.39%	Fine Alluvium	0.060	120.7	1.97	0.000	1.97	0	0.50	17.501	1.68	21.52	17	7.83%	3.1	76%	2.26	0.000	2.26	1	0	0.71	0.05	0.95	0.10	1.00	0.086	37.48	59.00	0.087	N/A	0.84	0.27	0.80	0.82	1.00	0.127	7.74	166.62	1.000	N/A	N/A	N/A	0.50	17.58	1.68	21.52	35.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.597	6941.04	37.2	2.744	37.0	24.7	10.72	7.38%	Fine Alluvium	0.060	120.7	1.98	0.000	1.98	0	0.51	18.795	1.80	23.11	18	7.79%	3.1	76%	2.27	0.000	2.27	1	0	0.70	0.05	0.94	0.10	1.00	0.086	38.03	61.14	0.089	N/A	0.84	0.28	0.80	0.81	1.00	0.127	7.48	172.78	1.000	N/A	N/A	N/A	0.51	18.87	1.81	23.11	35.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.761	6940.88	38.0	2.976	37.9	25.3	10.98	7.83%	Fine Alluvium	0.060	120.7	1.99	0.000	1.99	0	0.51	19.197	1.84	23.60	18	8.26%	3.1	76%	2.28	0.000	2.28	1	0	0.70	0.05	0.94	0.10	1.00	0.086	38.20	61.81	0.090	N/A	0.84	0.28	0.80	0.81	1.00	0.126	7.62	179.84	1.000	N/A	N/A	N/A	0.51	19.28	1.85	23.60	35.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.925	6940.72	38.0	3.196	37.8	25.6	11.10	8.42%	Fine Alluvium	0.060	120.7	2.00	0.000	2.00	0	0.50	19.078	1.83	23.46	18	8.89%	3.1	76%	2.29	0.000	2.29	1	0	0.70	0.05	0.94	0.10	1.00	0.086	38.15	61.61	0.090	N/A	0.84	0.28	0.80	0.81	1.00	0.126	7.92	185.77	1.000	N/A	N/A	N/A	0.50	19.16	1.83	23.46	35.925	27	1.00	25	15	0.62	0.46	0.62	5.6	21.0	0.22	N/A	5.00	1.20	23.54	0.266	N/A	N/A
36.089	6940.55	37.0	3.283	36.8	25.1	10.86	8.87%	Fine Alluvium	0.060	120.7	2.01	0.000	2.01	0	0.50	18.438	1.77	22.67	17	9.38%	3.1	76%	2.30	0.000	2.30	1	0	0.70	0.05	0.94	0.10	1.00	0.086	37.88	60.55	0.088	N/A	0.84	0.27	0.80	0.81	1.00	0.126	8.26	187.19	1.000	N/A	N/A	N/A	0.50	18.52	1.77	22.67	36.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.253	6940.39	35.5	2.998	35.4	24.9	10.80	8.44%	Fine Alluvium	0.060	120.7	2.02	0.000	2.02	0	0.50	17.514	1.68	21.54	17	8.95%	3.1	76%	2.31	0.000	2.31	1	0	0.70	0.05	0.94	0.10	1.00	0.086	37.48	59.03	0.087	N/A	0.84	0.27	0.80	0.81	1.00	0.126	8.26	177.99	1.000	N/A	N/A	N/A	0.50	17.59	1.68	21.54	36.253		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.417	6940.22	33.9	2.974	33.8	25.0	10.84	8.76%	Fine Alluvium	0.060	120.7	2.03	0.000	2.03	0	0.49	16.606	1.59	20.43	16	9.32%	3.2	76%	2.32	0.000	2.32	1	0	0.70	0.05	0.94	0.10	1.00	0.085	37.10	57.53	0.085	N/A	0.84	0.26	0.80	0.81	1.00	0.126	8.65	176.61	1.000	N/A	N/A	N/A	0.49	16.68	1.60	20.43	36.417		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.581	6940.06	32.3	2.817	32.1	23.8	10.29	8.73%	Fine Alluvium	0.060	120.7	2.04	0.000	2.04	0	0.49	15.730	1.51	19.35	15	9.32%	3.2	76%	2.33	0.000	2.33	1	0	0.70	0.05	0.95	0.10	1.00	0.085	36.72	56.08	0.084	N/A	0.84	0.25	0.80	0.81	1.00	0.126	8.89	172.07	1.000	N/A	N/A	N/A	0.49	15.80	1.51	19.35	36.581		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.745	6939.90	32.3	2.386	32.1	23.0	9.98	7.40%	Fine Alluvium	0.060	120.7	2.05	0.000	2.05	0	0.49	15.671	1.50	19.27	15	7.90%	3.1	76%	2.34	0.000	2.34	1	0	0.69	0.05	0.95	0.10	1.00	0.085	36.70	55.97	0.084	N/A	0.83	0.25	0.80	0.81	1.00	0.126	8.26	159.29	0.456	N/A	N/A	N/A	0.49	15.74	1.51	19.27	36.745		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.909	6939.73	33.3	1.627	33.1	23.0	9.95	4.89%	Fine Alluvium	0.060	120.7	2.06	0.000	2.06	0	0.49	16.107	1.54	19.81	15	5.21%	3.0	76%	2.35	0.000	2.35	1	0	0.69	0.05	0.94	0.10	1.00	0.085	36.88	56.69	0.084	N/A	0.83	0.26	0.80	0.81	1.00	0.126	6.72	133.14	0.299	N/A	N/A	N/A	0.49	16.18	1.55	19.81	36.909		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.073	6939.57	41.6	1.831	41.4	23.0	9.95	4.40%	Fine Alluvium	0.060	120.7	2.07	0.000	2.07	0	0.50	20.590	1.97	25.30	19	4.63%	2.9	76%	2.36	0.000	2.36	1	0	0.69	0.06	0.94	0.10	1.00	0.085	38.79	64.09	0.092	N/A	0.83	0.29	0.80	0.81	1.00	0.126	5.59	141.42	0.343	N/A	N/A	N/A	0.50	20.66	1.98	25.30	37.073		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.237	6939.40	43.7	1.892	43.6	23.2	10.04	4.33%	Fine Alluvium	0.060	120.7	2.07	0.000	2.07	0	0.50	21.764	2.08	26.74	20	4.54%	2.9	76%	2.37	0.000	2.37	1	0	0.69	0.06	0.94	0.10	1.00	0.085	39.29	66.03	0.095	N/A	0.83	0.30	0.80	0.81	1.00	0.126	5.38	143.94	0.357	N/A	N/A	N/A	0.50	21.84	2.09	26.74	37.237		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.401	6939.24	38.4	1.935	38.2	19.9	8.64	5.04%	Fine Alluvium	0.060	120.7	2.08	0.000	2.08	0	0.49	18.596	1.78	22.84	17	5.33%	3.0	76%	2.38	0.000	2.38	1	0	0.69	0.05	0.94	0.10	1.00	0.085	37.94	60.78	0.089	N/A	0.83	0.28	0.80	0.81	1.00	0.125	6.31	144.12	0.358	N/A	N/A	N/A	0.49	18.66	1.79	22.84	37.401		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.565	6939.07	33.6	1.901	33.5	17.9	7.75	5.66%	Fine Alluvium	0.060	120.7	2.09	0.000	2.09	0	0.48	16.022	1.53	19.68	15	6.04%	3.0	76%	2.39	0.000	2.39	1	0	0.69	0.05	0.94	0.10	1.00	0.084	36.84	56.53	0.084	N/A	0.83	0.26	0.80	0.81	1.00	0.125	7.24	142.52	0.349	N/A	N/A	N/A	0.48	16.08	1.54	19.68	37.565		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.729	6938.91	43.8	1.261	43.7	18.1	7.83	2.88%	Fine Alluvium	0.060	120.7	2.10	0.000	2.10	0	0.49	21.562	2.07	26.47	20	3.02%	2.8	76%	2.40	0.000	2.40	1	0	0.69	0.06	0.94	0.10	1.00	0.085	39.20	65.67	0.094	N/A	0.83	0.30	0.80	0.81	1.00	0.125	4.45	117.69	0.232	N/A	N/A	N/A	0.49	21.62	2.07	26.47	37.729		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.893	6938.75	57.0	1.013	56.9	17.3	7.51	1.78%	Fine Alluvium	0.060	120.7	2.11	0.000	2.11	0	0.52	29.335	2.81	35.99	26	1.84%	2.5	76%	2.41	0.000	2.41	1	0	0.69	0.06	0.93	0.04	1.00	0.085	42.50	78.49	0.111	N/A	0.82	0.35	0.80	0.81	1.00	0.125	2.96	106.50	0.192	N/A	N/A	N/A	0.52	29.39	2.81	35.99	37.893		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.057	6938.58	70.7	1.333	70.7	3.4	1.46	1.89%	Coarse Alluvium	0.056	111.0	2.12	0.000	2.12	0	0.54	37.898	3.63	46.42	32	1.94%	2.5	36%	2.42	0.000	2.42	0	0	0.68	0.07	0.93	-0.04	1.00	0.085	45.81	92.23	0.130	N/A	0.82	0.39	0.80	0.80	1.00	0.125	2.64	122.59	0.251	N/A	N/A	N/A	0.54	37.91	3.63	46.42	38.057		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.221	6938.42	72.4	1.485	72.3	3.7	1.59	2.05%	Coarse Alluvium	0.056	111.0	2.13	0.000	2.13	0	0.54	38.847	3.72	47.58	33	2.11%	2.5	36%	2.43	0.000	2.43	0	0	0.68	0.07	0.92	-0.05	1.00	0.085	46.21	93.79	0.133	N/A	0.82	0.40	0.80	0.80	1.00	0.125	2.72	129.33	0.281	N/A	N/A	N/A	0.54	38.86	3.72	47.58	38.221		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.385	6938.25	75.2	1.598	75.2	4.0	1.73	2.13%	Coarse Alluvium	0.056	111.0	2.14	0.000	2.14	0	0.54	40.552	3.88	49.67	34	2.19%	2.5	36%	2.44	0.000	2.44	0	0	0.68	0.07	0.92	-0.07	1.00	0.085	46.93	96.60	0.137	N/A	0.82	0.41	0.80	0.80	1.00	0.125	2.71	134.37	0.306	N/A	N/A	N/A	0.54	40.57	3.88	49.67	38.385		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.549	6938.09	74.8	1.648	74.8	3.7	1.59	2.20%	Coarse Alluvium	0.056	111.0	2.15	0.000	2.15	0	0.54	40.163	3.85	49.19	34	2.27%	2.5	36%	2.45	0.000	2.45	0	0	0.68	0.07	0.92	-0.06	1.00	0.085	46.76	95.96	0.136	N/A	0.82	0.40	0.80	0.80	1.00	0.125	2.77	136.33	0.316	N/A	N/A	N/A	0.54	40.18	3.85	49.19	38.549		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.713	6937.93	73.4	1.333	73.4	3.5	1.53	1.82%	Coarse Alluvium	0.056	111.0	2.16	0.000	2.16	0	0.53	39.120	3.75	47.92	33	1.87%	2.5	36%	2.46	0.000	2.46	0	0	0.68	0.07	0.92	-0.05	1.00	0.085	46.32	94.24	0.133	N/A	0.82	0.40	0.80	0.80	1.00	0.125	2.56	122.67	0.252	N/A	N/A	N/A	0.53	39.13	3.75	47.92	38.713		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.877	6937.76	72.7	1.512	72.7	3.9	1.67	2.08%	Coarse Alluvium	0.056	111.0	2.17	0.000	2.17	0	0.53	38.539	3.69	47.21	33	2.14%	2.5	36%	2.46	0.000	2.46	0	0	0.68	0.07	0.92	-0.05	1.00	0.085	46.08	93.28	0.132	N/A	0.82	0.40	0.80	0.80	1.00	0.125	2.76	130.22	0.285	N/A	N/A	N/A	0.53	38.55	3.69	47.21	38.877		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.042	6937.60	70.3	2.033	70.2	3.7	1.61	2.89%	Coarse Alluvium	0.056	111.0	2.18	0.000	2.18	0	0.52	36.862	3.53	45.15	31	2.99%	2.6	36%	2.47	0.000	2.47	0	0	0.68	0.07	0.92	-0.03	1.00	0.085	45.37	90.52	0.128	N/A	0.82	0.39	0.80	0.80	1.00	0.124	3.34	150.97	0.400	N/A	N/A	N/A	0.52	36.87	3.53	45.15	39.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.206	6937.43	64.6	2.247	64.6	4.1	1.79	3.48%	Coarse Alluvium	0.056	111.0	2.19	0.000	2.19	0	0.51	33.179	3.18	40.64	29	3.60%	2.7	36%	2.48	0.000	2.48	0	0	0.67	0.07	0.93	0.00	1.00	0.084	43.81	84.46	0.119	N/A	0.81	0.37	0.80	0.80	1.00	0.124	3.90	158.31	0.449	N/A	N/A	N/A	0.51	33.19	3.18	40.64	39.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.370	6937.27	44.7	2.304	44.7	3.8	1.63	5.15%	Coarse Alluvium	0.056	111.0	2.20	0.000	2.20	0	0.48	21.296	2.04	26.09	19	5.42%	2.9	36%	2.49	0.000	2.49	0	0	0.67	0.06	0.94	0.10	1.00	0.083	38.80	64.89	0.093	N/A	0.81	0.29	0.80	0.80	1.00	0.124	6.00	156.49	0.436	N/A	N/A	N/A	0.48	21.31	2.04	26.09	39.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.534	6937.11	51.7	2.063	51.7	4.4	1.89	3.99%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	0.49	25.228	2.42	30.91	22	4.17%	2.8	36%	2.50	0.000	2.50	0	0	0.67	0.06	0.93	0.09	1.00	0.083	40.46	71.36	0.101	N/A	0.81	0.32	0.80	0.80	1.00	0.124	4.84	149.48	0.391	N/A	N/A	N/A	0.49	25.24	2.42	30.91	39.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.698	6936.94	66.3	1.912	66.3	5.1	2.22	2.88%	Coarse Alluvium	0.056	111.0	2.21	0.000	2.21	0	0.51	33.907	3.25	41.54	29	2.98%	2.6	36%	2.51	0.000	2.51	0	0	0.67	0.07	0.93	0.00	1.00	0.084	44.12	85.66	0.121	N/A	0.81	0.37	0.80	0.80	1.00	0.124	3.50	145.44	0.366	N/A	N/A	N/A	0.51	33.92	3.25	41.54	39.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.862	6936.78	74.4	1.421	74.3	5.0	2.15	1.91%	Coarse Alluvium	0.056	111.0	2.22	0.000	2.22	0	0.52	38.845	3.72	47.59	32	1.97%	2.5	36%	2.52	0.000	2.52	0	0	0.67	0.07	0.92	-0.05	1.00	0.084	46.21	93.79	0.133	N/A	0.81	0.40	0.80	0.80	1.00	0.124	2.65	126.14	0.267	N/A	N/A	N/A	0.52	38.86	3.72	47.59	39.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.026	6936.61	68.4	1.350	68.3	4.9	2.11	1.97%	Coarse Alluvium	0.056	111.0	2.23	0.000	2.23	0	0.51	34.945	3.35	42.81	30	2.04%	2.5	36%	2.53	0.000	2.53	0	0	0.67	0.07	0.92	-0.01	1.00	0.084	44.56	87.37	0.123	N/A	0.81	0.38	0.80	0.80	1.00	0.124	2.86	122.23	0.250	N/A	N/A	N/A	0.51	34.96	3.35	42.81	40.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.190	6936.45	64.4	1.507	64.4	5.0	2.15	2.34%	Coarse Alluvium	0.056	111.0	2.24	0.000	2.24	0	0.50	32.393	3.10	39.68	28	2.42%	2.6	36%	2.54	0.000	2.54	0	0	0.67	0.06	0.93	0.01	1.00	0.083	43.48	83.17	0.117	N/A	0.81	0.36	0.80	0.80	1.00	0.124	3.24	128.50	0.277	N/A	N/A	N/A	0.50	32.41	3.10	39.68	40.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.354	6936.29	51.8	1.815	51.8	4.5	1.95	3.50%	Coarse Alluvium	0.056	111.0	2.25	0.000	2.25	0	0.48	24.861	2.38	30.46	22	3.66%	2.8	36%	2.55	0.000	2.55	0	0	0.67	0.06	0.93	0.10	1.00	0.083	40.30	70.76	0.101	N/A	0.80	0.32	0.80	0.80	1.00	0.124	4.58	139.54	0.333	N/A	N/A	N/A	0.48	24.87	2.38	30.46	40.354		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.518	6936.12	49.2	2.141	49.2	4.8	2.08	4.35%	Coarse Alluvium	0.056	111.0	2.26	0.000	2.26	0	0.47	23.290	2.23	28.54	21	4.56%	2.9	36%	2.56	0.000	2.56	0	0	0.66	0.06	0.93	0.10	1.00	0.082	39.64	68.17	0.097	N/A	0.80	0.31	0.80	0.80	1.00	0.123	5.29	150.90	0.400	N/A	N/A	N/A	0.47	23.30	2.23	28.54	40.518		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.682	6935.96	58.5	2.216	58.5	5.3	2.28	3.79%	Coarse Alluvium	0.056	111.0	2.27	0.000	2.27	0	0.49	28.569	2.74	35.00	25	3.94%	2.8	36%	2.56	0.000	2.56	0	0	0.66	0.06	0.93	0.05	1.00	0.083	41.87	76.87	0.108	N/A	0.80	0.34	0.80	0.80	1.00	0.123	4.43	155.18	0.428	N/A	N/A	N/A	0.49	28.59	2.74	35.00	40.682		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.846	6935.79	68.3	2.094	68.3	5.3	2.30	3.07%	Coarse Alluvium	0.056	111.0	2.28	0.000	2.28	0	0.50	34.333	3.29	42.06	29	3.17%	2.6	36%	2.57	0.000	2.57	0	0	0.66	0.07	0.92	-0.01	1.00	0.083	44.30	86.36	0.122	N/A	0.80	0.37	0.80	0.79	1.00	0.123	3.61	151.94	0.406	N/A	N/A	N/A	0.50	34.35	3.29	42.06	40.846		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.010	6935.63	69.3	2.215	69.2	5.2	2.24	3.20%	Coarse Alluvium	0.056	111.0	2.29	0.000	2.29	0	0.50	34.810	3.33	42.64	29	3.31%	2.7	36%	2.58	0.000	2.58	0	0	0.66	0.07	0.92	-0.01	1.00	0.083	44.50	87.15	0.123	N/A	0.80	0.38	0.80	0.79	1.00	0.123	3.67	156.47	0.436	N/A	N/A	N/A	0.50	34.83	3.33	42.64	41.010	21	1.00	19	11	0.52	0.51	0.55	5.5	16.2	0.17	N/A	5.00	1.20	17.82	0.190	N/A	N/A
41.174	6935.47	70.8	2.270	70.8	4.8	2.08	3.21%	Coarse Alluvium	0.056	111.0	2.30	0.000	2.30	0	0.50	35.639	3.41	43.66	30	3.31%	2.6	36%	2.59	0.000	2.59	0	0	0.66	0.07	0.92	-0.02	1.00	0.083	44.85	88.51	0.125	N/A	0.80	0.38	0.80	0.79	1.00	0.123	3.63	158.60	0.451	N/A	N/A	N/A	0.50	35.65	3.41	43.66	41.174		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.338	6935.30	70.3	2.546	70.3	5.4	2.34	3.62%	Coarse Alluvium	0.056	111.0	2.31	0.000	2.31	0	0.50	35.248	3.38	43.18	30	3.74%	2.7	36%	2.60	0.000	2.60	0	0	0.66	0.07	0.92	-0.02	1.00	0.082	44.69	87.87	0.124	N/A	0.80	0.38	0.80	0.79	1.00	0.123	3.90	168.28	1.000	N/A	N/A	N/A	0.50	35.26	3.38	43.18	41.338		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.502	6935.14	56.4	2.378	56.3	4.7	2.03	4.22%	Coarse Alluvium	0.056	111.0	2.31	0.000	2.31	0	0.48	26.835	2.57	32.88	23	4.40%	2.8	36%	2.61	0.000	2.61	0	0	0.66	0.06	0.93	0.07	1.00	0.082	41.14	74.01	0.105	N/A	0.80	0.33	0.80	0.79	1.00	0.123	4.86	159.76	0.459	N/A	N/A	N/A	0.48	26.85	2.57	32.88	41.502		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.666	6934.97	57.9	1.860	57.9	5.6	2.44	3.21%	Coarse Alluvium	0.056	111.0	2.32	0.000	2.32	0	0.48	27.627	2.65	33.85	24	3.35%	2.7	36%	2.62	0.000	2.62	0	0	0.66	0.06	0.93	0.07	1.00	0.082	41.47	75.32	0.106	N/A	0.79	0.34	0.80	0.79	1.00	0.123	4.17	141.15	0.342	N/A	N/A	N/A	0.48	27.64	2.65	33.85	41.666		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.830	6934.81	71.4	1.653	71.3	6.2	2.70	2.32%	Coarse Alluvium	0.056	111.0	2.33	0.000	2.33	0	0.50	35.534	3.40	43.54	30	2.39%	2.6	36%	2.63	0.000	2.63	0	0	0.65	0.07	0.92	-0.02	1.00	0.082	44.81	88.35	0.124	N/A	0.79	0.38	0.80	0.79	1.00	0.122	3.09	134.53	0.306	N/A	N/A	N/A	0.50	35.55	3.40	43.54	41.830		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.994	6934.65	77.4	1.425	77.4	5.8	2.50	1.84%	Coarse Alluvium	0.056	111.0	2.34	0.000	2.34	0	0.51	39.172	3.75	47.99	32	1.90%	2.5	36%	2.64	0.000	2.64	0	0	0.65	0.07	0.92	-0.05	1.00	0.082	46.35	94.34	0.134	N/A	0.79	0.40	0.80	0.79	1.00	0.122	2.62	125.88	0.265	N/A	N/A	N/A	0.51	39.19	3.75	47.99	41.994		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.158	6934.48	79.8	1.586	79.8	5.9	2.54	1.99%	Coarse Alluvium	0.056	111.0	2.35	0.000	2.35	0	0.51	40.571	3.89	49.70	33	2.05%	2.5	36%	2.65	0.000	2.65	0	0	0.65	0.07	0.92	-0.06	1.00	0.082	46.94	96.64	0.137	N/A	0.79	0.41	0.80	0.79	1.00	0.123	2.67	132.89	0.298	N/A	N/A	N/A	0.51	40.59	3.89	49.70	42.158		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.322	6934.32	79.1	2.082	79.1	6.2	2.67	2.63%	Coarse Alluvium	0.056	111.0	2.36	0.000	2.36	0	0.51	40.007	3.83	49.01	33	2.71%	2.6	36%	2.66	0.000	2.66	0	0	0.65	0.07	0.92	-0.06	1.00	0.082	46.70	95.71	0.136	N/A	0.79	0.40	0.80	0.79	1.00	0.122	3.10	152.15	0.408	N/A	N/A	N/A	0.51	40.03	3.83	49.01	42.322		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.486	6934.15	76.5	2.369	76.5	6.3	2.73	3.10%	Coarse Alluvium	0.056	111.0	2.37	0.000	2.37	0	0.50	38.251	3.66	46.86	31	3.19%	2.6	36%	2.66	0.000	2.66	0	0	0.65	0.07	0.92	-0.04	1.00	0.082	45.96	92.82	0.131	N/A	0.79	0.40	0.80	0.79	1.00	0.122	3.46	162.21	1.000	N/A	N/A	N/A	0.50	38.27	3.66	46.86	42.486		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.650	6933.99	54.1	2.369	54.1	6.3	2.73	4.37%	Coarse Alluvium	0.056	111.0	2.38	0.000	2.38	0	0.46	24.963	2.39	30.59	22	4.58%	2.8	36%	2.67	0.000	2.67	0	0	0.65	0.06	0.93	0.10	1.00	0.081	40.35	70.94	0.101	N/A	0.79	0.32	0.80	0.79	1.00	0.122	5.16	157.88	0.446	N/A	N/A	N/A	0.46	24.98	2.39	30.59	42.650		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.814	6933.83	48.2	2.165	48.1	7.0	3.03	4.50%	Coarse Alluvium	0.056	111.0	2.39	0.000	2.39	0	0.45	21.598	2.07	26.47	19	4.73%	2.9	36%	2.68	0.000	2.68	0	0	0.65	0.06	0.93	0.10	1.00	0.080	38.93	65.40	0.094	N/A	0.78	0.30	0.80	0.79	1.00	0.122	5.64	149.27	0.389	N/A	N/A	N/A	0.45	21.62	2.07	26.47	42.814		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.978	6933.66	51.6	1.904	51.6	7.3	3.17	3.69%	Coarse Alluvium	0.056	111.0	2.40	0.000	2.40	0	0.45	23.391	2.24	28.67	21	3.87%	2.8	36%	2.69	0.000	2.69	0	0	0.65	0.06	0.93	0.10	1.00	0.080	39.68	68.35	0.098	N/A	0.78	0.31	0.80	0.79	1.00	0.122	4.91	140.78	0.339	N/A	N/A	N/A	0.45	23.41	2.24	28.67	42.978		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.143	6933.50	62.5	1.837	62.5	7.4	3.19	2.94%	Coarse Alluvium	0.056	111.0	2.41	0.000	2.41	0	0.47	29.433	2.82	36.07	25	3.06%	2.7	36%	2.70	0.000	2.70	0	0	0.64	0.06	0.93	0.05	1.00	0.080	42.24	78.30	0.110	N/A	0.78	0.35	0.80	0.79	1.00	0.121	3.88	139.93	0.335	N/A	N/A	N/A	0.47	29.46	2.82	36.07	43.143		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.307	6933.33	60.0	1.735	59.9	7.3	3.15	2.89%	Coarse Alluvium	0.056	111.0	2.41	0.000	2.41	0	0.47	27.881	2.67	34.17	24	3.02%	2.7	36%	2.71	0.000	2.71	0	0	0.64	0.06	0.93	0.06	1.00	0.080	41.58	75.75	0.107	N/A	0.78	0.34	0.80	0.79	1.00	0.121	3.97	135.52	0.311	N/A	N/A	N/A	0.47	27.90	2.67	34.17	43.307		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.471	6933.17	74.2	1.678	74.1	7.8	3.40	2.26%	Coarse Alluvium	0.056	111.0	2.42	0.000	2.42	0	0.49	36.123	3.46	44.26	30	2.34%	2.6	36%	2.72	0.000	2.72	0	0	0.64	0.07	0.92	-0.02	1.00	0.081	45.06	89.33	0.126	N/A	0.78	0.38	0.80	0.79	1.00	0.121	3.05	135.13	0.309	N/A	N/A	N/A	0.49	36.15	3.46	44.26	43.471		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.635	6933.01	88.0	1.497	88.0	8.1	3.50	1.70%	Coarse Alluvium	0.056	111.0	2.43	0.000	2.43	0	0.51	44.605	4.27	54.65	35	1.75%	2.4	36%	2.73	0.000	2.73	0	0	0.64	0.07	0.91	-0.10	1.00	0.081	48.64	103.30	0.148	N/A	0.78	0.43	0.79	0.77	1.00	0.123	2.38	130.20	0.285	N/A	N/A	N/A	0.51	44.63	4.27	54.65	43.635		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.799	6932.84	111.2	1.955	111.2	8.6	3.74	1.76%	Coarse Alluvium	0.056	111.0	2.44	0.000	2.44	0	0.54	59.931	5.74	73.42	45	1.80%	2.3	36%	2.74	0.000	2.74	0	0	0.64	0.09	0.90	-0.21	1.00	0.083	55.12	128.54	0.199	N/A	0.78	0.49	0.75	0.74	1.00	0.128	2.10	153.89	0.419	N/A	N/A	N/A	0.54	59.96	5.74	73.42	43.799		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
43.963	6932.68	139.3	2.806	139.2	9.0	3.90	2.01%	Coarse Alluvium	0.056	111.0	2.45	0.000	2.45	0	0.58	80.149	7.68	98.18	56	2.05%	2.3	36%	2.75	0.000	2.75	0	0	0.64	0.10	0.87	-0.33	1.00	0.084	63.66	161.84	0.339	N/A	0.77	0.57	0.71	0.71	1.00	0.134	1.97	193.18	1.000	N/A	N/A	N/A	0.58	80.18	7.68	98.18	43.963		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.127	6932.51	147.4	4.138	147.3	9.2	3.99	2.81%	Coarse Alluvium	0.056	111.0	2.46	0.000	2.46	0	0.59	86.177	8.25	105.57	59	2.86%	2.4	36%	2.76	0.000	2.76	0	0	0.64	0.11	0.86	-0.36	1.00	0.085	66.20	171.77	0.426	N/A	0.77	0.59	0.70	0.70	1.00	0.136	2.26	238.60	1.000	N/A	N/A	N/A	0.59	86.21	8.25	105.57	44.127		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.291	6932.35	146.3	5.462	146.2	10.1	4.37	3.73%	Coarse Alluvium	0.056	111.0	2.47	0.000	2.47	0	0.58	85.127	8.15	104.28	58	3.80%	2.5	36%	2.76	0.000	2.76	0	0	0.64	0.11	0.87	-0.35	1.00	0.085	65.76	170.05	0.408	N/A	0.77	0.59	0.71	0.70	1.00	0.135	2.66	277.82	1.000	N/A	N/A	N/A	0.58	85.16	8.15	104.28	44.291		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.455	6932.19	170.7	6.731	170.6	10.6	4.60	3.94%	Coarse Alluvium	0.056	111.0	2.48	0.000	2.48	0	0.61	104.498	10.01	128.01	68	4.00%	2.5	36%	2.77	0.000	2.77	0	0	0.63	0.13	0.84	-0.44	1.00	0.088	73.94	201.95	1.000	N/A	0.77	0.65	0.67	0.67	1.00	0.141	2.53	323.91	1.000	N/A	N/A	N/A	0.61	104.54	10.01	128.01	44.455		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.619	6932.02	185.1	7.743	185.0	11.6	5.02	4.18%	Coarse Alluvium	0.056	111.0	2.49	0.000	2.49	0	0.63	116.470	11.16	142.67	73	4.24%	2.4	36%	2.78	0.000	2.78	0	0	0.63	0.15	0.82	-0.49	1.00	0.090	79.00	221.68	1.000	N/A	0.77	0.69	0.66	0.66	1.00	0.144	2.51	358.59	1.000	N/A	N/A	N/A	0.63	116.52	11.16	142.67	44.619		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.783	6931.86	128.4	6.546	128.3	11.4	4.92	5.10%	Coarse Alluvium	0.056	111.0	2.50	0.000	2.50	0	0.55	71.098	6.81	87.11	50	5.20%	2.6	36%	2.79	0.000	2.79	0	0	0.63	0.10	0.88	-0.28	1.00	0.083	59.84	146.95	0.258	N/A	0.77	0.54	0.73	0.72	1.00	0.131	3.46	301.47	1.000	N/A	N/A	N/A	0.55	71.14	6.81	87.11	44.783		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
44.947	6931.69	110.8	4.906	110.7	16.0	6.93	4.43%	Coarse Alluvium	0.056	111.0	2.51	0.000	2.51	0	0.53	58.512	5.60	71.71	43	4.53%	2.6	36%	2.80	0.000	2.80	0	0	0.63	0.09	0.90	-0.20	1.00	0.081	54.53	126.24	0.194	N/A	0.77	0.49	0.76	0.74	1.00	0.127	3.48	249.26	1.000	N/A	N/A	N/A	0.53	58.57	5.61	71.71	44.947		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.111	6931.53	108.9	3.071	108.7	24.4	10.57	2.82%	Fine Alluvium	0.060	120.7	2.52	0.000	2.52	0	0.52	57.010	5.46	69.91	42	2.89%	2.5	76%	2.81	0.000	2.81	1	0	0.63	0.08	0.90	-0.19	1.00	0.081	54.28	124.19	0.189	N/A	0.77	0.48	0.76	0.74	1.00	0.126	2.74	191.68	1.000	N/A	N/A	N/A	0.52	57.09	5.47	69.91	45.111		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.275	6931.36	94.2	2.838	94.0	30.4	13.18	3.01%	Fine Alluvium	0.060	120.7	2.53	0.000	2.53	0	0.50	47.152	4.52	57.85	36	3.10%	2.6	76%	2.82	0.000	2.82	1	0	0.63	0.08	0.91	-0.12	1.00	0.080	50.10	107.95	0.156	N/A	0.76	0.44	0.78	0.76	1.00	0.123	3.11	180.21	1.000	N/A	N/A	N/A	0.50	47.25	4.52	57.85	45.275		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.439	6931.20	91.1	3.068	90.9	35.8	15.50	3.37%	Fine Alluvium	0.060	120.7	2.54	0.000	2.54	0	0.50	45.033	4.31	55.28	35	3.46%	2.6	76%	2.83	0.000	2.83	1	0	0.63	0.07	0.91	-0.10	1.00	0.080	49.20	104.48	0.150	N/A	0.76	0.43	0.79	0.77	1.00	0.122	3.38	187.07	1.000	N/A	N/A	N/A	0.50	45.14	4.32	55.28	45.439		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.603	6931.04	95.8	3.249	95.6	36.1	15.66	3.39%	Fine Alluvium	0.060	120.7	2.55	0.000	2.55	0	0.50	47.893	4.59	58.78	37	3.48%	2.6	76%	2.84	0.000	2.84	1	0	0.63	0.08	0.90	-0.12	1.00	0.080	50.42	109.20	0.158	N/A	0.76	0.44	0.78	0.76	1.00	0.123	3.30	193.97	1.000	N/A	N/A	N/A	0.50	48.01	4.60	58.78	45.603		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.767	6930.87	105.6	2.581	105.4	34.7	15.03	2.44%	Fine Alluvium	0.060	120.7	2.56	0.000	2.56	0	0.51	54.102	5.18	66.38	40	2.51%	2.5	76%	2.85	0.000	2.85	1	0	0.62	0.08	0.90	-0.17	1.00	0.080	53.06	119.44	0.178	N/A	0.76	0.47	0.76	0.75	1.00	0.125	2.62	173.78	1.000	N/A	N/A	N/A	0.51	54.21	5.19	66.38	45.767		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
45.931	6930.71	80.3	3.109	80.1	29.6	12.83	3.87%	Fine Alluvium	0.060	120.7	2.57	0.000	2.57	0	0.47	38.019	3.64	46.66	30	4.00%	2.7	76%	2.86	0.000	2.86	1	0	0.62	0.07	0.91	-0.04	1.00	0.079	46.21	92.87	0.131	N/A	0.76	0.39	0.80	0.78	1.00	0.119	3.97	185.45	1.000	N/A	N/A	N/A	0.47	38.11	3.65	46.66	45.931	51	1.00	47	31	0.88	0.32	0.67	5.6	36.8	1.68	N/A	5.00	1.20	42.55	N/A	N/A	N/A
46.095	6930.54	85.8	3.520	85.7	17.0	7.38	4.10%	Fine Alluvium	0.060	120.7	2.58	0.000	2.58	0	0.48	41.278	3.95	50.61	32	4.23%	2.7	76%	2.87	0.000	2.87	1	0	0.62	0.07	0.91	-0.07	1.00	0.079	47.58	98.19	0.140	N/A	0.76	0.41	0.79	0.77	1.00	0.120	3.94	199.60	1.000	N/A	N/A	N/A	0.48	41.33	3.96	50.61	46.095		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.259	6930.38	70.5	3.470	70.4	16.4	7.12	4.92%	Fine Alluvium	0.060	120.7	2.59	0.000	2.59	0	0.46	32.123	3.08	39.39	26	5.11%	2.8	76%	2.88	0.000	2.88	1	0	0.62	0.06	0.92	0.02	1.00	0.078	43.68	83.08	0.117	N/A	0.76	0.36	0.80	0.78	1.00	0.119	4.91	193.38	1.000	N/A	N/A	N/A	0.46	32.17	3.08	39.39	46.259		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.423	6930.22	62.6	3.118	62.5	15.9	6.89	4.98%	Fine Alluvium	0.060	120.7	2.60	0.000	2.60	0	0.44	27.613	2.64	33.87	23	5.19%	2.9	76%	2.89	0.000	2.89	1	0	0.62	0.06	0.92	0.07	1.00	0.078	41.77	75.63	0.107	N/A	0.75	0.34	0.80	0.78	1.00	0.119	5.32	180.11	1.000	N/A	N/A	N/A	0.44	27.66	2.65	33.87	46.423		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.587	6930.05	73.8	2.530	73.7	15.8	6.83	3.43%	Fine Alluvium	0.060	120.7	2.60	0.000	2.60	0	0.46	33.770	3.23	41.41	27	3.55%	2.7	76%	2.90	0.000	2.90	1	0	0.62	0.07	0.92	0.00	1.00	0.078	44.38	85.79	0.121	N/A	0.75	0.37	0.80	0.78	1.00	0.119	3.97	164.40	1.000	N/A	N/A	N/A	0.46	33.82	3.24	41.41	46.587		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.751	6929.89	80.7	2.560	80.6	15.3	6.63	3.17%	Fine Alluvium	0.060	120.7	2.61	0.000	2.61	0	0.47	37.715	3.61	46.24	30	3.28%	2.6	76%	2.91	0.000	2.91	1	0	0.62	0.07	0.91	-0.03	1.00	0.078	46.06	92.30	0.130	N/A	0.75	0.39	0.80	0.78	1.00	0.119	3.61	166.80	1.000	N/A	N/A	N/A	0.47	37.76	3.62	46.24	46.751		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
46.915	6929.72	66.3	2.542	66.2	13.6	5.90	3.83%	Fine Alluvium	0.060	120.7	2.62	0.000	2.62	0	0.44	29.357	2.81	35.99	24	3.99%	2.8	76%	2.92	0.000	2.92	1	0	0.62	0.06	0.92	0.05	1.00	0.077	42.50	78.50	0.111	N/A	0.75	0.35	0.80	0.78	1.00	0.119	4.52	162.77	1.000	N/A	N/A	N/A	0.44	29.39	2.81	35.99	46.915		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.079	6929.56	62.6	1.985	62.5	14.6	6.34	3.17%	Fine Alluvium	0.060	120.7	2.63	0.000	2.63	0	0.44	27.247	2.61	33.41	23	3.31%	2.7	76%	2.93	0.000	2.93	1	0	0.61	0.06	0.92	0.07	1.00	0.077	41.61	75.02	0.106	N/A	0.75	0.33	0.80	0.77	1.00	0.118	4.27	142.73	0.350	N/A	N/A	N/A	0.44	27.29	2.61	33.41	47.079		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.244	6929.40	68.5	2.287	68.5	14.0	6.06	3.34%	Fine Alluvium	0.060	120.7	2.64	0.000	2.64	0	0.44	30.398	2.91	37.27	25	3.47%	2.7	76%	2.94	0.000	2.94	1	0	0.61	0.06	0.92	0.04	1.00	0.077	42.95	80.22	0.113	N/A	0.75	0.35	0.80	0.77	1.00	0.118	4.14	154.46	0.423	N/A	N/A	N/A	0.44	30.44	2.91	37.27	47.244		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.408	6929.23	52.7	1.998	52.7	9.9	4.27	3.79%	Fine Alluvium	0.060	120.7	2.65	0.000	2.65	0	0.42	21.889	2.10	26.83	19	3.99%	2.9	76%	2.95	0.000	2.95	1	0	0.61	0.06	0.93	0.10	1.00	0.076	39.32	66.16	0.095	N/A	0.75	0.30	0.80	0.77	1.00	0.118	5.24	140.64	0.339	N/A	N/A	N/A	0.42	21.91	2.10	26.83	47.408		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.572	6929.07	40.8	1.994	40.7	11.2	4.86	4.89%	Fine Alluvium	0.060	120.7	2.66	0.000	2.66	0	0.40	16.160	1.55	19.82	14	5.23%	3.0	76%	2.96	0.000	2.96	1	0	0.61	0.05	0.93	0.10	1.00	0.076	36.89	56.71	0.084	N/A	0.75	0.26	0.80	0.77	1.00	0.118	6.96	137.88	0.324	N/A	N/A	N/A	0.40	16.19	1.55	19.82	47.572		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.736	6928.90	53.4	2.256	53.3	12.9	5.59	4.23%	Fine Alluvium	0.060	120.7	2.67	0.000	2.67	0	0.41	22.062	2.11	27.06	19	4.45%	2.9	76%	2.97	0.000	2.97	1	0	0.61	0.06	0.93	0.10	1.00	0.076	39.40	66.46	0.095	N/A	0.74	0.30	0.80	0.77	1.00	0.118	5.51	149.08	0.388	N/A	N/A	N/A	0.41	22.10	2.12	27.06	47.736		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
47.900	6928.74	54.6	2.196	54.6	12.0	5.19	4.02%	Fine Alluvium	0.060	120.7	2.68	0.000	2.68	0	0.41	22.639	2.17	27.76	19	4.23%	2.9	76%	2.98	0.000	2.98	1	0	0.61	0.06	0.93	0.10	1.00	0.076	39.64	67.40	0.096	N/A	0.74	0.30	0.80	0.77	1.00	0.118	5.31	147.37	0.378	N/A	N/A	N/A	0.41	22.67	2.17	27.76	47.900		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.064	6928.58	72.9	2.046	72.8	12.3	5.31	2.81%	Fine Alluvium	0.060	120.7	2.69	0.000	2.69	0	0.44	32.316	3.10	39.61	26	2.92%	2.7	76%	2.99	0.000	2.99	1	0	0.61	0.06	0.92	0.02	1.00	0.077	43.76	83.37	0.117	N/A	0.74	0.36	0.80	0.77	1.00	0.118	3.69	146.27	0.371	N/A	N/A	N/A	0.44	32.35	3.10	39.61	48.064		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.228	6928.41	81.0	1.908	81.0	11.9	5.14	2.35%	Fine Alluvium	0.060	120.7	2.70	0.000	2.70	0	0.46	36.860	3.53	45.18	29	2.44%	2.6	76%	3.00	0.000	3.00	1	0	0.61	0.07	0.91	-0.02	1.00	0.077	45.69	90.87	0.128	N/A	0.74	0.39	0.80	0.77	1.00	0.117	3.16	142.68	0.350	N/A	N/A	N/A	0.46	36.89	3.53	45.18	48.228		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.392	6928.25	80.2	1.730	80.1	11.7	5.07	2.16%	Fine Alluvium	0.060	120.7	2.71	0.000	2.71	0	0.45	36.268	3.47	44.45	29	2.23%	2.6	76%	3.01	0.000	3.01	1	0	0.61	0.07	0.91	-0.02	1.00	0.077	45.44	89.89	0.127	N/A	0.74	0.38	0.80	0.77	1.00	0.117	3.05	135.69	0.312	N/A	N/A	N/A	0.45	36.30	3.48	44.45	48.392		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.556	6928.08	85.9	2.045	85.8	11.6	5.02	2.38%	Fine Alluvium	0.060	120.7	2.72	0.000	2.72	0	0.46	39.460	3.78	48.36	31	2.46%	2.6	76%	3.02	0.000	3.02	1	0	0.60	0.07	0.91	-0.05	1.00	0.077	46.80	95.16	0.135	N/A	0.74	0.40	0.80	0.77	1.00	0.117	3.07	148.55	0.385	N/A	N/A	N/A	0.46	39.49	3.78	48.36	48.556		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.720	6927.92	92.2	2.256	92.1	11.2	4.84	2.45%	Fine Alluvium	0.060	120.7	2.73	0.000	2.73	0	0.47	43.107	4.13	52.82	33	2.52%	2.5	76%	3.03	0.000	3.03	1	0	0.60	0.07	0.90	-0.08	1.00	0.077	48.35	101.17	0.144	N/A	0.74	0.42	0.79	0.76	1.00	0.119	2.98	157.46	0.443	N/A	N/A	N/A	0.47	43.14	4.13	52.82	48.720		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
48.884	6927.76	94.8	2.312	94.8	11.0	4.76	2.44%	Fine Alluvium	0.060	120.7	2.74	0.000	2.74	0	0.47	44.606	4.27	54.66	34	2.51%	2.5	76%	3.04	0.000	3.04	1	0	0.60	0.07	0.90	-0.09	1.00	0.077	48.99	103.65	0.149	N/A	0.73	0.43	0.79	0.76	1.00	0.119	2.93	159.98	0.461	N/A	N/A	N/A	0.47	44.64	4.27	54.66	48.884		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.048	6927.59	105.8	2.407	105.7	11.2	4.86	2.28%	Fine Alluvium	0.060	120.7	2.75	0.000	2.75	0	0.49	51.267	4.91	62.82	37	2.34%	2.5	76%	3.05	0.000	3.05	1	0	0.60	0.08	0.90	-0.14	1.00	0.078	51.82	114.64	0.169	N/A	0.73	0.46	0.77	0.74	1.00	0.121	2.64	165.99	1.000	N/A	N/A	N/A	0.49	51.30	4.91	62.82	49.048		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.212	6927.43	122.2	2.757	122.1	11.7	5.07	2.26%	Fine Alluvium	0.060	120.7	2.76	0.000	2.76	0	0.51	61.913	5.93	75.86	43	2.31%	2.4	76%	3.06	0.000	3.06	1	0	0.60	0.09	0.88	-0.22	1.00	0.078	56.35	132.21	0.209	N/A	0.73	0.50	0.75	0.72	1.00	0.125	2.41	182.77	1.000	N/A	N/A	N/A	0.51	61.95	5.93	75.86	49.212		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.376	6927.26	132.4	3.301	132.3	12.2	5.27	2.49%	Fine Alluvium	0.060	120.7	2.77	0.000	2.77	0	0.52	68.773	6.59	84.26	47	2.55%	2.4	76%	3.07	0.000	3.07	1	0	0.60	0.09	0.88	-0.26	1.00	0.079	59.27	143.53	0.245	N/A	0.73	0.53	0.74	0.70	1.00	0.127	2.42	204.01	1.000	N/A	N/A	N/A	0.52	68.81	6.59	84.26	49.376		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.540	6927.10	133.7	3.732	133.7	12.3	5.35	2.79%	Fine Alluvium	0.060	120.7	2.78	0.000	2.78	0	0.52	69.536	6.66	85.20	47	2.85%	2.5	76%	3.08	0.000	3.08	1	0	0.60	0.09	0.87	-0.26	1.00	0.079	59.59	144.79	0.250	N/A	0.73	0.53	0.73	0.70	1.00	0.127	2.56	218.05	1.000	N/A	N/A	N/A	0.52	69.58	6.66	85.20	49.540		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.704	6926.94	129.6	4.167	129.5	12.3	5.33	3.22%	Fine Alluvium	0.060	120.7	2.79	0.000	2.79	0	0.51	66.466	6.37	81.44	45	3.29%	2.5	76%	3.09	0.000	3.09	1	0	0.60	0.09	0.88	-0.24	1.00	0.079	58.29	139.72	0.231	N/A	0.73	0.52	0.74	0.71	1.00	0.126	2.82	229.86	1.000	N/A	N/A	N/A	0.51	66.51	6.37	81.44	49.704		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
49.868	6926.77	103.9	1.821	103.8	12.4	5.39	1.75%	Fine Alluvium	0.060	120.7	2.80	0.000	2.80	0	0.48	49.395	4.73	60.53	36	1.80%	2.4	76%	3.10	0.000	3.10	1	0	0.60	0.08	0.90	-0.13	1.00	0.077	51.03	111.56	0.163	N/A	0.73	0.45	0.78	0.74	1.00	0.120	2.38	143.95	0.357	N/A	N/A	N/A	0.48	49.43	4.73	60.53	49.868		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.032	6926.61	96.1	1.817	96.1	15.0	6.49	1.89%	Fine Alluvium	0.060	120.7	2.81	0.000	2.81	0	0.46	44.482	4.26	54.52	33	1.95%	2.5	76%	3.11	0.000	3.11	0	0	0.59	0.07	0.90	-0.09	1.00	0.076	48.94	103.46	0.148	N/A	0.73	0.43	0.79	0.75	1.00	0.118	2.60	141.68	0.344	N/A	N/A	N/A	0.46	44.53	4.26	54.52	50.032		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.196	6926.44	99.3	2.434	99.1	27.7	12.00	2.45%	Coarse Alluvium	0.056	111.0	2.82	0.000	2.82	0	0.47	46.234	4.43	56.71	34	2.52%	2.5	36%	3.12	0.000	3.12	0	0	0.59	0.08	0.90	-0.10	1.00	0.076	49.36	106.07	0.153	N/A	0.72	0.43	0.78	0.75	1.00	0.119	2.90	164.60	1.000	N/A	N/A	N/A	0.47	46.31	4.43	56.71	50.196		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

50.360	6926.28	84.0	3.182	83.8	22.8	9.86	3.79%	Coarse Alluvium	0.056	111.0	2.83	0.000	2.83	0	0.44	37.085	3.55	45.49	29	3.92%	2.7	36%	3.13	0.000	3.13	0	0	0.59	0.07	0.91	-0.02	1.00	0.075	45.48	90.97	0.128	N/A	0.72	0.39	0.80	0.76	1.00	0.116	4.06	184.88	1.000	N/A	N/A	N/A		0.44	37.15	3.56	45.49		50.360		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.524	6926.12	52.6	3.156	52.5	21.9	9.48	6.00%	Coarse Alluvium	0.056	111.0	2.84	0.000	2.84	0	0.39	20.479	1.96	25.14	18	6.34%	3.0	36%	3.14	0.000	3.14	0	0	0.59	0.06	0.92	0.10	1.00	0.074	38.47	63.61	0.092	N/A	0.72	0.29	0.80	0.76	1.00	0.116	6.83	171.76	1.000	N/A	N/A	N/A		0.39	20.53	1.97	25.14		50.524		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.688	6925.95	38.6	2.742	38.4	20.4	8.83	7.11%	Coarse Alluvium	0.056	111.0	2.85	0.000	2.85	0	0.38	14.468	1.39	17.77	13	7.68%	3.2	36%	3.14	0.000	3.14	0	0	0.59	0.05	0.93	0.10	1.00	0.073	35.93	53.70	0.081	N/A	0.72	0.24	0.80	0.76	1.00	0.115	8.86	157.45	0.443	N/A	N/A	N/A		0.38	14.52	1.39	17.77		50.688		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
50.852	6925.79	43.0	2.157	42.8	21.0	9.09	5.02%	Coarse Alluvium	0.056	111.0	2.86	0.000	2.86	0	0.38	16.084	1.54	19.76	14	5.38%	3.0	36%	3.15	0.000	3.15	0	0	0.59	0.05	0.93	0.10	1.00	0.073	36.61	56.37	0.084	N/A	0.72	0.26	0.80	0.76	1.00	0.115	7.12	140.72	0.339	N/A	N/A	N/A		0.38	16.13	1.54	19.76		50.852		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.016	6925.62	57.6	2.068	57.5	24.7	10.69	3.59%	Coarse Alluvium	0.056	111.0	2.87	0.000	2.87	0	0.40	22.745	2.18	27.93	19	3.78%	2.8	36%	3.16	0.000	3.16	0	0	0.59	0.06	0.92	0.10	1.00	0.074	39.43	67.35	0.096	N/A	0.72	0.31	0.80	0.76	1.00	0.115	5.06	141.39	0.343	N/A	N/A	N/A		0.40	22.81	2.18	27.93		51.016	19	1.00	17	8	0.46	0.55	0.48	5.5	13.9	0.15	N/A	5.00	1.20	15.01	0.160	N/A	N/A
51.180	6925.46	81.2	1.947	81.0	25.0	10.82	2.40%	Coarse Alluvium	0.056	111.0	2.88	0.000	2.88	0	0.43	35.020	3.35	42.96	27	2.49%	2.6	36%	3.17	0.000	3.17	0	0	0.59	0.07	0.91	0.00	1.00	0.075	44.61	87.58	0.123	N/A	0.72	0.38	0.80	0.76	1.00	0.115	3.32	142.54	0.349	N/A	N/A	N/A		0.43	35.09	3.36	42.96		51.180		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.345	6925.30	92.8	1.829	92.7	21.4	9.27	1.97%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	0.45	41.574	3.98	50.98	31	2.03%	2.5	36%	3.18	0.000	3.18	0	0	0.59	0.07	0.90	-0.06	1.00	0.075	47.38	98.36	0.140	N/A	0.71	0.41	0.79	0.76	1.00	0.116	2.76	140.73	0.339	N/A	N/A	N/A		0.45	41.63	3.99	50.98		51.345		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.509	6925.13	111.8	1.691	111.7	18.6	8.05	1.51%	Coarse Alluvium	0.056	111.0	2.89	0.000	2.89	0	0.48	53.072	5.08	65.05	38	1.55%	2.4	36%	3.19	0.000	3.19	0	0	0.58	0.08	0.89	-0.15	1.00	0.076	52.23	117.29	0.174	N/A	0.71	0.47	0.77	0.73	1.00	0.120	2.16	140.79	0.340	N/A	N/A	N/A		0.48	53.13	5.09	65.05		51.509		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.673	6924.97	127.5	1.862	127.4	17.4	7.52	1.46%	Coarse Alluvium	0.056	111.0	2.90	0.000	2.90	0	0.50	63.170	6.05	77.42	43	1.49%	2.3	36%	3.20	0.000	3.20	0	0	0.58	0.09	0.88	-0.22	1.00	0.077	56.50	133.92	0.214	N/A	0.71	0.51	0.75	0.71	1.00	0.123	1.97	152.53	0.410	N/A	N/A	N/A		0.50	63.22	6.05	77.42		51.673		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
51.837	6924.80	131.5	2.071	131.4	16.6	7.20	1.57%	Coarse Alluvium	0.056	111.0	2.91	0.000	2.91	0	0.50	65.741	6.30	80.56	44	1.61%	2.3	36%	3.21	0.000	3.21	0	0	0.58	0.09	0.88	-0.24	1.00	0.077	57.58	138.15	0.226	N/A	0.71	0.52	0.74	0.70	1.00	0.124	2.00	161.39	1.000	N/A	N/A	N/A		0.50	65.79	6.30	80.56		51.837		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.001	6924.64	130.1	2.340	130.0	15.8	6.85	1.80%	Fine Alluvium	0.060	120.7	2.92	0.000	2.92	0	0.50	64.577	6.19	79.14	43	1.84%	2.4	76%	3.22	0.000	3.22	0	0	0.58	0.09	0.88	-0.23	1.00	0.077	57.49	136.62	0.222	N/A	0.71	0.51	0.74	0.70	1.00	0.123	2.15	170.03	1.000	N/A	N/A	N/A		0.50	64.63	6.19	79.14		52.001		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.165	6924.48	124.5	2.653	124.4	14.4	6.22	2.13%	Fine Alluvium	0.060	120.7	2.93	0.000	2.93	0	0.49	60.703	5.81	74.39	41	2.18%	2.4	76%	3.23	0.000	3.23	0	0	0.58	0.09	0.88	-0.20	1.00	0.076	55.84	130.22	0.204	N/A	0.71	0.50	0.75	0.71	1.00	0.122	2.40	178.58	1.000	N/A	N/A	N/A		0.49	60.75	5.82	74.39		52.165		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.329	6924.31	128.5	2.597	128.4	14.4	6.22	2.02%	Fine Alluvium	0.060	120.7	2.94	0.000	2.94	0	0.49	63.221	6.06	77.47	43	2.07%	2.4	76%	3.24	0.000	3.24	0	0	0.58	0.09	0.88	-0.22	1.00	0.076	56.91	134.38	0.215	N/A	0.71	0.51	0.75	0.70	1.00	0.123	2.30	178.02	1.000	N/A	N/A	N/A		0.49	63.27	6.06	77.47		52.329		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.493	6924.15	128.9	2.368	128.8	14.9	6.47	1.84%	Fine Alluvium	0.060	120.7	2.95	0.000	2.95	0	0.49	63.317	6.06	77.59	43	1.88%	2.4	76%	3.25	0.000	3.25	0	0	0.58	0.09	0.88	-0.22	1.00	0.076	56.95	134.54	0.215	N/A	0.71	0.51	0.75	0.70	1.00	0.123	2.20	170.31	1.000	N/A	N/A	N/A		0.49	63.36	6.07	77.59		52.493		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.657	6923.98	123.4	2.644	123.3	14.1	6.12	2.14%	Fine Alluvium	0.060	120.7	2.96	0.000	2.96	0	0.48	59.530	5.70	72.95	41	2.19%	2.4	76%	3.26	0.000	3.26	0	0	0.58	0.09	0.88	-0.20	1.00	0.076	55.34	128.28	0.199	N/A	0.70	0.49	0.75	0.71	1.00	0.121	2.44	177.65	1.000	N/A	N/A	N/A		0.48	59.57	5.70	72.95		52.657		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.821	6923.82	120.1	2.625	120.0	15.1	6.53	2.19%	Fine Alluvium	0.060	120.7	2.97	0.000	2.97	0	0.48	57.230	5.48	70.13	39	2.24%	2.4	76%	3.27	0.000	3.27	0	0	0.58	0.08	0.88	-0.18	1.00	0.075	54.36	124.49	0.190	N/A	0.70	0.48	0.76	0.72	1.00	0.120	2.51	175.82	1.000	N/A	N/A	N/A		0.48	57.27	5.48	70.13		52.821		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
52.985	6923.66	127.6	2.583	127.5	15.8	6.83	2.02%	Fine Alluvium	0.060	120.7	2.98	0.000	2.98	0	0.49	61.950	5.93	75.92	42	2.07%	2.4	76%	3.28	0.000	3.28	0	0	0.57	0.09	0.88	-0.21	1.00	0.076	56.37	132.29	0.209	N/A	0.70	0.50	0.75	0.71	1.00	0.122	2.33	176.87	1.000	N/A	N/A	N/A		0.49	62.00	5.94	75.92		52.985		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.149	6923.49	133.7	2.313	133.6	14.8	6.43	1.73%	Fine Alluvium	0.060	120.7	2.99	0.000	2.99	0	0.49	65.891	6.31	80.74	44	1.77%	2.3	76%	3.29	0.000	3.29	0	0	0.57	0.09	0.87	-0.24	1.00	0.076	58.04	138.78	0.228	N/A	0.70	0.52	0.74	0.70	1.00	0.123	2.10	169.92	1.000	N/A	N/A	N/A		0.49	65.94	6.31	80.74		53.149		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.313	6923.33	128.5	2.286	128.4	14.5	6.26	1.78%	Fine Alluvium	0.060	120.7	3.00	0.000	3.00	0	0.48	62.273	5.96	76.31	42	1.82%	2.4	76%	3.30	0.000	3.30	0	0	0.57	0.09	0.88	-0.21	1.00	0.075	56.50	132.81	0.211	N/A	0.70	0.50	0.75	0.70	1.00	0.122	2.19	166.95	1.000	N/A	N/A	N/A		0.48	62.32	5.97	76.31		53.313		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.477	6923.16	117.4	2.912	117.3	13.5	5.86	2.48%	Fine Alluvium	0.060	120.7	3.01	0.000	3.01	0	0.47	54.898	5.26	67.27	38	2.55%	2.5	76%	3.31	0.000	3.31	0	0	0.57	0.08	0.89	-0.16	1.00	0.075	53.37	120.64	0.181	N/A	0.70	0.47	0.76	0.72	1.00	0.119	2.74	184.08	1.000	N/A	N/A	N/A		0.47	54.94	5.26	67.27		53.477		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.641	6923.00	119.7	2.512	119.6	13.1	5.69	2.10%	Fine Alluvium	0.060	120.7	3.02	0.000	3.02	0	0.47	56.248	5.39	68.92	39	2.15%	2.4	76%	3.32	0.000	3.32	0	0	0.57	0.08	0.88	-0.17	1.00	0.075	53.94	122.86	0.186	N/A	0.70	0.48	0.76	0.71	1.00	0.119	2.49	171.45	1.000	N/A	N/A	N/A		0.47	56.29	5.39	68.92		53.641		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.805	6922.83	134.1	2.551	134.0	15.6	6.77	1.90%	Fine Alluvium	0.060	120.7	3.03	0.000	3.03	0	0.49	65.548	6.28	80.32	43	1.95%	2.4	76%	3.33	0.000	3.33	0	0	0.57	0.09	0.87	-0.23	1.00	0.075	57.90	138.22	0.227	N/A	0.69	0.52	0.74	0.70	1.00	0.122	2.21	177.81	1.000	N/A	N/A	N/A		0.49	65.60	6.28	80.32		53.805		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
53.969	6922.67	165.3	2.556	165.2	14.0	6.08	1.55%	Fine Alluvium	0.060	120.7	3.04	0.000	3.04	0	0.53	87.622	8.39	107.35	53	1.58%	2.2	76%	3.34	0.000	3.34	0	0	0.57	0.11	0.84	-0.35	1.00	0.078	67.29	174.64	0.459	N/A	0.69	0.60	0.70	0.66	1.00	0.129	1.79	191.99	1.000	N/A	N/A	N/A		0.53	87.67	8.39	107.35		53.969		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.133	6922.51	184.4	2.581	184.3	14.6	6.32	1.40%	Fine Alluvium	0.060	120.7	3.05	0.000	3.05	0	0.56	102.320	9.80	125.35	59	1.42%	2.2	76%	3.35	0.000	3.35	0	0	0.57	0.13	0.82	-0.42	1.00	0.080	73.54	198.89	1.000	N/A	0.69	0.65	0.68	0.63	1.00	0.134	1.62	203.61	1.000	N/A	N/A	N/A		0.56	102.37	9.80	125.35		54.133		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.297	6922.34	187.0	3.073	186.9	19.9	8.64	1.64%	Fine Alluvium	0.060	120.7	3.06	0.000	3.06	0	0.56	104.172	9.98	127.64	60	1.67%	2.2	76%	3.36	0.000	3.36	0	0	0.57	0.13	0.81	-0.43	1.00	0.080	74.33	201.98	1.000	N/A	0.69	0.65	0.67	0.63	1.00	0.134	1.73	220.22	1.000	N/A	N/A	N/A		0.56	104.24	9.98	127.64		54.297		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.461	6922.18	194.5	3.149	194.4	17.1	7.42	1.62%	Fine Alluvium	0.060	120.7	3.07	0.000	3.07	0	0.57	110.117	10.55	134.91	62	1.64%	2.2	76%	3.37	0.000	3.37	0	0	0.56	0.14	0.80	-0.46	1.00	0.082	76.86	211.77	1.000	N/A	0.69	0.67	0.66	0.62	1.00	0.136	1.68	227.08	1.000	N/A	N/A	N/A		0.57	110.18	10.55	134.91		54.461		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.625	6922.01	211.5	2.885	211.4	19.8	8.58	1.36%	Fine Alluvium	0.060	120.7	3.08	0.000	3.08	0	0.59	124.356	11.91	152.36	68	1.38%	2.1	76%	3.38	0.000	3.38	0	0	0.56	0.16	0.77	-0.51	1.00	0.085	82.92	235.28	1.000	N/A	0.69	0.71	0.64	0.60	1.00	0.140	1.51	230.71	1.000	N/A	N/A	N/A		0.59	124.43	11.91	152.36		54.625		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.789	6921.85	216.9	4.198	216.8	18.3	7.93	1.94%	Fine Alluvium	0.060	120.7	3.09	0.000	3.09	0	0.59	128.906	12.35	157.93	69	1.96%	2.2	76%	3.39	0.000	3.39	0	0	0.56	0.17	0.76	-0.53	1.00	0.086	84.85	242.78	1.000	N/A	0.69	0.73	0.64	0.60	1.00	0.141	1.73	272.89	1.000	N/A	N/A	N/A		0.59	128.97	12.35	157.93		54.789		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
54.953	6921.69	260.9	4.198	260.8	19.8	8.58	1.61%	Fine Alluvium	0.060	120.7	3.10	0.000	3.10	0	0.65	170.741	16.35	209.17	83	1.63%	2.1	76%	3.40	0.000	3.40	0	0	0.56	0.29	0.58	-0.60	1.00	0.112	102.65	311.82	1.000	N/A	0.69	0.84	0.60	0.57	1.00	0.148	1.47	308.22	1.000	N/A	N/A	N/A		0.65	170.82	16.35	209.17		54.953		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
55.117	6921.52	390.0	4.198	389.8	32.8	14.21	1.08%	Fine Alluvium	0.060	120.7	3.11	0.000	3.11	0	0.70	273.916	26.24	335.59	124	1.08%	1.9	76%	3.41	0.000	3.41	0	0	0.56	0.30	0.57	-0.60	1.00	0.113	146.55	482.14	1.000	N/A	0.68	1.06	0.60	0.56	1.00	0.148	1.16	387.65	1.000	N/A	N/A	N/A		0.70	274.06	26.24	335.59		55.117		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

UNC-NECR WASTE REPOSITORY LIQUEFACTION ANALYSIS - CPT-23

Data File: 13-52118_RP23-BSC-CPT
Location: UNC-NECR 2013 Mill Site PDS
http://projects.mwhglobal.com/.../13-52118_RP23-BSC-CPT.XLS

Cells Requiring User Input/Manipulation

Legend: Erosion Protection; Cover Soil; Mine Spoils; Radon Barrier; General Fill; Coarse Tailings; Coarse/Fine Tailings; Fine Tailings; Coarse Alluvium; Fine Alluvium

Idriss and Boulanger (2008)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	5.5
Magnitude Scaling Factor, MSF:	1.69
Youd, et al (2001)	
Max. Horiz. Acceleration, Amax/g:	0.3
Earthquake Moment Magnitude, M:	6.3
Magnitude Scaling Factor, MSF:	1.59

0.00	Water surface elevation during CPT investigation (ft amsl)
0.00	Water surface elevation at t_0 (ft amsl)
0.00	Water surface elevation at t_1 (ft amsl)
1.44	Scaling Factor for stress ration, r_m
0.47	Volumetric Strain Ratio for Site-Specific Design Earthquake
11.02	Equiv. Number of Uniform Strain Cycles, N
6959.52	Ground Surface Elevation at time of CPT (ft amsl)
6981.71	Ground Surface Elevation Immediately after Placement of Final Cover (ft amsl)
1.50	Thickness of Erosion Protection Layer (rock mulch/topsoils) Immediately after placement
3.00	Thickness of Water Storage/Rooting Zone (Cover Soil; ft)
1.29	Additional Stress due to Proposed Repository Construction, $\Delta\sigma_{repos}$ (psf)
6943.53	Elevation of bottom of tailings (ft amsl)

Proposed Repository	Elev. at Top of Layer (ft)	Midpoint of Layer (ft)	Elev. At Bottom of Layer (ft)	Thickness of Layer (ft)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at Bottom of Layer (tsf)	Stress at Midpoint of Layer (tsf)	Pressure at Bottom of Layer (tsf)	Pore Pressure at Midpoint	Effective Stress at Bottom of Layer (tsf)	Effective Stress at Midpoint
Erosion Protection	6981.7	6981.0	6980.2	1.5	0.061	122.9	0.092	0.046	0.00	0.00	0.092	0.046
Cover Soil	6980.2	6978.7	6977.2	3.0	0.057	113.3	0.262	0.177	0.00	0.00	0.262	0.177
Mine Spoils	6977.2	6968.4	6959.5	17.7	0.058	116.4	1.292	0.777	0.00	0.00	1.292	0.777

