Attachment E

Geotechnical Investigation for WCS CISF

(83 pages)

GEOServices, LLC-Geotechnical and Materials Engineers

July 15, 2016

Waste Control Specialists, LLC
Three Lincoln Center
Suite 1700
Dallas, Texas 75240

ATTENTION: Ms. Jenny Caldwell, P.G.
jcaldwell@valhi.net

Subject: **REPORT OF GEOTECHNICAL EXPLORATION**
Consolidated Interim Storage Facility
Andrews, Texas
GEOServices Project No. 31-151247.R1

Dear Ms. Caldwell:

We are submitting the results of the geotechnical exploration performed for the proposed Consolidated Interim Storage Facility (CISF) in Andrews, Texas. The geotechnical exploration was performed in accordance with GEOServices' Proposal No. 13-151124Rev1 dated June 23, 2015 and authorized by you.

The following report presents our findings and recommendations for the proposed construction of the Consolidated Interim Storage Facility project. Should you have any questions regarding this report, or if we can be of any further assistance, please contact us at your convenience.

Sincerely,

GEOServices, LLC

Derek K. Kilday, (TN-PE)
Vice President

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REPORT OF GEOTECHNICAL EXPLORATION

CONSOLIDATED INTERIM STORAGE FACILITY (CISF)

ANDREWS, TEXAS

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GEOSERVICES, LLC
PROJECT NO. 31-151247.R1

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this geotechnical exploration was to characterize the subsurface conditions for the design and construction of the Consolidated Interim Storage Facility (CISF) in Andrews, Texas. This report provides recommendations for general site preparation, foundation design, slab-on-grade construction, seismic considerations, and pavement design recommendations.

1.2 PROJECT DESCRIPTION

The project site is located at the existing Waste Control Specialists (WCS) Andrews facility located at 9998 Highway 176 West in Andrews, Texas. The proposed construction will consist of a 200-acre storage facility. The Consolidated Interim Storage Facility (CISF) will consist of eight consolidated interim storage facilities, transfer facility, administration building, concrete batch plant (future) and a retention basin. Each of the consolidated interim storage facilities are planned to be 210,000 square feet (700 feet by 300 feet) in size. At the time of this report, we understand that typical mat foundation loading of 3,000 pounds per square foot (psf) is expected for each of the storage facilities. Additionally, we understand that the maximum anticipated column loads are expected to be in the range of 400 kips for the storage facilities. We understand that the construction of the storage facilities are planned to consist of concrete cast-in-place construction supported on mat foundations. We understand that various materials are planned to be stored inside the structures. This exploration was performed for one of the consolidated interim storage facilities, the transfer facility, and the administration building.

The 200-acre tract of land is currently undeveloped with the exception of access roads that cross from one property to the adjacent property. Based on information obtained from internet research, site elevations range from approximately 3,505 feet Mean Sea Level (MSL) along the

eastern property boundary to approximately 3,490 feet MSL along the western property boundary. At this time, we have not been provided with any final grading plans for this project. Based on the existing elevations, maximum earthwork cuts and fills of 10 feet or less are anticipated for this project.

1.3 SCOPE OF SERVICES

This geotechnical exploration involved a site reconnaissance, field exploration, laboratory testing, and engineering analysis. The following sections of this report present discussions of the field exploration, laboratory testing programs, site conditions, and conclusions and recommendations. Following the text of this report, figures, boring logs, and laboratory test results are provided in the appendices. Appendix A provides figures and boring logs. Appendix B provides laboratory tests performed and the results of these tests. Appendix C provides a summary table of the Site Soil Characteristics. Appendix D provides the static elastic modulus calculation. Appendix E provides the results of the on-site shear wave velocity study. Appendix F provides the seismic settlement analysis calculations and narrative. Appendix G provides sample bearing capacity analyses and commentary.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, subsurface water, or air, on, or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2.0 EXPLORATION AND TESTING PROGRAMS

2.1 FIELD EXPLORATION

The site subsurface conditions were explored with eighteen soil test borings. The following is a breakdown of the boring layout:

STRUCTURE	Number of Borings	Boring Designation
Proposed Transfer Facility	5	TF-1 and TF-4
		TF-2, TF-3, and TF-5
CISF – Phase I	11	B-101 and B-111
		B-102 through B-110
Administration Building	2	AB-1 and AB-2

Table 1 – Boring Breakdown

The boring locations and depths were selected by GEOServices. The borings were surveyed in the field by WCS personnel. Drilling was performed between July 13th and July 21th, 2015. The soil test borings were advanced using a Cannon skid rig (air rotary) and a CME-55 track rig. The drill crew worked in general accordance with ASTM D6151 (HSA Drilling). Sampling of overburden soils was accomplished using the standard penetration test procedure (ASTM D1586). The borings were backfilled with soil cuttings prior to leaving the site.

In split–spoon sampling, a standard 2-inch O.D. split-spoon sampler is driven into the bottom of the boring with a 140 pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches of the standard 18 inches of total penetration is recorded as the Standard Penetration Resistance (N-value). These N-values are indicated on the

boring logs at the testing depth, and provide an indication of the relative density of granular materials and strength of cohesive materials.

2.2 LABORATORY TEST PROGRAM

Soil samples collected during drilling were transported to our laboratory for visual classification and laboratory testing. The following laboratory testing was performed on select samples to determine the various soil properties.

- Atterberg Limits (ASTM D4318): Three Atterberg Limits tests were performed. These tests help us to confirm our visual classifications according to the AASHTO Classification System and the Unified Soil Classification System (USCS). The plastic limit and liquid limit represent the moisture content at which a cohesive soil changes from a semi-solid to a plastic state and from a plastic state to liquid state, respectively.
- Natural Moisture Content (ASTM D2216): One-hundred thirty-four moisture content determinations were performed. The natural moisture content is defined as the ratio of the weight of water present in the soil to the dry weight of soil.
- 200 Wash Analysis (ASTM D1140): Nine particle size analyses were performed. The particle size analysis is used to determine the soil classification and determine drainage properties of the material.
- Resistivity of Soil (ASTM G187): Four soil resistivity tests were performed. The resistivity tests provide information related to corrosive properties of soil.
- Consolidated Undrained Triaxial Test (ASTM D4767): Consolidated undrained triaxial tests were planned, however, undisturbed Shelby tubes were not able to be performed due to the caliche present. This test provides data useful in determining strength and deformation properties of cohesive soils.

- Standard Proctor Moisture-Density Tests (ASTM D698): One standard Proctor test was performed on a composite soil sample. This test provides information concerning the relationship between moisture content, compaction effort, and density.
- California Bearing Ratio (CBR) Tests (ASTM D1883): One CBR test was performed on a composite soil sample. This test provides a CBR value, which is used in pavement design to represent the support of the soil subgrade.
- Consolidation (ASTM D2435): Consolidation tests were originally planned, however, undisturbed Shelby tube samples could not be obtained due to the caliche. The test results are used to evaluate the settlement potential of the clay stratum.

At the time this report was prepared, some of the laboratory testing was still on-going. The test results of the laboratory that has already been completed are presented in the Soil Data Summary enclosed in Appendix B.

3.0 SITE CONDITIONS

3.1 GEOLOGIC CONDITIONS

The WCS site is located over the north-central portion of a prominent subsurface structural feature known as the Central Basin Platform. The geologic formations of concern, beneath of the WCS facility comprise, from oldest to youngest, the Triassic Dockum Group, the Cretaceous Trinity Group Antlers Formation, the Late Tertiary Ogallala Formation, the Late Tertiary/Quaternary Gatuña Formation or Cenozoic Alluvium (note that the Gatuña Formation and Cenozoic Alluvium are sometimes used interchangeably), the Pleistocene windblown sands of the Blackwater Draw Formation, Holocene windblown sands and playa deposits. A regional hard caliche pedisol, termed the Caprock caliche, developed on all pre-Quaternary formations before the Blackwater Draw sands were deposited.

3.2 SUBSURFACE CONDITIONS

3.2.1 Residual Soils

At the surface of each of the eighteen soil test borings, residual soils were encountered to auger refusal and/or boring termination depths ranging from 25 to 45 feet below the existing surface elevation. Residual soils are formed from the in-place weathering of the underlying bedrock. The residual soils encountered were generally brown, orangish brown; fine grained silty sands with caliche. The N-values of the standard penetration resistance test (SPT) are used to evaluate the relative consistency or density of the subsurface soils. The N-values for the residual sands ranged from 4 bpf to 100 blows per 1 inch of penetration, indicating a relative density of very loose to very dense. The relative density of the residual sands were most commonly medium dense to very dense. The standard penetration resistance values have likely been inflated due to the caliche.

The natural moisture content of the residual soils ranged from 2.5 to 9 percent. Atterberg limits testing on three selected residual samples revealed liquid limits (LL) ranging from 26 to 29 percent and each sample was non-plastic. Wash 200 tests performed on eight soil samples revealed 24 to 45 percent finer than the 200 sieve.

3.2.2 Subsurface Water

Subsurface water was not observed in any of the soil test borings either during or at the completion of drilling activities. Subsurface water levels may fluctuate due to seasonal changes in precipitation amounts or due to construction activities in the area. The groundwater information presented in this report is the information that was collected at the time of our field activities.

3.2.3 Auger Refusal Conditions

Auger refusal materials were encountered in four of the eighteen soil test borings (B-101, B-111, TF-1, and TF-4) to depths ranging from 37 to 45 feet below the existing ground surface elevation. The remaining soil test borings were terminated at a depth of 25 feet prior to encountering refusal materials. Refusal is a designation applied to any material that cannot be penetrated by the power auger. The following table presents the auger refusal depths. Auger refusal may indicate dense gravel or cobble layers, boulders, and/or the very dense caliche. Rock coring was beyond the scope of this exploration; therefore, the character and continuity of the refusal materials were not determined. The following table should be reviewed for auger refusal depths:

AUGER REFUSAL DEPTHS	
Location	Refusal Depth (feet)
B-101	45
B-111	37
TF-1	40
TF-4	40

Table 2 – Auger Refusal Depths

3.2.4 General

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in Appendix A should be reviewed for specific information at individual boring locations. The depth and thickness of the subsurface strata indicated on the test records were generalized from and interpolated between boring locations. The transition between materials will be more or less gradual than indicated and may be abrupt. Information on actual subsurface conditions exists only at the specific test locations and is relevant to the time the exploration was performed. Variations may occur and should be expected between boring locations. The stratification lines were used for our analytical purposes and, unless specifically stated otherwise, should not be used as the basis for design or construction cost estimates.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 SITE ASSESSMENT

The results of the subsurface exploration indicate that the site is adaptable for the proposed construction. However, as is the case with most sites, some inherent challenges are associated with this development of this site. These challenges include the presence of isolated zones of loose residual soils and the proposed foundation loading.

As mentioned previously, very loose to loose sands were encountered in five of the eighteen soil test borings (AB-2, B-101, B-102, B-103, TF-2, and TF-5) to depths ranging from 2.5 to 6.5 feet. At this time the grading plan has not yet been developed for the proposed construction. Depending on the proposed mat bearing elevation, we anticipate that some undercutting of the existing very loose to loose silty sands will be required to provide uniform settlement for the proposed mat foundation (Storage Building). The undercut depths and replacement materials should be provided by the geotechnical engineer of record once mat bearing elevations and mat pressure distributions are known. The following sections of this report provide general recommendations for the grading activities and foundation support. We request the opportunity to revisit these recommendations once the final design is completed.

4.2 SITE PREPARATION

4.2.1 Subgrade

All vegetation, organic soils, rock fragments greater than 6 inches, and other debris should be removed from the proposed construction area. The actual depth of removal should be determined by a representative of the geotechnical engineer at the time of construction.

After completion of stripping operations and any required excavations to reach planned subgrade elevation, we recommend that the subgrade be proofrolled with a fully-loaded, tandem-axle dump truck or other pneumatic-tired construction equipment of similar weight. The geotechnical engineer or his representative should observe proofrolling. Areas to receive structural soil fill should also be proofrolled prior to the placement of any fill. Based on the results of the drilling activities, very loose to loose sands were encountered in five of the 18 soil test borings (AB-2, B-101, B-102, B-103,TF-2, and TF-5) to depths ranging from 2.5 to 6.5 feet. We anticipate that these soils encountered will perform unsatisfactorily during proofroll activities. The project budget should include a contingency for required undercutting of the upper weak residual soils within the proposed building and roadway sections.

4.2.2 Structural Soil Fill

Characteristics of recommended fill soils and the placement and compaction criteria for fill are provided in the table on the following page. The results of our limited laboratory testing indicate that **SOME** of the on-site materials **DO** meet the criteria for reuse as structural fill. However, we recommend that the near surface silty sands NOT be reused as compacted fill. Therefore, dependent on grading requirements, some fill materials may need to be imported during grading. The grading contractor should include provisions in their bid for importing new soil materials and exporting excess materials (silty sands).

The near surface fill materials consists of sands that contain more than 15 percent fines. Experience indicates these materials can be moisture sensitive and degrade rapidly under heavy rubber-tired equipment. Therefore, the contractor should be aware that if these materials will be reused as fill or are present at the subgrade level, some repairs of subgrades that degrade during the construction may be required prior to pavement construction.

Prior to initiating grading activities, samples of proposed fill soils should be submitted for Atterberg limits and moisture-density relationship determination testing (i.e., standard

Proctor). This testing typically requires at least 3 to 4 days to complete. To avoid delays during grading, samples of proposed fill materials (both on-site and off-site) should be collected during site preparation activities.

SUMMARY OF RECOMMENDED FILL CRITERIA

MATERIAL TYPE	CHARACTERISTICS	COMPACTION PROCEDURES	COMPACTION CONTROL
COMPACTED CLAY FILL	▪ Liquid Limit – less than 40 ▪ Plasticity Index – between 10 and 20 ▪ Maximum particle size – 3 inches ▪ Maximum gravel or oversize particle content – 30 percent retained on a 3/4-inch sieve ▪ Maximum allowable organic content – 3 percent by weight, but no large roots should be allowed ▪ Percent passing No. 200 sieve – greater than 35 percent ▪ USCS Classifications – CL, GC or SC	▪ Maximum loose lift thickness – 8 inches **Compaction requirement[1]:** ▪ The fill should be compacted by making multiple passes with an appropriately sized sheepsfoot roller. ▪ Compaction should be at least 95 percent of the standard Proctor maximum (ASTM D 698) **Moisture content for fill:** ▪ At time of compaction – within minus 2 and plus 2 percent of the optimum moisture content	**Building and pavement areas:** ▪ One test every 2,500 to 5,000 square feet per lift, with a minimum of two tests per lift **Trench areas:** ▪ One test every 100 linear feet per lift **Minimum requirement:** ▪ Two tests per lift ***(for preliminary planning only, our technician or engineer should determine the actual test frequency)***
COARSE-GRAINED SOILS	▪ Maximum gravel size – 3 inches ▪ Maximum gravel content – 30 percent retained on a ¾-inch sieve ▪ Maximum allowable organic content – 5 percent by weight, but no large roots should be allowed ▪ USCS Classification SP, SC, SM		

[1] In addition, the fill must be stable under the influence of the compaction equipment. After the soil fill is properly placed and compacted, it will be advisable to limit the amount of heavy construction traffic on the soil subgrade.

Table 3 – Summary of Fill Criteria

On-site soils should be used for backfilling of utility trenches. The purpose of this detail is so that utility trench backfill does not respond differently to moisture variations than the surrounding soils (i.e., shrink or swell differently).

4.3 FOUNDATIONS

4.3.1 Shallow Foundations (Security and Admin Building)

Foundations for the proposed construction will be supported on residual soils and/or properly compacted structural fill materials. The recommended allowable bearing capacity for design of the foundations is 3,000 pounds per square foot (psf) or less. A one-third increase in the allowable bearing capacity for all load conditions that include transient loads (wind, seismic, other short term loads) is permitted. The 33% increase in allowable bearing capacity (stress) can be applied to load combinations that consider transient loads in conjunction with dead loads. This increase in allowable stress cannot be applied solely to dead loads. We recommend that continuous foundations be a minimum of 18 inches wide and isolated spread footings be a minimum of 24 inches wide to reduce the possibility of a localized punching shear failure. All exterior footings should be designed to bear at least 24 inches below finished exterior grade.

Foundation excavations should be opened, the subgrade evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction.

4.3.2 Mat Foundations (Storage Building)

Foundations for the proposed storage building will be supported on residual soils and/or properly compacted structural fill materials. The recommended allowable bearing capacity for design of the foundations is 3,000 pounds per square foot (psf) or less. A one-third increase in the allowable

bearing capacity for all load conditions that include transient loads (wind, seismic, other short term loads) is permitted. The 33% increase in allowable bearing capacity (stress) can be applied to load combinations that consider transient loads in conjunction with dead loads. This increase in allowable stress cannot be applied solely to dead loads. All exterior footings should be designed to bear at least 24 inches below finished exterior grade.

Based on the conditions encountered at the site, we recommend that the mat foundation be designed using a preliminary subgrade modulus of 150 pounds per cubic inch (pci). This value was obtained using a mat size of 700 feet by 300 feet and a uniform bearing pressure of 3,000 psf. As with all non-rigid method solutions, the process is iterative and requires the close coordination between the geotechnical engineer and the structural engineer during design. Once a pressure distribution is determined, we can utilize finite element methods to more accurately predict the settlement and provide detailed modulus calculations.

4.3.3 Slabs-on-Grade (Administration Building)

For slab-on-grade construction for the administration building, the site should be prepared as previously described. We recommend that the subgrade be topped with a minimum 6-inch layer of crushed stone. A polyethylene vapor barrier is not required if the designer utilizes a dense graded aggregate base. The subgrade should be proofrolled and approved prior to the placement of the crushed stone. Based on the conditions encountered on this site, we recommend that the floor slabs be designed using a subgrade modulus of 150 pounds per cubic inch (pci). This subgrade modulus value is for small diameter loads (i.e., a 1 foot by 1 foot plate) and should be adjusted for wider loads such as large mat foundations.

4.3.4 Seismic Design Parameters

We evaluated the site seismic class of the upper 100 feet to determine the seismic site class per the criteria in Table 1613.5.2 of the International Building Code (IBC, 2006/2012). The on-site shear

wave velocity was determined using the refraction micro-tremor (ReMi) method. The testing used a Seismic Source DAQ Link II 24 seismograph and 10 Hz vertical geophones. The geophones were deployed along an approximately 300-foot long linear array and spaced on approximately 26-foot centers. Once the field data was collected, a computer model was used to determine the subsurface shear wave velocity profile. The test results are attached to this report.

The attached seismic velocity model displays the shear-wave velocity profiles for the upper 100 feet. The results of the models revealed the following shear wave velocities.

Depth (feet)	Run 1 Shear Wave Velocity (feet/sec)	Run 2 Shear Wave Velocity (feet/sec)	Run 3 Shear Wave Velocity (feet/sec)	Run 4 Shear Wave Velocity (feet/sec)	Average Shear Wave Velocity (feet/sec)
0 - 5	820	1020	989	843	918
5 - 15	1107	985	978	1036	1027
15 - 25	1498	1302	1549	1432	1445
25 - 35	1498	2253	2120	1889	1940
35 - 55	2558	2731	2252	2058	2400
55 - 75	2228	1231	1417	2153	1757
75 - 100	2228	3205	3383	3322	3035

Table 4 – Summary of Shear Wave Velocity Results

The average shear-wave velocities obtained were used to evaluate the seismic site class definition and design category using the procedures provided in the 2012 International Building Code. Based on the information obtained from the geophysical surveys, the site class for the development would be site class “C”. Therefore, seismic design parameters for a site class “C” are provided below:

STRUCTURE	IBC	S_s G	S_1 g	S_{DS} G	S_{D1} G
Consolidated Interim Storage Facility	2006	0.259	0.044	0.207	0.050
	2012	0.192	0.043	0.154	0.049

Table 5 – Seismic Design Parameters

4.3.5 Liquefaction Potential

Liquefaction occurs when soil, primarily saturated cohesionless soils, undergo a loss in strength due to monotonic, transient, or repeated disturbance that commonly occurs during a seismic event (Kramer 1996). This loss of strength occurs due to increased pore water pressures caused by an undrained condition. The increase in pore water pressure decreases the effective stress in the soil, thus reducing the soils ability to support any applied loads. For liquefaction to occur, there must be an increase in poor pressure meaning the soil must be saturated and be able to behave in an undrained condition. According to the NHI 2011 Reference Manual on LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, if any of the following criteria are satisfied then a significant liquefaction hazard does not exist:

- The geologic materials underlying the site are either bedrock or have very low liquefaction susceptibility according to the relative susceptibility ratings shown in the Estimated Susceptibility of Sedimentary Deposits to Liquefaction During Strong Ground Motion table presented by Youd and Perkins in 1978.
- The soils below the groundwater table at the site are one of the following
    - Clayey soils which have a clay content greater than 15%, liquid limit greater than 35%, or natural water content less than 90% of the liquid limit.
    - Sand with a minimum corrected SPT $(N_1)_{60}$ value of 30 blows/foot.

- The water table is deeper than 50 feet below the ground surface or proposed finished grade at the site.

Since groundwater was not encountered in any of the eighteen soil test borings and given that some of the borings penetrated as deep as 45 feet below the ground surface, it can be concluded that a liquefaction hazard does not exist for the subject development.

4.3.6 Settlement

Static Calculations

We have estimated the total and differential settlements expected at this site based on the Federal Highways Administration (FHWA) Empirical Settlement Analysis Procedure. This FHWA empirical method allows the use of the SPT N-values in this calculation and includes the type of soil encountered. Based on the conditions encountered in our borings, we anticipate that total settlements will be less one inch for the administration building and be on the order of about 1 ¼ to 1 ½ inches for the mat foundation. These settlements should be revisited (especially for the mat foundation) once the load distribution and the bearing elevations have been finalized.

Seismic Settlement Analysis

As mentioned previously, a liquefaction hazard does not exist for the subject project, however, there is a potential for settlement of the loose sands that exist in some areas of the CISF. According to Kramer (1996), the tendency of sands to densify when subjected to earthquake shaking is well documented and occurs very rapidly. This densification is usually completed by the end of the earthquake.

To determine the magnitude of settlements/densification that could occur during an earthquake event LiquefyPro Version 5.8h was utilized. Detailed information regarding the parameter selection, results, and procedure can be found in Appendix E.

The results of the seismic settlement analysis performed with LiquefyPro are tabulated below:

Boring Number	Settlement (inches)	Boring Number	Settlement (inches)
B-101	0.02	B-110	0.01
B-102	0.01	B-111	0.01
B-103	0.01	TF-1	0.01
B-104	0.01	TF-2	0.01
B-105	0.01	TF-3	0.01
B-106	0.01	TF-4	0.01
B-107	0.01	TF-5	0.01
B-108	0.01	AB-1	0.01
B-109	0.01	AB-2	0.01

Table 6 – Seismic Settlement Results

4.4 LATERAL EARTH PRESSURES

At this time, we understand that design services are in conceptual design phase. The possibility exists that portion of the CISF walls will be located below grade. Therefore, we are providing equivalent fluid pressures for three backfill conditions for cantilever-type walls. These are 1) active earth pressure for granular backfill (clean sand or gravel), 2) at-rest earth pressure for granular backfill, and 3) at-rest earth pressure for fine-grained (silt or clay) backfill.

Condition 1 - The active earth pressure for granular backfill will result in an equivalent fluid pressure of 40 pounds per cubic foot (pcf). If the granular backfill is to develop active earth pressure conditions, walls must be flexible and/or free to rotate or translate at the top approximately one inch laterally for every 20 feet of wall height.

Condition 2 - The at-rest earth pressure for granular backfill will result in an equivalent fluid pressure of 50 pcf. For retaining walls that will not rotate or translate, such as building walls or other walls rigidly connected to structures, at-rest conditions will develop.

Condition 3 - Walls backfilled with fine-grained material (silt or clay) should be designed using the at-rest earth pressure whether restrained at the top, or not. Fine-grained soils typically creep over time which produces additional lateral stresses to the wall. The equivalent fluid pressure for this case is 70 pcf.

In all cases, forces from any expected surcharge loading including sloping backfill should be added to the equivalent fluid pressures. The walls should be properly drained to remove water or hydrostatic pressure should be added to the design pressure. Also, all backfill for the walls should be placed in accordance with the structural fill recommendations described hereinafter.

For rigid, cast-in-place concrete walls, a friction factor of 0.35 between foundation concrete and the bearing soils may be used when evaluating friction. If a 12-inch stone leveling course is utilized beneath the foundation, a friction factor of 0.45 between foundation concrete and the dense graded aggregate base may be used when evaluating friction. Also, an ultimate passive earth pressure resistance of well-compacted soil fill can be approximated by a uniformly acting resistance of 333 psf. However, to limit deformation when relying on passive strength, we recommend using a minimum safety factor of 3.0 applied to the ultimate passive resistance value.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 EXCAVATIONS

Auger refusal materials were encountered in four of the 18 soil test borings (B-101, B-111, TF-1, and TF-4) at depths ranging from 37 to 40 feet below the existing ground surface elevation. Typically, soils penetrated by augers can be removed with conventional earthmoving equipment. However, excavation equipment varies, and field refusal conditions may vary. Some of the very dense caliche may require difficult excavation techniques such as ripping, prior to excavation.

Excavation Safety

Excavations should be sloped or shored in accordance with local, state, and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards. The contractor is usually solely responsible for site safety. This information is provided only as a service and under no circumstances should GEOServices be assumed to be responsible for construction site safety.

5.2 FOUNDATION CONSTRUCTION

Foundation excavations should be opened, the subgrade evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction. Soil backfill for footings should be placed in accordance with the recommendations for structural fill presented herein.

Foundation subgrade observations should be performed by a GEOServices geotechnical engineer, or his qualified representative, so that the recommendations provided in this report are consistent

with the site conditions encountered. A dynamic cone penetrometer (DCP) is commonly utilized to provide information that is compared to the data obtained in the geotechnical report. Where unacceptable materials are encountered, the material should be excavated to stiff, suitable soils or remediated at the geotechnical engineer's direction. Typical remedial measures consist of undercutting, overexcavation, or combinations thereof.

5.3 MOISTURE SENSITIVE SOILS

The fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. Construction traffic patterns should be varied to prevent the degradation of previously stable subgrade.