2013 CPT Data from ConeTec

Depth at time of CPT (ft)	Elevation (ft amsl)	qt (TSF)	fs (TSF)	qc (TSF)	Pw (u2) (ft)	Pw (u2) (PSI)	fs/qt (%)	Material Type (per drilling log from coupled borehole)	Unit Weight (tcf)	Unit Weight (pcf)	Stress at time of CPT (tsf)	Pore Pressure at time of CPT, u_0 (tsf)	Effective Stress at time of CPT (tsf)	Saturated at time of CPT (1=Yes 0=No)
0.164	6959.36	19.6	0.250	19.6	1.5	0.65	1.28%	Radon Barrier	0.061	122.3	0.01	0.000	0.01	0
0.328	6959.19	46.4	0.193	46.3	23.0	9.98	0.42%	Radon Barrier	0.061	122.3	0.02	0.000	0.02	0
0.492	6959.03	113.4	0.083	113.3	11.5	5.00	0.07%	Radon Barrier	0.061	122.3	0.03	0.000	0.03	0
0.656	6958.86	104.1	0.405	104.1	8.2	3.56	0.39%	Radon Barrier	0.061	122.3	0.04	0.000	0.04	0
0.820	6958.70	142.1	0.961	142.1	9.1	3.94	0.68%	Radon Barrier	0.061	122.3	0.05	0.000	0.05	0
0.984	6958.54	233.5	1.600	233.3	18.2	7.89	0.69%	Radon Barrier	0.061	122.3	0.06	0.000	0.06	0
1.148	6958.37	246.7	2.431	246.6	10.7	4.64	0.99%	Radon Barrier	0.061	122.3	0.07	0.000	0.07	0
1.312	6958.21	328.7	4.052	328.6	11.2	4.84	1.23%	Radon Barrier	0.061	122.3	0.08	0.000	0.08	0
1.476	6958.04	372.9	5.391	372.8	8.3	3.60	1.45%	Radon Barrier	0.061	122.3	0.09	0.000	0.09	0
1.640	6957.88	334.9	6.117	334.9	6.2	2.68	1.83%	Radon Barrier	0.061	122.3	0.10	0.000	0.10	0
1.804	6957.72	324.1	6.738	324.1	3.8	1.63	2.08%	Radon Barrier	0.061	122.3	0.11	0.000	0.11	0
1.968	6957.55	323.4	7.133	323.4	4.7	2.03	2.21%	Radon Barrier	0.061	122.3	0.12	0.000	0.12	0
2.133	6957.39	324.5	7.691	324.4	7.0	3.01	2.37%	General Fill	0.057	113.8	0.13	0.000	0.13	0
2.297	6957.22	341.3	8.778	341.3	6.9	2.97	2.57%	General Fill	0.057	113.8	0.14	0.000	0.14	0
2.461	6957.06	377.2	9.587	377.1	10.0	4.33	2.54%	General Fill	0.057	113.8	0.15	0.000	0.15	0
2.625	6956.90	314.1	10.292	314.0	5.8	2.52	3.28%	General Fill	0.057	113.8	0.16	0.000	0.16	0
2.789	6956.73	236.8	8.963	236.8	3.0	1.30	3.79%	General Fill	0.057	113.8	0.17	0.000	0.17	0
2.953	6956.57	146.9	6.660	146.9	0.7	0.29	4.53%	General Fill	0.057	113.8	0.18	0.000	0.18	0
3.117	6956.40	106.8	5.104	106.8	0.4	0.18	4.78%	General Fill	0.057	113.8	0.19	0.000	0.19	0
3.281	6956.24	88.1	3.901	88.1	0.9	0.39	4.43%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.445	6956.08	84.1	3.520	84.1	2.1	0.89	4.18%	General Fill	0.057	113.8	0.20	0.000	0.20	0
3.609	6955.91	153.9	3.636	153.9	5.4	2.34	2.36%	General Fill	0.057	113.8	0.21	0.000	0.21	0
3.773	6955.75	212.3	4.428	212.2	14.8	6.43	2.09%	General Fill	0.057	113.8	0.22	0.000	0.22	0
3.937	6955.58	286.4	5.871	286.3	8.5	3.70	2.05%	General Fill	0.057	113.8	0.23	0.000	0.23	0
4.101	6955.42	295.6	4.817	295.6	9.1	3.94	1.63%	General Fill	0.057	113.8	0.24	0.000	0.24	0
4.265	6955.25	214.7	4.751	214.7	6.0	2.58	2.21%	General Fill	0.057	113.8	0.25	0.000	0.25	0
4.429	6955.09	188.2	5.232	188.2	2.7	1.16	2.78%	General Fill	0.057	113.8	0.26	0.000	0.26	0
4.593	6954.93	188.4	5.202	188.3	3.2	1.38	2.76%	General Fill	0.057	113.8	0.27	0.000	0.27	0
4.757	6954.76	166.6	4.179	166.6	1.1	0.49	2.51%	General Fill	0.057	113.8	0.28	0.000	0.28	0
4.921	6954.60	131.0	4.308	131.0	0.1	0.04	3.29%	General Fill	0.057	113.8	0.29	0.000	0.29	0
5.085	6954.43	145.9	4.704	145.9	1.1	0.49	3.22%	General Fill	0.057	113.8	0.30	0.000	0.30	0
5.249	6954.27	146.0	4.647	146.0	1.1	0.47	3.17%	General Fill	0.057	113.8	0.31	0.000	0.31	0
5.413	6954.11	121.9	4.646	121.9	0.1	0.04	3.81%	General Fill	0.057	113.8	0.32	0.000	0.32	0
5.577	6953.94	110.6	4.551	110.6	-0.5	-0.20	4.12%	General Fill	0.057	113.8	0.33	0.000	0.33	0
5.741	6953.78	109.5	3.676	109.5	-0.2	-0.10	3.36%	General Fill	0.057	113.8	0.34	0.000	0.34	0
5.905	6953.61	90.0	3.455	90.0	-0.8	-0.34	3.84%	General Fill	0.057	113.8	0.34	0.000	0.34	0
6.069	6953.45	86.3	3.134	86.3	-0.3	-0.12	3.63%	General Fill	0.057	113.8	0.35	0.000	0.35	0
6.234	6953.29	71.6	2.831	71.6	-0.9	-0.39	3.95%	General Fill	0.057	113.8	0.36	0.000	0.36	0
6.398	6953.12	72.3	2.209	72.3	-1.0	-0.45	3.05%	General Fill	0.057	113.8	0.37	0.000	0.37	0
6.562	6952.96	73.0	1.929	73.0	-1.1	-0.49	2.64%	General Fill	0.057	113.8	0.38	0.000	0.38	0
6.726	6952.79	73.5	1.881	73.5	-0.8	-0.35	2.56%	General Fill	0.057	113.8	0.39	0.000	0.39	0
6.890	6952.63	78.1	1.743	78.1	-0.8	-0.33	2.23%	General Fill	0.057	113.8	0.40	0.000	0.40	0
7.054	6952.47	79.7	1.701	79.7	-0.8	-0.36	2.13%	General Fill	0.057	113.8	0.41	0.000	0.41	0
7.218	6952.30	80.6	1.497	80.6	-0.8	-0.36	1.86%	General Fill	0.057	113.8	0.42	0.000	0.42	0
7.382	6952.14	76.8	1.437	76.8	-1.1	-0.49	1.87%	General Fill	0.057	113.8	0.43	0.000	0.43	0
7.546	6951.97	73.9	1.312	73.9	-1.0	-0.43	1.78%	General Fill	0.057	113.8	0.44	0.000	0.44	0
7.710	6951.81	79.3	1.577	79.4	-0.9	-0.39	1.99%	General Fill	0.057	113.8	0.45	0.000	0.45	0
7.874	6951.65	96.6	2.265	96.6	-0.2	-0.08	2.34%	General Fill	0.057	113.8	0.46	0.000	0.46	0
8.038	6951.48	96.7	3.111	96.7	-0.1	-0.02	3.22%	General Fill	0.057	113.8	0.47	0.000	0.47	0
8.202	6951.32	84.3	3.539	84.3	-0.5	-0.23	4.20%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.366	6951.15	72.1	3.231	72.1	-0.7	-0.30	4.48%	General Fill	0.057	113.8	0.48	0.000	0.48	0
8.530	6950.99	65.6	2.448	65.6	-0.7	-0.29	3.73%	General Fill	0.057	113.8	0.49	0.000	0.49	0
8.694	6950.83	60.7	1.746	60.7	-1.2	-0.51	2.88%	General Fill	0.057	113.8	0.50	0.000	0.50	0
8.858	6950.66	60.0	1.645	60.0	-1.6	-0.71	2.74%	General Fill	0.057	113.8	0.51	0.000	0.51	0
9.022	6950.50	60.9	1.447	60.9	-1.5	-0.65	2.38%	General Fill	0.057	113.8	0.52	0.000	0.52	0
9.186	6950.33	56.2	1.460	56.2	-2.0	-0.85	2.60%	General Fill	0.057	113.8	0.53	0.000	0.53	0
9.350	6950.17	56.6	1.247	56.7	-1.8	-0.79	2.20%	General Fill	0.057	113.8	0.54	0.000	0.54	0
9.514	6950.01	53.8	1.253	53.9	-2.0	-0.85	2.33%	General Fill	0.057	113.8	0.55	0.000	0.55	0
9.678	6949.84	53.0	1.128	53.0	-1.8	-0.79	2.13%	General Fill	0.057	113.8	0.56	0.000	0.56	0
9.842	6949.68	50.9	1.044	50.9	-2.3	-1.00	2.05%	General Fill	0.057	113.8	0.57	0.000	0.57	0
10.006	6949.51	47.8	0.918	47.8	-1.7	-0.75	1.92%	General Fill	0.057	113.8	0.58	0.000	0.58	0
10.170	6949.35	45.0	0.800	45.0	-1.8	-0.79	1.78%	General Fill	0.057	113.8	0.59	0.000	0.59	0
10.335	6949.19	42.0	0.737	42.0	-2.2	-0.96	1.76%	General Fill	0.057	113.8	0.60	0.000	0.60	0
10.499	6949.02	40.2	0.695	40.2	-1.1	-0.47	1.73%	General Fill	0.057	113.8	0.61	0.000	0.61	0
10.663	6948.86	39.4	0.586	39.5	-1.0	-0.43	1.49%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.827	6948.69	40.1	0.685	40.1	-1.1	-0.49	1.71%	General Fill	0.057	113.8	0.62	0.000	0.62	0
10.991	6948.53	36.5	0.788	36.5	-0.2	-0.10	2.16%	General Fill	0.057	113.8	0.63	0.000	0.63	0
11.155	6948.37	35.8	0.727	35.8	-0.8	-0.36	2.03%	General Fill	0.057	113.8	0.64	0.000	0.64	0
11.319	6948.20	34.0	1.051	34.0	-0.8	-0.35	3.09%	General Fill	0.057	113.8	0.65	0.000	0.65	0
11.483	6948.04	35.1	1.196	35.1	-1.4	-0.59	3.41%	General Fill	0.057	113.8	0.66	0.000	0.66	0
11.647	6947.87	32.1	1.142	32.1	-1.4	-0.61	3.56%	General Fill	0.057	113.8	0.67	0.000	0.67	0
11.811	6947.71	29.5	0.936	29.5	-1.7	-0.75	3.17%	General Fill	0.057	113.8	0.68	0.000	0.68	0
11.975	6947.55	22.6	0.642	22.6	-2.0	-0.85	2.84%	General Fill	0.057	113.8	0.69	0.000	0.69	0
12.139	6947.38	16.0	0.530	16.0	-2.5	-1.08	3.32%	General Fill	0.057	113.8	0.70	0.000	0.70	0
12.303	6947.22	15.7	0.598	15.7	-2.4	-1.06	3.82%	General Fill	0.057	113.8	0.71	0.000	0.71	0
12.467	6947.05	17.7	0.679	17.7	-2.4	-1.02	3.84%	General Fill	0.057	113.8	0.72	0.000	0.72	0
12.631	6946.89	13.9	0.679	13.9	-2.2	-0.96	4.89%	General Fill	0.057	113.8	0.73	0.000	0.73	0
12.795	6946.72	10.0	0.635	10.0	-0.3	-0.14	6.34%	General Fill	0.057	113.8	0.74	0.000	0.74	0
12.959	6946.56	10.4	0.607	10.4	-0.7	-0.29	5.84%	General Fill	0.057	113.8	0.75	0.000	0.75	0
13.123	6946.40	8.9	0.502	8.9	-1.3	-0.55	5.67%	General Fill	0.057	113.8	0.76	0.000	0.76	0
13.287	6946.23	14.8	0.394	14.8	-0.7	-0.29	2.66%	General Fill	0.057	113.8	0.76	0.000	0.76	0
13.451	6946.07	15.4	0.442	15.4	-0.7	-0.30	2.87%	Fine Tailings	0.054	107.6	0.77	0.000	0.77	0
13.615	6945.90	13.1	0.467	13.1	-0.9	-0.39	3.57%	Fine Tailings	0.054	107.6	0.78	0.000	0.78	0
13.779	6945.74	12.3	0.498	12.3	-0.5	-0.23	4.05%	Fine Tailings	0.054	107.6	0.79	0.000	0.79	0
13.943	6945.58	17.5	0.353	17.5	-0.4	-0.18	2.01%	Fine Tailings	0.054	107.6	0.80	0.000	0.80	0
14.107	6945.41	20.1	0.479	20.1	-0.7	-0.29	2.38%	Fine Tailings	0.054	107.6	0.81	0.000	0.81	0
14.271	6945.25	9.5	0.356	9.6	-2.2	-0.94	3.73%	Coarse Tailings	0.054	108.1	0.82	0.000	0.82	0
14.436	6945.08	5.4	0.271	5.4	-2.4	-1.06	5.01%	Coarse Tailings	0.054	108.1	0.83	0.000	0.83	0
14.600	6944.92	9.2	0.240	9.2	-1.8	-0.79	2.60%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0
14.764	6944.76	13.9	0.403	13.9	-0.9	-0.39	2.90%	Coarse Tailings	0.054	108.1	0.84	0.000	0.84	0
14.928	6944.59	13.1	0.479	13.1	0.8	0.35	3.66%	Coarse Tailings	0.054	108.1	0.85	0.000	0.85	0
15.092	6944.43	10.3	0.384	10.3	-0.6	-0.26	3.72%	Coarse Tailings	0.054	108.1	0.86	0.000	0.86	0

CPT Data Interpretations / Conditions at t_1

Depth (ft)	CN	qc1 (TSF)	qc1 (MPa)	qc1N	Normalized Cone Penetration Resistance, Q	Normalized Friction Ratio, F (%)	Type Index, Ic	FC (%)	Total Stress at t_1 (tsf)	Equil Pore Pressure at t_1, u_0 (tsf)	Effective Stress at t_1 (tsf)	behave as saturated during earthquake? (1=Yes 0=No)	susceptible or mod susceptible to (1=Yes 0=No)
0.164	1.70	33.269	3.19	40.76	1951	1.28%	1.3	59%	1.30	0.000	1.30	0	0
0.328	1.70	78.659	7.53	96.62	2313	0.42%	0.8	59%	1.31	0.000	1.31	0	0
0.492	1.70	192.644	18.45	236.04	3767	0.07%	0.1	59%	1.32	0.000	1.32	0	0
0.656	1.70	176.936	16.95	216.77	2594	0.39%	0.8	59%	1.33	0.000	1.33	0	0
0.820	1.70	241.519	23.13	295.86	2833	0.68%	1.1	59%	1.34	0.000	1.34	0	0
0.984	1.70	396.678	38.00	485.97	3878	0.69%	1.1	59%	1.35	0.000	1.35	0	0
1.148	1.70	419.220	40.16	513.48	3512	0.99%	1.2	59%	1.36	0.000	1.36	0	0
1.312	1.70	558.671	53.51	684.24	4095	1.23%	1.3	59%	1.37	0.000	1.37	0	0
1.476	1.70	633.760	60.70	776.15	4129	1.45%	1.4	59%	1.38	0.000	1.38	0	0
1.640	1.70	569.296	54.53	697.19	3338	1.83%	1.5	59%	1.39	0.000	1.39	0	0
1.804	1.70	549.567	52.64	673.00	2936	2.08%	1.5	59%	1.40	0.000	1.40	0	0
1.968	1.66	535.935	51.33	656.32	2686	2.21%	1.6	59%	1.41	0.000	1.41	0	0
2.133	1.62	527.137	50.49	645.57	2501	2.37%	1.6	48%	1.42	0.000	1.42	0	0
2.297	1.60	544.412	52.15	666.72	2454	2.57%	1.6	48%	1.43	0.000	1.43	0	0
2.461	1.57	591.428	56.65	724.33	2541	2.54%	1.6	48%	1.44	0.000	1.44	0	0
2.625	1.54	484.610	46.42	593.48	1990	3.28%	1.7	48%	1.45	0.000	1.45	0	0
2.789	1.52	359.897	34.47	440.73	1417	3.79%	1.8	48%	1.46	0.000	1.46	0	0
2.953	1.50	220.118	21.08	269.54	832	4.54%	2.0	48%	1.47	0.000	1.47	0	0
3.117	1.60	170.913	16.37	209.29	574	4.79%	2.0	48%	1.48	0.000	1.48	0	0
3.281	1.67	146.921	14.07	179.92	451	4.44%	2.0	48%	1.49	0.000	1.49	0	0
3.445	1.67	140.294	13.44	171.82	411	4.19%	2.0	48%	1.50	0.000	1.50	0	0
3.609	1.42	219.145	20.99	268.40	719	2.37%	1.7	48%	1.51	0.000	1.51	0	0
3.773	1.41	298.906	28.63	366.17	951	2.09%	1.6	48%	1.51	0.000	1.51	0	0
3.937	1.39	398.884	38.21	488.53	1231	2.05%	1.6	48%	1.52	0.000	1.52	0	0
4.101	1.38	407.501	39.03	499.09	1222	1.63%	1.5	48%	1.53	0.000	1.53	0	0
4.265	1.37	293.041	28.07	358.89	854	2.22%	1.7	48%	1.54	0.000	1.54	0	0
4.429	1.35	254.378	24.37	311.52	722	2.78%	1.8	48%	1.55	0.000	1.55	0	0
4.593	1.34	252.280	24.16	308.95	697	2.77%	1.8	48%	1.56	0.000	1.56	0	0
4.757	1.33	221.099	21.18	270.75	596	2.51%	1.8	48%	1.57	0.000	1.57	0	0
4.921	1.37	179.694	17.21	220.04	453	3.30%	1.9	48%	1.58	0.000	1.58	0	0
5.085	1.33	194.030	18.59	237.60	489	3.23%	1.9	48%	1.59	0.000	1.59	0	0
5.249	1.32	192.777	18.47	236.07	474	3.18%	1.9	48%	1.60	0.000	1.60	0	0
5.413	1.36	165.978	15.90	203.24	384	3.82%	2.0	48%	1.61	0.000	1.61	0	0
5.577	1.38	152.629	14.59	186.45	339	4.13%	2.1	48%	1.62	0.000	1.62	0	0
5.741	1.37	149.860	14.35	183.50	326	3.37%	2.0	48%	1.63	0.000	1.63	0	0
5.905	1.41	126.596	12.13	155.01	260	3.85%	2.1	48%	1.64	0.000	1.64	0	0
6.069	1.40	121.203	11.61	148.41	243	3.65%	2.1	48%	1.65	0.000	1.65	0	0
6.234	1.44	102.808	9.85	125.88	196	3.97%	2.2	48%	1.66	0.000	1.66	0	0
6.398	1.42	102.671	9.83	125.71	193	3.07%	2.1	48%	1.66	0.000	1.66	0	0
6.562	1.40	102.548	9.82	125.56	190	2.66%	2.0	48%	1.67	0.000	1.67	0	0
6.726	1.39	102.143	9.78	125.07	187	2.57%	2.0	48%	1.68	0.000	1.68	0	0
6.890	1.37	106.682	10.22	130.63	194	2.24%	2.0	48%	1.69	0.000	1.69	0	0
7.054	1.35	107.621	10.31	131.77	194	2.14%	2.0	48%	1.70	0.000	1.70	0	0
7.218	1.34	107.662	10.31	131.82	191	1.87%	1.9	48%	1.71	0.000	1.71	0	0
7.382	1.33	102.436	9.81	125.42	178	1.88%	1.9	48%	1.72	0.000	1.72	0	0
7.546	1.33	98.189	9.41	120.22	168	1.79%	1.9	48%	1.73	0.000	1.73	0	0
7.710	1.31	103.665	9.93	126.93	176	2.00%	2.0	48%	1.74	0.000	1.74	0	0
7.874	1.26	122.227	11.71	149.67	211	2.36%	2.0	48%	1.75	0.000	1.75	0	0
8.038	1.26	121.418	11.63	148.68	207	3.23%	2.1	48%	1.76	0.000	1.76	0	0
8.202	1.27	106.817	10.23	130.79	176	4.22%	2.2	48%	1.77	0.000	1.77	0	0
8.366	1.28	92.192	8.83	112.88	148	4.51%	2.3	48%	1.78	0.000	1.78	0	0
8.530	1.28	84.013	8.05	102.87	132	3.76%	2.2	48%	1.79	0.000	1.79	0	0
8.694	1.28	77.663	7.44	95.09	120	2.90%	2.2	48%	1.79	0.000	1.79	0	0
8.858	1.27	76.199	7.30	93.29	116	2.77%	2.2	48%	1.80	0.000	1.80	0	0
9.022	1.26	76.579	7.34	93.76	116	2.40%	2.1	48%	1.81	0.000	1.81	0	0
9.186	1.26	70.619	6.76	86.45	105	2.62%	2.2	48%	1.82	0.000	1.82	0	0
9.350	1.24	70.526	6.76	86.34	104	2.22%	2.1	48%	1.83	0.000	1.83	0	0
9.514	1.24	66.743	6.39	81.71	97	2.35%	2.2	48%	1.84	0.000	1.84	0	0
9.678	1.23	65.167	6.24	79.78	94	2.15%	2.2	48%	1.85	0.000	1.85	0	0
9.842	1.22	62.304	5.97	76.27	89	2.07%	2.2	48%	1.86	0.000	1.86	0	0
10.006	1.22	58.226	5.58	71.28	82	1.94%	2.2	48%	1.87	0.000	1.87	0	0
10.170	1.21	54.552	5.23	66.78	76	1.80%	2.2	48%	1.88	0.000	1.88	0	0
10.335	1.21	50.680	4.85	62.04	69	1.78%	2.2	48%	1.89	0.000	1.89	0	0
10.499	1.20	48.223	4.62	59.04	65	1.75%	2.2	48%	1.90	0.000	1.90	0	0
10.663	1.19	46.932	4.50	57.46	63	1.51%	2.2	48%	1.91	0.000	1.91	0	0
10.827	1.18	47.239	4.52	57.83	63	1.74%	2.2	48%	1.92	0.000	1.92	0	0
10.991	1.17	42.844	4.10	52.46	57	2.20%	2.3	48%	1.93	0.000	1.93	0	0
11.155	1.16	41.622	3.99	50.96	55	2.07%	2.3	48%	1.93	0.000	1.93	0	0
11.319	1.16	39.350	3.77	48.18	51	3.15%	2.5	48%	1.94	0.000	1.94	0	0
11.483	1.14	40.196	3.85	49.21	52	3.47%	2.5	48%	1.95	0.000	1.95	0	0
11.647	1.14	36.557	3.50	44.75	47	3.63%	2.5	48%	1.96	0.000	1.96	0	0
11.811	1.13	33.380	3.20	40.86	42	3.25%	2.5	48%	1.97	0.000	1.97	0	0
11.975	1.13	25.558	2.45	31.28	32	2.93%	2.6	48%	1.98	0.000	1.98	0	0
12.139	1.13	18.048	1.73	22.08	22	3.47%	2.8	48%	1.99	0.000	1.99	0	0
12.303	1.12	17.517	1.68	21.43	21	4.00%	2.8	48%	2.00	0.000	2.00	0	0
12.467	1.10	19.554	1.87	23.92	24	4.00%	2.8	48%	2.01	0.000	2.01	0	0
12.631	1.10	15.211	1.46	18.61	18	5.16%	2.9	48%	2.02	0.000	2.02	0	0
12.795	1.08	10.854	1.04	13.29	13	6.85%	3.1	48%	2.03	0.000	2.03	0	0
12.959	1.07	11.155	1.07	13.65	13	6.30%	3.1	48%	2.04	0.000	2.04	0	0
13.123	1.06	9.420	0.90	11.53	11	6.20%	3.2	48%	2.05	0.000	2.05	0	0
13.287	1.05	15.575	1.49	19.07	18	2.81%	2.8	48%	2.06	0.000	2.06	0	0
13.451	1.04	16.094	1.54	19.70	19	3.02%	2.8	83%	2.06	0.000	2.06	0	0
13.615	1.03	13.520	1.30	16.55	16	3.80%	2.9	83%	2.07	0.000	2.07	0	0
13.779	1.03	12.613	1.21	15.44	15	4.33%	3.0	83%	2.08	0.000	2.08	0	0
13.943	1.02	17.818	1.71	21.82	21	2.11%	2.6	83%	2.09	0.000	2.09	0	0
14.107	1.01	20.294	1.94	24.84	24	2.48%	2.6	83%	2.10	0.000	2.10	0	0
14.271	1.00	9.554	0.92	11.68	11	4.08%	3.1	21%	2.11	0.000	2.11	0	0
14.436	0.99	5.371	0.51	6.56	6	5.92%	3.4	21%	2.12	0.000	2.12	0	0
14.600	0.98	9.080	0.87	11.11	10	2.86%	3.0	21%	2.13	0.000	2.13	0	0
14.764	0.97	13.538	1.30	16.57	15	3.09%	2.9	21%	2.14	0.000	2.14	0	0
14.928	0.97	12.635	1.21	15.48	14	3.92%	2.9	21%	2.14	0.000	2.14	0	0
15.092	0.96	9.906	0.95	12.12	11	4.06%	3.0	21%	2.15	0.000	2.15	0	0

Liquefaction Triggering Analyses Using CPT Data

Depth (ft)	Idriss & Boulanger (2008) r_d	C_σ	K_σ	ξ_R	K_α	CSR M=7.5, σ'=1atm	Δq_{c1n}	$q_{c1n\text{-}cs}$	CRR M=7.5, σ'=1atm	FoS	Youd et al. (2001) r_d	D_r	f	K_σ	K_α	CSR M=7.5, σ'=1atm	Kc	$q_{c1n\text{-}cs}$	(CRR) M=7.5, σ'=1atm	FoS	Average FoS	Liquefiable? 1=Yes 0=No
0.164	0.86	0.07	0.97	-0.02	1.00	0.102	44.54	85.30	0.120	N/A	0.95	0.37	0.80	0.91	1.00	0.127	1.00	40.76	0.084	N/A	N/A	N/A
0.328	0.86	0.10	0.95	-0.35	1.00	0.104	64.11	160.73	0.331	N/A	0.95	0.57	0.72	0.87	1.00	0.133	1.00	96.62	0.164	N/A	N/A	N/A
0.492	0.85	0.30	0.86	-0.60	1.00	0.115	112.95	348.99	1.000	N/A	0.95	0.89	0.56	0.81	1.00	0.143	1.00	236.04	1.000	N/A	N/A	N/A
0.656	0.85	0.30	0.85	-0.60	1.00	0.116	106.20	322.96	1.000	N/A	0.95	0.85	0.60	0.82	1.00	0.141	1.00	216.77	1.000	N/A	N/A	N/A
0.820	0.85	0.30	0.85	-0.60	1.00	0.116	133.90	429.76	1.000	N/A	0.95	0.99	0.60	0.82	1.00	0.142	1.00	295.86	1.000	N/A	N/A	N/A
0.984	0.85	0.30	0.85	-0.60	1.00	0.116	200.50	686.47	1.000	N/A	0.95	1.27	0.60	0.82	1.00	0.142	1.00	485.97	1.000	N/A	N/A	N/A
1.148	0.85	0.30	0.85	-0.60	1.00	0.116	210.13	723.61	1.000	N/A	0.95	1.31	0.60	0.81	1.00	0.142	1.00	513.48	1.000	N/A	N/A	N/A
1.312	0.85	0.30	0.84	-0.60	1.00	0.116	269.95	954.19	1.000	N/A	0.95	1.51	0.60	0.81	1.00	0.142	1.00	684.24	1.000	N/A	N/A	N/A
1.476	0.85	0.30	0.84	-0.60	1.00	0.116	302.14	######	1.000	N/A	0.95	1.61	0.60	0.81	1.00	0.143	1.00	776.15	1.000	N/A	N/A	N/A
1.640	0.85	0.30	0.84	-0.60	1.00	0.116	274.48	971.67	1.000	N/A	0.94	1.52	0.60	0.81	1.00	0.143	1.00	697.19	1.000	N/A	N/A	N/A
1.804	0.84	0.30	0.84	-0.60	1.00	0.116	266.01	939.01	1.000	N/A	0.94	1.50	0.60	0.81	1.00	0.143	1.00	673.00	1.000	N/A	N/A	N/A
1.968	0.84	0.30	0.84	-0.60	1.00	0.117	260.17	916.48	1.000	N/A	0.94	1.48	0.60	0.80	1.00	0.144	1.00	656.32	1.000	N/A	N/A	N/A
2.133	0.84	0.30	0.83	-0.60	1.00	0.117	256.80	902.37	1.000	N/A	0.94	1.47	0.60	0.80	1.00	0.144	1.00	645.57	1.000	N/A	N/A	N/A
2.297	0.84	0.30	0.83	-0.60	1.00	0.117	264.22	930.94	1.000	N/A	0.94	1.49	0.60	0.80	1.00	0.144	1.00	666.72	1.000	N/A	N/A	N/A
2.461	0.84	0.30	0.83	-0.60	1.00	0.117	284.43	######	1.000	N/A	0.94	1.55	0.60	0.80	1.00	0.145	1.00	724.33	1.000	N/A	N/A	N/A
2.625	0.84	0.30	0.83	-0.60	1.00	0.117	238.52	832.00	1.000	N/A	0.94	1.41	0.60	0.79	1.00	0.145	1.07	633.59	1.000	N/A	N/A	N/A
2.789	0.84	0.30	0.83	-0.60	1.00	0.117	184.93	625.66	1.000	N/A	0.94	1.21	0.60	0.79	1.00	0.145	1.13	496.44	1.000	N/A	N/A	N/A
2.953	0.83	0.30	0.82	-0.60	1.00	0.117	124.87	394.42	1.000	N/A	0.94	0.95	0.60	0.79	1.00	0.146	1.25	335.95	1.000	N/A	N/A	N/A
3.117	0.83	0.29	0.83	-0.57	1.00	0.117	103.74	313.03	1.000	N/A	0.94	0.84	0.60	0.79	1.00	0.146	1.34	280.29	1.000	N/A	N/A	N/A
3.281	0.83	0.21	0.87	-0.60	1.00	0.110	93.43	273.35	1.000	N/A	0.94	0.77	0.61	0.79	1.00	0.145	1.35	243.36	1.000	N/A	N/A	N/A
3.445	0.83	0.20	0.88	-0.60	1.00	0.109	90.59	262.41	1.000	N/A	0.94	0.76	0.62	0.80	1.00	0.145	1.34	230.92	1.000	N/A	N/A	N/A
3.609	0.83	0.30	0.82	-0.60	1.00	0.117	124.47	392.88	1.000	N/A	0.94	0.95	0.60	0.78	1.00	0.147	1.04	279.99	1.000	N/A	N/A	N/A
3.773	0.83	0.30	0.81	-0.60	1.00	0.117	158.77	524.95	1.000	N/A	0.94	1.10	0.60	0.78	1.00	0.147	1.00	366.17	1.000	N/A	N/A	N/A
3.937	0.83	0.30	0.81	-0.60	1.00	0.117	201.70	690.23	1.000	N/A	0.94	1.28	0.60	0.78	1.00	0.147	1.00	488.53	1.000	N/A	N/A	N/A
4.101	0.82	0.30	0.81	-0.60	1.00	0.118	205.40	704.49	1.000	N/A	0.94	1.29	0.60	0.78	1.00	0.148	1.00	499.09	1.000	N/A	N/A	N/A
4.265	0.82	0.30	0.81	-0.60	1.00	0.118	156.22	515.12	1.000	N/A	0.94	1.09	0.60	0.78	1.00	0.148	1.01	361.48	1.000	N/A	N/A	N/A
4.429	0.82	0.30	0.81	-0.60	1.00	0.118	139.60	451.12	1.000	N/A	0.94	1.02	0.60	0.77	1.00	0.148	1.09	338.87	1.000	N/A	N/A	N/A
4.593	0.82	0.30	0.81	-0.60	1.00	0.118	138.70	447.65	1.000	N/A	0.94	1.01	0.60	0.77	1.00	0.149	1.09	336.61	1.000	N/A	N/A	N/A
4.757	0.82	0.30	0.80	-0.60	1.00	0.118	125.30	396.05	1.000	N/A	0.94	0.95	0.60	0.77	1.00	0.149	1.08	292.53	1.000	N/A	N/A	N/A
4.921	0.82	0.30	0.80	-0.60	1.00	0.118	107.51	327.55	1.000	N/A	0.94	0.86	0.60	0.77	1.00	0.149	1.21	265.66	1.000	N/A	N/A	N/A
5.085	0.82	0.30	0.80	-0.60	1.00	0.118	113.67	351.27	1.000	N/A	0.94	0.89	0.60	0.77	1.00	0.149	1.18	281.88	1.000	N/A	N/A	N/A
5.249	0.81	0.30	0.80	-0.60	1.00	0.118	113.13	349.20	1.000	N/A	0.94	0.89	0.60	0.76	1.00	0.150	1.19	279.87	1.000	N/A	N/A	N/A
5.413	0.81	0.27	0.82	-0.60	1.00	0.115	101.61	304.86	1.000	N/A	0.94	0.82	0.60	0.76	1.00	0.150	1.31	266.30	1.000	N/A	N/A	N/A
5.577	0.81	0.23	0.85	-0.60	1.00	0.111	95.72	282.17	1.000	N/A	0.94	0.79	0.61	0.76	1.00	0.150	1.39	259.33	1.000	N/A	N/A	N/A
5.741	0.81	0.22	0.85	-0.60	1.00	0.110	94.69	278.19	1.000	N/A	0.93	0.78	0.61	0.76	1.00	0.150	1.29	236.71	1.000	N/A	N/A	N/A
5.905	0.81	0.17	0.88	-0.55	1.00	0.106	84.69	239.70	1.000	N/A	0.93	0.72	0.64	0.78	1.00	0.147	1.44	223.07	1.000	N/A	N/A	N/A
6.069	0.81	0.16	0.89	-0.53	1.00	0.105	82.38	230.79	1.000	N/A	0.93	0.70	0.65	0.78	1.00	0.146	1.43	212.20	1.000	N/A	N/A	N/A
6.234	0.81	0.13	0.91	-0.46	1.00	0.103	74.47	200.35	1.000	N/A	0.93	0.65	0.68	0.80	1.00	0.144	1.35	169.81	1.000	N/A	N/A	N/A
6.398	0.81	0.13	0.91	-0.46	1.00	0.103	74.41	200.12	1.000	N/A	0.93	0.65	0.68	0.79	1.00	0.144	1.42	177.92	1.000	N/A	N/A	N/A
6.562	0.80	0.13	0.91	-0.45	1.00	0.102	74.36	199.92	1.000	N/A	0.93	0.65	0.68	0.79	1.00	0.144	1.34	168.37	1.000	N/A	N/A	N/A
6.726	0.80	0.13	0.91	-0.45	1.00	0.102	74.19	199.26	1.000	N/A	0.93	0.65	0.68	0.79	1.00	0.144	1.33	166.58	1.000	N/A	N/A	N/A
6.890	0.80	0.14	0.90	-0.47	1.00	0.103	76.14	206.76	1.000	N/A	0.93	0.66	0.67	0.79	1.00	0.145	1.26	164.28	1.000	N/A	N/A	N/A
7.054	0.80	0.14	0.90	-0.48	1.00	0.103	76.54	208.32	1.000	N/A	0.93	0.66	0.67	0.78	1.00	0.145	1.24	163.52	1.000	N/A	N/A	N/A
7.218	0.80	0.14	0.90	-0.48	1.00	0.103	76.56	208.38	1.000	N/A	0.93	0.66	0.67	0.78	1.00	0.146	1.20	157.60	0.444	N/A	N/A	N/A
7.382	0.80	0.13	0.90	-0.45	1.00	0.102	74.31	199.74	1.000	N/A	0.93	0.65	0.68	0.79	1.00	0.145	1.22	152.64	0.411	N/A	N/A	N/A
7.546	0.80	0.12	0.91	-0.43	1.00	0.101	72.49	192.71	0.833	N/A	0.93	0.63	0.68	0.79	1.00	0.144	1.22	146.26	0.371	N/A	N/A	N/A
7.710	0.79	0.13	0.90	-0.46	1.00	0.102	74.84	201.77	1.000	N/A	0.93	0.65	0.67	0.78	1.00	0.145	1.24	157.62	0.444	N/A	N/A	N/A
7.874	0.79	0.16	0.88	-0.53	1.00	0.104	82.82	232.48	1.000	N/A	0.93	0.71	0.65	0.76	1.00	0.149	1.25	187.55	1.000	N/A	N/A	N/A
8.038	0.79	0.16	0.88	-0.53	1.00	0.104	82.47	231.15	1.000	N/A	0.93	0.70	0.65	0.76	1.00	0.149	1.42	211.00	1.000	N/A	N/A	N/A
8.202	0.79	0.14	0.90	-0.47	1.00	0.102	76.20	206.99	1.000	N/A	0.93	0.66	0.67	0.78	1.00	0.146	1.70	222.59	1.000	N/A	N/A	N/A
8.366	0.79	0.12	0.91	-0.40	1.00	0.100	69.91	182.80	0.585	N/A	0.93	0.61	0.69	0.79	1.00	0.144	1.89	213.35	1.000	N/A	N/A	N/A
8.530	0.79	0.11	0.91	-0.36	1.00	0.099	66.40	169.27	0.400	N/A	0.92	0.59	0.71	0.80	1.00	0.142	1.79	183.89	1.000	N/A	N/A	N/A
8.694	0.79	0.10	0.92	-0.33	1.00	0.099	63.67	158.76	0.318	N/A	0.92	0.56	0.72	0.80	1.00	0.141	1.63	154.84	0.425	N/A	N/A	N/A
8.858	0.78	0.10	0.92	-0.32	1.00	0.099	63.04	156.33	0.304	N/A	0.92	0.56	0.72	0.80	1.00	0.141	1.61	150.30	0.396	N/A	N/A	N/A
9.022	0.78	0.10	0.92	-0.32	1.00	0.098	63.20	156.96	0.307	N/A	0.92	0.56	0.72	0.80	1.00	0.141	1.51	141.82	0.345	N/A	N/A	N/A
9.186	0.78	0.10	0.92	-0.29	1.00	0.098	60.64	147.10	0.259	N/A	0.92	0.54	0.73	0.81	1.00	0.139	1.64	141.55	0.344	N/A	N/A	N/A
9.350	0.78	0.10	0.92	-0.29	1.00	0.098	60.60	146.95	0.258	N/A	0.92	0.54	0.73	0.81	1.00	0.139	1.53	131.80	0.293	N/A	N/A	N/A
9.514	0.78	0.09	0.93	-0.27	1.00	0.097	58.98	140.69	0.235	N/A	0.92	0.52	0.74	0.81	1.00	0.139	1.61	131.44	0.291	N/A	N/A	N/A
9.678	0.78	0.09	0.93	-0.26	1.00	0.097	58.30	138.08	0.226	N/A	0.91	0.52	0.74	0.81	1.00	0.138	1.57	125.21	0.263	N/A	N/A	N/A
9.842	0.78	0.09	0.93	-0.24	1.00	0.097	57.07	133.34	0.212	N/A	0.91	0.50	0.75	0.81	1.00	0.137	1.58	120.62	0.243	N/A	N/A	N/A
10.006	0.77	0.08	0.93	-0.21	1.00	0.096	55.32	126.60	0.195	N/A	0.91	0.49	0.76	0.82	1.00	0.137	1.59	113.57	0.216	N/A	N/A	N/A
10.170	0.77	0.08	0.93	-0.19	1.00	0.096	53.74	120.52	0.181	N/A	0.91	0.47	0.76	0.82	1.00	0.136	1.60	106.64	0.193	N/A	N/A	N/A
10.335	0.77	0.08	0.93	-0.16	1.00	0.096	52.08	114.11	0.168	N/A	0.91	0.45	0.77	0.83	1.00	0.135	1.65	102.55	0.180	N/A	N/A	N/A
10.499	0.77	0.08	0.94	-0.14	1.00	0.095	51.02	110.06	0.160	N/A	0.91	0.44	0.78	0.83	1.00	0.134	1.69	99.77	0.172	N/A	N/A	N/A
10.663	0.77	0.08	0.94	-0.13	1.00	0.095	50.47	107.93	0.156	N/A	0.91	0.44	0.78	0.83	1.00	0.134	1.61	92.80	0.154	N/A	N/A	N/A
10.827	0.77	0.08	0.94	-0.13	1.00	0.095	50.60	108.44	0.157	N/A	0.91	0.44	0.78	0.83	1.00	0.134	1.71	98.92	0.170	N/A	N/A	N/A
10.991	0.77	0.07	0.94	-0.10	1.00	0.094	48.72	101.18	0.144	N/A	0.90	0.42	0.79	0.84	1.00	0.132	2.02	105.85	0.190	N/A	N/A	N/A
11.155	0.76	0.07	0.94	-0.09	1.00	0.094	48.19	99.15	0.141	N/A	0.90	0.41	0.79	0.84	1.00	0.132	2.00	101.91	0.178	N/A	N/A	N/A
11.319	0.76	0.07	0.94	-0.07	1.00	0.094	47.21	95.39	0.135	N/A	0.90	0.40	0.80	0.84	1.00	0.131	2.58	124.08	0.258	N/A	N/A	N/A
11.483	0.76	0.07	0.94	-0.07	1.00	0.094	47.57	96.78	0.137	N/A	0.90	0.41	0.80	0.84	1.00	0.131	2.69	132.50	0.296	N/A	N/A	N/A
11.647	0.76	0.07	0.94	-0.04	1.00	0.094	46.01	90.76	0.128	N/A	0.90	0.39	0.80	0.84	1.00	0.131	2.93	131.15	0.290	N/A	N/A	N/A
11.811	0.76	0.07	0.94	-0.01	1.00	0.093	44.65	85.51	0.120	N/A	0.90	0.37	0.80	0.84	1.00	0.131	2.92	119.26	0.238	N/A	N/A	N/A
11.975	0.76	0.06	0.95	0.08	1.00	0.093	41.28	72.56	0.103	N/A	0.90	0.32	0.80	0.84	1.00	0.131	3.28	102.45	0.180	N/A	N/A	N/A
12.139	0.76	0.05	0.95	0.10	1.00	0.092	38.06	60.14	0.088	N/A	0.89	0.27	0.80	0.84	1.00	0.131	4.48	98.91	0.170	N/A	N/A	N/A
12.303	0.76	0.05	0.95	0.10	1.00	0.092	37.83	59.26	0.087	N/A	0.89	0.27	0.80	0.84	1.00	0.131	4.91	105.21	0.188	N/A	N/A	N/A
12.467	0.75	0.06	0.95	0.10	1.00	0.092	38.70	62.63	0.091	N/A	0.89	0.28	0.80	0.84	1.00	0.131	4.59	109.84	0.203	N/A	N/A	N/A
12.631	0.75	0.05	0.95	0.10	1.00	0.091	36.84	55.45	0.083	N/A	0.89	0.25	0.80	0.83	1.00	0.131	6.08	113.15	0.215	N/A	N/A	N/A
12.795	0.75	0.05	0.96	0.10	1.00	0.091	34.97	48.26	0.076	N/A	0.89	0.21	0.80	0.83	1.00	0.130	8.40	111.65	0.209	N/A	N/A	N/A
12.959	0.75	0.05	0.96	0.10	1.00	0.091	35.10	48.76	0.076	N/A	0.89	0.21	0.80	0.83	1.00	0.130	7.99	109.03	0.201	N/A	N/A	N/A
13.123	0.75	0.05	0.96	0.10	1.00	0.090	34.35	45.88	0.074	N/A	0.89	0.20	0.80	0.83	1.00	0.130	8.74	100.69	0.175	N/A	N/A	N/A
13.287	0.75	0.05	0.95	0.10	1.00	0.091	37.00	56.07	0.084	N/A	0.89	0.25	0.80	0.83	1.00	0.130	4.51	85.92	0.139	N/A	N/A	N/A
13.451	0.75	0.05	0.95	0.10	1.00	0.091	36.70	56.40	0.084	N/A	0.88	0.26	0.80	0.83	1.00	0.130	4.57	90.05	0.148	N/A	N/A	N/A
13.615	0.74	0.05	0.95	0.10	1.00	0.090	35.61	52.16	0.080	N/A	0.88	0.23	0.80	0.83	1.00	0.130	5.70	94.32	0.158	N/A	N/A	N/A
13.779	0.74	0.05	0.95	0.10	1.00	0.090	35.23	50.67	0.078	N/A	0.88	0.23	0.80	0.83	1.00	0.130	6.32	97.62	0.167	N/A	N/A	N/A
13.943	0.74	0.05	0.95	0.10	1.00	0.090	37.43	59.25	0.087	N/A	0.88	0.27	0.80	0.83	1.00	0.130	3.63	79.09	0.126	N/A	N/A	N/A
14.107	0.74	0.06	0.95	0.10	1.00	0.090	38.48	63.33	0.092	N/A	0.88	0.29	0.80	0.83	1.00	0.130	3.59	89.28	0.146	N/A	N/A	N/A
14.271	0.74	0.05	0.96	0.10	1.00	0.089	28.13	39.81	0.068	N/A	0.88	0.20	0.80	0.83	1.00	0.130	7.33	85.69	0.139	N/A	N/A	N/A
14.436	0.74	0.04	0.96	0.10	1.00	0.089	26.66	33.22	0.063	N/A	0.88	0.15	0.80	0.83	1.00	0.130	11.94	78.30	0.125	N/A	N/A	N/A
14.600	0.74	0.05	0.96	0.10	1.00	0.089	27.97	39.07	0.068	N/A	0.87	0.19	0.80	0.83	1.00	0.130	6.56	72.84	0.116	N/A	N/A	N/A
14.764	0.73	0.05	0.95	0.10	1.00	0.089	29.53	46.10	0.074	N/A	0.87	0.24	0.80	0.83	1.00	0.129	5.23	86.71	0.141	N/A	N/A	N/A
14.928	0.73	0.05	0.95	0.10	1.00	0.089	29.22	44.70	0.073	N/A	0.87	0.23	0.80	0.82	1.00	0.129	6.10	94.34	0.158	N/A	N/A	N/A
15.092	0.73	0.05	0.95	0.10	1.00	0.089	28.26	40.38	0.069	N/A	0.87	0.20	0.80	0.82	1.00	0.129	7.20	87.35	0.142	N/A	N/A	N/A

Liquefaction Triggering Analyses Using SPT Data

Idriss & Boulanger (2008) CN	qc1 (TSF)	qc1 (MPa)	qc1N	Depth at time of SPT (ft)	Field Blow Count, N (from 2.5in OD)	Rod Length Correction Factor, C_R	N_{60}	$(N_1)_{60}$ (blows/ft)	Relative Density D_R	m	SPT Correction Factor C_N	Idriss & Boulanger (2008) $\Delta(N_1)_{60}$	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'=1atm	FoS	Youd et al. (2001) α	β	$(N_1)_{60cs}$ (blows/ft)	(CRR) M=7.5, σ'=1atm	FoS	Average FoS
1.70	33.28	3.19	40.76	0.164		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	78.90	7.55	96.62	0.328		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	192.77	18.46	236.04	0.492		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	177.02	16.95	216.77	0.656		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	241.62	23.13	295.86	0.820		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	396.87	38.00	485.97	0.984		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	419.33	40.15	513.48	1.148		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	558.79	53.50	684.24	1.312		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	633.85	60.68	776.15	1.476		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	569.36	54.51	697.19	1.640		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.70	549.61	52.62	673.00	1.804		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.66	535.98	51.32	656.32	1.968		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.62	527.21	50.47	645.57	2.133		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.60	544.48	52.13	666.72	2.297		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.57	591.53	56.63	724.33	2.461		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.54	484.67	46.40	593.48	2.625		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.52	359.93	34.46	440.73	2.789		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.50	220.12	21.07	269.54	2.953		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.60	170.92	16.36	209.29	3.117		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.67	146.93	14.07	179.92	3.281		0.75	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.67	140.32	13.43	171.82	3.445		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.42	219.19	20.99	268.40	3.609		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.41	299.04	28.63	366.17	3.773		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.39	398.96	38.20	488.53	3.937		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.38	407.58	39.02	499.09	4.101		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.37	293.09	28.06	358.89	4.265		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.35	254.40	24.36	311.52	4.429		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.34	252.31	24.16	308.95	4.593		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.33	221.11	21.17	270.75	4.757		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.37	179.69	17.20	220.04	4.921		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.33	194.04	18.58	237.60	5.085		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.32	192.79	18.46	236.07	5.249		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.36	165.98	15.89	203.24	5.413		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.38	152.58	14.58	186.45	5.577		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.37	149.86	14.35	183.50	5.741		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.41	126.59	12.12	155.01	5.905		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.40	121.20	11.60	148.41	6.069	24	0.80	18	13	0.56	0.49	0.71	5.6	18.1	0.18	N/A	5.00	1.20	20.01	0.216	N/A	N/A
1.44	102.80	9.84	125.88	6.234		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.42	102.66	9.83	125.71	6.398		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.40	102.54	9.82	125.56	6.562		0.80	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.39	102.14	9.78	125.07	6.726		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.37	106.68	10.21	130.63	6.890		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.35	107.61	10.30	131.77	7.054		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.34	107.66	10.31	131.82	7.218		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.33	102.43	9.81	125.42	7.382		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.33	98.18	9.40	120.22	7.546		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.31	103.66	9.92	126.93	7.710		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.26	122.23	11.70	149.67	7.874		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.26	121.42	11.62	148.68	8.038		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.27	106.81	10.23	130.79	8.202		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.28	92.19	8.83	112.88	8.366		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.28	84.01	8.04	102.87	8.530		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.28	77.65	7.43	95.09	8.694		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.27	76.19	7.29	93.29	8.858		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.26	76.57	7.33	93.76	9.022		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.26	70.60	6.76	86.45	9.186		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.24	70.51	6.75	86.34	9.350		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.24	66.73	6.39	81.71	9.514		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.23	65.15	6.24	79.78	9.678		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.22	62.29	5.96	76.27	9.842		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.22	58.21	5.57	71.28	10.006		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.21	54.54	5.22	66.78	10.170		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.21	50.66	4.85	62.04	10.335		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.20	48.21	4.62	59.04	10.499		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.19	46.92	4.49	57.46	10.663		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.18	47.23	4.52	57.83	10.827		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.17	42.84	4.10	52.46	10.991	10	0.85	8	5	0.34	0.61	0.59	5.6	10.3	0.12	N/A	5.00	1.20	10.58	0.118	N/A	N/A
1.16	41.62	3.98	50.96	11.155		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.16	39.34	3.77	48.18	11.319		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.14	40.19	3.85	49.21	11.483		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.14	36.55	3.50	44.75	11.647		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.13	33.37	3.19	40.86	11.811		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.13	25.54	2.45	31.28	11.975		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.13	18.03	1.73	22.08	12.139		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.12	17.50	1.68	21.43	12.303		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.10	19.54	1.87	23.92	12.467		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.10	15.20	1.45	18.61	12.631		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.08	10.85	1.04	13.29	12.795		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.07	11.15	1.07	13.65	12.959		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.06	9.41	0.90	11.53	13.123		0.85	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.05	15.57	1.49	19.07	13.287		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.04	16.09	1.54	19.70	13.451		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.03	13.51	1.29	16.55	13.615		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.03	12.61	1.21	15.44	13.779		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.02	17.82	1.71	21.82	13.943		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.01	20.29	1.94	24.84	14.107		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
1.00	9.54	0.91	11.68	14.271		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.99	5.36	0.51	6.56	14.436		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.98	9.07	0.87	11.11	14.600		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.97	13.53	1.30	16.57	14.764		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.97	12.64	1.21	15.48	14.928		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
0.96	9.90	0.95	12.12	15.092		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-

15.256	6944.26	12.0	0.340	12.1	-0.2	-0.08	2.82%	Coarse Tailings	0.054	108.1	0.87	0.000	0.87	0	0.95	11.463	1.10	14.03	13	3.04%	2.9	21%	2.16	0.000	2.16	0	0	0.73	0.05	0.95	0.10	1.00	0.089	28.81	42.84	0.071	N/A	0.87	0.22	0.80	0.82	1.00	0.129	5.81	81.57	0.130	N/A	N/A	N/A	0.95	11.46	1.10	14.03	15.256		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.420	6944.10	21.4	0.407	21.4	1.1	0.49	1.90%	Coarse Tailings	0.054	108.1	0.88	0.000	0.88	0	0.95	20.253	1.94	24.81	23	1.98%	2.6	21%	2.17	0.000	2.17	0	0	0.73	0.06	0.95	0.10	1.00	0.089	31.90	56.70	0.084	N/A	0.87	0.29	0.80	0.82	1.00	0.129	3.28	81.27	0.130	N/A	N/A	N/A	0.95	20.26	1.94	24.81	15.420		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.584	6943.94	31.8	0.676	31.8	1.3	0.57	2.13%	Coarse Tailings	0.054	108.1	0.89	0.000	0.89	0	0.94	30.000	2.87	36.74	35	2.19%	2.5	21%	2.18	0.000	2.18	0	0	0.73	0.06	0.94	0.03	1.00	0.090	35.32	72.06	0.102	N/A	0.87	0.35	0.80	0.82	1.00	0.129	2.67	98.11	0.168	N/A	N/A	N/A	0.94	30.01	2.87	36.74	15.584		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.748	6943.77	31.4	0.864	31.4	0.9	0.41	2.75%	Coarse Tailings	0.054	108.1	0.90	0.000	0.90	0	0.94	29.429	2.82	36.04	34	2.83%	2.6	21%	2.19	0.000	2.19	0	0	0.73	0.06	0.94	0.04	1.00	0.089	35.12	71.16	0.101	N/A	0.87	0.35	0.80	0.82	1.00	0.129	3.09	111.30	0.208	N/A	N/A	N/A	0.94	29.43	2.82	36.04	15.748		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
15.912	6943.61	26.4	0.931	26.4	0.6	0.24	3.53%	Coarse Tailings	0.054	108.1	0.91	0.000	0.91	0	0.93	24.471	2.34	29.97	28	3.65%	2.7	21%	2.20	0.000	2.20	0	0	0.72	0.06	0.94	0.10	1.00	0.089	33.38	63.35	0.092	N/A	0.86	0.32	0.80	0.82	1.00	0.129	3.96	118.61	0.235	N/A	N/A	N/A	0.93	24.47	2.34	29.97	15.912		0.95	-	-	-	-	-	-	-	-	-	3.73	1.08	-	0.000	-	-
16.076	6943.44	23.6	0.968	23.6	0.1	0.04	4.11%	Fine Alluvium	0.060	120.7	0.92	0.000	0.92	0	0.92	21.645	2.07	26.50	25	4.27%	2.8	76%	2.21	0.000	2.21	1	0	0.72	0.06	0.94	0.10	1.00	0.089	39.21	65.71	0.094	N/A	0.86	0.30	0.80	0.82	1.00	0.129	4.63	122.68	0.252	N/A	N/A	N/A	0.92	21.65	2.07	26.50	16.076		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
16.240	6943.28	25.3	0.999	25.3	0.3	0.14	3.95%	Fine Alluvium	0.060	120.7	0.93	0.000	0.93	0	0.91	23.067	2.21	28.25	26	4.10%	2.7	76%	2.22	0.000	2.22	1	0	0.72	0.06	0.94	0.10	1.00	0.089	39.81	68.06	0.097	N/A	0.86	0.31	0.80	0.82	1.00	0.129	4.37	123.44	0.255	N/A	N/A	N/A	0.91	23.07	2.21	28.25	16.240		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
16.404	6943.12	44.4	1.335	44.4	0.9	0.39	3.01%	Fine Alluvium	0.060	120.7	0.94	0.000	0.94	0	0.92	40.663	3.89	49.80	46	3.07%	2.5	76%	2.23	0.000	2.23	1	0	0.72	0.07	0.93	-0.07	1.00	0.090	47.30	97.10	0.138	N/A	0.86	0.41	0.80	0.82	1.00	0.129	2.69	133.81	0.303	N/A	N/A	N/A	0.92	40.67	3.89	49.80	16.404		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
16.568	6942.95	60.0	1.871	60.0	1.5	0.63	3.12%	Fine Alluvium	0.060	120.7	0.95	0.000	0.95	0	0.92	55.082	5.28	67.46	62	3.17%	2.4	76%	2.24	0.000	2.24	1	0	0.72	0.08	0.92	-0.18	1.00	0.091	53.43	120.89	0.181	N/A	0.86	0.47	0.76	0.79	1.00	0.133	2.32	156.31	0.435	N/A	N/A	N/A	0.92	55.09	5.27	67.46	16.568		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
16.732	6942.79	58.5	2.250	58.5	0.7	0.29	3.85%	Fine Alluvium	0.060	120.7	0.96	0.000	0.96	0	0.91	53.298	5.11	65.27	60	3.91%	2.5	76%	2.25	0.000	2.25	1	0	0.72	0.08	0.92	-0.17	1.00	0.090	52.67	117.94	0.175	N/A	0.86	0.47	0.77	0.79	1.00	0.133	2.66	173.77	1.000	N/A	N/A	N/A	0.91	53.30	5.10	65.27	16.732		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
16.896	6942.62	54.3	2.224	54.3	0.4	0.18	4.10%	Fine Alluvium	0.060	120.7	0.97	0.000	0.97	0	0.90	49.082	4.70	60.10	55	4.17%	2.5	76%	2.26	0.000	2.26	1	0	0.72	0.08	0.92	-0.14	1.00	0.090	50.88	110.98	0.162	N/A	0.86	0.45	0.78	0.80	1.00	0.131	2.89	173.88	1.000	N/A	N/A	N/A	0.90	49.08	4.70	60.10	16.896		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.060	6942.46	59.9	2.003	59.9	0.8	0.35	3.35%	Fine Alluvium	0.060	120.7	0.98	0.000	0.98	0	0.90	53.943	5.17	66.06	60	3.40%	2.4	76%	2.27	0.000	2.27	1	0	0.72	0.08	0.92	-0.18	1.00	0.090	52.95	119.01	0.177	N/A	0.85	0.47	0.77	0.79	1.00	0.133	2.45	162.13	1.000	N/A	N/A	N/A	0.90	53.95	5.16	66.06	17.060		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.224	6942.30	41.2	1.606	41.2	-0.1	-0.02	3.90%	Fine Alluvium	0.060	120.7	0.99	0.000	0.99	0	0.88	36.377	3.48	44.54	41	4.00%	2.6	76%	2.28	0.000	2.28	1	0	0.71	0.07	0.93	-0.03	1.00	0.089	45.47	90.02	0.127	N/A	0.85	0.39	0.80	0.81	1.00	0.128	3.35	149.04	0.388	N/A	N/A	N/A	0.88	36.38	3.48	44.54	17.224		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.388	6942.13	29.4	1.467	29.4	0.0	0.00	4.99%	Fine Alluvium	0.060	120.7	1.00	0.000	1.00	0	0.87	25.481	2.44	31.20	29	5.17%	2.8	76%	2.29	0.000	2.29	1	0	0.71	0.06	0.94	0.08	1.00	0.088	40.84	72.04	0.102	N/A	0.85	0.32	0.80	0.81	1.00	0.128	4.72	147.26	0.377	N/A	N/A	N/A	0.87	25.48	2.44	31.20	17.388		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.552	6941.97	27.0	1.551	27.0	-0.2	-0.10	5.74%	Fine Alluvium	0.060	120.7	1.01	0.000	1.01	0	0.86	23.194	2.22	28.40	26	5.96%	2.9	76%	2.30	0.000	2.30	1	0	0.71	0.06	0.94	0.10	1.00	0.087	39.87	68.27	0.097	N/A	0.85	0.30	0.80	0.81	1.00	0.128	5.37	152.54	0.410	N/A	N/A	N/A	0.86	23.19	2.22	28.40	17.552		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.716	6941.80	27.7	1.511	27.7	-0.3	-0.12	5.45%	Fine Alluvium	0.060	120.7	1.01	0.000	1.01	0	0.85	23.649	2.27	28.96	26	5.66%	2.8	76%	2.31	0.000	2.31	1	0	0.71	0.06	0.94	0.10	1.00	0.087	40.06	69.02	0.098	N/A	0.85	0.31	0.80	0.81	1.00	0.128	5.18	149.90	0.393	N/A	N/A	N/A	0.85	23.65	2.26	28.96	17.716		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
17.880	6941.64	30.8	1.359	30.9	-0.5	-0.20	4.41%	Fine Alluvium	0.060	120.7	1.02	0.000	1.02	0	0.85	26.222	2.51	32.11	29	4.56%	2.7	76%	2.32	0.000	2.32	1	0	0.71	0.06	0.94	0.08	1.00	0.087	41.15	73.26	0.104	N/A	0.85	0.33	0.80	0.81	1.00	0.128	4.36	140.07	0.336	N/A	N/A	N/A	0.85	26.22	2.51	32.11	17.880		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.044	6941.48	29.3	1.411	29.3	-0.6	-0.26	4.81%	Fine Alluvium	0.060	120.7	1.03	0.000	1.03	0	0.84	24.694	2.37	30.23	27	4.99%	2.8	76%	2.33	0.000	2.33	1	0	0.71	0.06	0.94	0.10	1.00	0.087	40.50	70.74	0.101	N/A	0.85	0.32	0.80	0.81	1.00	0.128	4.74	143.42	0.354	N/A	N/A	N/A	0.84	24.69	2.36	30.23	18.044		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.208	6941.31	27.8	1.449	27.8	-0.2	-0.10	5.21%	Fine Alluvium	0.060	120.7	1.04	0.000	1.04	0	0.83	23.186	2.22	28.39	26	5.42%	2.8	76%	2.34	0.000	2.34	1	0	0.71	0.06	0.94	0.10	1.00	0.087	39.86	68.25	0.097	N/A	0.85	0.31	0.80	0.81	1.00	0.128	5.14	145.89	0.369	N/A	N/A	N/A	0.83	23.19	2.22	28.39	18.208		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.372	6941.15	25.2	1.393	25.2	-0.6	-0.24	5.52%	Fine Alluvium	0.060	120.7	1.05	0.000	1.05	0	0.83	20.823	1.99	25.49	23	5.76%	2.9	76%	2.35	0.000	2.35	1	0	0.70	0.06	0.94	0.10	1.00	0.087	38.86	64.35	0.093	N/A	0.84	0.29	0.80	0.81	1.00	0.127	5.64	143.67	0.356	N/A	N/A	N/A	0.83	20.82	1.99	25.49	18.372		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.537	6940.98	24.2	1.417	24.2	-0.9	-0.41	5.87%	Fine Alluvium	0.060	120.7	1.06	0.000	1.06	0	0.82	19.750	1.89	24.18	22	6.14%	2.9	76%	2.36	0.000	2.36	1	0	0.70	0.06	0.94	0.10	1.00	0.086	38.40	62.58	0.091	N/A	0.84	0.28	0.80	0.81	1.00	0.127	6.00	145.00	0.364	N/A	N/A	N/A	0.82	19.75	1.89	24.18	18.537		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.701	6940.82	24.5	1.328	24.5	-0.9	-0.41	5.43%	Fine Alluvium	0.060	120.7	1.07	0.000	1.07	0	0.81	19.876	1.90	24.33	22	5.68%	2.9	76%	2.37	0.000	2.37	1	0	0.70	0.06	0.94	0.10	1.00	0.086	38.45	62.79	0.091	N/A	0.84	0.28	0.80	0.81	1.00	0.127	5.75	139.96	0.335	N/A	N/A	N/A	0.81	19.87	1.90	24.33	18.701		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
18.865	6940.66	26.0	1.226	26.0	-0.7	-0.30	4.72%	Fine Alluvium	0.060	120.7	1.08	0.000	1.08	0	0.81	21.015	2.01	25.73	23	4.92%	2.8	76%	2.38	0.000	2.38	1	0	0.70	0.06	0.94	0.10	1.00	0.086	38.94	64.67	0.093	N/A	0.84	0.29	0.80	0.81	1.00	0.127	5.19	133.62	0.302	N/A	N/A	N/A	0.81	21.01	2.01	25.73	18.865		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.029	6940.49	28.9	0.978	28.9	-0.7	-0.30	3.38%	Fine Alluvium	0.060	120.7	1.09	0.000	1.09	0	0.81	23.345	2.24	28.58	25	3.51%	2.7	76%	2.39	0.000	2.39	1	0	0.70	0.06	0.94	0.10	1.00	0.086	39.93	68.51	0.098	N/A	0.84	0.31	0.80	0.81	1.00	0.127	4.12	117.68	0.232	N/A	N/A	N/A	0.81	23.34	2.23	28.58	19.029		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.193	6940.33	31.0	0.874	31.0	-0.8	-0.35	2.82%	Fine Alluvium	0.060	120.7	1.10	0.000	1.10	0	0.80	24.954	2.39	30.55	27	2.92%	2.6	76%	2.40	0.000	2.40	1	0	0.70	0.06	0.94	0.09	1.00	0.086	40.61	71.17	0.101	N/A	0.84	0.32	0.80	0.81	1.00	0.127	3.61	110.15	0.204	N/A	N/A	N/A	0.80	24.95	2.39	30.55	19.193		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.357	6940.16	31.0	0.698	31.0	-1.2	-0.53	2.25%	Fine Alluvium	0.060	120.7	1.11	0.000	1.11	0	0.80	24.785	2.37	30.34	27	2.33%	2.6	76%	2.41	0.000	2.41	1	0	0.70	0.06	0.94	0.10	1.00	0.086	40.54	70.88	0.101	N/A	0.84	0.32	0.80	0.81	1.00	0.127	3.24	98.35	0.168	N/A	N/A	N/A	0.80	24.78	2.37	30.34	19.357		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.521	6940.00	31.1	0.725	31.1	-0.8	-0.36	2.33%	Fine Alluvium	0.060	120.7	1.12	0.000	1.12	0	0.79	24.668	2.36	30.20	27	2.42%	2.6	76%	2.42	0.000	2.42	1	0	0.70	0.06	0.94	0.10	1.00	0.086	40.49	70.69	0.100	N/A	0.83	0.32	0.80	0.81	1.00	0.127	3.31	100.10	0.173	N/A	N/A	N/A	0.79	24.66	2.36	30.20	19.521		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.685	6939.84	36.9	0.839	36.9	-0.8	-0.36	2.27%	Fine Alluvium	0.060	120.7	1.13	0.000	1.13	0	0.80	29.359	2.81	35.94	32	2.35%	2.5	76%	2.43	0.000	2.43	1	0	0.69	0.06	0.93	0.04	1.00	0.086	42.49	78.43	0.111	N/A	0.83	0.35	0.80	0.80	1.00	0.127	2.94	105.65	0.190	N/A	N/A	N/A	0.80	29.35	2.81	35.94	19.685		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
19.849	6939.67	39.3	0.802	39.3	-1.0	-0.45	2.04%	Fine Alluvium	0.060	120.7	1.14	0.000	1.14	0	0.79	31.153	2.98	38.14	33	2.10%	2.5	76%	2.44	0.000	2.44	1	0	0.69	0.06	0.93	0.02	1.00	0.086	43.25	81.39	0.115	N/A	0.83	0.36	0.80	0.80	1.00	0.127	2.69	102.66	0.181	N/A	N/A	N/A	0.79	31.15	2.98	38.14	19.849		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.013	6939.51	35.9	0.829	36.0	-1.4	-0.61	2.31%	Fine Alluvium	0.060	120.7	1.15	0.000	1.15	0	0.78	28.193	2.70	34.51	30	2.38%	2.6	76%	2.45	0.000	2.45	1	0	0.69	0.06	0.93	0.06	1.00	0.086	41.99	76.50	0.108	N/A	0.83	0.34	0.80	0.80	1.00	0.127	3.05	105.13	0.188	N/A	N/A	N/A	0.78	28.19	2.70	34.51	20.013		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.177	6939.34	34.6	0.765	34.6	-1.4	-0.59	2.21%	Fine Alluvium	0.060	120.7	1.16	0.000	1.16	0	0.78	26.905	2.58	32.94	29	2.29%	2.6	76%	2.46	0.000	2.46	1	0	0.69	0.06	0.93	0.07	1.00	0.085	41.44	74.38	0.105	N/A	0.83	0.33	0.80	0.80	1.00	0.126	3.08	101.32	0.177	N/A	N/A	N/A	0.78	26.90	2.58	32.94	20.177		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.341	6939.18	32.6	0.648	32.6	-1.2	-0.53	1.99%	Coarse Alluvium	0.056	111.0	1.17	0.000	1.17	0	0.77	25.123	2.41	30.76	27	2.06%	2.6	36%	2.46	0.000	2.46	0	0	0.69	0.06	0.93	0.09	1.00	0.085	40.40	71.16	0.101	N/A	0.83	0.32	0.80	0.80	1.00	0.126	3.05	93.94	0.157	N/A	N/A	N/A	0.77	25.12	2.40	30.76	20.341		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.505	6939.02	32.8	0.561	32.8	-1.3	-0.57	1.71%	Coarse Alluvium	0.056	111.0	1.18	0.000	1.18	0	0.77	25.080	2.40	30.70	27	1.78%	2.5	36%	2.47	0.000	2.47	0	0	0.69	0.06	0.93	0.09	1.00	0.085	40.39	71.09	0.101	N/A	0.83	0.32	0.80	0.80	1.00	0.126	2.86	87.66	0.143	N/A	N/A	N/A	0.77	25.07	2.40	30.70	20.505		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.669	6938.85	37.9	0.629	37.9	-1.5	-0.65	1.66%	Coarse Alluvium	0.056	111.0	1.19	0.000	1.19	0	0.77	29.093	2.79	35.62	31	1.72%	2.5	36%	2.48	0.000	2.48	0	0	0.69	0.06	0.93	0.05	1.00	0.085	42.08	77.70	0.110	N/A	0.83	0.34	0.80	0.80	1.00	0.126	2.57	91.37	0.151	N/A	N/A	N/A	0.77	29.09	2.78	35.62	20.669		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.833	6938.69	44.9	0.630	44.9	-1.2	-0.51	1.40%	Coarse Alluvium	0.056	111.0	1.20	0.000	1.20	0	0.77	34.751	3.33	42.55	36	1.44%	2.4	36%	2.49	0.000	2.49	0	0	0.68	0.07	0.93	-0.01	1.00	0.086	44.47	87.02	0.123	N/A	0.83	0.38	0.80	0.80	1.00	0.126	2.14	90.85	0.150	N/A	N/A	N/A	0.77	34.74	3.33	42.55	20.833		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
20.997	6938.52	50.9	0.570	50.9	-1.2	-0.51	1.12%	Coarse Alluvium	0.056	111.0	1.21	0.000	1.21	0	0.78	39.553	3.79	48.43	41	1.15%	2.3	36%	2.50	0.000	2.50	0	0	0.68	0.07	0.92	-0.06	1.00	0.086	46.50	94.92	0.134	N/A	0.82	0.40	0.80	0.80	1.00	0.126	1.81	87.65	0.143	N/A	N/A	N/A	0.78	39.55	3.79	48.43	20.997	13	0.95	11	6	0.38	0.58	0.52	5.5	11.4	0.13	N/A	5.00	1.20	12.10	0.132	N/A	N/A
21.161	6938.36	58.3	0.634	58.3	-1.1	-0.47	1.09%	Coarse Alluvium	0.056	111.0	1.22	0.000	1.22	0	0.78	45.551	4.36	55.77	47	1.11%	2.2	36%	2.51	0.000	2.51	0	0	0.68	0.07	0.92	-0.11	1.00	0.086	49.03	104.80	0.151	N/A	0.82	0.43	0.78	0.79	1.00	0.128	1.67	92.90	0.155	N/A	N/A	N/A	0.78	45.55	4.36	55.77	21.161		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.325	6938.19	54.6	0.722	54.6	-1.2	-0.53	1.32%	Coarse Alluvium	0.056	111.0	1.23	0.000	1.23	0	0.77	42.168	4.04	51.63	43	1.35%	2.3	36%	2.52	0.000	2.52	0	0	0.68	0.07	0.92	-0.08	1.00	0.086	47.60	99.23	0.141	N/A	0.82	0.41	0.79	0.79	1.00	0.127	1.88	96.85	0.164	N/A	N/A	N/A	0.77	42.16	4.04	51.63	21.325		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.489	6938.03	40.5	0.960	40.5	-1.6	-0.67	2.37%	Coarse Alluvium	0.056	111.0	1.24	0.000	1.24	0	0.75	30.387	2.91	37.20	32	2.45%	2.5	36%	2.53	0.000	2.53	0	0	0.68	0.06	0.93	0.03	1.00	0.085	42.63	79.83	0.112	N/A	0.82	0.35	0.80	0.80	1.00	0.126	2.99	111.28	0.208	N/A	N/A	N/A	0.75	30.38	2.91	37.20	21.489		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.653	6937.87	30.6	1.121	30.6	-1.6	-0.69	3.67%	Coarse Alluvium	0.056	111.0	1.25	0.000	1.25	0	0.73	22.373	2.14	27.39	24	3.82%	2.8	36%	2.54	0.000	2.54	0	0	0.68	0.06	0.94	0.10	1.00	0.084	39.24	66.63	0.095	N/A	0.82	0.30	0.80	0.80	1.00	0.125	4.50	123.25	0.254	N/A	N/A	N/A	0.73	22.37	2.14	27.39	21.653		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.817	6937.70	24.6	1.256	24.6	-1.1	-0.49	5.11%	Coarse Alluvium	0.056	111.0	1.25	0.000	1.25	0	0.72	17.617	1.69	21.57	19	5.38%	2.9	36%	2.55	0.000	2.55	0	0	0.68	0.05	0.94	0.10	1.00	0.083	37.23	58.80	0.087	N/A	0.82	0.27	0.80	0.80	1.00	0.125	6.11	131.72	0.293	N/A	N/A	N/A	0.72	17.61	1.69	21.57	21.817		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
21.981	6937.54	21.5	1.316	21.5	-0.8	-0.33	6.11%	Coarse Alluvium	0.056	111.0	1.26	0.000	1.26	0	0.71	15.313	1.47	18.75	16	6.49%	3.0	36%	2.56	0.000	2.56	0	0	0.68	0.05	0.94	0.10	1.00	0.083	36.26	55.01	0.083	N/A	0.81	0.25	0.80	0.80	1.00	0.125	7.23	135.62	0.312	N/A	N/A	N/A	0.71	15.31	1.47	18.75	21.981		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.145	6937.37	22.1	1.277	22.1	-0.8	-0.35	5.77%	Coarse Alluvium	0.056	111.0	1.27	0.000	1.27	0	0.71	15.637	1.50	19.14	16	6.13%	3.0	36%	2.56	0.000	2.56	0	0	0.67	0.05	0.94	0.10	1.00	0.083	36.40	55.54	0.083	N/A	0.81	0.25	0.80	0.80	1.00	0.125	6.96	133.32	0.300	N/A	N/A	N/A	0.71	15.63	1.50	19.14	22.145		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.309	6937.21	19.2	1.079	19.2	-0.9	-0.39	5.63%	Coarse Alluvium	0.056	111.0	1.28	0.000	1.28	0	0.70	13.484	1.29	16.51	14	6.03%	3.1	36%	2.57	0.000	2.57	0	0	0.67	0.05	0.94	0.10	1.00	0.083	35.49	52.00	0.079	N/A	0.81	0.23	0.80	0.79	1.00	0.125	7.52	124.18	0.258	N/A	N/A	N/A	0.70	13.48	1.29	16.51	22.309		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.473	6937.05	15.4	0.842	15.4	-1.1	-0.47	5.48%	Coarse Alluvium	0.056	111.0	1.29	0.000	1.29	0	0.70	10.738	1.03	13.14	11	5.99%	3.1	36%	2.58	0.000	2.58	0	0	0.67	0.05	0.95	0.10	1.00	0.082	34.33	47.47	0.075	N/A	0.81	0.21	0.80	0.79	1.00	0.125	8.54	112.23	0.211	N/A	N/A	N/A	0.70	10.73	1.03	13.14	22.473		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.638	6936.88	17.2	0.665	17.2	0.2	0.10	3.86%	Coarse Alluvium	0.056	111.0	1.30	0.000	1.30	0	0.70	11.966	1.15	14.65	12	4.18%	3.0	36%	2.59	0.000	2.59	0	0	0.67	0.05	0.94	0.10	1.00	0.082	34.91	49.80	0.077	N/A	0.81	0.22	0.80	0.79	1.00	0.125	6.86	100.59	0.175	N/A	N/A	N/A	0.70	11.97	1.15	14.65	22.638		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.802	6936.72	20.3	0.906	20.3	0.5	0.20	4.46%	Coarse Alluvium	0.056	111.0	1.31	0.000	1.31	0	0.69	14.058	1.35	17.22	15	4.76%	3.0	36%	2.60	0.000	2.60	0	0	0.67	0.05	0.94	0.10	1.00	0.082	35.73	52.95	0.080	N/A	0.81	0.24	0.80	0.79	1.00	0.125	6.61	113.80	0.217	N/A	N/A	N/A	0.69	14.06	1.35	17.22	22.802		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
22.966	6936.55	25.9	1.102	25.9	0.6	0.26	4.25%	Coarse Alluvium	0.056	111.0	1.32	0.000	1.32	0	0.69	17.895	1.71	21.92	19	4.48%	2.9	36%	2.61	0.000	2.61	0	0	0.67	0.05	0.94	0.10	1.00	0.082	37.36	59.27	0.087	N/A	0.81	0.27	0.80	0.79	1.00	0.124	5.57	122.08	0.249	N/A	N/A	N/A	0.69	17.90	1.71	21.92	22.966		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.130	6936.39	33.7	1.157	33.7	0.7	0.30	3.44%	Fine Alluvium	0.060	120.7	1.33	0.000	1.33	0	0.70	23.559	2.26	28.85	24	3.58%	2.7	76%	2.62	0.000	2.62	1	0	0.67	0.06	0.93	0.10	1.00	0.083	40.02	68.88	0.098	N/A	0.81	0.31	0.80	0.79	1.00	0.124	4.27	123.17	0.254	N/A	N/A	N/A	0.70	23.56	2.26	28.85	23.130		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.294	6936.23	36.6	1.110	36.6	0.8	0.35	3.03%	Fine Alluvium	0.060	120.7	1.34	0.000	1.34	0	0.70	25.652	2.46	31.42	26	3.15%	2.7	76%	2.63	0.000	2.63	1	0	0.67	0.06	0.93	0.09	1.00	0.083	40.91	72.33	0.103	N/A	0.80	0.32	0.80	0.79	1.00	0.124	3.81	119.75	0.240	N/A	N/A	N/A	0.70	25.66	2.46	31.42	23.294		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.458	6936.06	35.9	1.006	35.9	0.4	0.18	2.80%	Fine Alluvium	0.060	120.7	1.35	0.000	1.35	0	0.70	24.966	2.39	30.57	26	2.91%	2.7	76%	2.64	0.000	2.64	1	0	0.66	0.06	0.94	0.10	1.00	0.082	40.62	71.20	0.101	N/A	0.80	0.32	0.80	0.79	1.00	0.124	3.73	113.99	0.218	N/A	N/A	N/A	0.70	24.97	2.39	30.57	23.458		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.622	6935.90	35.1	0.856	35.1	0.4	0.16	2.44%	Fine Alluvium	0.060	120.7	1.36	0.000	1.36	0	0.69	24.250	2.32	29.70	25	2.54%	2.6	76%	2.65	0.000	2.65	1	0	0.66	0.06	0.93	0.10	1.00	0.082	40.32	70.01	0.100	N/A	0.80	0.31	0.80	0.79	1.00	0.124	3.54	105.26	0.188	N/A	N/A	N/A	0.69	24.25	2.32	29.70	23.622		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.786	6935.73	34.7	0.921	34.7	0.3	0.12	2.65%	Fine Alluvium	0.060	120.7	1.37	0.000	1.37	0	0.69	23.826	2.28	29.18	24	2.76%	2.7	76%	2.66	0.000	2.66	1	0	0.66	0.06	0.93	0.10	1.00	0.082	40.14	69.31	0.099	N/A	0.80	0.31	0.80	0.79	1.00	0.124	3.74	109.12	0.201	N/A	N/A	N/A	0.69	23.83	2.28	29.18	23.786		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
23.950	6935.57	41.2	1.009	41.2	0.1	0.04	2.45%	Fine Alluvium	0.060	120.7	1.38	0.000	1.38	0	0.69	28.525	2.73	34.93	29	2.54%	2.6	76%	2.67	0.000	2.67	1	0	0.66	0.06	0.93	0.06	1.00	0.082	42.13	77.06	0.109	N/A	0.80	0.34	0.80	0.79	1.00	0.124	3.23	112.74	0.213	N/A	N/A	N/A	0.69	28.52	2.73	34.93	23.950		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.114	6935.41	39.1	1.025	39.1	-0.2	-0.10	2.62%	Fine Alluvium	0.060	120.7	1.39	0.000	1.39	0	0.69	26.830	2.57	32.85	27	2.72%	2.6	76%	2.68	0.000	2.68	1	0	0.66	0.06	0.93	0.08	1.00	0.082	41.41	74.27	0.105	N/A	0.80	0.33	0.80	0.79	1.00	0.124	3.47	113.94	0.218	N/A	N/A	N/A	0.69	26.83	2.57	32.85	24.114		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.278	6935.24	29.4	1.170	29.4	-0.3	-0.12	3.98%	Fine Alluvium	0.060	120.7	1.40	0.000	1.40	0	0.66	19.506	1.87	23.88	20	4.18%	2.8	76%	2.69	0.000	2.69	1	0	0.66	0.05	0.93	0.10	1.00	0.081	38.30	62.18	0.090	N/A	0.80	0.28	0.80	0.79	1.00	0.124	5.18	123.66	0.256	N/A	N/A	N/A	0.66	19.50	1.87	23.88	24.278		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.442	6935.08	29.3	1.279	29.3	-1.0	-0.43	4.37%	Fine Alluvium	0.060	120.7	1.41	0.000	1.41	0	0.66	19.305	1.85	23.63	20	4.59%	2.9	76%	2.70	0.000	2.70	1	0	0.66	0.05	0.93	0.10	1.00	0.081	38.21	61.85	0.090	N/A	0.79	0.28	0.80	0.79	1.00	0.123	5.46	129.04	0.280	N/A	N/A	N/A	0.66	19.30	1.85	23.63	24.442		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.606	6934.91	26.3	1.170	26.3	-0.4	-0.18	4.45%	Fine Alluvium	0.060	120.7	1.42	0.000	1.42	0	0.65	17.106	1.64	20.94	18	4.70%	2.9	76%	2.71	0.000	2.71	1	0	0.65	0.05	0.94	0.10	1.00	0.081	37.28	58.22	0.086	N/A	0.79	0.26	0.80	0.79	1.00	0.123	5.91	123.68	0.256	N/A	N/A	N/A	0.65	17.10	1.64	20.94	24.606		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.770	6934.75	25.0	1.222	25.1	-0.4	-0.16	4.88%	Fine Alluvium	0.060	120.7	1.43	0.000	1.43	0	0.65	16.192	1.55	19.83	17	5.17%	3.0	76%	2.72	0.000	2.72	1	0	0.65	0.05	0.94	0.10	1.00	0.081	36.89	56.71	0.084	N/A	0.79	0.26	0.80	0.79	1.00	0.123	6.39	126.71	0.269	N/A	N/A	N/A	0.65	16.19	1.55	19.83	24.770		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
24.934	6934.59	27.3	1.251	27.3	0.1	0.04	4.59%	Fine Alluvium	0.060	120.7	1.44	0.000	1.44	0	0.64	17.574	1.68	21.52	18	4.84%	2.9	76%	2.73	0.000	2.73	1	0	0.65	0.05	0.94	0.10	1.00	0.081	37.48	59.00	0.087	N/A	0.79	0.27	0.80	0.79	1.00	0.123	5.91	127.23	0.272	N/A	N/A	N/A	0.64	17.57	1.68	21.52	24.934		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.098	6934.42	30.7	1.369	30.7	0.8	0.33	4.46%	Fine Alluvium	0.060	120.7	1.45	0.000	1.45	0	0.65	19.896	1.91	24.37	20	4.68%	2.9	76%	2.74	0.000	2.74	1	0	0.65	0.06	0.93	0.10	1.00	0.081	38.47	62.83	0.091	N/A	0.79	0.28	0.80	0.79	1.00	0.123	5.44	132.52	0.296	N/A	N/A	N/A	0.65	19.90	1.91	24.37	25.098		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.262	6934.26	32.3	1.632	32.3	1.9	0.81	5.05%	Fine Alluvium	0.060	120.7	1.46	0.000	1.46	0	0.65	20.911	2.00	25.61	21	5.29%	2.9	76%	2.75	0.000	2.75	1	0	0.65	0.06	0.93	0.10	1.00	0.081	38.90	64.51	0.093	N/A	0.79	0.29	0.80	0.79	1.00	0.123	5.64	144.35	0.360	N/A	N/A	N/A	0.65	20.92	2.00	25.61	25.262		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.426	6934.09	32.9	1.912	32.9	2.2	0.94	5.81%	Fine Alluvium	0.060	120.7	1.47	0.000	1.47	0	0.64	21.205	2.03	25.98	21	6.08%	2.9	76%	2.76	0.000	2.76	1	0	0.65	0.06	0.93	0.10	1.00	0.081	39.03	65.00	0.094	N/A	0.79	0.29	0.80	0.78	1.00	0.123	6.01	156.08	0.434	N/A	N/A	N/A	0.64	21.21	2.03	25.98	25.426		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.590	6933.93	32.3	2.112	32.3	1.9	0.81	6.53%	Fine Alluvium	0.060	120.7	1.48	0.000	1.48	0	0.64	20.678	1.98	25.33	21	6.85%	3.0	76%	2.77	0.000	2.77	1	0	0.65	0.06	0.93	0.10	1.00	0.080	38.80	64.13	0.093	N/A	0.79	0.29	0.80	0.78	1.00	0.123	6.47	163.76	1.000	N/A	N/A	N/A	0.64	20.69	1.98	25.33	25.590		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.754	6933.77	32.0	2.231	32.0	2.3	0.98	6.97%	Fine Alluvium	0.060	120.7	1.49	0.000	1.49	0	0.64	20.347	1.95	24.93	21	7.31%	3.0	76%	2.78	0.000	2.78	1	0	0.65	0.06	0.93	0.10	1.00	0.080	38.66	63.59	0.092	N/A	0.78	0.29	0.80	0.78	1.00	0.122	6.74	167.96	1.000	N/A	N/A	N/A	0.64	20.36	1.95	24.93	25.754		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
25.918	6933.60	34.1	2.200	34.0	2.7	1.18	6.46%	Fine Alluvium	0.060	120.7	1.50	0.000	1.50	0	0.64	21.663	2.07	26.54	22	6.76%	3.0	76%	2.79	0.000	2.79	1	0	0.64	0.06	0.93	0.10	1.00	0.080	39.22	65.76	0.094	N/A	0.78	0.30	0.80	0.78	1.00	0.122	6.29	166.82	1.000	N/A	N/A	N/A	0.64	21.67	2.08	26.54	25.918		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.082	6933.44	33.2	2.324	33.2	6.2	2.70	6.99%	Fine Alluvium	0.060	120.7	1.51	0.000	1.51	0	0.63	20.967	2.01	25.70	21	7.32%	3.0	76%	2.80	0.000	2.80	1	0	0.64	0.06	0.93	0.10	1.00	0.080	38.93	64.64	0.093	N/A	0.78	0.29	0.80	0.78	1.00	0.122	6.66	171.07	1.000	N/A	N/A	N/A	0.63	20.99	2.01	25.70	26.082		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.246	6933.27	32.1	2.416	32.1	4.3	1.85	7.52%	Fine Alluvium	0.060	120.7	1.52	0.000	1.52	0	0.63	20.097	1.93	24.63	20	7.89%	3.0	76%	2.81	0.000	2.81	1	0	0.64	0.06	0.93	0.10	1.00	0.080	38.56	63.19	0.091	N/A	0.78	0.29	0.80	0.78	1.00	0.122	7.06	173.82	1.000	N/A	N/A	N/A	0.63	20.11	1.93	24.63	26.246		0.95	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.410	6933.11	29.5	2.508	29.5	4.7	2.03	8.51%	Fine Alluvium	0.060	120.7	1.53	0.000	1.53	0	0.62	18.161	1.74	22.26	18	8.97%	3.1	76%	2.82	0.000	2.82	1	0	0.64	0.05	0.93	0.10	1.00	0.079	37.74	60.00	0.088	N/A	0.78	0.27	0.80	0.78	1.00	0.122	7.89	175.68	1.000	N/A	N/A	N/A	0.62	18.18	1.74	22.26	26.410		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.574	6932.95	27.5	2.258	27.5	4.2	1.83	8.21%	Fine Alluvium	0.060	120.7	1.54	0.000	1.54	0	0.61	16.764	1.61	20.55	17	8.70%	3.1	76%	2.83	0.000	2.83	1	0	0.64	0.05	0.93	0.10	1.00	0.079	37.14	57.69	0.085	N/A	0.78	0.26	0.80	0.78	1.00	0.122	8.09	166.20	1.000	N/A	N/A	N/A	0.61	16.78	1.61	20.55	26.574		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.739	6932.78	28.3	1.920	28.3	6.6	2.87	6.77%	Fine Alluvium	0.060	120.7	1.55	0.000	1.55	0	0.61	17.190	1.65	21.08	17	7.17%	3.0	76%	2.84	0.000	2.84	1	0	0.64	0.05	0.93	0.10	1.00	0.079	37.33	58.41	0.086	N/A	0.78	0.27	0.80	0.78	1.00	0.122	7.28	153.53	0.417	N/A	N/A	N/A	0.61	17.22	1.65	21.08	26.739		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
26.903	6932.62	27.5	1.700	27.5	3.7	1.59	6.18%	Fine Alluvium	0.060	120.7	1.56	0.000	1.56	0	0.60	16.597	1.59	20.34	17	6.55%	3.0	76%	2.85	0.000	2.85	1	0	0.64	0.05	0.93	0.10	1.00	0.079	37.07	57.41	0.085	N/A	0.78	0.26	0.80	0.78	1.00	0.122	7.12	144.88	0.363	N/A	N/A	N/A	0.60	16.61	1.59	20.34	26.903		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.067	6932.45	28.7	1.585	28.7	3.8	1.63	5.52%	Fine Alluvium	0.060	120.7	1.57	0.000	1.57	0	0.60	17.254	1.65	21.14	17	5.84%	3.0	76%	2.86	0.000	2.86	1	0	0.64	0.05	0.93	0.10	1.00	0.079	37.35	58.49	0.086	N/A	0.77	0.27	0.80	0.78	1.00	0.121	6.60	139.63	0.333	N/A	N/A	N/A	0.60	17.27	1.65	21.14	27.067		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.231	6932.29	27.0	1.592	27.0	3.0	1.28	5.89%	Fine Alluvium	0.060	120.7	1.58	0.000	1.58	0	0.60	16.165	1.55	19.81	16	6.25%	3.0	76%	2.87	0.000	2.87	1	0	0.63	0.05	0.93	0.10	1.00	0.079	36.88	56.69	0.084	N/A	0.77	0.26	0.80	0.78	1.00	0.121	7.08	140.25	0.337	N/A	N/A	N/A	0.60	16.18	1.55	19.81	27.231		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.395	6932.13	25.2	1.527	25.2	2.1	0.91	6.06%	Fine Alluvium	0.060	120.7	1.59	0.000	1.59	0	0.60	14.990	1.44	18.37	15	6.47%	3.1	76%	2.88	0.000	2.88	1	0	0.63	0.05	0.94	0.10	1.00	0.079	36.38	54.75	0.082	N/A	0.77	0.25	0.80	0.78	1.00	0.121	7.51	137.92	0.324	N/A	N/A	N/A	0.60	15.00	1.44	18.37	27.395		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.559	6931.96	24.7	1.450	24.7	1.7	0.75	5.87%	Fine Alluvium	0.060	120.7	1.60	0.000	1.60	0	0.59	14.616	1.40	17.90	14	6.28%	3.1	76%	2.89	0.000	2.89	1	0	0.63	0.05	0.94	0.10	1.00	0.078	36.22	54.13	0.082	N/A	0.77	0.24	0.80	0.78	1.00	0.121	7.52	134.12	0.307	N/A	N/A	N/A	0.59	14.62	1.40	17.90	27.559		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.723	6931.80	25.3	1.423	25.2	1.6	0.71	5.64%	Fine Alluvium	0.060	120.7	1.61	0.000	1.61	0	0.59	14.881	1.43	18.23	15	6.02%	3.0	76%	2.90	0.000	2.90	1	0	0.63	0.05	0.94	0.10	1.00	0.078	36.34	54.56	0.082	N/A	0.77	0.25	0.80	0.78	1.00	0.121	7.31	133.18	0.300	N/A	N/A	N/A	0.59	14.89	1.43	18.23	27.723		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
27.887	6931.63	23.9	1.336	23.9	1.5	0.63	5.59%	Fine Alluvium	0.060	120.7	1.62	0.000	1.62	0	0.59	14.023	1.34	17.18	14	5.99%	3.1	76%	2.91	0.000	2.91	1	0	0.63	0.05	0.94	0.10	1.00	0.078	35.97	53.15	0.081	N/A	0.77	0.24	0.80	0.78	1.00	0.121	7.55	129.64	0.283	N/A	N/A	N/A	0.59	14.03	1.34	17.18	27.887		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.051	6931.47	24.2	1.264	24.2	1.8	0.77	5.23%	Fine Alluvium	0.060	120.7	1.63	0.000	1.63	0	0.58	14.108	1.35	17.28	14	5.61%	3.0	76%	2.92	0.000	2.92	1	0	0.63	0.05	0.94	0.10	1.00	0.078	36.01	53.29	0.081	N/A	0.77	0.24	0.80	0.78	1.00	0.121	7.30	126.21	0.267	N/A	N/A	N/A	0.58	14.11	1.35	17.28	28.051		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.215	6931.31	23.9	1.084	23.9	2.1	0.89	4.53%	Fine Alluvium	0.060	120.7	1.63	0.000	1.63	0	0.58	13.891	1.33	17.02	14	4.87%	3.0	76%	2.93	0.000	2.93	1	0	0.63	0.05	0.94	0.10	1.00	0.078	35.51	52.93	0.080	N/A	0.76	0.24	0.80	0.77	1.00	0.121	6.92	117.71	0.232	N/A	N/A	N/A	0.58	13.90	1.33	17.02	28.215		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.379	6931.14	21.0	0.848	21.0	2.9	1.24	4.03%	Fine Alluvium	0.060	120.7	1.64	0.000	1.64	0	0.58	12.165	1.17	14.91	12	4.37%	3.0	76%	2.94	0.000	2.94	1	0	0.62	0.05	0.94	0.10	1.00	0.077	35.18	50.09	0.078	N/A	0.76	0.22	0.80	0.77	1.00	0.120	7.15	106.54	0.192	N/A	N/A	N/A	0.58	12.18	1.17	14.91	28.379		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.543	6930.98	20.6	0.672	20.6	3.2	1.38	3.26%	Fine Alluvium	0.060	120.7	1.65	0.000	1.65	0	0.58	11.855	1.14	14.53	11	3.55%	3.0	76%	2.95	0.000	2.95	1	0	0.62	0.05	0.94	0.10	1.00	0.077	35.05	49.58	0.077	N/A	0.76	0.22	0.80	0.77	1.00	0.120	6.64	96.50	0.164	N/A	N/A	N/A	0.58	11.87	1.14	14.53	28.543		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.707	6930.81	19.7	0.639	19.6	3.9	1.67	3.25%	Fine Alluvium	0.060	120.7	1.66	0.000	1.66	0	0.57	11.249	1.08	13.79	11	3.55%	3.0	76%	2.96	0.000	2.96	1	0	0.62	0.05	0.94	0.10	1.00	0.077	34.79	48.59	0.076	N/A	0.76	0.21	0.80	0.77	1.00	0.120	6.88	94.82	0.159	N/A	N/A	N/A	0.57	11.26	1.08	13.79	28.707		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
28.871	6930.65	23.5	0.753	23.5	3.9	1.69	3.20%	Fine Alluvium	0.060	120.7	1.67	0.000	1.67	0	0.57	13.416	1.29	16.45	13	3.44%	2.9	76%	2.97	0.000	2.97	1	0	0.62	0.05	0.94	0.10	1.00	0.077	35.72	52.16	0.080	N/A	0.76	0.23	0.80	0.77	1.00	0.120	6.07	99.89	0.173	N/A	N/A	N/A	0.57	13.43	1.29	16.45	28.871		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.035	6930.48	23.5	0.828	23.5	4.3	1.85	3.53%	Fine Alluvium	0.060	120.7	1.68	0.000	1.68	0	0.57	13.321	1.28	16.33	13	3.80%	3.0	76%	2.98	0.000	2.98	1	0	0.62	0.05	0.94	0.10	1.00	0.077	35.68	52.01	0.079	N/A	0.76	0.23	0.80	0.77	1.00	0.120	6.38	104.11	0.185	N/A	N/A	N/A	0.57	13.34	1.28	16.33	29.035		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.199	6930.32	23.5	0.878	23.5	4.4	1.91	3.73%	Fine Alluvium	0.060	120.7	1.69	0.000	1.69	0	0.57	13.294	1.27	16.30	13	4.02%	3.0	76%	2.99	0.000	2.99	1	0	0.62	0.05	0.94	0.10	1.00	0.077	35.66	51.96	0.079	N/A	0.76	0.23	0.80	0.77	1.00	0.120	6.55	106.73	0.193	N/A	N/A	N/A	0.57	13.31	1.27	16.30	29.199		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.363	6930.16	25.8	0.870	25.8	4.7	2.05	3.37%	Fine Alluvium	0.060	120.7	1.70	0.000	1.70	0	0.56	14.488	1.39	17.76	14	3.61%	2.9	76%	3.00	0.000	3.00	1	0	0.62	0.05	0.94	0.10	1.00	0.077	36.17	53.93	0.081	N/A	0.76	0.24	0.80	0.77	1.00	0.120	6.30	106.24	0.191	N/A	N/A	N/A	0.56	14.50	1.39	17.76	29.363		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.527	6929.99	22.8	0.850	22.8	5.2	2.26	3.73%	Fine Alluvium	0.060	120.7	1.71	0.000	1.71	0	0.56	12.742	1.22	15.63	12	4.03%	3.0	76%	3.01	0.000	3.01	1	0	0.62	0.05	0.94	0.10	1.00	0.076	35.43	51.06	0.079	N/A	0.75	0.23	0.80	0.77	1.00	0.120	6.74	105.37	0.189	N/A	N/A	N/A	0.56	12.76	1.22	15.63	29.527		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.691	6929.83	20.5	0.682	20.5	6.1	2.62	3.33%	Fine Alluvium	0.060	120.7	1.72	0.000	1.72	0	0.56	11.408	1.09	14.00	11	3.63%	3.0	76%	3.02	0.000	3.02	1	0	0.62	0.05	0.94	0.10	1.00	0.076	34.86	48.86	0.076	N/A	0.75	0.21	0.80	0.77	1.00	0.119	6.91	96.70	0.164	N/A	N/A	N/A	0.56	11.43	1.09	14.00	29.691		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
29.855	6929.66	33.0	0.779	33.0	6.7	2.91	2.36%	Fine Alluvium	0.060	120.7	1.73	0.000	1.73	0	0.56	18.442	1.77	22.61	18	2.49%	2.7	76%	3.03	0.000	3.03	1	0	0.62	0.06	0.93	0.10	1.00	0.077	37.86	60.47	0.088	N/A	0.75	0.27	0.80	0.77	1.00	0.119	4.31	97.40	0.166	N/A	N/A	N/A	0.56	18.47	1.77	22.61	29.855		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.019	6929.50	36.2	0.900	36.1	5.9	2.56	2.49%	Fine Alluvium	0.060	120.7	1.74	0.000	1.74	0	0.56	20.370	1.95	24.97	20	2.61%	2.7	76%	3.04	0.000	3.04	1	0	0.61	0.06	0.93	0.10	1.00	0.077	38.68	63.64	0.092	N/A	0.75	0.29	0.80	0.77	1.00	0.119	4.16	103.84	0.184	N/A	N/A	N/A	0.56	20.39	1.95	24.97	30.019		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.183	6929.34	33.8	1.049	33.8	5.1	2.20	3.10%	Fine Alluvium	0.060	120.7	1.75	0.000	1.75	0	0.56	18.780	1.80	23.02	18	3.27%	2.8	76%	3.05	0.000	3.05	1	0	0.61	0.06	0.93	0.10	1.00	0.077	38.00	61.02	0.089	N/A	0.75	0.28	0.80	0.77	1.00	0.119	4.85	111.71	0.210	N/A	N/A	N/A	0.56	18.80	1.80	23.02	30.183		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.347	6929.17	27.8	0.961	27.8	4.7	2.05	3.45%	Fine Alluvium	0.060	120.7	1.76	0.000	1.76	0	0.55	15.222	1.46	18.66	15	3.69%	2.9	76%	3.06	0.000	3.06	1	0	0.61	0.05	0.93	0.10	1.00	0.076	36.48	55.14	0.083	N/A	0.75	0.25	0.80	0.77	1.00	0.119	5.83	108.71	0.199	N/A	N/A	N/A	0.55	15.24	1.46	18.66	30.347		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.511	6929.01	20.7	0.806	20.7	4.2	1.83	3.89%	Fine Alluvium	0.060	120.7	1.77	0.000	1.77	0	0.55	11.295	1.08	13.85	11	4.25%	3.1	76%	3.07	0.000	3.07	1	0	0.61	0.05	0.94	0.10	1.00	0.075	34.81	48.66	0.076	N/A	0.75	0.21	0.80	0.77	1.00	0.119	7.46	103.29	0.182	N/A	N/A	N/A	0.55	11.31	1.08	13.85	30.511		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.675	6928.84	18.8	0.770	18.7	5.7	2.48	4.10%	Fine Alluvium	0.060	120.7	1.78	0.000	1.78	0	0.54	10.176	0.97	12.48	10	4.53%	3.1	76%	3.08	0.000	3.08	1	0	0.61	0.05	0.94	0.10	1.00	0.075	34.34	46.82	0.075	N/A	0.74	0.20	0.80	0.77	1.00	0.119	8.16	101.89	0.178	N/A	N/A	N/A	0.54	10.20	0.98	12.48	30.675		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
30.840	6928.68	19.9	0.713	19.9	6.1	2.62	3.58%	Fine Alluvium	0.060	120.7	1.79	0.000	1.79	0	0.54	10.754	1.03	13.19	10	3.93%	3.1	76%	3.09	0.000	3.09	1	0	0.61	0.05	0.94	0.10	1.00	0.075	34.59	47.78	0.075	N/A	0.74	0.21	0.80	0.77	1.00	0.118	7.45	98.27	0.168	N/A	N/A	N/A	0.54	10.77	1.03	13.19	30.840		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.004	6928.52	20.5	0.873	20.5	6.8	2.93	4.26%	Fine Alluvium	0.060	120.7	1.80	0.000	1.80	0	0.54	11.014	1.06	13.52	10	4.67%	3.1	76%	3.09	0.000	3.09	1	0	0.61	0.05	0.94	0.10	1.00	0.075	34.70	48.21	0.076	N/A	0.74	0.21	0.80	0.77	1.00	0.118	7.89	106.65	0.193	N/A	N/A	N/A	0.54	11.04	1.06	13.52	31.004	14	1.00	13	6	0.38	0.58	0.46	5.6	11.5	0.13	N/A	5.00	1.20	12.10	0.132	N/A	N/A
31.168	6928.35	27.6	0.893	27.5	7.8	3.38	3.24%	Fine Alluvium	0.060	120.7	1.81	0.000	1.81	0	0.54	14.757	1.41	18.10	14	3.47%	2.9	76%	3.10	0.000	3.10	1	0	0.60	0.05	0.94	0.10	1.00	0.075	36.29	54.39	0.082	N/A	0.74	0.24	0.80	0.77	1.00	0.118	5.80	104.91	0.187	N/A	N/A	N/A	0.54	14.78	1.42	18.10	31.168		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.332	6928.19	39.8	1.185	39.7	8.5	3.68	2.98%	Fine Alluvium	0.060	120.7	1.82	0.000	1.82	0	0.55	21.832	2.09	26.77	21	3.12%	2.8	76%	3.11	0.000	3.11	1	0	0.61	0.06	0.92	0.10	1.00	0.076	39.87	66.67	0.095	N/A	0.74	0.30	0.80	0.76	1.00	0.118	4.39	117.39	0.230	N/A	N/A	N/A	0.55	21.86	2.09	26.77	31.332		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.496	6928.02	39.5	0.814	39.5	8.2	3.54	2.06%	Fine Alluvium	0.060	120.7	1.83	0.000	1.83	0	0.55	21.568	2.07	26.44	21	2.16%	2.7	76%	3.12	0.000	3.12	1	0	0.60	0.06	0.92	0.10	1.00	0.076	39.19	65.63	0.094	N/A	0.74	0.30	0.80	0.76	1.00	0.118	3.71	98.05	0.168	N/A	N/A	N/A	0.55	21.60	2.07	26.44	31.496		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.660	6927.86	47.3	1.258	47.2	8.6	3.72	2.66%	Fine Alluvium	0.060	120.7	1.84	0.000	1.84	0	0.56	26.405	2.53	32.37	25	2.77%	2.7	76%	3.13	0.000	3.13	1	0	0.60	0.06	0.92	0.09	1.00	0.076	41.25	73.62	0.104	N/A	0.73	0.32	0.80	0.76	1.00	0.118	3.72	120.48	0.243	N/A	N/A	N/A	0.56	26.44	2.53	32.37	31.660		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.824	6927.70	51.0	1.648	51.0	8.7	3.78	3.23%	Fine Alluvium	0.060	120.7	1.85	0.000	1.85	0	0.56	28.727	2.75	35.21	27	3.35%	2.7	76%	3.14	0.000	3.14	1	0	0.60	0.06	0.92	0.06	1.00	0.076	42.23	77.45	0.109	N/A	0.73	0.34	0.80	0.76	1.00	0.118	3.92	137.94	0.324	N/A	N/A	N/A	0.56	28.76	2.75	35.21	31.824		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
31.988	6927.53	47.5	1.929	47.5	8.3	3.58	4.06%	Fine Alluvium	0.060	120.7	1.86	0.000	1.86	0	0.55	26.333	2.52	32.28	25	4.22%	2.8	76%	3.15	0.000	3.15	1	0	0.60	0.06	0.92	0.08	1.00	0.076	41.21	73.50	0.104	N/A	0.73	0.33	0.80	0.76	1.00	0.117	4.63	149.36	0.390	N/A	N/A	N/A	0.55	26.36	2.52	32.28	31.988		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.152	6927.37	49.0	1.857	49.0	8.0	3.48	3.79%	Fine Alluvium	0.060	120.7	1.87	0.000	1.87	0	0.55	27.161	2.60	33.29	25	3.94%	2.8	76%	3.16	0.000	3.16	1	0	0.60	0.06	0.92	0.08	1.00	0.076	41.57	74.86	0.106	N/A	0.73	0.33	0.80	0.76	1.00	0.117	4.40	146.37	0.372	N/A	N/A	N/A	0.55	27.19	2.60	33.29	32.152		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.316	6927.20	30.6	1.395	30.6	6.7	2.91	4.55%	Fine Alluvium	0.060	120.7	1.88	0.000	1.88	0	0.52	15.924	1.53	19.53	15	4.85%	3.0	76%	3.17	0.000	3.17	1	0	0.60	0.05	0.93	0.10	1.00	0.074	36.79	56.31	0.084	N/A	0.73	0.26	0.80	0.76	1.00	0.117	6.48	126.62	0.269	N/A	N/A	N/A	0.52	15.95	1.53	19.53	32.316		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.480	6927.04	19.0	0.870	18.9	5.9	2.56	4.59%	Fine Alluvium	0.060	120.7	1.89	0.000	1.89	0	0.52	9.814	0.94	12.04	9	5.10%	3.2	76%	3.18	0.000	3.18	1	0	0.60	0.05	0.94	0.10	1.00	0.074	34.19	46.23	0.074	N/A	0.73	0.20	0.80	0.76	1.00	0.117	8.81	106.11	0.191	N/A	N/A	N/A	0.52	9.83	0.94	12.04	32.480		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.644	6926.88	18.7	0.506	18.7	6.2	2.67	2.70%	Fine Alluvium	0.060	120.7	1.90	0.000	1.90	0	0.52	9.640	0.92	11.83	9	3.01%	3.0	76%	3.19	0.000	3.19	1	0	0.60	0.05	0.94	0.10	1.00	0.074	34.11	45.94	0.074	N/A	0.73	0.20	0.80	0.76	1.00	0.117	7.23	85.47	0.138	N/A	N/A	N/A	0.52	9.66	0.92	11.83	32.644		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

32.808	6926.71	28.5	0.627	28.5	7.0	3.03	2.20%	Fine Alluvium	0.060	120.7	1.91	0.000	1.91	0	0.51	14.650	1.40	17.97	14	2.36%	2.8	76%	3.20	0.000	3.20	1	0	0.59	0.05	0.93	0.10	1.00	0.074	36.24	54.21	0.082	N/A	0.73	0.24	0.80	0.76	1.00	0.117	4.95	88.89	0.145	N/A	N/A	N/A	0.51	14.67	1.40	17.97	32.808		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
32.972	6926.55	42.2	1.018	42.1	7.4	3.19	2.41%	Fine Alluvium	0.060	120.7	1.92	0.000	1.92	0	0.53	22.335	2.14	27.38	21	2.53%	2.7	76%	3.21	0.000	3.21	1	0	0.59	0.06	0.92	0.10	1.00	0.074	39.51	66.89	0.096	N/A	0.73	0.30	0.80	0.76	1.00	0.117	3.95	108.01	0.197	N/A	N/A	N/A	0.53	22.36	2.14	27.38	32.972		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.136	6926.38	43.1	1.298	43.0	6.9	2.97	3.01%	Fine Alluvium	0.060	120.7	1.93	0.000	1.93	0	0.53	22.781	2.18	27.92	21	3.16%	2.7	76%	3.22	0.000	3.22	1	0	0.59	0.06	0.92	0.10	1.00	0.074	39.70	67.63	0.097	N/A	0.72	0.31	0.80	0.76	1.00	0.117	4.35	121.37	0.246	N/A	N/A	N/A	0.53	22.80	2.18	27.92	33.136		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.300	6926.22	25.5	1.238	25.4	6.0	2.60	4.86%	Fine Alluvium	0.060	120.7	1.94	0.000	1.94	0	0.51	12.920	1.24	15.84	12	5.26%	3.1	76%	3.23	0.000	3.23	1	0	0.59	0.05	0.93	0.10	1.00	0.073	35.51	51.35	0.079	N/A	0.72	0.23	0.80	0.76	1.00	0.116	7.64	120.97	0.245	N/A	N/A	N/A	0.51	12.94	1.24	15.84	33.300		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.464	6926.06	22.8	1.203	22.8	6.0	2.58	5.28%	Fine Alluvium	0.060	120.7	1.95	0.000	1.95	0	0.51	11.513	1.10	14.12	11	5.77%	3.1	76%	3.24	0.000	3.24	1	0	0.59	0.05	0.93	0.10	1.00	0.073	34.91	49.03	0.077	N/A	0.72	0.22	0.80	0.76	1.00	0.116	8.50	119.98	0.241	N/A	N/A	N/A	0.51	11.53	1.10	14.12	33.464		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.628	6925.89	32.6	0.992	32.5	6.9	2.97	3.05%	Fine Alluvium	0.060	120.7	1.96	0.000	1.96	0	0.50	16.387	1.57	20.09	16	3.24%	2.9	76%	3.25	0.000	3.25	1	0	0.59	0.05	0.93	0.10	1.00	0.073	36.98	57.07	0.085	N/A	0.72	0.26	0.80	0.76	1.00	0.116	5.32	106.88	0.194	N/A	N/A	N/A	0.50	16.41	1.57	20.09	33.628		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.792	6925.73	58.6	1.213	58.5	7.6	3.29	2.07%	Fine Alluvium	0.060	120.7	1.97	0.000	1.97	0	0.55	32.088	3.07	39.32	29	2.14%	2.5	76%	3.26	0.000	3.26	1	0	0.59	0.06	0.91	0.03	1.00	0.075	43.66	82.98	0.117	N/A	0.72	0.36	0.80	0.76	1.00	0.116	2.98	117.27	0.230	N/A	N/A	N/A	0.55	32.11	3.07	39.32	33.792		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
33.956	6925.56	52.6	1.434	52.5	5.6	2.42	2.73%	Fine Alluvium	0.060	120.7	1.98	0.000	1.98	0	0.54	28.141	2.70	34.48	26	2.84%	2.7	76%	3.27	0.000	3.27	1	0	0.59	0.06	0.91	0.07	1.00	0.074	41.98	76.46	0.108	N/A	0.72	0.34	0.80	0.76	1.00	0.116	3.69	127.13	0.271	N/A	N/A	N/A	0.54	28.16	2.70	34.48	33.956		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.120	6925.40	46.9	1.780	46.9	5.0	2.18	3.80%	Fine Alluvium	0.060	120.7	1.99	0.000	1.99	0	0.52	24.514	2.35	30.04	23	3.97%	2.8	76%	3.28	0.000	3.28	1	0	0.59	0.06	0.92	0.10	1.00	0.074	40.44	70.47	0.100	N/A	0.72	0.32	0.80	0.76	1.00	0.116	4.71	141.34	0.343	N/A	N/A	N/A	0.52	24.53	2.35	30.04	34.120		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.284	6925.24	40.0	1.678	40.0	4.3	1.87	4.20%	Fine Alluvium	0.060	120.7	2.00	0.000	2.00	0	0.51	20.285	1.94	24.86	19	4.42%	2.9	76%	3.29	0.000	3.29	1	0	0.58	0.06	0.92	0.10	1.00	0.073	38.64	63.49	0.092	N/A	0.71	0.29	0.80	0.76	1.00	0.115	5.49	136.34	0.316	N/A	N/A	N/A	0.51	20.30	1.94	24.86	34.284		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.448	6925.07	33.3	1.507	33.3	4.3	1.85	4.53%	Fine Alluvium	0.060	120.7	2.01	0.000	2.01	0	0.49	16.446	1.58	20.15	16	4.82%	3.0	76%	3.30	0.000	3.30	1	0	0.58	0.05	0.93	0.10	1.00	0.073	37.00	57.16	0.085	N/A	0.71	0.26	0.80	0.76	1.00	0.115	6.40	128.93	0.279	N/A	N/A	N/A	0.49	16.46	1.58	20.15	34.448		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.612	6924.91	33.7	1.319	33.7	4.3	1.85	3.91%	Fine Alluvium	0.060	120.7	2.02	0.000	2.02	0	0.49	16.605	1.59	20.35	16	4.16%	2.9	76%	3.31	0.000	3.31	1	0	0.58	0.05	0.93	0.10	1.00	0.073	37.07	57.42	0.085	N/A	0.71	0.26	0.80	0.76	1.00	0.115	5.94	120.93	0.244	N/A	N/A	N/A	0.49	16.62	1.59	20.35	34.612		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.776	6924.74	35.9	1.322	35.9	4.8	2.08	3.68%	Fine Alluvium	0.060	120.7	2.03	0.000	2.03	0	0.49	17.674	1.69	21.66	17	3.90%	2.9	76%	3.32	0.000	3.32	1	0	0.58	0.05	0.92	0.10	1.00	0.073	37.53	59.19	0.087	N/A	0.71	0.27	0.80	0.76	1.00	0.115	5.57	120.64	0.243	N/A	N/A	N/A	0.49	17.69	1.69	21.66	34.776		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
34.941	6924.58	39.2	1.430	39.2	4.7	2.02	3.65%	Fine Alluvium	0.060	120.7	2.04	0.000	2.04	0	0.50	19.498	1.87	23.89	18	3.85%	2.9	76%	3.33	0.000	3.33	1	0	0.58	0.05	0.92	0.10	1.00	0.073	38.30	62.20	0.090	N/A	0.71	0.28	0.80	0.75	1.00	0.115	5.25	125.49	0.264	N/A	N/A	N/A	0.50	19.51	1.87	23.89	34.941		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.105	6924.42	40.2	1.454	40.2	4.4	1.91	3.61%	Fine Alluvium	0.060	120.7	2.05	0.000	2.05	0	0.50	20.003	1.92	24.51	19	3.81%	2.8	76%	3.34	0.000	3.34	1	0	0.58	0.06	0.92	0.10	1.00	0.073	38.52	63.03	0.091	N/A	0.71	0.29	0.80	0.75	1.00	0.115	5.16	126.47	0.268	N/A	N/A	N/A	0.50	20.02	1.92	24.51	35.105		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.269	6924.25	37.2	1.391	37.2	3.8	1.63	3.73%	Fine Alluvium	0.060	120.7	2.06	0.000	2.06	0	0.49	18.202	1.74	22.30	17	3.95%	2.9	76%	3.35	0.000	3.35	1	0	0.58	0.05	0.92	0.10	1.00	0.072	37.75	60.05	0.088	N/A	0.71	0.27	0.80	0.75	1.00	0.115	5.53	123.30	0.254	N/A	N/A	N/A	0.49	18.21	1.74	22.30	35.269		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.433	6924.09	30.9	1.240	30.9	3.6	1.56	4.02%	Fine Alluvium	0.060	120.7	2.07	0.000	2.07	0	0.48	14.907	1.43	18.27	14	4.31%	3.0	76%	3.36	0.000	3.36	1	0	0.58	0.05	0.93	0.10	1.00	0.072	36.35	54.62	0.082	N/A	0.71	0.25	0.80	0.75	1.00	0.114	6.47	118.19	0.234	N/A	N/A	N/A	0.48	14.92	1.43	18.27	35.433		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.597	6923.92	27.0	1.040	27.0	3.4	1.46	3.85%	Fine Alluvium	0.060	120.7	2.08	0.000	2.08	0	0.48	13.008	1.25	15.94	12	4.17%	3.0	76%	3.37	0.000	3.37	1	0	0.58	0.05	0.93	0.10	1.00	0.072	35.54	51.48	0.079	N/A	0.70	0.23	0.80	0.75	1.00	0.114	6.93	110.52	0.206	N/A	N/A	N/A	0.48	13.02	1.25	15.94	35.597		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.761	6923.76	31.7	1.173	31.7	4.0	1.75	3.70%	Fine Alluvium	0.060	120.7	2.09	0.000	2.09	0	0.48	15.194	1.46	18.62	14	3.96%	2.9	76%	3.38	0.000	3.38	1	0	0.57	0.05	0.93	0.10	1.00	0.072	36.47	55.09	0.083	N/A	0.70	0.25	0.80	0.75	1.00	0.114	6.17	114.81	0.221	N/A	N/A	N/A	0.48	15.21	1.46	18.62	35.761		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
35.925	6923.60	38.8	1.560	38.8	5.5	2.40	4.02%	Fine Alluvium	0.060	120.7	2.10	0.000	2.10	0	0.48	18.753	1.80	22.98	17	4.25%	2.9	76%	3.39	0.000	3.39	1	0	0.57	0.05	0.92	0.10	1.00	0.072	37.99	60.97	0.089	N/A	0.70	0.28	0.80	0.75	1.00	0.114	5.65	129.83	0.284	N/A	N/A	N/A	0.48	18.77	1.80	22.98	35.925		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.089	6923.43	39.0	2.078	38.9	6.1	2.62	5.33%	Fine Alluvium	0.060	120.7	2.11	0.000	2.11	0	0.48	18.781	1.80	23.02	17	5.64%	3.0	76%	3.40	0.000	3.40	1	0	0.57	0.05	0.92	0.10	1.00	0.072	38.00	61.02	0.089	N/A	0.70	0.28	0.80	0.75	1.00	0.114	6.46	148.80	0.386	N/A	N/A	N/A	0.48	18.80	1.80	23.02	36.089		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.253	6923.27	38.6	2.170	38.6	6.4	2.79	5.62%	Fine Alluvium	0.060	120.7	2.12	0.000	2.12	0	0.48	18.490	1.77	22.66	17	5.95%	3.0	76%	3.41	0.000	3.41	1	0	0.57	0.05	0.92	0.10	1.00	0.072	37.88	60.54	0.088	N/A	0.70	0.27	0.80	0.75	1.00	0.114	6.69	151.58	0.404	N/A	N/A	N/A	0.48	18.51	1.77	22.66	36.253		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.417	6923.10	34.9	1.888	34.9	5.8	2.50	5.41%	Fine Alluvium	0.060	120.7	2.13	0.000	2.13	0	0.47	16.476	1.58	20.20	15	5.76%	3.0	76%	3.42	0.000	3.42	1	0	0.57	0.05	0.92	0.10	1.00	0.071	37.02	57.21	0.085	N/A	0.70	0.26	0.80	0.75	1.00	0.114	7.00	141.29	0.342	N/A	N/A	N/A	0.47	16.49	1.58	20.20	36.417		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.581	6922.94	23.2	1.308	23.1	4.9	2.11	5.65%	Fine Alluvium	0.060	120.7	2.14	0.000	2.14	0	0.47	10.897	1.04	13.36	10	6.22%	3.2	76%	3.43	0.000	3.43	1	0	0.57	0.05	0.93	0.10	1.00	0.071	34.64	48.01	0.076	N/A	0.70	0.21	0.80	0.75	1.00	0.113	9.15	122.23	0.250	N/A	N/A	N/A	0.47	10.91	1.04	13.36	36.581		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.745	6922.78	16.0	0.879	15.9	4.2	1.83	5.51%	Fine Alluvium	0.060	120.7	2.15	0.000	2.15	0	0.47	7.475	0.72	9.17	6	6.37%	3.3	76%	3.44	0.000	3.44	1	0	0.57	0.04	0.94	0.10	1.00	0.070	33.19	42.36	0.071	N/A	0.69	0.17	0.80	0.75	1.00	0.113	11.41	104.62	0.187	N/A	N/A	N/A	0.47	7.49	0.72	9.17	36.745		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
36.909	6922.61	21.2	0.634	21.2	4.7	2.03	2.99%	Fine Alluvium	0.060	120.7	2.16	0.000	2.16	0	0.47	9.893	0.95	12.13	9	3.33%	3.1	76%	3.45	0.000	3.45	1	0	0.57	0.05	0.93	0.10	1.00	0.070	34.22	46.35	0.074	N/A	0.69	0.20	0.80	0.75	1.00	0.113	7.53	91.37	0.151	N/A	N/A	N/A	0.47	9.91	0.95	12.13	36.909		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.073	6922.45	31.0	0.818	31.0	5.4	2.34	2.64%	Fine Alluvium	0.060	120.7	2.17	0.000	2.17	0	0.47	14.433	1.38	17.69	13	2.84%	2.9	76%	3.46	0.000	3.46	1	0	0.57	0.05	0.93	0.10	1.00	0.071	36.15	53.84	0.081	N/A	0.69	0.24	0.80	0.75	1.00	0.113	5.52	97.65	0.167	N/A	N/A	N/A	0.47	14.45	1.38	17.69	37.073		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.237	6922.28	26.9	0.978	26.9	6.4	2.79	3.63%	Fine Alluvium	0.060	120.7	2.18	0.000	2.18	0	0.46	12.488	1.20	15.31	11	3.95%	3.0	76%	3.47	0.000	3.47	1	0	0.57	0.05	0.93	0.10	1.00	0.070	35.32	50.64	0.078	N/A	0.69	0.23	0.80	0.75	1.00	0.113	6.99	107.01	0.194	N/A	N/A	N/A	0.46	12.51	1.20	15.31	37.237		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.401	6922.12	19.2	0.788	19.1	5.7	2.48	4.11%	Fine Alluvium	0.060	120.7	2.19	0.000	2.19	0	0.46	8.845	0.85	10.85	8	4.64%	3.2	76%	3.48	0.000	3.48	1	0	0.56	0.05	0.93	0.10	1.00	0.070	33.77	44.62	0.073	N/A	0.69	0.19	0.80	0.75	1.00	0.113	9.21	99.90	0.173	N/A	N/A	N/A	0.46	8.86	0.85	10.85	37.401		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.565	6921.95	18.3	0.660	18.2	5.1	2.22	3.61%	Fine Alluvium	0.060	120.7	2.20	0.000	2.20	0	0.46	8.403	0.80	10.31	7	4.11%	3.2	76%	3.49	0.000	3.49	1	0	0.56	0.05	0.93	0.10	1.00	0.070	33.58	43.89	0.072	N/A	0.69	0.19	0.80	0.75	1.00	0.112	9.07	93.47	0.156	N/A	N/A	N/A	0.46	8.42	0.81	10.31	37.565		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.729	6921.79	28.3	0.776	28.3	6.1	2.64	2.74%	Fine Alluvium	0.060	120.7	2.21	0.000	2.21	0	0.46	12.999	1.25	15.94	12	2.97%	2.9	76%	3.50	0.000	3.50	1	0	0.56	0.05	0.93	0.10	1.00	0.070	35.54	51.48	0.079	N/A	0.69	0.23	0.80	0.75	1.00	0.112	6.04	96.34	0.163	N/A	N/A	N/A	0.46	13.02	1.25	15.94	37.729		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
37.893	6921.63	28.7	0.904	28.6	6.3	2.73	3.15%	Fine Alluvium	0.060	120.7	2.22	0.000	2.22	0	0.46	13.100	1.25	16.06	12	3.42%	3.0	76%	3.51	0.000	3.51	1	0	0.56	0.05	0.93	0.10	1.00	0.070	35.58	51.65	0.079	N/A	0.69	0.23	0.80	0.75	1.00	0.112	6.39	102.66	0.181	N/A	N/A	N/A	0.46	13.12	1.26	16.06	37.893		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.057	6921.46	19.3	0.788	19.3	5.7	2.46	4.09%	Fine Alluvium	0.060	120.7	2.23	0.000	2.23	0	0.46	8.781	0.84	10.77	8	4.62%	3.2	76%	3.52	0.000	3.52	1	0	0.56	0.05	0.93	0.10	1.00	0.069	33.75	44.52	0.072	N/A	0.68	0.19	0.80	0.75	1.00	0.112	9.25	99.64	0.172	N/A	N/A	N/A	0.46	8.80	0.84	10.77	38.057		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.221	6921.30	15.1	0.531	15.1	5.3	2.30	3.51%	Fine Alluvium	0.060	120.7	2.24	0.000	2.24	0	0.45	6.869	0.66	8.43	6	4.11%	3.3	76%	3.53	0.000	3.53	1	0	0.56	0.04	0.94	0.10	1.00	0.069	32.93	41.36	0.070	N/A	0.68	0.17	0.80	0.75	1.00	0.112	10.29	86.73	0.141	N/A	N/A	N/A	0.45	6.88	0.66	8.43	38.221		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.385	6921.13	15.7	0.377	15.7	5.9	2.54	2.40%	Fine Alluvium	0.060	120.7	2.25	0.000	2.25	0	0.45	7.103	0.68	8.72	6	2.80%	3.2	76%	3.54	0.000	3.54	1	0	0.56	0.04	0.94	0.10	1.00	0.069	33.03	41.75	0.070	N/A	0.68	0.17	0.80	0.75	1.00	0.112	8.80	76.68	0.122	N/A	N/A	N/A	0.45	7.12	0.68	8.72	38.385		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.549	6920.97	19.9	0.414	19.8	6.3	2.75	2.08%	Fine Alluvium	0.060	120.7	2.26	0.000	2.26	0	0.45	8.948	0.86	10.98	8	2.35%	3.0	76%	3.55	0.000	3.55	1	0	0.56	0.05	0.93	0.10	1.00	0.069	33.82	44.80	0.073	N/A	0.68	0.19	0.80	0.75	1.00	0.112	7.08	77.76	0.124	N/A	N/A	N/A	0.45	8.97	0.86	10.98	38.549		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.713	6920.81	27.5	0.553	27.4	7.4	3.21	2.01%	Coarse Alluvium	0.056	111.0	2.27	0.000	2.27	0	0.45	12.335	1.18	15.13	11	2.20%	2.9	36%	3.56	0.000	3.56	0	0	0.56	0.05	0.93	0.10	1.00	0.069	35.02	50.15	0.078	N/A	0.68	0.22	0.80	0.74	1.00	0.111	5.54	83.84	0.135	N/A	N/A	N/A	0.45	12.36	1.18	15.13	38.713		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
38.877	6920.64	31.3	0.728	31.2	8.1	3.52	2.33%	Coarse Alluvium	0.056	111.0	2.28	0.000	2.28	0	0.45	14.011	1.34	17.18	13	2.51%	2.9	36%	3.57	0.000	3.57	0	0	0.55	0.05	0.93	0.10	1.00	0.069	35.72	52.91	0.080	N/A	0.68	0.24	0.80	0.74	1.00	0.111	5.38	92.39	0.153	N/A	N/A	N/A	0.45	14.03	1.34	17.18	38.877		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.042	6920.48	37.7	0.918	37.7	10.0	4.31	2.43%	Coarse Alluvium	0.056	111.0	2.29	0.000	2.29	0	0.45	16.847	1.61	20.66	16	2.59%	2.8	36%	3.58	0.000	3.58	0	0	0.55	0.05	0.92	0.10	1.00	0.069	36.92	57.59	0.085	N/A	0.68	0.26	0.80	0.74	1.00	0.111	4.82	99.61	0.172	N/A	N/A	N/A	0.45	16.87	1.62	20.66	39.042		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.206	6920.31	47.2	1.377	47.2	12.4	5.39	2.91%	Coarse Alluvium	0.056	111.0	2.30	0.000	2.30	0	0.46	21.850	2.09	26.80	20	3.06%	2.8	36%	3.59	0.000	3.59	0	0	0.55	0.06	0.92	0.10	1.00	0.070	39.04	65.84	0.095	N/A	0.67	0.30	0.80	0.74	1.00	0.111	4.51	120.83	0.244	N/A	N/A	N/A	0.46	21.89	2.10	26.80	39.206		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.370	6920.15	56.7	1.813	56.7	14.0	6.08	3.19%	Coarse Alluvium	0.056	111.0	2.30	0.000	2.30	0	0.48	27.132	2.60	33.28	24	3.33%	2.7	36%	3.60	0.000	3.60	0	0	0.55	0.06	0.91	0.09	1.00	0.070	41.27	74.55	0.105	N/A	0.67	0.33	0.80	0.74	1.00	0.111	4.19	139.43	0.332	N/A	N/A	N/A	0.48	27.17	2.60	33.28	39.370		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.534	6919.99	56.4	2.016	56.3	14.3	6.18	3.58%	Coarse Alluvium	0.056	111.0	2.31	0.000	2.31	0	0.48	26.822	2.57	32.90	23	3.73%	2.8	36%	3.60	0.000	3.60	0	0	0.55	0.06	0.91	0.09	1.00	0.070	41.14	74.04	0.105	N/A	0.67	0.33	0.80	0.74	1.00	0.111	4.47	146.92	0.375	N/A	N/A	N/A	0.48	26.86	2.57	32.90	39.534		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.698	6919.82	77.0	2.155	76.9	14.8	6.43	2.80%	Coarse Alluvium	0.056	111.0	2.32	0.000	2.32	0	0.51	39.161	3.75	48.01	32	2.88%	2.6	36%	3.61	0.000	3.61	0	0	0.55	0.07	0.90	-0.04	1.00	0.071	46.35	94.37	0.134	N/A	0.67	0.40	0.80	0.74	1.00	0.110	3.23	154.95	0.426	N/A	N/A	N/A	0.51	39.21	3.75	48.01	39.698		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
39.862	6919.66	73.4	2.238	73.4	12.3	5.33	3.05%	Coarse Alluvium	0.056	111.0	2.33	0.000	2.33	0	0.50	36.813	3.53	45.13	30	3.15%	2.6	36%	3.62	0.000	3.62	0	0	0.55	0.07	0.90	-0.01	1.00	0.071	45.36	90.48	0.128	N/A	0.67	0.39	0.80	0.74	1.00	0.110	3.49	157.40	0.443	N/A	N/A	N/A	0.50	36.85	3.53	45.13	39.862		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.026	6919.49	54.6	1.931	54.5	10.9	4.72	3.54%	Coarse Alluvium	0.056	111.0	2.34	0.000	2.34	0	0.47	25.539	2.45	31.31	22	3.70%	2.8	36%	3.63	0.000	3.63	1	0	0.55	0.06	0.91	0.10	1.00	0.070	40.60	71.91	0.102	N/A	0.67	0.32	0.80	0.74	1.00	0.110	4.57	143.10	0.353	N/A	N/A	N/A	0.47	25.57	2.45	31.31	40.026		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.190	6919.33	37.0	1.415	36.9	11.6	5.02	3.83%	Coarse Alluvium	0.056	111.0	2.35	0.000	2.35	0	0.44	16.152	1.55	19.82	15	4.09%	2.9	36%	3.64	0.000	3.64	1	0	0.55	0.05	0.92	0.10	1.00	0.069	36.63	56.45	0.084	N/A	0.67	0.26	0.80	0.74	1.00	0.110	6.11	121.17	0.245	N/A	N/A	N/A	0.44	16.18	1.55	19.82	40.190		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.354	6919.17	48.0	1.651	47.9	13.5	5.84	3.44%	Fine Alluvium	0.060	120.7	2.36	0.000	2.36	0	0.45	21.695	2.08	26.61	19	3.62%	2.8	76%	3.65	0.000	3.65	1	0	0.55	0.06	0.92	0.10	1.00	0.069	39.25	65.86	0.095	N/A	0.67	0.30	0.80	0.74	1.00	0.110	4.93	131.15	0.290	N/A	N/A	N/A	0.45	21.73	2.08	26.61	40.354		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.518	6919.00	64.0	1.659	63.9	14.7	6.37	2.59%	Fine Alluvium	0.060	120.7	2.37	0.000	2.37	0	0.48	30.640	2.93	37.57	26	2.69%	2.6	76%	3.66	0.000	3.66	1	0	0.54	0.06	0.90	0.05	1.00	0.070	43.05	80.63	0.113	N/A	0.66	0.35	0.80	0.74	1.00	0.110	3.55	133.51	0.301	N/A	N/A	N/A	0.48	30.68	2.94	37.57	40.518		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.682	6918.84	44.7	1.624	44.6	12.3	5.31	3.63%	Fine Alluvium	0.060	120.7	2.38	0.000	2.38	0	0.44	19.795	1.90	24.28	18	3.84%	2.9	76%	3.67	0.000	3.67	1	0	0.54	0.06	0.92	0.10	1.00	0.069	38.44	62.72	0.091	N/A	0.66	0.28	0.80	0.74	1.00	0.109	5.32	129.23	0.281	N/A	N/A	N/A	0.44	19.83	1.90	24.28	40.682		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
40.846	6918.67	43.0	0.925	43.0	13.2	5.73	2.15%	Fine Alluvium	0.060	120.7	2.39	0.000	2.39	0	0.44	18.848	1.81	23.12	17	2.28%	2.7	76%	3.68	0.000	3.68	1	0	0.54	0.05	0.92	0.10	1.00	0.068	38.03	61.16	0.089	N/A	0.66	0.28	0.80	0.74	1.00	0.109	4.29	99.14	0.171	N/A	N/A	N/A	0.44	18.88	1.81	23.12	40.846		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.010	6918.51	31.9	0.815	31.9	12.3	5.31	2.55%	Fine Alluvium	0.060	120.7	2.40	0.000	2.40	0	0.43	13.725	1.31	16.85	12	2.76%	2.9	76%	3.69	0.000	3.69	1	0	0.54	0.05	0.92	0.10	1.00	0.068	35.85	52.70	0.080	N/A	0.66	0.24	0.80	0.74	1.00	0.109	5.72	96.28	0.163	N/A	N/A	N/A	0.43	13.76	1.32	16.85	41.010	21	1.00	19	9	0.46	0.54	0.44	5.6	14.1	0.15	N/A	5.00	1.20	15.21	0.162	N/A	N/A
41.174	6918.35	24.9	0.741	24.8	13.2	5.73	2.98%	Fine Alluvium	0.060	120.7	2.41	0.000	2.41	0	0.43	10.641	1.02	13.07	9	3.30%	3.0	76%	3.70	0.000	3.70	1	0	0.54	0.05	0.93	0.10	1.00	0.067	34.54	47.62	0.075	N/A	0.66	0.21	0.80	0.74	1.00	0.109	7.26	94.94	0.160	N/A	N/A	N/A	0.43	10.68	1.02	13.07	41.174		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.338	6918.18	37.4	0.816	37.4	14.4	6.24	2.18%	Fine Alluvium	0.060	120.7	2.42	0.000	2.42	0	0.43	15.981	1.53	19.62	14	2.33%	2.8	76%	3.71	0.000	3.71	1	0	0.54	0.05	0.92	0.10	1.00	0.068	36.82	56.43	0.084	N/A	0.66	0.26	0.80	0.74	1.00	0.109	4.80	94.23	0.158	N/A	N/A	N/A	0.43	16.02	1.53	19.62	41.338		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.502	6918.02	43.8	0.915	43.7	14.5	6.28	2.09%	Fine Alluvium	0.060	120.7	2.43	0.000	2.43	0	0.43	18.929	1.81	23.23	17	2.21%	2.7	76%	3.72	0.000	3.72	1	0	0.54	0.05	0.92	0.10	1.00	0.068	38.07	61.30	0.089	N/A	0.66	0.28	0.80	0.74	1.00	0.109	4.24	98.37	0.169	N/A	N/A	N/A	0.43	18.97	1.82	23.23	41.502		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.666	6917.85	36.1	0.788	36.0	14.8	6.40	2.18%	Fine Alluvium	0.060	120.7	2.44	0.000	2.44	0	0.43	15.310	1.47	18.80	14	2.34%	2.8	76%	3.73	0.000	3.73	1	0	0.54	0.05	0.92	0.10	1.00	0.068	36.53	55.33	0.083	N/A	0.65	0.25	0.80	0.74	1.00	0.108	4.96	93.24	0.155	N/A	N/A	N/A	0.43	15.35	1.47	18.80	41.666		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.830	6917.69	52.4	0.738	52.3	15.9	6.87	1.41%	Fine Alluvium	0.060	120.7	2.45	0.000	2.45	0	0.45	23.332	2.23	28.62	20	1.48%	2.6	76%	3.74	0.000	3.74	1	0	0.54	0.06	0.91	0.10	1.00	0.068	39.95	68.57	0.098	N/A	0.65	0.31	0.80	0.74	1.00	0.108	3.14	89.97	0.148	N/A	N/A	N/A	0.45	23.38	2.24	28.62	41.830		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
41.994	6917.53	48.6	0.648	48.5	16.3	7.05	1.33%	Fine Alluvium	0.060	120.7	2.46	0.000	2.46	0	0.44	21.241	2.03	26.06	19	1.40%	2.6	76%	3.75	0.000	3.75	1	0	0.54	0.06	0.91	0.10	1.00	0.068	39.06	65.12	0.094	N/A	0.65	0.29	0.80	0.74	1.00	0.108	3.25	84.73	0.137	N/A	N/A	N/A	0.44	21.29	2.04	26.06	41.994		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.158	6917.36	39.6	0.665	39.5	17.2	7.44	1.68%	Fine Alluvium	0.060	120.7	2.47	0.000	2.47	0	0.42	16.615	1.59	20.40	15	1.79%	2.7	76%	3.76	0.000	3.76	1	0	0.54	0.05	0.92	0.10	1.00	0.067	37.09	57.49	0.085	N/A	0.65	0.26	0.80	0.74	1.00	0.108	4.19	85.44	0.138	N/A	N/A	N/A	0.42	16.66	1.60	20.40	42.158		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.322	6917.20	40.1	1.021	40.0	19.2	8.32	2.54%	Fine Alluvium	0.060	120.7	2.48	0.000	2.48	0	0.42	16.806	1.61	20.64	15	2.71%	2.8	76%	3.77	0.000	3.77	1	0	0.53	0.05	0.92	0.10	1.00	0.067	37.17	57.81	0.085	N/A	0.65	0.26	0.80	0.74	1.00	0.108	4.98	102.82	0.181	N/A	N/A	N/A	0.42	16.86	1.61	20.64	42.322		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.486	6917.03	44.3	0.888	44.2	20.4	8.84	2.00%	Fine Alluvium	0.060	120.7	2.49	0.000	2.49	0	0.43	18.775	1.80	23.06	17	2.12%	2.7	76%	3.78	0.000	3.78	1	0	0.53	0.05	0.92	0.10	1.00	0.067	38.01	61.07	0.089	N/A	0.65	0.28	0.80	0.74	1.00	0.108	4.19	96.62	0.164	N/A	N/A	N/A	0.43	18.83	1.80	23.06	42.486		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.650	6916.87	106.6	1.133	106.5	23.1	10.01	1.06%	Fine Alluvium	0.060	120.7	2.50	0.000	2.50	0	0.52	55.790	5.34	68.41	42	1.09%	2.2	76%	3.79	0.000	3.79	1	0	0.53	0.08	0.87	-0.16	1.00	0.071	53.76	122.17	0.184	N/A	0.65	0.48	0.76	0.69	1.00	0.114	1.76	120.44	0.242	N/A	N/A	N/A	0.52	55.87	5.35	68.41	42.650		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.814	6916.71	93.8	1.026	93.7	19.0	8.24	1.09%	Fine Alluvium	0.060	120.7	2.51	0.000	2.51	0	0.50	47.196	4.52	57.86	36	1.12%	2.3	76%	3.80	0.000	3.80	1	0	0.53	0.08	0.88	-0.10	1.00	0.070	50.10	107.96	0.156	N/A	0.65	0.44	0.78	0.71	1.00	0.111	1.93	111.50	0.209	N/A	N/A	N/A	0.50	47.26	4.52	57.86	42.814		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-
42.978	6916.54	57.0	0.862	56.9	20.2	8.77	1.51%	Fine Alluvium	0.060	120.7	2.52	0.000	2.52	0	0.44	25.260	2.42	31.00	22	1.58%	2.6	76%	3.81	0.000	3.81	1	0	0.53	0.06	0.91	0.10	1.00	0.068	40.77	71.77	0.102	N/A	0.64	0.32	0.80	0.73	1.00	0.107	3.11	96.34	0.163	N/A	N/A	N/A	0.44	25.32	2.42	31.00	42.978		1.00	-	-	-	-	-	-	-	-	-	5.00	1.20	-	0.000	-	-

ATTACHMENT G.7
Cover System Design Report – Dwyer Engineering, LLC

95% DRAFT

ADDENDUM TO
COVER SYSTEM DESIGN REPORT

09/10/2019 Northeast Church Rock Site Closure

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ADDENDUM SUMMARY

This document is an addendum to the Northeast Church Rock 95% Design Report, Appendix G, Attachment G.7, 95% Revised Draft Cover Design Report issued in July 2018 (Dwyer 2018).

The reason for the addendum is the addition of the soil to be excavated from the Jetty area to be included as the primary borrow source for cover material. The information presented in this addendum demonstrates that the cover performance requirements consistent with Dwyer (2018) are satisfied with the primary cover soil borrow source being soil excavated from the Jetty area.

The difference in cover profile recommended in this addendum compared with the original submittal (Dwyer 2018) includes:

- Cover profile is now recommended to be 4.5 feet thick instead of the previously recommended 4 feet. The thicker cover profile is due to the inclusion of the soil excavated from the Jetty area as the primary cover soil borrow source. Refer to Sections 3 through 5.
- The largest rock size for the admixture is now 3.5 inches with an admixture depth of 31.5 inches instead of the previously largest size of 3 inches with an admixture depth of 27 inches. The reason for the increased rock size and thus increased admixture depth is due to the potential for higher fines content from the soil to be excavated from the Jetty area to be used as cover material. Refer to Section 2.

TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
cm	centimeter
cy	cubic yards
DOE	Department of Energy
DRAIN	drainage
DWYER	Dwyer Engineering, LLC
ET	evapotranspiration
EVAP	evaporation
Mill Site	Church Rock Mill Site
NECR	Northeast Church Rock
NOAA	National Oceanic and Atmospheric Administration
NRC	Nuclear Regulatory Commission
PET	potential evapotranspiration
PMP	Probable Maximum Precipitation
PODR	Point of Diminishing Returns
PRECIP	precipitation
RAECOM	Radiation Attenuation Effectiveness and Cover Optimization with Moisture Effects
TRANSP	transpiration
USEPA	United States Environmental Protection Agency

1.0 OVERVIEW OF DESIGN CHANGES

Mine waste will be disposed of in a repository designed within the footprint of the existing tailings impoundment at the Mill Site. These materials will then be capped with a final cover system, referred to as an evapotranspiration (ET) cover.

Changes to the final cover design recommended in this addendum compared with the original submittal (Dwyer 2018) include:

- Total cover profile thickness increased from 4 feet to 4.5 feet.
- Surface rock/soil admixture layer: rock size range now 1.5 inches diameter to 3.5 inches diameter (prior range 1.5 inches diameter to 3 inches diameter); and layer thickness range is 14 inches to 31.5 inches (prior range was 14 inches to 27 inches).

1.1 Erosion Protection

The Northeast Church Rock (NECR) site is located in an arid climate and exposed to erosion due to high-intensity precipitation events and significant wind. A key performance criterion for the cover system design is to provide for adequate erosion protection and long-term stability. The design event for evaluation of long-term erosional stability is the Probable Maximum Precipitation (PMP) based on Nuclear Regulatory Commission (NRC) guidelines in NUREG-1623 (NRC, 2002). The designed cover system is capable of withstanding the windy conditions at the site as well as a rainfall intensity defined by the PMP event that is 6.5 inches for the 1-hour precipitation frequency [*Note: the PMP is significantly more conservative than the 2.96 inch value provided for the 1-hour precipitation frequency for a 1000 year period defined in the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 1 (Bonnin, 2011)*].

The cover design is composed of two layers. The top layer is a uniform mixture of cover soil (67 percent by volume) with rock (33 percent by volume) referred to as a 'desert pavement'. This layer is designed to mitigate erosion by creating an armored surface with rock large enough to resist the erosive forces created during a PMP event. The bottom layer is composed of cover soil only. The reason for the admixture design change is due to the inclusion of the soil to be excavated from the Jetty area (Stantec 2018) as borrow. This soil has a maximum fines content of 96%. The fines content from the previously approved cover soil borrow sources was 57% (Dwyer 2018).

Section 2 describes the calculations performed to support the design of the 'desert pavement' and analysis demonstrating the effectiveness of this layer due to the change in the cover soil borrow source. The admixture design is a function of the climate, soil, and cover surface geometry. The final geometry of the impoundment after placement of the mine spoils and cover system includes slopes generally less than 5 percent with slope lengths as long as 1,021 feet. In the design of the 'desert pavement' layer, the smallest rock possible while still meeting the erosion requirements is preferred. Rock has no storage capacity, thus the overall thickness of cover is increased to overcome the loss of storage capacity from the addition of the rock. The rock to be used in the surface admixture layer or 'desert pavement' shall be durable to meet the 1,000-year design life requirement. This rock may not be readily available or may be expensive to acquire. Thus, the intent of this design is to maximize use of existing rock at the site meeting applicable durability requirements. Consequently, the thickness of the two layers varies depending on the location

and respective slope length. The depth of rock/soil admixture and rock size was varied along the slope length (refer to Tables 1 to 4). The thickest admixture layer is 31.5 inches with a rock size of 3.5 inches. The previous thickest admixture depth was 27 inches with a maximum rock size of 3 inches (Dwyer 2018).

1.2 Cover Depth Required to Minimize Flux

The overall cover thickness including both layers is a consistent 4.5 feet. The previously recommended cover depth was 4 feet (Dwyer 2018). The reason for the change is the inclusion of the soil excavated from the Jetty area as the primary borrow source for cover material.

A series of computer simulations of the two-layered cover profile were performed utilizing properties from the Jetty area soil to evaluate the myriad of variables including vegetation maturation to which the cover could be exposed during the 1,000-year performance period. The model geometry varied based on the respective rock/soil admixture design and depth described in Section 2. The computer sensitivity analyses evaluated possible climate change scenarios over this period of performance also considering information from the USEPA climate change website (https://www.epa.gov/climatechange). The full cover profile depth of 4.5 feet was shown to effectively minimize flux (in most cases reduce it to zero) for the multitude of scenarios modeled. The specifics of the modeling performed are contained in Sections 3 through 5.

1.3 Radon Flux Evaluation

Section 6 provides an overview of the estimated radon release rate through the cover profile. The radon flux through the cover soil was calculated using the Radiation Attenuation Effectiveness and Cover Optimization with Moisture Effects (RAECOM) code, as described in (Rogers 1984a, 1984b). The model is used to perform one-dimensional, steady-state radon diffusion calculations for a multi-layer system. The computed radon flux for the cover profile is 6.23 pCi/m^2s (Table 13). This value is less than the maximum allowable value of 20 pCi/m^2s per 40 CFR 192.02.

2.0 EROSION

A surface layer composed of a uniform mixture of rock and soil is included in the cover profile to mitigate erosion and provide long-term stability (NRC, 2002). Because the Jetty area cover soil borrow source potentially has higher fines content than the previously approved cover soil borrow sources (Dwyer 2018), the admixture design was adjusted to account for this since soil fines content is a sensitive parameter in this design process.

2.1 DESIGN OF COVER SURFACE LAYER (ROCK/SOIL ADMIXTURE)

The cover surface layer is composed of a mixture of rock and cover soil designed to mitigate the potential for rill or gully formation as well as minimize soil loss. This admixture design varies (rock size and depth) depending on the specific slope and slope length (Tables 1 through 4). For example, the base of a long slope may have a large rock within the admixture and greater admixture thickness compared to the top of the slope. This erosion resistant admixture was designed consistent with guidance summarized in Dwyer et al. (2007) and USEPA (2012). The admixture design was reworked to include the worst case soils from the soils to be excavated from the Jetty area and used as cover material. For the admixture design, the worst case includes soil with the highest fines content because the smaller soil particles are more erodible. The highest fines content for the Jetty area cover soil borrow source is 96% (Stantec 2018).

Because the cover system rock requirement is substantial and the slope lengths are varied, admixture requirements were computed in intervals along the slope length. That is, the top of the slope has less erosive forces because the slope length is shorter than the bottom of the slope. Tables 1 to 4 summarize the analysis performed.

Section 2.1.1 presents calculated results for the rock/soil admixture for the 5 percent slope with total slope length of 1,021 feet. Section 2.1.2 presents calculated results for the rock/soil admixture for the 2 percent slope with total slope length of 1,000 feet.

2.1.1 Admixture Design for Single Slope Length of 1,021 feet at 5 Percent Slope

The following rock/soil admixture design is for the final cover system's top surface where slopes are 5 percent. Table 1 summarizes the admixture calculations using a fines content of 96% consistent with the method and intensity values described and utilized in Dwyer (2018).

The critical particle sizes (Dc) and admixture depth are computed based on the slope length location along the 5 percent slope. For slope lengths 900 feet and longer, a 3.5-inch rock is required with a corresponding admixture depth of 31.5 inches. For a slope length of 525 feet to 900 feet, a 3-inch rock is required with a corresponding admixture depth of 27 inches. For a slope length of 350 feet to 525 feet, a 2-inch rock is required with a corresponding admixture depth of 18 inches. From the top of the slope to a slope length of 350 feet, a 1.5-inch rock is required with a corresponding admixture depth of 14 inches. Layer mixtures will be 33 percent rock to 67 percent soil by volume for the full admixture depth.

Table 1. Admixture Design Summary

I (in/hr)	S (%)	Slope Length (feet)	A (acres)	Q (cfs)	Qm (cfs)	b (feet)	dH (in)	τ (psf)	Rock Size Dc (in)	use Rock Size Dc (in)	% gravel	Ya (in)	Ys (in)	Admix Depth (in)	Comment
28.2	5	1021	5.98	50.66	5.07	13.5	5.75	1.494	3.6	3.50	33%	10.5	21	31.5	
28.3	5	1000	5.74	48.77	4.88	13.3	5.66	1.471	3.5	3.50	33%	10.5	21	31.5	
28.8	5	900	4.65	40.20	4.02	12.4	5.22	1.358	3.3	3.50	33%	10.5	21	31.5	
29.4	5	800	3.67	32.38	3.24	11.4	4.78	1.242	3.0	3.00	33%	9.0	18	27.0	
30.0	5	700	2.81	25.32	2.53	10.4	4.31	1.122	2.7	3.00	33%	9.0	18	27.0	
30.7	5	600	2.07	19.06	1.91	9.3	3.84	0.997	2.4	3.00	33%	9.0	18	27.0	
31.4	5	525	1.58	14.90	1.49	8.5	3.46	0.900	2.2	3.00	33%	9.0	18	27.0	
31.6	5	500	1.43	13.60	1.36	8.2	3.34	0.867	2.1	2.00	33%	6.0	12	18.0	
32.6	5	400	0.92	8.99	0.90	7.0	2.81	0.731	1.8	2.00	33%	6.0	12	18.0	
33.3	5	350	0.70	7.02	0.70	6.4	2.54	0.660	1.6	2.00	33%	6.0	12	18.0	
34.0	5	300	0.52	5.26	0.53	5.7	2.25	0.586	1.4	1.50	33%	4.5	9	14.0	
35.8	5	200	0.23	2.47	0.25	4.3	1.65	0.428	1.0	1.50[1]	33%	4.5	9	14.0	increased rock size per Section 4.2 (NUREG-1623) [1]
38.8	5	100	0.06	0.67	0.07	2.6	0.96	0.249	0.6	1.50	33%	4.5	9	14.0	

[1] Values highlighted (slope lengths 200-feet) required an increase in Dc to meet NUREG-1623 requirements. Refer to Table 2.

Table 2 summarizes the calculations to verify compliance with the long-term stability of a rocky soil slope per NUREG-1623. The slope lengths utilized in the calculations correspond to those from Table 1. The slope is 5 percent, consequently any calculation that computed a stable slope of greater than 5 percent with the particle size determined in Table 1 was acceptable. However, for the slope length of 200 feet, the Dc was increased to satisfy the long-term stability of a rocky soil slope per NUREG-1623.

Table 2. Long-Term Stability of Rocky Soil 5% Slope (NUREG 1623)

Rock Size (D75)	t	P	L	Calculated Ss	Comments
3.50	1.4	28.228	1021	6.9%	The calculated stable slope is greater than 5% (the slope to be built), therefore the Dc for rock size summarized in Table 1 is more conservative
3.50	1.4	28.3266	1000	7.0%	The calculated stable slope is greater than 5% (the slope to be built)
3.50	1.4	28.8265	900	7.5%	The calculated stable slope is greater than 5% (the slope to be built)
3.00	1.2	29.3851	800	6.6%	The calculated stable slope is greater than 5% (the slope to be built)
3.00	1.2	30.0175	700	7.2%	The calculated stable slope is greater than 5% (the slope to be built)
3.00	1.2	30.7456	600	8.1%	The calculated stable slope is greater than 5% (the slope to be built)
3.00	1.2	31.3739	525	8.9%	The calculated stable slope is greater than 5% (the slope to be built)
2.00	0.8	31.6028	500	5.2%	The calculated stable slope is greater than 5% (the slope to be built)
2.00	0.8	32.644	400	6.1%	The calculated stable slope is greater than 5% (the slope to be built)
2.00	0.8	33.2619	350	6.7%	The calculated stable slope is greater than 5% (the slope to be built)
1.5	0.6	33.9694	300	5.0%	The calculated stable slope is greater than 5% (the slope to be built)
1.5[1]	0.6	35.7948	200	6.7%	As noted in Table 1, the rock size using this formula from NUREG-1623 governs for this slope length. The calculated stable slope is greater than 5% (the slope to be built), therefore

Rock Size (D75)	t	P	L	Calculated Ss	Comments
					the Dc for rock size developed in Section 4.1 is more conservative[1]
1.5	0.6	38.7645	100	11.4%	The calculated stable slope is greater than 5% (the slope to be built), therefore the Dc for rock size summarized in Table 1 is more conservative

[1] Values highlighted (slope length 200 feet) required an increase in D_{75} from the Dc value computed using the methods summarized in Table 1 to meet NUREG-1623 requirements.

2.1.2 Admixture Design for Single Slope Length of 1,000 feet at 2 Percent Slope

The following rock/soil admixture design is for the final cover system's top surface where slopes are 2 percent. Table 3 summarizes the admixture calculations using a fines content of 96% following the method and intensity values described and utilized in Dwyer (2018).

The critical particle sizes (Dc) and admixture depth are computed based on the slope length along the 2 percent slope. All mixtures are 33 percent rock to 67 percent soil by volume for the full admixture depth. All slope lengths required a rock size less than 1.5 inches in diameter. However, the rock was adjusted to the 1.5-inch diameter to utilize the 1.5-inch rock available at the site.

Table 3. Admixture Design Summary for Cover 2% Slope

I (in/hr)	S (%)	Slope Length (feet)	A (acres)	Q (cfs)	Qm (cfs)	b (feet)	dH (in)	τ (psf)	Dc (in)	use Dc (in) [1]	% Gravel	Ya (in)	Ys (in)	Admix Depth (in)	Comment[1]
24.0	2	1000	5.739	41.35	4.13	12.53	5.28	0.550	1.3	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
24.5	2	900	4.649	34.18	3.42	11.66	4.88	0.508	1.2	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
25.1	2	800	3.673	27.61	2.76	10.75	4.47	0.465	1.1	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
25.7	2	700	2.812	21.67	2.17	9.80	4.04	0.421	1.0	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
26.4	2	600	2.066	16.37	1.64	8.81	3.60	0.375	0.9	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
27.3	2	500	1.435	11.74	1.17	7.77	3.14	0.326	0.8	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
28.3	2	400	0.918	7.80	0.78	6.65	2.65	0.276	0.7	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
29.7	2	300	0.517	4.60	0.46	5.44	2.13	0.222	0.5	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
31.6	2	200	0.230	2.18	0.22	4.09	1.56	0.163	0.4	1.5	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site
34.8	2	100	0.057	0.60	0.06	2.51	0.92	0.095	0.2	1.5[1]	33	4.5	9	14.0	increased rock size to utilize existing 1.5-inch rock on site

[1] Adjusted the Dc to meet the available 1.5-inch rock on-site

Table 4 summarizes the calculations to verify compliance the long-term stability of a rocky soil slope per NUREG-1623. The slope lengths utilized in the calculations correspond to those from Table 3. For all slope lengths, the Dc was increased in the computations to satisfy the long-term stability of a rocky soil slope per NUREG-1623.

Table 4. Long-Term Stability of Rocky Soil 2% Slope (NUREG-1623)

D75[1]	t	P	L	Calculated Ss	Comments[1]
1.5	0.6	24.0158	1000	2.4%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	24.5048	900	2.6%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	25.0542	800	2.8%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	25.6803	700	3.1%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	26.4064	600	3.4%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	27.2686	500	3.9%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	28.3266	400	4.6%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	29.6909	300	5.6%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	31.6028	200	7.5%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK
1.5	0.6	34.7971	100	12.5%	The calculated stable slope (Ss) is greater than the slope to be built of 2%, therefore OK

[1] Adjusted the Dc to meet the available 1.5-inch rock on-site

3.0 UNSATURATED MODELING OF COVER SYSTEM

Modeling was performed to determine an ET cover profile that minimizes flux given the myriad of input parameters (cover soil and vegetation data) and historical climate data for the site. Unsaturated flow modeling of a cover profile is useful to develop a minimum cover thickness and evaluate the cover profile subjected to a variety of conditions as well as input and boundary sensitivities (Dwyer et al. 2007, USEPA 2012). These specific simulations were performed to evaluate the soil excavated from the Jetty area as the primary cover soil borrow source (Stantec 2018). The method used is consistent with those utilized in Dwyer (2018).

3.1 UNSAT-H INPUT PARAMETERS

The input parameters are consistent with those utilized in Dwyer (2018) other than soil properties. Soil samples taken from the Jetty area to be excavated served as input parameters for these computer simulations (Stantec 2018).

3.2 MODEL GEOMETRY

The model geometry was based on the expected depth of the cover system. The nodal spacing was set at a range narrow enough to accurately represent the modeled cover profile. The erosion analysis and subsequent surface erosion protection layer was performed and optimized whereby there are multiple cover profiles (varied admixture depth) changing from the top of the slope toward the base of the slopes (Tables 1 to 4). The surface admixture depth varies from 14 inches (36 cm) to 31.5 inches (80 cm) (Tables 1 to 4). Modeled profiles contain 33 percent rock to 67 percent soil by volume. Cover soil beneath this erosion protection surface layer is from the respective soil sample from the Jetty area summarized in Table 11. The rock is from engineer-approved on-site stockpiles or engineer-approved vendors meeting cover design durability requirements.

3.3 BOUNDARY CONDITIONS

The boundary conditions are consistent with those utilized in Dwyer (2018). That is ten consecutive typical years were modeled followed by the wettest year on record in two consecutive years. The tenth of ten typical years is that presented as output. The ten consecutive typical years allowed for unbiased antecedent conditions.

The wettest year was modeled two years in a row to add conservatism to the analyses. To add additional conservatism, the precipitation was applied at a rate slow enough to essentially force 100 percent infiltration (reduced runoff to zero or near zero), since much of the precipitation received at the NECR site runs off in high intensity storms.

The lower boundary condition was a unit gradient. With the unit gradient, the calculated drainage flux depends on the hydraulic conductivity of the lower boundary node. The unit gradient corresponded to gravity-induced drainage and was most appropriate because drainage was not impeded. The base of the modeled profile was placed well below transient activity and in relative steady state conditions to ensure that the unit gradient bottom boundary condition used did not affect the output for the cover system.

3.4 VEGETATION DATA

The vegetation input parameters are consistent with those utilized in Dwyer (2018). The input parameters representing vegetation include the leaf area index (LAI), rooting depth and density, root growth rate, suction head values corresponding to the wilting point, head corresponding to the water content below which plant transpiration starts to decrease, and a head value corresponding to the water content above which plants do not transpire because anaerobic conditions were defined.

The following rooting parameters (Table 5) were utilized when vegetation was included in the model (Cedar Creek 2014).

Table 5. Rooting Parameters (Cedar Creek 2014)

Parameter	Reclaimed Analog	Grass Analog	Shrub Analog
a	556.28	0.34	0.43
b	0.0000054	0.072	0.034
c	-555.92	0.14	0.078

Other vegetation parameters including the LAI, percent bare area utilized, and maximum rooting depths for the respective vegetation used in a computer simulation are summarized in Table 6.

Table 6. Vegetation Parameters (Cedar Creek 2014)

Parameter	Reclaim Analog	Grass Analog	Shrub Analog
LAI	0.91	0.64	0.52
% Bare Area	52.3%	64.9%	75.2%
Root Length	147 cm	142 cm	155 cm

In the modeling simulations that included vegetation, the onset and termination of the growing season for the site were Julian days 63 and 343, respectively. This is determined from the typical climate conditions for the NECR site and the respective growing degree days presented in Figure 17. The growing degree days were computed (Samani and Pessaraki 1986) for the typical year. The LAI was transitioned from 0 to the full LAI starting with Julian day 63 to 170. Day 171 through 266, the full LAI was utilized. The LAI was then transitioned down from the full LAI to 0 from Julian day 267 to 343. This was conservative since it is realistic that plants can transpire longer than indicated at this site.

The UNSAT-H model adjusts the full LAI based on the percent bare area of vegetation. For example, for a shrub vegetation with an LAI of 0.52 and a percent bare area of 75.2 percent, the LAI is reduced to 0.752 * 0.52 = 0.39.

For computer simulations that do not include vegetation, the transpiration is set at zero. That is, all moisture removed from the profile upward is solely by evaporation.

3.5 SOIL PROPERTIES RELATED TO VEGETATION

The soil properties related to vegetation are consistent with those utilized in Dwyer (2018). The wilting point for these computer simulations was set at 40,000 cm for reclaimed vegetation and grassland and 70,000 for shrubland vegetation (Fayer and Walters 1995). This was conservatively used although some shrubs near the site could remove water from the soil to a suction of 100,000 cm (Hillel 1998). Evaporation from the soil surface can further reduce the soil moisture below the wilting point toward the residual saturation, which is the water content at an infinite matric potential. The suction head corresponding to the water content below which plant transpiration starts to decrease was defined as 32.2 feet (1000 cm) (Fayer and Walters 1995, Fayer 2000). The head value corresponding to the water content above which plants do not transpire because of anaerobic conditions was defined at 4 inches (30 cm) (Fayer and Walters 1995).

3.6 SOIL PROPERTIES

Soil mechanical and hydraulic properties for the Jetty soil to be excavated are summarized in Stantec (2018). The top layer or rock/soil admixture of the cover profile has multiple designs depending on where on the slope it is located (Tables 1 to 4). The thinnest and thickest were modeled to verify which produced the worst case scenario (scenario that requires the thickest cover profile to minimize flux). The upper admixture is composed of the mixture of rock and cover soil. The cover soil directly below the upper rock/soil admixture will be composed of soil from the same borrow source.

The top admixture layer has rock mixed into it at a volumetric ratio of 33 percent rock to 67 percent soil. The mixture of rock into the soil effectively alters its hydraulic properties. Consequently, the hydraulic properties were adjusted for the admixture layer (ASTM, 2007). Equation 1 was used to adjust the saturated hydraulic conductivity based on the addition of rock (Peck and Watson 1979).

$$K_b = [K_s * 2(1 - V_r)]/(2 + V_r) \qquad \textbf{Equation 1}$$

$$where: K_b = saturated\ hydraulic\ conductivty, bulk$$

$$K_s = saturated\ hydraulic\ conductivty, soil$$

$$V_r = volume\ of\ rock$$

For the computer simulations, the calculated bulk saturated hydraulic conductivity was then increased an order of magnitude in the top foot of the modeled cover system (14 inches for the admixture that is 14 inches deep) to account for dynamic processes such as freeze/thaw cycles, wet/dry cycles, and biointrusion. This corresponds with findings from the soil analog studied at the site whereby soils in undisturbed settings have a saturated hydraulic conductivity of about one order of magnitude higher than the lower portions of the soil profile (Dwyer 2014).

The moisture retention data for the cover soil was also adjusted to reflect the addition of the rock in the surface admixture layer. The actual volumetric moisture contents versus soil suction measurements made in the laboratory were utilized as the basis. Each respective measured

volumetric moisture content was lowered per Equation 2 [ASTM 2007 and Bouwer & Rice 1984].

$$\theta_b = (1 - V_r)\theta_s \quad \textbf{Equation 2}$$

$$where: \theta_b = bulk\ volumetric\ moisture\ content$$

$$\theta_s = \text{saturated}\ volumetric\ moisture\ content$$

$$V_r = volume\ of\ rock$$

The Mualem conductivity function was used to describe the unsaturated hydraulic conductivity of the soils (van Genuchten et al. 1991). The van Genuchten 'm' parameter for this function is assumed to be'1-1/n'; 'n' being one of the established van Genuchten parameters. The initial soil conditions were expressed in terms of suction head values that correspond to the average moisture content between each soil layer's field capacity and permanent wilting point determined from each respective soil layer's moisture characteristic curve.

The soil input parameters for the UNSAT-H simulations are summarized in Table 7. The respective borrow soil properties adjusted for the additions of 33 percent by volume rock for the top admixture layer are summarized in Table 8. The van Genuchten parameters were developed from the laboratory soil measurements (soil suction versus moisture content) using the RETC software (van Genuchten et al. 1991).

Table 7. Jetty Soil Laboratory Measured Soil Properties

Borrow	Sample Depth (feet)	Soil Type	K_s (cm/sec @ 90%)	Van Genuchten parameters			
				Θ_s (vol.)	Θ_r (vol.)	alpha	n
B5A-9A	10-10.5	ML	9.20E-05	0.3935	0.0266	0.0072	1.3012
B6A-19A	20-20.5	CH	7.00E-05	0.4553	0	0.0049	1.2175
B7A-0-20	0-20	CL	8.90E-05	0.4029	0	0.0074	1.2353
B7A-40-60	40-60	CL	5.90E-04	0.408	0	0.0153	1.1909
B9-20-35	20-35	CH	4.10E-05	0.459	0	0.0023	1.2148
B10-39A	40-40.5	CH	5.50E-05	0.467	0	0.0046	1.204
B10-10-25	10-25	CL	1.00E-04	0.4009	0	0.0104	1.2238
Composite	NA	Clay	4.80E-07	0.3778	0	0.0008	1.2352
Composite	NA	Sand	2.50E-05	0.3502	0	0.0285	1.2264

Table 8. Adjusted Borrow Soil Laboratory Measured Soil Properties for 33% Rock by Volume

Borrow	K_s (cm/sec @ 90%)	Van Genuchten parameters			
		Θ_s (vol.)	Θ_r (vol.)	alpha	n
B5A-9A	5.29E-05	0.2636	0.0178	0.0072	1.3012
B6A-19A	4.03E-05	0.3051	0	0.0049	1.2175
B7A-0-20	5.12E-05	0.2699	0	0.0074	1.2353
B7A-40-60	0.000339	0.2734	0	0.0153	1.1909
B9-20-35	2.36E-05	0.3075	0	0.0023	1.2148
B10-39A	3.16E-05	0.3129	0	0.0046	1.204
B10-10-25	5.75E-05	0.2686	0	0.0104	1.2238
Composite	2.76E-07	0.2531	0	0.0008	1.2352
Composite	1.44E-05	0.2346	0	0.0285	1.2264

The subgrade soil used in the profile beneath the ET cover is consistent with Dwyer (2018). Specifically, it was measured from the mine spoils using sample TT-205-GT1 (Table 9) remolded to 90 percent of the maximum dry density per ASTM (2012).

Table 9. Mine Spoils Measured Soil Hydraulic Properties

Sample	Depth	Van Genuchten parameters				K_s (cm/sec)
		Θ_s (vol.)	Θ_r (vol.)	α (1/cm)	n	
TT-205-GT1	all	0.3774	0	0.0525	1.2338	2.2E-04

4.0 UNSAT-H SENSITIVITY ANALYSES

Modeling was performed to evaluate ET cover profiles utilizing native soil and vegetation parameters described in Dwyer (2018) as well as variability in climate data for the site also described in Dwyer (2018). The sensitivity analyses were performed to assess the range of soil input parameters and climatic scenarios expected over the long-term performance period of the final cover system and to demonstrate the cover system's ability to meet the performance objectives.

Soil samples extracted from the Jetty area were assessed (Tables 7 and 8). These hydraulic soil parameters were measured from remolded samples in the laboratory (Stantec 2018).

The shrubland vegetation was evaluated in these sensitivity analyses because the simulations described in Dwyer (2018) revealed it is the worst case vegetated scenario.

The cover profile differences (varied admixture depth) were evaluated. These profiles included an admixture top surface consisting of 33 percent rock to 67 percent soil by volume with rock 1.5 inches in diameter mixed to a depth of 14 inches and with rock 3.5 inches in diameter mixed to a depth of 31.5 inches. Directly beneath each admixture is the respective cover soil from the same borrow source without the mixture of rock.

Sensitivity to climate variation was evaluated whereby both typical and extreme conditions were modeled. The typical climate year used to evaluate the cover performance was weather from 1949 with an annual precipitation volume of 11.71 inches (29.74 cm). The Ft. Wingate weather data set also had the most extreme weather with the wettest year on record in 1906 with an annual precipitation volume of 23.8 inches (60.5 cm). Much of that moisture came as snow from January to April and October to December. In this period of the modeling the PET is low and transpiration of moisture through vegetation is minimized or completely ceased.

Table 10 summarizes the simulations performed in the cover profile sensitivity analyses. Refer to Appendix A for specifics of output for each simulation.

Table 10. Summary of Computer Simulations in the Cover Profile Sensitivity Analyses (Jetty Soil)

Simulation Series	Cover Profile/Model Geometry	Input Parameters utilized in respective Sensitivity Analysis				
		Rock Size in Surface Admixture (D50)	Soil Borrow Sample	Cover Soil Hydraulic Property Measurement	Vegetation Stage	Climate
1.5-inch Admixture	14-in surface admixture over cover soil	1.5-inch	B5A-9A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	B6A-19A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record

Simulation Series	Cover Profile/Model Geometry	Input Parameters utilized in respective Sensitivity Analysis				
		Rock Size in Surface Admixture (D50)	Soil Borrow Sample	Cover Soil Hydraulic Property Measurement	Vegetation Stage	Climate
	14-in surface admixture over cover soil	1.5-inch	B7A-0-20	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	B7A-40-60	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	B9-20-35	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	B10-39A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	B10-10-25	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	Composite - Sand	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	14-in surface admixture over cover soil	1.5-inch	Composite - Clay	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
3.5-inch Admixture	31.5-in surface admixture over cover soil	3.5-inch	B5A-9A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	B6A-19A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	B7A-0-20	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record

Simulation Series	Cover Profile/Model Geometry	Input Parameters utilized in respective Sensitivity Analysis				
		Rock Size in Surface Admixture (D50)	Soil Borrow Sample	Cover Soil Hydraulic Property Measurement	Vegetation Stage	Climate
	31.5-in surface admixture over cover soil	3.5-inch	B7A-40-60	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	B9-20-35	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	B10-39A	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	B10-10-25	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	Composite - Sand	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record
	31.5-in surface admixture over cover soil	3.5-inch	Composite - Clay	Tables 11 and 12	Shrub	Typical & two consecutive years of wettest year on record

Although the varied input parameters such as soil and cover profile geometry showed some sensitivity, the most sensitive item was the climatic variation. The Point of Diminishing Returns (PODR) method (Dwyer et al. 2007, USEPA 2011) utilizes modeling to calculate the cover thickness required to effectively minimize flux through the cover. That is, at the PODR, an additional inch of soil will no longer enhance the cover's performance. Based on the PODR method (Dwyer et al. 2007, EPA 2011), the outcome predicted a cover thickness of less than 2.5 feet for typical weather conditions for all soil, vegetation input parameters and cover profiles. For the wettest year on record, the PODR was produced at a depth of about 3.7 feet for all soil, vegetation input parameters and cover profiles. The PODR was about 4.5 feet for a climate scenario that is beyond anything experienced in recorded history with the wettest year on record

(much of the moisture is received in the winter months where PET is at its lowest) occurs in consecutive years.

The input parameters were varied one at a time to evaluate their respective change on the calculated output. The recommended cover thickness is 4.5 feet based on analyses that demonstrated the cover has adequate storage capacity to withstand the worst-case scenarios expected over the 1,000-year performance period combined with some expected soil loss due to erosion (limited due to rock/soil admixture). This is an increase of 6 inches from the 4 feet suggested in Dwyer (2018).

The worst case graphic results from the sensitivity analyses are shown in Figure 1 (Soil Sample B9-20-35, shrubland vegetation). The PODR is achieved within the proposed cover profile. The output from all simulations, including output graphics, is included in Appendix A.

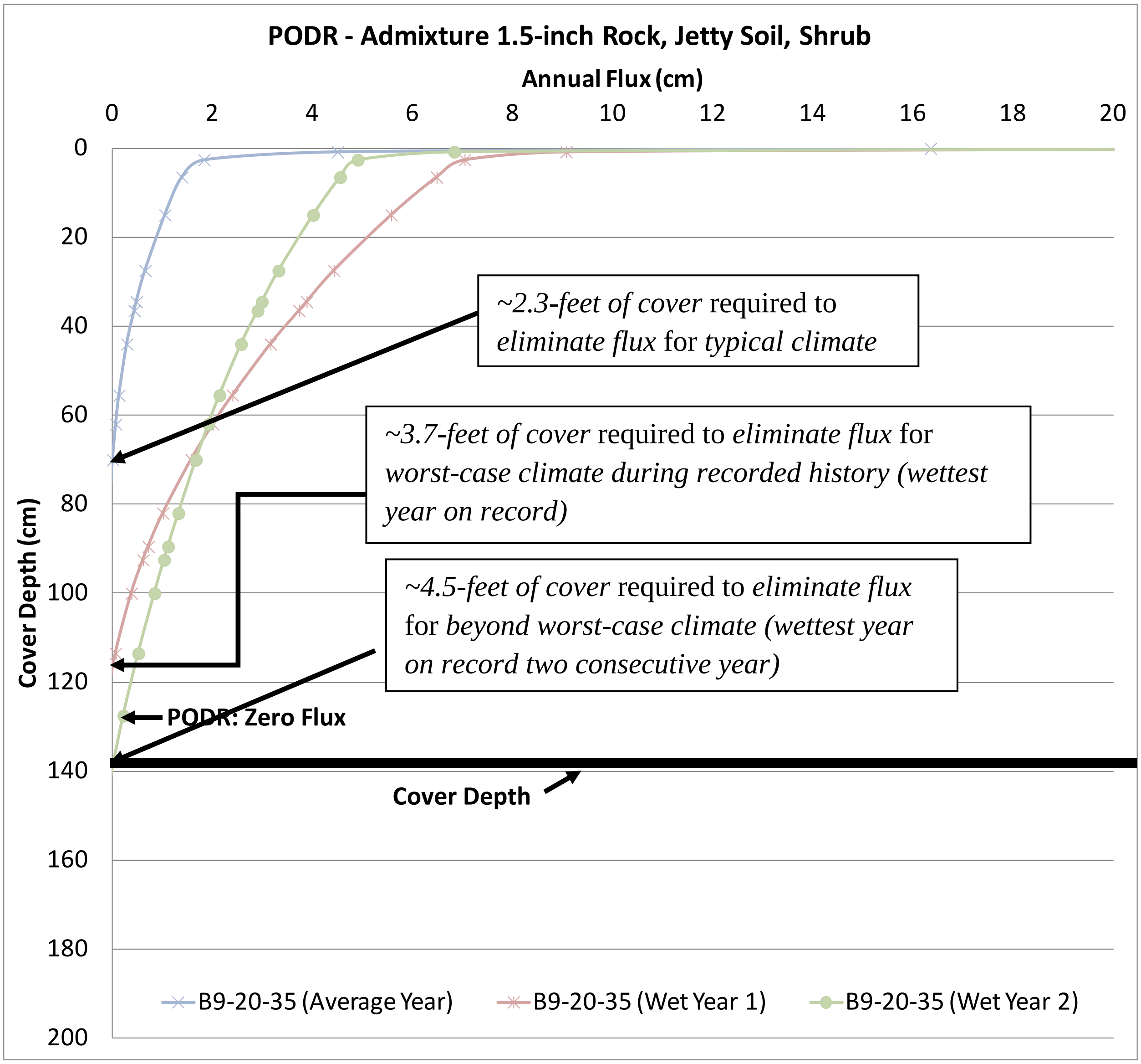

Figure 1. Worst Case Infiltration for Vegetated Cover System from Sensitivity Analyses (Soil Sample B9-20-35, Shrubland Vegetation)

5.0 LONG-TERM SIMULATIONS

After the sensitivity analyses were performed as described in Section 4, another set of computer simulations was performed (utilizing the worst case input parameters that produced output shown in Figure 1) to evaluate the long-term performance of the cover. The method and process used was consistent with that described in Dwyer (2018). The long-term evaluation of the cover profile overlying the mine spoils simulated the potential changes through the 1,000-year performance period varying the vegetation as it evolves. Typical and extreme climate conditions are included.

The UNSAT-H software cannot alter input parameters after initiation of a given simulation. Consequently, the long-term evaluations were calculated in multiple stages, where the output from earlier time steps were used as input for subsequent time steps. That is, for each long-term evaluation, the initial simulation with an initial set of input parameters was performed for a specified period of time and set of climatic conditions. The last day of the last year of that initial simulation output, specifically the matric potential values for each node from the previous simulation, was then used as the initial soil conditions for the subsequent simulation with the altered input parameters (Figure 2). For example, the *final* soil suction values for each node in the model geometry for the ‘initial’ stage were used as the starting conditions for the next 'short-term' stage.

There was no vegetation included in the 'initial' stage, but vegetation was included in subsequent stages (Cedar Creek 2014). The long-term simulations were performed in four stages: the 'initial' stage, followed by the 'short-term' stage, followed by the 'intermediate' stage, and finally the 'long-term' stage (Figure 2). The initial stage consisted of 3 years of typical or average climate with no vegetation. The short-term stage, intermediate stage, and long-term stage all consisted of 20 years of average to extreme climatic data. Thus the whole long-term simulation is 63 years. The extreme climate data was the wettest year on record run consecutively sandwiched by typical climatic data. There were no dry climatic years included in any of the simulations. All precipitation in the weather files was conservatively set to allow for 100 percent or close to 100 percent infiltration, thus minimizing runoff.

Time	Initial	Short-Term	Intermediate	Long-Term
Vegetation	None	Disturbed (Reclaimed)	Grassland	Shrubland
Soil	Remolded (Lab Measured)	Remolded (Lab Measured)	Remolded (Lab Measured)	Undisturbed (In Situ Measured)
Climate	Typical	Typical and Extreme	Typical and Extreme	Typical and Extreme
No. of Years Modeled	3	20	20	20

Figure 2. Input based on Design Life for Computer Simulations

The first stage (initial time) of the long-term simulations, in the respective series for each admixture design assumed no vegetation from the time of construction completion out three years. The soil to be excavated from the Jetty area (Soil Sample B9-20-35) was used since it produced the worst case cover scenario (Figure 3). No vegetation is assumed for the 'initial' stage for a period of 3 years with average weather conditions. It is highly likely that vegetation will begin to emerge the first year and continue to expand into the second and third years, but to be conservative; no vegetation (and thus no transpiration) is included during the 'initial' model stage. Average weather conditions were assumed for these three years because dry conditions would obviously yield no flux and wet conditions would yield vegetation. The moisture condition (matric potential for each node in the model geometry) at the end of the third year, was used as the initial moisture conditions (matric potential for each node in the new model geometry) for the next 'short-term' stage.

The second stage (short-term time) of the long-term simulations in the respective series for each admixture included vegetation from the reclaimed vegetation analog (Cedar Creek 2014). The reclaimed community of vegetation represents vegetation in a disturbed area and generally considered from shortly after seeding upon construction completion up to about 50 years (Cedar Creek 2014). The soil input parameters and geometries from the first stage of simulations were consistent with this stage of simulations. Typical climate conditions were used for ten consecutive years followed by the wettest year on record two years in a row, followed by eight more years of typical climate conditions. This is conservative given the fact that the wettest year on record appears in two consecutive years every twenty years and that there are no dry years included in the analysis. The wettest years run consecutively is assumed to be ‘beyond the worst case’ infiltration event the site is likely to see. The moisture condition (matric potential for each node in the model geometry) at the end of the last year of the respective 'short-term' stage for each admixture design, was used as the initial moisture conditions (matric potential for each node in the new model geometry) for the next 'intermediate' stage.

The third stage of the long-term simulations (intermediate time) in the respective series for each admixture included vegetation from the grassland vegetation analog (Cedar Creek 2014). The grassland community represents undisturbed vegetation generally from about 25 to 100 years

after construction (Cedar Creek 2014). The soil input parameters and geometries from the 'short-term' stage were consistent with this 'intermediate' stage. Typical climate conditions were used for ten consecutive years followed by the wettest year on record two years in a row, followed by eight more years of typical climate conditions. The wettest years run consecutively is assumed to be the worst case infiltration events the site is likely to see. The moisture condition (matric potential for each node in the model geometry) at the end of the last year of each respective 'intermediate' stage for each admixture design, was used as the initial moisture conditions (matric potential for each node in the new model geometry) for the next 'long-term' stage.

The fourth stage of the long-term simulations (long-term time) in the respective series for each admixture included vegetation from the shrubland vegetation analog (Cedar Creek 2014). The shrubland community represents undisturbed generally from about 50 to 1,000 years (Cedar Creek 2014). The soil input parameters and geometries from the 'intermediate' stage were consistent with this 'long-term' stage. Typical climate conditions were used for ten consecutive years followed by the wettest year on record two years in a row, followed by eight more years of typical climate conditions. The wettest years run consecutively is assumed to be ‘beyond the worst case’ infiltration events the site is likely to see.

5.2 Long-Term Simulations Results

The long-term simulations performed were for the cover profile with the 14-inch-deep surface admixture layer. This profile was used because it was the worst case profile requiring the deepest PODR to minimize flux compared to the other admixture depths. The PODR or depth where flux is minimized at just over 2 feet is easily achieved within the recommended cover profile depth. This despite the climate utilized in the long-term simulation included the wettest year on record in consecutive years run every twenty years. That is, during this 63 year simulation, the wettest year on record occurred six times. Figure 4 shows that a drying trend is established and will continue until relative steady state is achieved (Dwyer 2017). Consequently, modeling the profile for any longer would not produce additional useful data.

For years 1, 2, and 3 (no vegetation), there was a de minims amount of flux estimated but the PODR was reached at a shallow depth (Figure 3). All flux values through the vegetated cover for all subsequent years were zero.

The annual water balance output for each simulation year is contained in Appendix B.

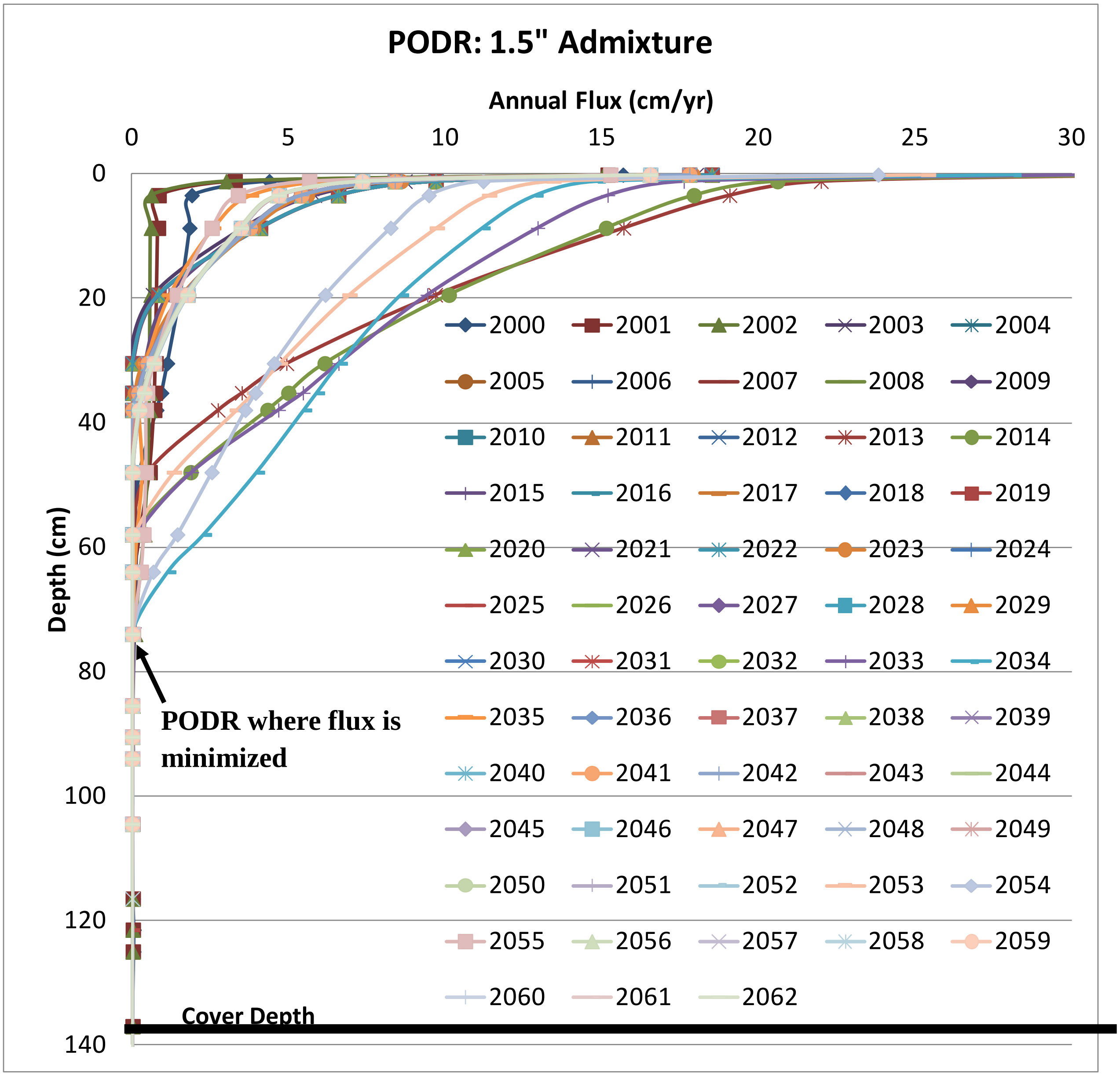

Figure 3. PODR for Long-Term Simulation, 14-inch deep Surface Layer

5.3 Long-Term Simulations Results for Profile B8

Another set of long-term simulations was performed utilizing Profile B8 corresponding to the consolidation and unsaturated flow analysis described in Dwyer (2017) to evaluate the effect of the cover system on the existing tailings and proposed mine spoils. The method and process used was consistent with that described in the Dwyer (2017 and 2018). Profile B8 was modeled because it is the only cross section that included fully saturated tailings due to consolidation resulting from placement of the mine spoils and ET cover on the impoundment (Dwyer 2017).

This set of simulations included placement of the ET cover over the placed mine spoils over the existing profile including the consolidated tailings. This analysis demonstrated that under the most conservative conditions, the cover and underlying mine spoils will not cause moisture build-up on the underlying radon barrier/liner. Details of the original analyses are included in *Tailings Consolidation and Groundwater Evaluation* - *95% Design (*Dwyer 2017).

Suction values within the profile modeled that included the installed moisture condition of all of the mine spoils and ET cover at the suction value corresponding to the respective optimum moisture content (ASTM. 2012) are shown in Figure 4. The optimum moisture content is the wettest condition that the materials will be placed. Per the design specifications, any wetter condition will require removal of the material and drying it or reworking the soil to dry it in place. No material will be placed on top of a wet layer of soil until that underlying soil lift meets the specified conditions. Mine spoils are placed directly on the existing cover/radon barrier less the removal of the existing surface riprap that will be utilized elsewhere in the project.

Figure 4 shows that even though the mine spoils initial suction value is very wet, it quickly dries and continues to dry during the full simulation (middle of mine spoils). The base of the mine spoils and adjacent radon barrier suction values move toward a steady state condition (equal suction values) and then eventually all layers show a drying trend for the duration of the long-term simulation. This drying trend will continue until a steady state condition is reached at a greater suction value than the end of this simulation. This is because no net flux will pass through the vegetated cover system; the initial conditions are the wettest conditions and the profile will only dry as time passes.

Figure 4 illustrates that there is no moisture buildup on the existing radon/barrier and thus no potential for future seepage through the barrier.

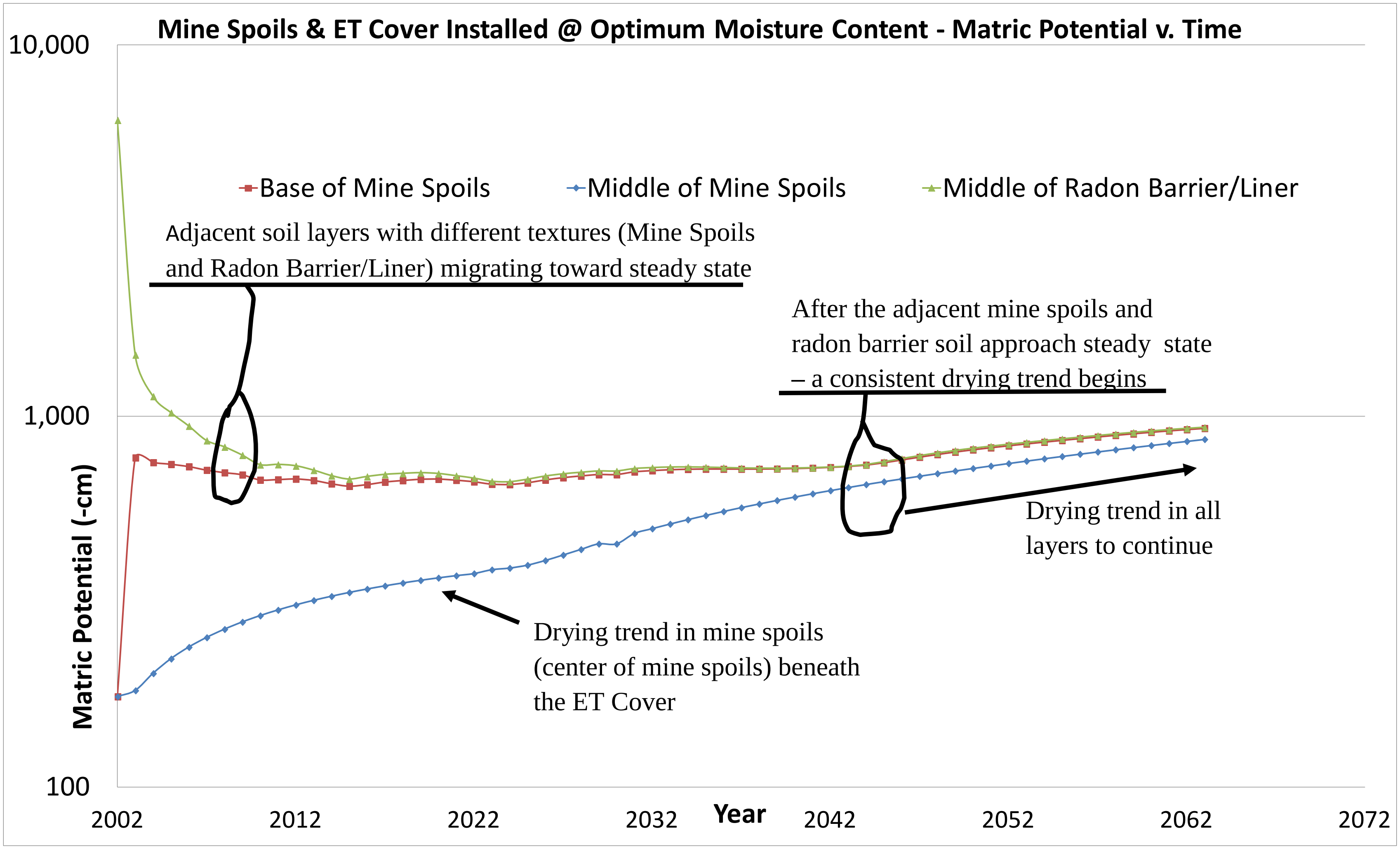

Figure 4. Suction Values for Specified Profile Depth vs. Time

6.0 RADON ATTENUATION

Federal regulations limiting radon releases to the atmosphere are contained in 40 CFR §192.02. The regulations are also typically applied as an ARAR to DOE sites undergoing remediation. These regulations require that release of 222Rn to the atmosphere not exceed: (i) an average release rate of 20 pCi/m^2s; ***or*** (ii) increase the annual average concentration of 222Rn in the air at or above any location outside of the disposal site by more than one-half picocurie per liter.

The ET cover soil functions as an effective barrier to gas diffusion; air-filled voids in the soil have to be discontinuous. Gas diffuses slowly through wet soils that contain only occasional, unconnected air bubbles. The ET cover system was evaluated for its ability to limit radon flux (NRC 1989, NRC 2003) consistent with that described in the Northeast Church Rock 95% Design Report, Appendix G, Attachment G.7, 95% Revised Draft Cover Design Report issued in July 2018. The radon flux through the ET cover soil was calculated using the Uranium Mill Tailings Cover Calculator (http://www.wise-uranium.org/ctc.html) that is a clone of the RAECOM code, as described in (Rogers 1984a, 1984b). It performs one-dimensional, steady-state radon diffusion calculations for a multi-layer system.

6.1 Input Data for Radon Flux Modeling

- Layer Data: The profile was modeled with a bottom layer of mine spoils capped with a two layered ET Cover system. The ET Cover profile is 4.5 feet (1.37 m) thick. The top layer is a 31.5-inch (80 cm) layer of rock and soil mixed at a ratio of 33 percent rock to 67 percent soil by volume. Of the four admixture designs, this is the most conservative given it has the thickest admixture region that has a reduced porosity and fines content. The bottom layer of the cover is all soil 22.5 inches thick (57 cm). The mine spoils were assumed to be 5 m thick (NRC, 1989, Section C 1.1.1).

  NUREG Guide 3.64: 'Section C 1.1.1 Layer Thicknesses'

  > *The thickness of the tailings source, xt, will be determined from the applicant's estimates of total tailings production and areal extent of the pile. Because a tailings thickness greater than about 100-200 cm is effectively equivalent to an infinitely thick radon source, a value of xt = 500 cm represents an equivalent infinitely thick tailings source of radon that may be used in the absence of more specific smaller values.*

  Thus, 500 cm is the maximum thickness to be used for tailings in the RADON model. Refer to Table 18 for a layer by layer description of parameters.

- Ra-226 Activity Concentration [pCi/g]: Activity concentration of Radium-226 in each respective layer. The Ra-226 activity concentration for the mine waste rock was a weighted average of that measured in the field. The Ra-226 concentration used for the entire 5 m depth of waste rock was 29.7 pCi/g (Table 11). A value of zero was assumed for the cover material since it is constructed of clean cover soil for an engineer approved borrow source (NRC, 1989, Section C 1.1.4).

Table 11. Radium-226 Concentrations in Mine Spoils (provided by Stantec)

	Average Values (pCi/g)	Average of 75th Percentile Values (pCi/g)	Average of 90th Percentile Values (pCi/g)	Total Volumes (CY)
Area 1 - Vent Holes 3 and 8	7.6	2.4	3.5	14,764
Area 2 - Boneyard and NEMSA	21.0	26.7	28.5	50,535
Area 3 - Road, Sandfill 2, Sandfill 3, NECR-2	10.1	11.4	12.2	223,080
Area 4 - North of Pond 3	5.8	5.2	10.0	18,148
Area 5 - TPH Stockpile	9.5	9.6	23.4	30,000
Area 7 - Sandfill 1	35.5	50.5	59.5	35,506
Area 6 - Sediment Pad	74.9	86.3	91.1	56,646
Area 8 - NECR-1	21.8	24.2	28.7	361,382
Area 8 - NECR-1 Step out Material	9.5	9.6	23.4	130,000
Area 11 - TPH Stockpile Area	7.5	9.8	11.5	16,290
Area 9 - Pond 1	60.8	85.2	94.9	44,634
Area 10 - Pond 2	8.0	10.2	11.5	18,948
Area 12 - Pond 3	6.7	7.1	7.3	22,375
Area 13 - Drainage near Highway	7.5	6.5	24.9	41,937
Weighted Average by Volume	**20.5**	**24.0**	**29.7**	

Table 12. Radon Flux Input Parameters

Layer No.	Thickness [m]	Ra-226 Activity Conc. [pCi/g]	Ra-226 Emanat	Porosity	Moisture [dry wt_%]	Rn-222 Diff. Coeff - *- calculated* [m2/s]
Mine Spoils	5	29.7	0.35	0.3774	6	2.253E-06
Bottom Layer of Cover	0.57	0	0.35	0.397	5.8	2.473E-06
Top Layer (Admixture) of Cover	0.80	0	0.35	0.266	4.7	1.483E-06

- **Rn-222 Emanation Fraction** is a fraction of the total amount of radon-222 produced by radium decay that escapes from the soil particles and gets into the pores of the soil. It depends on the soil material and the moisture content. It varies over a range of 0.1 - 0.4 or more; typical values are in the range of 0.2 - 0.3. A value of 0.35 was used [NRC 1989, NRC, 2003]

- **Porosity** is the ratio of the pore volume (air- and water-filled) to the total volume of the soil. Refer to Table 12 for the porosity values for each layer. The soil sample (Stantec 2018) with the lowest clay content was Soil Sample B11-39. This sample was taken below acceptable borrow soil and was the top of the sandstone. However, for conservatism this sample was used for the radon analysis. The saturated moisture content is 39.7% and is assumed to be equivalent to the porosity. The rock adjusted value of this moisture content is 26.6%. This reduced saturated moisture content was assumed to be the porosity of the admixture layer. The porosity for Sample TT-205-GT1 considered to be typical for the mine spoils was used (Dwyer 2017).
- **Moisture Contents [dry wt_%]** is the percentage of water weight to dry soil weight. The average in situ moisture content for the mine spoils was 8 percent. The average optimum moisture content for the mine spoils is about 12 percent. An initial and long-term moisture content of 6 percent was used for the mine spoils (NRC 1989). NRC (1989) notes that 6 percent represents the lower bound for moisture in western soils and is typically used as a default value for the long term water content of tailings. Using the Rawls and Brakenseik equation as presented in the NRC Regulatory Guide 3.64 (NRC 1989), the long-term moisture content for the cover soil with 6.3% clay content is 5.8%. For the admixture layer, the clay content is reduced by 33%, thus using the Rawls and Brakenseik equation as presented in the NRC Regulatory Guide 3.64 (NRC 1989), the long-term moisture content for the cover admixture soil layer with 4.2% clay content {6.3%*[1-0.33]} is 4.7%.
- **Rn-222 Effective Diffusion Coefficient [m^2/s]** defined from Fick's equation as the ratio of the diffusive flux density of radon activity across the pore area to the gradient of the radon activity concentration in the pore or interstitial space. This value was calculated in the model based on the assigned input parameters identified above.

6.2 Output for Radon Flux Modeling

The computed radon flux was **6.23 pCi/m^2s** (Table 13). This value is less than the maximum allowable of 20 pCi/m^2s per 40 CFR 192.02.

Table 13. Radon Flux Calculation Output

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
Mine Spoils	5.00	18.67	23.55E+03	0.802
Bottom of Cover	0.53	9.27	16.26E+03	0.824
Top Admixture Layer of Cover	0.69	6.23	0	0.741

7.0 SUMMARY OF RESULTS

The design methods and calculations demonstrate that the recommended cover designs will meet the objectives of performance for 1,000 years to include limiting meteoric flux into the underlying mine waste, minimize erosion, provide a rooting medium for native vegetation, and attenuate emanation of radon-222 from the mine waste. This conclusion is based on erosion computations, moisture flux modeling, and radon emanation calculations.

7.1 Erosion Protection

The cover is composed of two layers. The top layer is a rock/soil admixture referred to as a ‘desert pavement’. This layer is designed to mitigate erosion by adding rock to the engineer-approved cover soil. This surface layer satisfies NUREG-1623 (NRC, 2002) for the long-term stability of a rocky soil cover. The overall cover thickness including both layers will be a consistent 4.5 feet (137 cm) while the thickness surface admixture depends on the location and respective slope length (Tables 1 through 4). The bottom layer is composed of cover soil only.

The surface desert pavement is a mixture of 33 percent rock to 67 percent soil by volume. For slope lengths 900 feet and longer, a 3.5-inch rock is required with a corresponding admixture depth of 31.5 inches. For a slope length of 525 feet to 900 feet, a 3-inch rock is required with a corresponding admixture depth of 27 inches. For a slope length of 350 feet to 525 feet, a 2-inch rock is required with a corresponding admixture depth of 18 inches. From the top of the slope to a slope length of 350 feet, a 1.5-inch rock is required with a corresponding admixture depth of 14 inches.

For slopes of 2 percent, the 1.5-inch rock admixture at a depth of 14 inches was adequate for the full 1,000 feet slope length. The resulting surface slopes meet requirements set forth in Dwyer et al. (2007) and NRC (2002).

7.2 Modeling of Cover System

Section 3 summarized the sensitivity analyses evaluating myriad input parameters demonstrating the cover system's effectiveness for the 1,000-year performance period. The modeling output revealed that for typical climatic conditions, a 2.5-feet (76 cm) cover thickness minimized flux due to precipitation. A cover thickness less than 4.5 feet (137 cm) effectively minimized flux even while applying the wettest year on record in two consecutive years. This scenario includes the wettest year where much of this precipitation occurred in the winter and early spring and late fall where PET is low and then doubled it by running the year back-to-back to provide conservatism in the design and analysis. The analyses revealed that the 4.5-feet (137 cm) vegetated ET cover will produce no flux no matter the combination of input parameters possible for the 1,000-year performance period. There was minimal difference in prediction of the PODR for the cover profile from the myriad input parameters modeled including cover soil and vegetation. The most sensitive item was the climate comparing typical to the extreme wet conditions (two consecutive wettest years on record). The 4.5-feet (137 cm) cover depth is the thickness of soil with the required storage capacity needed to minimize flux based on the application of the wettest year on record with close to 100 percent infiltration two years in a row. This climatic scenario is beyond anything seen at the site in recorded history and beyond anything likely to occur at the site. The combination of this climatic data and slow application

rate to force nearly 100 percent infiltration while minimizing runoff created the worst case infiltration design scenario.

7.3 Radon Flux

Section 6 provided an overview of the estimated radon release rate through the cover profile. The radon flux through the cover soil was calculated using the RAECOM code, as described in (Rogers 1984a, 1984b). It performs one-dimensional, steady-state radon diffusion calculations for a multi-layer system. The top layer is a 31.5-inch-thick (80 cm) layer of rock and soil mixed at a ratio of 1 rock to 2 soil by volume. Of the four admixture designs, this is the most conservative given it has the thickest admixture region that has a reduced porosity and fines content. The bottom layer of the cover is a 22.5-inch-thick (57 cm) soil layer. The mine spoils were assumed to be 5 meters thick (NRC, 1989, Section 1.1.1). The computed radon flux was 6.23 pCi/m^2s (Table 13). This value is less than the maximum allowable of 20 pCi/m^2s per 40 CFR 192.02.

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APPENDIX A

MODELING SENSITIVITY ANALYSES OF COVER SYSTEM

FIGURES

TABLES

The initial modeling performed and summarized in this addendum was intended to evaluate the ET Cover profile utilizing soil to be excavated from the Jetty area as the primary cover soil borrow source. Shrubland vegetation parameters consistent with Dwyer (2018) were utilized because they were shown to produce the worst case vegetated scenario for a cover profile. Two profiles were evaluated: one with a surface admixture consisting of 1.5-inch rock mixed with soil 14 inches deep; the second profile had a surface admixture layer consisting of 3.5-inch rock mixed with soil 31.5 inches deep. The sensitivity analyses also assessed climatic scenarios expected over the full long-term performance period of the final cover system; and demonstrated the cover system's ability to meet the applicable performance objectives (Dwyer 2018).

The first set of computer simulations involved evaluating the borrow area with the remolded samples / laboratory measured soil values without any vegetation and incorporating the 1.5-inch diameter (D50) rock admixture that is 14 inches deep (Table 1 and Figures 1 to 4). Beneath the admixture is cover soil from the same borrow source. The top 14 inches had the saturated hydraulic conductivity increased by an order of magnitude to account for effects such as roots and freeze/thaw action on the soil. This order of magnitude increase to about a foot deep is consistent with soil measurements made in situ (Dwyer 2014).

The second set of computer simulations involved evaluating the borrow area with the remolded samples / laboratory measured soil values without any vegetation and incorporating the 3.5-inch diameter (D50) rock admixture that is 31.5 inches deep. Beneath the admixture is cover soil from the same borrow source (Table 2 and Figures 5 to 8). The top 14 inches had the saturated hydraulic conductivity increased by an order of magnitude to account for effects such as roots and freeze/thaw action on the soil. This order of magnitude increase to about a foot deep is consistent with soil measurements made in situ (Dwyer 2014).

These computer simulations involved running 10 average years in a row to establish appropriate antecedent conditions and mitigate any biases from assumed initial soil conditions. The ten consecutive typical years of climate was then followed by the wettest year on record modeled back to back. Table 1 contains the annual water balance variables for each soil sample modeled for the tenth year of the average consecutive modeled years and the two wettest years on record modeled consecutively. The following water balance variables are summarized for each year: (1) applied precipitation; (2) applied potential evapotranspiration (PET); (3) calculated transpiration; (4) calculated evaporation; (5) calculated runoff; and (6) calculated percolation for a 4-ft-thick cover and 4.5-ft-thick cover. It can be seen in Table 1 that not all percolation was zero for all years for a 4-ft-thick cover but all percolation was zero for a 4.5-ft-thick cover profile. This is the reason for the increase in cover thickness from 4 ft to 4.5 ft recommended in this addendum.

Table 1. Annual Water Balances Output

Soil Sample from Jetty Area	Climate Year in Simulation Series	Annual Water Balance Output (cm)													
		Cover Profile with 14-inch Deep Admixture, Rock size 1.5-in							Cover Profile with 31.5-inch Deep Admixture, Rock size 3.5-in						
		Precip	PET	Transp	Evap	Runoff	Drain @ 4ft	Drain @ 4.5ft	Precip	PET	Transp	Evap	Runoff	Drain @ 4ft	Drain @ 4.5ft
B5A-9A	Average	29.7	211.7	4.1	26.1	0.0	0.0	0.0	29.7	211.7	3.8	26.4	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	6.6	49.9	0.0	0.0	0.0	60.4	215.5	6.4	50.9	0.0	0.0	0.0
	Wet Yr 2	60.4	215.5	7.3	52.1	0.0	0.1	0.0	60.4	215.5	7.0	52.7	0.0	0.0	0.0
B6A-19A	Average	29.7	211.7	3.3	27.2	0.0	0.0	0.0	29.7	211.7	3.1	27.4	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	5.4	51.5	0.0	0.0	0.0	60.4	215.5	5.3	52.4	0.0	0.0	0.0
	Wet Yr 2	60.4	215.5	6.0	53.7	0.0	0.0	0.0	60.4	215.5	5.7	54.3	0.0	0.0	0.0
B7A-0-20	Average	29.7	211.7	3.9	26.4	0.0	0.0	0.0	29.7	211.7	3.7	26.6	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	6.3	50.3	0.0	0.0	0.0	60.4	215.5	6.3	51.1	0.0	0.0	0.0
	Wet Yr 2	60.4	215.5	7.0	52.5	0.0	0.0	0.0	60.4	215.5	6.8	52.9	0.0	0.0	0.0
B7A-40-60	Average	29.7	211.7	4.0	26.3	0.0	0.0	0.0	29.7	211.7	3.7	26.6	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	6.6	49.9	0.0	0.0	0.0	60.4	215.5	6.4	50.8	0.0	0.0	0.0
	Wet Yr 2	60.4	215.5	7.4	52.1	0.0	0.3	0.0	60.4	215.5	7.1	52.6	0.0	0.2	0.0
B9-20-35	Average	29.7	211.7	2.3	28.3	0.0	0.0	0.0	29.7	211.7	2.2	28.4	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	4.0	53.4	0.0	0.0	0.0	60.4	215.5	3.9	54.0	0.0	0.0	0.0
	Wet Yr 2	60.4	215.5	4.4	55.5	0.0	0.3	0.0	60.4	215.5	4.2	55.8	0.1	0.2	0.0
B10-39A	Average	29.7	211.7	3.4	27.2	0.0	0.0	0.0	29.7	211.7	3.2	27.4	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	5.5	51.3	0.1	0.0	0.0	60.4	215.5	5.3	52.3	0.1	0.0	0.0
	Wet Yr 2	60.4	215.5	6.0	53.6	0.1	0.0	0.0	60.4	215.5	5.8	54.2	0.1	0.0	0.0
B10-10-25	Average	29.7	211.7	4.4	25.7	0.0	0.0	0.0	29.7	211.7	4.1	26.0	0.0	0.0	0.0
	Wet Yr 1	60.4	215.5	7.2	49.0	0.0	0.0	0.0	60.4	215.5	7.0	50.0	0.2	0.0	0.0
	Wet Yr 2	60.4	215.5	8.0	51.3	0.0	0.0	0.0	60.4	215.5	7.7	52.0	0.1	0.0	0.0
Clay Composite	Average	29.7	211.7	2.6	21.0	7.0	0.0	0.0	29.7	211.7	2.5	21.0	7.0	0.0	0.0
	Wet Yr 1	60.4	215.5	3.4	31.3	24.7	0.0	0.0	60.4	215.5	3.3	31.5	24.8	0.0	0.0
	Wet Yr 2	60.4	215.5	3.6	32.3	24.9	0.0	0.0	60.4	215.5	3.5	32.5	24.9	0.0	0.0

Soil Sample from Jetty Area	Climate Year in Simulation Series	Annual Water Balance Output (cm)													
		Cover Profile with 14-inch Deep Admixture, Rock size 1.5-in							Cover Profile with 31.5-inch Deep Admixture, Rock size 3.5-in						
		Precip	PET	Transp	Evap	Runoff	Drain @ 4ft	Drain @ 4.5ft	Precip	PET	Transp	Evap	Runoff	Drain @ 4ft	Drain @ 4.5ft
Sand Composite	Average	29.7	211.7	5.2	20.5	4.1	0.0	0.0	29.7	211.7	5.2	20.5	4.1	0.0	0.0
	Wet Yr 1	60.4	215.5	7.6	33.8	15.6	0.0	0.0	60.4	215.5	7.3	34.5	15.7	0.0	0.0
	Wet Yr 2	60.4	215.5	8.4	35.5	15.7	0.0	0.0	60.4	215.5	8.0	36.2	15.8	0.0	0.0

Figure 1 presents a graphical summary of computer simulations flux (cm/yr) versus depth (cm) for each year of each simulation for a cover profile with a 14-inch-thick admixture layer (1.5-inch diameter rock). This depth of cover soil where flux is minimized is referred to as the Dwyer Point of Diminishing Returns Method (Dwyer et al 2007). The 'point of diminishing returns' (PODR) is defined as the depth at which flux is effectively minimized; that is, the depth at which an additional increment of soil will no longer significantly reduce the flux. For all of these simulations the PODR is where the net annual flux is reduced to zero at a depth less than the 4.5-ft cover thickness. Thus 40 CFR 264.310, 20.3.13.1313 NMAC, and 10 CFR 61.51 are satisfied in that flux through the cover is minimized.