In addition, soils which become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather. Climate data for Andrews, Texas, obtained from Weatherbase indicate in the following table the average monthly precipitation. The average amount of precipitation does not vary much throughout the year.

PRECIPITATION AVERAGES

Month	Monthly Precipitation Average (Inches)	Month	Monthly Precipitation Average (Inches)
January	0.7	July	1.9
February	0.5	August	1.5
March	0.3	September	1.5
April	0.9	October	1.8
May	2.1	November	0.4
June	1.6	December	0.6

Table 7 – Average Monthly Precipitation

5.4 DRAINAGE AND SURFACE WATER CONCERNS

To reduce the potential for undercut activities, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, subsurface water, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slab. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

6.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. This report is for our geotechnical work only, and no environmental assessment efforts have been performed. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, express or implied, is made.

The analyses and recommendations submitted herein are based, in part, upon the data obtained from the exploration. The nature and extent of variations between the borings will not become evident until construction. We recommend that GEOServices be retained to observe the project construction in the field. GEOServices cannot accept responsibility for conditions which deviate from those described in this report if not retained to perform construction observation and testing. If variations appear evident, then we will re-evaluate the recommendations of this report. In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and conclusions modified or verified in writing. Also, if the scope of the project should change significantly from that described herein, these recommendations may have to be re-evaluated

GEOServices, LLC-Geotechnical and Materials Engineers

APPENDICES

GEOS

GEOServices, LLC-Geotechnical and Materials Engineers

APPENDIX A

Notes:

1) Aerial Provided by: Google Earth Pro, (02/12/2014)

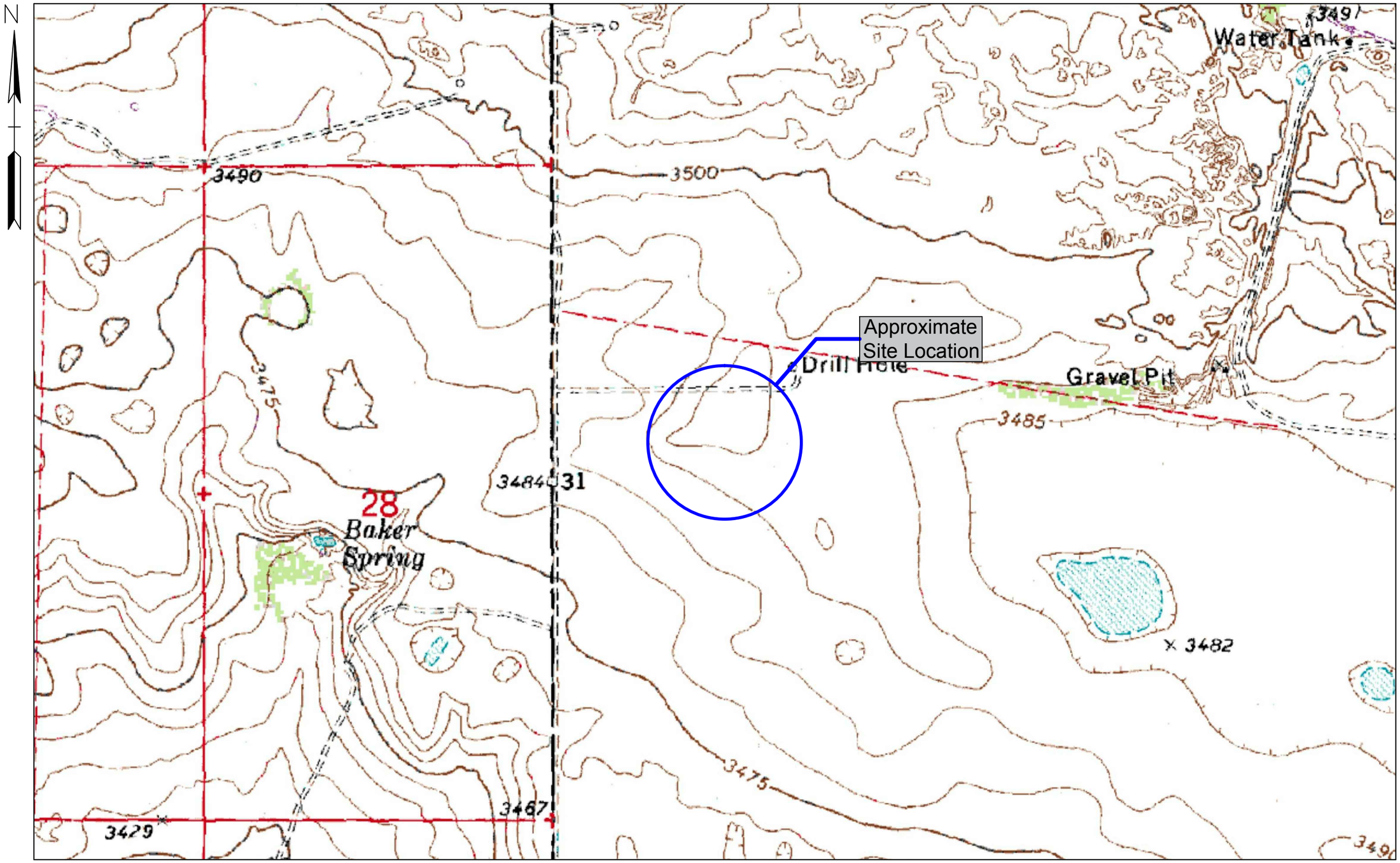
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Site Vicinity Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
1



Source Provided by: MYTOPO

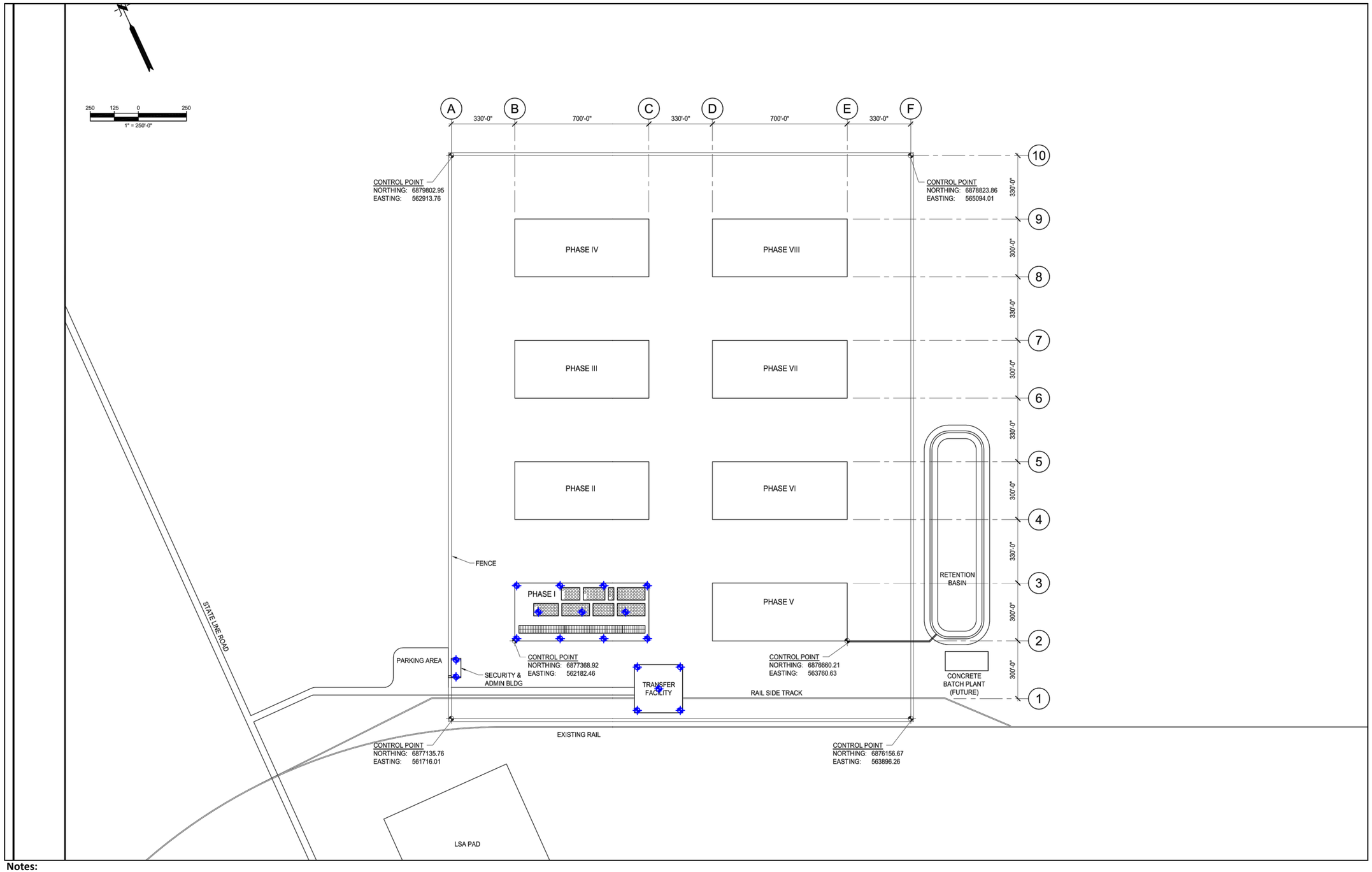
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

USGS Site Vicinity Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
2



Notes:

1) Site Source Provided by: WCS, (06/12/2015)
2) Boring Locations are shown in general arrangement only
3) Do Not use Boring Locations for determinations of Distance or Quantities

Boring Location & Identifier

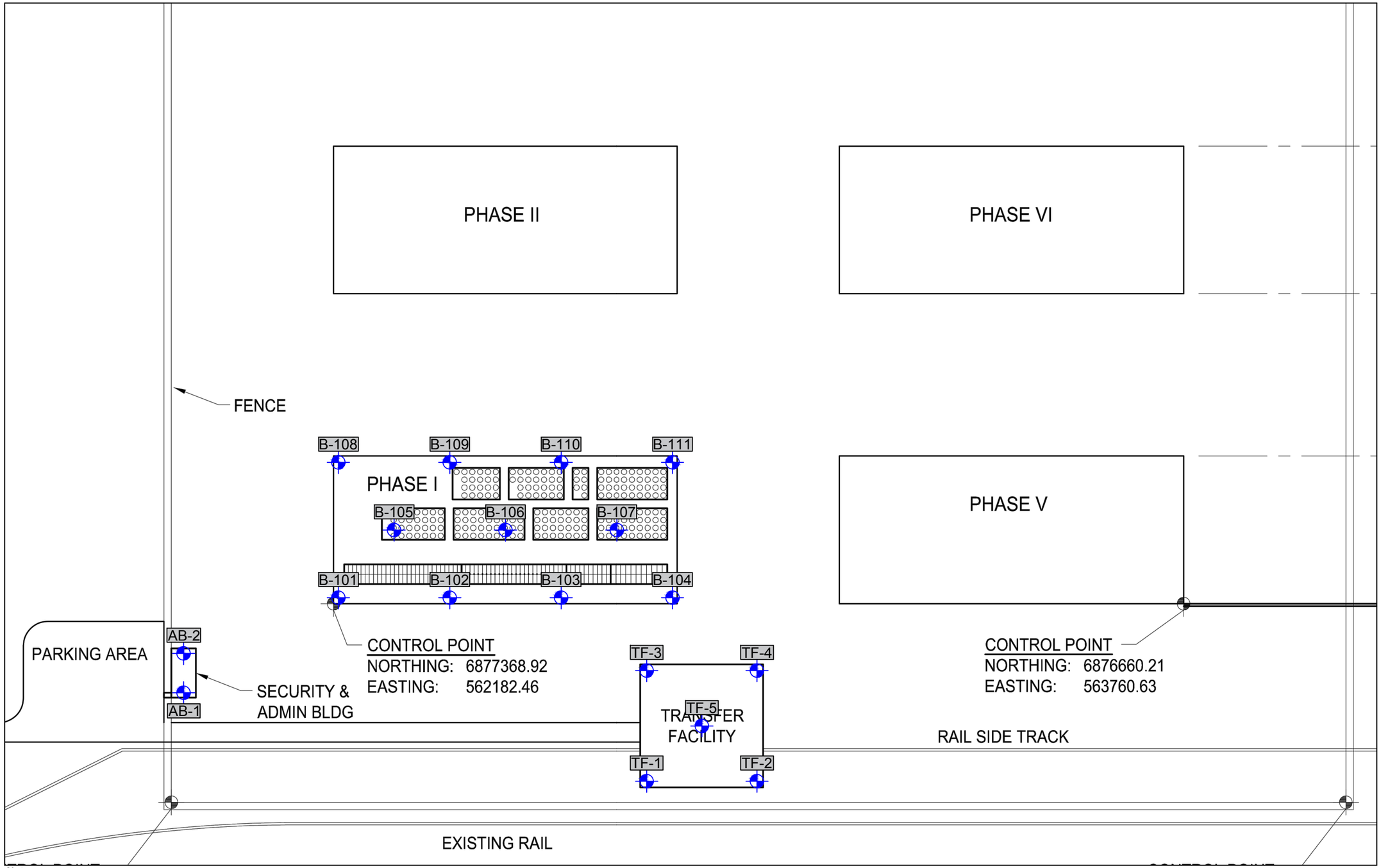
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Location Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
3



Notes:

1) Site Source Provided by: WCS, (06/12/2015)
2) Boring Locations are shown in general arrangement only
3) Do Not use Boring Locations for determinations of Distance or Quantities

Boring Location & Identifier

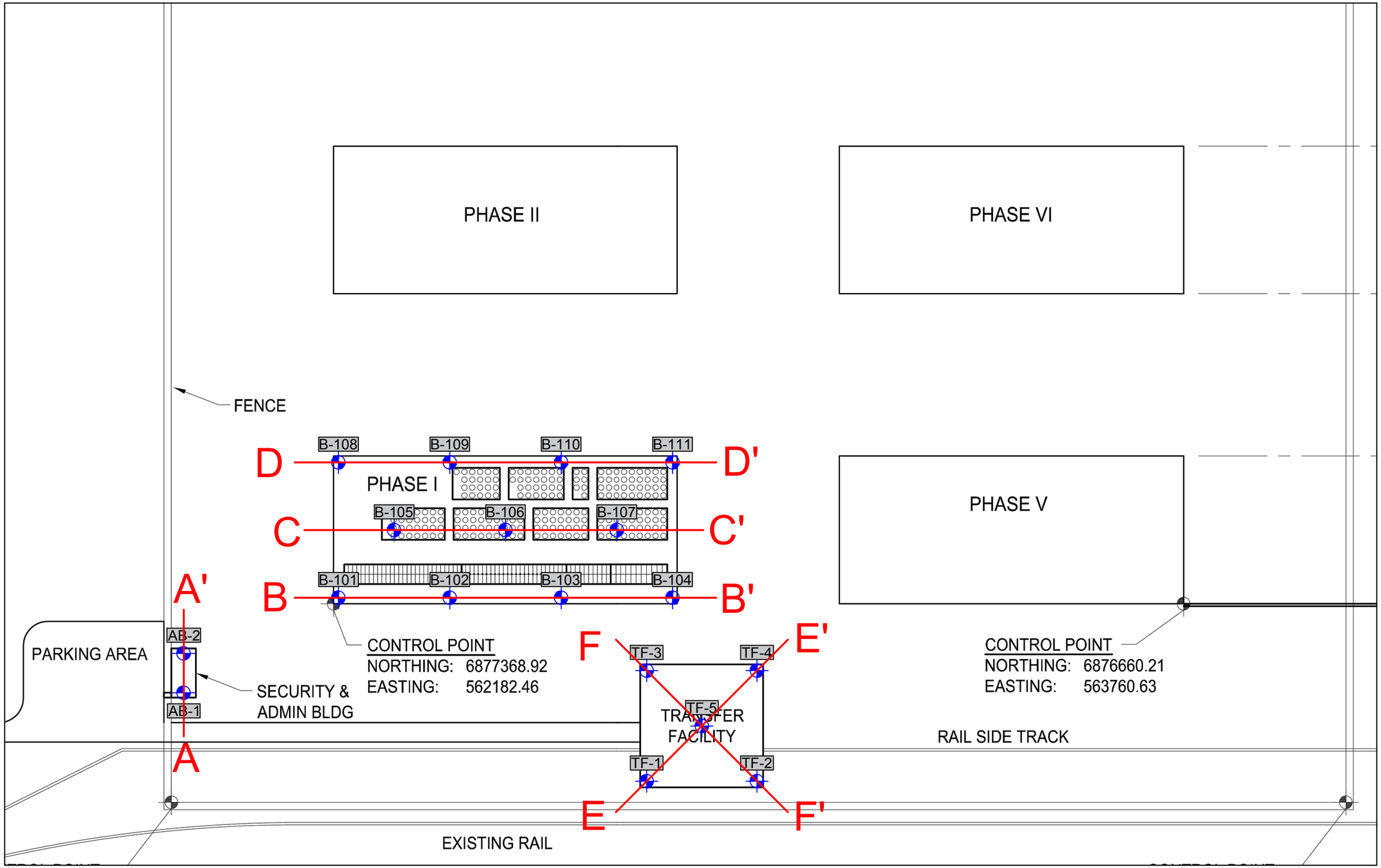
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Location Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
4



Notes:

1) Site Source Provided by: WCS, (06/12/2015)
2) Boring Locations are shown in general arrangement only
3) Do Not use Boring Locations for determinations of Distance or Quantities

Boring Location & Identifier

Cross Section line (Start - End')

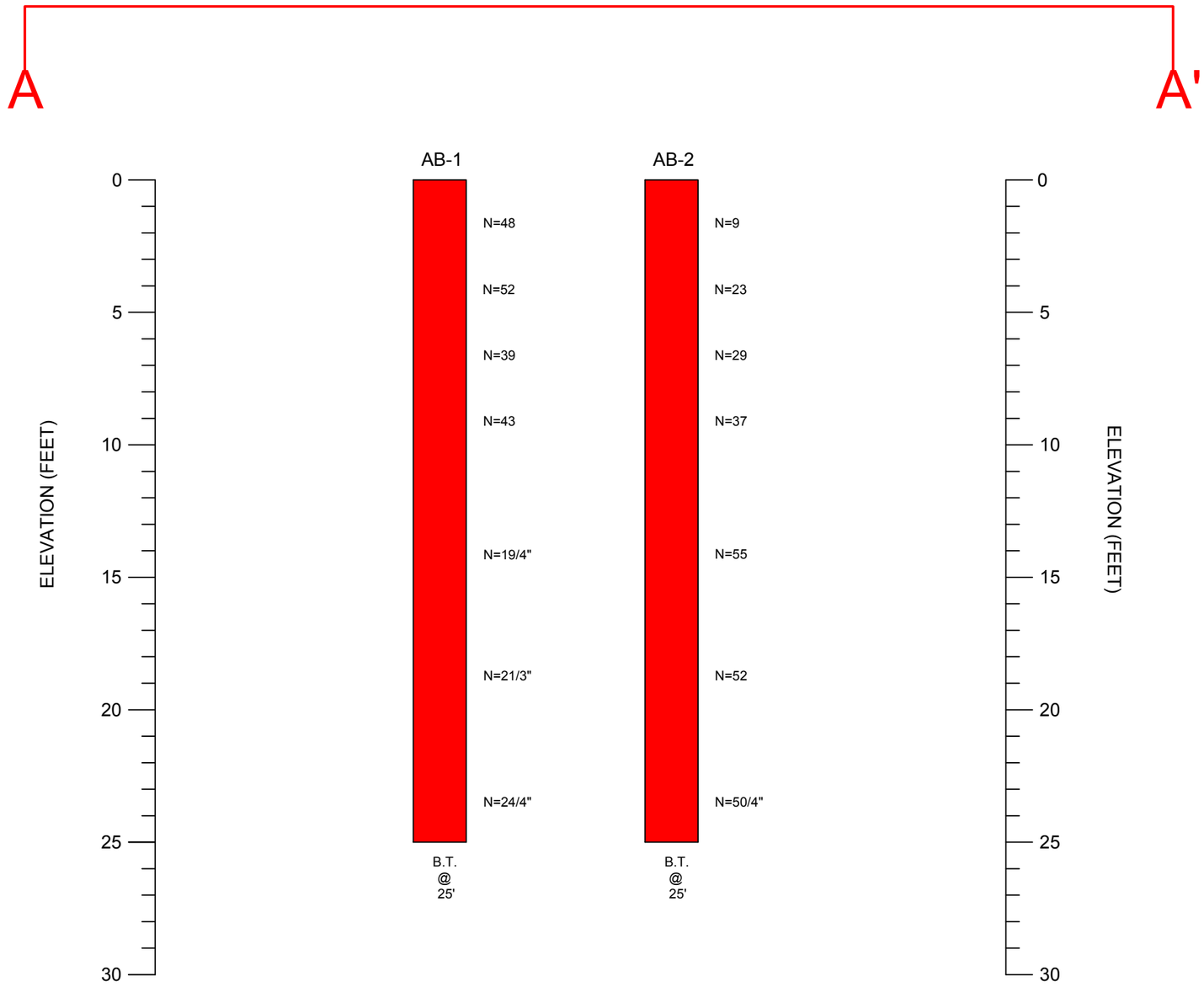
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Cross Section-Location Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
5



Notes:

1) B.T. = Boring Termination
2) A.R. = Auger Refusal
3) Not To Scale

GEOS
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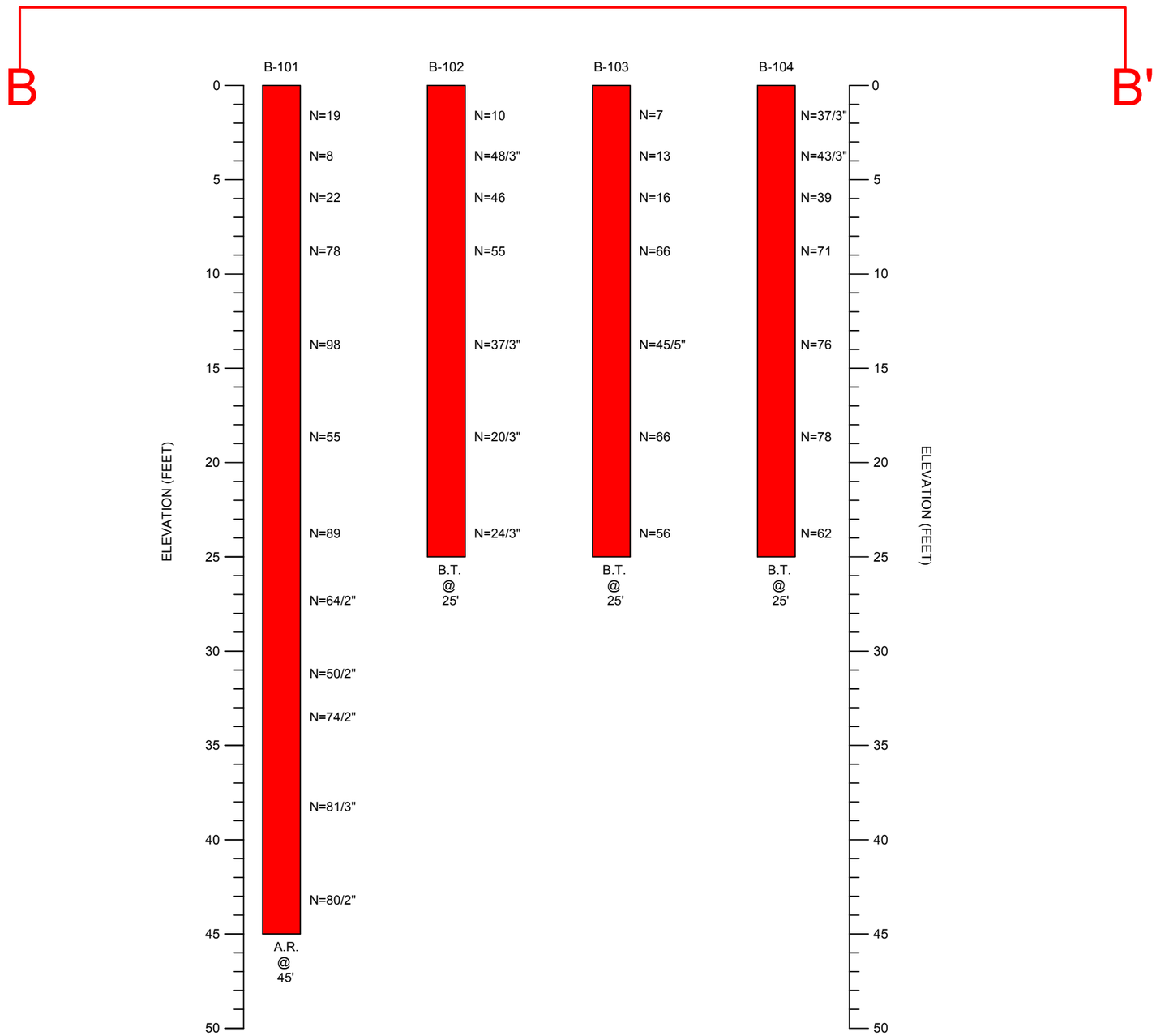
Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
6



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3) Not To Scale

GEOS
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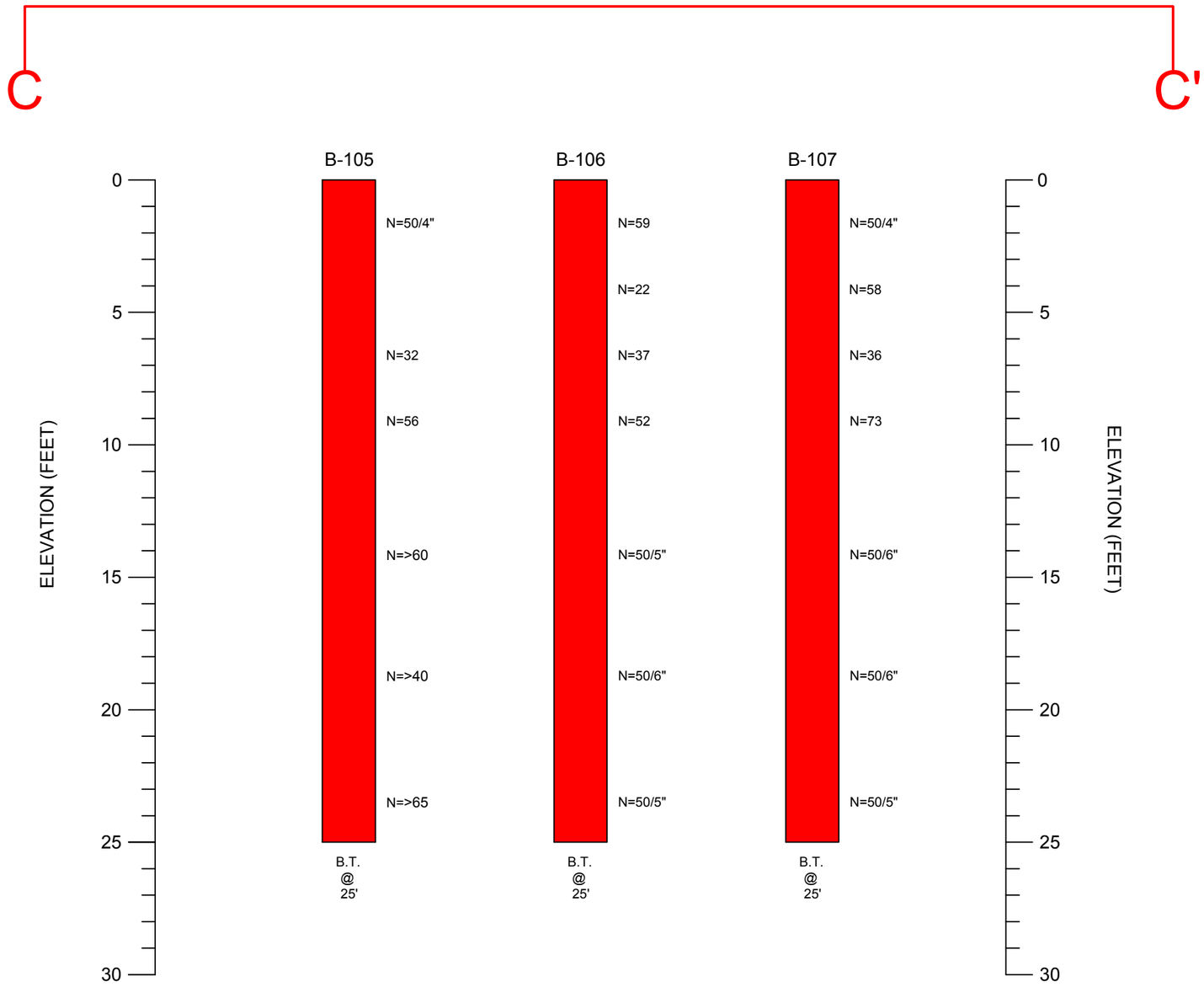
Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
7



Notes:

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3) Not To Scale

GEOS
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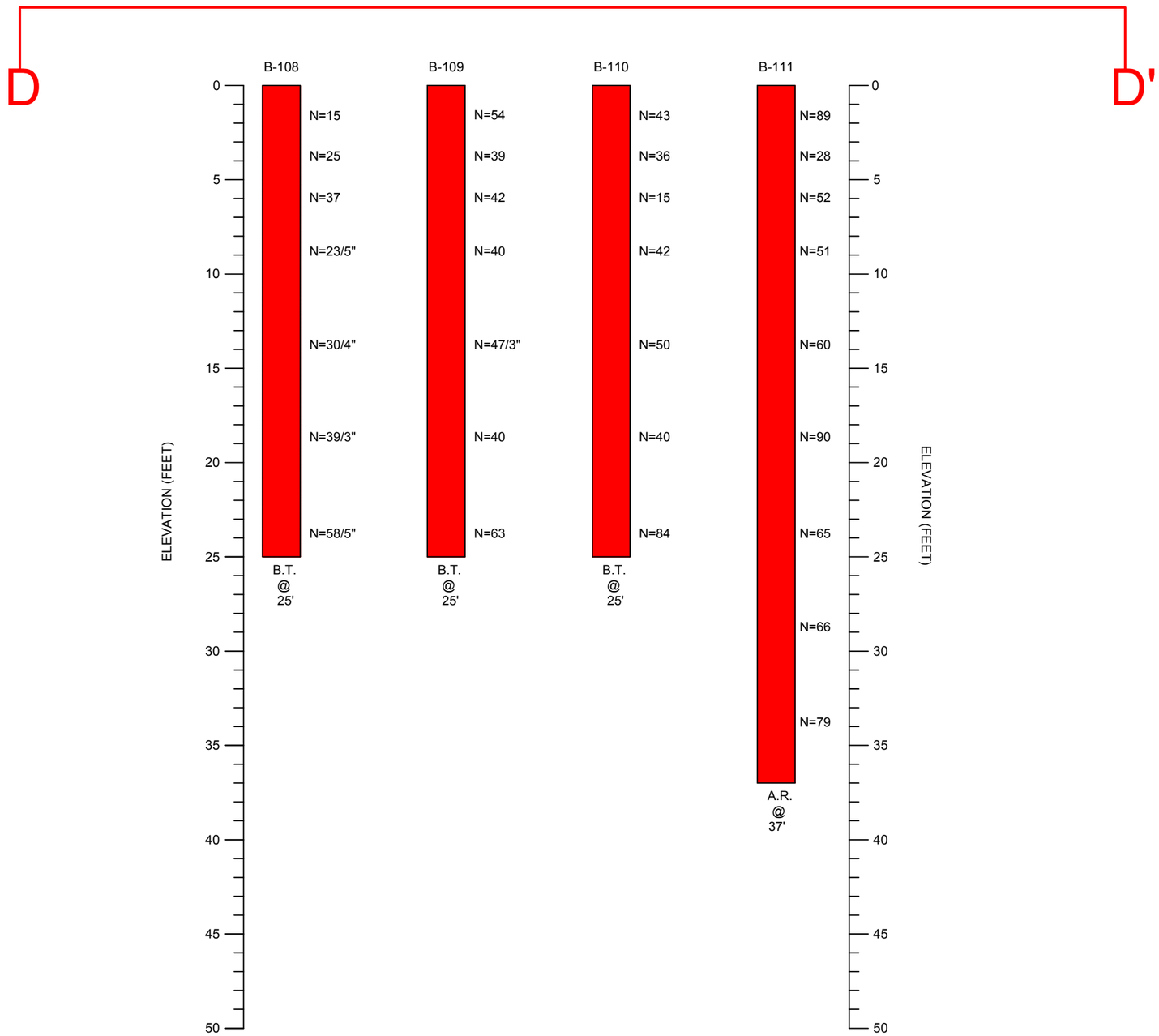
Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
8



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GEOS
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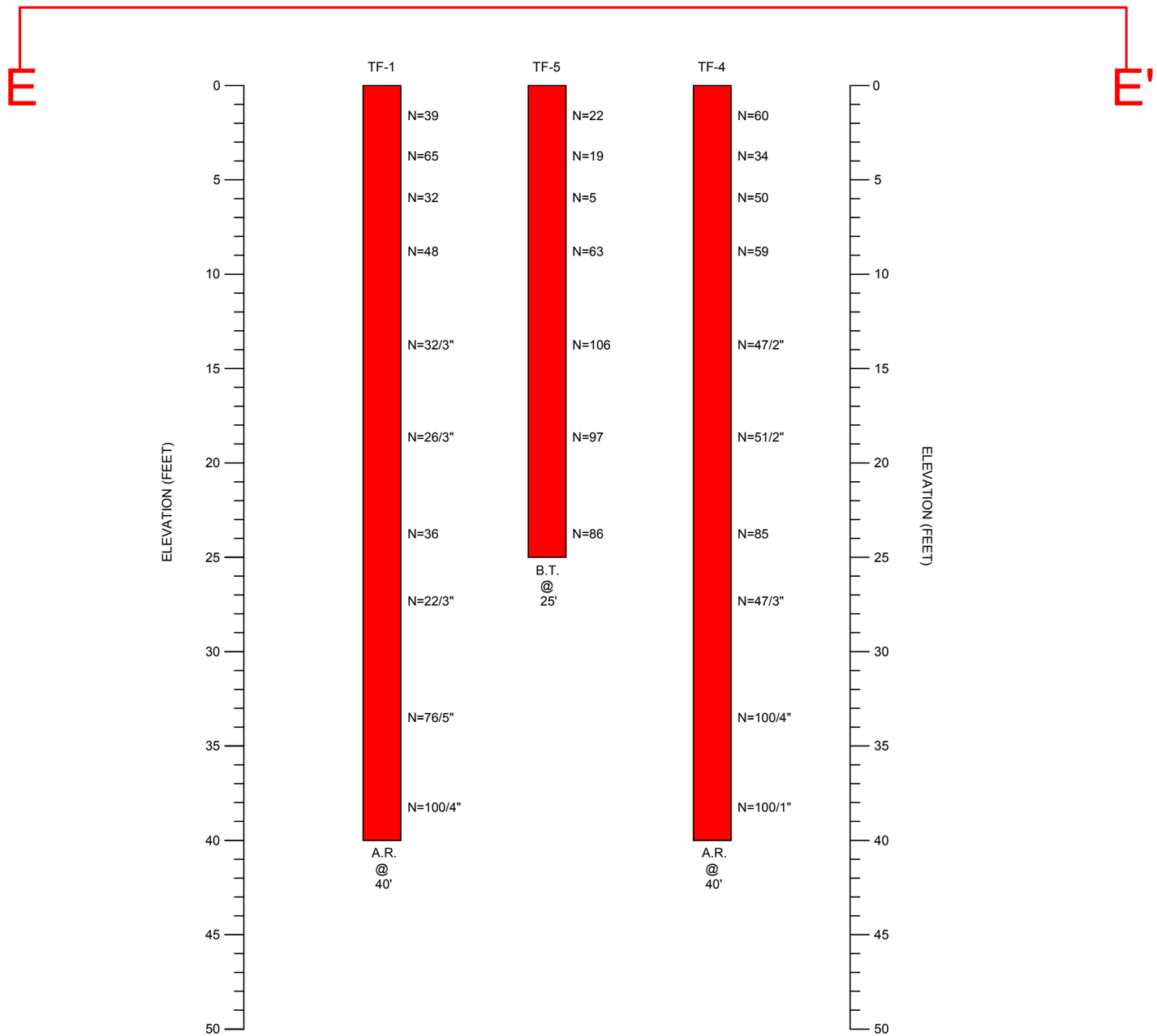
Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
9



Notes:

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3) Not To Scale

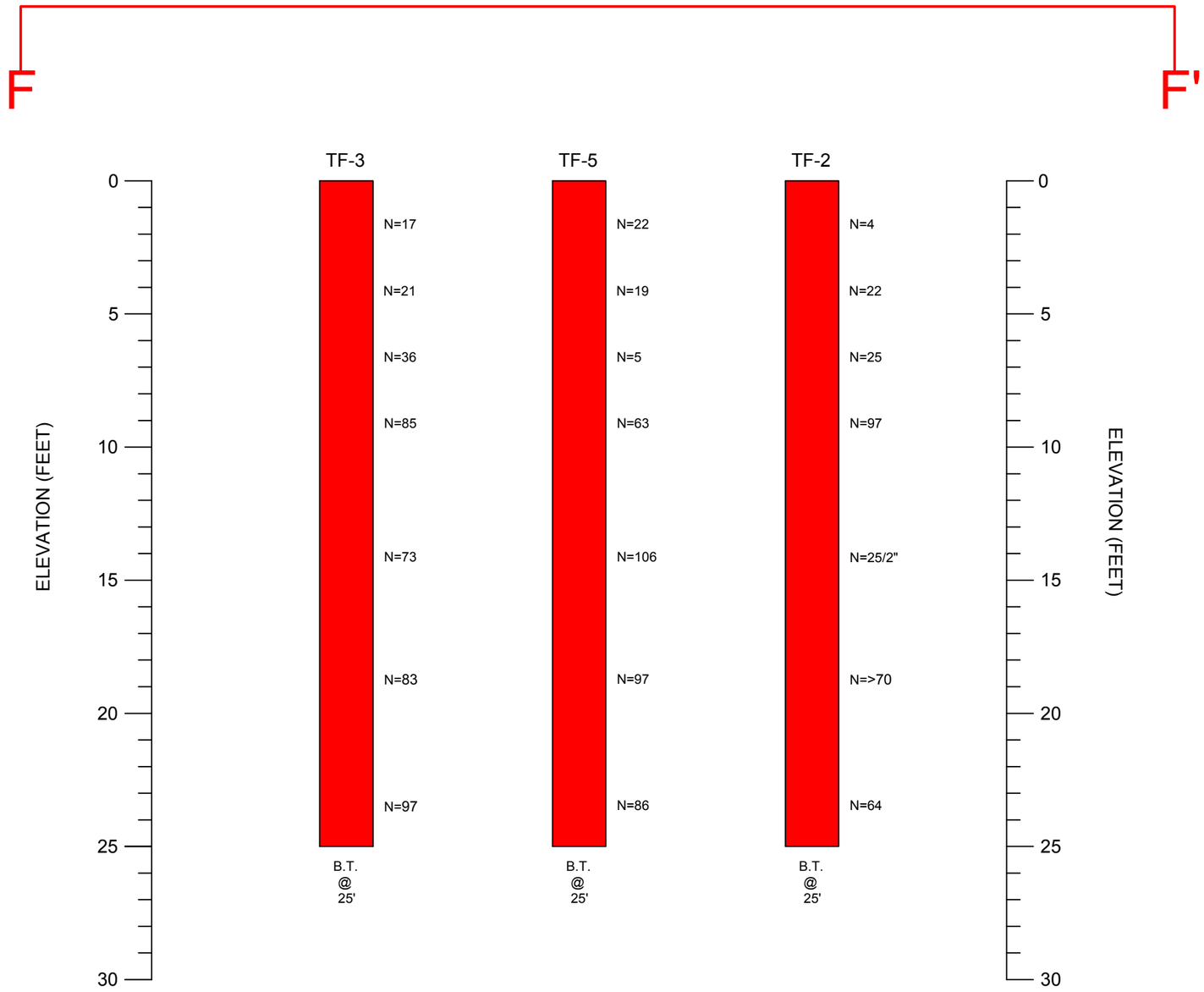
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
10



Notes:

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2) A.R. = Auger Refusal
3) Not To Scale

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Cross-Section
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
11

GENERAL NOTES

FINE AND COARSE GRAINED SOIL PROPERTIES

PARTICLE SIZE

BOULDERS:	GREATER THAN 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	4.74 mm to 75 mm
COARSE SAND:	2 mm to 4.74 mm
MEDIUM SAND:	0.425 mm to 2 mm
FINE SAND:	0.075 mm to 0.425 mm
SILTS & CLAYS:	LESS THAN 0.075 mm

COARSE GRAINED SOILS (SANDS & GRAVELS)

N-VALUE	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 30	MEDIUM DENSE
31 - 50	DENSE
OVER 50	VERY DENSE

FINE GRAINED SOILS (SILTS & CLAYS)

N-VALUE	CONSISTENCY	Qu, PSF
0 - 2	VERY SOFT	0 - 500
3 - 4	SOFT	500 - 1000
5 - 8	FIRM	1000 - 2000
9 - 15	STIFF	2000 - 4000
16 - 30	VERY STIFF	4000 - 8000
OVER 31	HARD	8000 +

STANDARD PENETRATION TEST (ASTM D1586)

THE STANDARD PENETRATION TEST AS DEFINED BY ASTM D1586 IS A METHOD TO OBTAIN A DISTURBED SOIL SAMPLE FOR EXAMINATION AND TESTING AND TO OBTAIN RELATIVE DENSITY AND CONSISTENCY INFORMATON. THE 1.4 INCH I.D./2.0 INCH O.D. SAMPLER IS DRIVEN 3-SIX INCH INCREMENTS WITH A 140 LB. HAMMER FALLING 30 INCHES. THE BLOW COUNTS REQUIRED TO DRIVE THE SAMPLER THE FINAL 2 INCREMENTS ARE ADDED TOGETHER AND DESIGNATED THE N-VALUE. AT TIMES, THE SAMPLER CAN NOT BE DRIVEN THE FULL 18 INCHES. THE FOLLOWING REPRESENTS OUR INTERPRETATION OF THE STANDARD PENETRATION TEST WITH VARIATIONS.

BLOWS/FOOT (N-VALUE)	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12" AFTER INITIAL 6" SEATING
75/10"	75 BLOWS DROVE SAMPLER 10" AFTER INITIAL 6" SEATING
50/PR	PENETRATION REFUSAL OF SAMPLER AFTER INITIAL 6" SEATING

SAMPLING SYMBOLS

ST:	UNDISTURBED SAMPLE
SS:	SPLIT SPOON SAMPLE
CORE:	ROCK CORE SAMPLE
AU:	AUGER OR BAG SAMPLE

SOIL PROPERTY SYMBOLS

N:	STANDARD PENETRATION, BPF
M:	MOISTURE CONTENT %
LL:	LIQUID LIMIT %
PI:	PLASTICITY INDEX %
Qp:	POCKET PENETROMETER VALUE, TSF
Qu:	UNCONFINED COMPRESSIVE STRENGTH, TSF
DUW:	DRY UNIT WEIGHT, PCF

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)

PERCENT	QUALITY
90 TO 100	EXCELLENT
75 TO 90	GOOD
50 TO 75	FAIR
25 TO 50	POOR
0 TO 25	VERY POOR

ROCK HARDNESS

VERY SOFT:	ROCK DISINTEGRATES OR EASILY COMPRESSES TO TOUCH: CAN BE HARD TO VERY HARD SOIL.
SOFT:	ROCK IS COHERANT BUT BREAKS EASILY TO THUMB PRESSURE AT SHARP EDGES AND CRUMBLES WITH FIRM HAND PRESSURE.
MODERATELY HARD:	SMALL PIECES CAN BE BROKEN OFF ALONG SHARP EDGES BY CONSIDERABLE HARD THUMB PRESSURE: CAN BE BROKEN BY LIGHT HAMMER BLOWS.
HARD:	ROCK CAN NOT BE BROKEN BY THUMB PRESSURE, BUT CAN BE BROKEN BY MODERATE HAMMER BLOWS.
VERY HARD:	ROCK CAN BE BROKEN BY HEAVY HAMMER BLOWS.

GEOS

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GEOS
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Consolidated Interim Storage Facility
Andrews, Texas
GEOServices Project No.: 31-151247

LOG OF BORING B-101
SHEET 1 OF 3

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	3-12-7 N=19				3.6	**Silty SAND (SM)** with caliche - brown; fine grained; loose and medium dense; dry; **(RESIDUUM)**
2.5	-2.5	3.0	4.5	2	SS	5-5-3 N=8				3.9	
5.0	-5.0	5.0	6.5	3	SS	4-10-12 N=22				6.5	
7.5	-7.5	8.0	9.5	4	SS	17-30-48 N=78				7.8	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
10.0	-10.0										
12.5	-12.5	13.0	14.5	5	SS	30-59-39 N=98				6.7	
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	20-24-31 N=55				5.7	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-101

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	23-34-55 N=89				5.7	
25.0	-25.0										
27.5	-27.5										
		28.0	28.7	8	SS	42-64/2" N=64/2"					
30.0	-30.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		31.0	31.2	9	SS	N=50/2"				5.7	
32.5	-32.5										
		33.0	33.2	10	SS	N=74/2"				7.7	
35.0	-35.0										
37.5	-37.5										
		38.0	38.3	11	SS	N=81/3"					
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-101

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
42.5	-42.5	43.0	43.2	12	SS	N=80/2"					**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
45.0	-45.0										**AUGER REFUSAL AT 45 FEET**
47.5	-47.5										
50.0	-50.0										
52.5	-52.5										
55.0	-55.0										
57.5	-57.5										
60.0	-60.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-102

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-102

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	7-6-4 N=10				3.4	**Silty SAND (SM)** with caliche - brown; fine grained; loose to very dense; dry; **(RESIDUUM)**
2.5	-2.5	3.0	3.8	2	SS	10-48/3" N=48/3"				2.8	
5.0	-5.0	5.0	6.5	3	SS	16-26-20 N=46				2.9	**Silty SAND (SM)** with caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	8.0	9.5	4	SS	25-28-27 N=55				4.0	
10.0	-10.0										
12.5	-12.5	13.0	13.8	5	SS	34-37/3" N=37/3"				6.0	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	43-20/3" N=20/3"				5.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-102
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-102

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	26-24/3" N=24/3"				2.9	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-103

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-103

DATE July 17, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	2-3-4 N=7		26	NP	4.3	**Silty SAND (SM)** with caliche - brown; fine grained; loose; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	8-5-8 N=13				4.8	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	7-7-9 N=16				5.8	
10.0	-10.0	8.0	9.5	4	SS	16-27-39 N=66				7.1	
12.5	-12.5	13.0	14.4	5	SS	23-35-45/5" N=45/5"				6.3	
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	17-26-40 N=66				6.1	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-103
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-103

DATE July 17, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	17-23-33 N=56				4.5	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-104
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-104

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.3	1	SS	2-32-37/3" N=37/3"				3.1	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	3.8	2	SS	64-43/3" N=43/3"				2.5	**Silty SAND (SM)** with caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	13-18-21 N=39				4.1	
7.5	-7.5										
		8.0	9.5	4	SS	17-26-45 N=71				6.9	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.5	5	SS	18-33-43 N=76				6.0	
15.0	-15.0										
17.5	-17.5										
		18.0	19.5	6	SS	23-28-50 N=78				4.6	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-104
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-104

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	15-23-39 N=62				3.1	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-105

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-105

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	1.8	1	SS	6-50/4" N=50/4"				3.3	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
5.0	-5.0	5.0	6.5	2	SS	10-14-18 N=32				5.3	
7.5	-7.5	8.0	9.5	3	SS	14-27-29 N=56				8.1	
10.0	-10.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
12.5	-12.5	13.0	13.5	4	SS	60+ N=>60				4.8	
15.0	-15.0										
17.5	-17.5	18.0	19.0	5	SS	30-40+ N=>40				4.1	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-105
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-105

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.5	6	SS	65+ N=>65					**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-106

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-106

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	13-33-26 N=59				4.5	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	9-14-8 N=22				3.9	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-16-21 N=37				3.9	
10.0	-10.0	8.0	9.5	4	SS	7-19-33 N=52				5.3	
12.5	-12.5	13.0	13.9	5	SS	33-50/5" N=50/5"				6.7	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	25-35-50/6" N=50/6"				6.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-106

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-106

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.4	7	SS	12-37-50/5" N=50/5"				6.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-107

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-107

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	1.8	1	SS	7-50/4" N=50/4"				5.3	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	7-25-33 N=58				4.5	
5.0	-5.0										
		5.0	6.5	3	SS	9-16-20 N=36				4.1	
7.5	-7.5										**Silty SAND (SM)** with trace caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
		8.0	9.5	4	SS	22-32-41 N=73				5.7	
10.0	-10.0										
12.5	-12.5										
		13.0	14.0	5	SS	31-50/6" N=50/6"				7.2	
15.0	-15.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
17.5	-17.5										
		18.0	19.5	6	SS	16-32-50/6" N=50/6"				6.3	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-107
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-107

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.4	7	SS	15-32-50/5" N=50/5"				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-108

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-108

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	1-5-10 N=15				4.9	**Silty SAND (SM)** with caliche - brown to light brown; fine grained; medium dense; dry; **(RESIDUUM)**
2.5	-2.5	3.0	4.5	2	SS	2-9-16 N=25				4.9	
5.0	-5.0	5.0	6.5	3	SS	10-17-20 N=37				6.0	
7.5	-7.5	8.0	9.4	4	SS	14-32-23/5" N=23/5"				6.3	
10.0	-10.0										
12.5	-12.5	13.0	13.8	5	SS	22-30/4" N=30/4"				8.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	38-39/3" N=39/3"				6.6	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-108
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-108

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.4	7	SS	N=58/5"				6	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-109
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-109

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	3-31-23 N=54				3.4	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	6-15-24 N=39				4.2	
5.0	-5.0										
		5.0	6.5	3	SS	10-18-24 N=42				3.8	
7.5	-7.5										**Silty SAND (SM)** with caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
		8.0	9.0	4	SS	29-40+ N=>40				3.2	
10.0	-10.0										
12.5	-12.5										
		13.0	13.3	5	SS	47/3" N=47/3"				8.5	
15.0	-15.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
17.5	-17.5										
		18.0	18.7	6	SS	42-40+ N=>40				6.3	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas
GEOServices Project No.: 31-151247

LOG OF BORING B-109
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-109

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	32-33-30 N=63				4.7	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-110
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-110

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-27-16 N=43		29	NP	5.0	**Silty SAND (SM)** with caliche - brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	14-18-18 N=36				4.7	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	8-7-6 N=15				6.0	
10.0	-10.0	8.0	9.5	4	SS	9-14-28 N=42				8.9	
12.5	-12.5	13.0	14.0	5	SS	23-50+ N=>50				7.1	
15.0	-15.0										
17.5	-17.5	18.0	19.0	6	SS	36-40+ N=>40				5.1	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-110
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-110

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	20-32-52 N=84				4.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-111
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-111

DATE July 20, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 37.0 FT. ELEV. FT.
SAMPLED 37.0 FT. 11.3 M
TOP OF ROCK DEPTH 37.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 37.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	5-24-65 N=89				6.7	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	15-16-12 N=28				4.5	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	12-19-33 N=52				5.2	
7.5	-7.5										
		8.0	9.5	4	SS	14-19-32 N=51				4.3	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.0	5	SS	35-60+ N=>60				6.6	
15.0	-15.0										
17.5	-17.5										
		18.0	19.0	6	SS	32-90+ N=>90				5.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-111
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-111

DATE July 20, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 37.0 FT. ELEV. FT.
SAMPLED 37.0 FT. 11.3 M
TOP OF ROCK DEPTH 37.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 37.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.0	7	SS	37-65+ N=>65				6	
25.0	-25.0										
27.5	-27.5										
		28.0	29.5	8	SS	34-33-33 N=66				4.3	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
30.0	-30.0										
32.5	-32.5										
		33.0	34.5	9	SS	24-31-48 N=79				2.5	
35.0	-35.0										
37.5	-37.5										**AUGER REFUSAL AT 37 FEET**
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-1
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-1