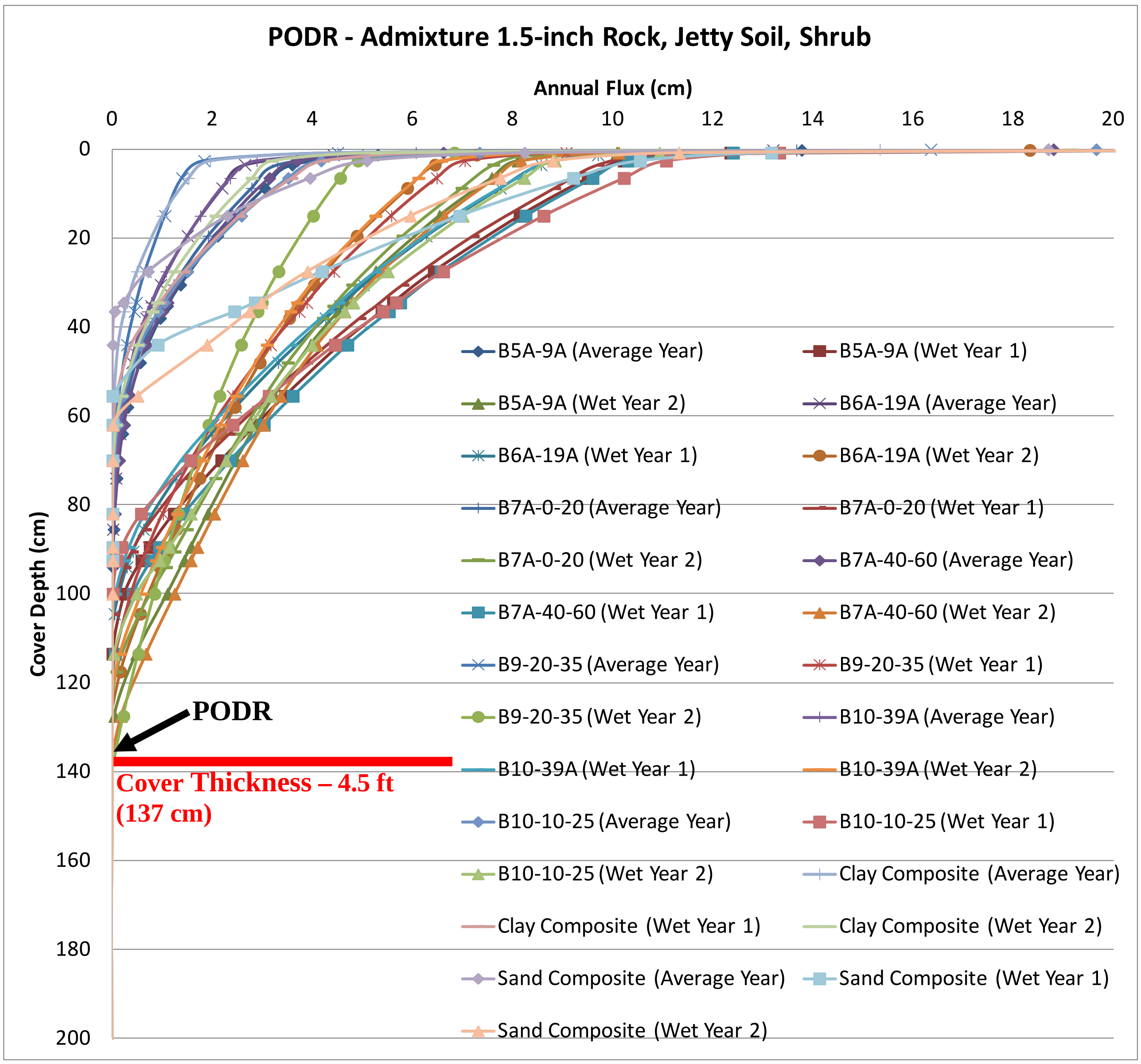

Figure 1. Annual Flux versus Cover Depth – Cover Profile with 14-inch Thick Surface Admixture Layer

Figures 2 to 4 present the data in Figure 1 broken out by respective climate year for clarity. Figure 2 presents a graphical summary of the output from each computer simulations evaluating the available Jetty area soil samples (Stantec 2018) for the typical climate year for a cover profile with a 14-inch-thick surface admixture layer (1.5-inch diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth of about 3 ft (91 cm).

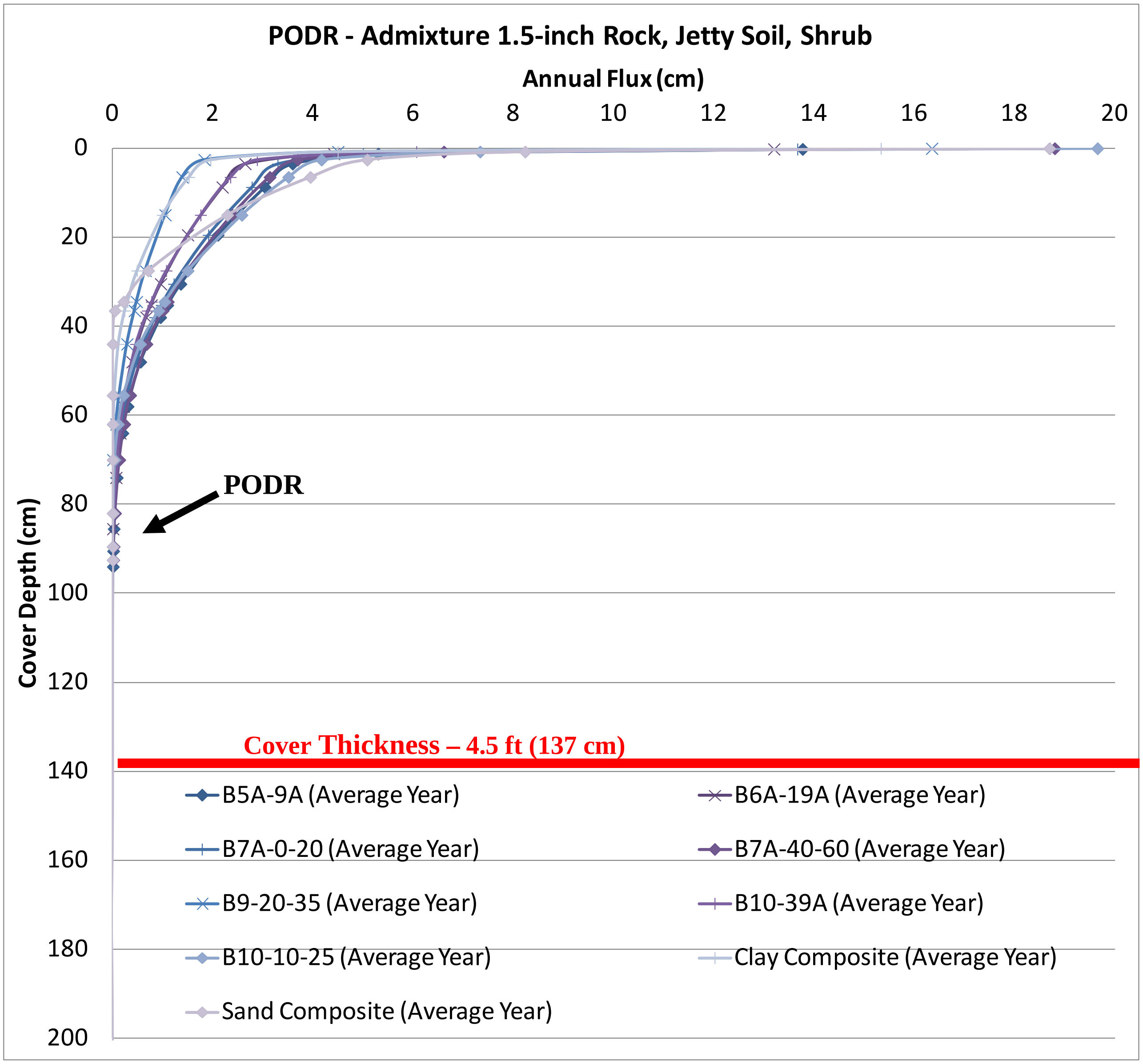

Figure 2. Annual Flux versus Cover Depth for Typical Climate Year for 14-inch (1.5-in dia. Rock) Surface Admixture Layer

Figure 3 presents a graphical summary of the output from each computer simulation representative of the available Jetty area soil samples (Stantec 2018) for the wettest year on record for a cover profile with a 14-inch-thick surface admixture layer (1.5-in diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth less than 4 ft (122 cm).

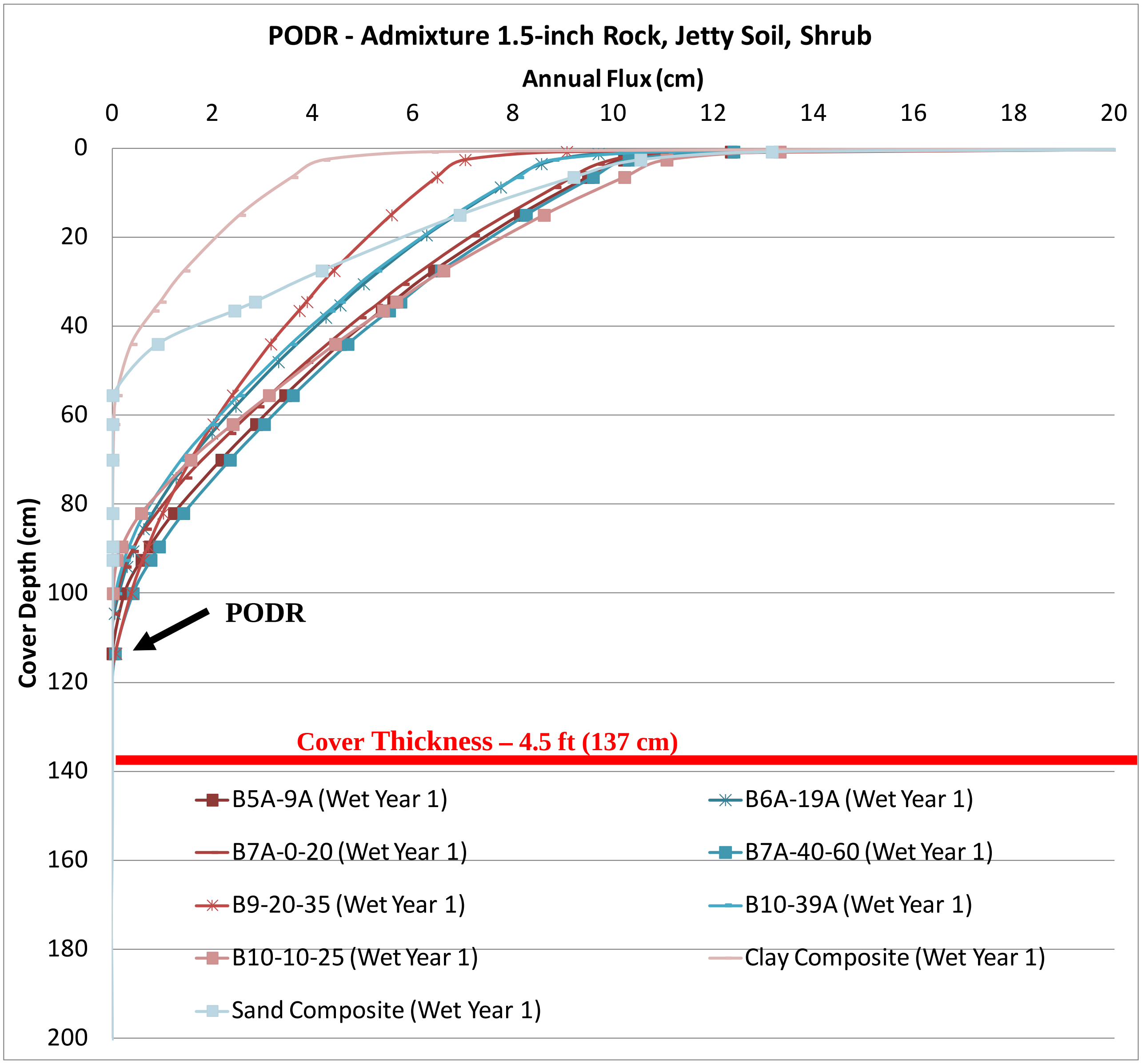

Figure 3. Annual Flux versus Cover Depth for Wettest Year on Record for 14-inch (1.5-in dia. Rock) Surface Admixture Layer

Figure 4 presents a graphical summary of the output from each computer simulation representative of the available Jetty area soil samples (Stantec 2018) for second consecutive wettest year on record for a cover profile with a 14-inch-thick surface admixture layer (1.5-in diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth less than 4.5 ft (137 cm).

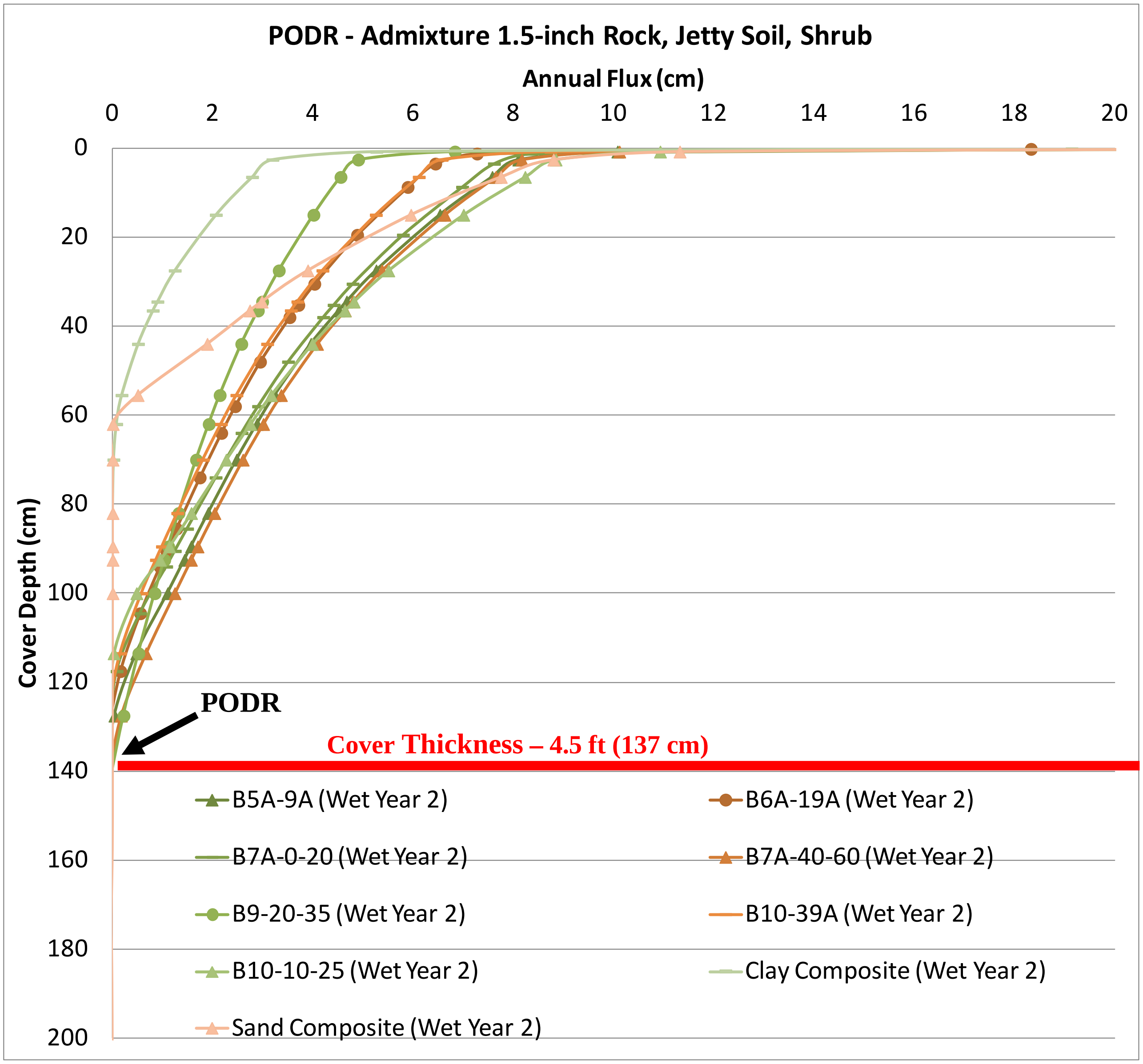

Figure 4. Annual Flux versus Cover Depth for the Second of Consecutive Wettest Years on Record for 14-inch (1.5-in dia. Rock) Surface Admixture Layer

Figure 5 presents a graphical summary of computer simulations flux (cm/yr) versus depth (cm) for each year of each simulation for a cover profile with a 31.5-inch thick admixture layer (3.5-inch diameter rock). For all of these simulations the PODR is where the net annual flux is reduced to zero at a depth less than the 4.5-ft cover thickness. Thus 40 CFR 264.310, 20.3.13.1313 NMAC, and 10 CFR 61.51 are satisfied in that flux through the cover is minimized.

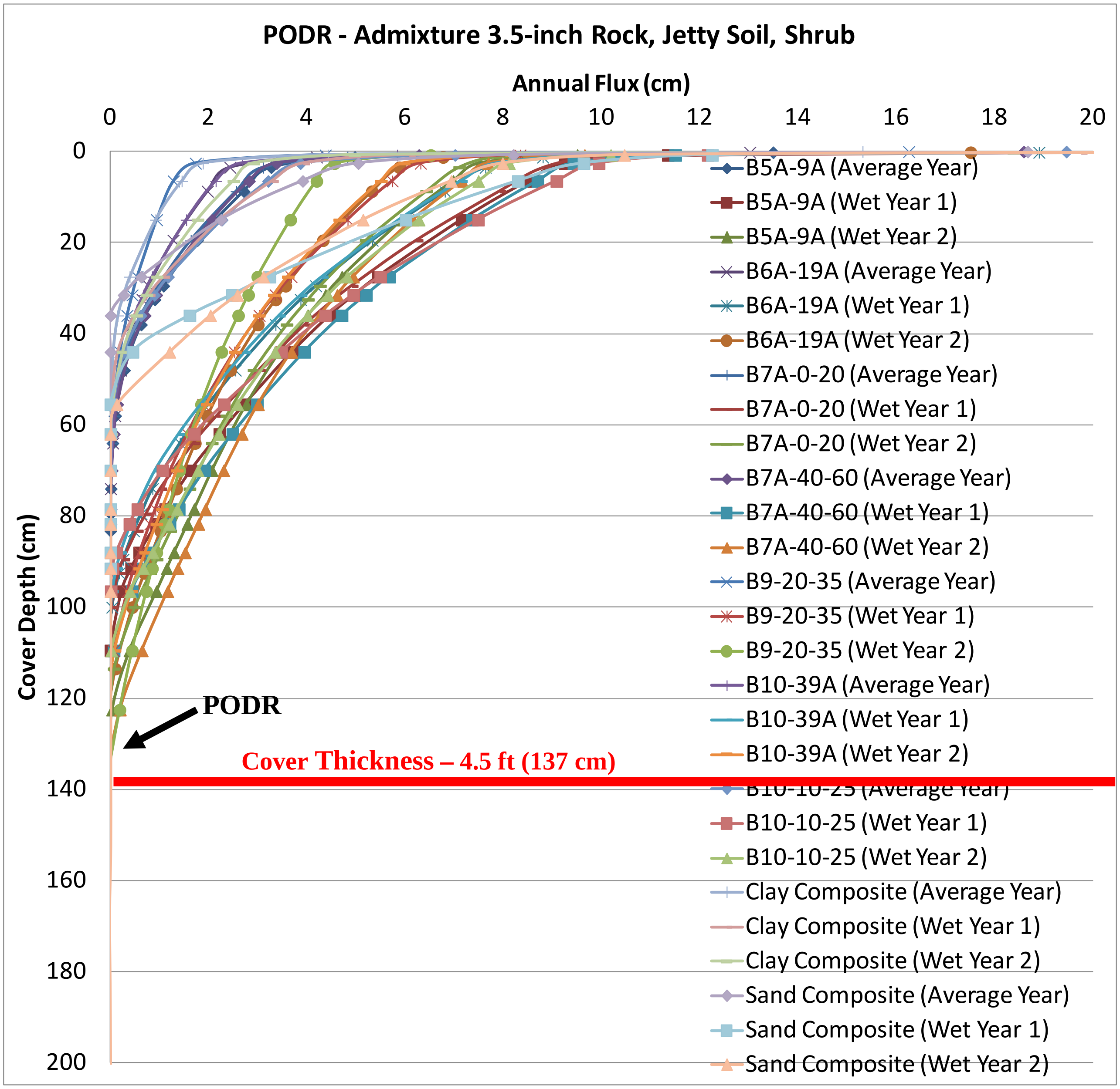

Figure 5. Annual Flux versus Cover Depth – Cover Profile with 31.5-inch Thick Surface Admixture Layer

Figures 6 to 8 present the data in Figure 5 broken out by respective climate year for clarity. Figure 6 presents a graphical summary of the output from each computer simulation representative of the available Jetty area soil samples (Stantec 2018) for the typical climate year for a cover profile with a 31.5-inch thick surface admixture layer (3.5-inch diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth less than 3 ft (91 cm).

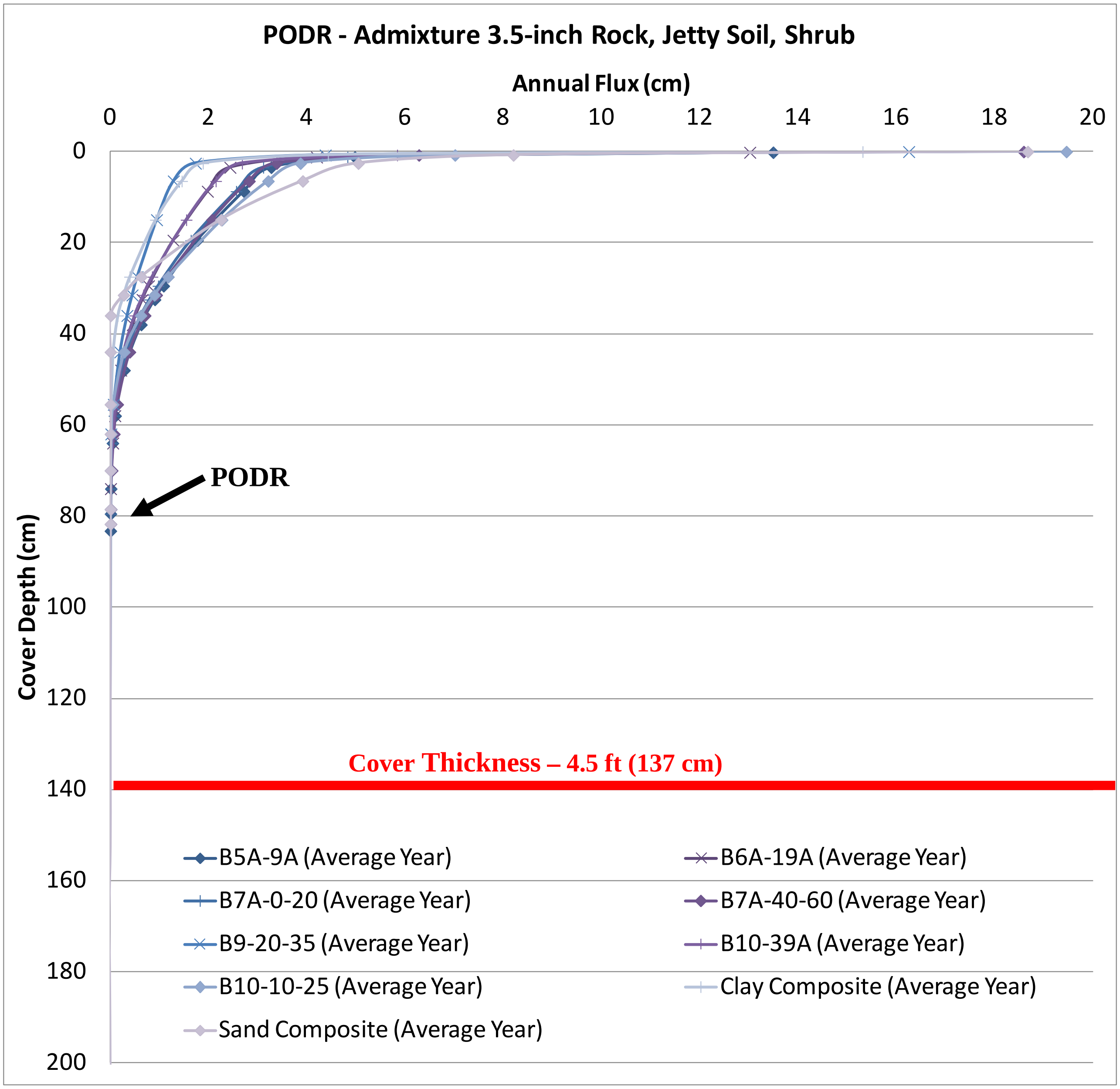

Figure 6. Annual Flux versus Cover Depth for Typical Climate Year for 14-inch (1.5-in dia. Rock) Surface Admixture Layer

Figure 7 presents a graphical summary of the output from each computer simulation representative of the available Jetty area soil samples (Stantec 2018) for the wettest year on record for a cover profile with a 31.5-inch thick surface admixture layer (3.5-inch diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth less than 4 ft (122 cm).

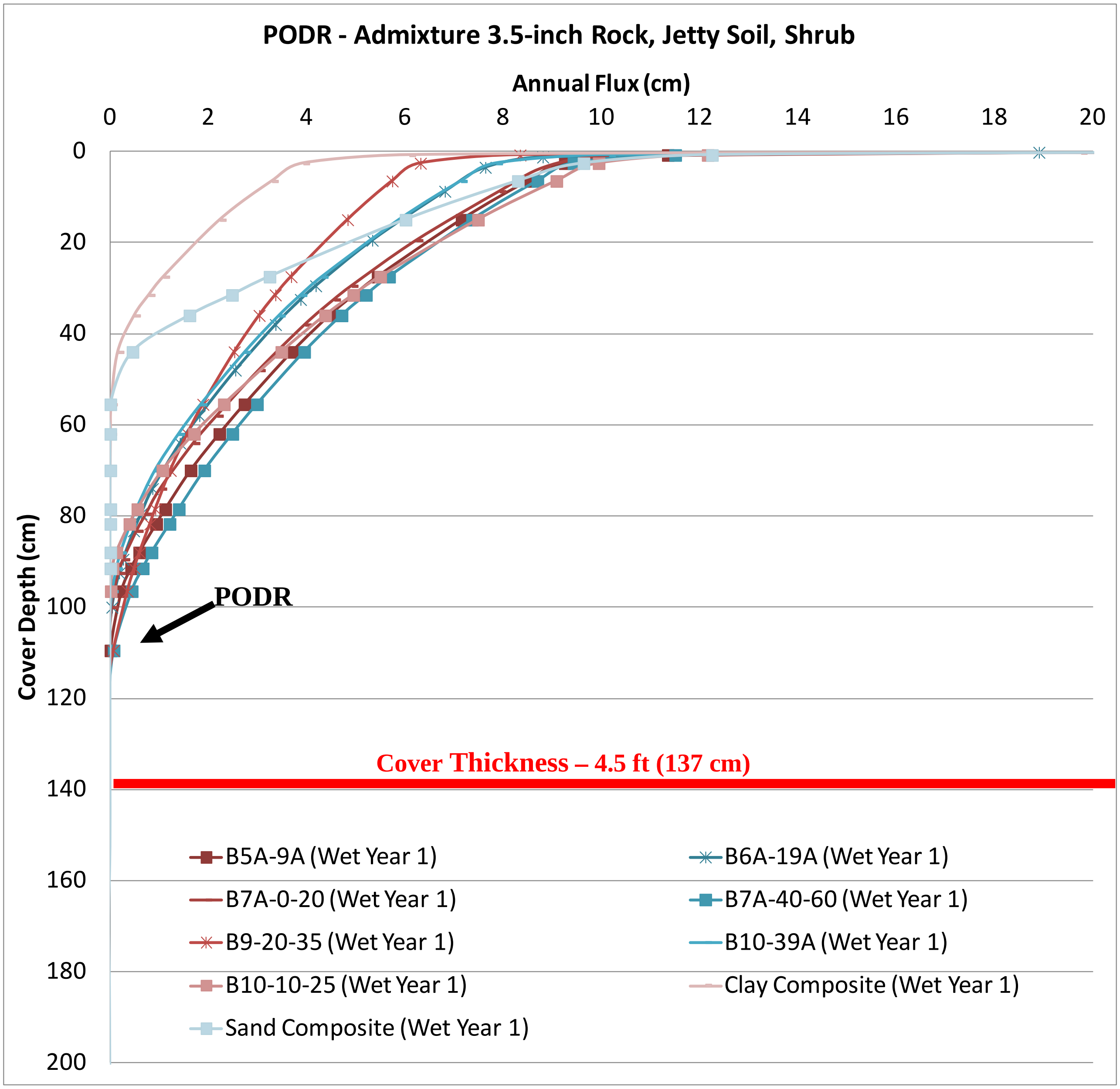

Figure 7. Annual Flux versus Cover Depth for Wettest Year on Record for 31.5-inch (3.5-in dia. Rock) Surface Admixture Layer

Figure 8 presents a graphical summary of the output from each computer simulation representative of the available Jetty area soil samples (Stantec 2018) for second consecutive wettest year on record for a cover profile with a 31.5-inch thick surface admixture layer (3.5-inch diameter rock). It can be seen that the PODR and in these cases net annual zero flux is achieved at a cover depth less than 4.5 ft (137 cm).

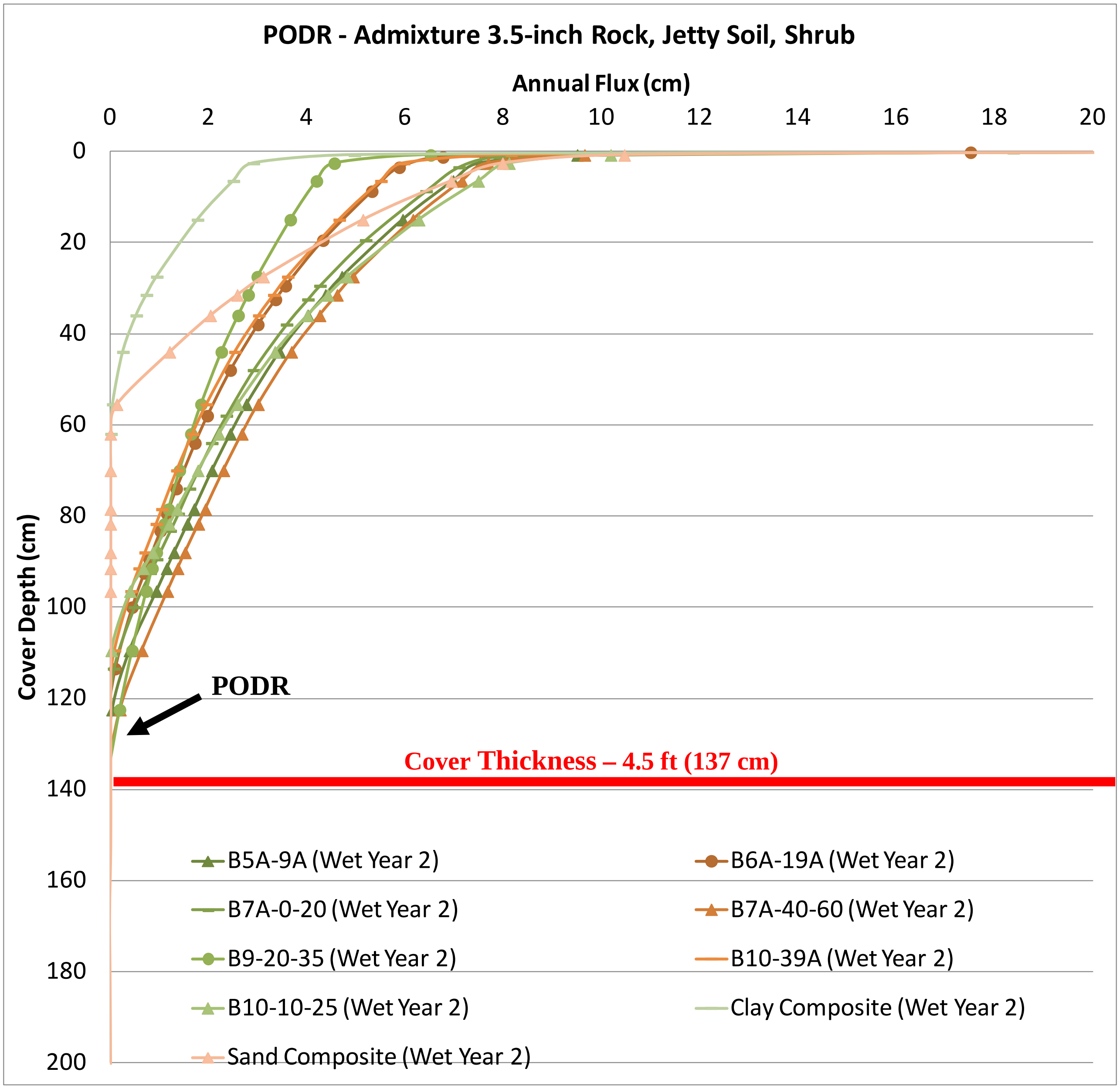

Figure 8. Annual Flux versus Cover Depth for the Second of Consecutive Wettest Years on Record for 31.5-inch (3.5-in dia. Rock) Surface Admixture Layer

APPENDIX B

LONG-TERM MODELING SIMULATIONS OF COVER PROFILES

TABLES

The long-term evaluation of the 4.5 ft cover profiles overlying the mine spoils simulated the potential changes through time, varying the vegetation properties as they evolve. Typical and extreme climate conditions are included. The cover profile with a 14-inch-thick surface admixture layer was utilized as it was the profile with Soil Sample B9-20-35 that produced the worst case scenario. That is, the profile that utilized soil hydraulic properties from Jetty area soil sample B9-20-35 with the 14-inch-thick admixture surface layer produced the deepest PODR.

The first set of long-term simulations was performed with the worst case input parameters for the cover profile. The annual water balance output for each year simulated is summarized in Table 1.

Table 1. Annual Water Balance Results for Long-Term Cover Profile Simulation

Simulation Year	Vegetation	Annual Water Balance Results (cm/yr)					
		Precip	PET	Transp	Evap	Runoff	Drain @ 4.5ft (137cm)
1	No Vegetation	29.74	211.74	0.00	39.75	0	0
2	No Vegetation	29.74	211.74	0.00	31.48	0	0
3	No Vegetation	29.74	211.74	0.00	30.60	0	0
4	Reclaimed	29.74	211.74	2.55	28.11	0	0
5	Reclaimed	29.74	211.74	1.18	27.60	0	0
6	Reclaimed	29.74	211.74	1.21	27.57	0	0
7	Reclaimed	29.74	211.74	1.39	27.58	0	0
8	Reclaimed	29.74	211.74	1.53	27.59	0	0
9	Reclaimed	29.74	211.74	1.61	27.60	0	0
10	Reclaimed	29.74	211.74	1.66	27.61	0	0
11	Reclaimed	29.74	211.74	1.70	27.61	0	0
12	Reclaimed	29.74	211.74	1.72	27.62	0	0
13	Reclaimed	29.74	211.74	1.75	27.62	0	0
14	Reclaimed	60.35	215.46	6.77	50.43	0	0
15	Reclaimed	60.35	215.46	7.44	52.25	0.004	0
16	Reclaimed	29.74	211.74	2.85	29.30	0	0
17	Reclaimed	29.74	211.74	2.03	27.69	0	0
18	Reclaimed	29.74	211.74	1.87	27.65	0	0
19	Reclaimed	29.74	211.74	1.83	27.63	0	0
20	Reclaimed	29.74	211.74	1.83	27.63	0	0
21	Reclaimed	29.74	211.74	1.83	27.63	0	0
22	Reclaimed	29.74	211.74	1.84	27.63	0	0
23	Reclaimed	29.74	211.74	1.84	27.63	0	0
24	Grassland	29.74	211.74	3.92	28.57	0	0
25	Grassland	29.74	211.74	2.52	28.64	0	0
26	Grassland	29.74	211.74	1.92	28.56	0	0
27	Grassland	29.74	211.74	1.66	28.52	0	0
28	Grassland	29.74	211.74	1.54	28.51	0	0

Simulation Year	Vegetation	Annual Water Balance Results (cm/yr)					
		Precip	PET	Transp	Evap	Runoff	Drain @ 4.5ft (137cm)
29	Grassland	29.74	211.74	1.48	28.51	0	0
30	Grassland	29.74	211.74	1.44	28.50	0	0
31	Grassland	29.74	211.74	1.41	28.50	0	0
32	Grassland	29.74	211.74	1.40	28.50	0	0
33	Grassland	29.74	211.74	1.39	28.50	0	0
34	Grassland	60.35	215.46	4.02	53.12	0.001	0
35	Grassland	60.35	215.46	4.76	55.10	0.004	0
36	Grassland	29.74	211.74	2.51	30.37	0	0
37	Grassland	29.74	211.74	1.78	28.63	0	0
38	Grassland	29.74	211.74	1.52	28.55	0	0
39	Grassland	29.74	211.74	1.42	28.52	0	0
40	Grassland	29.74	211.74	1.37	28.51	0	0
41	Grassland	29.74	211.74	1.35	28.50	0	0
42	Grassland	29.74	211.74	1.34	28.50	0	0
43	Grassland	29.74	211.74	1.33	28.50	0	0
44	Shrubland	29.74	211.74	2.15	28.28	0	0
45	Shrubland	29.74	211.74	1.98	28.21	0	0
46	Shrubland	29.74	211.74	1.87	28.19	0	0
47	Shrubland	29.74	211.74	1.81	28.18	0	0
48	Shrubland	29.74	211.74	1.76	28.17	0	0
49	Shrubland	29.74	211.74	1.74	28.17	0	0
50	Shrubland	29.74	211.74	1.72	28.17	0	0
51	Shrubland	29.74	211.74	1.70	28.17	0	0
52	Shrubland	29.74	211.74	1.69	28.16	0	0
53	Shrubland	29.74	211.74	1.68	28.16	0	0
54	Shrubland	60.35	215.46	3.47	53.11	0	0
55	Shrubland	60.35	215.46	3.96	55.29	0.004	0
56	Shrubland	29.74	211.74	2.59	30.22	0	0
57	Shrubland	29.74	211.74	2.18	28.42	0	0
58	Shrubland	29.74	211.74	1.99	28.29	0	0
59	Shrubland	29.74	211.74	1.88	28.23	0	0
60	Shrubland	29.74	211.74	1.80	28.20	0	0
61	Shrubland	29.74	211.74	1.75	28.19	0	0
62	Shrubland	29.74	211.74	1.72	28.18	0	0
63	Shrubland	29.74	211.74	1.70	28.17	0	0

The second set of long-term simulations was the same cover profile input properties over Profile B8 that included the mine spoils and existing tailings. However, the cover profile was conservatively set at 4 ft deep. This annual water balance output is summarized in Table 2.

Table 2. Annual Water Balance Results for Long-Term Simulation over Profile B8

Simulation Year	Vegetation	Annual Water Balance Results (cm/yr)					
		Precip	PET	Transp	Evap	Runoff	Drain @ 4.5ft (137cm)
1	No Vegetation	29.74	211.74	0.00	42.61	0	0
2	Reclaimed	29.74	211.74	4.67	28.89	0	0
3	Reclaimed	29.74	211.74	3.09	27.47	0	0
4	Reclaimed	29.74	211.74	2.74	27.36	0	0
5	Reclaimed	29.74	211.74	2.62	27.33	0	0
6	Reclaimed	29.74	211.74	2.57	27.32	0	0
7	Reclaimed	29.74	211.74	2.54	27.31	0	0
8	Reclaimed	29.74	211.74	2.52	27.31	0	0
9	Reclaimed	29.74	211.74	2.51	27.31	0	0
10	Reclaimed	29.74	211.74	2.50	27.31	0	0
11	Reclaimed	29.74	211.74	2.49	27.30	0	0
12	Reclaimed	60.35	215.46	7.48	50.04	0.003	0
13	Reclaimed	60.35	215.46	8.14	51.92	0.009	0
14	Reclaimed	29.74	211.74	3.53	29.03	0	0
15	Reclaimed	29.74	211.74	2.69	27.36	0	0
16	Reclaimed	29.74	211.74	2.52	27.32	0	0
17	Reclaimed	29.74	211.74	2.46	27.30	0	0
18	Reclaimed	29.74	211.74	2.45	27.30	0	0
19	Reclaimed	29.74	211.74	2.44	27.30	0	0
20	Reclaimed	29.74	211.74	2.44	27.30	0	0
21	Reclaimed	29.74	211.74	2.43	27.30	0	0
22	Grassland	29.74	211.74	4.83	28.19	0	0
23	Grassland	29.74	211.74	2.96	28.25	0	0
24	Grassland	29.74	211.74	2.31	28.18	0	0
25	Grassland	29.74	211.74	2.07	28.15	0	0
26	Grassland	29.74	211.74	1.97	28.14	0	0
27	Grassland	29.74	211.74	1.91	28.13	0	0
28	Grassland	29.74	211.74	1.88	28.13	0	0
29	Grassland	29.74	211.74	1.87	28.13	0	0
30	Grassland	29.74	211.74	1.85	28.13	0	0
31	Grassland	29.74	211.74	1.84	28.13	0	0
32	Grassland	60.35	215.46	4.89	52.39	0.004	0
33	Grassland	60.35	215.46	5.70	54.35	0.009	0
34	Grassland	29.74	211.74	3.02	29.97	0	0
35	Grassland	29.74	211.74	2.20	28.24	0	0
36	Grassland	29.74	211.74	1.94	28.16	0	0

Simulation Year	Vegetation	Annual Water Balance Results (cm/yr)					
		Precip	PET	Transp	Evap	Runoff	Drain @ 4.5ft (137cm)
37	Grassland	29.74	211.74	1.85	28.14	0	0
38	Grassland	29.74	211.74	1.81	28.14	0	0
39	Grassland	29.74	211.74	1.79	28.13	0	0
40	Grassland	29.74	211.74	1.78	28.13	0	0
41	Grassland	29.74	211.74	1.78	28.13	0	0
42	Shrubland	29.74	211.74	2.37	28.07	0	0
43	Shrubland	29.74	211.74	2.20	28.03	0	0
44	Shrubland	29.74	211.74	2.10	28.01	0	0
45	Shrubland	29.74	211.74	2.03	28.00	0	0
46	Shrubland	29.74	211.74	1.99	28.00	0	0
47	Shrubland	29.74	211.74	1.96	27.99	0	0
48	Shrubland	29.74	211.74	1.94	27.99	0	0
49	Shrubland	29.74	211.74	1.93	27.99	0	0
50	Shrubland	29.74	211.74	1.92	27.99	0	0
51	Shrubland	29.74	211.74	1.91	27.99	0	0
52	Shrubland	60.35	215.46	3.68	52.93	0.003	0
53	Shrubland	60.35	215.46	4.17	55.14	0.009	0
54	Shrubland	29.74	211.74	2.81	30.11	0	0
55	Shrubland	29.74	211.74	2.41	28.27	0	0
56	Shrubland	29.74	211.74	2.21	28.13	0	0
57	Shrubland	29.74	211.74	2.10	28.06	0	0
58	Shrubland	29.74	211.74	2.03	28.03	0	0
59	Shrubland	29.74	211.74	1.98	28.01	0	0
60	Shrubland	29.74	211.74	1.95	28.01	0	0
61	Shrubland	29.74	211.74	1.93	28.00	0	0

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Appendix H:

Borrow Areas

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LIST OF ACRONYMS / ABBREVIATIONS

AOC	Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
BMP	best management practice
CC	Construction Contractor
CY	cubic yard(s)
GE/UNC	General Electric/United Nuclear Corporation
GSR	Green and Sustainable Remediation
Mill Site	Church Rock Mill Site
Mine Site	Northeast Church Rock Mine Site
NECR	Northeast Church Rock
NRC	US Nuclear Regulatory Commission
PDS	Pre-Design studies
PTW	principal threat waste
RA	Removal Action
RAL	removal action limit
RAO	Remedial Action Objective or Removal Action Objective
ROD	Record of Decision
SOW	Statement of Work
TDA	Tailings Disposal Area
USEPA	US Environmental Protection Agency

H.1 INTRODUCTION

H.1.1 Project Background

The Northeast Church Rock (NECR) Mine Site (Mine Site) Removal Action (RA) consists of excavation and removal of mine waste consisting of soil, rock and debris. This material will be placed within a repository near the former Church Rock Mill Site (Mill Site). Dwyer Engineering, LLC is designing an evapotranspirative soil and rock cover for the repository (see Appendix G). Clean soil and rock fill will be required for final grading and contouring as well as for erosion protection for the soil cover system and associated site reclamation. This appendix discusses sources for clean soil and rock fill materials required for the project. The Northeast Church Rock Mine Site Removal Action Pre-Design Studies (PDS) Report for the Church Rock Mill Site (MWH, 2014) provide geotechnical characterization of the proposed borrow areas. Specifically, this appendix provides the following information:

- Demonstration that the borrow areas providing cover material for the NECR repository meet requirements of the Performance Standards identified in the 2011 Action Memo (USEPA, 2011), Record of Decision (ROD; USEPA, 2013), and the Administrative Settlement Agreement and Order on Consent for Design and Cost Recovery Statement of Work (AOC SOW; USEPA, 2015). US Nuclear Regulatory Commission (NRC) requirements for soil and rock are included in documents listed above.
- Locations and assumptions for estimates of available borrow material at each proposed on-site soil borrow area, including material management strategies, estimated limits of excavations, and identification of temporary stormwater and erosion controls to be used during borrow activities.
- Excavation and final grading plans for each borrow area.
- Proposed reclamation activities at each borrow area.
- Identification of local rock quarry sources and the quality and quantity of available rock, including determination of rock durability and quarry screening capabilities.
- Considerations for Green and Sustainable Remediation (GSR).

H.2 PERFORMANCE STANDARDS

The Performance Standards presented here are defined in the Action Memorandum: Request for a Non-Time-Critical Removal Action at the Northeast Church Rock Site (2011 Action Memo; USEPA, 2011), the ROD, (USEPA, 2013), and the AOC (USEPA, 2015) including the SOW attached as Appendix D to the AOC, and were developed to define attainment of the Removal Action and Remedial Action Objectives (RAOs) for the Selected Remedy. The Performance Standards include both general and specific standards applicable to the Selected Remedy work elements and associated work components. Table H.2-1 presents performance standards related to the borrow areas and borrow materials for construction and explains how the design accomplishes these standards.

Table H.2-1: Task Specific Performance Standards

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
95	2011 Action Memo, V.A.1, Bullet 8 – Site Restoration	Site Restoration	Restoration activities will include the backfilling and regrading of excavation areas for erosion and stormwater control. These areas will also be re-vegetated with native species	Excavated borrow areas will be regraded to provide stable slopes and enhance control of erosion and stormwater. Disturbed areas will be revegetated in accordance with the revegetation plan. See Sections H.4.3, H.4.4 and Appendix U.
43	2013 ROD, Section 2.9.5, Stormwater and Erosion Control	Storm Water and Erosion Control	Disturbed areas will be graded to reduce scouring and erosion potential using gentle slopes, terraces, earthen ridges and catch drains (swales) as necessary. These controls will also be used to minimize the potential for ponded water, reduce the risk of percolation from ponded water, and divert water away from open disposal locations, construction areas, and exposed mine waste. The drainage patterns in the disturbed areas will be integrated with the existing topography and drainage patterns to the extent possible. During construction activities, stormwater controls may include stormwater control channels (header), weirs, spillways, catch basins, check dams, and sediment basins. These controls will be implemented to maintain a safe working environment, to protect human health and the environment, mitigate off-site migration of mine waste, and protect response construction actions.	Borrow areas will be excavated to maintain positive drainage away from the borrow sites. Excavated slopes will not exceed 3H:1V to mitigate against slope instability and erosion. Temporary best management practices (BMPs) for sediment control in disturbed areas will be implemented. Additional stormwater controls are not anticipated to be required due to existing topography at the borrow areas and anticipated storm events. See Sections H.4.2, H.4.3 and H.4.4.

Identifying Number*	Location of Performance Standard Requirement	Topic	Performance Standard	Comments
2	2015 AOC SOW, Paragraph 17 – Soil Transportation and Management	Soil Transport and Management	In the Design, Respondents shall provide detailed plans and specifications explaining how mine waste from the NECR Site and other materials (including borrow, backfill, and cover materials) will be managed and transported. Respondents shall include details for ensuring that Principal Threat Waste from the NECR Site, as described in the 2011 Action Memo, is not transported to the UNC Site or disposed at the Tailings Disposal Area.	Management and transport of mine waste is addressed in appendices C, D, and M. Borrow materials are anticipated to be directly loaded and transported to the repository on haul roads designated for clean material (e.g. roads not used for transportation of mine waste). Rock will be hauled from offsite and will likely be stockpiled in a clean area near the repository. Management of principal threat waste (PTW) is described in Appendix C. See Section H.4.2, and appendices C and D.
12	2015 AOC SOW, Paragraph 27 – Site Restoration	Site Restoration	In the Design, Respondents shall include detailed plans and specifications for restoration of the Tailings Disposal Area and borrow areas on the UNC Site and for restoration of the NECR Site. Respondents shall also include plans and specifications for contouring to promote drainage, and for re-vegetation of the Tailings Disposal Area, borrow pits and NECR Site with native species. Respondents shall include plans and specifications for backfilling and regrading of disturbed (e.g., excavated) areas in the NECR Site and the UNC Site for erosion and storm water control, including re-vegetation of those areas with native species	Design plans and specifications have been prepared with regrading and revegetation plans to promote drainage, control stormwater and erosion. Disturbed areas will be revegetated in accordance with project requirements See Section H.4.4 and Appendix U.
14	2015 AOC SOW, Paragraph 29 – Green Remediation Best Management Practices	Green Remediation Best Management Practices	Respondents shall incorporate applicable Best Management Practices for Green Remediation listed in ASTM-E2893-13 consistent with USEPA's policy Superfund Green Remediation Strategy (2010), found at http://www.epa.gov/superfund/greenremediation/sf-gr-strategy.pdf.	Proposed BMPs for green remediation for the borrow areas are described in Section H.5.

*Refers to identifying numbers listed in Summary of ARARs, Performance Standards and Applicable NRC Design Requirements Table (provided in Attachment 1 to main text of the 95% Design Report)

H.3 ENGINEERING DESIGN DRAWINGS

The engineering design drawings for the borrow areas are contained in Volume II – Design Drawings (Section 8). The complete set of Drawings related to the borrow areas are listed in Table H-3.1 and referenced by sheet number in the text.

Table H.3-1: Engineering Design Drawings

Drawing No.	Drawing Title
8-01	Borrow Areas Location Map
8-02	Jetty Borrow Area
8-03	West Borrow Area
8-04	West Borrow Area Backfilled
8-05	East Borrow Area
8-06	South Borrow Area

H.4 BORROW AREAS

Soil and rock are required for repository construction, including general fill to meet surface design grades, for the cover system and for long-term stormwater controls. As part of the PDS, MWH estimated that approximately 400,000 cubic yards (CY) of soil and rock for the cover system as well as clean general fill will be required for the project (MWH, 2014).

The current repository cover design consists of a 4.5-foot-thick cover system, separated into an upper erosion protection layer and a lower soil layer (with varying thicknesses of layers). The design erosion protection layer is comprised of a soil rock admixture with median rock sizes varying from 1.5 inches to 3.5 inches, depending on the surface grading, and the rock will be mixed with soil at about 33 percent, or 15 percent, by volume. Design criteria and the preliminary design for the soil cover system are discussed in Appendix G. Stantec does not anticipate that additional fill or cover material from the borrow areas will be required for the excavated Mine Site Area, since clean fill is available within the Mine Site Area for final grading and drainage requirements, if needed.

The estimated soil and rock volumes required for repository construction are provided in Table H.4-1 and detailed in the following sections.

Table H.4-1: Project Soil and Rock Material Volume Requirements

Material Type	Quantity Required (CY)
Soil to fill existing cover swales	11,000
Soil for cover layers	430,000
Clean soil fill for grading around repository	12,000
Rock for repository erosion protection	60,000
Rock for stormwater controls	102,200
Filter material for stormwater controls	43,300

H.4.1 On-Site Borrow

Four proposed on-site borrow areas were identified during the PDS to meet the repository volume and material property requirements. An additional proposed borrow source, the jetty excavation, was identified during the 95% NECR design. The proposed improvements to the jetty area will require a significant volume of excavated material that can be used for construction. Details on the investigation and development of the five proposed borrow areas are provided in Sections H.4.1.1 through H.4.1.7. Additional on-site material, available for use in other project applications, is discussed in Section H.4.1.9. All five borrow areas are approved by Dwyer Engineering, LLC for cover soil on the Repository.

H.4.1.1 Borrow Area Investigations

Three borrow area investigations have been completed within the proposed borrow areas. The first investigation was completed in 2008 and consisted of 13 test pits excavated within the East Borrow Area and 12 test pits within the West Borrow Area. The 13 test pits within the East Borrow Area were excavated to depths ranging from 8 to 12 feet, while the depths of test pits located in the West Borrow Area ranged from 4 feet to 12 feet (MWH, 2012).

A second borrow area investigation was performed as part of the PDS in November and December 2013. This investigation was completed to further characterize and estimate available material quantities within the borrow areas. Seventeen boreholes were completed within four of the proposed borrow areas, with a minimum of two boreholes in each borrow area. Drilling depths

varied from 10 to 60 feet depending on borehole location within the borrow area and depths to bedrock. Continuous (dry-core) and bulk samples were collected and sent to a laboratory for geotechnical, analytical, and agronomic testing (MWH, 2014).

Analytical radiologic testing was completed on samples from each proposed borrow area to determine if the borrow material was suitable for use in the repository cover system. Test results indicate that radium-226 levels are between 0.8 and 1.7 pCi/g for the borrow materials tested. These test results are included in the Mill Site PDS Report (MWH, 2014).

Geotechnical and agronomic testing at the jetty excavation site was completed in 2016-2017 and during the 2018 investigation. Initial geotechnical test results and interpretation information is included in the Jetty Geotechnical Report (Attachment I.9 of Appendix I of this Design Report). The Jetty report from the 2018 investigation includes further geotechnical testing and detailed comparison of borrow source materials (Stantec, 2019). Attachment H.2 contains supplementary geotechnical testing data. A summary of the geotechnical data from the jetty area is included in Section H.4.1.7. The agronomic data for the jetty soils is included in Appendix P.

H.4.1.2 Borrow Areas Grading Plan Design

With the exception of the jetty excavation borrow, data collected from each borrow area investigation was used to develop preliminary borrow area grading plans to estimate available borrow material in each area. The design basis for the borrow area excavation and final grading plans is provided in Table H.4-2. The individual design basis items comply with regulatory requirements and/or generally accepted engineering practice and meet the overall project design criteria as provided in the Design Work Plan (MWH, 2016). The design basis and determination of borrow volume available for the jetty excavation is included in the description of the jetty design provided in Appendix I of this Design Report.

Table H.4-2: Borrow Excavation and Final Grading Design Basis

Design Category	Design Basis	Reference
Borrow Material	Borrow material meets the geotechnical property requirements (fines content) for use in the repository soil cover system.	Repository cover design (Dwyer Engineering, 2017)
Borrow Slopes	The borrow area slopes have been designed with a nominal slope of 5H:1V, with no slopes steeper than 3H:1V. Borrow area slope lengths have been shortened where possible.	New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division – Closeout Plan Guidelines for Existing Mines (NMEMND, 1996)
Archeological/Cultural Sites	Identified archeological/cultural sites have been accounted for in the borrow areas development designs.	New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division – Closeout Plan Guidelines for Existing Mines (NMEMND, 1996)
Radiologic Requirement	Radiologic sampling was completed at each of the proposed borrow locations to confirm that the borrow material to be used for construction will not contain concentrations of RA-226 or Uranium exceeding the RAL.	2015 AOC (USEPA, 2015)
Temporary Stormwater/Erosion Controls Design Storm Event	Design Storm for Temporary Stormwater/Erosion Controls: 2-year, 24-hour storm.	Engineer's experience and judgment
Borrow Excavation Depths	Borrow area excavation depths have been developed from review of available information. Borrow area configurations have been designed to maximize suitable available materials, based on known information.	Engineer's experience and judgment based on review of existing site information (MWH, 2014)

Design Category	Design Basis	Reference
Borrow Clearing and Grubbing	Preparation of borrow areas and locations for borrow material stockpiles will include clearing and grubbing to a depth of 12 inches.	Engineer's experience and judgment based on review of existing site information
Long-Term Stormwater/Erosion Control	Excavated borrow areas will be graded to provide for long-term slope stability as well as positive drainage from the borrow area to existing drainages.	New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division – Closeout Plan Guidelines for Existing Mines (NMEMND, 1996)
Site Reclamation	Disturbed areas in and around the proposed borrow areas will be reclaimed and revegetated.	New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division – Closeout Plan Guidelines for Existing Mines (NMEMND, 1996)

Estimated available material volumes for each proposed borrow area and materials currently on site are provided in Table H.4-3 and are discussed in the following sections. The proposed grading plans for the borrow areas provide positive surface drainage. Should additional borrow material be required, borrow slopes may be steepened to maximum slopes of 3H:1V, if stable. Additional on-site materials, discussed in Section H.4.1.9, are also included in Table H.4-3.

Table H.4-3: Available On-Site Material Volumes (Soil and Rock)

Location	Material Type	Estimated Volume (CY)
North Borrow Area	Soil	71,000
South Borrow Area	Soil	160,000
East Borrow Area	Soil	55,000
West Borrow Area	Soil	89,000
Jetty Excavation[1]	Soil	486,500
Jetty Excavation[2]	Rock	49,000
Topsoil Stockpile	Soil	20,000
Stripped Tailings Impoundment Cover	Soil	24,000
Stripped Tailings Impoundment Cover	Rock [3]	17,000
Tailings Impoundment Swales[4]	Rock	2,000
Two 1-inch Rock Stockpiles	Rock	6,000
Various Rock Sizes Stockpiles (6" – 15")	Rock	1,000
Crusher Fines	-	1,300
Road Base	-	700

Notes:

1. The Jetty soils can be used as cover soils or in other areas of the project for general fill.
2. The sandstone from the jetty excavation will not meet NRC durability requirements for erosion protection and cannot be used on the TDA except as general fill.
3. Erosion protection layer to be removed from existing Tailings Disposal Area (TDA) within the repository contains median 1.5-inch rock.
4. Existing swales within the repository will be stripped of erosion protection rock and filled.

H.4.1.3 West Borrow Area

The West Borrow Area is located southwest of the proposed repository location. Based on borehole and test pit logs, depth to the underlying bedrock within the proposed borrow areas is greater than 35 feet at its deepest location. The clayey sand and

silty or clayey sand overlying bedrock contains between 37 and 49 percent low plasticity fines. An estimated 89,000 CY of borrow material is available within this borrow area. This borrow area, including borrow excavation depths, is shown in the Section 8 Drawings. The West Borrow Haul Road, which is also shown in the Section 8 Drawings, will be used for borrow area access. Design for the West Borrow Haul Road is discussed in Appendix D.

H.4.1.4 East Borrow Area

The East Borrow Area is adjacent to the southeast corner of the proposed repository. This proposed borrow area consists of sandy clay and clayey sand with low plasticity fines ranging from 45 percent to 74 percent by weight. Investigation borehole logs indicate that depth to underlying bedrock ranges from near surface to greater than 20 feet. Approximately 55,000 CY of borrow material is available in this area. The bottom of borrow excavation contours, along with borrow excavation depths, are provided in the Section 8 Drawings. The East Borrow Haul Road will provide access to the borrow material and the design of the haul road is discussed in Appendix D.

H.4.1.5 South Borrow Area

The South Borrow Area, located northeast of the proposed repository, consists of an estimated 160,000 CY of available repository cover borrow material. Investigation borings show this borrow material reaches a maximum depth of greater than 25 feet and is comprised of sandy clay with low-plasticity fines ranging from 53 percent to 79 percent by weight. The South Borrow Area will be accessed by the South Borrow Haul Road, which is discussed in Appendix D. The South Borrow Area and South Borrow Haul Road are both shown in the Section 8 Drawings. Foundations from previous structures in this area, although not encountered during drilling, may affect borrow volumes.

H.4.1.6 North Borrow Area

The North Borrow Area is located to the northeast of the South Borrow Area. The North Borrow Area is in a narrow valley and is furthest away from the repository. This borrow is considered an auxiliary source of cover material, should suitable volumes of borrow material in the four other borrow areas be exhausted, and is not shown in the Section 8 drawings. Field investigation and laboratory data results from samples obtained within this borrow area indicate that the material consists of sandy or silty clay or clayey sand with low plasticity fines content ranging from 44 percent to 51 percent by weight. Approximately 71,000 CY of borrow material is available in this area, based on information from only two investigation boreholes. These boreholes indicate a depth to bedrock of up to 20 feet. Should construction conditions require use of material from the North Borrow, additional geotechnical investigation should be conducted to confirm available material volumes.

H.4.1.7Jetty Excavation Borrow Area

The excavation for the proposed jetty improvements will be located southeast of the proposed repository and is expected to require an estimated 547,500 CY of soil and rock removal. This estimate consists of 49,000 CY of rock and 498,500 CY of soil. The 2018 investigation found that approximately 12,000 CY of soil is expected to be impacted material, resulting in an estimated 486,500 bank CY of borrow material available (Stantec, 2019). Investigation borings from the 2016 field program are described in the Jetty Geotechnical Report (Appendix I.9) and in the 2018 Geotechnical Data Report (Stantec, 2019). Excavation on the east side of the arroyo will consist of soil while the west side will be partially in shallow outcropping weathered sandstone. The soil on the east side generally consists of 10 to 15 feet of sand with few fines (SP, SP-SM) over interlayered silty sand (SM) and silty clays (CL, CH) to the depth of the proposed excavation for the jetty. The fines content ranges from about 6 to 18 percent in the upper 15 feet and from about 54 percent to 99 percent by weight below 15 feet. The Jetty Borrow Area will be accessed from access roads on both sides of the arroyo. Table H.4-4 summarizes the laboratory results of the Jetty materials obtained from the investigation borings from the 2016 field program. The results from the 2018 investigation are presented in Stantec (2019).

The boring logs indicate that coarser materials will be encountered and excavated within the jetty area before the deeper finer materials. As such, approximately 16,500 CY of coarser (sandy) material may be used as general fill for the steeper (20%) NE slope of the repository. Fifteen hundred additional cubic yards of the coarser (sandy) excavated material, if screened, may meet the requirements for use as filter material within the site-wide surface water drainage channels.

The Jetty Excavation will require as much as 49,000 CY of rock (sandstone) excavation on the west side of the Arroyo in order to construct the Jetty improvements. This material has been tested for durability and is not suitable as erosion protection rock on the TDA. The sandstone can be used as general site fill, road fill, or will be disposed in the West Borrow. Remaining coarse (sandy) materials, not approved for use as cover fill or filter materials, will be hauled to the West Borrow Area and included in the final reclaimed borrow area grading. Drawing 8-04 includes a conceptual fill plan for the West Borrow Area after the existing borrow soil in that area has been removed. Up to 440,000 CY (soil and rock) can be placed back in the West Borrow, if necessary.

Table H.4-4: Summary of Jetty Geotechnical Laboratory Test Results (2016 and 2018 field investigations)

Borehole	Sample	Sample Type [1]	Sample Depth Interval (ft)		USCS [2]	Water Content (by mass, %)	Dry Density (pcf)	Porosity (%)	Specific Gravity	Standard Proctor (max. dd@opt. w.c.), (pcf @ %)	Atterberg Limits (%) [3]			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	Pinhole Dispersion [3,4,6]	Double Hydrometer (% Dispersion) [5,6]	Remolded Saturated Hydraulic Conductivity (cm/sec) [6]	SWCC: Saturated Water Content (by vol., %) [6]
											LL	PL	PI									
B4A	B4A-4A	CA	5.0	5.5	CL	11.2	91.7	44.7	2.66		43	20	23	0.0	7.3	92.7	53.0	39.7				
B4A	B4A-14A	CA	15.0	15.5	CL									0.0	11.0	89.0	64.3	24.6				
B4	B4-16-16.5[7]	CA	16.0	16.5		10.4	77.6															
B4A	B4A-24A	CA	25.0	25.5	CL	13.0	91.3	45.3	2.68		27	16	11	0.0	34.8	65.2	36.9	28.3				
B5	B5-5.5-6[7]	CA	5.5	6.0	SM	9.8	82.4							5.0	77.0	18.0						
B5A	B5A-9A	CA	10.0	10.5	ML	7.5	81.8	50.1	2.63			NP		0.0	41.9	58.1	39.8	18.3	0 (NP)	16	9.2E-05	39.4
B5	B5-10.5-11[7]	CA	10.5	11.0		5.2	82.9															
B5A	B5A-14A	CA	15.0	15.5	CL	14.7	73.4	55.6						0.0	9.9	90.1	57.0	33.1				
B5	B5-TW-25-27[7]	ST	25.0	27.0	CH	21.2	98.8				61	21	40									
B5	B5-30.5-31[7]	CA	30.5	31.0	CL									0.0	14.0	86.0						
B5	B5-40.5-41[7]	CA	40.5	41.0	CL	22.7	99.6				49	20	29	0.0	1.0	99.0						
B6	B6-12.8-13.5[7]	CA	12.8	13.5	SP-SM									5.0	89.0	6.0						
B6	B6-15.5-16[7]	CA	15.5	16.0	CL	10.7	93				42	17	25	0.0	10.0	90.0						
B6A	B6A-19A	CA	20.0	20.5	CH	14.2	111.8	33.3	2.69		51	22	29	0.0	13.3	86.7	44.2	42.5		9	7.0E-05	45.5
B6A	B6A-20-40 (1+2)	Bulk	20.0	40.0	CL				2.69	104.9 @ 17.9	28	17	11	0.0	12.6	87.3	45.1	42.2				
B6	B6-40.5-41[7]	CA	40.5	41.0		17.9	97															
B7	B7-TW-5-6.5[7]	ST	5.0	6.5		6.9	94.3															
B7	B7-10.5-11[7]	CA	10.5	11.0	CL	7.0	99.7							0.0	10.0	90.0						
B7	B7-16-16.5[7]	CA	16.0	16.5	CL	17.8	99.3				35	19	16	1.0	45.0	54.0						
B7	B7-30.5-31[7]	CA	30.5	31.0	CL	16.7	102.5				40	16	24									
B7A	B7A-39A	CA	40.0	40.5	ML	13.6	108.2	35.3				NP		0.3	42.5	57.2	37.4	19.8				
B7A	B7A-0-20 (1+2)	Bulk	0.0	20.0	CL				2.67	114.2 @ 13.7	29	15	14	0.7	37.1	62.2	41.1	21.1		17	8.9E-05	40.3
B7A	B7A-40-60 (1+2)	Bulk	40.0	60.0	CL				2.67	109.9 @ 15.0	37	16	21	0.6	28.3	71.1	40.6	30.5		12	5.9E-04	40.8
B8	B8-9A	CA	10.0	10.5	CH	14.5	102.9	38.3	2.67		54	24	30	0.0	3.1	96.9	48.6	48.3				
B8	B8-24A	CA	25.0	25.5	CH	17.8	105.8	36.0			67	24	43	0.0	0.9	99.1	41.8	57.3				
B8	B8-34A	CA	35.0	35.5	SM	8.3	104.9	36.9	2.67			NP		0.2	62.4	37.4	26.9	10.5				
B9	B9-9A	CA	10.0	10.5	CH	15.1	103.3	38.4	2.69		52	23	29	0.0	3.1	96.9	49.8	47.1				
B9	B9-39A	CA	40.0	40.5	ML	11.6	98.6	40.8	2.67			NP		0.0	31.4	68.6	43.7	24.9				
B9	B9-20-35 (1+2)	Bulk	20.0	35.0	CH				2.71	100.5 @ 20.8	55	21	34	0.0	3.5	96.4	42.6	53.9		5	4.1E-05	45.9

Table H.4-5: Summary of Jetty Geotechnical Laboratory Test Results (2016 and 2018 field investigations) (cont.)

Borehole	Sample	Sample Type [1]	Sample Depth Interval (ft)		USCS [2]	Water Content (by mass, %)	Dry Density (pcf)	Porosity (%)	Specific Gravity	Standard Proctor (max. dd@opt. w.c.), (pcf @ %)	Atterberg Limits (%) [3]			USCS % Gravel	USCS % Sand	% Passing No. 200 Sieve (fines)	% Silt	USDA % Clay (<0.002 mm)	Pinhole Dispersion [3,4,6]	Double Hydrometer (% Dispersion) [5,6]	Remolded Saturated Hydraulic Conductivity (cm/sec) [6]	SWCC: Saturated Water Content (by vol., %) [6]
											LL	PL	PI									
B10	B10-4A	CA	5.0	5.5	CL	10.1	114.6	30.9	2.66		31	15	16	0.3	41.8	57.9	38.3	19.6				
B10	B10-39A	CA	40.0	40.5	CH				2.68		56	21	35	0.0	5.4	94.6	56.5	38.1		15	5.5E-05	46.7
B10	B10-10-25 (1+2)	Bulk	10.0	25.0	CL				2.68	115.5 @ 13.8	45	16	29	1.1	38.3	60.5	38.0	22.5	ND2	0	1.0E-04	40.1
B11	B11-14A	CA	15.0	15.5	CL	7.5	119.9	27.8	2.66		27	15	12	1.1	46.3	52.6	35.3	17.3				
B11	B11-29B	CA	30.0	30.5	CL	15.7	97	41.6	2.67		31	17	14	0.3	33.0	66.7	44.2	22.5				
B11	B11-39A	CA	40.0	40.5	SM	9.5	94.5	42.9	2.66			NP		0.0	64.6	35.4	29.1	6.3	0 (NP)	0	1.0E-03	39.7
B11	B11-0-10 (1+2)	Bulk	0.0	10.0	CL				2.66	113.6 @ 14.8	30	16	14	0.9	35.9	63.2	38.0	25.2				
Composite	Clay	Bulk	-	-	CL	17.6	96.2			106.6 @ 17.7	42	19	24	0.0	20.0	80.0					4.8E-07	37.8
Composite	Sand	Bulk	-	-	SM	14.8	102.0			112.4 @ 14.2				0.0	65.0	35.0					2.5E-05	35.0

Notes:

1. Sample Types: CA = California sample, Bulk = bucket/grab sample
2. USCS = Unified Soil Classification System, material descriptions are based on field observations, and refined with laboratory data, if available. USCS classifications are provided only where sufficient laboratory data are available. CL = low plasticity clay, CH = high plasticity clay, SM = silty sand, ML = silt, SP - SM = poorly graded sand - silty sand
3. LL = liquid limit, PL = plastic limit, PI = plasticity index, NP = non-plastic
4. ND2 = nondispersive clay with very slight to no colloidal erosion under 15-inch or 40-inch head (ASTM test method A)
5. <30% = non-dispersive, 30 to 50% intermediate, >50% dispersive
6. Specimens remolded to approximately 90% of maximum standard Proctor dry density and between the estimated natural and optimum water contents for the soil. SWCC tests performed with pairs of specimens
7. 2016 Geotechnical Investigation Sample

H.4.1.8 Proposed Borrow Areas Materials Evaluation

The soil properties from the first four site borrow areas were used by Dwyer Engineering, LLC for the cover modeling and cover calculations described in the Cover System Design Report (Dwyer, 2017), included as Attachment G.7 to Appendix G. The Jetty area soil was evaluated for use as cover material and details are included in an addendum to the Cover System Design Report, addendum to Attachment G.7 of Appendix G. Based on information provided by Dwyer Engineering, the material in any of these borrow areas can be used as needed, and will not require phasing, sequencing, or blending to meet the project cover specifications. Based on 2018 test results for the soil from the Jetty Borrow Area the Repository cover design has been modified to include this material as one of the borrow sources for cover construction. Each of the borrow sources may also be used as general fill, or may be screened and used as filter material for the site surface water drainage channels.