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	20-32-16 N=48				3.3	**Silty SAND (SM)** with caliche - brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	22-30-22 N=52				3.9	**Silty SAND (SM)** with caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	13-20-19 N=39				6.7	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
10.0	-10.0	8.0	9.5	4	SS	13-19-24 N=43				6.2	
12.5	-12.5	13.0	14.3	5	SS	16-19-19/4" N=19/4"				4.3	
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	29-21/3" N=21/3"				4.9	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-1
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-1

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	26-24/4" N=24/4"				3.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-2
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-2

DATE July 13, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-4-5 N=9				4.8	**Silty SAND (SM)** with caliche - brown; fine grained; loose; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	10-10-13 N=23				5.7	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-12-17 N=29				5.5	
10.0	-10.0	8.0	9.5	4	SS	10-17-20 N=37				3.7	**Silty SAND (SM)** with trace caliche - orangish brown; dense; dry; **(RESIDUUM)**
12.5	-12.5	13.0	14.5	5	SS	7-25-30 N=55				3.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	16-22-30 N=52				3.1	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-2
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-2

DATE July 13, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	38-50/4" N=50/4"					**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-1

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-1

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-24-15 N=39				3.0	**Silty SAND (SM)** with caliche - grayish brown and brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	24-38-27 N=65				2.8	**Silty SAND (SM)** with caliche -light brown to brown; fine grained; very dense to dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-12-20 N=32				4.8	
10.0	-10.0	8.0	9.5	4	SS	20-20-28 N=48				2.8	
12.5	-12.5	13.0	14.3	5	SS	20-48-32/3" N=32/3"				5.8	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.3	6	SS	26-48-26/3" N=26/3"				5.4	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-1
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-1

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	15-16-20 N=36				2.7	
25.0	-25.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
27.5	-27.5										
		28.0	29.3	8	SS	28-50-22/3" N=22/3"				3.0	
30.0	-30.0										
32.5	-32.5										
		33.0	33.4	10	SS	N=76/5"				3.7	
35.0	-35.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
37.5	-37.5										
		38.0	38.3	11	SS	N=100/4"				4.6	
40.0	-40.0										

AUGER REFUSAL AT 40 FEET

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-2
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-2

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	1-2-2 N=4		28	NP	4.3	**Silty SAND (SM)** with trace caliche - brown; fine grained; very loose; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	9-11-11 N=22				4.8	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	8-10-15 N=25				3.9	
7.5	-7.5										
		8.0	9.5	4	SS	15-40-57 N=97				6.7	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.2	5	SS	25-55-25/2" N=25/2"				5.9	
15.0	-15.0										
17.5	-17.5										
		18.0	18.8	6	SS	23-70+ N=>70				5.9	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-2
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-2

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	8-29-35 N=64				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-3
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-3

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	11-9-8 N=17				4.3	**Silty SAND (SM)** with caliche - grayish brown; fine grained; medium desne; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	17-11-10 N=21				4.6	**Silty SAND (SM)** with caliche - brown; fine grained; very dense to dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	14-16-20 N=36				3.9	
7.5	-7.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		8.0	9.5	4	SS	17-37-48 N=85				5.5	
10.0	-10.0										
12.5	-12.5										
		13.0	14.5	5	SS	18-28-45 N=73				9.0	
15.0	-15.0										
17.5	-17.5										
		18.0	19.5	6	SS	17-33-50 N=83				4.5	
20.0	-20.0										

REMARKS:

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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-3
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-3

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	34-37-60 N=97				3.8	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-4
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-4

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	4-40-20 N=60				3.7	**Silty SAND (SM)** with caliche - grayish brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	18-18-16 N=34				3.9	**Silty SAND (SM)** with trace caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	20-20-30 N=50				6.6	
7.5	-7.5										
		8.0	9.5	4	SS	14-24-35 N=59				7.4	**Silty SAND (SM)** with trace caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
10.0	-10.0										
12.5	-12.5										
		13.0	14.2	5	SS	20-35-47/2" N=47/2"				5.2	
15.0	-15.0										
17.5	-17.5										
		18.0	19.2	6	SS	19-34-51/2" N=51/2"				4.3	
20.0	-20.0										

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-4
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-4

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	20-34-51 N=85				3.9	
25.0	-25.0										**Silty SAND (SM)** - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
27.5	-27.5										
		28.0	28.8	8	SS	62-47/3" N=47/3"				6.5	
30.0	-30.0										
32.5	-32.5										
		33.0	33.3	9	SS	N=100/4"				3.3	
35.0	-35.0										**Silty SAND (SM)** - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
37.5	-37.5										
		38.0	38.1	10	SS	N=100/1"				3.5	
40.0	-40.0										

AUGER REFUSAL AT 40 FEET

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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-5
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-5

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	18-10-12 N=22				4.6	**Silty SAND (SM)** with caliche - grayish brown; fine grained; medium dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	6-11-8 N=19				5.2	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to loose to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	2-2-3 N=5				5.5	
7.5	-7.5										
		8.0	9.5	4	SS	15-24-39 N=63				8.1	
10.0	-10.0										
12.5	-12.5										
		13.0	14.5	5	SS	26-46-60 N=106				6.4	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5										
		18.0	19.3	6	SS	22-39-58 N=97				5.0	
20.0	-20.0										

REMARKS:

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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-5
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-5

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	24-41-45 N=86				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

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APPENDIX B

SOIL DATA SUMMARY
Consolidated Interim Storage Facility - Andrews, Texas
GEOServices Project No. 31-151247
August 5, 2015

Boring Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Finer than 200 Sieve (%)	Soil Type
				LL	PL	PI		
B-101	1	1.0 - 2.5	3.6%				48	
	2	3.0 - 4.5	3.9%					
	3	5.0 - 6.5	6.5%					
	4	8.0 - 9.5	7.8%				37	
	5	13.0 - 14.5	6.7%					
	6	18.0 - 19.5	5.7%					
	7	23.0 - 24.5	5.7%					
	9	31.0 - 31.2	5.7%					
	10	33.0 - 33.2	7.7%					
B-102	1	1.0 - 2.5	3.4%					
	2	3.0 - 3.8	2.8%					
	3	5.0 - 6.5	2.9%					
	4	8.0 - 9.5	4.0%					
	5	13.0 - 13.8	6.0%					
	6	18.0 - 18.8	5.8%					
	7	23.0 - 23.8	2.9%					
B-103	1	1.0 - 2.5	4.3%	26	N.P.			
	2	3.0 - 4.5	4.8%					
	3	5.0 - 6.5	5.8%					
	4	8.0 - 9.5	7.1%					
	5	13.0 - 14.4	6.3%					
	6	18.0 - 19.5	6.1%					
	7	23.0 - 24.5	4.5%					
B-104	1	1.0 - 2.3	3.1%					
	2	3.0 - 3.8	2.5%					
	3	5.0 - 6.5	4.1%					
	4	8.0 - 9.5	6.9%					
	5	13.0 - 14.5	6.0%					
	6	18.0 - 19.5	4.6%					
	7	23.0 - 24.5	3.1%					
B-105	1	1.0 - 1.8	3.3%					
	2	5.0 - 6.5	5.3%					
	3	8.0 - 9.5	8.1%					
	4	13.0 - 13.5	4.8%					
	6	18.0 - 19.0	4.1%					

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SOIL DATA SUMMARY
Consolidated Interim Storage Facility - Andrews, Texas
GEOServices Project No. 31-151247
August 5, 2015

Boring Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Finer than 200 Sieve (%)	Soil Type
				LL	PL	PI		
B-106	1	1.0 - 2.5	4.5%					
	2	3.0 - 4.5	3.9%					
	3	5.0 - 6.5	3.9%					
	4	8.0 - 9.5	5.3%				41	
	5	13.0 - 13.9	6.7%					
	6	18.0 - 19.5	6.8%					
	7	23.0 - 24.4	6.2%					
B-107	1	1.0 - 1.8	5.3%					
	2	3.0 - 4.5	4.5%					
	3	5.0 - 6.5	4.1%					
	4	8.0 - 9.5	5.7%					
	5	13.0 - 14.0	7.2%					
	6	18.0 - 19.5	6.3%					
	7	23.0 - 24.4	4.2%					
B-108	1	1.0 - 2.5	4.9%					
	2	3.0 - 4.5	4.9%					
	3	5.0 - 6.5	6.0%					
	4	8.0 - 9.4	6.3%					
	5	13.0 - 13.8	8.4%					
	6	18.0 - 18.8	6.6%					
	7	23.0 - 23.4	6.0%					
B-109	1	1.0 - 2.5	3.4%					
	2	3.0 - 4.5	4.2%					
	3	5.0 - 6.5	3.8%					
	4	8.0 - 9.0	3.2%					
	5	13.0 - 13.3	8.5%					
	6	18.0 - 18.7	6.3%					
	7	23.0 - 24.5	4.7%					
B-110	1	1.0 - 2.5	5.0%	29	N.P.			
	2	3.0 - 4.5	4.7%					
	3	5.0 - 6.5	6.0%					
	4	8.0 - 9.5	8.9%					
	5	13.0 - 14.0	7.1%					
	6	18.0 - 19.0	5.1%					
	7	23.0 - 24.5	4.4%					

SOIL DATA SUMMARY
Consolidated Interim Storage Facility - Andrews, Texas
GEOServices Project No. 31-151247
August 5, 2015

Boring Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Finer than 200 Sieve (%)	Soil Type
				LL	PL	PI		
B-111	1	1.0 - 2.5	6.7%					
	2	3.0 - 4.5	4.5%				44	
	3	5.0 - 6.5	5.2%					
	4	8.0 - 9.5	4.3%					
	5	13.0 - 14.0	6.6%				30	
	6	18.0 - 19.0	5.8%					
	7	23.0 - 24.0	6.0%					
	8	28.0 - 29.5	4.3%					
	9	33.0 - 34.5	2.5%					
AB-1	1	1.0 - 2.5	3.3%					
	2	3.0 - 4.5	3.9%					
	3	5.0 - 6.5	6.7%					
	4	8.0 - 9.5	6.2%				24	
	5	13.0 - 14.3	4.3%					
	6	18.0 - 18.8	4.9%					
	7	23.0 - 23.8	3.2%					
AB-2	1	1.0 - 2.5	4.8%				35	
	2	3.0 - 4.5	5.7%					
	3	5.0 - 6.5	5.5%					
	4	8.0 - 9.5	3.7%					
	5	13.0 - 14.5	3.4%					
	6	18.0 - 19.5	3.1%					
TF-1	1	1.0 - 2.5	3.0%					
	2	3.0 - 4.5	2.8%				45	
	3	5.0 - 6.5	4.8%					
	4	8.0 - 9.5	2.8%					
	5	13.0 - 14.3	5.8%					
	6	18.0 - 19.3	5.4%					
	7	23.0 - 24.5	2.7%					
	8	28.0 - 29.3	3.0%					
	9	33.0 - 33.4	3.7%					
	10	38.0 - 38.3	4.6%					
TF-2	1	1.0 - 2.5	4.3%	28	N.P.			
	2	3.0 - 4.5	4.8%					
	3	5.0 - 6.5	3.9%					
	4	8.0 - 9.5	6.7%					
	5	13.0 - 14.2	5.9%					
	6	18.0 - 18.8	5.9%					
	7	23.0 - 24.5	4.2%					

SOIL DATA SUMMARY
Consolidated Interim Storage Facility - Andrews, Texas
GEOServices Project No. 31-151247
August 5, 2015

Boring Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Finer than 200 Sieve (%)	Soil Type
				LL	PL	PI		
TF-3	1	1.0 - 2.5	4.3%					
	2	3.0 - 4.5	4.6%					
	3	5.0 - 6.5	3.9%					
	4	8.0 - 9.5	5.5%					
	5	13.0 - 14.5	9.0%					
	6	18.0 - 19.5	4.5%					
	7	23.0 - 24.5	3.8%					
TF-4	1	1.0 - 2.5	3.7%					
	2	3.0 - 4.5	3.9%					
	3	5.0 - 6.5	6.6%					
	4	8.0 - 9.5	7.4%					
	5	13.0 - 14.2	5.2%				34	
	6	18.0 - 19.2	4.3%					
	7	23.0 - 24.5	3.9%					
	8	28.0 - 28.8	6.5%					
	9	33.0 - 33.3	3.3%					
	10	38.0 - 38.1	3.5%					
TF-5	1	1.0 - 2.5	4.6%					
	2	3.0 - 4.5	5.2%					
	3	5.0 - 6.5	5.5%					
	4	8.0 - 9.5	8.1%					
	5	13.0 - 14.5	6.4%					
	6	18.0 - 19.5	5.0%					
	7	23.0 - 24.5	4.2%					

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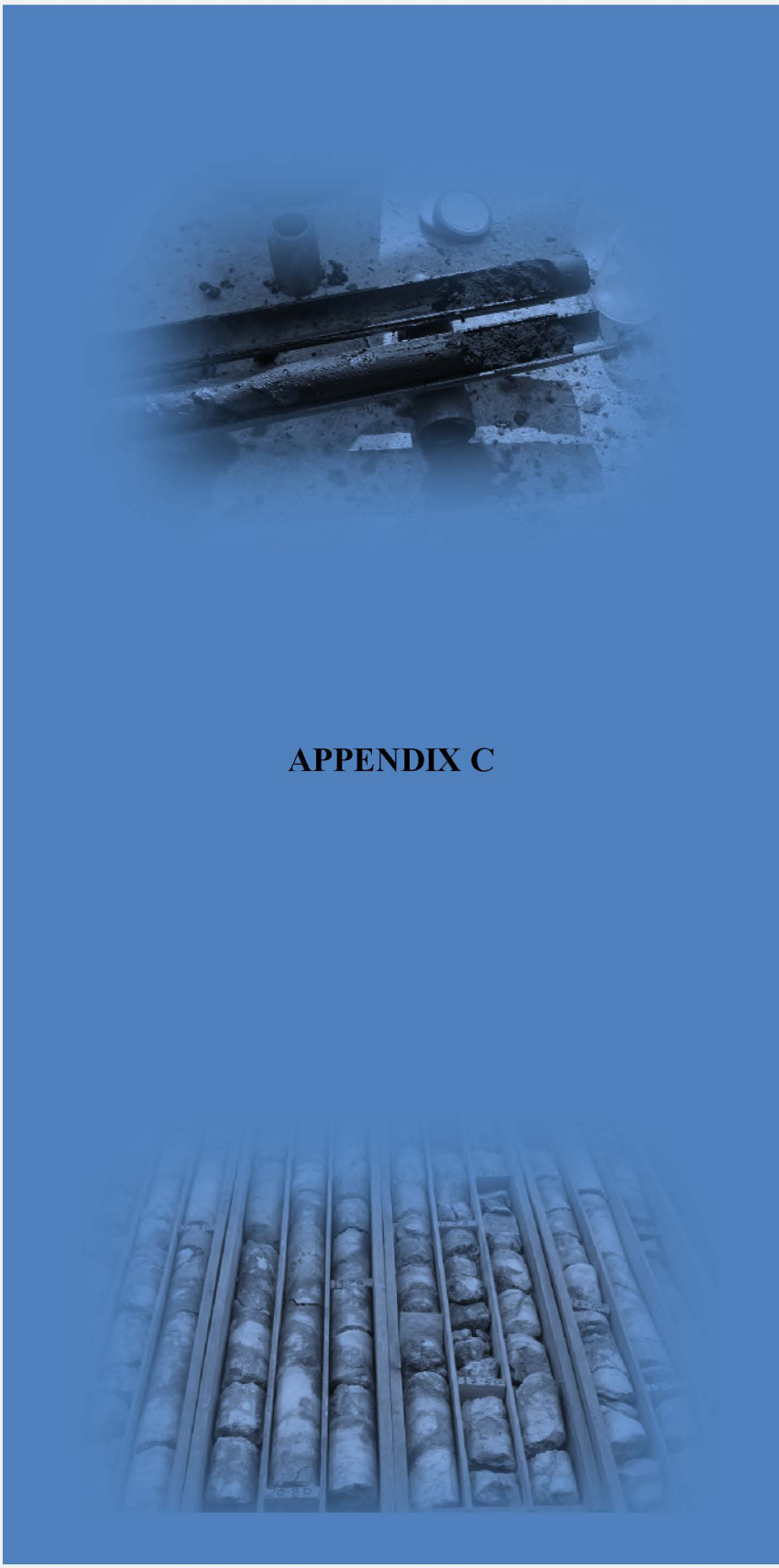

APPENDIX C

TABLE 8 - GENERALIZED PROFILE - SUMMARY TABLE OF SITE SOIL CHARACTERISTICS

Depth Range (ft)	Soil Description	Wet Unit Weight (pcf)	Allowable Static End Bearing (psf)*	Allowable Dynamic End Bearing (psf)*	Total Angle of Internal Friction (degrees)	Coefficient of Active Earth Pressure (K_a)	Coefficient of At-Rest Earth Pressure (K_0)	Coefficient of Passive Earth Pressure (K_p)	Liquefaction Potential	Lateral Modulus of Subgrade Reaction - K (pci)
0 -5	Loose to Medium Dense Silty Sand	95	2000	2660	27	0.376	0.546	2.663	NA	50
5 - 10	Medium Dense to Dense Silty Sand with Caliche	130	3000	3990	35	0.271	0.426	3.69	NA	90
10 - 45	Very Dense Silty Sand with Caliche	135	5000	6650	40	0.217	0.357	4.599	NA	225

*Allowable end bearing based on most shallow embedment. Once foundation bearing elevations are known, detailed information regarding bearing capacities and anticipated settlements can be provided.

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APPENDIX D

TABLE 9 - STATIC ELASTIC MODULUS CALCULATION

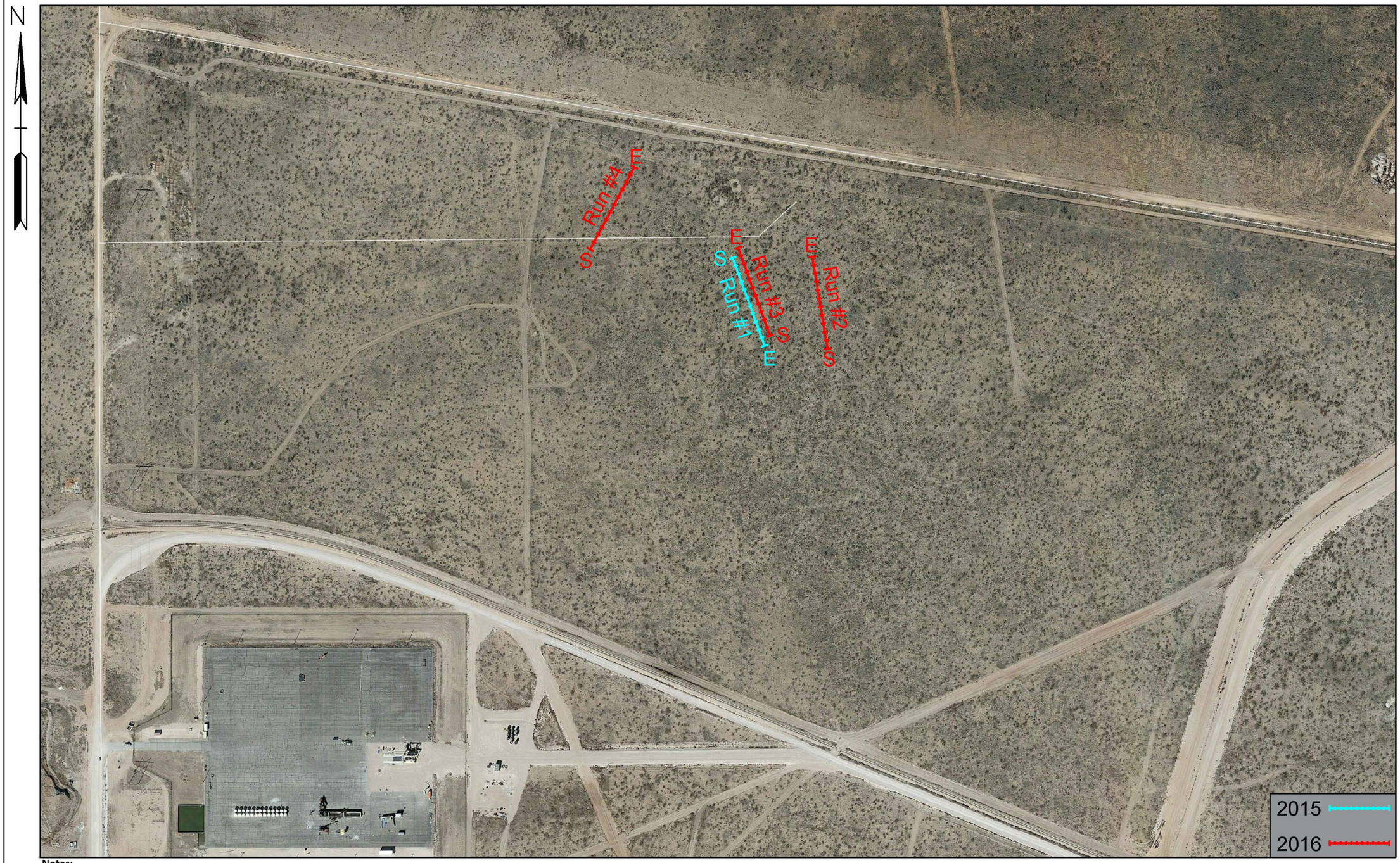
Total Depth Below Ground Surface d ft	Depth Below Slab z ft	Depth Range Below Slab ft	Shear Wave Velocity V_s ft/sec	Poisson's Ratio μ	Total Unit Wt. γ_t pcf	Mass Density ρ slug/ft^3	Shear Modulus G_0 psf	Shear Modulus G_0 psi	Elastic Modulus E_0 psf	Elastic Modulus E_0 psi	Modulus Degradation E/E_0	Static Elastic Modulus E_s psi
5	3	0-3	820.3	0.35	125	3.88	2612159	18140	7052829	48978	0.2	9796
10	8	3-8	820.3	0.35	125	3.88	2612159	18140	7052829	48978	0.2	9796
15	13	8-13	1394	0.35	125	3.88	7543618	52386	20367769	141443	0.2	28289
21	19	13-19	1498	0.35	125	3.88	8711196	60494	23520228	163335	0.2	32667
25	23	19-23	1498	0.35	125	3.88	8711196	60494	23520228	163335	0.2	32667
30	28	23-28	1498	0.35	125	3.88	8711196	60494	23520228	163335	0.2	32667
35	33	28-33	1498	0.35	125	3.88	8711196	60494	23520228	163335	0.2	32667
40	38	33-38	2558	0.35	125	3.88	25401258	176398	68583396	476274	0.2	95255
45	43	38-43	2558	0.35	125	3.88	25401258	176398	68583396	476274	0.2	95255
50	48	43-48	2558	0.35	125	3.88	25401258	176398	68583396	476274	0.2	95255
55	53	38-53	2558	0.35	125	3.88	25401258	176398	68583396	476274	0.2	95255
60	58	53-58	2558	0.35	125	3.88	25401258	176398	68583396	476274	0.2	95255
65	63	58-63	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
70	68	63-68	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
75	73	68-73	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
80	78	73-78	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
85	83	78-83	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
90	88	83-88	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
95	93	88-93	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263
100	98	93-98	2228	0.35	125	3.88	19270124	133820	52029335	361315	0.2	72263

Notes: Shear wave velocities were those calculated during site specific seismic study. The plot is attached to this document

GEOS

GEOServices, LLC-Geotechnical and Materials Engineers

APPENDIX E



Notes:

1) S = Start of Seismic Shear Wave Velocity Profile
2) E = End of Seismic Shear Wave Velocity Profile

Seismic Shear Wave Velocity Profile Location & Identifier

Aerial Source Provided by: Google Earth Pro, (02/12/2014)

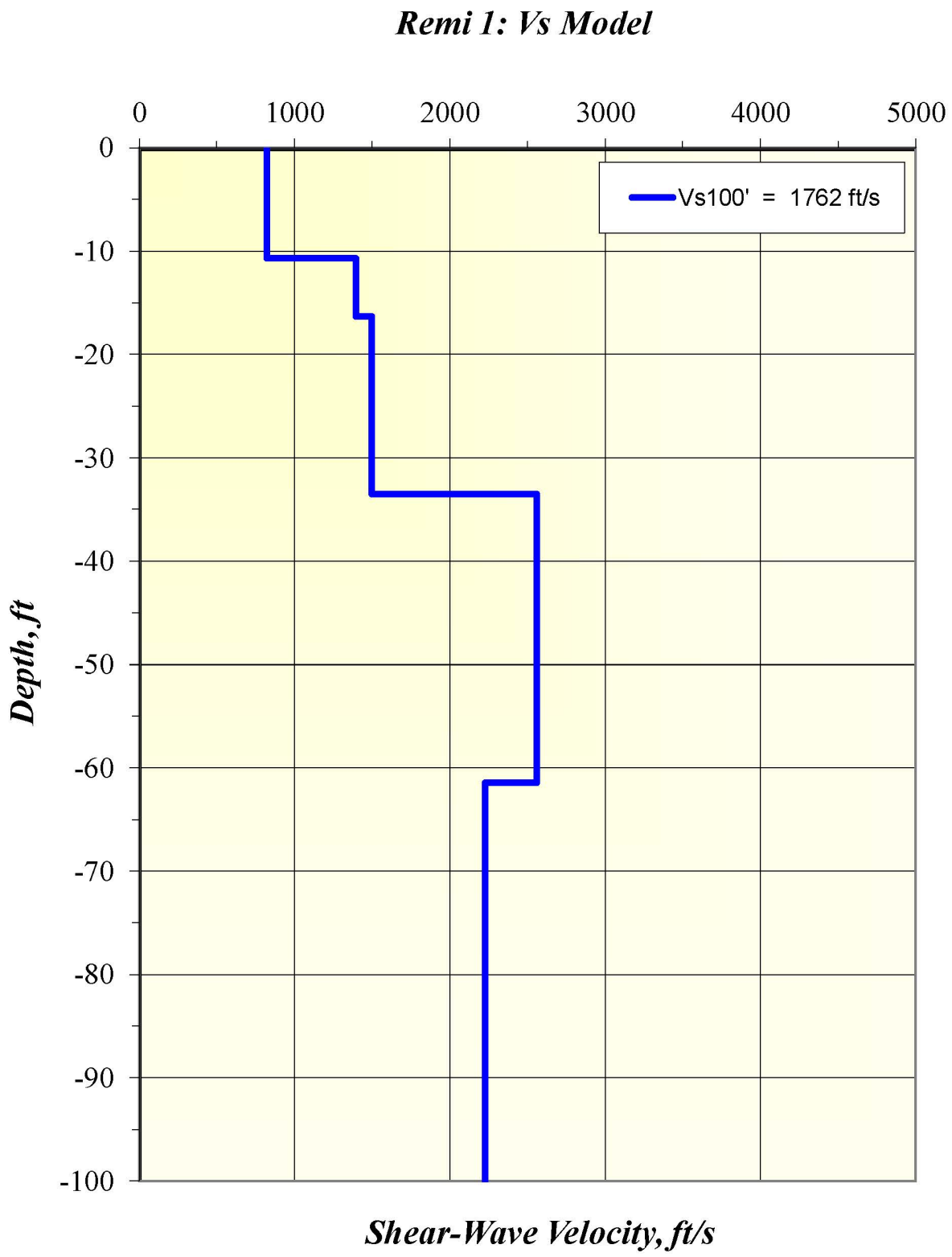
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Seismic Shear Wave Velocity Location Plan
Consolidated Interim Storage Facility
Andrews, Texas

DATE:
07/14/2016

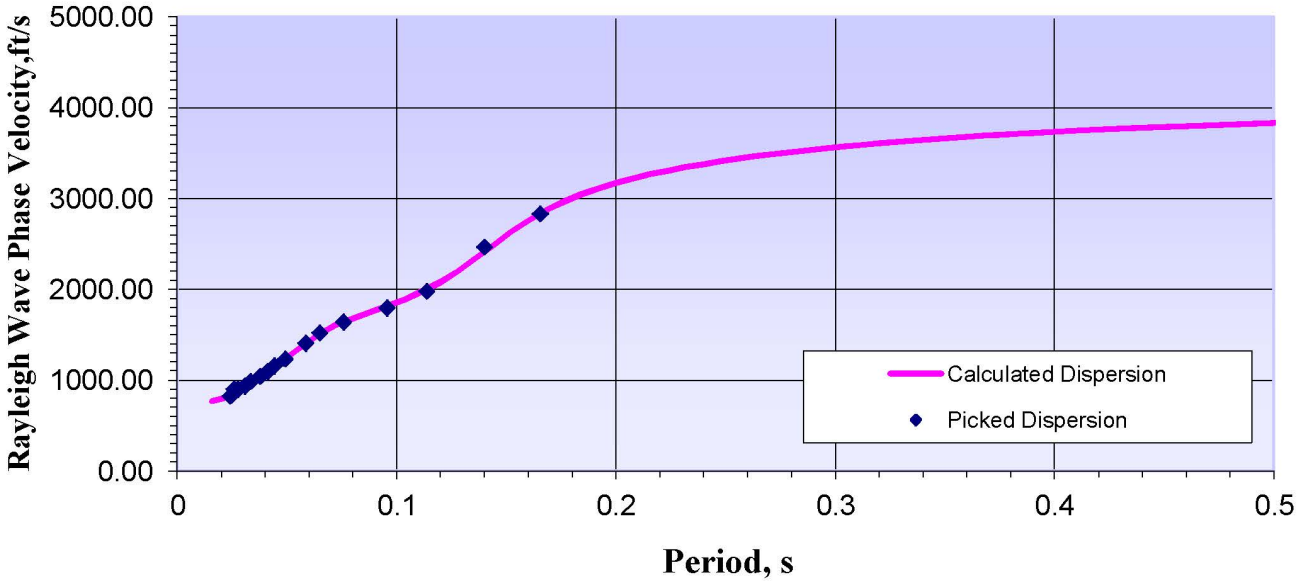
GEOS Project No.
31-151247

FIGURE:
12

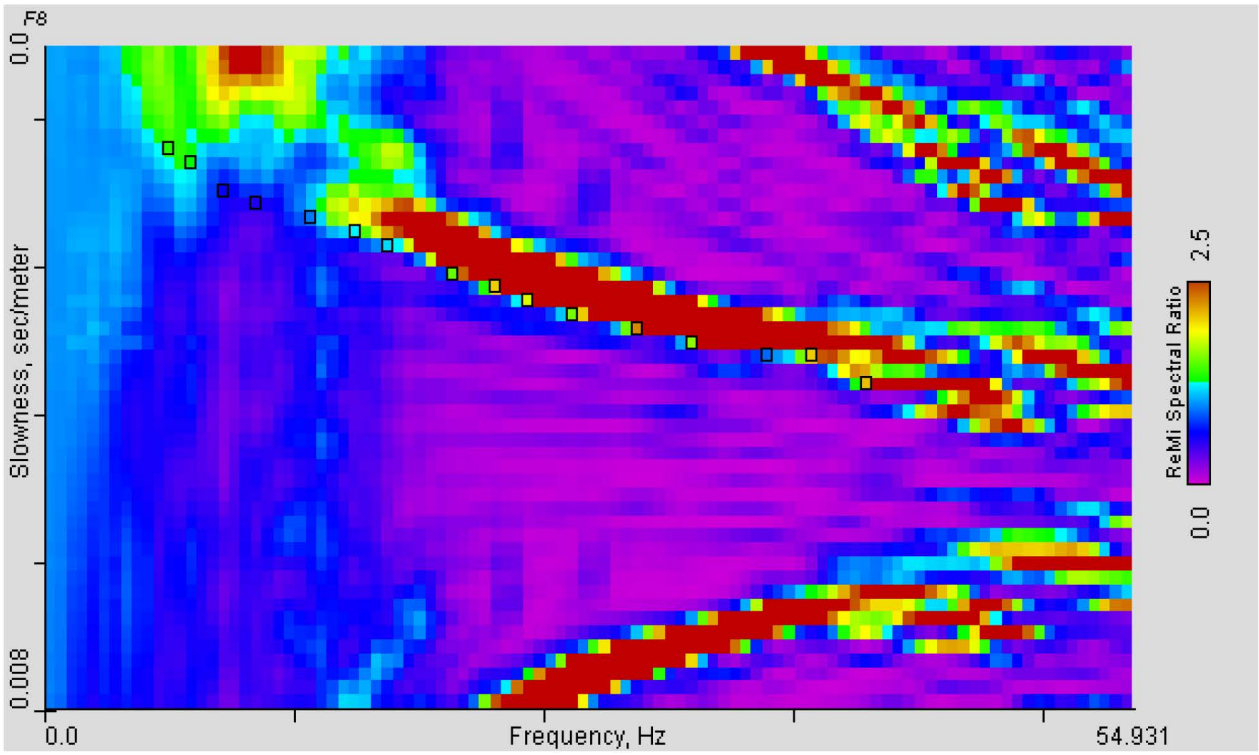

Remi 1: Vs Model
0
1000
2000
3000
4000
5000
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Depth, ft
Vs100' = 1762 ft/s
Shear-Wave Velocity, ft/s

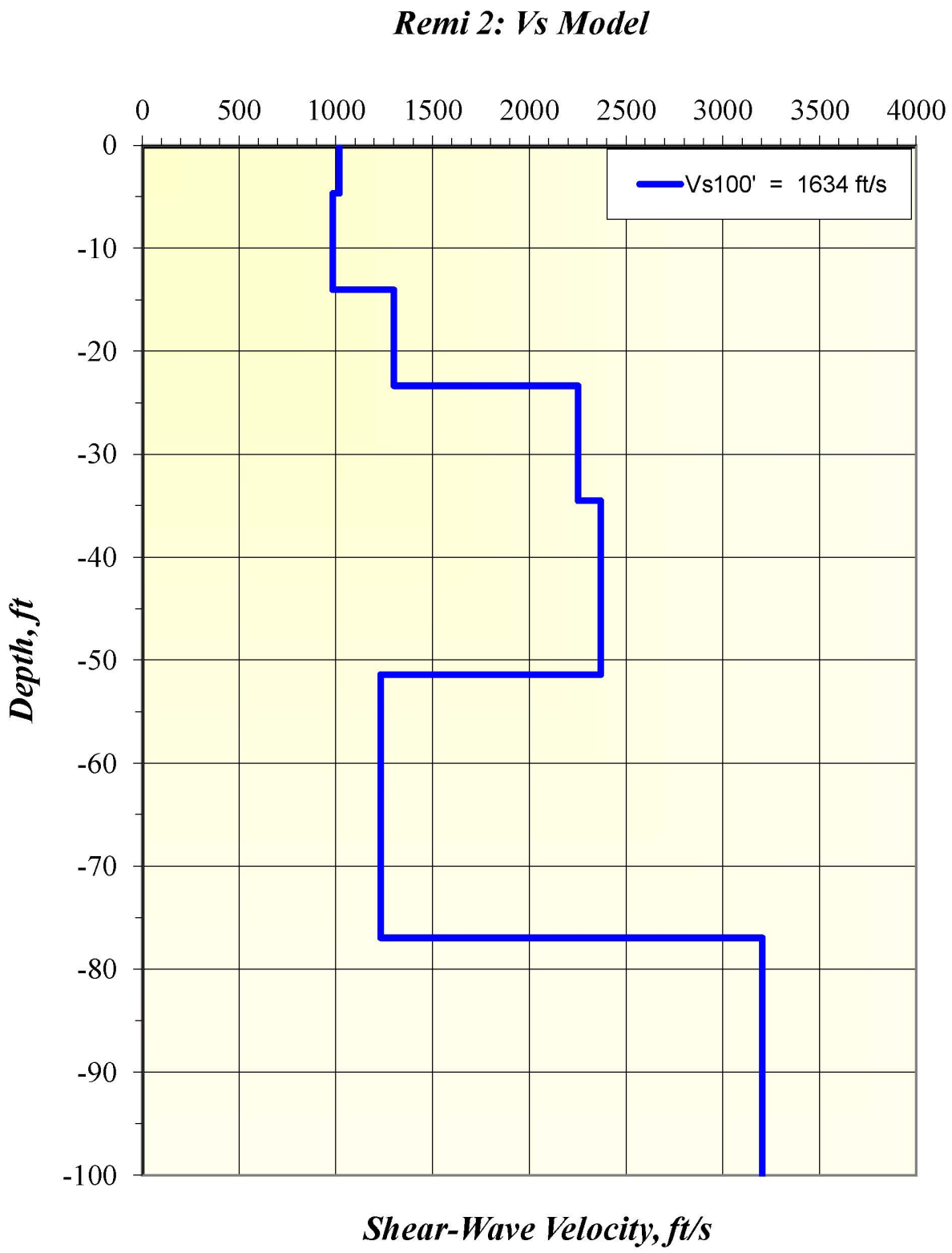
Remi 1: Supportive Illustration

Dispersion Curve Showing Picks and Fit



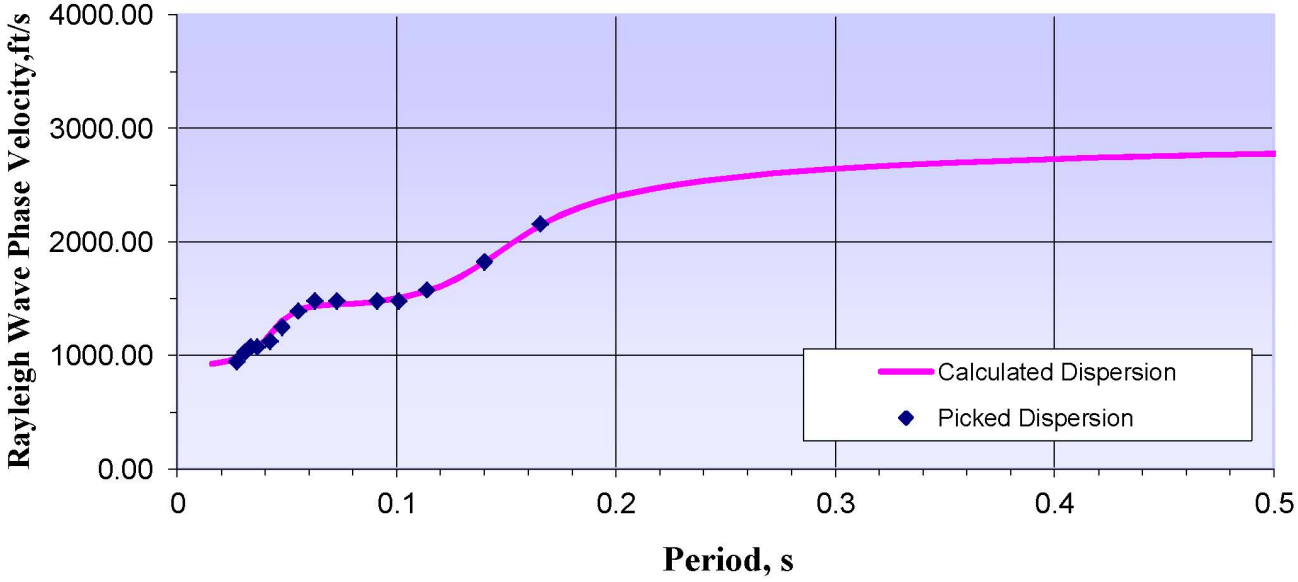
p-f Image with Dispersion Modeling Picks



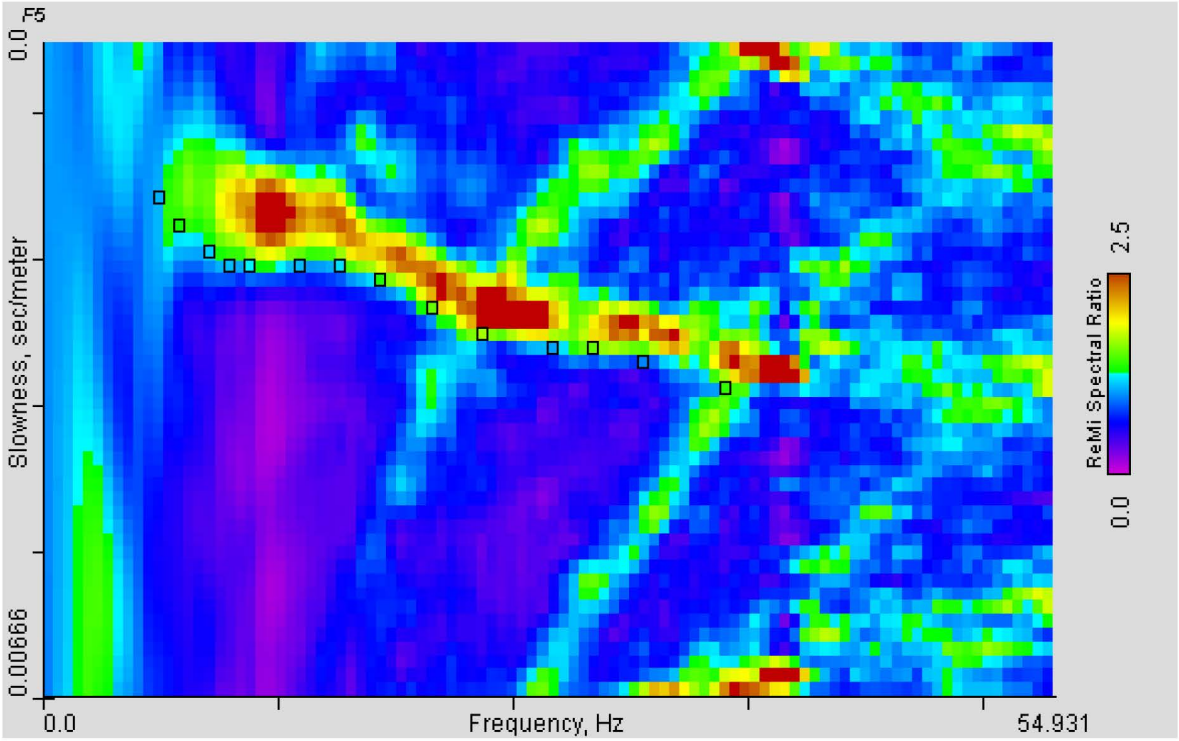

Remi 2: Vs Model
0
500
1000
1500
2000
2500
3000
3500
4000
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Depth, ft
Vs100' = 1634 ft/s
Shear-Wave Velocity, ft/s

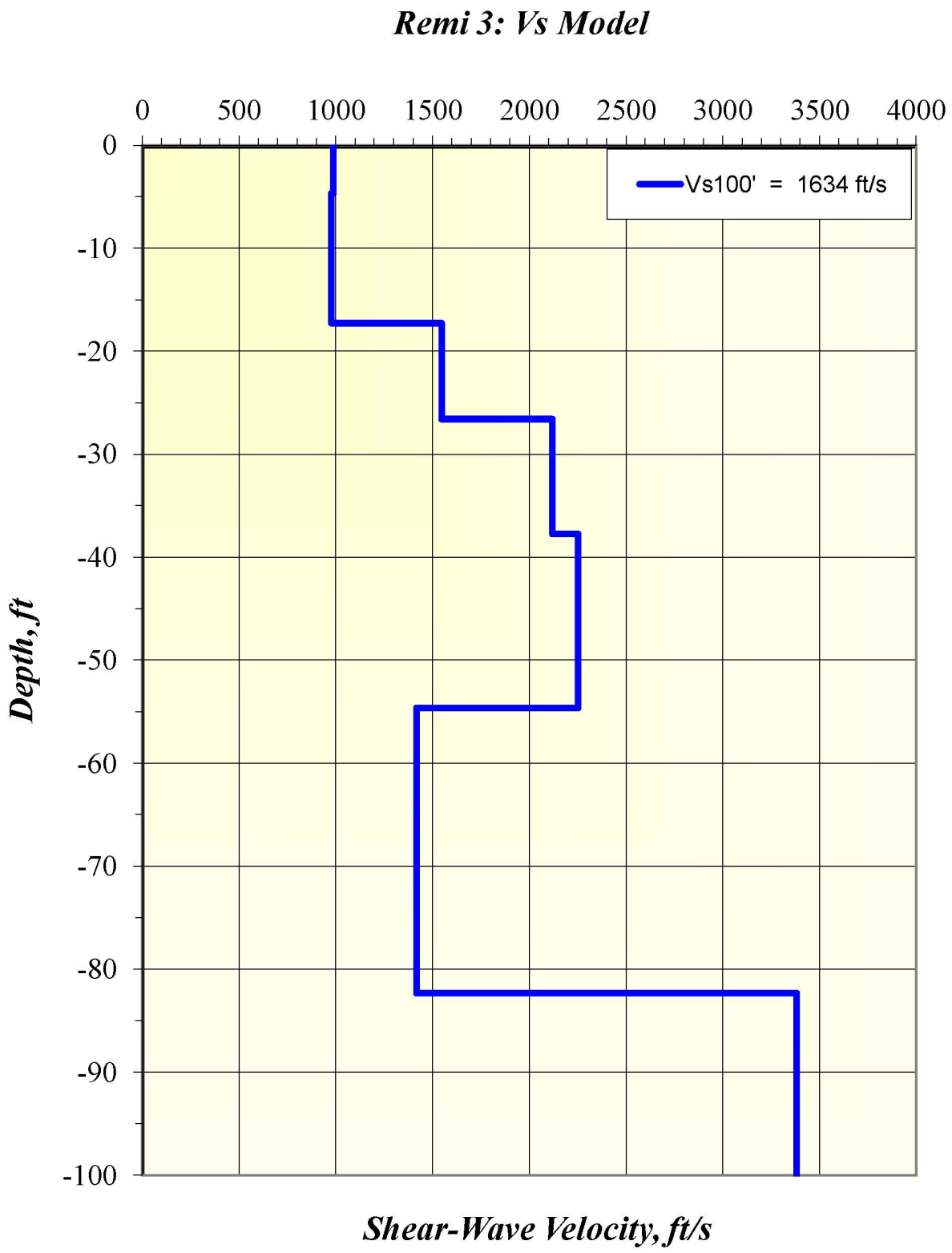
Remi 2: Supportive Illustration

Dispersion Curve Showing Picks and Fit



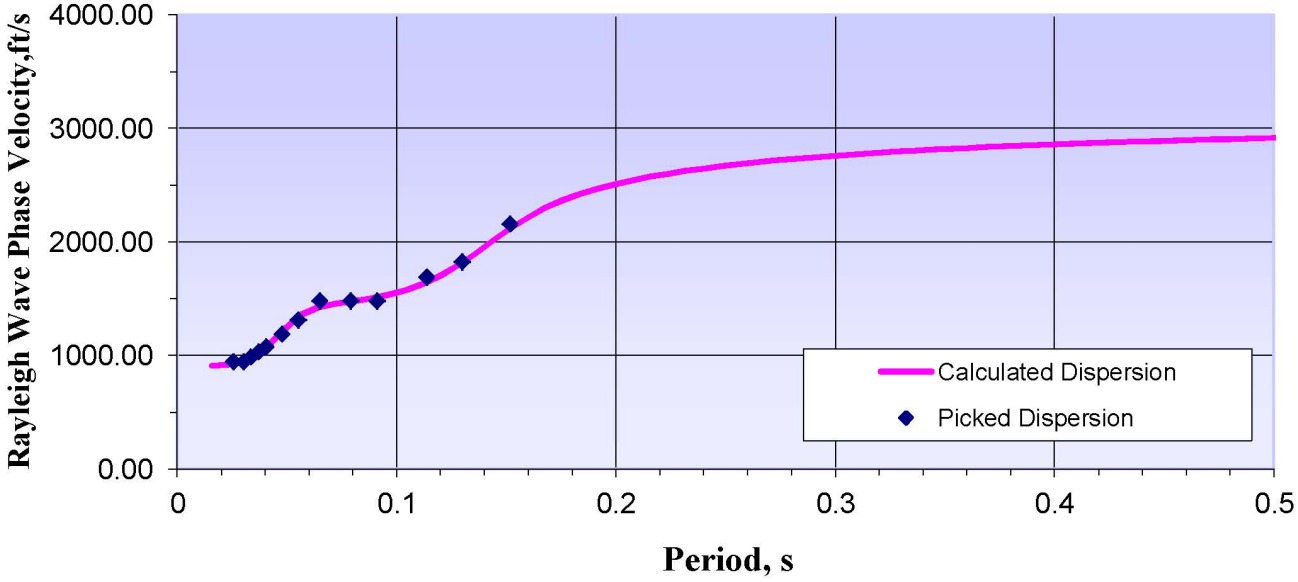
p-f Image with Dispersion Modeling Picks



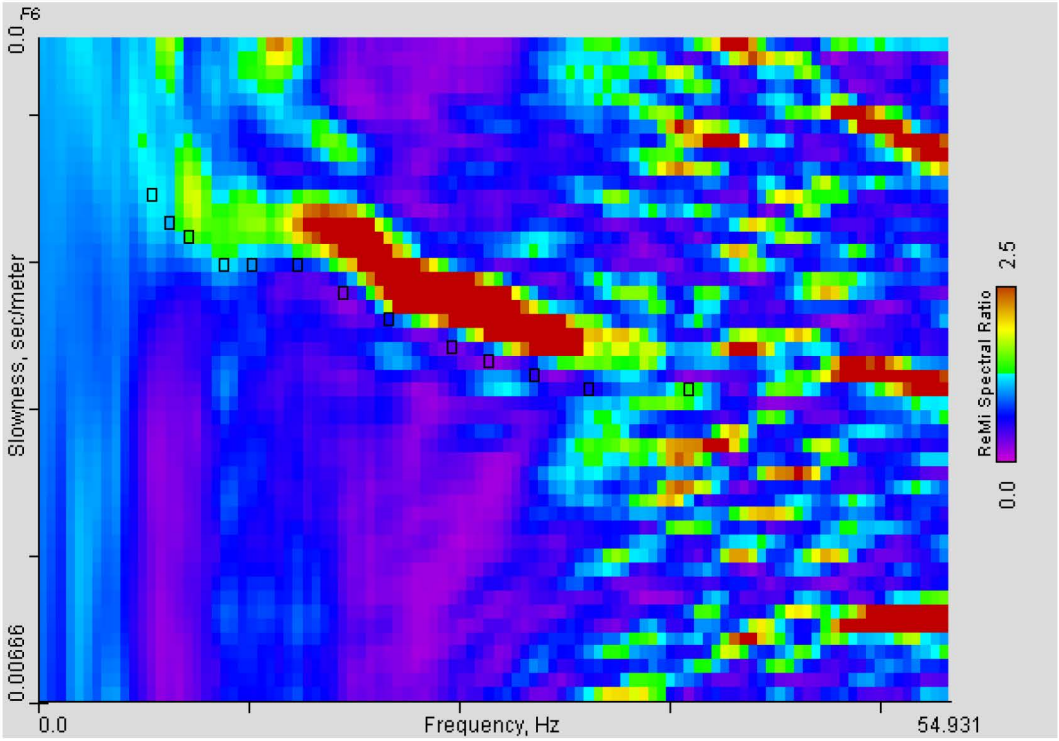

Remi 3: Vs Model
0
500
1000
1500
2000
2500
3000
3500
4000
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Depth, ft
Vs100' = 1634 ft/s
Shear-Wave Velocity, ft/s