H.4.1.9 Additional On-Site Materials

H.4.1.9.1 Topsoil Stockpile

A topsoil stockpile is located on General Electric/United Nuclear Corporation (GE/UNC) property west of New Mexico Highway 566 (NM 566) and south of the GE/UNC office. Geotechnical investigation information included in the PDS report indicates that approximately 20,000 CY of soil available in this stockpile (MWH, 2014).

H.4.1.9.2 Existing Impoundment Erosion Protection Layer

The existing tailings impoundment cover is constructed with a 6-inch-thick admixture layer of soil and 1.5-inch D_{50} (median diameter) erosion protection rock. Test gradations (eight samples) indicate the existing mixture contains an average of 45 percent rock by mass. Testing, completed during the tailings impoundment cover construction, indicates the 1.5-inch D_{50} rock meets durability requirements for rock included in the repository cover system. Fines contents range from 57 to 73 percent for the existing cover soil (MWH, 2014).

This existing admixture layer will be stripped from the footprint of the new repository, screened to separate rock and soil, and reused for new cover construction. Assuming the mixture is about 42 percent rock by volume, approximately 24,000 CY of soil and 17,000 CY of rock will be available from the stripped cover soil mixture (MWH, 2014). This rock will be used for rock admixture in the repository cover.

H.4.1.9.3 Comparison of Available Borrow Sources

Stantec reviewed the available geotechnical information for the borrow areas and compared it with samples obtained from the existing soil cover on the tailings impoundment as well as the topsoil stockpile on the west side of NM 566, south of the GE/UNC offices (MWH, 2014). This comparison was made to determine if the tailings impoundment cover, anticipated to be stripped prior to placement of mine waste, and the topsoil stockpile material are suitable for use in the repository soil cover system. Specifically, the borrow area soil gradations and Atterberg Limits were compared with the existing TDA cover soil and topsoil stockpile material. As can be seen in Figures H.4-1 and H.4-2, the existing tailings impoundment cover soils and topsoil stockpile materials have similar index properties to the proposed borrow material.

H.4.1.9.4 Rock Material Stockpiles

There are existing material stockpiles at various locations on-site, as shown in the Section 8 Drawings. These materials were characterized during the Mill Site PDS (MWH, 2014). Estimated volumes contained within each of these stockpiles are provided in Table H.4-3. Because the rock in these stockpiles is not of sufficient D_{50} size for the repository cover or channel erosion protection, this material is anticipated to be utilized for temporary surfacing on the proposed haul roads and Support Area facilities.

H.4.1.9.5 Impoundment Surface Swale Rock Removal

Approximately 2,000 CY of 1.5-inch D_{50} rock will also be removed from the existing swales located within the repository area, on the TDA surface, prior to placement of mine waste. The durability of this rock was tested by Canonie Environmental in 1991, as part of the existing cover swales design, with results showing the rock meets the NRC durability requirements for erosion protection (Canonie, 1991).

H.4.2 Excavation Methods and Procedures

Excavation of the borrow material will be performed using typical earthmoving equipment, including dozers, motor graders, front-end loaders, excavators, rubber-tired backhoes, water trucks, and haul trucks. The following list provides the anticipated excavation procedures for the borrow areas. These procedures align with generally accepted excavation and material borrow practices.

- Establishment of stormwater and erosion control features at borrow area locations.
- Surface vegetation will be stripped from the proposed excavation and borrow material stockpile areas and placed in a topsoil stockpile adjacent to each borrow area. It is estimated that approximately 12 inches of overburden (clearing and grubbing) will be stripped from the surface of each of these areas. The stockpiled topsoil will be reused during borrow area reclamation activities.
- Excavations will include provisions for drainage away from the current borrow area working face to minimize disruption of the borrow activities due to stormwater.
- Sloped excavations will be completed to design grades (to a maximum 3H:1V slope) and design elevations.
- To the extent possible, excavated borrow materials will be loaded directly into haul trucks, transported, and placed within the repository. Exceptions will be 1) stockpiling of borrow material prior to cover material placement to meet project schedule requirements and 2) stockpiling of excavated sandy material from Jetty borrow to be screened and used as filter materials in stormwater control channels site-wide . Quality control for borrow material will be conducted in accordance with the procedures outlined in Appendix J: Technical Specifications. .

H.4.2.1 Stockpiling of Material

Although it is anticipated that cover material excavated from the borrow areas will be directly loaded into haul trucks for transportation and placement on the repository, borrow material may be stockpiled temporarily within the borrow areas, depending on construction schedules. These temporary stockpiles will be maintained at stable slope angles with dust and other erosion control measures applied as required. Sandy materials excavated from the Jetty borrow may be stockpiled in locations to be determined, prior to being screened for use as filter materials for site surface drainage channels. Rock imported from offsite quarries is anticipated to be stockpiled on the north or west side of the North Cell of the tailings impoundment.

H.4.2.2 Dust Control

Fugitive dust will be suppressed using the following measures:

- Enforcement of speed limits on haul roads
- Application of water to excavation areas, work areas, and haul roads with water trucks
- Application of approved chemical agents such as calcium chloride or magnesium chloride (or others) to haul roads
- Placement of aggregate wearing course on haul roads to mitigate dust generation in highly trafficked areas

H.4.3 Temporary Construction Stormwater and Erosion Control

The Construction Contractor (CC) will be responsible for implementing temporary construction stormwater and erosion BMPs during the borrow excavation activities to mitigate release of sediment due to erosion into existing drainages, as discussed in Appendix E and shown on the Section 5 Drawings. BMPs could include erosion and sediment controls at the outlets of each borrow area and on exposed slopes within borrow areas. Borrow excavation will be completed to allow for drainage away from the current borrow area working face to minimize disruption of the borrow activities.

H.4.4 Borrow Areas Reclamation

A preliminary post-excavation borrow surface, based on estimated depths of available borrow material, has been developed for each proposed on-site borrow area, with the exception of the jetty excavation. The post-excavation surfaces provide positive drainage away from the borrow areas and into surrounding drainages. Preliminary post-excavation borrow area cut slopes are nominally 5H:1V to provide for long-term erosional stability and revegetation. The post-excavation borrow areas will be reclaimed and revegetated as described in Appendix U. Final, post-excavation grading surfaces for each of the borrow areas are shown in the Section 8 drawings.

H.4.5 Off-Site Borrow Areas

Due to scarcity of competent rock sources within the project area, most rock required for erosion protection in the soil cover system, as well as for erosion protection in stormwater channels, will be obtained from an off-site source (quarry). Rock sizes and quantities required for the project are provided in Table H.4-5. Additional rock in larger sizes will be required for channel construction and the jetty improvements. In addition to size requirements, rock used for the project must meet durability requirements given in the NRC's 2002 Design of Erosion Protection for Long-Term Stabilization (NRC, 2002). Results from specific laboratory durability tests are scored using a weighted evaluation system based on rock type. NRC requires laboratory testing to show that a proposed rock source obtains a score of 80 or greater in order to be approved for use in uranium tailings projects, without additional oversizing of the rock. Granular filter materials, sand and gravel, will also be required for riprap bedding in some locations.

Table H.4-5: Repository Rock Requirements

Material Specification	Quantity Required (CY)	Location(s) Used
Type I Filter	19,000	East Repository Drainage Channel, Dilco Hill Channels A and B, Jetty/Pipeline Arroyo
Type II Filter	24,300	East Repository Drainage Channel, Dilco Hill Channels A and B, Jetty/Pipeline Arroyo
D_{50} = 1.5 in.	17,000	Repository Cover System
D_{50} = 2.0 in.	13,500	Repository Cover System
D_{50} = 3.5 in.	29,100	Repository Cover System
D_{50} = 3.0 in.	17,200	East Repository Drainage Channel, Jetty/Pipeline Arroyo, Erosion Protection for West Apron, 5H:1V Cover Slope Erosion Protection
D_{50} = 6.0 in.	700	Dilco Hill Channels A and B, Mine Site Outlet Channel
D_{50} = 9.0 in	1,700	East Repository Drainage Channel, Dilco Hill Channels A and B, Mine Site Outlet Channel
D_{50} = 18.0 in.	700	Mine Site Outlet Channel
D_{50} = 27.0 in.	87,800	Jetty/Pipeline Arroyo

Two off-site quarry sources have been identified for potential use during construction to supplement the available on-site rock. The sources are located near Gallup, NM (approximately 20 miles west of the project site). Each proposed rock source has the capability and capacity to produce sufficient quantities of each required size of rock. A limestone and a granite were tested for specific gravity, absorption, Schmidt hammer, sulfate soundness, and L.A. abrasion. Test results from one of the sources show that the produced rock meets NRC durability requirements without the need for additional oversizing. Test results from the other pit shows that the rock, a limestone, may need to be oversized 5 percent to meet NRC durability requirements. None of the rock from these sources contains radium-226 concentrations above the RAL and rock from any of these pits is suitable for use (with oversizing, as appropriate) in the repository cover system and for erosion protection. Attachment H.1 provides a summary of the analytical test results and the rock durability test results and scores, for the proposed off-site borrow locations. The project specifications require the selected contractor to confirm the durability test results by providing the Construction Supervising Contractor with an additional series of durability test results following selection of the quarry and prior to taking delivery of the rock. Petrographic analyses for the offsite limestone and granite sources indicated that both sources are considered suitable. The complete analyses are included in Appendix I.9.

H.5 GREEN AND SUSTAINABLE REMEDIATION CONSIDERATIONS

USEPA's Superfund Green Remediation Strategy Policy (USEPA, 2010) requires incorporation of BMPs for green remediation as listed in ASTM-E2893-16 (ASTM International, 2016). Specific proposed practices for the borrow areas relate to: (1) construction materials (characteristics, manufacturing and transportation considerations), (2) construction methods, and (3) low impact/sustainability measures during construction. The 'BMP Process', as outlined in the 'Standard for Greener Cleanups' (ASTM, 2016), has been followed to select and prioritize BMPs for implementation during remedial action. The BMPs relating to Borrow Areas are listed below, for a complete description of the BMP Process and list of all GSR BMPs see Section 4 and Appendix A (Section A.5) of the 95% Design Report.

H.5.1 Construction Material Considerations

On-site borrow sources have been utilized whenever possible and haul distances have been minimized in order to maximize fuel efficiency and reduce air emissions. Throughout the project the volume of borrow needed will be re-evaluated to avoid excavation of unneeded material.

H.5.2 Construction Methods

The Technical Specifications will encourage the CC to size equipment correctly for the task to minimize use of heavy equipment for small tasks and decreases fuel use and minimize greenhouse gas and dust emissions. Use of the nearest qualifying sources for borrow materials, or use and reuse of materials already onsite, will reduce fuel emissions associated with increased transportation distances. Over-excavation and unnecessary fuel use and emissions may also be reduced by re-evaluating necessary borrow volumes as the project progresses. Restoration and revegetation will be completed in a timely manner to minimize erosion and prevent growth of invasive species.

H.5.3 Low Impact Development/Sustainability

Key considerations of GSR principles as they apply to borrow pit selection and use focus on minimizing disturbance of previously undistributed areas and minimizing haul distance. Previously used borrow sources will be utilized to minimize disturbance of previously undisturbed areas, and selection and sequencing of borrow sources has been designed to minimize haul distance and associated fuel use and emissions.

H.6 REFERENCES

ASTM International, 2016. ASTM Standard E2893-16, "Standard Guide for Greener Cleanups," ASTM International, West Conshohocken, PA, 2016, DOI: 10.1520/E2893-16E01, www.astm.org.

Canonie Environmental (Canonie), 1991. Tailings Reclamation Plan, As Approved by NRC – Church Rock Site, Gallup, New Mexico - License no. SUA -1475, Volume I. Prepared for United Nuclear Corporation. August.

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FIGURES

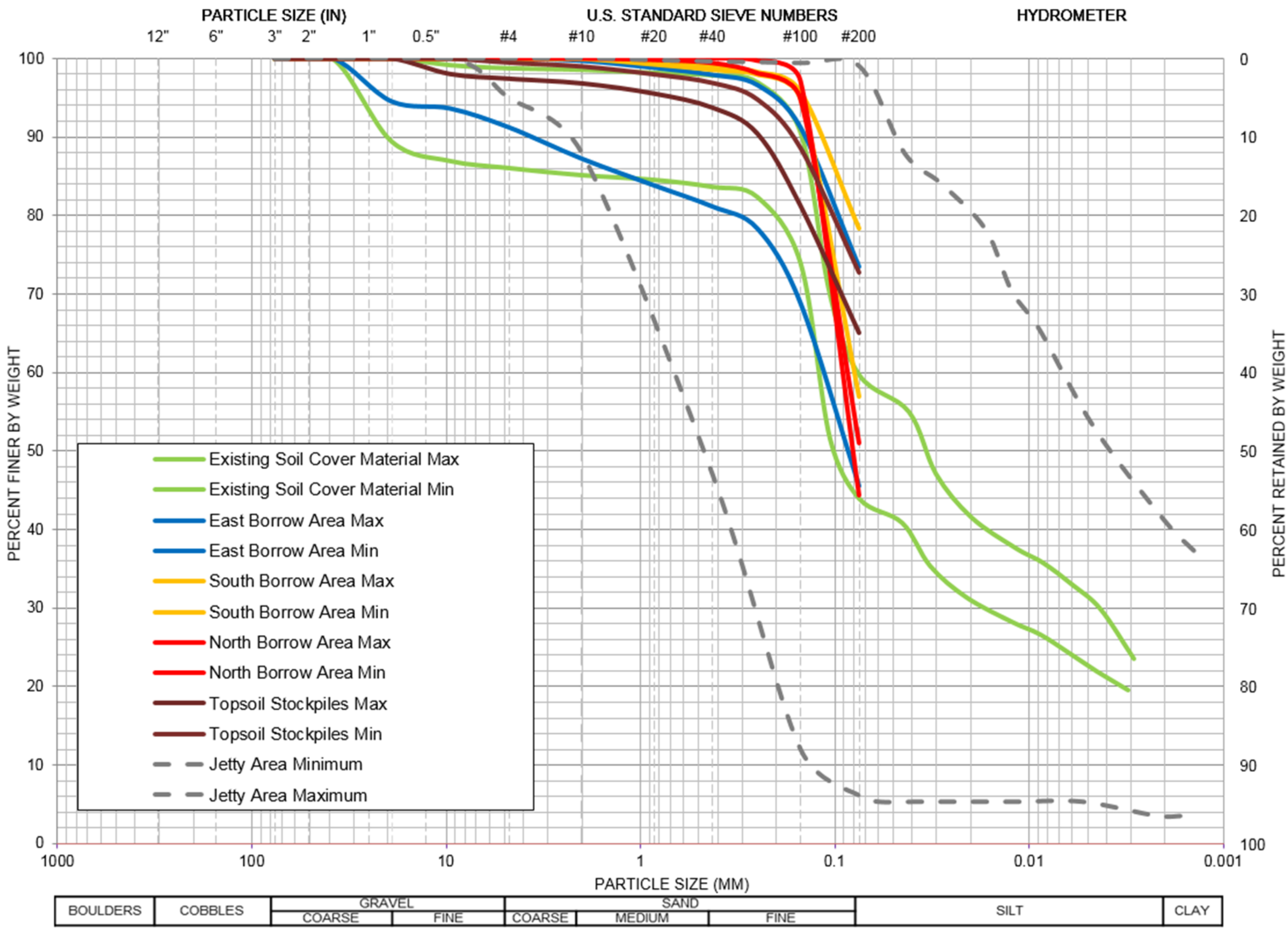


Figure H.4-1: NECR Borrow and Existing Tailings Impoundment Cover Soil Gradations

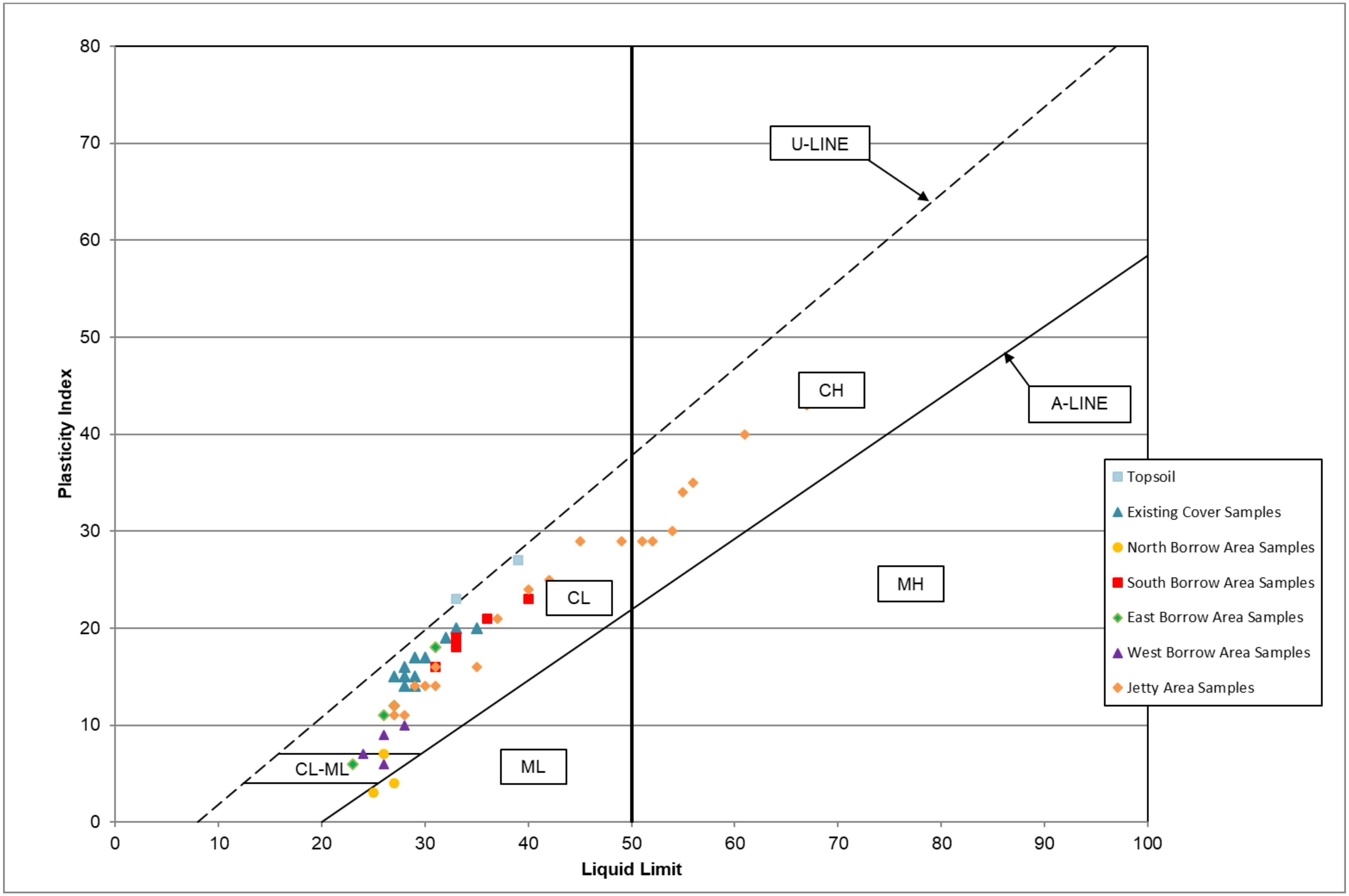


Figure H.4-2: NECR Borrow and Existing Tailings Impoundment Cover Soil Atterberg Limits

MWH now part of Stantec

ATTACHMENT H.1
Summary of Offsite Rock Durability Testing and Scoring

TECHNICAL MEMORANDUM

TO: United Nuclear Corporation

DATE: July 12, 2016

FROM: Michael Witler

REFERENCE: 10505869

SUBJECT: Summary of Durability and Radiologic Testing for Rock Sources (Attachment H.1)

Revisions						
Revision	Date	Description	Author	Reviewed	Approved	Submitted
0	5/18/2016	First issue	M. Witler	J. Cumbers	C. Strachan	7/15/206

1.0 INTRODUCTION

This memorandum summarizes the results of the durability and radiologic testing of rock sources for the Northeast Church Rock (NECR) Removal Action repository soil cover system. This evaluation has been conducted for United Nuclear Corporation (UNC) by MWH Americas Inc. (MWH, now a part of Stantec).

The current design of the NECR repository soil cover system includes an erosion protection layer, comprised of a soil-rock admixture, as well as rock on the steeper 20 percent side slope on the eastern side of the repository, and rock for stormwater perimeter channels. Testing was previously conducted on basalt samples from the currently inactive Prewitt Pit, located near Thoreau, NM for another UNC project. A representative of UNC collected samples from the Page Pit (limestone) and the Tampico Pit (granite), both near Gallup, NM. The results from testing of samples from these three sources are presented in this memorandum.

2.0 DURABILITY TESTING

A summary of the durability testing scores for each rock source is included in Tables 1 through 3. The test results were scored for durability based on the guidance in NUREG-1623, Table D-1 (NRC, 2002). The individual test scores are based on a range from 0 to 10 with weighting factors based on rock types. Durability testing included; specific gravity, absorption, sodium sulfate soundness, L.A. abrasion, and Schmidt hammer. The supporting laboratory data for the scores are attached. The rock scores for the three sources are calculated on a similar suite of testing, with the exception of the Prewitt Pit calculation, which does not include a Schmidt hammer or Compressive Strength test results. The L.A. abrasion test performed on the basalt

sample was conducted per ASTM for 500 revolutions. The result shown in the table below has been adjusted for 100 revolutions per NUREG-1623.

The rock quality scores are 209/230 (or 91 percent for the Prewitt Pit), 211/260 (or 81 percent for the Page Pit), and 308/410 (or 75 percent for the Tampico Pit). Based on NRC guidance for durability of erosion protection material, material from the Prewitt and Page Pits would be acceptable, without oversizing (score 80 to 100). Rock from the Tampico Pit would require oversizing of 5 percent (increase in the design median (D_{50}) rock sizes).

Table 1. Summary of Scoring Criteria – Prewitt Pit Basalt[a]

Laboratory Test	Result	Score	Weighting Factor[c]	Weighted Score	Maximum Score
Bulk Specific Gravity (ASTM C127)	2.717	9	9	81	90
Absorption, % (ASTM C127)	1.0	5	2	10	20
Sodium Sulfate, % (ASTM C88)	0.2	10	11	110	110
LA Abrasion, % (ASTM C535, 100 revs[b])	5.4	8	1	8	10
			Totals	**209**	**230**
Durability Score = Weighted Score / Maximum Score				**91%**	

Notes:
a) Test results provided by Vinyard and Associates, Albuquerque, NM (2012)
b) 100 revolutions is a deviation from ASTM, per NUREG-1623
c) Weighting factors from Table D-1 NUREG-1623 for igneous (basalt) rock

Table 2. Summary of Scoring Criteria – Page Pit Granite[a]

Laboratory Test	Result	Score	Weighting Factor[d]	Weighted Score	Maximum Score
Bulk Specific Gravity[b] (ASTM C127)	2.585	7	9	63	90
Absorption, % (ASTM C127)	0.8	6	2	12	20
Sodium Sulfate, % (ASTM C88)	0.2	10	11	110	110
LA Abrasion, % (ASTM C535, 100 revs[c])	5.0	8	1	8	10
Schmidt Hammer (ASTM D5873)	49	6	3	18	30
			Totals	**211**	**260**
Durability Score = Weighted Score / Maximum Score				**81%**	

Notes:
a) Test results provided by Ninyo and Moore, Phoenix, AZ (2016)
b) Specific gravity taken as saturated surface dry density
c) 100 revolutions is a deviation from ASTM, per NUREG-1623
d) Weighting factors from Table D-1 NUREG-1623 for igneous (granite)

Table 3. Summary of Scoring Criteria – Tampico Pit Limestone[a]

Laboratory Test	Result	Score	Weighting Factor[d]	Weighted Score	Maximum Score
Bulk Specific Gravity[b] (ASTM C127)	2.682	8	12	96	120
Absorption, % (ASTM C127)	0.4	8.5	13	110	130
Sodium Sulfate, % (ASTM C88)	0.5	10	4	40	40
LA Abrasion, % (ASTM C535, 100 revs[c])	7.0	7	1	7	10
Schmidt Hammer (ASTM D5873)	40	5	11	55	110
			Totals	**308**	**410**
Durability Score = Weighted Score / Maximum Score =				**75%**	

Notes:
a) Test results provided by Ninyo and Moore, Phoenix, AZ (2016)
b) Specific gravity taken as saturated surface dry density
c) 100 revolutions is a deviation from ASTM, per NUREG-1623
d) Weighting factors from Table D-1 NUREG-1623 for limestone

3.0 RADIOLOGIC TESTING

Representative samples from each of the three proposed rock quarries were also sent to AVM Environmental Services Inc., in Grants, NM, for radiologic testing, namely radium-226 activity concentration. The test results were used for comparison with the project Removal Action (RA) levels (2.24 pCi/g) (USEPA, 2011). Based on results from the laboratory testing (included as Attachment B to this memo), rock from each of the three proposed quarries is below the RA level for radium-226, and suitable for use on the project.

4.0 CONCLUSIONS

Based on the durability and radiologic test results, rock material from each of the three proposed quarries are suitable for use as erosion protection rock for the project, either in the repository cover or for erosion protection in channels. One of the identified quarry sources would require oversizing of the design rock sizes.

5.0 REFERENCES

U.S. Nuclear Regulatory Commission (NRC), 2002. Design of Erosion Protection for Long-Term Stabilization," NUREG-1623. September.

U.S. Environmental Protection Agency (USEPA), Region 6 and Region 9, 2011. Action Memorandum: Request for a Non-Time-Critical Removal Action at the Northeast Church Rock Site, McKinley County, New Mexico, Pinedale Chapter of the Navajo Nation. September 29.

ATTACHMENT A

DURABILITY TEST RESULTS

Prewitt Pit Test Results

Sample No.:	407
Date Tested:	9/6/2012
Tested By:	mn

Project No.: 12-2-125

Sample: Proposed Rip Rap material sampled onsite.

SOUNDNESS OF AGGREGATE
(C88-05 Sodium Sulfate)

Sieve Size	Number of Pieces	Grading of original sample %	Wt. of test fraction before test, g	Wt. of test fraction after test, g	% Passing designated sieve after test	Weighted % loss	Container Number
3" to 2 1/2"	12	33.2%	6885.40	6868.40	0.2%	0.1%	A
3 1/2" to 3"	7	33.3%	6912.30	6902.10	0.1%	0.0%	B
4" to 3 1/2"	5	33.5%	6949.50	6925.70	0.3%	0.1%	C
Totals		100.0%	20747.2	20696.2		0.2%	

Absorption and Bulk Specific Gravity of Dimension Stone
C97-02

Specimen No.:	Wt. of dry aggregate A	Wt of aggregate SSD B	Wt of Agg in water C	Bulk Spec Grav (A/(B-C))	Absortion % [(B-A)/A] x 100
407	10049.5	10148.6	6450.4	2.717	1.0
Required				>2.65	

Resistance to Degradation of Large-size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
(ASTM C535-09)

Test results

Sample	Material	Grading	Abrasion Loss
407		1 / 10,000	27.0%

Prewitt Pit Test results

Sample No.:	407
Date Tested:	9/6/2012
Tested By:	mn

Project No.: 12-2-125

Sample: Proposed Rip Rap material sampled onsite.

Lab Test	Result	Score	Weight	Score x Weight	Max Score
SP. Grav	2.717	9	9	81	90
Absorp., %	1.0	5	2	10	20
Sod. Sulf., %	0.2	10	11	110	110
L.A. Abr., %	27.0	1	1	1	10
Totals				202	230

Durability Score = (Score x weight) / (Max Score) = 88 80 min req'd

Table D-1. Scoring criteria for determining rock quality.

Laboratory Test	Weighting Factor			Score										
	Limestone	Sandstone	Igneous	10	9	8	7	6	5	4	3	2	1	0
					Good			Fair			Poor			
Sp. Gravity	12	6	9	2.75	2.70	2.65	2.60	2.55	2.50	2.45	2.40	2.35	2.40	2.25
Absorption, %	13	5	2	.10	.30	.50	.67	.83	1.0	1.5	2.0	2.5	3.0	3.5
Sodium Sulfate, %	4	3	11	1.0	3.0	5.0	6.7	8.3	10.0	12.5	15.0	20.0	25.0	30.0
L/A Abrasion (100 revs), %	1	8	1	1.0	3.0	5.0	6.7	8.3	10.0	12.5	15.0	20.0	25.0	30.0
Schmidt Hammer	11	13	3	70	65	60	54	47	40	32	24	16	8	0

1. Scores were derived from Tables 6.2, 6.5, and 6.7 of NUREG/CR-2642 - "Long-Term Survivability of Riprap for Armoring Uranium Mill Tailings and Covers: A Literature Review," 1982.

2. Weighting Factors are derived from Table 7 of "Petrographic Investigations of Rock Durability and Comparisons of Various Test Procedures," by G. W. DuPuy, Engineering Geology, July 1965. Weighing factors are based on inverse of ranking of test methods for each rock type. Other tests may be used; weighting factors for these tests may be derived using Table 7, by counting upward from the bottom of the table.

3. Test methods should be standardized, if a standard test is available and should be those used in NUREG/CR-2642, so that proper correlations can be made.

SAMPLE INFORMATION:

LOCATION: PAGE PIT
DESCRIPTION: AGGREGATE DURABILITY TESTING
LAB TECHNICIAN: HJG

MECHANICAL SIEVE ANALYSIS			METHOD ASTM C 136
SIEVE SIZE		% PASSING	
US STD	METRIC	RESULTS	SPEC
2"	50	--	--
1.5"	38	--	--
1.25"	31.5	--	--
1"	25	--	--
3/4"	19	--	--
1/2"	12.5	--	--
3/8"	9.5	--	--
1/4"	6.4	--	--
No. 4	4.8	--	--
No. 8	2.36	--	--
No. 10	2.00	--	--
No. 16	1.18	--	--
No. 30	0.60	--	--
No. 40	0.425	--	--
No. 50	0.3	--	--
No. 100	0.15	--	--
No. 200	0.075	NOT TESTED	

COARSE SPECIFIC GRAVITY & ABSORPTION	ASTM C 127	
	RESULTS	SPEC
SPECIFIC GRAVITY, OD	2.565	
SPECIFIC GRAVITY, SSD	2.585	
SPECIFIC GRAVITY, APP	2.617	
% ABSORPTION	0.8	

LA ABRASION		METHOD ASTM C 131
	RESULTS	SPEC
100 REVOLUTIONS % LOSS	5	
200 REVOLUTIONS % LOSS	10	

SODIUM SULFATE SOUNDNESS		ASTM C 88
	RESULTS	SPEC
%LOSS - COARSE AGG	0.2	

SCHMIDT HAMMER		ASTM C 805
	RESULTS	SPEC
HARDNESS NUMBER	49	
STRENGTH (PSI)	8500	

*INDICATES OUT OF TOLERANCE

Ninyo & Moore		SOILS/AGGREGATE DATA SHEET	LAB NO.
PROJECT NO.	DATE SAMPLED	MWH/MISC LABORATORY TESTING PHOENIX, ARIZONA	47539
604667002	4/27/2016		

SAMPLE INFORMATION:

LOCATION: TAMPICO
DESCRIPTION: AGGREGATE DURABILITY TESTING
LAB TECHNICIAN: HJG

MECHANICAL SIEVE ANALYSIS			METHOD ASTM C 136
SIEVE SIZE		% PASSING	
US STD	METRIC	RESULTS	SPEC
2"	50	--	--
1.5"	38	--	--
1.25"	31.5	--	--
1"	25	--	--
3/4"	19	--	--
1/2"	12.5	--	--
3/8"	9.5	--	--
1/4"	6.4	--	--
No. 4	4.8	--	--
No. 8	2.36	--	--
No. 10	2.00	--	--
No. 16	1.18	--	--
No. 30	0.60	--	--
No. 40	0.425	--	--
No. 50	0.3	--	--
No. 100	0.15	--	--
No. 200	0.075	NOT TESTED	

COARSE SPECIFIC GRAVITY & ABSORPTION	ASTM C 127	
	RESULTS	SPEC
SPECIFIC GRAVITY, OD	2.672	
SPECIFIC GRAVITY, SSD	2.682	
SPECIFIC GRAVITY, APP	2.700	
% ABSORPTION	0.4	

LA ABRASION		METHOD ASTM C 131
	RESULTS	SPEC
100 REVOLUTIONS % LOSS	7	
200 REVOLUTIONS % LOSS	13	

SODIUM SULFATE SOUNDNESS		ASTM C 88
	RESULTS	SPEC
%LOSS - COARSE AGG	0.5	

SCHMIDT HAMMER		ASTM C 805
	RESULTS	SPEC
HARDNESS NUMBER	40	
STRENGTH (PSI)	6500	

*INDICATES OUT OF TOLERANCE

Ninyo & Moore		SOILS/AGGREGATE DATA SHEET	LAB NO.
PROJECT NO.	DATE SAMPLED	MWH/MISC LABORATORY TESTING PHOENIX, ARIZONA	47540
604667002	4/27/2016		

ATTACHMENT B

RADIOLOGIC TESTING RESULTS

AVM Environmental Services, Inc.

Gamma Spectroscopy Run Data

Technician VP

Standard ID	Std & Bkg Count Date & Time	WTst Std wt (gms)	CNst Std Ra-226 (pCi/gm)	CTst Std Count Time (Mins)	CTb Bkg Count time	ROI	PAst Std Peak Area Counts	PAb Bkg Peak Area	PAb Bkg Peak Int Counts
RAS01-1100 Ra-226 Standard, 100.0 pCi/g (Sealed on 08-06-2012)	9/30/12 12:01	1100	100.0	20	20	ROI 3 (Pb-214 351 kev)	91,026	0	660
						ROI 4 (Bi-214 609 kev)	75,662	0	752

GS Tag Number	Sample ID	Sample Date	Sample Seal Date &Time	Sample Count Date & Time	Ingrowth Period (Days)	WTs Sample wt (gms)	CTs Sample Count time (Mins)	ROI ROIs	PAs Sample Peak Area Counts	Sample Results, Ra-226 pCi/gm Peak Conc	Avg Conc	Uncertainty 95%		LLD		Projected pCi/g
2513	Prewitt Basalt Quary	9/29/2012	9/29/12 11:59	9/30/12 12:25	1	1178	20	ROI 4 (Bi-214 609 kev)	272	0.3	0.3	0.1	0.1	0.2	0.2	<0.5

AVM Environmental Services, Inc.

Gamma Spectroscopy Run Data

Technician VP

Standard ID	Std & Bkg Count Date & Time	WTst Std wt (gms)	CNst Std Ra-226 (pCi/gm)	CTst Std Count Time (Mins)	CTb Bkg Count time	ROI	PAst Std Peak Area Counts	PAb Bkg Peak Area Counts	PAb Bkg Peak Int Counts
RAS01-1100 Ra-226 Standard, 100.0 pCi/g (Sealed on 08-06-2012)	5/6/16 9:15	1100	100.0	20	20	ROI 3 (Pb-214 351 kev)	91,813	35	556
						ROI 4 (Bi-214 609 kev)	75,972	30	642

GS Tag Number	Sample ID	Sample Date	Sample Seal Date &Time	Sample Count Date & Time	Ingrowth Period (Days)	WTs Sample wt (gms)	CTs Sample Count time (Mins)	ROI ROIs	PAs Sample Peak Area Counts	Sample Results, Ra-226 pCi/gm Peak Conc	Avg Conc	Uncertainty 95%		LLD		Projected pCi/g
1	Page Pit, Granite	4/26/2016	5/2/16 9:00	5/6/16 9:30	4	1100	20	ROI 3 (Pb-214 351 kev)	526	0.5	0.8	0.1	0.1	0.2	0.2	1.0
						1100	20	ROI 4 (Bi-214 609 kev)	662	0.8		0.1		0.2		
2	Tampico Pit, Limestone	4/26/2016	5/2/16 9:00	5/6/16 9:55	4	1100	20	ROI 3 (Pb-214 351 kev)	357	0.4	0.4	0.1	0.1	0.2	0.2	0.5
						1100	20	ROI 4 (Bi-214 609 kev)	286	0.3		0.1		0.2		

MWH now part of Stantec

ATTACHMENT H.2
Supplementary Geotechnical Laboratory Testing

Laboratory Report for

Stantec MWH

NECR Jetty Borrow Soil, P.O. # P30109-N

September 27, 2017

Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113

September 27, 2017

Stephanie Downey
Stantec MWH
2130 Resort Drive, Suite 350
Steamboat Springs, CO 80487
(970) 871-4389

Re: DBS&A Laboratory Report for Stantec MWH, NECR Jetty Borrow Soil, P.O. # P30109-N Project

Dear Ms. Downey:

Enclosed is the report for the Stantec MWH, NECR Jetty Borrow Soil, P.O. # P30109-N project samples. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Stantec MWH and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Joleen Hines
Laboratory Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory
4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113
505-889-7752
FAX 505-889-0258

Summaries

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		Air Perm-eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
CHR-071117-Clay																X	X				X	
CHR-071117-Clay (90%)	X	X				X	X	X		X	X			X								
CHR-071117-Sand																X	X				X	
CHR-071117-Sand (91%)	X	X				X	X	X		X	X			X								

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Notes

Sample Receipt:
Two samples, each in 1-gallon Ziploc bags with custody seals were received on July 14, 2017. The samples were double-bagged, surrounded with paper and delivered in a cardboard box. Both samples arrived in good order.

Sample Preparation and Testing Notes:
A portion of each sample was remolded into a testing ring to target 90% of the respective maximum dry bulk density at the respective optimum moisture content, based on client provided standard proctor compaction testing results. Each of these remolded sub-samples was subjected to initial properties analysis, saturation, and the hanging column and pressure chamber portions of the moisture retention testing. Secondary sub-samples were also prepared, using the same target remold parameters. The secondary sub-samples were then extruded from the testing ring and were subjected to saturated hydraulic conductivity testing via the flexible wall method. The actual percentage of maximum dry bulk density achieved was added to each sub-sample ID.

Separate sub-samples were obtained for the dewpoint potentiometer and relative humidity chamber portions of the moisture retention testing.

Particles larger than 4.75 mm were removed from the bulk material prior to remolding the sub-samples. Oversize correction calculations are not provided since the removed fraction is less than 5% of the bulk sample mass.

Porosity calculations, and the particle diameter calculations in the hydrometer portion of the particle size analysis testing, are based on the use of an assumed specific gravity value of 2.51.

Volumetric water contents were adjusted for changes in volume, where applicable. Due to the irregularities formed on the sample surfaces during swelling, volume measurements obtained after the initial reading should be considered estimates.

Daniel B. Stephens & Associates, Inc.

Summary of Sample Preparation/Volume Changes

	Proctor Data			Target Remold Parameters[1]				Actual Remold Data				Volume Change Post Saturation[2]				Volume Change Post Drying Curve[3]			
Sample ID	Opt. Moist. Cont. (%, g/g)	Max. Dry Density (g/cm³)	Max. Dry Density (pcf)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm³)	Dry Bulk Density (pcf)	% of Max. Density (%)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm³)	Dry Bulk Density (pcf)	% of Max. Density (%)	Dry Bulk Density (g/cm³)	Dry Bulk Density (pcf)	% Volume Change (%)	% of Max. Density (%)	Dry Bulk Density (g/cm³)	Dry Bulk Density (pcf)	% Volume Change (%)	% of Max. Density (%)
CHR-071117-Clay (90%)	17.7	1.71	106.6	17.7	1.54	95.9	90%	17.6	1.54	96.2	90.3%	1.50	93.9	2.5%	88.1%	1.52	94.9	1.4%	89.0%
CHR-071117-Sand (91%)	14.2	1.80	112.4	14.2	1.62	101.2	90%	14.8	1.63	102.0	90.8%	1.63	102.0	---	90.8%	1.63	102.0	---	90.8%

[1]Target Remold Parameters: Provided by the client: 90% of maximum dry density at optimum moisture content.

[2]Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.

[3]Volume Change Post Drying Curve: Volume change measurements were obtained throughout hanging column and pressure plate testing. The 'Volume Change Post Drying Curve' values represent the final sample dimensions after the last pressure plate point.

Notes:

"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

	Moisture Content						
	As Received		Remolded				
Sample Number	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
CHR-071117-Clay (90%)	NA	NA	17.6	27.1	1.54	1.81	41.8
CHR-071117-Sand (91%)	NA	NA	14.8	23.9	1.62	1.86	39.0

NA = Not analyzed
--- = This sample was not remolded

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis: Constant Head Flexible Wall	Method of Analysis: Falling Head Flexible Wall
CHR-071117-Clay (90%)	4.8E-07	---		X
CHR-071117-Sand (89%)	2.5E-05	---		X

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
CHR-071117-Clay (90%)	0	38.2 ‡‡
	57	38.3 ‡‡
	155	36.8 ‡‡
	337	36.4 ‡‡
	1428	31.3 ‡‡
	13563	23.0 ‡‡
	49970	16.6 ‡‡
	130126	12.7 ‡‡
	440554	9.2 ‡‡
	851293	6.9 ‡‡
CHR-071117-Sand (91%)	0	34.0
	12	33.8
	35	33.4
	105	23.8
	337	20.5
	5303	12.7
	28350	7.7
	128189	5.3
	549468	3.7
	851293	3.1

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
CHR-071117-Clay (90%)	0.0008	1.2352	0.00	37.78	---	---
CHR-071117-Sand (91%)	0.0285	1.2264	0.00	35.02	---	---

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
CHR-071117-Clay	0.00016	0.0068	0.015	94	0.50	WS/H	Lean clay with sand (CL)s	Clay Loam	(Est)
CHR-071117-Sand	8.8E-14	0.11	0.14	1.6E+12	3.1E+11	WS/H	Silty sand (SM)	Sandy Loam	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
CHR-071117-Clay	0.2	20.0	44.1	35.8
CHR-071117-Sand	0.0	64.5	23.9	11.6

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
CHR-071117-Clay	43	19	24	CL
CHR-071117-Sand	---	---	---	ML

--- = Soil requires visual-manual classification due to non-plasticity

Initial Properties

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

	Moisture Content						
	As Received		Remolded				
Sample Number	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
CHR-071117-Clay (90%)	NA	NA	17.6	27.1	1.54	1.81	41.8
CHR-071117-Sand (91%)	NA	NA	14.8	23.9	1.62	1.86	39.0

NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Clay (90%)
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

	As Received	Remolded
Test Date:	NA	14-Aug-17
Field weight of sample* (g):		536.85
Tare weight, ring (g):		133.38
Tare weight, pan/plate (g):		0.00
Tare weight, other (g):		0.00
Dry weight of sample (g):		343.08
Sample volume (cm^3):		222.62
Assumed particle density (g/cm^3):		2.65
Gravimetric Moisture Content (% g/g):		17.6
Volumetric Moisture Content (% vol):		27.1
Dry bulk density (g/cm^3):		1.54
Wet bulk density (g/cm^3):		1.81
Calculated Porosity (% vol):		41.8
Percent Saturation:		64.8

Laboratory analysis by: D. O'Dowd
Data entered by: J. Falance
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name:	Stantec MWH
Job Number:	DB17.1177.00
Sample Number:	CHR-071117-Sand (91%)
Project Name:	NECR Jetty Borrow Soil
PO Number:	P30109-N

	As Received	Remolded
Test Date:	NA	14-Aug-17
Field weight of sample* (g):		546.70
Tare weight, ring (g):		133.38
Tare weight, pan/plate (g):		0.00
Tare weight, other (g):		0.00
Dry weight of sample (g):		360.15
Sample volume (cm^3):		222.72
Assumed particle density (g/cm^3):		2.65
Gravimetric Moisture Content (% g/g):		14.8
Volumetric Moisture Content (% vol):		23.9
Dry bulk density (g/cm^3):		1.62
Wet bulk density (g/cm^3):		1.86
Calculated Porosity (% vol):		39.0
Percent Saturation:		61.2

Laboratory analysis by:	D. O'Dowd
Data entered by:	J. Falance
Checked by:	J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Saturated Hydraulic Conductivity

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head Flexible Wall	Falling Head Flexible Wall
CHR-071117-Clay (90%)	4.8E-07	---		X
CHR-071117-Sand (89%)	2.5E-05	---		X

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job name: Stantec MWH
Job number: DB17.1177.00
Sample number: CHR-071117-Clay (90%)
Project name: NECR Jetty Borrow Soil
PO Number: P30109-N

Remolded or Initial Sample Properties

Initial Mass (g):	403.21
Diameter (cm):	6.107
Length (cm):	7.592
Area (cm^2):	29.29
Volume (cm^3):	222.38
Dry Density (g/cm^3):	1.54
Dry Density (pcf):	96.3
Water Content (%, g/g):	17.6
Water Content (%, vol):	27.1
Void Ratio (e):	0.63
Porosity (%, vol):	38.5
Saturation (%):	70.2

Post Permeation Sample Properties

Saturated Mass (g):	450.74
Dry Mass (g):	343.01
Diameter (cm):	6.282
Length (cm):	7.619
*Deformation (%)**:*	0.36
Area (cm^2):	30.99
Volume (cm^3):	236.15
Dry Density (g/cm^3):	1.45
Dry Density (pcf):	90.7
Water Content (%, g/g):	31.4
Water Content (%, vol):	45.6
Void Ratio(e):	0.73
Porosity (%, vol):	42.1
Saturation (%):*	108.3

Test and Sample Conditions

Permeant liquid used:	Tap Water
Sample Preparation:	☐ In situ sample, extruded
	☑ Remolded Sample
Number of Lifts:	3
Split:	#4
Percent Coarse Material (%):	0.2
Particle Density(g/cm^3):	2.51 ☑ Assumed ☐ Measured
Cell pressure (PSI):	80.0
Influent pressure (PSI):	79.5
Effluent pressure (PSI):	78.5
Panel Used:	☐ D ☐ E ☑ F
Reading:	☐ Annulus ☑ Pipette

		Date/Time
B-Value (% saturation) prior to test*:	1.00	9/27/17 750
B-Value (% saturation) post to test:	1.00	9/27/17 933

* Per ASTM D5084 percent saturation is ensured (B-Value ≥ 95%) prior to testing, as post test saturation values may be exaggerated during depressurizing and sample removal.
**Percent Deformation: based on initial sample length and post permeation sample length.

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

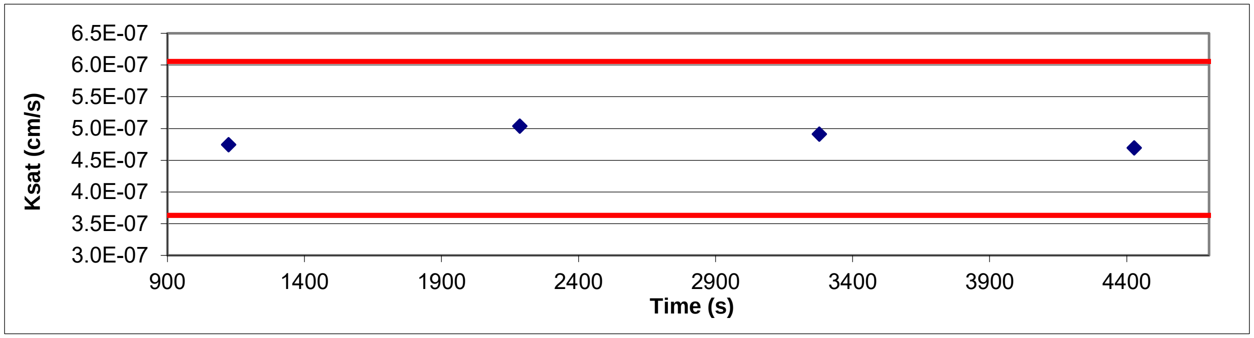
Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job name: Stantec MWH
Job number: DB17.1177.00
Sample number: CHR-071117-Clay (90%)
Project name: NECR Jetty Borrow Soil
PO Number: P30109-N

Date	Time	Temp (°C)	Influent Pipette Reading	Effluent Pipette Reading	Gradient (ΔH/ΔL)	Average Flow (cm^3)	Elapsed Time (s)	Ratio (outflow to inflow)	Change in Head (Not to exceed 25%)	k_{sat} T°C (cm/s)	k_{sat} Corrected (cm/s)
Test # 1:											
27-Sep-17	08:14:51	21.8	5.20	20.80	11.60	0.17	1124	1.00	1%	4.96E-07	4.75E-07
27-Sep-17	08:33:35	22.0	5.40	20.60	11.54						
Test # 2:											
27-Sep-17	08:33:35	22.0	5.40	20.60	11.54	0.17	1062	1.00	1%	5.28E-07	5.03E-07
27-Sep-17	08:51:17	22.1	5.60	20.40	11.48						
Test # 3:											
27-Sep-17	08:51:17	22.1	5.60	20.40	11.48	0.17	1093	1.00	1%	5.16E-07	4.91E-07
27-Sep-17	09:09:30	22.1	5.80	20.20	11.41						
Test # 4:											
27-Sep-17	09:09:30	22.1	5.80	20.20	11.41	0.17	1149	1.00	1%	4.93E-07	4.69E-07
27-Sep-17	09:28:39	22.1	6.00	20.00	11.35						

***Average Ksat* (cm/sec):** **4.85E-07**
Calculated Gravel Corrected Average Ksat (cm/sec): ---



ASTM Required Range (+/- 25%)

Ksat (-25%) (cm/s): 3.63E-07

Ksat (+25%) (cm/s): 6.06E-07

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job name: Stantec MWH
Job number: DB17.1177.00
Sample number: CHR-071117-Sand (89%)
Project name: NECR Jetty Borrow Soil
PO Number: P30109-N

Remolded or Initial Sample Properties		Post Permeation Sample Properties		Test and Sample Conditions	
Initial Mass (g):	410.42	*Saturated Mass (g):*	439.33	*Permeant liquid used:*	Tap Water
Diameter (cm):	6.095	*Dry Mass (g):*	358.33	*Sample Preparation:*	☐ In situ sample, extruded
Length (cm):	7.632	*Diameter (cm):*	6.081		☑ Remolded Sample
Area (cm^2):	29.18	*Length (cm):*	7.604	*Number of Lifts:*	3
Volume (cm^3):	222.68	*Deformation (%)**:*	0.36	*Split:*	#4
Dry Density (g/cm^3):	1.61	*Area (cm^2):*	29.04	*Percent Coarse Material (%):*	0.0
Dry Density (pcf):	100.5	*Volume (cm^3):*	220.85	*Particle Density(g/cm^3):*	2.51 ☑ Assumed ☐ Measured
Water Content (%, g/g):	14.5	*Dry Density (g/cm^3):*	1.62	*Cell pressure (PSI):*	80.0
Water Content (%, vol):	23.4	*Dry Density (pcf):*	101.3	*Influent pressure (PSI):*	79.2
Void Ratio (e):	0.56	*Water Content (%, g/g):*	22.6	*Effluent pressure (PSI):*	78.8
Porosity (%, vol):	35.9	*Water Content (%, vol):*	36.7	*Panel Used:*	☐ D ☑ E ☐ F
Saturation (%):	65.2	*Void Ratio(e):*	0.55	*Reading:*	☐ Annulus ☑ Pipette
		Porosity (%, vol):	35.4		
		Saturation (%):*	103.7		

		Date/Time
B-Value (% saturation) prior to test*:	1.00	9/27/17 810
B-Value (% saturation) post to test:	1.00	9/27/17 855

* Per ASTM D5084 percent saturation is ensured (B-Value ≥ 95%) prior to testing, as post test saturation values may be exaggerated during depressurizing and sample removal.
**Percent Deformation: based on initial sample length and post permeation sample length.

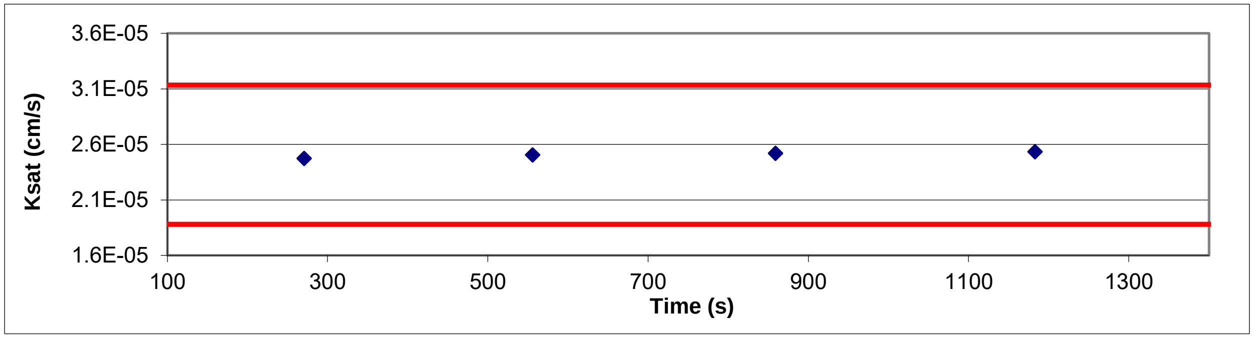
Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job name: Stantec MWH
Job number: DB17.1177.00
Sample number: CHR-071117-Sand (89%)
Project name: NECR Jetty Borrow Soil
PO Number: P30109-N

Date	Time	Temp (°C)	Influent Pipette Reading	Effluent Pipette Reading	Gradient (ΔH/ΔL)	Average Flow (cm^3)	Elapsed Time (s)	Ratio (outflow to inflow)	Change in Head (Not to exceed 25%)	k_{sat} T°C (cm/s)	k_{sat} Corrected (cm/s)
Test # 1:											
27-Sep-17	08:23:19	21.9	9.00	18.00	5.07	0.87	271	1.00	6%	2.59E-05	2.47E-05
27-Sep-17	08:27:50	21.9	10.00	17.00	4.76						
Test # 2:											
27-Sep-17	08:27:50	21.9	10.00	17.00	4.76	0.87	285	1.00	6%	2.62E-05	2.50E-05
27-Sep-17	08:32:35	22.0	11.00	16.00	4.46						
Test # 3:											
27-Sep-17	08:32:35	22.0	11.00	16.00	4.46	0.87	303	1.00	7%	2.64E-05	2.52E-05
27-Sep-17	08:37:38	22.0	12.00	15.00	4.16						
Test # 4:											
27-Sep-17	08:37:38	22.0	12.00	15.00	4.16	0.87	324	1.00	7%	2.66E-05	2.53E-05
27-Sep-17	08:43:02	22.0	13.00	14.00	3.85						

***Average Ksat* (cm/sec): 2.51E-05**
Calculated Gravel Corrected Average Ksat (cm/sec): ---



ASTM Required Range (+/- 25%)

Ksat (-25%) (cm/s): 1.88E-05

Ksat (+25%) (cm/s): 3.13E-05

Moisture Retention Characteristics

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
CHR-071117-Clay (90%)	0	38.2 ‡‡
	57	38.3 ‡‡
	155	36.8 ‡‡
	337	36.4 ‡‡
	1428	31.3 ‡‡
	13563	23.0 ‡‡
	49970	16.6 ‡‡
	130126	12.7 ‡‡
	440554	9.2 ‡‡
	851293	6.9 ‡‡
CHR-071117-Sand (91%)	0	34.0
	12	33.8
	35	33.4
	105	23.8
	337	20.5
	5303	12.7
	28350	7.7
	128189	5.3
	549468	3.7
	851293	3.1

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
CHR-071117-Clay (90%)	0.0008	1.2352	0.00	37.78	---	---
CHR-071117-Sand (91%)	0.0285	1.2264	0.00	35.02	---	---

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Clay (90%)
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Dry wt. of sample (g): 343.08
Tare wt., ring (g): 133.38
Tare wt., screen & clamp (g): 24.24
Initial sample volume (cm^3): 222.62
Initial dry bulk density (g/cm^3): 1.54
Assumed particle density (g/cm^3): 2.65
Initial calculated total porosity (%): 41.84

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)	
Hanging column:	15-Aug-17	8:20	587.81	0	38.19	‡‡
	22-Aug-17	9:15	588.73	57.0	38.29	‡‡
	29-Aug-17	16:35	585.15	155.0	36.83	‡‡
Pressure plate:	8-Sep-17	11:00	583.56	337	36.37	‡‡
	20-Sep-17	9:10	571.30	1428	31.28	‡‡

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	228.10	+2.46%	1.50	43.24
	57.0	229.89	+3.27%	1.49	43.68
	155.0	229.30	+3.00%	1.50	43.54
Pressure plate:	337	227.84	+2.35%	1.51	43.18
	1428	225.72	+1.40%	1.52	42.65

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: D. O'Dowd
Data entered by: J. Falance
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: CHR-071117-Clay (90%)

Initial sample bulk density (g/cm^3)*:* 1.54

Fraction of test sample used (<2.00mm fraction) (%): 99.70

Dry weight of dew point potentiometer sample* (g)*:* 159.53

Tare weight, jar (g)*:* 114.42

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)	
Dew point potentiometer:	7-Sep-17	15:05	166.36	13563	22.95	‡‡
	5-Sep-17	10:20	164.47	49970	16.58	‡‡
	29-Aug-17	15:10	163.31	130126	12.69	‡‡
	21-Aug-17	16:35	162.28	440554	9.25	‡‡

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	13563	225.72	+1.40%	1.52	42.65
	49970	225.72	+1.40%	1.52	42.65
	130126	225.72	+1.40%	1.52	42.65
	440554	225.72	+1.40%	1.52	42.65

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1).

Laboratory analysis by: D. O'Dowd/A. Bland

Data entered by: J. Falance

Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: CHR-071117-Clay (90%)

Initial sample bulk density (g/cm^3)*:* 1.54
Fraction of test sample used (<2.00mm fraction) (%): 99.70

Dry weight of relative humidity box sample* (g)*:* 63.17
Tare weight (g)*:* 40.78

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content[†] (% vol)	
Relative humidity box:	1-Sep-17	17:40	64.19	851293	6.91	‡‡

Volume Adjusted Data[1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change[2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	225.72	+1.40%	1.52	42.65

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

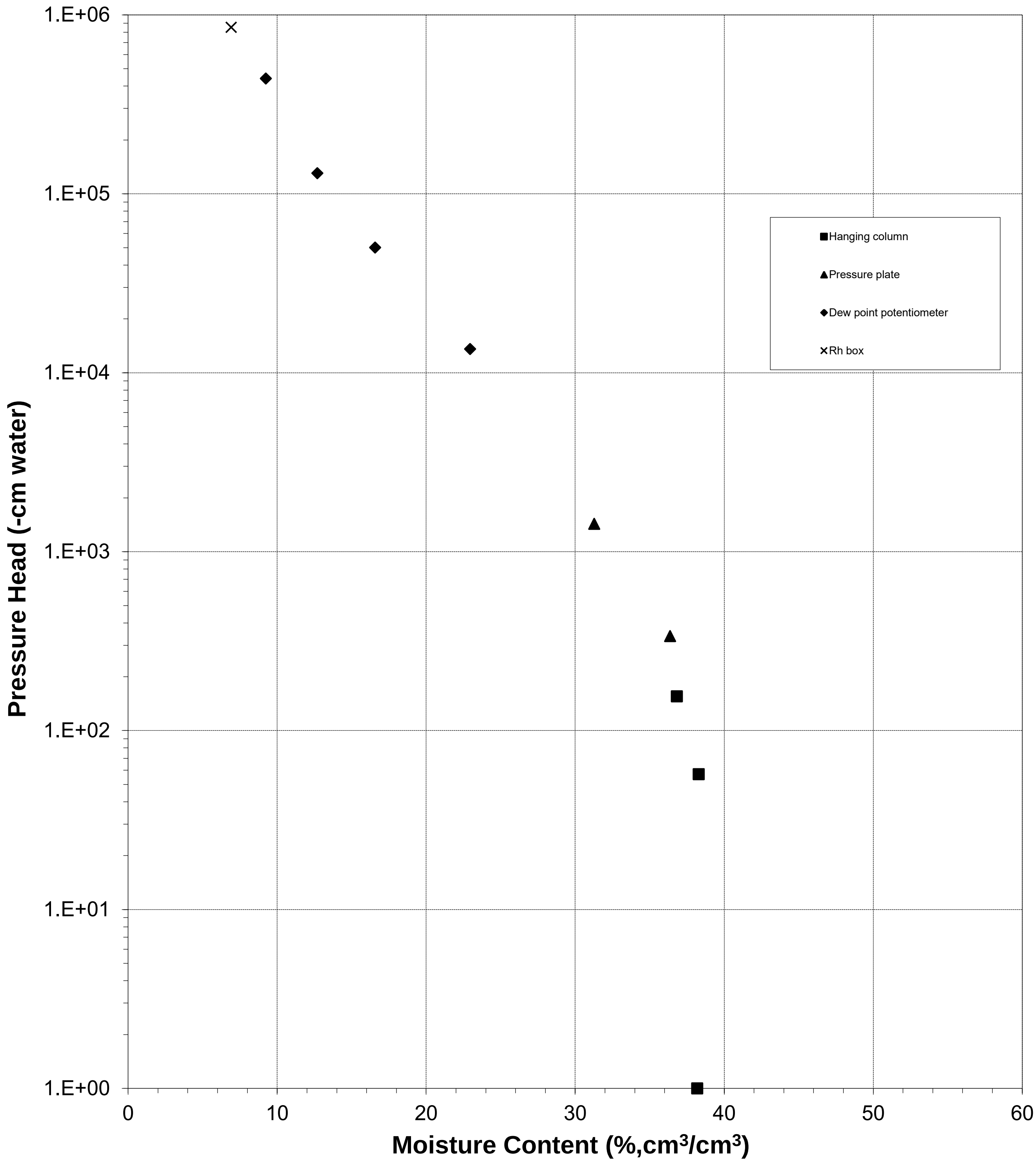
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd/A. Bland
Data entered by: J. Falance
Checked by: J. Hines

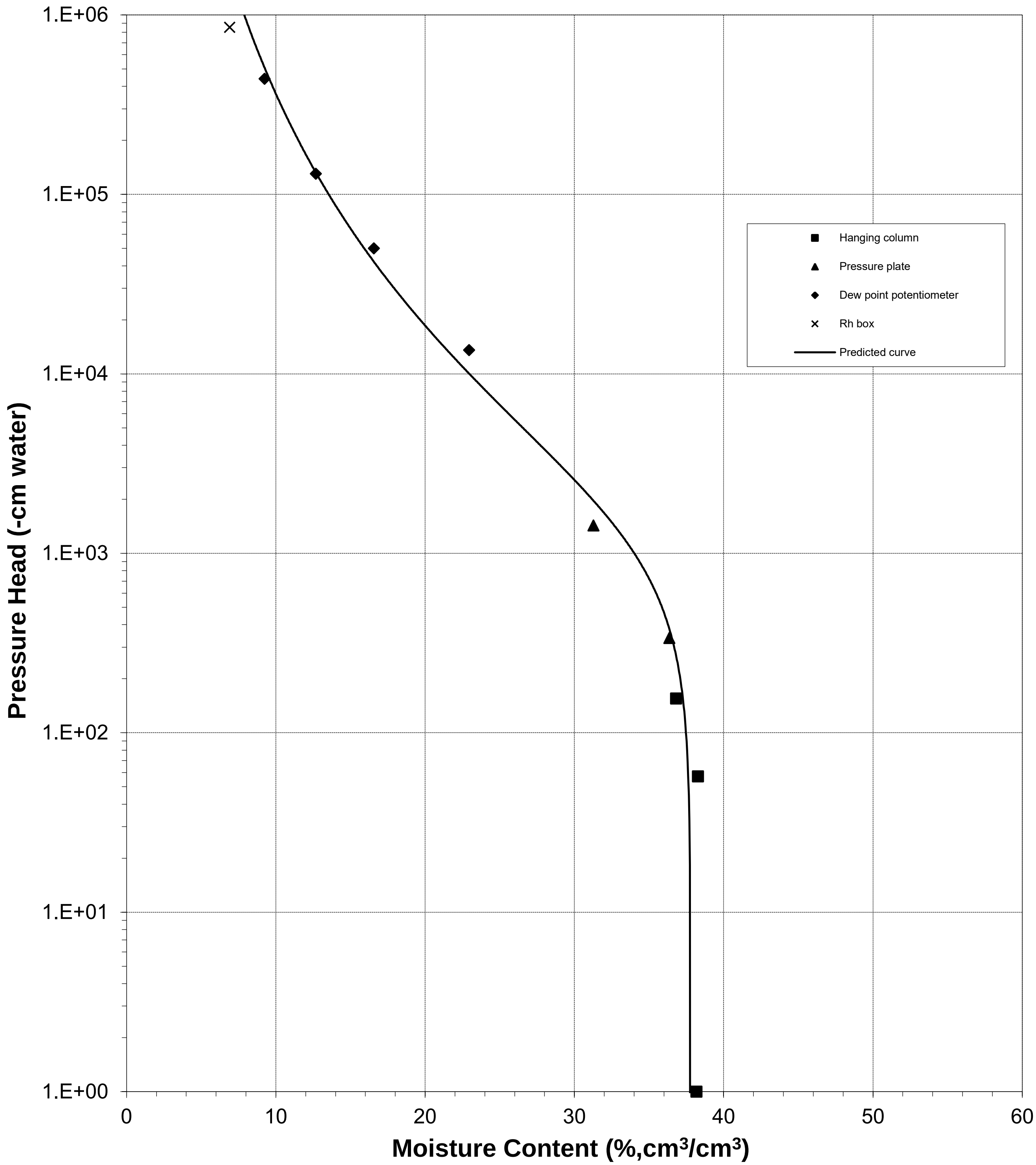
Water Retention Data Points

Sample Number: CHR-071117-Clay (90%)



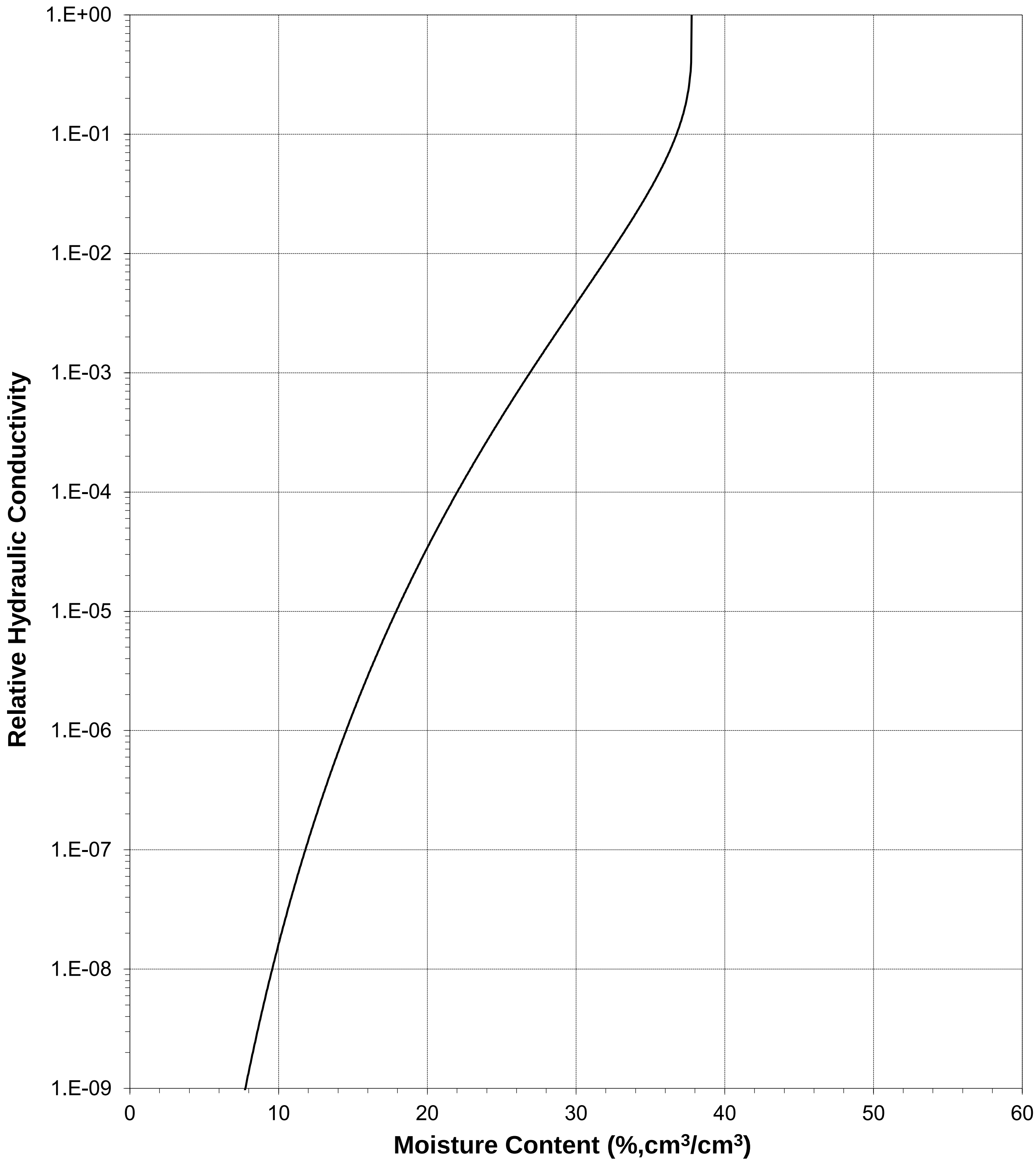
Predicted Water Retention Curve and Data Points

Sample Number: CHR-071117-Clay (90%)