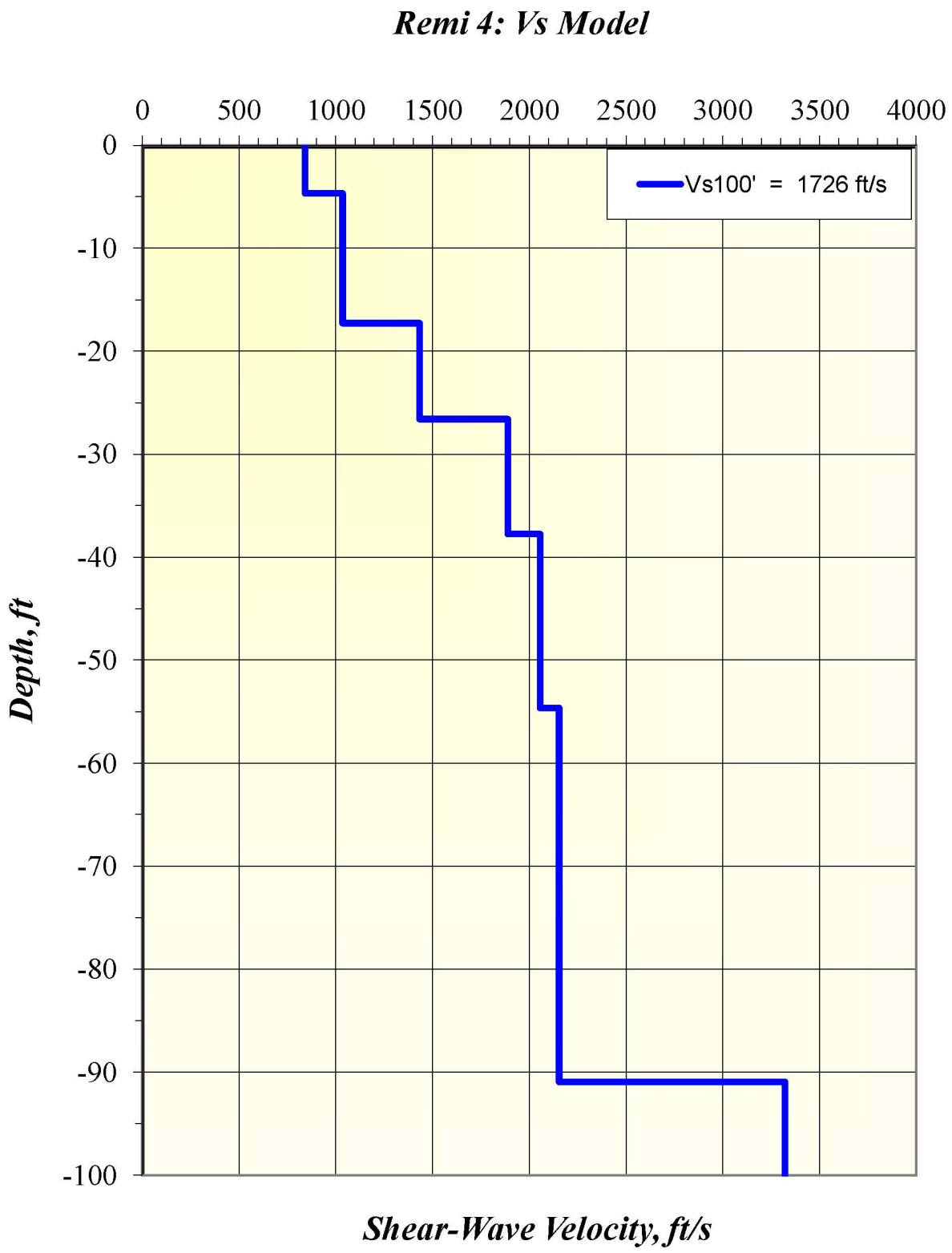
Remi 3: Supportive Illustration

Dispersion Curve Showing Picks and Fit



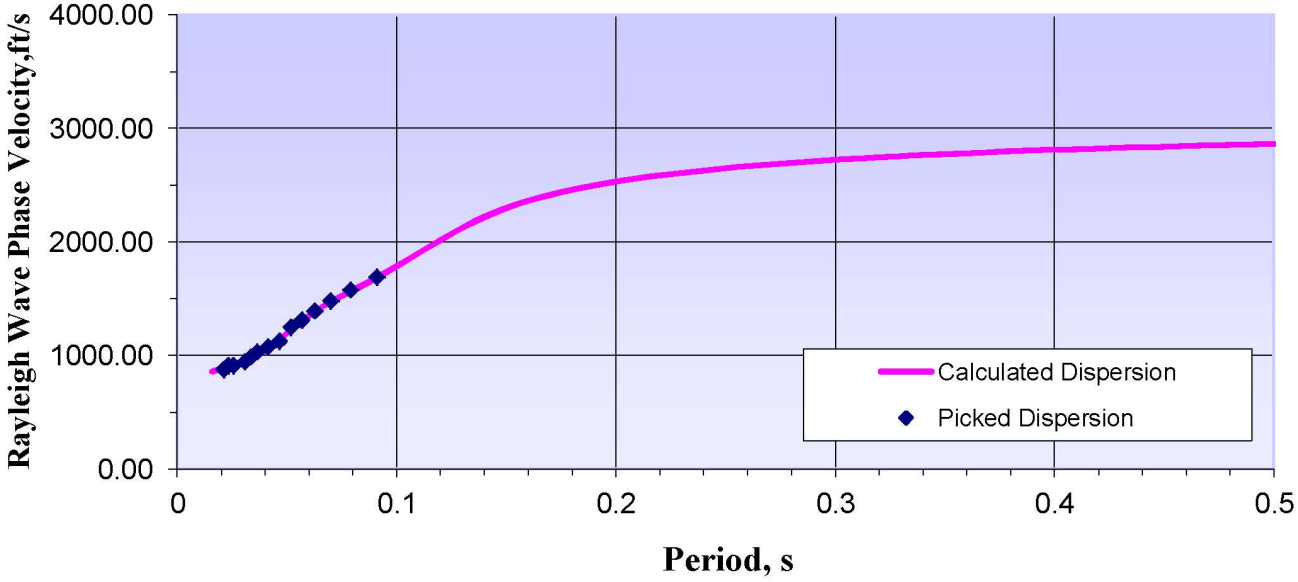
p-f Image with Dispersion Modeling Picks



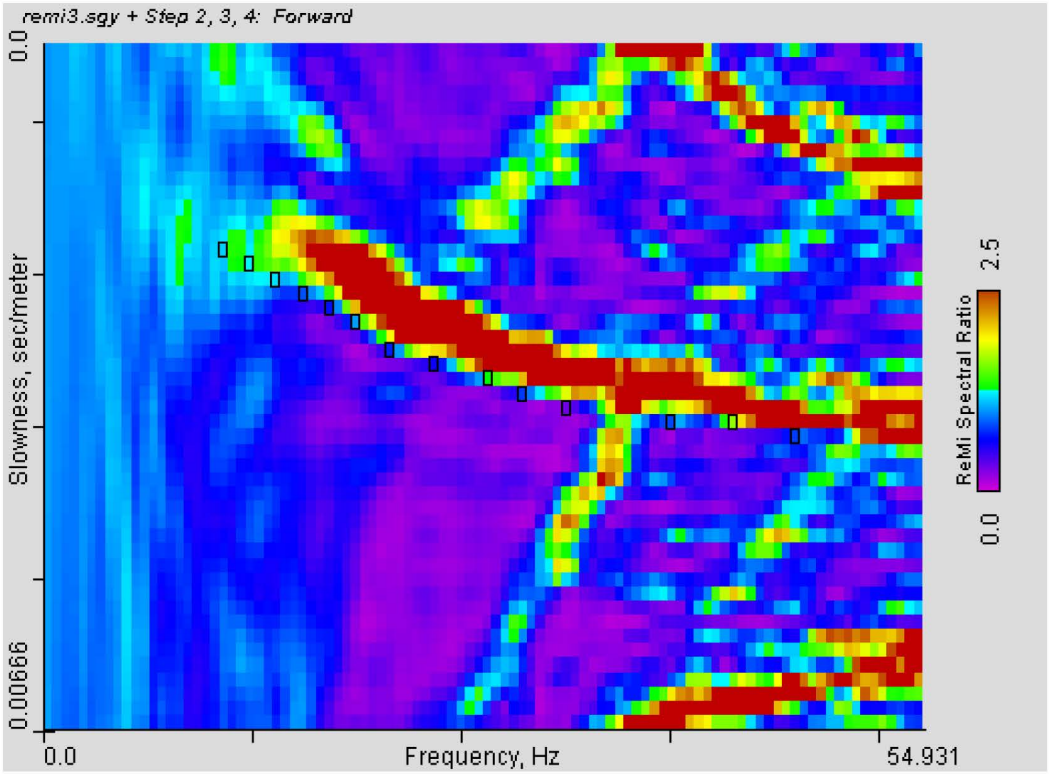

Remi 4: Vs Model
0
500
1000
1500
2000
2500
3000
3500
4000
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Vs100' = 1726 ft/s
Depth, ft
Shear-Wave Velocity, ft/s

Remi 4: Supportive Illustration

Dispersion Curve Showing Picks and Fit



p-f Image with Dispersion Modeling Picks



GEOServices, LLC-Geotechnical and Materials Engineers

APPENDIX F

P.O. Box 309
Jasper, TN 37347
(423)942-8681
www.danbrownandassociates.com

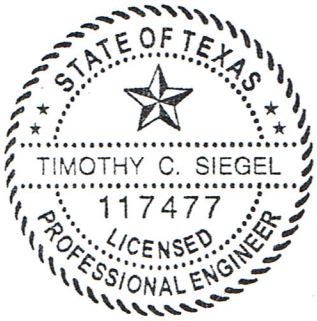
TECHNICAL MEMORANDUM

Seismic Settlement Analysis
Consolidated Interim Storage Facility
Andrews, TX
DBA Project No. 16-071D

To: Derek Kilday, P.E./GEOServices

From: Timothy C. Siegel, P.E, G.E., D.GE
Nathan E. Glinski

Date: June 29, 2016



1 Introduction

This Technical Memorandum (TM) presents the seismic settlement analysis of the new Consolidated Interim Storage Facility (CISF) for Waste Control Specialists (WCS) in Andrews, TX. The CISF will cover a 200-acre tract of land and will consist of numerous consolidated interim storage facilities, the transfer facility and the administration building. The subsurface conditions were described in the report of Geotechnical Exploration by GEOServices, LLC dated June 23, 2015. The remaining sections of this TM briefly describe the geotechnical conditions and provide information on the liquefaction hazard, seismic settlement of sands, and seismic bearing capacity of spread foundations and floor slabs.

2 Geotechnical Conditions

The results of the test borings are generally described as follows:

- Residual soils encountered at each boring.
    - Brown to orange-brown
    - Varying density – Generally medium dense to very dense with lenses of very loose to loose soils.
- Auger refusal was encountered in a few borings at depths ranging from 37 to 45 ft below ground surface.
- Ground water was not encountered in any test borings or at completion of boring drilling activities.

Please see attachments for complete records of the borings used in the analysis.

3 Liquefaction Hazard

Liquefaction occurs when soil, primarily saturated cohesionless soils, undergo a loss in strength due monotonic, transient, or repeated disturbance that commonly occur during an earthquake event. (Kramer 1996). This loss of strength occurs due to increased pore water pressures caused by an undrained condition. The increase in pore water pressure decreases the effective stress in the soil thus reducing its ability to support an applied load. For liquefaction to occur there must be an increase in pore pressure meaning the soil must be saturated and able to behave in an undrained condition. According to the NHI 2011 Reference Manual on LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, if any of the following criteria are satisfied then a significant liquefaction hazard does not exist:

- The geologic materials underlying the site are either bedrock or have very low liquefaction susceptibility according to the relative susceptibility ratings shown in the table below.

Table 1: Estimated Susceptibility of Sedimentary Deposits to Liquefaction During Strong Ground Motion (Youd and Perkins, 1978)

Type of Deposit	General Distribution of Cohesionless Sediments in Deposits	Likelihood that Cohesionless Sediments, When Saturated, Will be Susceptible to Liquefaction (by Age of Deposit)			
		<500 yr Modern	Holocene >11 ka	Pleistocene 11 ka - 2 Ma	Pre-Pleistocene >2 Ma
(a) Continental Deposits					
River channel	Locally variable	Very high	High	Low	Very low
Floodplain	Locally variable	High	Moderate	Low	Very low
Alluvial fan and plain	Widespread	Moderate	Low	Low	Very low
Marine terraces and plains	Widespread	—	Low	Very low	Very low
Delta and fan-delta	Widespread	High	Moderate	Low	Very low
Lacustrine and playa	Variable	High	Moderate	Low	Very low
Colluvium	Variable	High	Moderate	Low	Very low
Talus	Widespread	Low	Low	Very low	Very low
Dunes	Widespread	High	Moderate	Low	Very low
Loess	Variable	High	High	High	Unknown
Glacial till	Variable	Low	Low	Very low	Very low
Tuff	Rare	Low	Low	Very low	Very low
Tephra	Widespread	High	High	?	?
Residual soils	Rare	Low	Low	Very low	Very low
Sebka	Locally variable	High	Moderate	Low	Very low
(b) Coastal Zone					
Delta	Widespread	Very high	High	Low	Very low
Estuarine	Locally variable	High	Moderate	Low	Very low
Beach					
High wave-energy	Widespread	Moderate	Low	Very low	Very low
Low wave-energy	Widespread	High	Moderate	Low	Very low
Lagoonal	Locally variable	High	Moderate	Low	Very low
Fore shore	Locally variable	High	Moderate	Low	Very low
(c) Artificial					
Uncompacted fill	Variable	Very high	—	—	—
Compacted fill	Variable	Low	—	—	—

- The soils below the groundwater table at the site are one of the following
    1. Clayey soils which have a clay content greater than 15%, liquid limit greater than 35%, or natural water content less than 90% of the liquid limit (Seed and Idriss, 1982).
    2. Sand with a minimum corrected Standard Penetration Test resistance, $(N_1)_{60}$ value of 30 blows/foot.
    3. The water table is deeper than 50 feet below the existing ground surface or proposed finished grade at the site

Since groundwater was not encountered in any of the 18 test soil borings and given that some of the borings penetrated as deep as 45 ft below ground surface, it can be concluded that a liquefaction hazard does not exist for the CISF.

4 Seismic Settlement of Sands Above the Water Table

Although a liquefaction hazard does not exist, there is a potential for settlement of the loose sands that exist in some areas of the CISF. According to Kramer (1996), the tendency of sands to densify when subjected to earthquake shaking is well documented and occurs very rapidly and is usually complete by the end of the earthquake.

For the purposes of this analysis the computer software LiquefyPro Version 5.8h was utilized to evaluate the magnitude of settlement that is to be expected during an earthquake event at the CISF site in Andrews, TX. LiquefyPro uses a widely accepted method of predicting the settlement of dry cohesionless soils using SPT data, Peak Ground Acceleration (PGA), earthquake magnitude, groundwater information. The procedure was developed by Tokimatsu and Seed (1987) and consists of a multistep process taking into consideration SPT data to evaluate normalized effective shear stress, volumetric strain, correction for earthquake magnitude, correction for multidirectional shaking and results an overall settlement for the given soil deposit.

Peak Ground Acceleration was obtained from USGS's U.S. Seismic Design maps with the 2009 NEHRP Design Code as the reference document for Site Class C, as specified in the Report of Geotechnical Exploration. A copy of the detailed report is attached to this TM. A seismic hazard de-aggregation was run for a spectral period of 0.3 seconds (3.33 Hz). This de-aggregation showed a single earthquake with a moment magnitude (Mw) of 5 contributed the greatest to the seismic hazard at the CISF site; however, there was a cluster of earthquakes with Mw values ranging from less than 5 to 6.5. For this analysis, an Mw of 6 was used. A full detailed list of this procedure can be found in the attachments.

The results of the seismic settlement analysis performed with LiquefyPro are tabulated below:

Boring Number	Settlement (in.)
B-101	0.02
B-102	0.01
B-103	0.01
B-104	0.01
B-105	0.01
B-106	0.01
B-107	0.01
B-108	0.01
B-109	0.01
B-110	0.01
B-111	0.01
TF-1	0.01
TF-2	0.01
TF-3	0.01
TF-4	0.01
TF-5	0.01
AB-1	0.01
AB-2	0.01

5 Results

A one-third (33%) increase in the allowable bearing stress for all load combinations that include transient loads (short terms load such as earthquake and wind) is permitted. This due to the low probability of occurrence of an extreme event such as an earthquake. This 33% increase in allowable stress can be applied to load combinations that consider transient loads in conjunction with dead loads. This increase in allowable stress cannot be applied solely to dead loads. (IBC 2011)

6 Concluding Remarks

Please contact the following if you would like to discuss this document or this project:

Timothy C. Siegel, PE, GE, D.GE
1808 Northshore Hills Blvd
Knoxville TN 37922
865-357-1715 ph
865-357-1570 fx
865-809-4883 mo
tim@dba.world

7 References

Kramer, S. L. (1996). Geotechnical earthquake engineering. *Prentice-Hall Civil Engineering and Engineering Mechanics Series, Upper Saddle River, NJ: Prentice Hall,| c1996*, 1.

FHWA (Federal Highway Administration) (2011). Geotechnical Engineering Circular No. 3 - LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, FHWA-NHI-11-032

International Code Council. (2011). 2012 International Building Code. Country Club Hills, Ill: ICC.

Seed, H.B. and Idriss, I.M. (1982), Ground Motions and Soil Liquefaction During Earthquakes, *Monograph No. 5, Earthquake Engineering Research Institute*, Berkeley, California, 134 p.

Tokimatsu, K. and Seed, H.B. (1987). Evaluation of Settlements in Sands Due to Earthquake Shaking, *Journal of the Geotechnical Engineering Division*, ASCE, Volume 113, Number 8, pp. 861-878.

Youd, T.L. and Perkins, D.M. (1978). Mapping of Liquefaction-Induced Ground Failure Potential, *Journal of the Geotechnical Engineering Division*, American Society of civil Engineers, Volume 104, Number 4, April, pp. 433-446.

Attachments

Site Location
Site Layout Plans
Soil Test Borings
USGS Seismic Design Map Summary Report
USGS Probabilistic Seismic Hazard Deaggregation
LiquefyPro Result Summaries

Notes:

1) Aerial Provided by: Google Earth Pro, (02/12/2014)

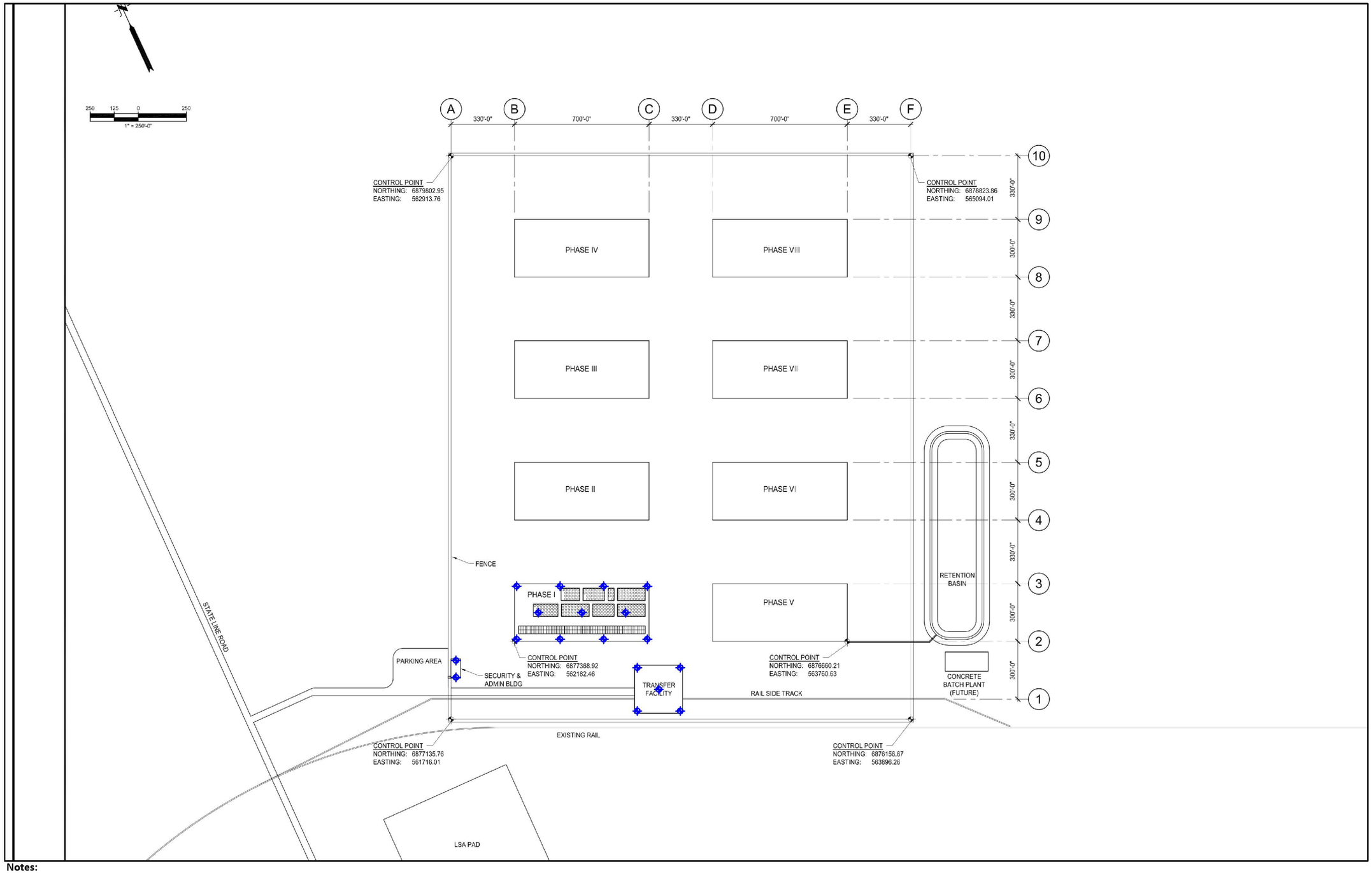
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Site Vicinity Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
1



Notes:

1) Site Source Provided by: WCS, (06/12/2015)
2) Boring Locations are shown in general arrangement only
3) Do Not use Boring Locations for determinations of Distance or Quantities

Boring Location & Identifier

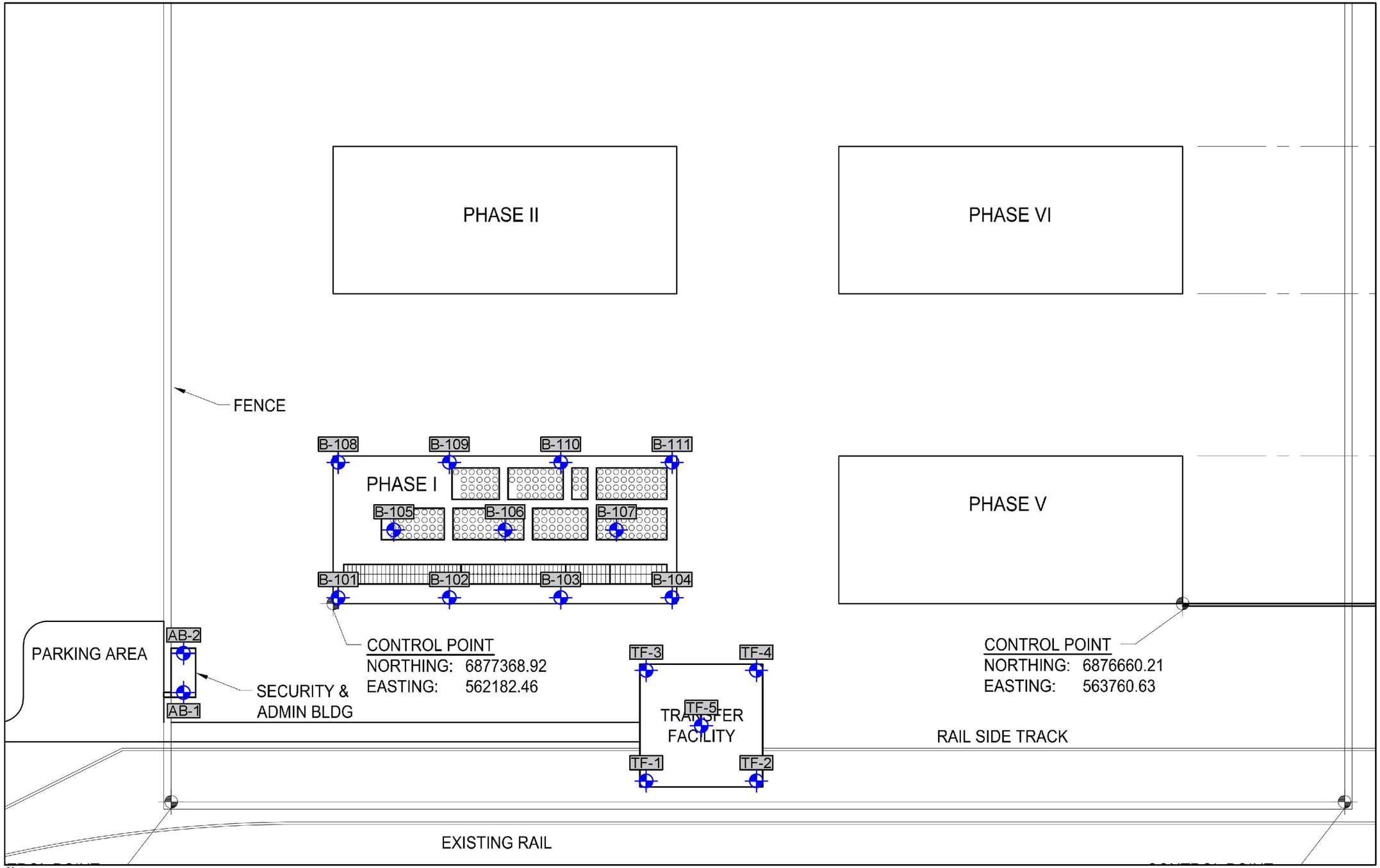
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Location Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
3



Notes:

1) Site Source Provided by: WCS, (06/12/2015)
2) Boring Locations are shown in general arrangement only
3) Do Not use Boring Locations for determinations of Distance or Quantities

Boring Location & Identifier

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Boring Location Plan
WCS Consolidated Interim Storage Facility
WCS
Andrews, Texas

DATE:
08/10/2015

GEOS Project No.
31-151247

FIGURE:
4

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-101

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	3-12-7 N=19				3.6	
2.5	-2.5										
		3.0	4.5	2	SS	5-5-3 N=8				3.9	**Silty SAND (SM)** with caliche - brown; fine grained; medium dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	4-10-12 N=22				6.5	
7.5	-7.5										
		8.0	9.5	4	SS	17-30-48 N=78				7.8	
10.0	-10.0										
12.5	-12.5										
		13.0	14.5	5	SS	30-59-39 N=98				6.7	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5										
		18.0	19.5	6	SS	20-24-31 N=55				5.7	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-101

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	23-34-55 N=89				5.7	
25.0	-25.0										
27.5	-27.5										
		28.0	28.7	8	SS	42-64/2" N=64/2"					
30.0	-30.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		31.0	31.2	9	SS	N=50/2"				5.7	
32.5	-32.5										
		33.0	33.2	10	SS	N=74/2"				7.7	
35.0	-35.0										
37.5	-37.5										
		38.0	38.3	11	SS	N=81/3"					
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-101

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-101

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 45.0 FT. ELEV. FT.
SAMPLED 45.0 FT. 13.7 M
TOP OF ROCK DEPTH 45.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 45.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
42.5	-42.5	43.0	43.2	12	SS	N=80/2"					**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
45.0	-45.0										**AUGER REFUSAL AT 45 FEET**
47.5	-47.5										
50.0	-50.0										
52.5	-52.5										
55.0	-55.0										
57.5	-57.5										
60.0	-60.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-102

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-102

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	7-6-4 N=10				3.4	**Silty SAND (SM)** with caliche - brown; fine grained; loose to very dense; dry; **(RESIDUUM)**
2.5	-2.5	3.0	3.8	2	SS	10-48/3" N=48/3"				2.8	
5.0	-5.0	5.0	6.5	3	SS	16-26-20 N=46				2.9	**Silty SAND (SM)** with caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	8.0	9.5	4	SS	25-28-27 N=55				4.0	
10.0	-10.0										
12.5	-12.5	13.0	13.8	5	SS	34-37/3" N=37/3"				6.0	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	43-20/3" N=20/3"				5.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-102
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-102

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	26-24/3" N=24/3"				2.9	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-103

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-103

DATE July 17, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	2-3-4 N=7		26	NP	4.3	**Silty SAND (SM)** with caliche - brown; fine grained; loose; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	8-5-8 N=13				4.8	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	7-7-9 N=16				5.8	
10.0	-10.0	8.0	9.5	4	SS	16-27-39 N=66				7.1	
12.5	-12.5	13.0	14.4	5	SS	23-35-45/5" N=45/5"				6.3	
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	17-26-40 N=66				6.1	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-103
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-103

DATE July 17, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	17-23-33 N=56				4.5	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-104
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-104

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.3	1	SS	2-32-37/3" N=37/3"				3.1	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	3.8	2	SS	64-43/3" N=43/3"				2.5	**Silty SAND (SM)** with caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	13-18-21 N=39				4.1	
7.5	-7.5										
		8.0	9.5	4	SS	17-26-45 N=71				6.9	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.5	5	SS	18-33-43 N=76				6.0	
15.0	-15.0										
17.5	-17.5										
		18.0	19.5	6	SS	23-28-50 N=78				4.6	
20.0	-20.0										

REMARKS:

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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-104
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-104

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	15-23-39 N=62				3.1	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-105

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-105

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	1.8	1	SS	6-50/4" N=50/4"				3.3	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
5.0	-5.0	5.0	6.5	2	SS	10-14-18 N=32				5.3	
7.5	-7.5	8.0	9.5	3	SS	14-27-29 N=56				8.1	
10.0	-10.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
12.5	-12.5	13.0	13.5	4	SS	60+ N=>60				4.8	
15.0	-15.0										
17.5	-17.5	18.0	19.0	5	SS	30-40+ N=>40				4.1	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-105
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-105

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.5	6	SS	65+ N=>65					**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-106

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-106

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	13-33-26 N=59				4.5	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	9-14-8 N=22				3.9	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-16-21 N=37				3.9	
10.0	-10.0	8.0	9.5	4	SS	7-19-33 N=52				5.3	
12.5	-12.5	13.0	13.9	5	SS	33-50/5" N=50/5"				6.7	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	25-35-50/6" N=50/6"				6.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-106

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-106

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.4	7	SS	12-37-50/5" N=50/5"				6.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-107

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-107

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	1.8	1	SS	7-50/4" N=50/4"				5.3	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	7-25-33 N=58				4.5	
5.0	-5.0										
		5.0	6.5	3	SS	9-16-20 N=36				4.1	
7.5	-7.5										**Silty SAND (SM)** with trace caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
		8.0	9.5	4	SS	22-32-41 N=73				5.7	
10.0	-10.0										
12.5	-12.5										
		13.0	14.0	5	SS	31-50/6" N=50/6"				7.2	
15.0	-15.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
17.5	-17.5										
		18.0	19.5	6	SS	16-32-50/6" N=50/6"				6.3	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-107
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-107

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.4	7	SS	15-32-50/5" N=50/5"				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-108

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-108

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	1-5-10 N=15				4.9	**Silty SAND (SM)** with caliche - brown to light brown; fine grained; medium dense; dry; **(RESIDUUM)**
2.5	-2.5	3.0	4.5	2	SS	2-9-16 N=25				4.9	
5.0	-5.0	5.0	6.5	3	SS	10-17-20 N=37				6.0	
7.5	-7.5	8.0	9.4	4	SS	14-32-23/5" N=23/5"				6.3	
10.0	-10.0										
12.5	-12.5	13.0	13.8	5	SS	22-30/4" N=30/4"				8.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	38-39/3" N=39/3"				6.6	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-108
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-108

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.4	7	SS	N=58/5"				6	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-109
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-109

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	3-31-23 N=54				3.4	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	6-15-24 N=39				4.2	
5.0	-5.0										
		5.0	6.5	3	SS	10-18-24 N=42				3.8	
7.5	-7.5										**Silty SAND (SM)** with caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
		8.0	9.0	4	SS	29-40+ N=>40				3.2	
10.0	-10.0										
12.5	-12.5										
		13.0	13.3	5	SS	47/3" N=47/3"				8.5	
15.0	-15.0										**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
17.5	-17.5										
		18.0	18.7	6	SS	42-40+ N=>40				6.3	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas
GEOServices Project No.: 31-151247

LOG OF BORING B-109
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-109

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	32-33-30 N=63				4.7	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-110
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-110

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-27-16 N=43		29	NP	5.0	**Silty SAND (SM)** with caliche - brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	14-18-18 N=36				4.7	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	8-7-6 N=15				6.0	
10.0	-10.0	8.0	9.5	4	SS	9-14-28 N=42				8.9	
12.5	-12.5	13.0	14.0	5	SS	23-50+ N=>50				7.1	
15.0	-15.0										
17.5	-17.5	18.0	19.0	6	SS	36-40+ N=>40				5.1	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-110
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-110

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	20-32-52 N=84				4.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-111
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-111

DATE July 20, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 37.0 FT. ELEV. FT.
SAMPLED 37.0 FT. 11.3 M
TOP OF ROCK DEPTH 37.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 37.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	5-24-65 N=89				6.7	**Silty SAND (SM)** with caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	15-16-12 N=28				4.5	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	12-19-33 N=52				5.2	
7.5	-7.5										
		8.0	9.5	4	SS	14-19-32 N=51				4.3	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.0	5	SS	35-60+ N=>60				6.6	
15.0	-15.0										
17.5	-17.5										
		18.0	19.0	6	SS	32-90+ N=>90				5.8	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING B-111
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION B-111

DATE July 20, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 37.0 FT. ELEV. FT.
SAMPLED 37.0 FT. 11.3 M
TOP OF ROCK DEPTH 37.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 37.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.0	7	SS	37-65+ N=>65				6	
25.0	-25.0										
27.5	-27.5										
		28.0	29.5	8	SS	34-33-33 N=66				4.3	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
30.0	-30.0										
32.5	-32.5										
		33.0	34.5	9	SS	24-31-48 N=79				2.5	
35.0	-35.0										
37.5	-37.5										**AUGER REFUSAL AT 37 FEET**
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-1
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-1

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	20-32-16 N=48				3.3	**Silty SAND (SM)** with caliche - brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	22-30-22 N=52				3.9	**Silty SAND (SM)** with caliche - light brown; fine grained; very dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	13-20-19 N=39				6.7	**Silty SAND (SM)** with caliche - orangish brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
10.0	-10.0	8.0	9.5	4	SS	13-19-24 N=43				6.2	
12.5	-12.5	13.0	14.3	5	SS	16-19-19/4" N=19/4"				4.3	
15.0	-15.0										
17.5	-17.5	18.0	18.8	6	SS	29-21/3" N=21/3"				4.9	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-1
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-1

DATE July 15, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	26-24/4" N=24/4"				3.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-2
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-2

DATE July 13, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-4-5 N=9				4.8	**Silty SAND (SM)** with caliche - brown; fine grained; loose; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	10-10-13 N=23				5.7	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-12-17 N=29				5.5	
10.0	-10.0	8.0	9.5	4	SS	10-17-20 N=37				3.7	**Silty SAND (SM)** with trace caliche - orangish brown; dense; dry; **(RESIDUUM)**
12.5	-12.5	13.0	14.5	5	SS	7-25-30 N=55				3.4	**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.5	6	SS	16-22-30 N=52				3.1	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING AB-2
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION AB-2

DATE July 13, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	23.8	7	SS	38-50/4" N=50/4"					**Silty SAND (SM)** with caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-1

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-1

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
2.5	-2.5	1.0	2.5	1	SS	4-24-15 N=39				3.0	**Silty SAND (SM)** with caliche - grayish brown and brown; fine grained; dense; dry; **(RESIDUUM)**
5.0	-5.0	3.0	4.5	2	SS	24-38-27 N=65				2.8	**Silty SAND (SM)** with caliche -light brown to brown; fine grained; very dense to dense; dry; **(RESIDUUM)**
7.5	-7.5	5.0	6.5	3	SS	11-12-20 N=32				4.8	
10.0	-10.0	8.0	9.5	4	SS	20-20-28 N=48				2.8	
12.5	-12.5	13.0	14.3	5	SS	20-48-32/3" N=32/3"				5.8	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5	18.0	19.3	6	SS	26-48-26/3" N=26/3"				5.4	
20.0	-20.0										

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-1
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-1

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	15-16-20 N=36				2.7	
25.0	-25.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
27.5	-27.5										
		28.0	29.3	8	SS	28-50-22/3" N=22/3"				3.0	
30.0	-30.0										
32.5	-32.5										
		33.0	33.4	10	SS	N=76/5"				3.7	
35.0	-35.0										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
37.5	-37.5										
		38.0	38.3	11	SS	N=100/4"				4.6	
40.0	-40.0										

AUGER REFUSAL AT 40 FEET

REMARKS:

GEOS
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Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-2
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-2

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	1-2-2 N=4		28	NP	4.3	**Silty SAND (SM)** with trace caliche - brown; fine grained; very loose; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	9-11-11 N=22				4.8	**Silty SAND (SM)** with trace caliche - light brown; fine grained; medium dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	8-10-15 N=25				3.9	
7.5	-7.5										
		8.0	9.5	4	SS	15-40-57 N=97				6.7	
10.0	-10.0										
12.5	-12.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		13.0	14.2	5	SS	25-55-25/2" N=25/2"				5.9	
15.0	-15.0										
17.5	-17.5										
		18.0	18.8	6	SS	23-70+ N=>70				5.9	
20.0	-20.0										

REMARKS:

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Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-2
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-2

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	8-29-35 N=64				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

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Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-3
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-3

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	11-9-8 N=17				4.3	**Silty SAND (SM)** with caliche - grayish brown; fine grained; medium desne; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	17-11-10 N=21				4.6	**Silty SAND (SM)** with caliche - brown; fine grained; very dense to dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	14-16-20 N=36				3.9	
7.5	-7.5										**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
		8.0	9.5	4	SS	17-37-48 N=85				5.5	
10.0	-10.0										
12.5	-12.5										
		13.0	14.5	5	SS	18-28-45 N=73				9.0	
15.0	-15.0										
17.5	-17.5										
		18.0	19.5	6	SS	17-33-50 N=83				4.5	
20.0	-20.0										

REMARKS:

GEOS
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Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-3
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-3

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	34-37-60 N=97				3.8	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-4
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-4

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	4-40-20 N=60				3.7	**Silty SAND (SM)** with caliche - grayish brown; fine grained; very dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	18-18-16 N=34				3.9	**Silty SAND (SM)** with trace caliche - light brown; fine grained; dense to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	20-20-30 N=50				6.6	
7.5	-7.5										
		8.0	9.5	4	SS	14-24-35 N=59				7.4	**Silty SAND (SM)** with trace caliche - brown; fine grained; very dense; dry; **(RESIDUUM)**
10.0	-10.0										
12.5	-12.5										
		13.0	14.2	5	SS	20-35-47/2" N=47/2"				5.2	
15.0	-15.0										
17.5	-17.5										
		18.0	19.2	6	SS	19-34-51/2" N=51/2"				4.3	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-4
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-4

DATE July 21, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 40.0 FT. ELEV. FT.
SAMPLED 40.0 FT. 12.2 M
TOP OF ROCK DEPTH 40.0 FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 40.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5										
		23.0	24.5	7	SS	20-34-51 N=85				3.9	
25.0	-25.0										**Silty SAND (SM)** - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
27.5	-27.5										
		28.0	28.8	8	SS	62-47/3" N=47/3"				6.5	
30.0	-30.0										
32.5	-32.5										
		33.0	33.3	9	SS	N=100/4"				3.3	
35.0	-35.0										**Silty SAND (SM)** - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
37.5	-37.5										
		38.0	38.1	10	SS	N=100/1"				3.5	
40.0	-40.0										

AUGER REFUSAL AT 40 FEET

REMARKS:

GEOS
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Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-5
SHEET 1 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-5

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
		1.0	2.5	1	SS	18-10-12 N=22				4.6	**Silty SAND (SM)** with caliche - grayish brown; fine grained; medium dense; dry; **(RESIDUUM)**
2.5	-2.5										
		3.0	4.5	2	SS	6-11-8 N=19				5.2	**Silty SAND (SM)** with caliche - light brown; fine grained; medium dense to loose to very dense; dry; **(RESIDUUM)**
5.0	-5.0										
		5.0	6.5	3	SS	2-2-3 N=5				5.5	
7.5	-7.5										
		8.0	9.5	4	SS	15-24-39 N=63				8.1	
10.0	-10.0										
12.5	-12.5										
		13.0	14.5	5	SS	26-46-60 N=106				6.4	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
15.0	-15.0										
17.5	-17.5										
		18.0	19.3	6	SS	22-39-58 N=97				5.0	
20.0	-20.0										

REMARKS:

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers

Consolidated Interim Storage Facility
Andrews, Texas

GEOServices Project No.: 31-151247

LOG OF BORING TF-5
SHEET 2 OF 2

DRILLING CO Apex Geoscience Inc.
DRILLER
LOGGED BY Sammy Joe Allison

BORING NO. / LOCATION TF-5

DATE July 16, 2015 SURFACE ELEV. FT.
REFUSAL: No DEPTH FT. ELEV. FT.
SAMPLED 25.0 FT. 7.6 M
TOP OF ROCK DEPTH FT. ELEV. FT.
BEGAN CORING DEPTH FT. ELEV. FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 25.0 FT. ELEV. FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH Dry FT.
ELEV. FT.
AFTER 24 HRS. DEPTH N/A FT.
ELEV. FT.

BORING ADVANCED BY: . POWER AUGERING X WASHBORING

STRATUM DEPTH FT.	STRATUM DEPTH ELEV.	SAMPLE DEPTH FROM FT.	SAMPLE DEPTH TO FT.	SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS N-Value	FIELD RESULTS Qp	LABORATORY RESULTS LL	LABORATORY RESULTS PI	LABORATORY RESULTS %M	STRATUM DESCRIPTION
											CONTINUED
22.5	-22.5	23.0	24.5	7	SS	24-41-45 N=86				4.2	**Silty SAND (SM)** with trace caliche - orangish brown; fine grained; very dense; dry; **(RESIDUUM)**
25.0	-25.0										**BORING TERMINATED AT 25 FEET**
27.5	-27.5										
30.0	-30.0										
32.5	-32.5										
35.0	-35.0										
37.5	-37.5										
40.0	-40.0										

REMARKS:

Design Maps Detailed Report

2009 NEHRP Recommended Seismic Provisions (32.44271°N, 103.05195°W)

Site Class C – "Very Dense Soil and Soft Rock", Risk Category IV (e.g. essential facilities)

Section 11.4.1 — Mapped Acceleration Parameters and Risk Coefficients

Note: Ground motion values contoured on Figures 22-1, 2, 5, & 6 below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_{SUH} and S_{SD}) and 1.3 (to obtain S_{1UH} and S_{1D}). Maps in the Proposed 2015 NEHRP Provisions are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

Figure 22–1: Uniform–Hazard (2% in 50–Year) Ground Motions of 0.2-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

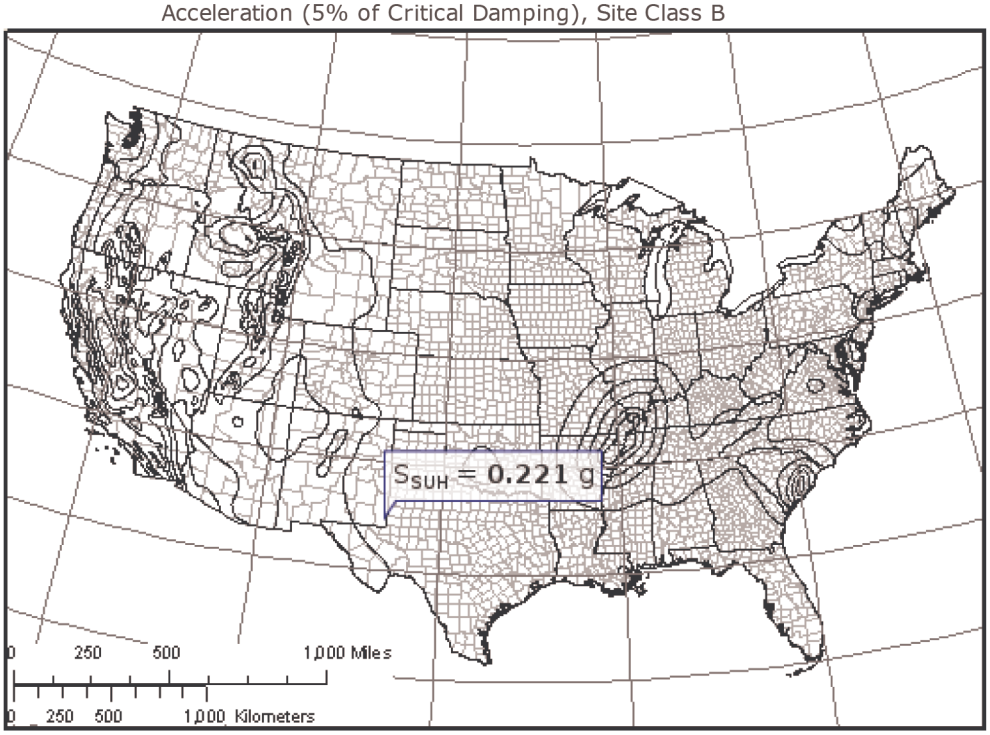


Figure 22–2: Uniform–Hazard (2% in 50–Year) Ground Motions of 1.0-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

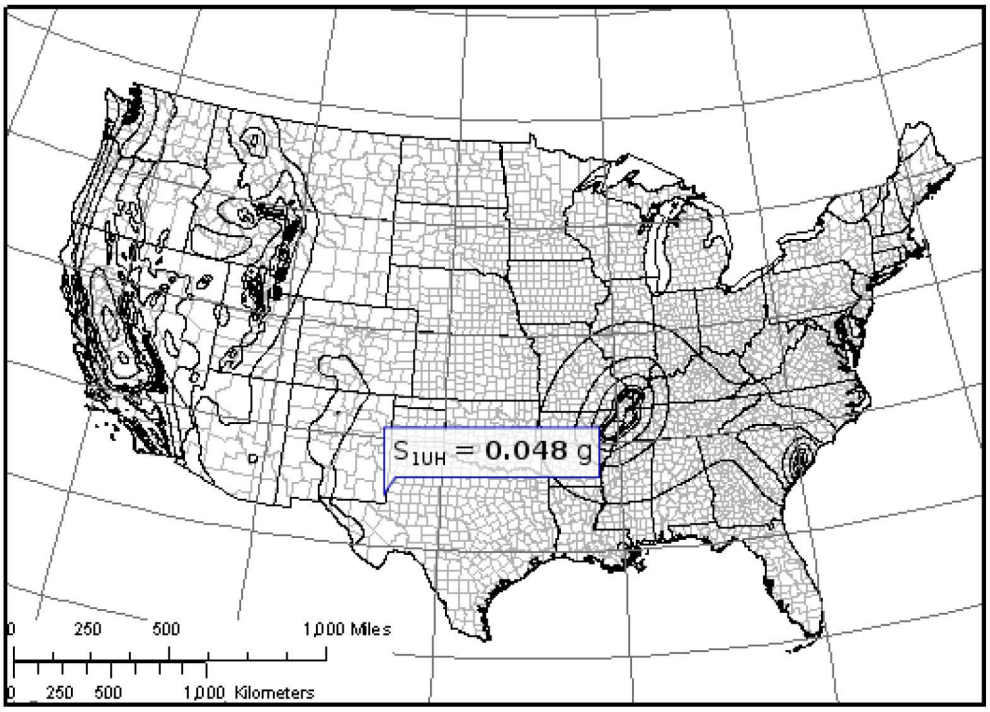

S_{1UH} = 0.048 g
0 250 500 1,000 Miles
0 250 500 1,000 Kilometers

Figure 22-3: Risk Coefficient at 0.2-Second Spectral Response Period

CRS = 0.871

Figure 22-4: Risk Coefficient at 1.0-Second Spectral Response Period

CR1 = 0.905

Figure 22–5: Deterministic Ground Motions of 0.2-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

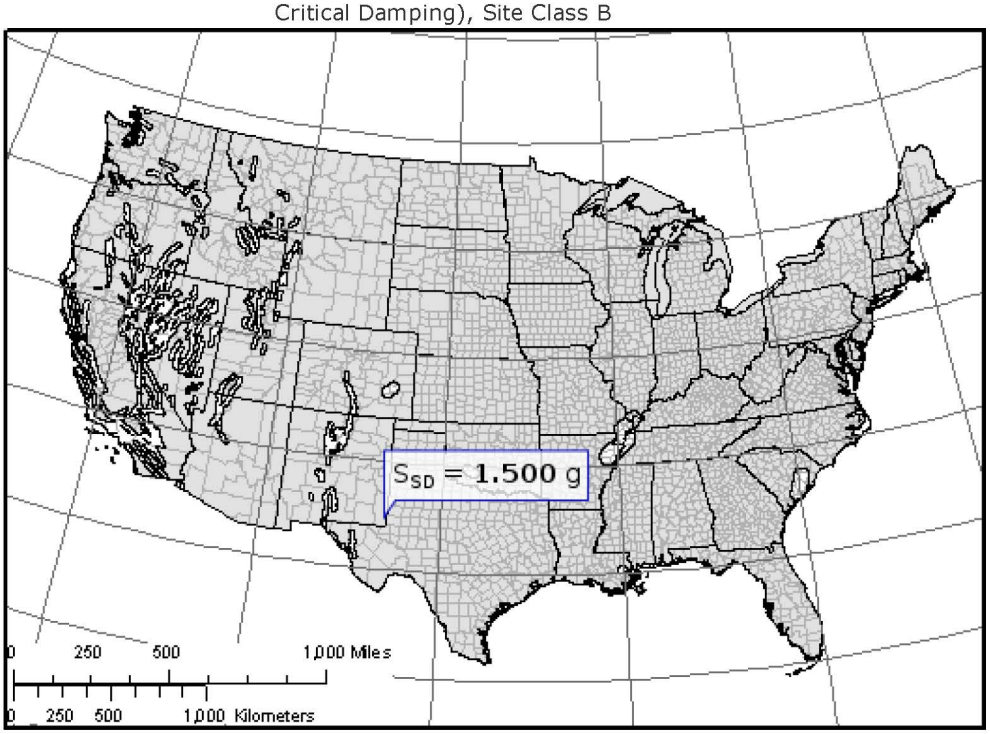
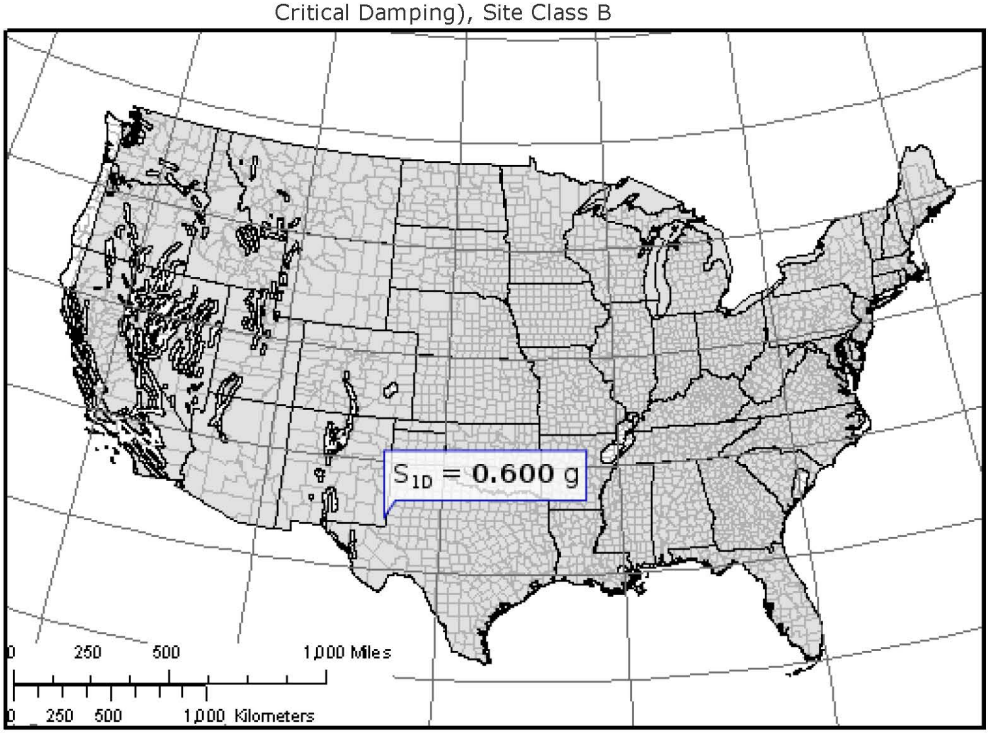