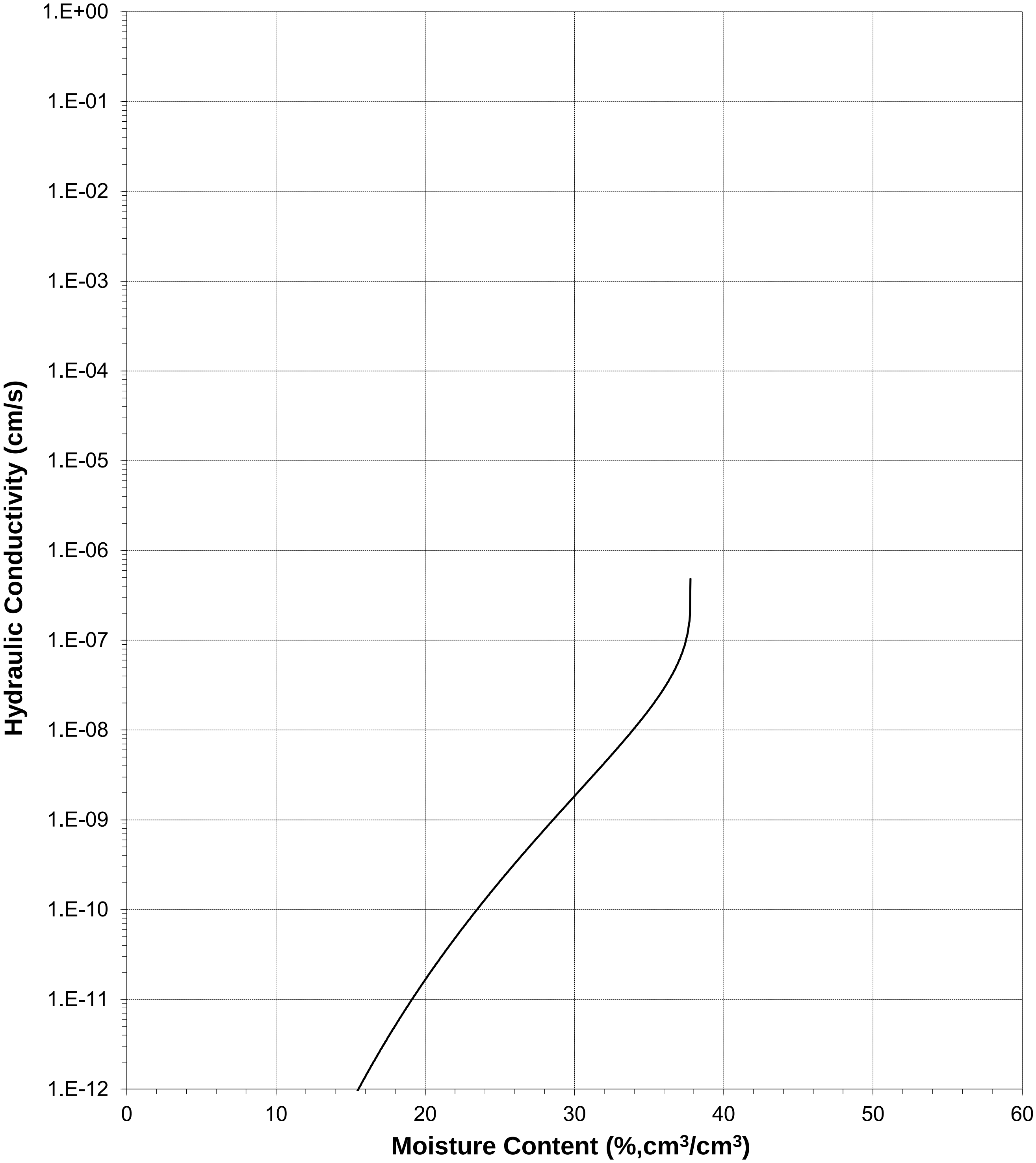
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: CHR-071117-Clay (90%)



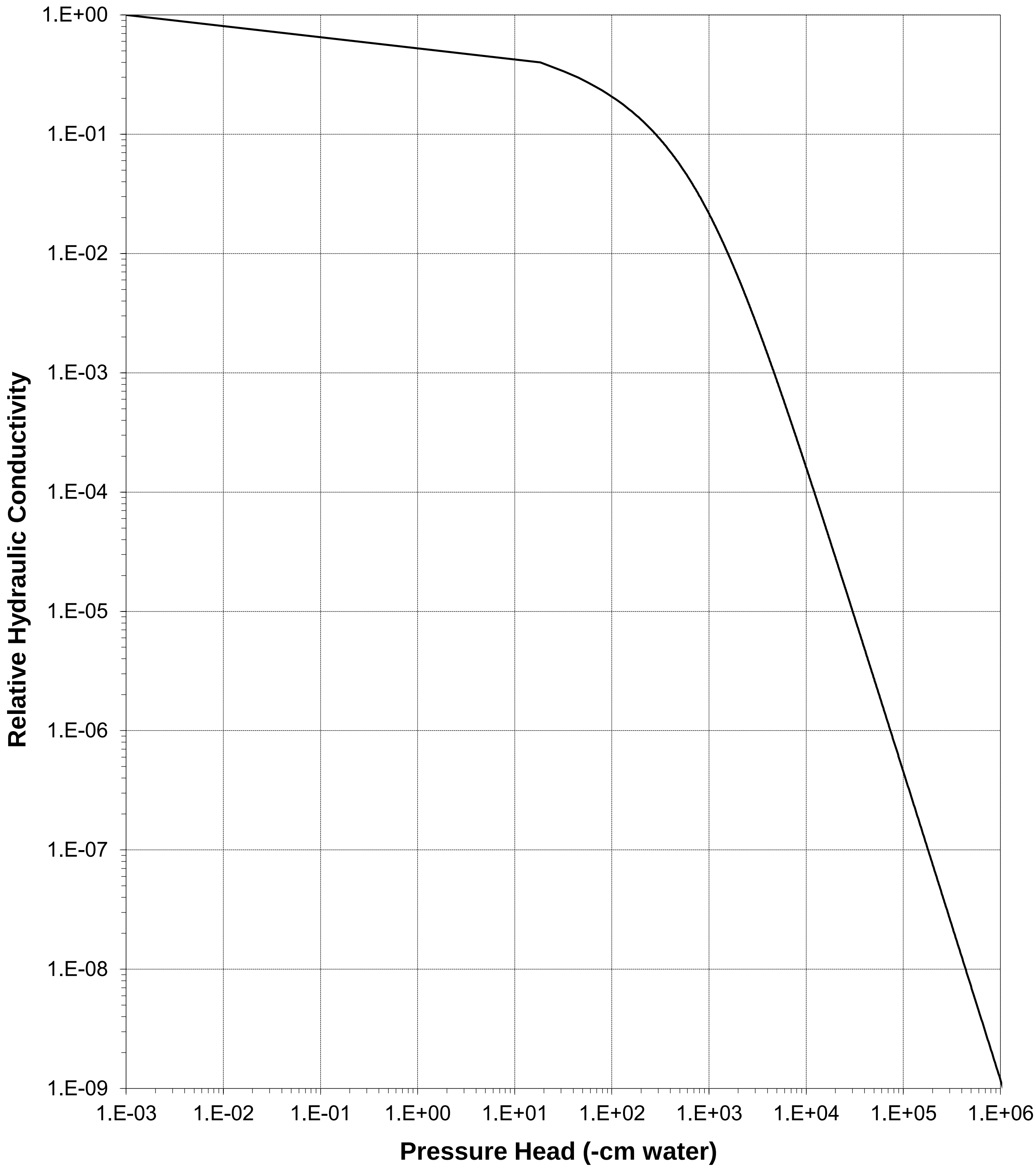
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: CHR-071117-Clay (90%)



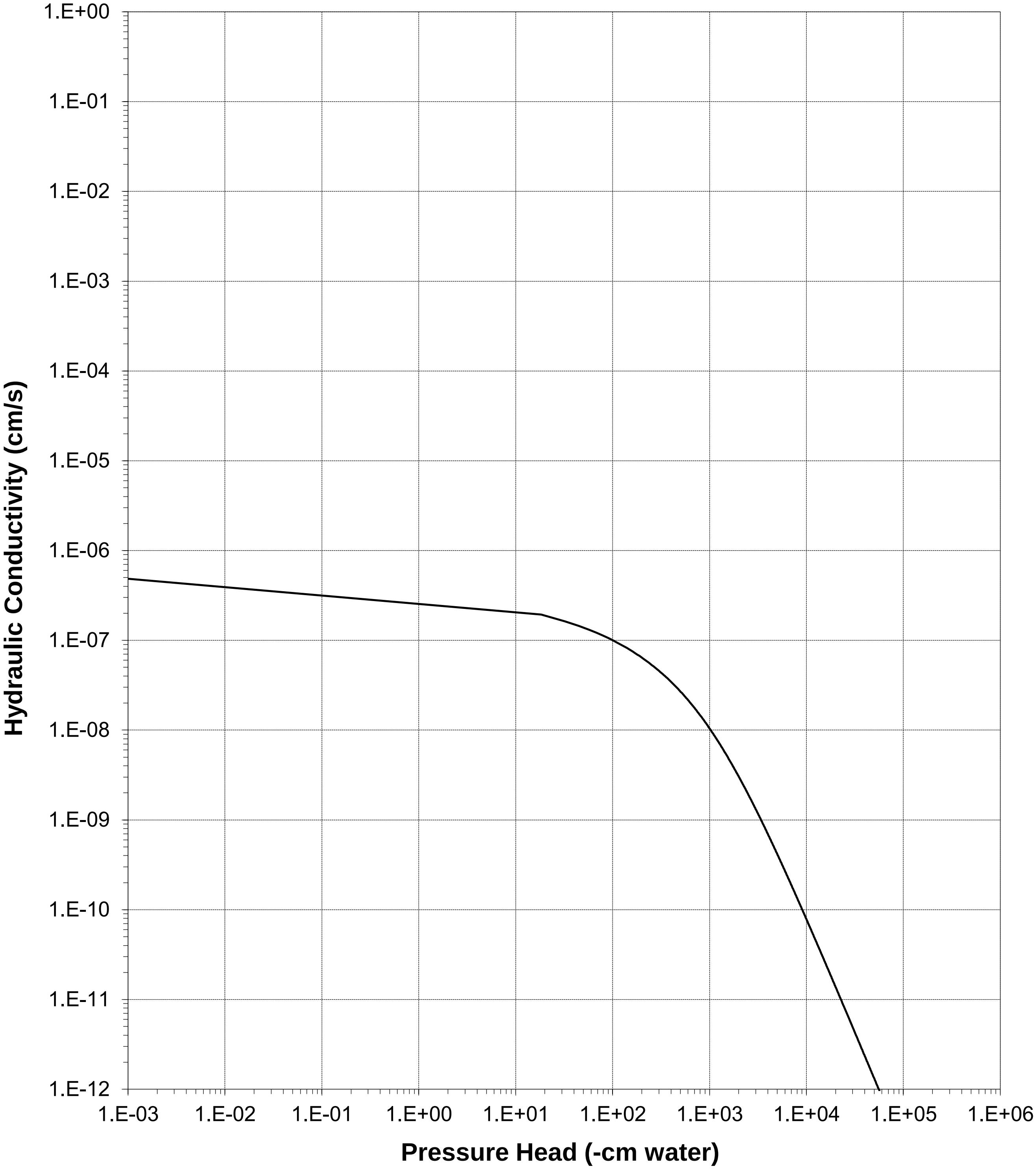
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: CHR-071117-Clay (90%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: CHR-071117-Clay (90%)



Oversize Correction Data Sheet

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Clay (90%)
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Split (3/4", 3/8", #4): #4

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	0.19	99.81	100.00
Mass Fraction (%):	0.19	99.81	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.54	1.54
Calculated Porosity (% vol):	0.00	41.84	41.80
Volume of Solids (cm^3):	0.07	37.66	37.74
Volume of Voids (cm^3):	0.00	27.10	27.10
Total Volume (cm^3):	0.07	64.76	64.84
Volumetric Fraction (%):	0.11	99.89	100.00
Initial Moisture Content (% vol):	0.00	27.13	---
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.50	1.51
Calculated Porosity (% vol):	0.00	43.24	43.20
Volume of Solids (cm^3):	0.07	37.66	37.74
Volume of Voids (cm^3):	0.00	28.70	28.70
Total Volume (cm^3):	0.07	66.36	66.43
Volumetric Fraction (%):	0.11	99.89	100.00
Saturated Moisture Content (% vol):	0.00	37.78	---
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.52	1.52
Calculated Porosity (% vol):	0.00	42.65	42.60
Volume of Solids (cm^3):	0.07	37.66	37.74
Volume of Voids (cm^3):	0.00	28.00	28.00
Total Volume (cm^3):	0.07	65.67	65.74
Volumetric Fraction (%):	0.11	99.89	100.00
Residual Moisture Content (% vol):	0.00	0.00	---
Ksat (cm/sec):	NM	4.8E-07	---

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: D. O'Dowd
Data entered by: J. Falance
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name:	Stantec MWH	*Dry wt. of sample (g):*	360.15
Job Number:	DB17.1177.00	*Tare wt., ring (g):*	133.38
Sample Number:	CHR-071117-Sand (91%)	*Tare wt., screen & clamp (g):*	24.13
Project Name:	NECR Jetty Borrow Soil	*Initial sample volume (cm^3):*	222.72
PO Number:	P30109-N	*Initial dry bulk density (g/cm^3):*	1.62
		Assumed particle density (g/cm^3):	2.65
		Initial calculated total porosity (%):	38.98

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Hanging column:	15-Aug-17	8:15	593.47	0	34.04
	22-Aug-17	8:20	592.96	12.0	33.81
	29-Aug-17	16:40	592.09	35.0	33.42
	5-Sep-17	16:30	570.63	105.0	23.78
Pressure plate:	18-Sep-17	12:40	563.34	337	20.51

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	12.0	---	---	---	---
	35.0	---	---	---	---
	105.0	---	---	---	---
Pressure plate:	337	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. ‘Volume Adjusted’ values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: D. O'Dowd
Data entered by: J. Falance
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: CHR-071117-Sand (91%)

Initial sample bulk density (g/cm^3)*:* 1.62
Fraction of test sample used (<2.00mm fraction) (%): 100.00

Dry weight of dew point potentiometer sample* (g)*:* 169.66
Tare weight, jar (g)*:* 114.22

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	11-Sep-17	10:25	174.01	5303	12.68
	6-Sep-17	12:05	172.30	28350	7.71
	30-Aug-17	15:55	171.48	128189	5.32
	28-Aug-17	10:50	170.93	549468	3.69

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	5303	---	---	---	---
	28350	---	---	---	---
	128189	---	---	---	---
	549468	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. ‘Volume Adjusted’ values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1).

Laboratory analysis by: D. O'Dowd/A. Bland
Data entered by: J. Falance
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: CHR-071117-Sand (91%)

Initial sample bulk density (g/cm^3)*:* 1.62
Fraction of test sample used (<2.00mm fraction) (%): 100.00

Dry weight of relative humidity box sample* (g)*:* 100.64
Tare weight (g)*:* 85.71

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	1-Sep-17	17:40	100.93	851293	3.12

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

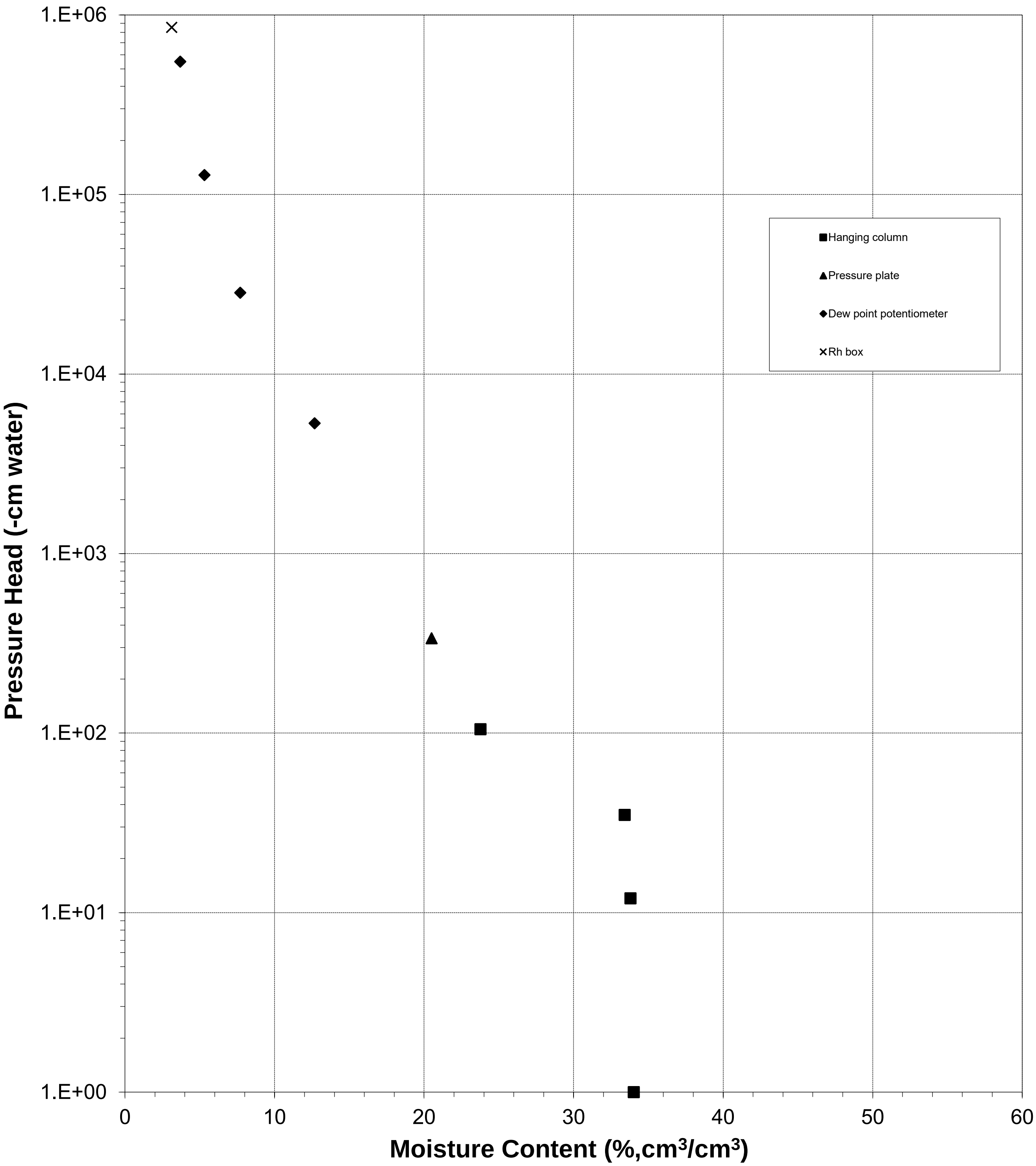
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd/A. Bland
Data entered by: J. Falance
Checked by: J. Hines

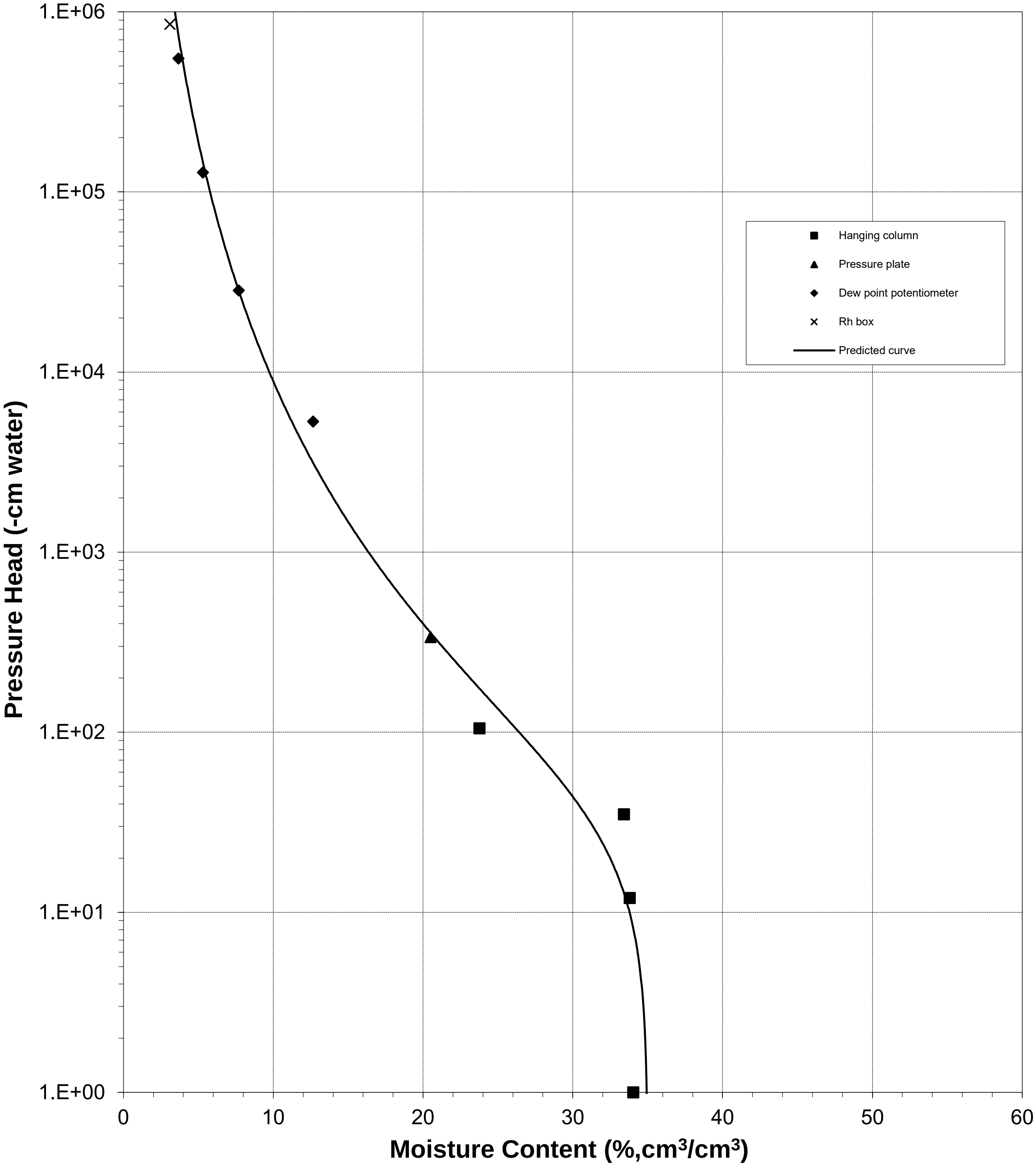
Water Retention Data Points

Sample Number: CHR-071117-Sand (91%)



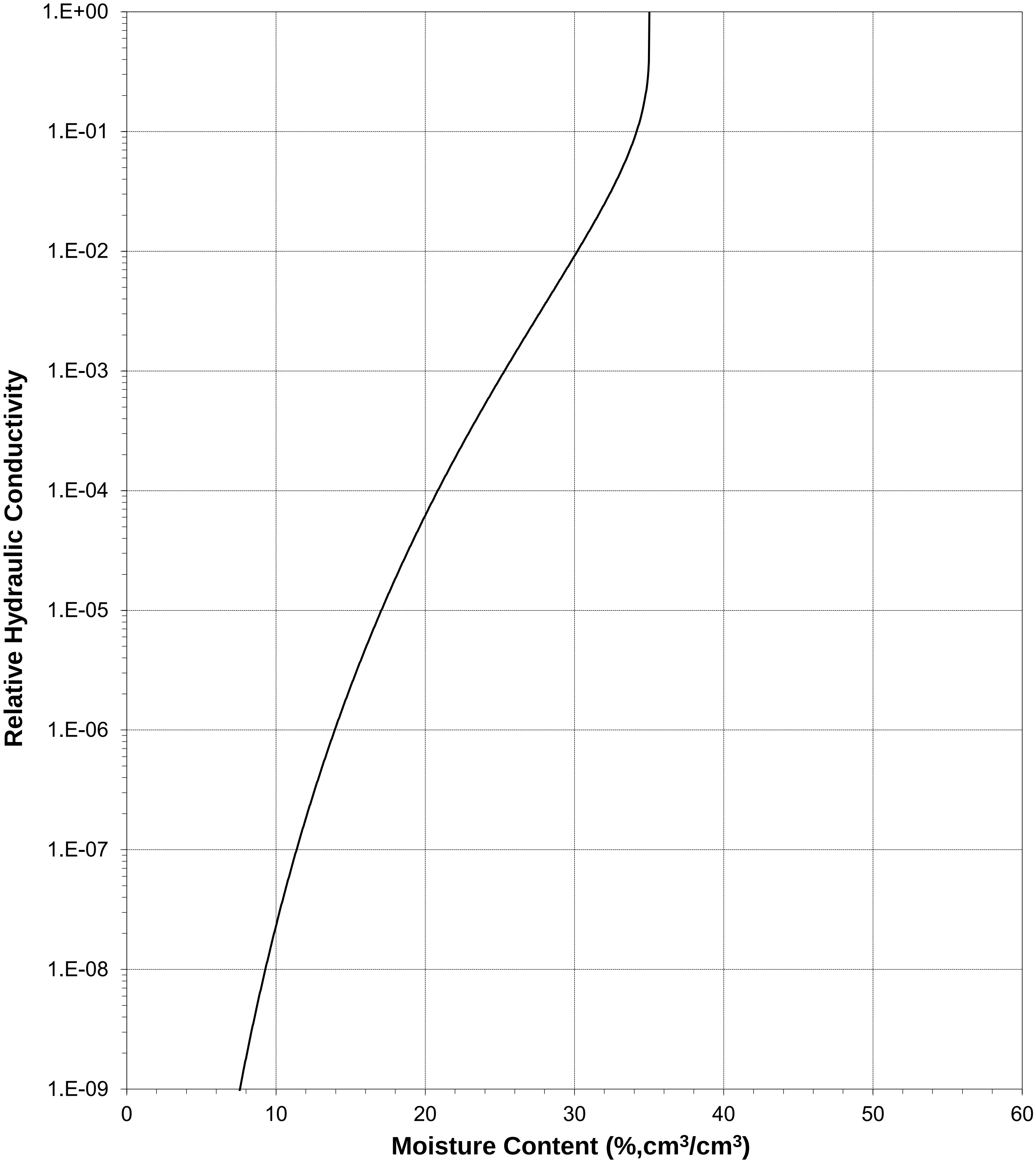
Predicted Water Retention Curve and Data Points

Sample Number: CHR-071117-Sand (91%)



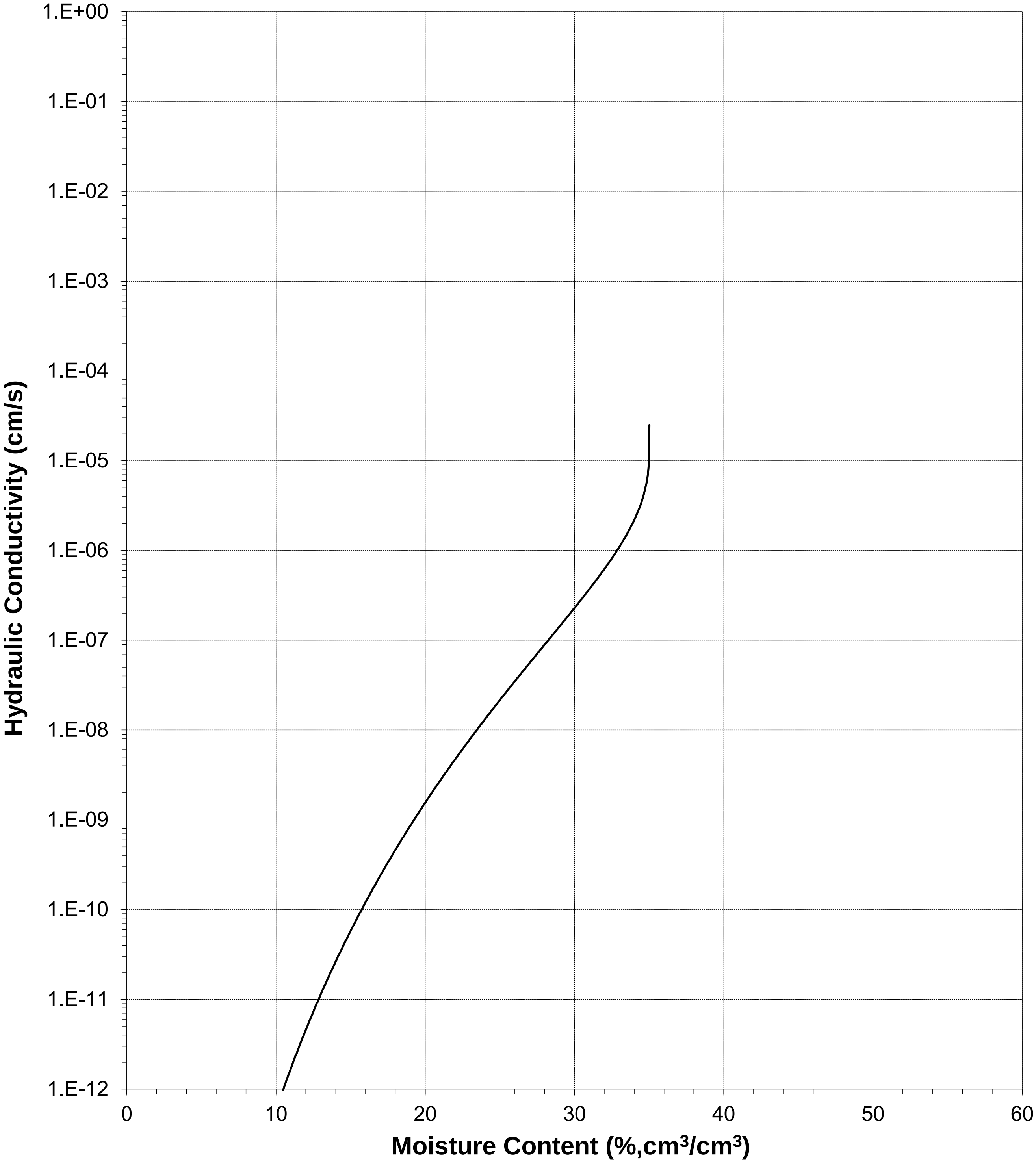
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: CHR-071117-Sand (91%)



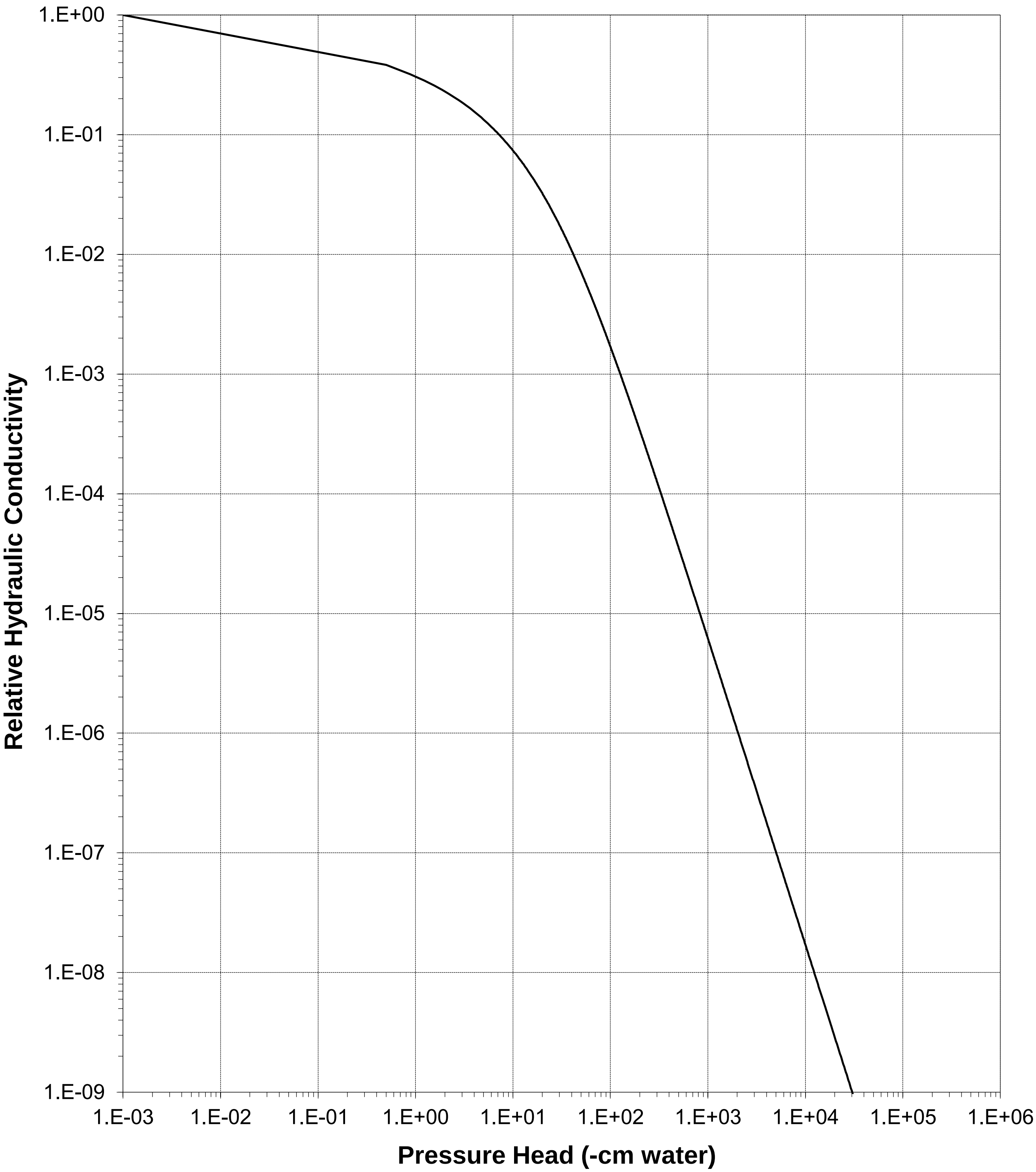
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: CHR-071117-Sand (91%)



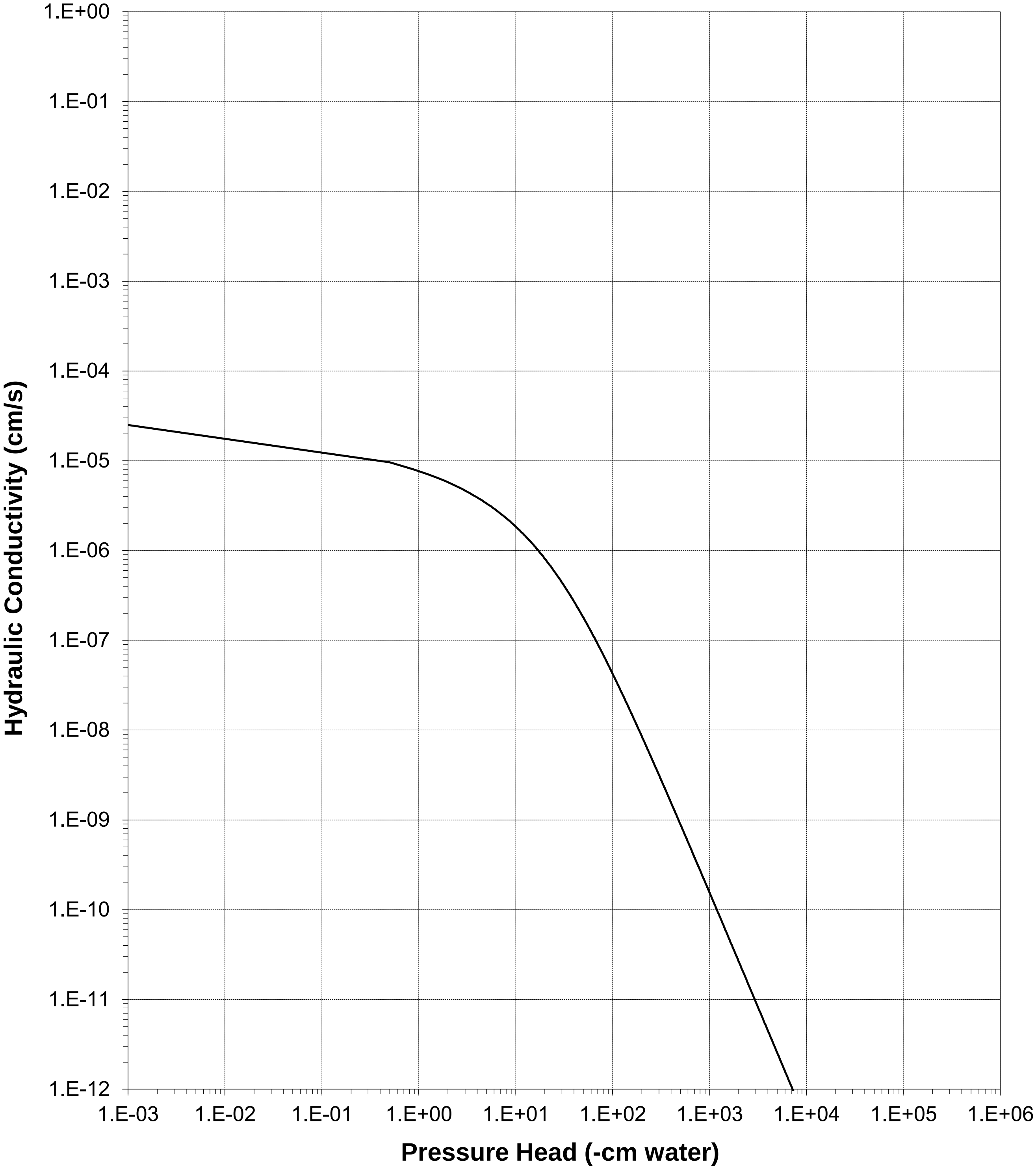
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: CHR-071117-Sand (91%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: CHR-071117-Sand (91%)



Oversize Correction Data Sheet

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Sand (91%)
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Split (3/4", 3/8", #4): #4

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	0.00	100.00	100.00
Mass Fraction (%):	0.00	100.00	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.62	1.62
Calculated Porosity (% vol):	0.00	38.98	38.98
Volume of Solids (cm^3):	0.00	37.74	37.74
Volume of Voids (cm^3):	0.00	24.10	24.10
Total Volume (cm^3):	0.00	61.84	61.84
Volumetric Fraction (%):	0.00	100.00	100.00
Initial Moisture Content (% vol):	0.00	23.87	---
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.62	1.62
Calculated Porosity (% vol):	0.00	38.98	38.98
Volume of Solids (cm^3):	0.00	37.74	37.74
Volume of Voids (cm^3):	0.00	24.10	24.10
Total Volume (cm^3):	0.00	61.84	61.84
Volumetric Fraction (%):	0.00	100.00	100.00
Saturated Moisture Content (% vol):	0.00	35.02	---
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.62	1.62
Calculated Porosity (% vol):	0.00	38.98	38.98
Volume of Solids (cm^3):	0.00	37.74	37.74
Volume of Voids (cm^3):	0.00	24.10	24.10
Total Volume (cm^3):	0.00	61.84	61.84
Volumetric Fraction (%):	0.00	100.00	100.00
Residual Moisture Content (% vol):	0.00	0.00	---
Ksat (cm/sec):	NM	2.5E-05	---

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: D. O'Dowd
Data entered by: J. Falance
Checked by: J. Hines

Particle Size Analysis

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
CHR-071117-Clay	0.00016	0.0068	0.015	94	0.50	WS/H	Lean clay with sand (CL)s	Clay Loam	(Est)
CHR-071117-Sand	8.8E-14	0.11	0.14	1.6E+12	3.1E+11	WS/H	Silty sand (SM)	Sandy Loam	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
CHR-071117-Clay	0.2	20.0	44.1	35.8
CHR-071117-Sand	0.0	64.5	23.9	11.6

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Clay
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Test Date: 23-Aug-17

Initial Dry Weight of Sample (g): 199.63
Weight Passing #10 (g): 199.03
Weight Retained #10 (g): 0.60
Weight of Hydrometer Sample (g): 58.86
Calculated Weight of Sieve Sample (g): 59.04

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	199.63	100.00
	2"	50	0.00	0.00	199.63	100.00
	1.5"	38.1	0.00	0.00	199.63	100.00
	1"	25	0.00	0.00	199.63	100.00
	3/4"	19.0	0.00	0.00	199.63	100.00
	3/8"	9.5	0.00	0.00	199.63	100.00
	4	4.75	0.37	0.37	199.26	99.81
	10	2.00	0.23	0.60	199.03	99.70
-10			(Based on calculated sieve wt.)			
	20	0.85	0.29	0.47	58.57	99.21
	40	0.425	0.37	0.84	58.20	98.58
	60	0.250	0.61	1.45	57.59	97.55
	140	0.106	6.28	7.73	51.31	86.91
	200	0.075	4.17	11.90	47.14	79.85
	dry pan		1.15	13.05	45.99	
	wet pan			45.99	0.00	

d_{10} (mm): 0.00016
d_{16} (mm): 0.00029
d_{30} (mm): 0.0011
d_{50} (mm): 0.0068
d_{60} (mm): 0.015
d_{84} (mm): 0.092

Median Particle Diameter --d_{50} (mm): 0.0068
Uniformity Coefficient, Cu --$[d_{60}/d_{10}]$ (mm): 94
Coefficient of Curvature, Cc --$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 0.50
Mean Particle Diameter --$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 0.033

Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Classification of fines: CL

ASTM Soil Classification: Lean clay with sand (CL)s
USDA Soil Classification: Clay Loam

Laboratory analysis by: J. Falance/E. Bastien
Data entered by: J. Falance
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

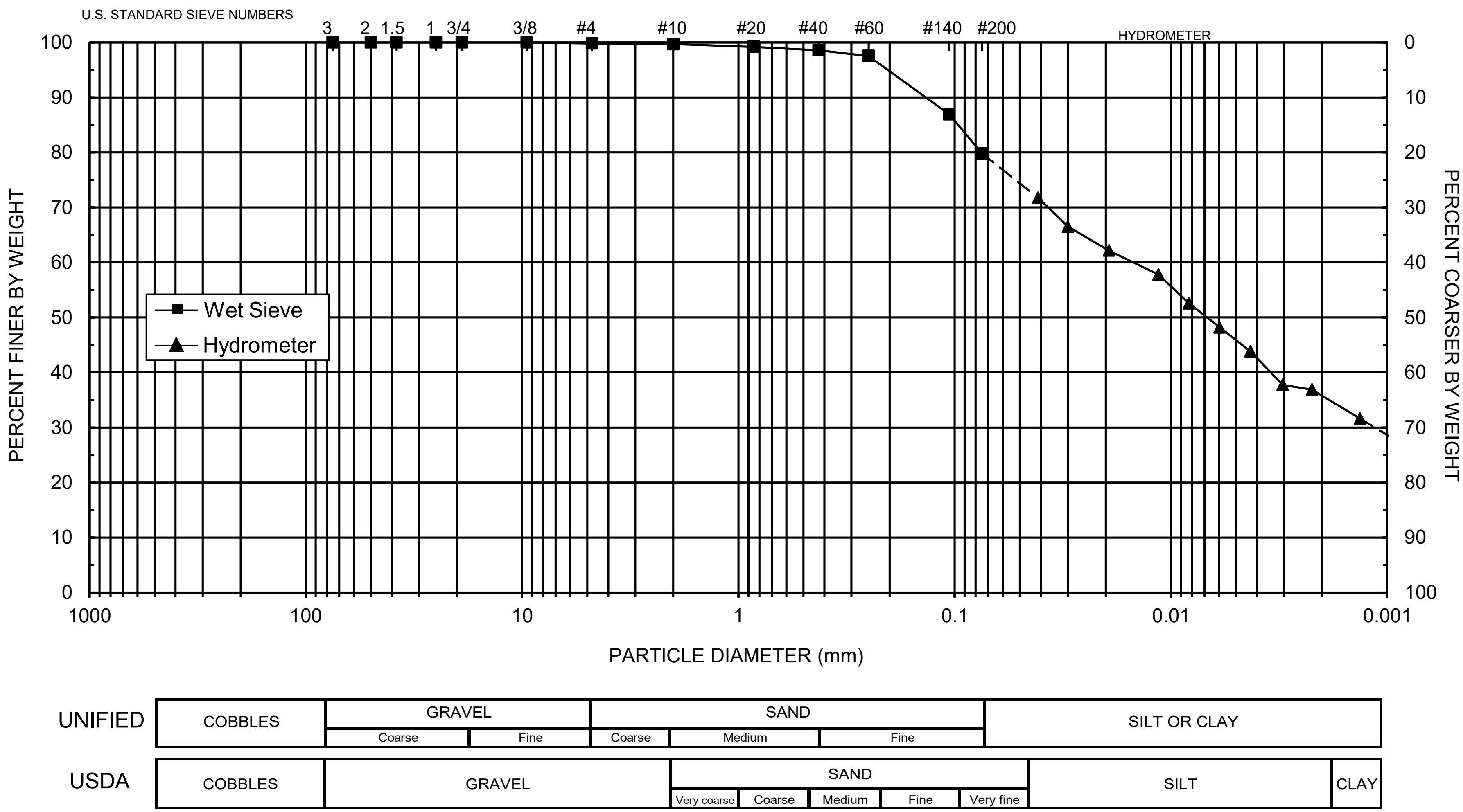
Job Name:	Stantec MWH	*Type of Water Used:*	DISTILLED
Job Number:	DB17.1177.00	*Reaction with* H_2O_2*:*	NA
Sample Number:	CHR-071117-Clay	*Dispersant*:*	$(NaPO_3)_6$
Project Name:	NECR Jetty Borrow Soil	*Assumed particle density:*	2.51
PO Number:	P30109-N	*Initial Wt. (g):*	58.86
Test Date:	21-Aug-17	*Total Sample Wt. (g):*	199.63
Start Time:	9:06	*Wt. Passing #10 (g):*	199.03

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
21-Aug-17	1	21.5	46.5	5.4	41.1	8.7	0.04119	72.0	71.8
	2	21.5	43.5	5.4	38.1	9.2	0.02994	66.7	66.5
	5	21.5	41.0	5.4	35.6	9.6	0.01935	62.3	62.2
	15	21.5	38.5	5.4	33.1	10.0	0.01141	58.0	57.8
	30	21.5	35.5	5.4	30.1	10.5	0.00826	52.7	52.6
	60	21.5	33.0	5.4	27.6	10.9	0.00596	48.4	48.2
	120	21.5	30.5	5.4	25.1	11.3	0.00429	44.0	43.8
	250	21.6	27.0	5.4	21.6	11.9	0.00304	37.9	37.8
	467	21.8	26.5	5.4	21.2	12.0	0.00223	37.0	36.9
22-Aug-17	1358	21.5	23.5	5.4	18.1	12.4	0.00134	31.7	31.6

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. Davis
Data entered by: J. Falance
Checked by: J. Hines



d_{10} = **0.00016**	d_{30} = **0.0011**	d_{50} = **0.0068**	d_{60} = **0.015**	C_u = **94**	C_c = **0.50**

SAMPLE NUMBER	PO NUMBER	ASTM CLASSIFICATION	USDA CLASSIFICATION
CHR-071117-Clay	**P30109-N**	**Lean clay with sand (CL)s**	**Clay Loam**

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Sand
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Test Date: 23-Aug-17

Initial Dry Weight of Sample (g): 119.56
Weight Passing #10 (g): 119.56
Weight Retained #10 (g): 0.00
Weight of Hydrometer Sample (g): 59.09
Calculated Weight of Sieve Sample (g): 59.09

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	119.56	100.00
	2"	50	0.00	0.00	119.56	100.00
	1.5"	38.1	0.00	0.00	119.56	100.00
	1"	25	0.00	0.00	119.56	100.00
	3/4"	19.0	0.00	0.00	119.56	100.00
	3/8"	9.5	0.00	0.00	119.56	100.00
	4	4.75	0.00	0.00	119.56	100.00
	10	2.00	0.00	0.00	119.56	100.00
-10			(Based on calculated sieve wt.)			
	20	0.85	0.12	0.12	58.97	99.80
	40	0.425	0.68	0.80	58.29	98.65
	60	0.250	4.97	5.77	53.32	90.24
	140	0.106	25.89	31.66	27.43	46.42
	200	0.075	6.48	38.14	20.95	35.45
	dry pan		1.83	39.97	19.12	
	wet pan			19.12	0.00	

d_{10} (mm): 8.8E-14
d_{16} (mm): 0.0099
d_{30} (mm): 0.062
d_{50} (mm): 0.11
d_{60} (mm): 0.14
d_{84} (mm): 0.22

Median Particle Diameter --d_{50} (mm): 0.11
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 1.6E+12
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 3.1E+11
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 0.11

Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Classification of fines (visual method): ML

ASTM Soil Classification: Silty sand (SM)
USDA Soil Classification: Sandy Loam

Laboratory analysis by: J. Falance
Data entered by: J. Falance
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Sand
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Test Date: 21-Aug-17
Start Time: 9:00

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.51

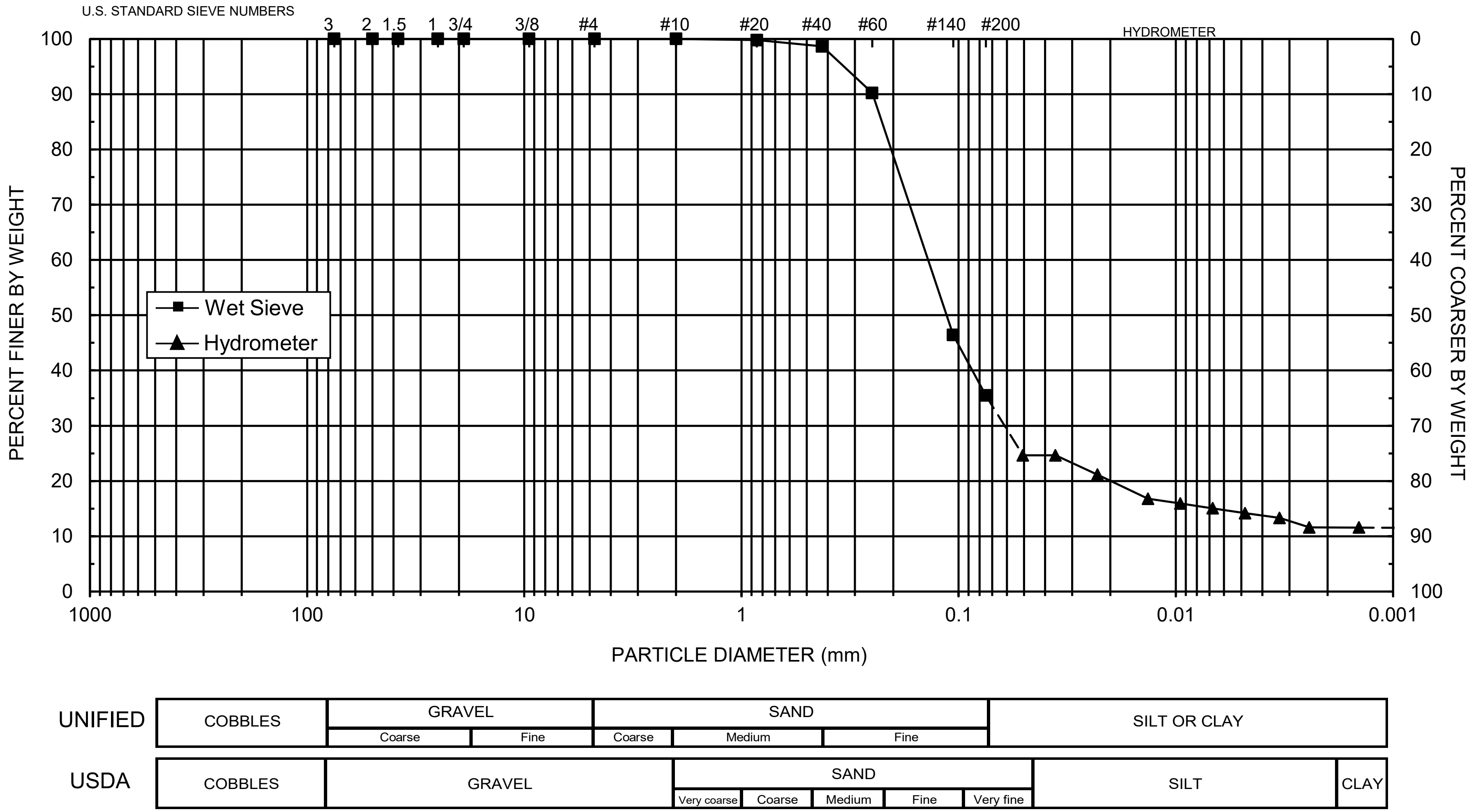
Initial Wt. (g): 59.09
Total Sample Wt. (g): 119.56
Wt. Passing #10 (g): 119.56

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
21-Aug-17	1	21.5	19.5	5.4	14.1	13.1	0.05062	24.6	24.6
	2	21.5	19.5	5.4	14.1	13.1	0.03579	24.6	24.6
	5	21.5	17.5	5.4	12.1	13.4	0.02292	21.1	21.1
	15	21.5	15.0	5.4	9.6	13.8	0.01343	16.8	16.8
	30	21.5	14.5	5.4	9.1	13.9	0.00953	15.9	15.9
	60	21.5	14.0	5.4	8.6	14.0	0.00676	15.0	15.0
	120	21.5	13.5	5.4	8.1	14.1	0.00479	14.2	14.2
	250	21.6	13.0	5.4	7.6	14.2	0.00332	13.3	13.3
	472	21.8	12.0	5.4	6.7	14.3	0.00243	11.6	11.6
22-Aug-17	1363	21.5	12.0	5.4	6.6	14.3	0.00143	11.6	11.6

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. Davis
Data entered by: J. Falance
Checked by: J. Hines



d_{10} = **8.8E-14**	d_{30} = **0.062**	d_{50} = **0.11**	d_{60} = **0.14**	C_u = **1.6E+12**	C_c = **3.1E+11**

SAMPLE NUMBER	PO NUMBER	ASTM CLASSIFICATION	USDA CLASSIFICATION
CHR-071117-Sand	**P30109-N**	**Silty sand (SM)**	**Sandy Loam**

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Atterberg Limits/ Identification of Fines

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
CHR-071117-Clay	43	19	24	CL
CHR-071117-Sand	---	---	---	ML

--- = Soil requires visual-manual classification due to non-plasticity

Atterberg Limits

Job Name:	Stantec MWH
Job Number:	DB17.1177.00
Sample Number:	CHR-071117-Clay
Project Name:	NECR Jetty Borrow Soil
PO Number:	P30109-N
Test Date:	17-Aug-17

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	35	25	17
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	123.94	127.24	127.73
Weight of pan plus dry soil (g)	120.73	123.40	124.19
Weight of pan (g):	113.17	114.47	116.10
Gravimetric moisture content (% g/g):	42.46	43.00	43.76
Liquid Limit:	43		

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	121.88	120.07
Weight of pan plus dry soil (g)	120.73	118.90
Weight of pan (g):	114.51	112.67
Gravimetric moisture content (% g/g):	18.49	18.78
Plastic Limit:	19	

Results

Percent of Sample Retained on #40 Sieve:	See Sieve
Liquid Limit:	43
Plastic Limit:	19
Plasticity Index:	24
Classification:	CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Atterberg Limits

Job Name:	Stantec MWH
Job Number:	DB17.1177.00
Sample Number:	CHR-071117-Sand
Project Name:	NECR Jetty Borrow Soil
PO Number:	P30109-N
Test Date:	17-Aug-17

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:			
Pan number:			
Weight of pan plus moist soil (g):			
Weight of pan plus dry soil (g)			
Weight of pan (g):			
Gravimetric moisture content (% g/g):	---	---	---
Liquid Limit:	---		

Plastic Limit

	Trial 1	Trial 2
Pan number:		
Weight of pan plus moist soil (g):		
Weight of pan plus dry soil (g)		
Weight of pan (g):		
Gravimetric moisture content (% g/g):	---	---
Plastic Limit:	---	

Results

Percent of Sample Retained on #40 Sieve:	See Sieve
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
Classification (Visual Method):	ML

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by:	D. O'Dowd
Data entered by:	D. O'Dowd
Checked by:	J. Hines

Data for Description and Identification of Fines
(Visual-Manual Procedure)

Job Name: Stantec MWH
Job Number: DB17.1177.00
Sample Number: CHR-071117-Sand
Project Name: NECR Jetty Borrow Soil
PO Number: P30109-N

Test Date: 17-Aug-17

Visual-manual classification of material passing the #40 sieve in lieu of Atterberg analysis due to non-plasticity:

Descriptive Information:

Color of Moist Sample: Dark Brown (10YR 3/3)
Odor: None
Moisture Condition: Moist
HCl Reaction: Weak

Preliminary Identification:

Dry Strength: None
Dilatency: Rapid
Toughness: Low
Plasticity: Non-plastic

Identification of Inorganic Fine Grained Soils:

Silt (ML)

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Laboratory Tests and Methods

Tests and Methods

Dry Bulk Density:	ASTM D7263
Moisture Content:	ASTM D7263, ASTM D2216
Calculated Porosity:	ASTM D7263
Saturated Hydraulic Conductivity: Falling Head Rising Tail: (Flexible Wall)	ASTM D5084
Hanging Column Method:	ASTM D6836 (modified apparatus)
Pressure Plate Method:	ASTM D6836 (modified apparatus)
Water Potential (Dewpoint Potentiometer) Method:	ASTM D6836
Relative Humidity (Box) Method:	Campbell, G. and G. Gee. 1986. Water Potential: Miscellaneous Methods. Chp. 25, pp. 631-632, in A. Klute (ed.), Methods of Soil Analysis. Part 1. American Society of Agronomy, Madison, WI; Karathanasis & Hajek. 1982. Quantitative Evaluation of Water Adsorption on Soil Clays. SSA Journal 46:1321-1325
Moisture Retention Characteristics & Calculated Unsaturated Hydraulic Conductivity:	ASTM D6836; van Genuchten, M.T. 1980. A closed-form equation for predicting the hydraulic conductivity of unsaturated soils. SSSAJ 44:892-898; van Genuchten, M.T., F.J. Leij, and S.R. Yates. 1991. The RETC code for quantifying the hydraulic functions of unsaturated soils. Robert S. Kerr Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Ada, Oklahoma. EPA/600/2091/065. December 1991
Particle Size Analysis:	ASTM D7928, ASTM D6913
USCS (ASTM) Classification:	ASTM D7928, ASTM D6913, ASTM D2487
USDA Classification:	ASTM D7928, ASTM D6913, USDA Soil Textural Triangle
Atterberg Limits:	ASTM D4318
Visual-Manual Description:	ASTM D2488

SAMPLE LOCATION	SAMPLE DEPTH (FT)	FIELD CLASS	MOISTURE (%)	DRY DENSITY (pcf)
B-4	16.0-16.5	--	10.4	77.6
B-5	10.5-11.0	--	5.2	82.9
B-5 (TRIAXIAL)	TW 25.0-27.5	--	21.2	98.8
B-5	40.5-41.0	--	22.7	99.6
B-6	15.5-16.5	--	10.7	93.0
B-6	40.5-41.0	--	17.9	97.0
B-7	TW 5.0-6.5	--	6.9	94.3
B-7	10.5-11.0	--	7.0	99.7
B-7	30.5-31.0	--	16.7	102.5

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2937 & ASTM D 2216

Ninyo & Moore

PROJECT NO.	DATE
604667003	3/17

MOISTURE - DENSITY TEST DATA

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

FIGURE

WEIGHT OF SAMPLE DISPERSED: 51.2

PERCENT PASSING #10 SIEVE: 100.0

SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed

HYDROMETER RESULTS (% PASSING)

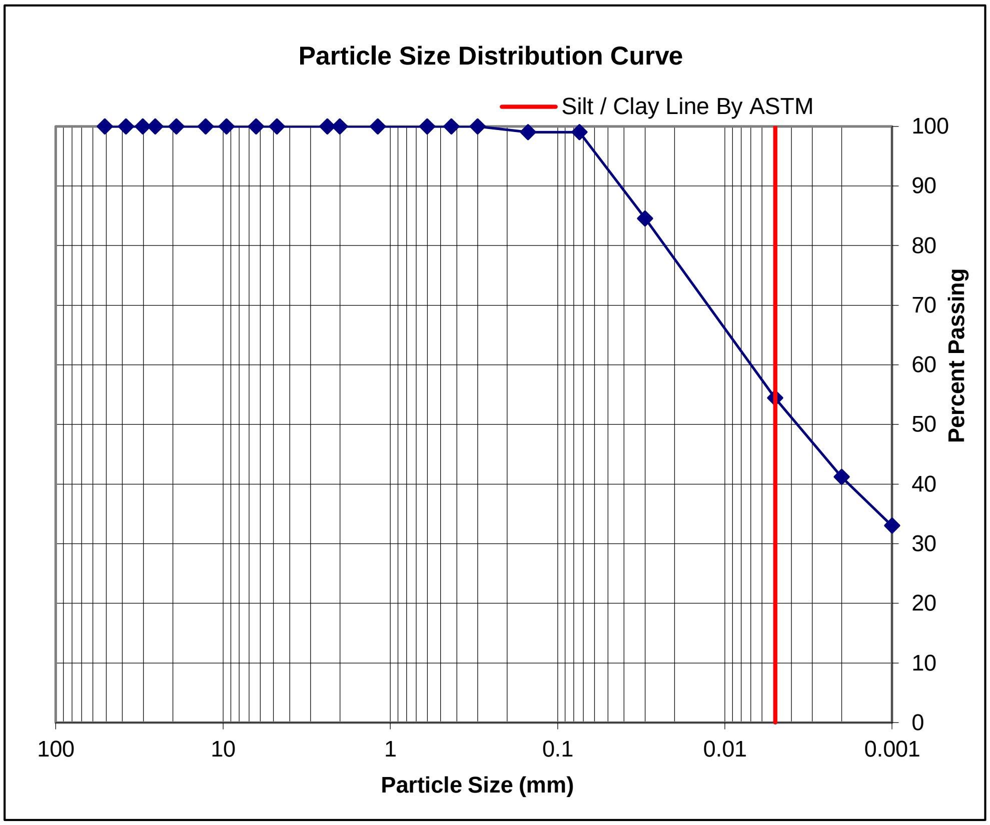
PARTICLE SIZE (DIA. mm)	0.0438	0.0283	0.0168	0.0123	0.0089	0.0046	0.0020	0.0014
PERCENT SAMPLE TESTED	87.9	84.0	78.2	70.3	65.5	52.8	41.0	37.1
PERCENT TOTAL SAMPLE	87.9	84.0	78.2	70.3	65.5	52.8	41.0	37.1

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	#200	#100	#50	#40	#30	#16	#10
PERCENT TOTAL SAMPLE	99.0	99.4	99.6	99.6	99.8	100.0	100.0

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	100	
# 30	100	
# 40	100	
# 50	100	
# 100	99	
# 200	99	
0.03 mm	84.6	
0.005 mm	54.4	
0.002 mm	41.2	
0.001 mm	33.0	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-5	40.5-41.0	49	20	29	--	--	0.007	--	--	99.0	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

FIGURE

PROJECT NO.	DATE
604667003	3/17

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

WEIGHT OF SAMPLE DISPERSED: 50.0

PERCENT PASSING #10 SIEVE: 100.0

SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed

HYDROMETER RESULTS (% PASSING)

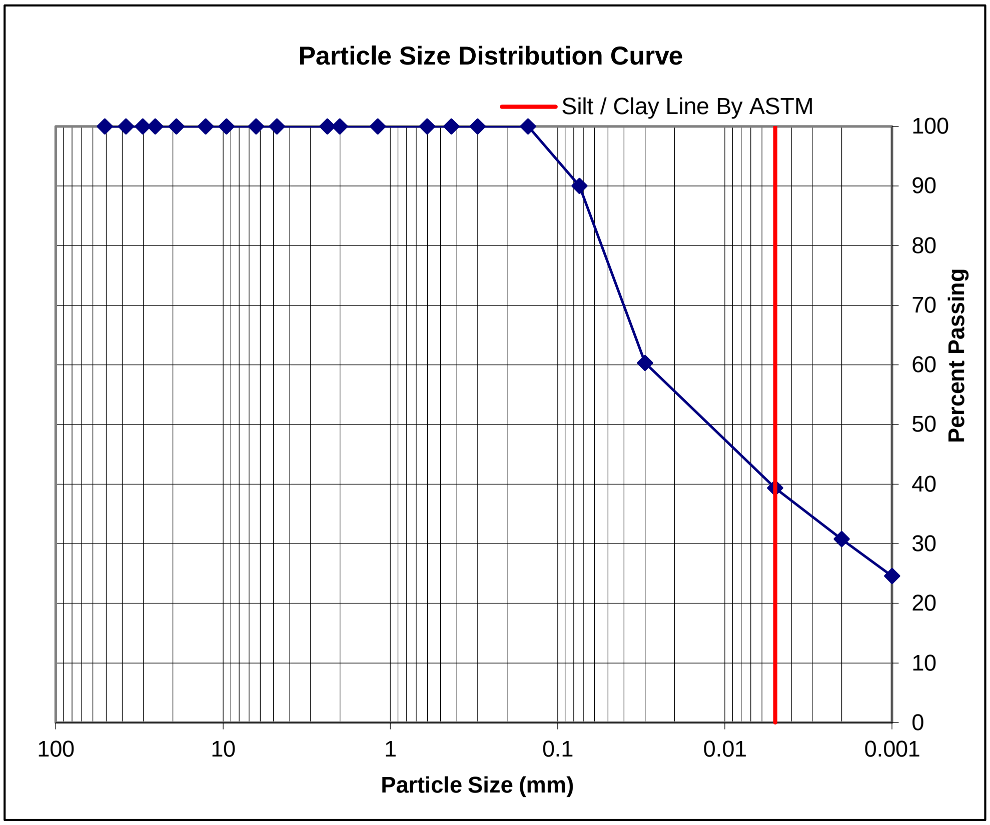
PARTICLE SIZE (DIA. mm)	**0.0485**	**0.0315**	**0.0187**	**0.0134**	**0.0096**	**0.0048**	**0.0021**	**0.0015**
PERCENT SAMPLE TESTED	68.0	61.0	54.0	50.0	46.0	39.0	31.0	28.0
PERCENT TOTAL SAMPLE	68.0	61.0	54.0	50.0	46.0	39.0	31.0	28.0

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	89.8	99.6	99.8	100.0	100.0	100.0	100.0

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	100	
# 30	100	
# 40	100	
# 50	100	
# 100	100	
# 200	90	
0.03 mm	60.3	
0.005 mm	39.3	
0.002 mm	30.8	
0.001 mm	24.6	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-6	15.0-16.0	42	17	25	--	0.002	0.029	--	--	90.0	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

FIGURE

PROJECT NO.	DATE
604667003	3/17

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

WEIGHT OF SAMPLE DISPERSED: 50.0
PERCENT PASSING #10 SIEVE: 100.0

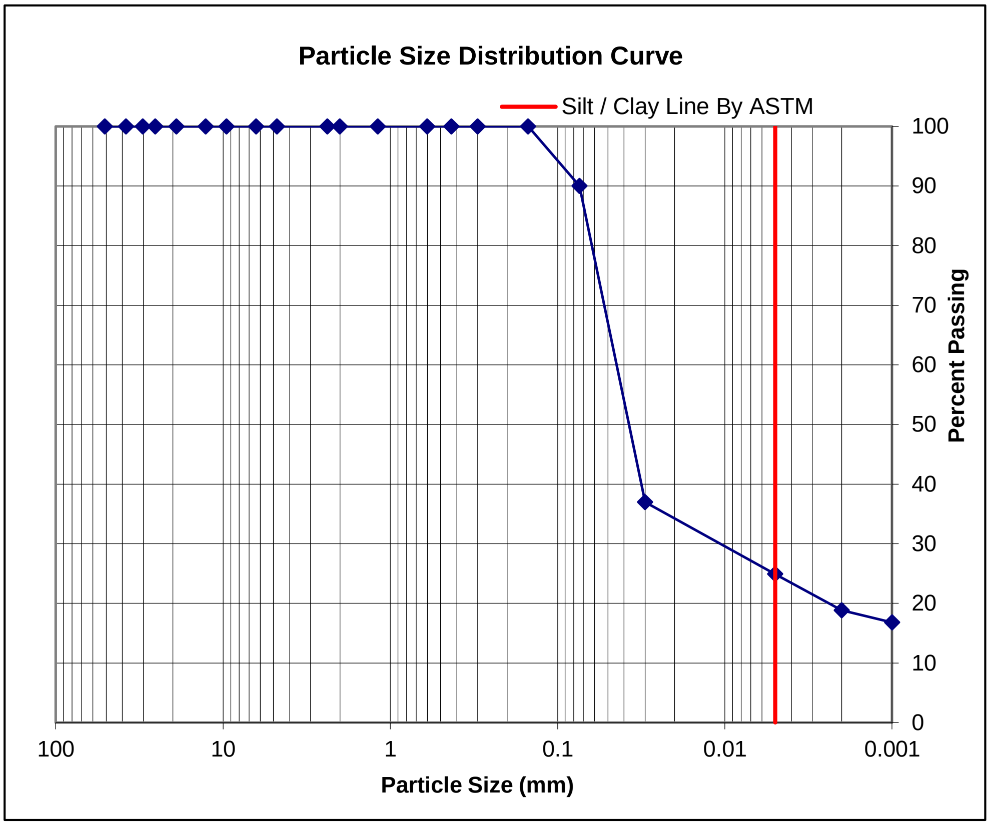
SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed

HYDROMETER RESULTS (% PASSING)								
PARTICLE SIZE (DIA. mm)	**0.0535**	**0.0343**	**0.0201**	**0.0143**	**0.0102**	**0.0051**	**0.0021**	**0.0015**
PERCENT SAMPLE TESTED	42.0	38.0	34.0	32.0	29.0	25.0	19.0	18.0
PERCENT TOTAL SAMPLE	42.0	38.0	34.0	32.0	29.0	25.0	19.0	18.0

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)							
SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	89.8	99.6	99.8	100.0	100.0	100.0	100.0

FULL SIEVE ANALYSIS
MECHANICAL SIEVE
& HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	100	
# 30	100	
# 40	100	
# 50	100	
# 100	100	
# 200	90	
0.03 mm	37.0	
0.005 mm	24.9	
0.002 mm	18.8	
0.001 mm	16.8	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-7	10.5-11.0	--	--	N Test	--	0.011	0.044	--	--	90.0	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

FIGURE

PROJECT NO.	DATE
604667003	3/17

WEIGHT OF SAMPLE DISPERSED: 49.8 SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed
PERCENT PASSING #10 SIEVE: 100.0

HYDROMETER RESULTS (% PASSING)

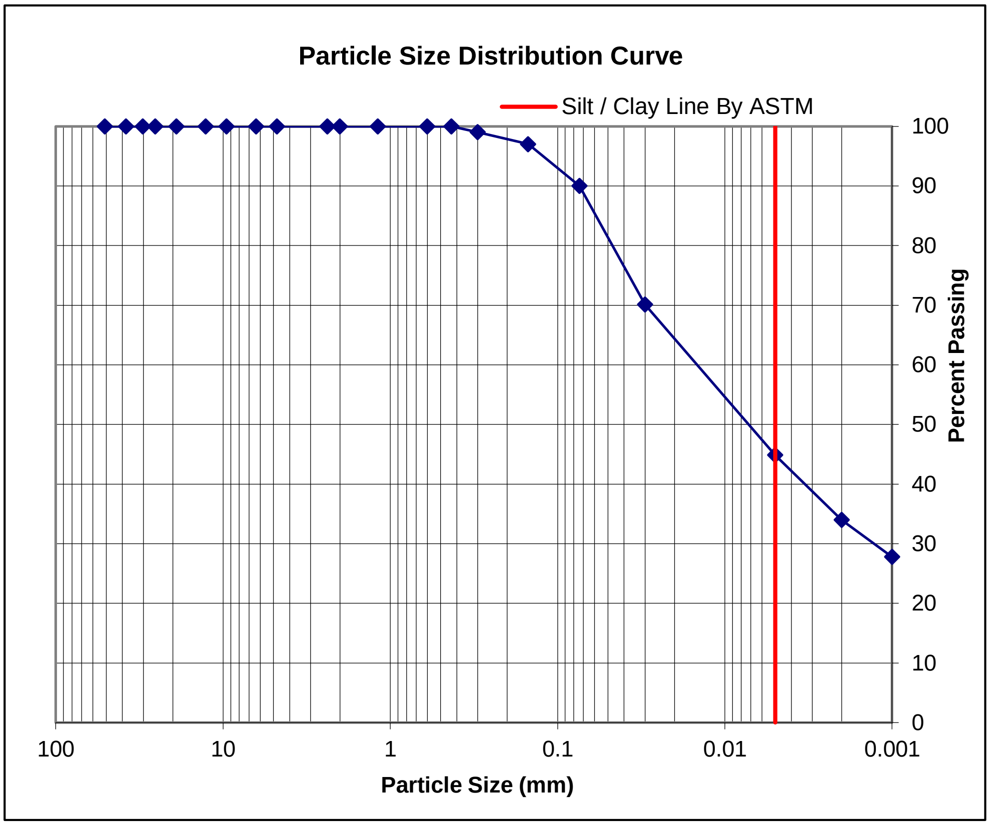
PARTICLE SIZE (DIA. mm)	**0.0470**	**0.0304**	**0.0181**	**0.0131**	**0.0094**	**0.0048**	**0.0020**	**0.0015**
PERCENT SAMPLE TESTED	75.3	70.3	63.2	57.2	53.2	44.2	34.1	31.1
PERCENT TOTAL SAMPLE	75.3	70.3	63.2	57.2	53.2	44.2	34.1	31.1

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	90.0	97.0	99.4	99.6	99.6	99.8	100.0

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	100	
# 30	100	
# 40	100	
# 50	99	
# 100	97	
# 200	90	
0.03 mm	70.1	
0.005 mm	44.9	
0.002 mm	34.0	
0.001 mm	27.8	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	TP-1	BUCKET	--	--	N Tested	--	0.001	0.015	--	--	90.0	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

FIGURE

PROJECT NO.	DATE
604667003	3/17

WEIGHT OF SAMPLE DISPERSED: 54.5
PERCENT PASSING #10 SIEVE: 99.8

SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed

HYDROMETER RESULTS (% PASSING)

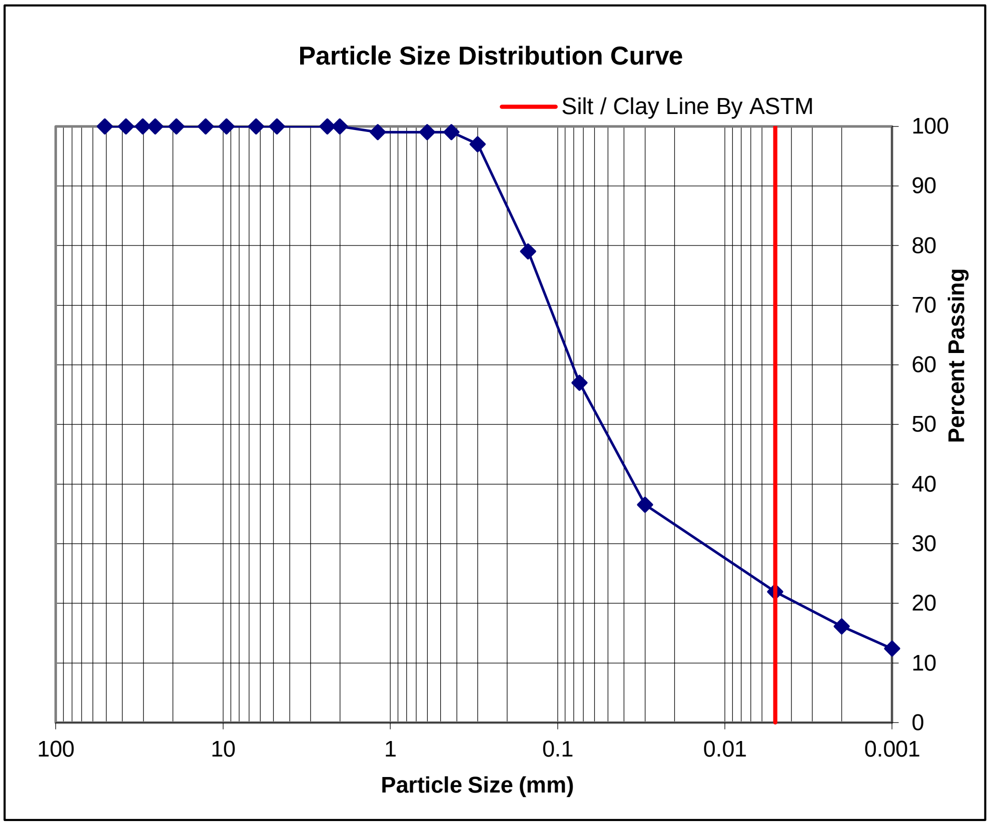
PARTICLE SIZE (DIA. mm)	0.0531	0.0339	0.0199	0.0142	0.0102	0.0051	0.0021	0.0015
PERCENT SAMPLE TESTED	40.4	37.6	33.0	31.2	27.5	22.0	16.5	14.7
PERCENT TOTAL SAMPLE	40.3	37.5	33.0	31.1	27.5	22.0	16.5	14.6

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	#200	#100	#50	#40	#30	#16	#10
PERCENT TOTAL SAMPLE	56.8	79.3	96.5	98.5	99.1	99.4	99.8

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	99	
# 30	99	
# 40	99	
# 50	97	
# 100	79	
# 200	57	
0.03 mm	36.5	
0.005 mm	21.9	
0.002 mm	16.1	
0.001 mm	12.4	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	TP-2	BUCKET	--	--	N Tested	--	0.013	0.081	--	--	57.0	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

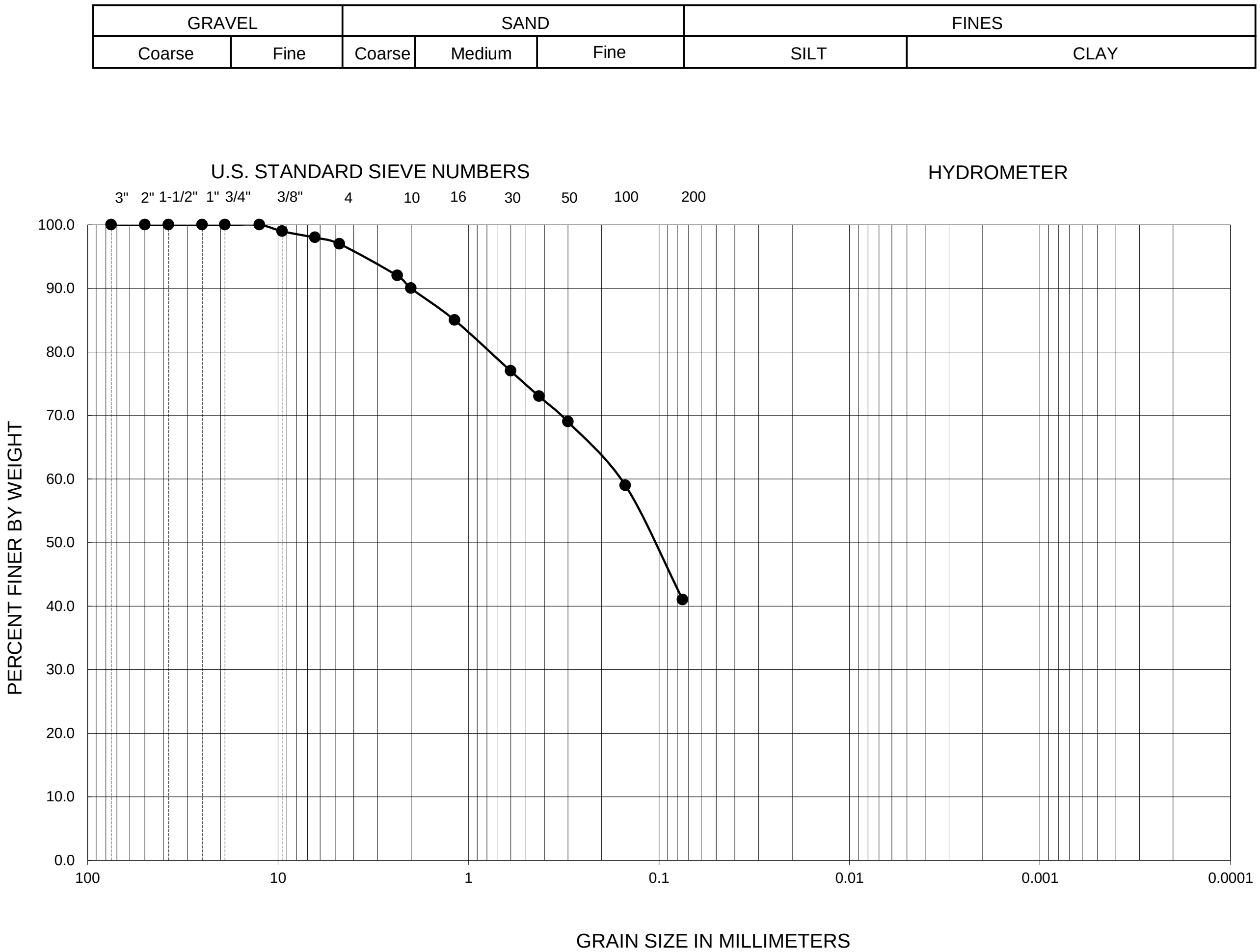
Ninyo & Moore

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

FIGURE

PROJECT NO.	DATE
604667003	3/17



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	TP-3	BUCKET	--	--	NT	--	--	0.16	--	--	41.0	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 AND C117

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	STANTEC/MWH/LAB TESTING	
604667003 / 3/17	PHOENIX, ARIZONA	

WEIGHT OF SAMPLE DISPERSED:	51.8	SPECIFIC GRAVITY OF SOLIDS:	2.650	Assumed
PERCENT PASSING #10 SIEVE:	94.9			

HYDROMETER RESULTS (% PASSING)

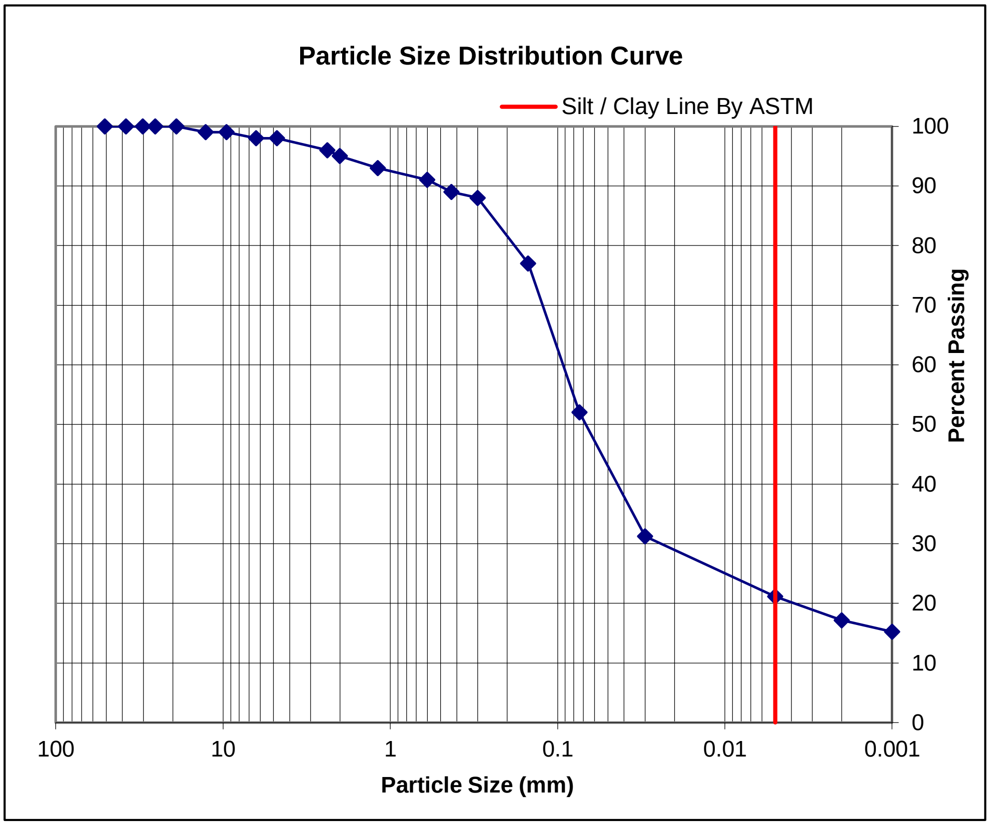
PARTICLE SIZE (DIA. mm)	**0.0544**	**0.0347**	**0.0204**	**0.0145**	**0.0103**	**0.0051**	**0.0022**	**0.0015**
PERCENT SAMPLE TESTED	35.7	32.8	27.0	27.0	24.1	21.2	17.4	16.4
PERCENT TOTAL SAMPLE	33.9	31.1	25.6	25.6	22.9	20.1	16.5	15.6

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	51.7	76.8	87.7	89.4	91.0	92.9	94.9

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	99	
3/8 IN	99	
1/4 IN	98	
# 4	98	
# 8	96	
# 10	95	
# 16	93	
# 30	91	
# 40	89	
# 50	88	
# 100	77	
# 200	52	
0.03 mm	31.2	
0.005 mm	21.1	
0.002 mm	17.2	
0.001 mm	15.2	



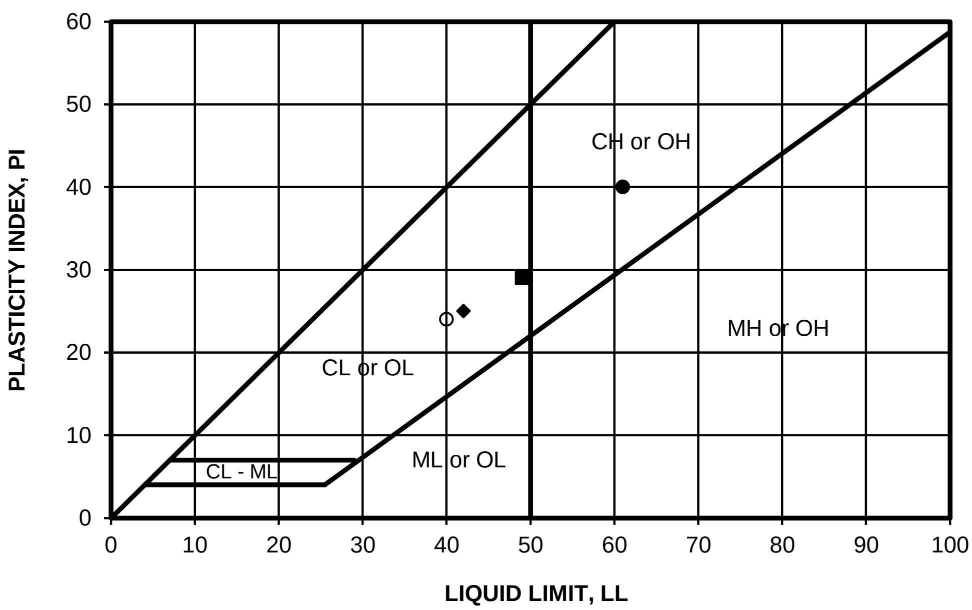
Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	TP-4	BUCKET	--	--	N Tested	--	0.024	0.093	--	--	52.0	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		**PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)**	FIGURE
PROJECT NO.	DATE	STANTEC/MWH/LAB TESTING PHOENIX, ARIZONA	
604667003	3/17		

SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
●	B-5	TW 25-27	61	21	40	CH	CH
■	B-5	40.5-41.0	49	20	29	CL	CL
◆	B-6	15.0-16.0	42	17	25	CL	CL
○	B7	30.5-31.0	40	16	24	CL	CL

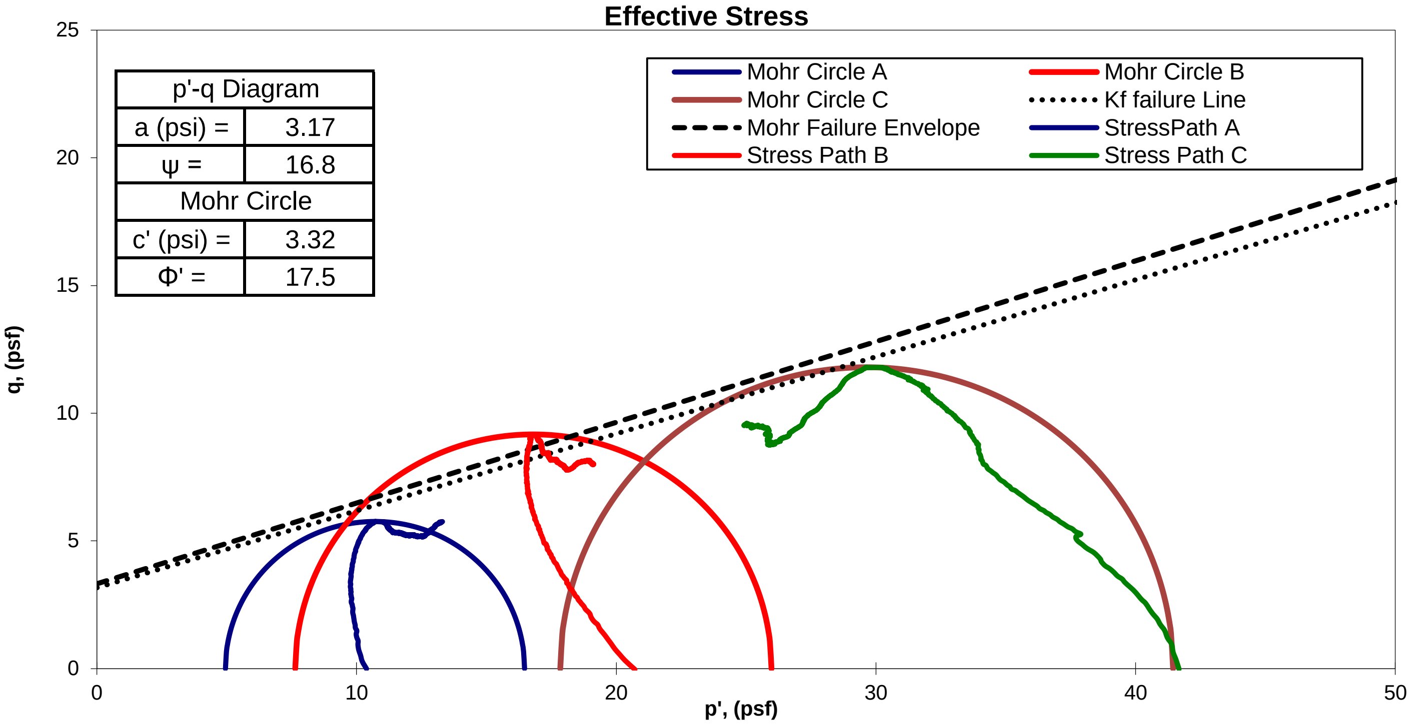
NP - INDICATES NON-PLASTIC



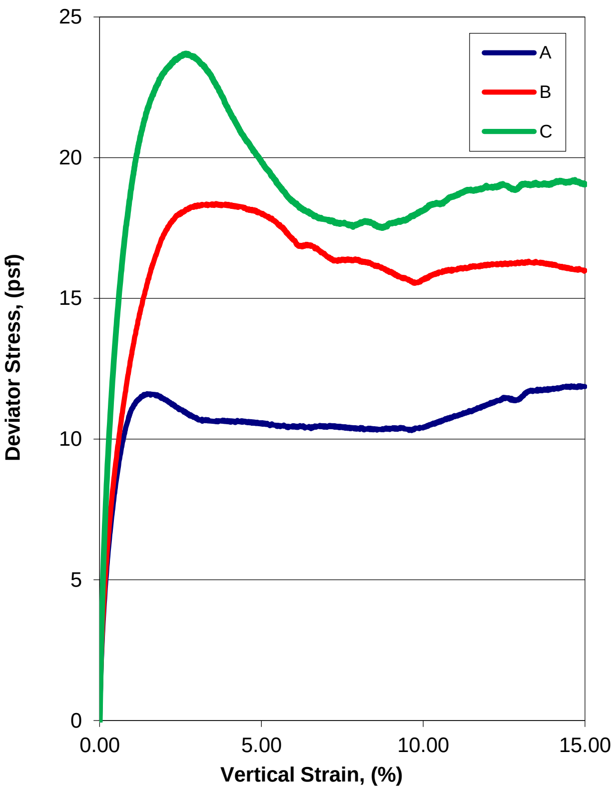
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Ninyo & Moore	ATTERBERG LIMITS TEST RESULTS	FIGURE
PROJECT NO. 604667003 / DATE 3/17	STANTEC/MWH/LAB TESTING PHOENIX, ARIZONA	

Effective Stress



p'-q Diagram	
a (psi) =	3.17
ψ =	16.8
Mohr Circle	
c' (psi) =	3.32
Φ' =	17.5



Location:		B-5		
Sample Depth:		TW 25.0-27.0		
Lab Technican:		JCE		
Checked By:		HJG		
Sample ID		A	B	C
Date Tested		2/25/2017	2/25/2017	2/25/2017
Initial	Diameter, in	2.88	2.88	2.87
Initial	Height, in	5.68	5.71	5.68
Initial	Water Content %	21.3%	21.5%	20.8%
Initial	Dry Density, pcf	99.1	98.3	99.0
Initial	Saturation, %	82.3%	81.2%	80.0%
Initial	Void Ratio	0.700	0.714	0.701
Before Shear	Water Content %	26.1%	25.9%	25.0%
Before Shear	Dry Density, pcf	96.8	98.5	98.4
Before Shear	Saturation, %	100.0%	100.0%	100.0%
Before Shear	Void Ratio	0.741	0.710	0.712
Before Shear	Back pressure, psf	50	50	50
Obliquity Effective Failture %		1.28	3.32	2.89
Obliquity Total Failture %		1.28	3.32	2.89
Effective Confinement, psi		10.4	20.7	41.7
B- Value		0.95	0.95	0.95
Strain Rate, %/min		0.05	0.05	0.05

Ninyo & Moore

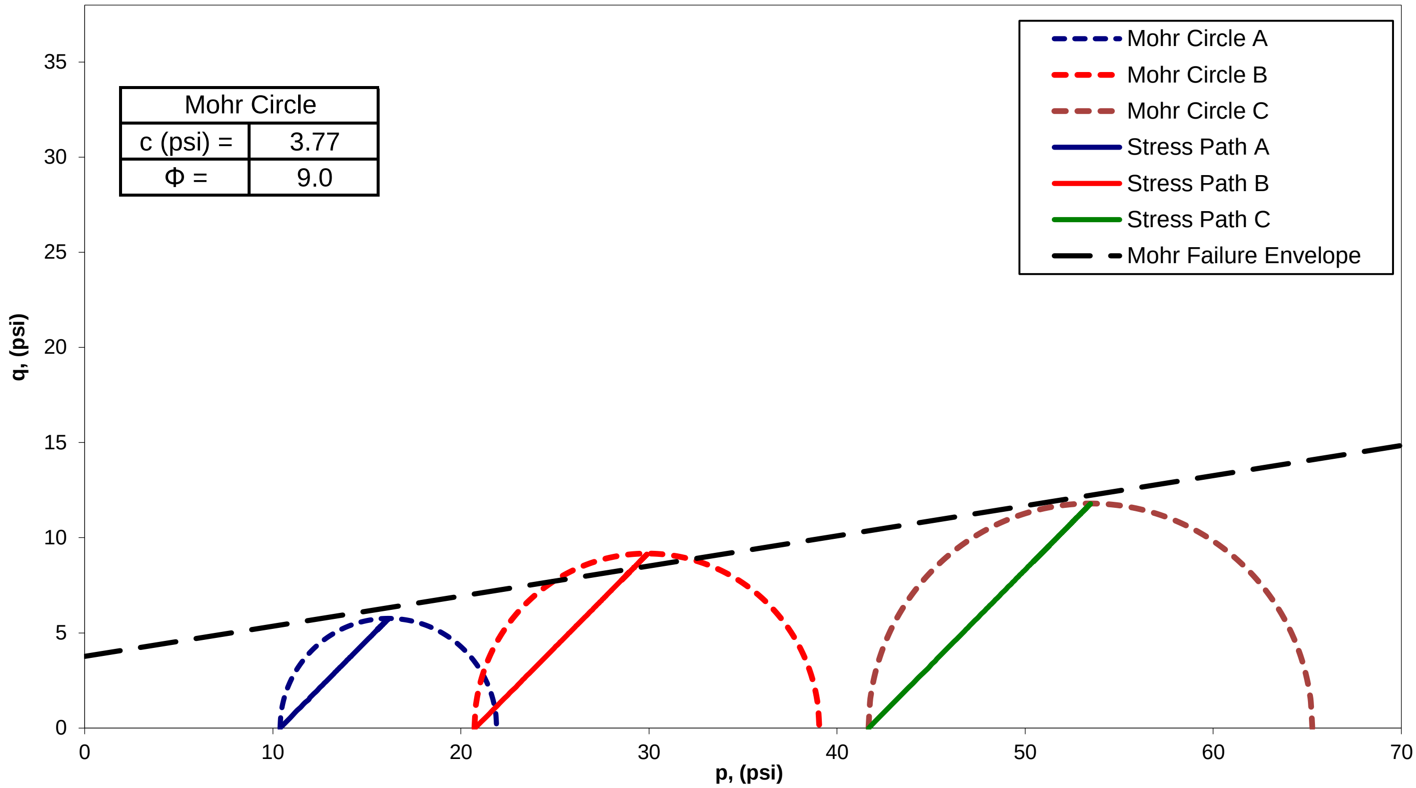
Project Number	Date
604667003	3/17

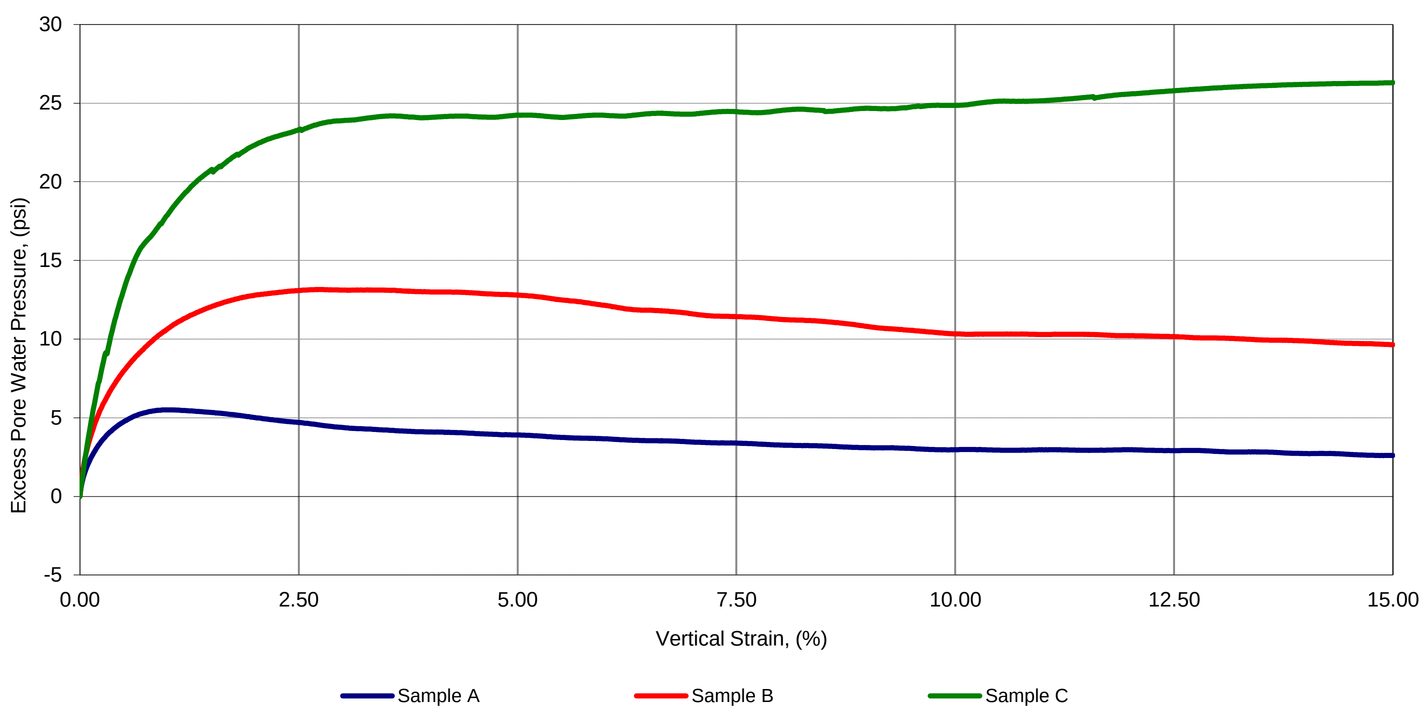
Consolidated Undrained Triaxial Test Data Sheet

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

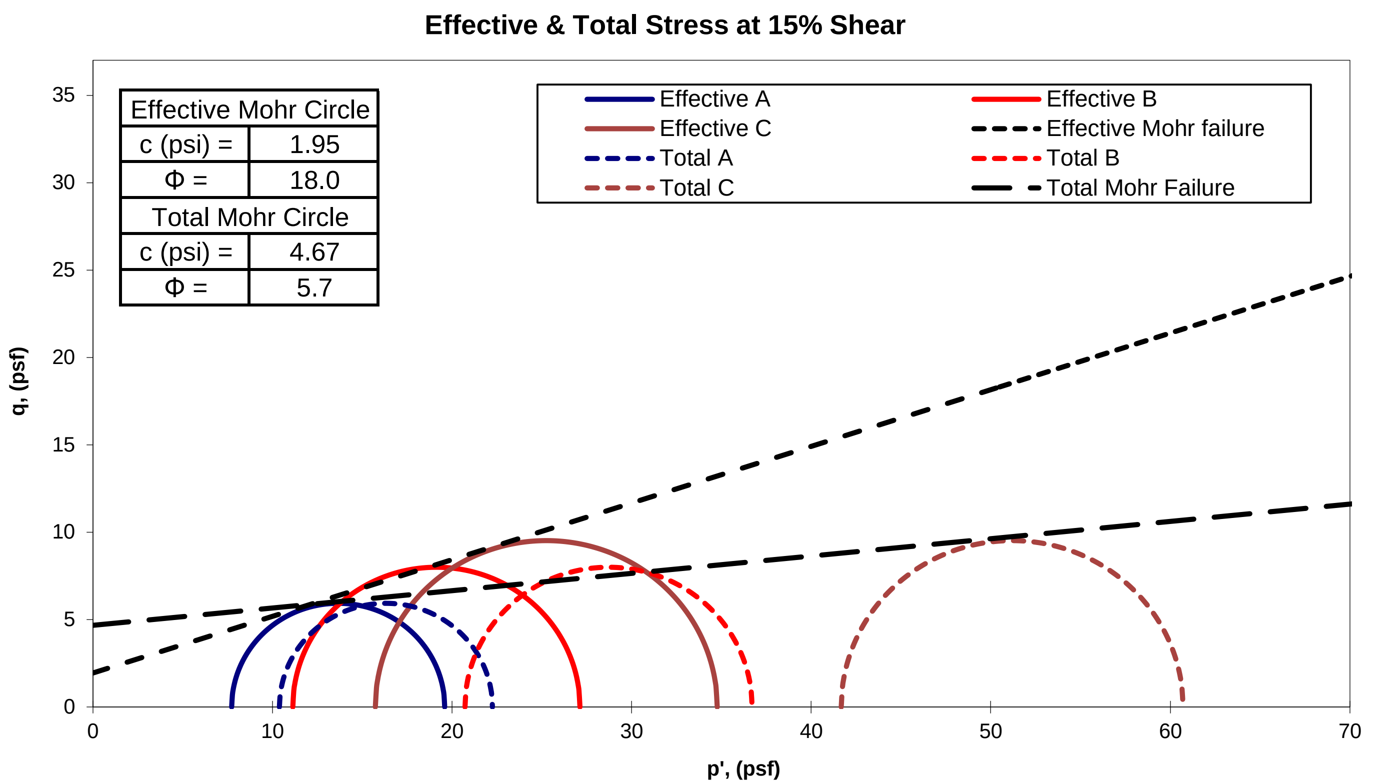
Figure

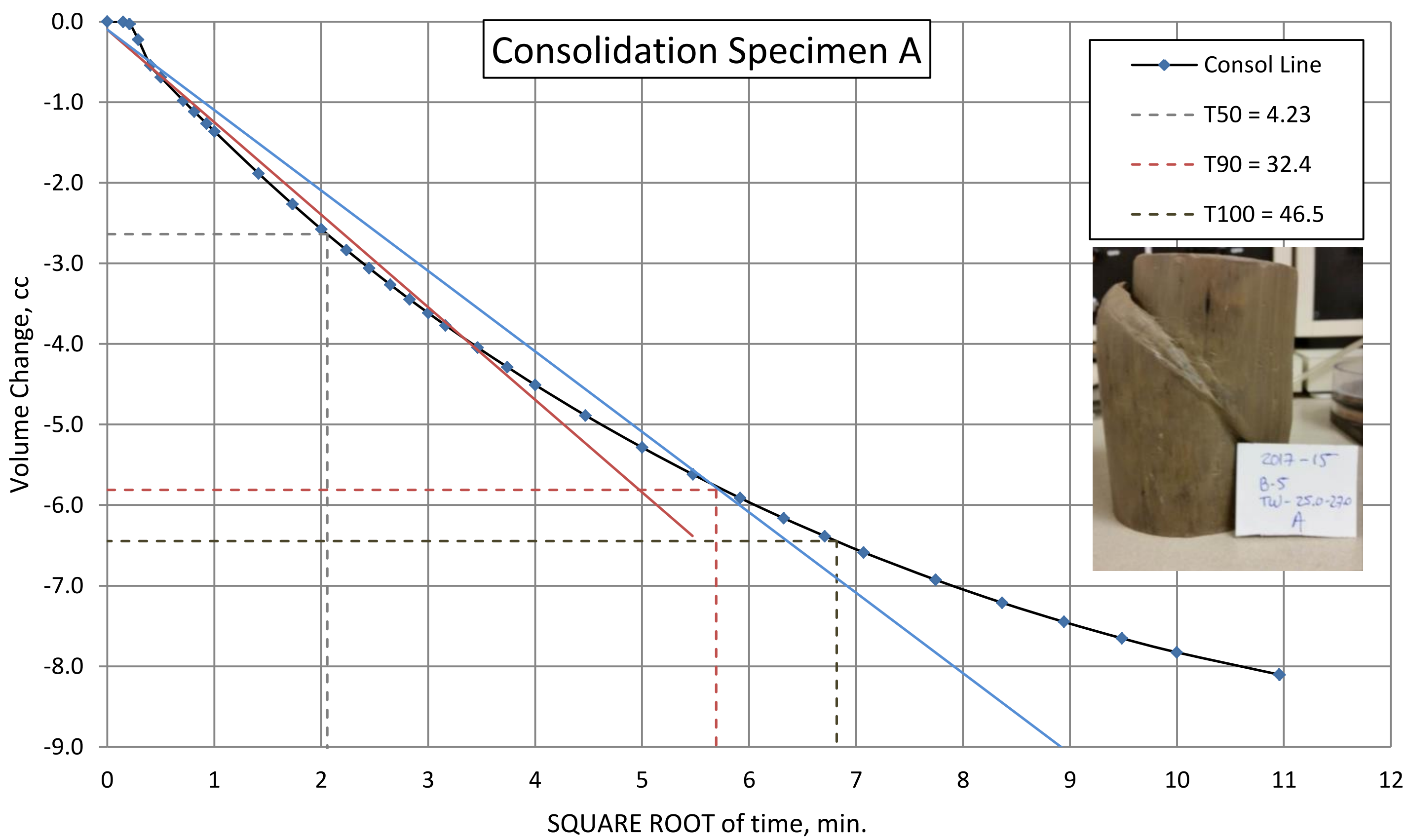
Total Stress



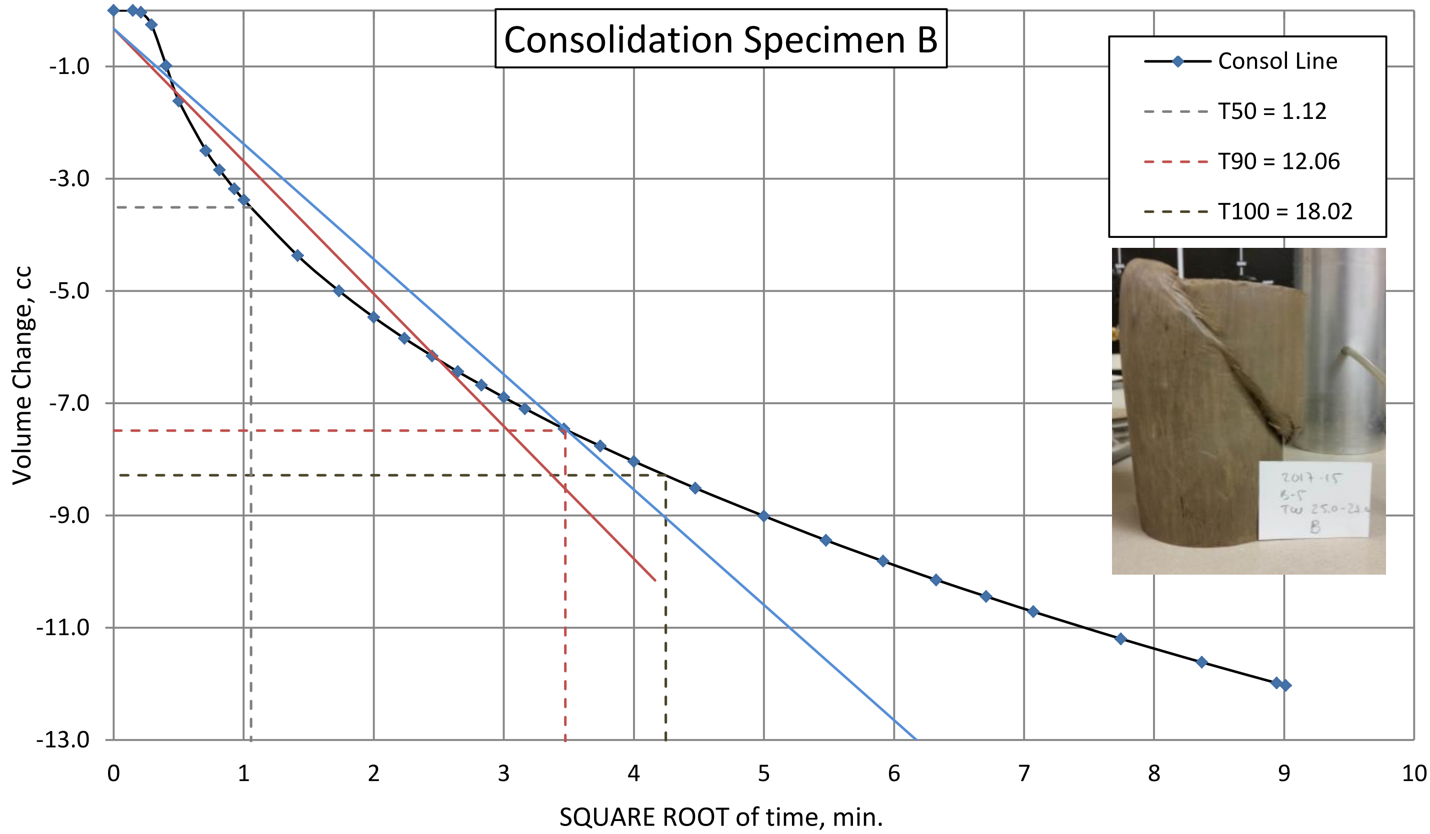


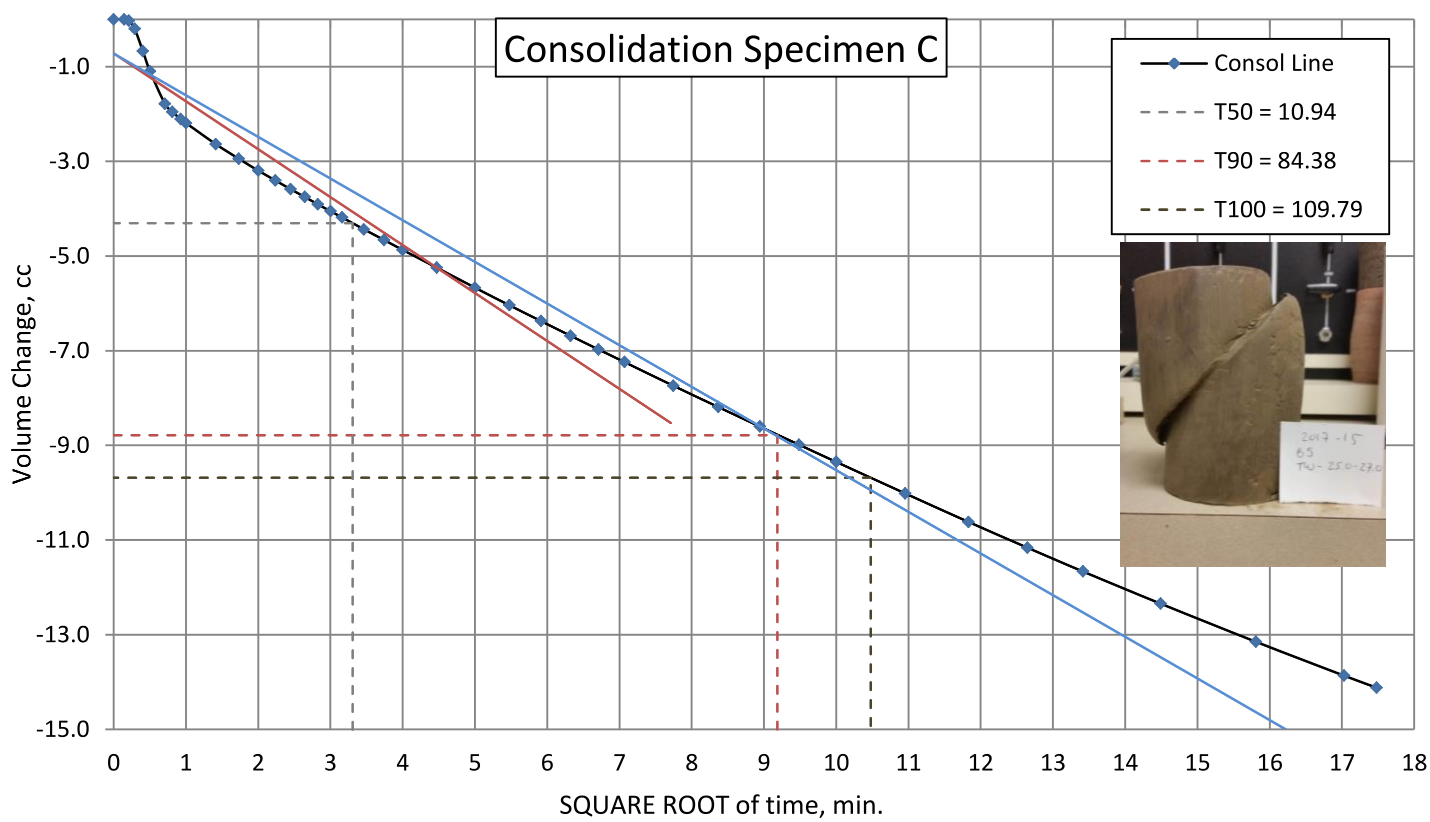
Ninyo & Moore		Consolidated Undrained Triaxial Test Data Sheet	Figure
Location:	B-5	STANTEC/MWH/LAB TESTING	
Sample Depth (ft):	TW 25.0-27.0	PHOENIX, ARIZONA	
Project Number:	604667003		
Date:	3/17		





Ninyo & Moore		Consolidated Undrained Triaxial Test Data Sheet	Figure
Location:	B-5	STANTEC/MWH/LAB TESTING	
Sample Depth (ft):	TW 25.0-27.0	PHOENIX, ARIZONA	
Project Number:	604667003		
Date:	3/17		





Ninyo & Moore

Location:	B-5
Sample Depth (ft):	TW 25.0-27.0
Project Number:	604667003
Date:	3/17

Consolidated Undrained Triaxial Test Data Sheet

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

Figure

SAMPLE LOCATION	COMPRESSION STRENGTH Lb/ft2	VOLUMETRIC DENSITY pcf	SPECIFIC GRAVITY	ABSORTION %	INITIAL MOISTURE %	SULFATE SOUNDNESS % LOSS
B-1 5.3-9.5	1210	117.4	1.871	10.8	5.6	100.0
B-1 17.3-18.0	2560	135.3	2.096	7.4	2.8	81.8
B-2 26.45-27.25	2490	129.1	2.006	8.1	10.3	88.6
B-3 24.2-24.9	1390	115.6	1.937	9.3	3.9	87.7
B-3 24.9-25.6	1230	117.1	1.920	9.7	3.2	100.0

Ninyo & Moore

COMPRESSIVE STRENGTH OF SOIL SPECIMENS

FIGURE

PROJECT NO.	DATE
604667003	3/17

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

SAMPLE LOCATION	MOISTURE (%)	DENSITY (pcf)	SPECIFIC GRAVITY
B-5 @ 5.5-6.0	9.8	82.4	2.698
B-5 @ 30.5-31.0	--	--	2.498
B-6 @ 12.8-13.5	--	--	2.724
B-6 @ 16.5-20.0	--	--	2.423
B-7 @ 16.0-16.5	17.8	99.3	2.538

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MOISTURE-DENSITY/SPECIFIC GRAVITY DATA

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

604667003 | 8/17

WEIGHT OF SAMPLE DISPERSED:	50.0	SPECIFIC GRAVITY OF SOLIDS:	2.650 Assumed
PERCENT PASSING #10 SIEVE:	91.1		

HYDROMETER RESULTS (% PASSING)

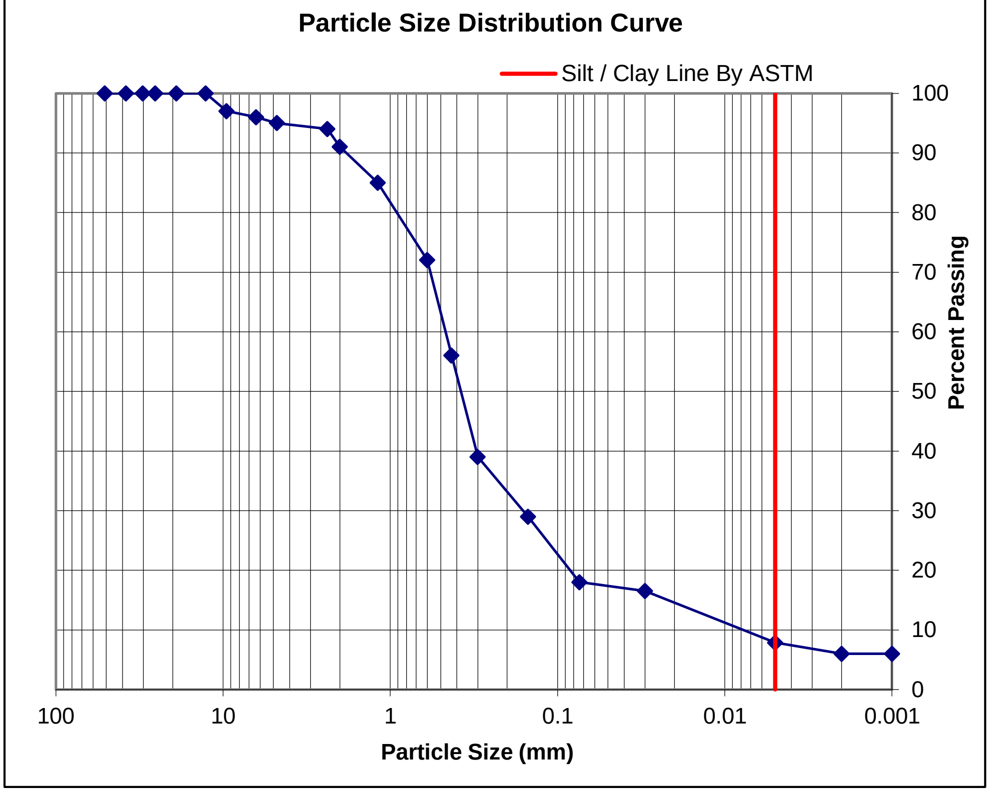
PARTICLE SIZE (DIA. mm)	0.0567	0.0365	0.0213	0.0152	0.0108	0.0053	0.0022	0.0016
PERCENT SAMPLE TESTED	24.0	18.0	14.0	10.0	10.0	8.0	6.0	6.0
PERCENT TOTAL SAMPLE	21.8	16.4	12.7	9.1	9.1	7.3	5.5	5.5

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	#200	#100	#50	#40	#30	#16	#10
PERCENT TOTAL SAMPLE	17.8	28.6	39.5	55.8	72.3	84.7	91.1

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	97	
1/4 IN	96	
# 4	95	
# 8	94	
# 10	91	
# 16	85	
# 30	72	
# 40	56	
# 50	39	
# 100	29	
# 200	18	
0.03 mm	16.5	
0.005 mm	7.9	
0.002 mm	6.0	
0.001 mm	6.0	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-5	5.5-6.0	--	--	NP	0.008	0.161	0.467	58.4	6.9	18.0	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

HYDROMETER TEST RESULTS

STANTEC/MWH/LAB TESTING
PHOENIX, ARIZONA

WEIGHT OF SAMPLE DISPERSED: 50.0

PERCENT PASSING #10 SIEVE: 100.0

SPECIFIC GRAVITY OF SOLIDS: 2.650 Assumed

HYDROMETER RESULTS (% PASSING)

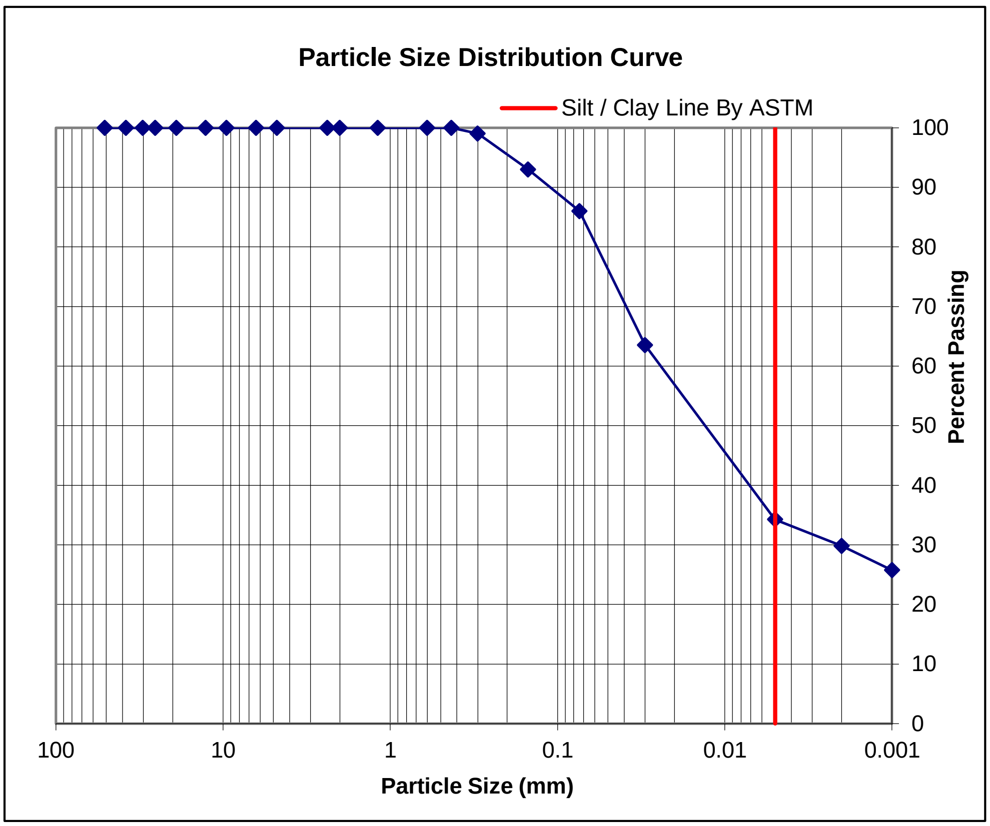
PARTICLE SIZE (DIA. mm)	**0.0477**	**0.0312**	**0.0184**	**0.0135**	**0.0097**	**0.0049**	**0.0021**	**0.0015**
PERCENT SAMPLE TESTED	72.0	64.0	58.0	48.0	44.0	34.0	30.0	28.0
PERCENT TOTAL SAMPLE	72.0	64.0	58.0	48.0	44.0	34.0	30.0	28.0

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	86.0	93.1	98.5	99.6	100.0	100.0	100.0

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	100	
# 8	100	
# 10	100	
# 16	100	
# 30	100	
# 40	100	
# 50	99	
# 100	93	
# 200	86	
0.03 mm	63.5	
0.005 mm	34.2	
0.002 mm	29.8	
0.001 mm	25.7	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-5	30.5-15.0	--	--	NOT TESTED	--	0.002	0.024	--	--	86.0	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

HYDROMETER TEST RESULTS

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

604667003 | 8/17

WEIGHT OF SAMPLE DISPERSED:	50.0	SPECIFIC GRAVITY OF SOLIDS:	2.650	Assumed
PERCENT PASSING #10 SIEVE:	88.4			

HYDROMETER RESULTS (% PASSING)

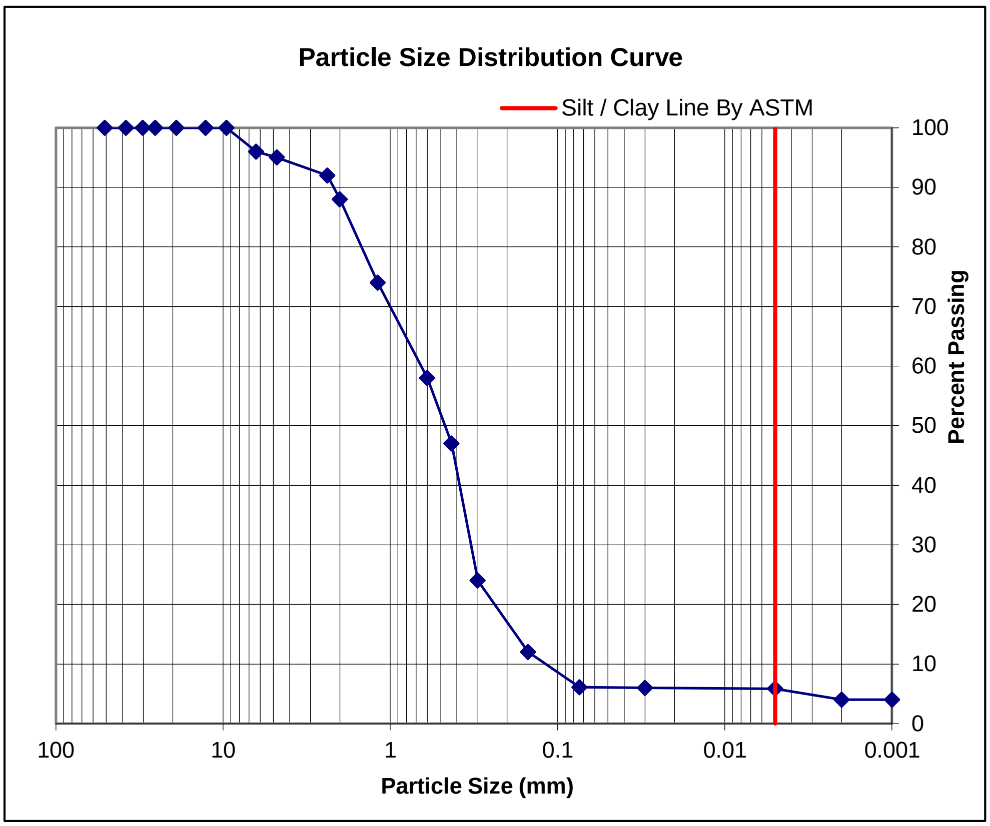
PARTICLE SIZE (DIA. mm)	0.0597	0.0378	0.0218	0.0154	0.0109	0.0053	0.0022	0.0016
PERCENT SAMPLE TESTED	6.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0
PERCENT TOTAL SAMPLE	5.3	5.3	5.3	5.3	5.3	5.3	3.5	3.5

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	#200	#100	#50	#40	#30	#16	#10
PERCENT TOTAL SAMPLE	6.1	12.0	24.4	47.0	58.4	74.5	88.4

FULL SIEVE ANALYSIS MECHANICAL SIEVE & HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	96	
# 4	95	
# 8	92	
# 10	88	
# 16	74	
# 30	58	
# 40	47	
# 50	24	
# 100	12	
# 200	6.1	
0.03 mm	6.0	
0.005 mm	5.8	
0.002 mm	4.0	
0.001 mm	4.0	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-6	12.8-13.5	--	--	NP	0.118	0.330	0.654	5.5	1.4	6.1	SP-SM

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HYDROMETER TEST RESULTS

STANTEC/MWH/LAB TESTING

PHOENIX, ARIZONA

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WEIGHT OF SAMPLE DISPERSED:	50.0	SPECIFIC GRAVITY OF SOLIDS:	2.650	Assumed
PERCENT PASSING #10 SIEVE:	94.2			

HYDROMETER RESULTS (% PASSING)

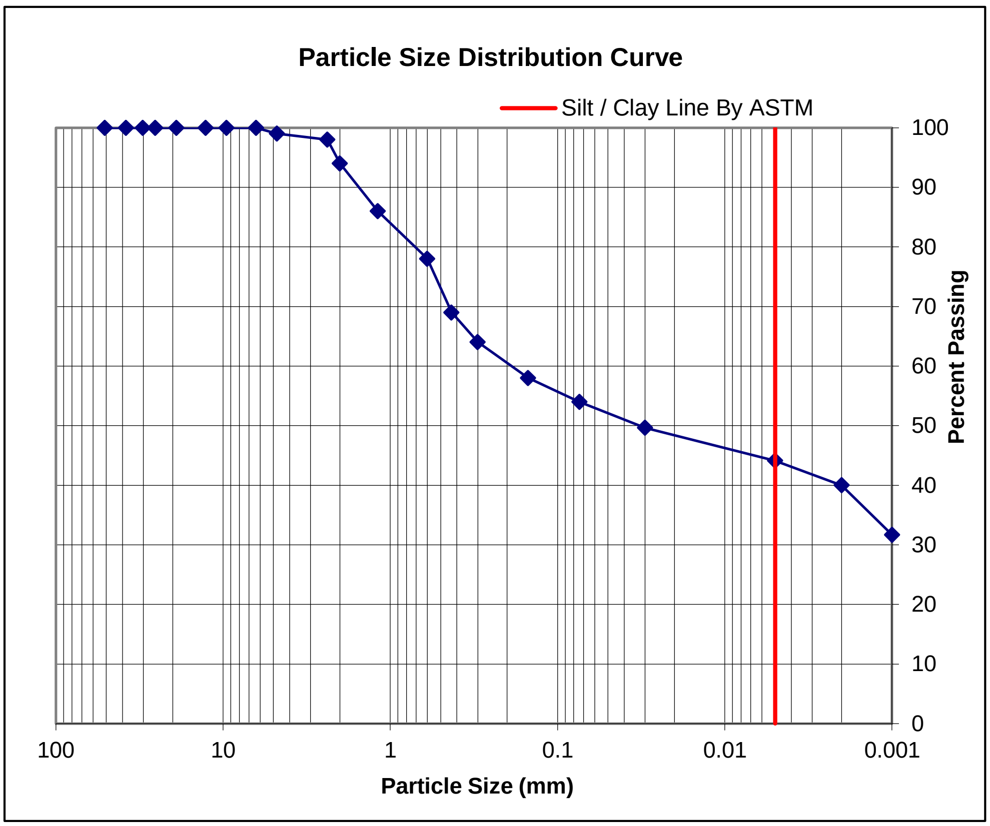
PARTICLE SIZE (DIA. mm)	**0.0512**	**0.0329**	**0.0191**	**0.0136**	**0.0096**	**0.0048**	**0.0020**	**0.0014**
PERCENT SAMPLE TESTED	54.0	50.0	48.0	46.0	46.0	44.0	40.0	36.0
PERCENT TOTAL SAMPLE	50.9	47.1	45.2	43.3	43.3	41.4	37.7	33.9

MECHANICAL SIEVE ANALYSIS AFTER HYDROMETER (% PASSING)

SCREEN SIZE	**#200**	**#100**	**#50**	**#40**	**#30**	**#16**	**#10**
PERCENT TOTAL SAMPLE	54.0	58.0	63.6	69.3	78.3	86.1	94.2

FULL SIEVE ANALYSIS
MECHANICAL SIEVE
& HYDROMETER

	% Pass	Spec
2 IN	100	
1 1/2 IN	100	
1 1/4 IN	100	
1 IN	100	
3/4 IN	100	
1/2 IN	100	
3/8 IN	100	
1/4 IN	100	
# 4	99	
# 8	98	
# 10	94	
# 16	86	
# 30	78	
# 40	69	
# 50	64	
# 100	58	
# 200	54	
0.03 mm	49.6	
0.005 mm	44.1	
0.002 mm	40.0	
0.001 mm	31.7	



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
	B-7	16.0-16.5	35	19	16	--	--	0.189	--	--	54.0	CL

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HYDROMETER TEST RESULTS
STANTEC/MWH/LAB TESTING
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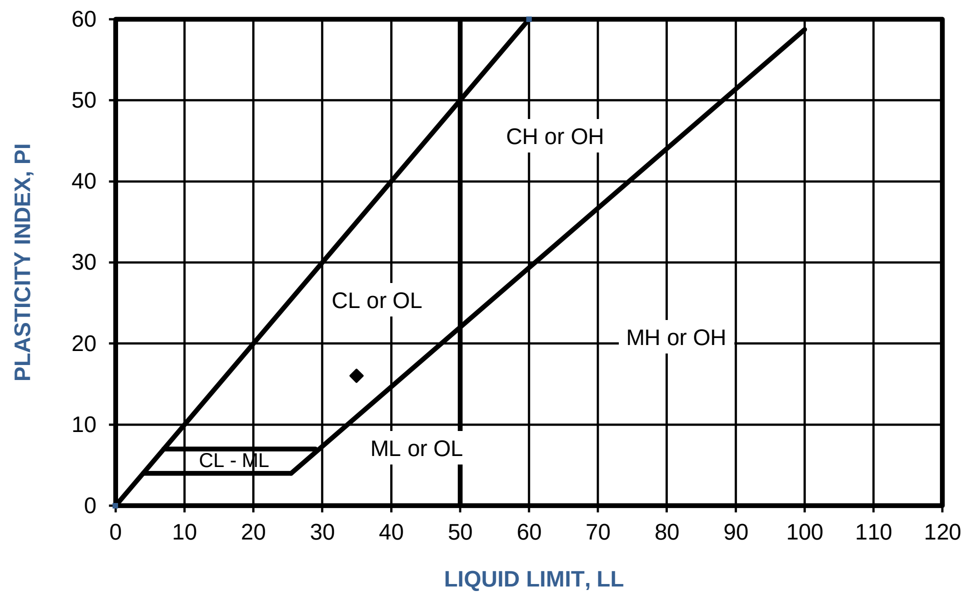
SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
●	B-5	5.5-6.0	--	--	NP	ML	SM
■	B-6	12.8-13.5	--	--	NP	ML	SP-SM
◆	B-7	16.0-16.5	35	19	16	CL	CL

NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

FIGURE --

ATTERBERG TEST RESULTS

STANTEC/MWH/LAB TESTING

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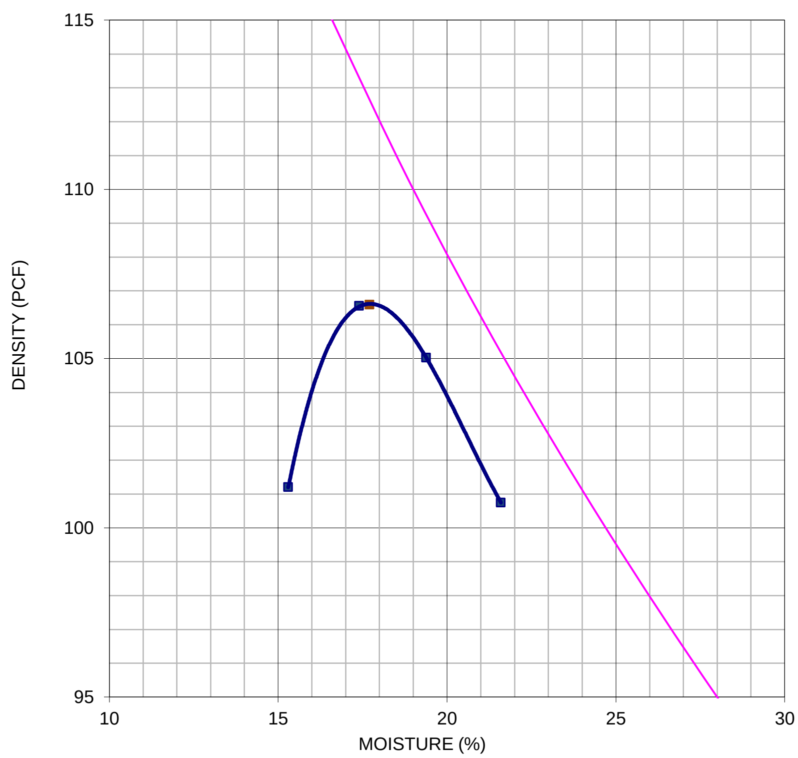
SAMPLE INFORMATION:

DESCRIPTION: CL
LOCATION: CLAY SAMPLES
DEPTH (FT): --
LAB TECHNICIAN: HJG

PROCTOR[1]	METHOD ASTM D 698 A
MAXIMUM DRY DENSITY (PCF)	106.6
OPTIMUM MOISTURE CONTENT (%)	17.7
ROCK CONTENT (%)[2]	--

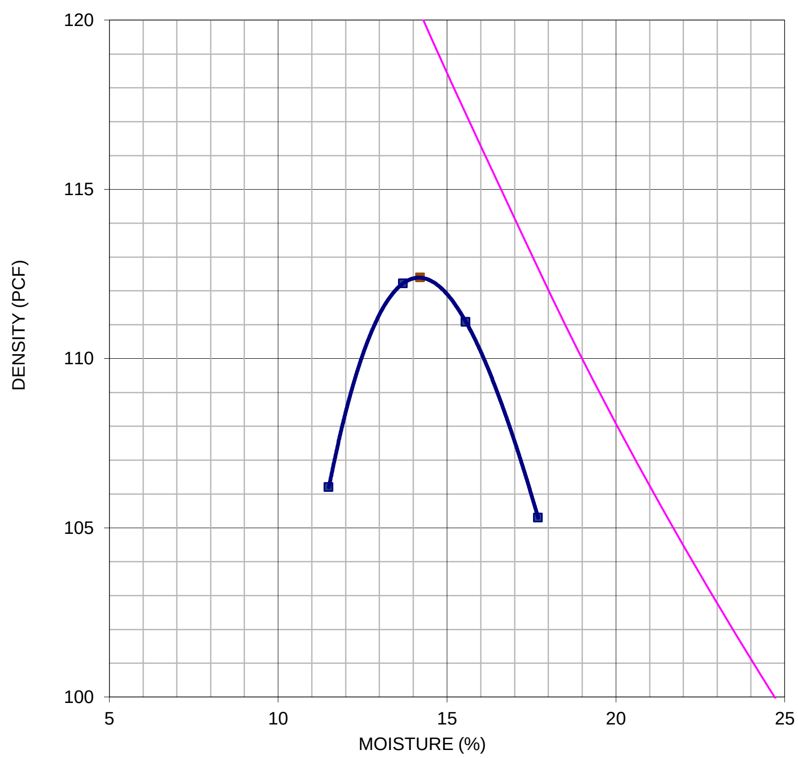


REMARKS: MAXIMUM DENSITY AND OPTIMUM MOISTURE WERE NOT CORRECTED FOR ROCK CONTENT
ROCK CONTENT CALCULATED FROM MATERIAL RETAINED ON NO.4 SCREEN

SAMPLE INFORMATION:

DESCRIPTION: SM
LOCATION: SAND SAMPLES
DEPTH (FT): --
LAB TECHNICIAN: HJG

	METHOD
PROCTOR[1]	ASTM D 698 A
MAXIMUM DRY DENSITY (PCF)	112.4
OPTIMUM MOISTURE CONTENT (%)	14.2
ROCK CONTENT (%)[2]	--



REMARKS: MAXIMUM DENSITY AND OPTIMUM MOISTURE WERE NOT CORRECTED FOR ROCK CONTENT
ROCK CONTENT CALCULATED FROM MATERIAL RETAINED ON NO.4 SCREEN

LAB NUMBER: 2017-72

SOILS/AGGREGATE DATA SHEET

STANTEC/MISC LABORATORY TESTING
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