Figure 22–6: Deterministic Ground Motions of 1.0-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B



Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class C, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients, Risk Coefficients, and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Equation (11.4–1): $C_{RS}S_{SUH}$ = 0.871 x 0.221 = 0.193 g

Equation (11.4–2): S_{SD} = 1.500 g

S_S ≡ "Lesser of values from Equations (11.4–1) and (11.4–2)" = 0.193 g

Equation (11.4–3): $C_{R1}S_{1UH}$ = 0.905 x 0.048 = 0.043 g

Equation (11.4–4): S_{1D} = 0.600 g

S_1 ≡ "Lesser of values from Equations (11.4–3) and (11.4–4)" = 0.043 g

Table 11.4-1: Site Coefficient F_a

Site Class	Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = C and S_S = 0.193 g, F_a = 1.200

Table 11.4-2: Site Coefficient F_v

Site Class	Spectral Response Acceleration Parameter at 1-Second Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = C and S_1 = 0.043 g, F_v = 1.700

Equation (11.4-5): $S_{MS} = F_a S_S = 1.200 \times 0.193 = 0.231$ g

Equation (11.4-6): $S_{M1} = F_v S_1 = 1.700 \times 0.043 = 0.074$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

Equation (11.4-7): $S_{DS} = ⅔\ S_{MS} = ⅔ \times 0.231 = 0.154$ g

Equation (11.4-8): $S_{D1} = ⅔\ S_{M1} = ⅔ \times 0.074 = 0.049$ g

Section 11.4.5 — Design Response Spectrum

Figure 22-7: Long-period Transition Period, T_L (s)

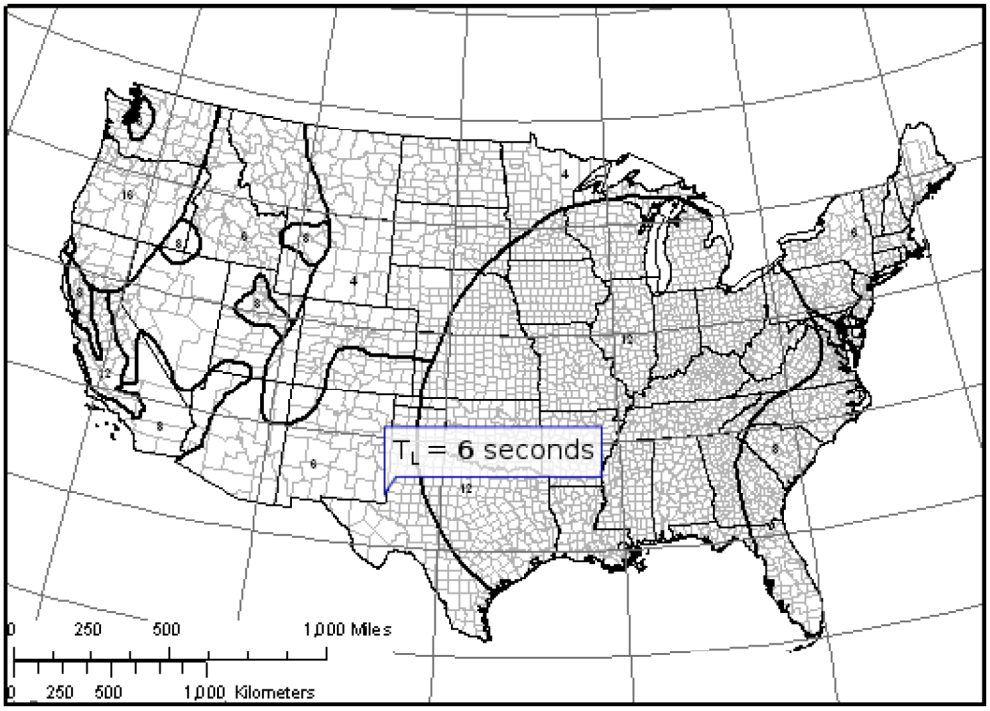
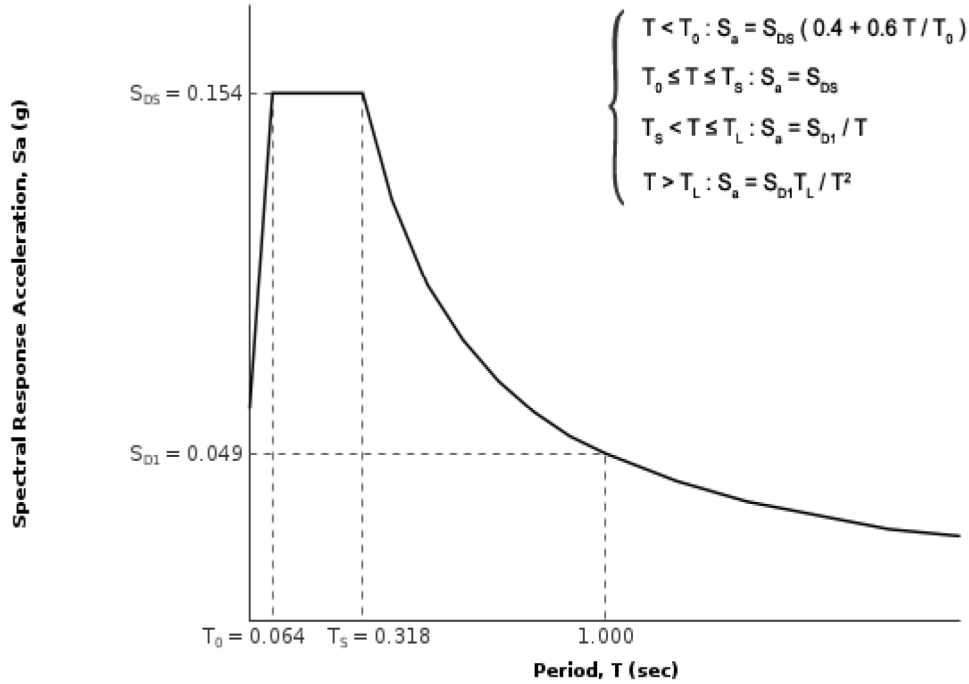
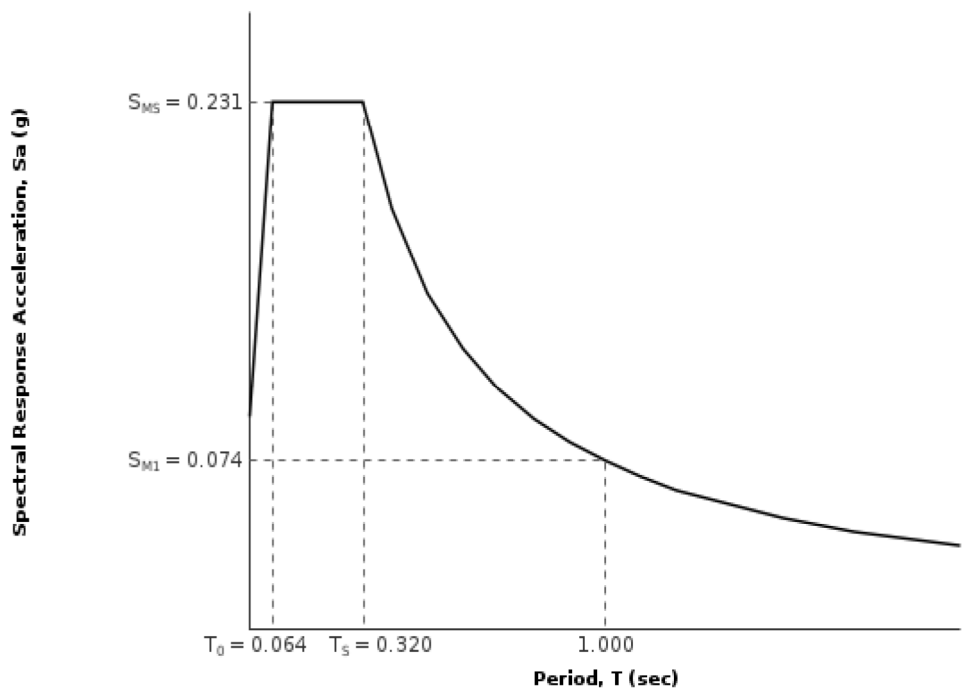


Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — MCE_R Response Spectrum

The MCE_R response spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

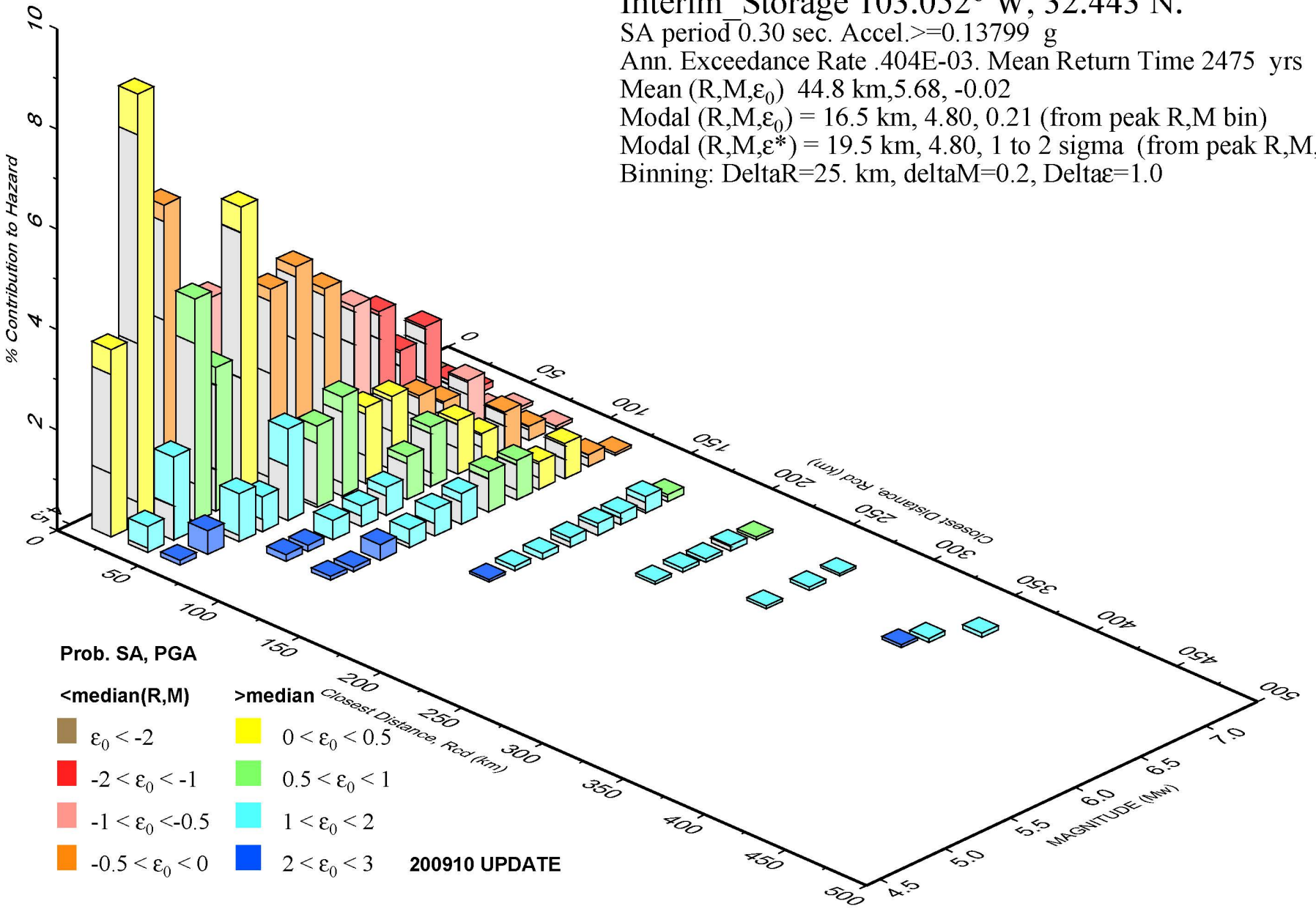
Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = C and PGA = 0.115 g, F_{PGA} = 1.200

Mapped PGA	PGA = 0.115 g
Equation (11.8–1):	$PGA_M = F_{PGA}PGA = 1.200 \times 0.115 = 0.138$ g

PSH Deaggregation on NEHRP BC rock
Interim_Storage 103.052° W, 32.443 N.

SA period 0.30 sec. Accel.>=0.13799 g
Ann. Exceedance Rate .404E-03. Mean Return Time 2475 yrs
Mean (R,M,ε_0) 44.8 km,5.68, -0.02
Modal (R,M,ε_0) = 16.5 km, 4.80, 0.21 (from peak R,M bin)
Modal (R,M,ε*) = 19.5 km, 4.80, 1 to 2 sigma (from peak R,M,ε bin)
Binning: DeltaR=25. km, deltaM=0.2, Deltaε=1.0



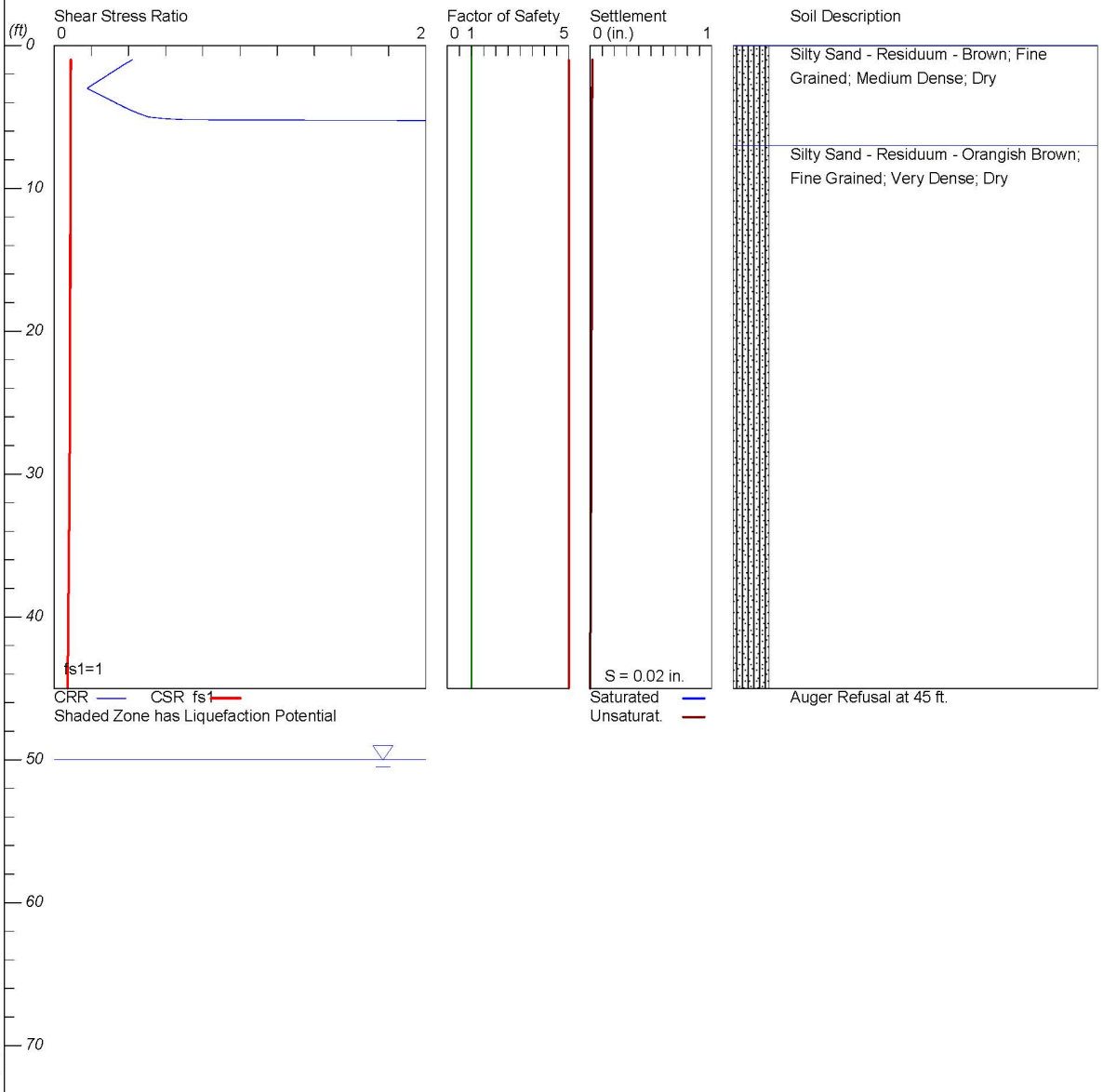
GMT 2016 Jun 22 14:52:36 Distance (R), magnitude (M), epsilon (E0,E) deaggregation for a site on rock with average vs= 760. m/s top 30 m. USGS CGHT PSHA2008 UPDATE Bins with lt 0.05% contrib. omitted

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-101 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Licensed to , 6/29/2016 4:34:52 PM

Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-101.liq
Title: Interim Storage Facility NRC
Subtitle: B-101

Surface Elev.=0
Hole No.=B-101
Depth of Hole= 45.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-101
Depth of Hole=45.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	19.00	100.00	0.00
3.00	8.00	90.00	0.00
5.00	22.00	100.00	0.00
8.00	78.00	110.00	0.00
13.00	98.00	110.00	0.00
18.00	55.00	110.00	0.00
23.00	89.00	110.00	0.00
28.00	100.00	110.00	0.00
31.00	100.00	110.00	0.00
33.00	100.00	110.00	0.00
38.00	100.00	110.00	0.00
43.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.02 in.
Total Settlement of Saturated and Unsaturated Sands=0.02 in.
Differential Settlement=0.009 to 0.012 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.42	0.09	5.00	0.00	0.02	0.02
1.05	0.41	0.09	5.00	0.00	0.02	0.02
1.10	0.41	0.09	5.00	0.00	0.02	0.02
1.15	0.40	0.09	5.00	0.00	0.02	0.02
1.20	0.39	0.09	5.00	0.00	0.02	0.02
1.25	0.39	0.09	5.00	0.00	0.02	0.02
1.30	0.38	0.09	5.00	0.00	0.02	0.02

1.35	0.37	0.09	5.00	0.00	0.02	0.02
1.40	0.37	0.09	5.00	0.00	0.02	0.02
1.45	0.36	0.09	5.00	0.00	0.02	0.02
1.50	0.36	0.09	5.00	0.00	0.02	0.02
1.55	0.35	0.09	5.00	0.00	0.02	0.02
1.60	0.34	0.09	5.00	0.00	0.02	0.02
1.65	0.34	0.09	5.00	0.00	0.02	0.02
1.70	0.33	0.09	5.00	0.00	0.02	0.02
1.75	0.33	0.09	5.00	0.00	0.02	0.02
1.80	0.32	0.09	5.00	0.00	0.02	0.02
1.85	0.31	0.09	5.00	0.00	0.02	0.02
1.90	0.31	0.09	5.00	0.00	0.02	0.02
1.95	0.30	0.09	5.00	0.00	0.02	0.02
2.00	0.30	0.09	5.00	0.00	0.02	0.02
2.05	0.29	0.09	5.00	0.00	0.02	0.02
2.10	0.28	0.09	5.00	0.00	0.02	0.02
2.15	0.28	0.09	5.00	0.00	0.02	0.02
2.20	0.27	0.09	5.00	0.00	0.02	0.02
2.25	0.27	0.09	5.00	0.00	0.02	0.02
2.30	0.26	0.09	5.00	0.00	0.02	0.02
2.35	0.25	0.09	5.00	0.00	0.02	0.02
2.40	0.25	0.09	5.00	0.00	0.02	0.02
2.45	0.24	0.09	5.00	0.00	0.02	0.02
2.50	0.24	0.09	5.00	0.00	0.02	0.02
2.55	0.23	0.09	5.00	0.00	0.02	0.02
2.60	0.22	0.09	5.00	0.00	0.02	0.02
2.65	0.22	0.09	5.00	0.00	0.02	0.02
2.70	0.21	0.09	5.00	0.00	0.02	0.02
2.75	0.21	0.09	5.00	0.00	0.02	0.02
2.80	0.20	0.09	5.00	0.00	0.02	0.02
2.85	0.19	0.09	5.00	0.00	0.02	0.02
2.90	0.19	0.09	5.00	0.00	0.02	0.02
2.95	0.18	0.09	5.00	0.00	0.02	0.02
3.00	0.18	0.09	5.00	0.00	0.02	0.02
3.05	0.18	0.09	5.00	0.00	0.02	0.02
3.10	0.19	0.09	5.00	0.00	0.02	0.02
3.15	0.20	0.09	5.00	0.00	0.02	0.02
3.20	0.21	0.09	5.00	0.00	0.02	0.02
3.25	0.21	0.09	5.00	0.00	0.02	0.02
3.30	0.22	0.09	5.00	0.00	0.02	0.02
3.35	0.23	0.09	5.00	0.00	0.02	0.02
3.40	0.24	0.09	5.00	0.00	0.02	0.02
3.45	0.25	0.09	5.00	0.00	0.02	0.02
3.50	0.25	0.09	5.00	0.00	0.02	0.02
3.55	0.26	0.09	5.00	0.00	0.02	0.02
3.60	0.27	0.09	5.00	0.00	0.02	0.02
3.65	0.28	0.09	5.00	0.00	0.02	0.02
3.70	0.28	0.09	5.00	0.00	0.02	0.02
3.75	0.29	0.09	5.00	0.00	0.02	0.02
3.80	0.30	0.09	5.00	0.00	0.02	0.02
3.85	0.31	0.09	5.00	0.00	0.02	0.02
3.90	0.31	0.09	5.00	0.00	0.02	0.02
3.95	0.32	0.09	5.00	0.00	0.02	0.02
4.00	0.33	0.09	5.00	0.00	0.01	0.01
4.05	0.34	0.09	5.00	0.00	0.01	0.01
4.10	0.34	0.09	5.00	0.00	0.01	0.01
4.15	0.35	0.09	5.00	0.00	0.01	0.01
4.20	0.36	0.09	5.00	0.00	0.01	0.01
4.25	0.37	0.09	5.00	0.00	0.01	0.01
4.30	0.38	0.09	5.00	0.00	0.01	0.01
4.35	0.38	0.09	5.00	0.00	0.01	0.01
4.40	0.39	0.09	5.00	0.00	0.01	0.01
4.45	0.40	0.09	5.00	0.00	0.01	0.01
4.50	0.41	0.09	5.00	0.00	0.01	0.01
4.55	0.42	0.09	5.00	0.00	0.01	0.01
4.60	0.43	0.09	5.00	0.00	0.01	0.01
4.65	0.43	0.09	5.00	0.00	0.01	0.01
4.70	0.44	0.09	5.00	0.00	0.01	0.01
4.75	0.45	0.09	5.00	0.00	0.01	0.01
4.80	0.46	0.09	5.00	0.00	0.01	0.01
4.85	0.47	0.09	5.00	0.00	0.01	0.01
4.90	0.48	0.09	5.00	0.00	0.01	0.01
4.95	0.50	0.09	5.00	0.00	0.01	0.01
5.00	0.51	0.09	5.00	0.00	0.01	0.01
5.05	0.54	0.09	5.00	0.00	0.01	0.01
5.10	0.58	0.09	5.00	0.00	0.01	0.01
5.15	0.63	0.09	5.00	0.00	0.01	0.01
5.20	0.71	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01

5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01
5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01

9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01
9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.01	0.01
10.45	3.54	0.09	5.00	0.00	0.01	0.01
10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.01	0.01
10.75	3.54	0.09	5.00	0.00	0.01	0.01
10.80	3.54	0.09	5.00	0.00	0.01	0.01
10.85	3.54	0.09	5.00	0.00	0.01	0.01
10.90	3.54	0.09	5.00	0.00	0.01	0.01
10.95	3.54	0.09	5.00	0.00	0.01	0.01
11.00	3.54	0.09	5.00	0.00	0.01	0.01
11.05	3.54	0.09	5.00	0.00	0.01	0.01
11.10	3.54	0.09	5.00	0.00	0.01	0.01
11.15	3.54	0.09	5.00	0.00	0.01	0.01
11.20	3.54	0.09	5.00	0.00	0.01	0.01
11.25	3.54	0.09	5.00	0.00	0.01	0.01
11.30	3.54	0.09	5.00	0.00	0.01	0.01
11.35	3.54	0.09	5.00	0.00	0.01	0.01
11.40	3.54	0.09	5.00	0.00	0.01	0.01
11.45	3.54	0.09	5.00	0.00	0.01	0.01
11.50	3.54	0.09	5.00	0.00	0.01	0.01
11.55	3.54	0.09	5.00	0.00	0.01	0.01
11.60	3.54	0.09	5.00	0.00	0.01	0.01
11.65	3.54	0.09	5.00	0.00	0.01	0.01
11.70	3.54	0.09	5.00	0.00	0.01	0.01
11.75	3.54	0.09	5.00	0.00	0.01	0.01
11.80	3.54	0.09	5.00	0.00	0.01	0.01
11.85	3.54	0.09	5.00	0.00	0.01	0.01
11.90	3.54	0.09	5.00	0.00	0.01	0.01
11.95	3.54	0.09	5.00	0.00	0.01	0.01
12.00	3.54	0.09	5.00	0.00	0.01	0.01
12.05	3.54	0.09	5.00	0.00	0.01	0.01
12.10	3.54	0.09	5.00	0.00	0.01	0.01
12.15	3.54	0.09	5.00	0.00	0.01	0.01
12.20	3.54	0.09	5.00	0.00	0.01	0.01
12.25	3.54	0.09	5.00	0.00	0.01	0.01
12.30	3.54	0.09	5.00	0.00	0.01	0.01
12.35	3.54	0.09	5.00	0.00	0.01	0.01
12.40	3.54	0.09	5.00	0.00	0.01	0.01
12.45	3.54	0.09	5.00	0.00	0.01	0.01
12.50	3.54	0.09	5.00	0.00	0.01	0.01
12.55	3.54	0.09	5.00	0.00	0.01	0.01
12.60	3.54	0.09	5.00	0.00	0.01	0.01
12.65	3.54	0.09	5.00	0.00	0.01	0.01
12.70	3.54	0.09	5.00	0.00	0.01	0.01
12.75	3.54	0.09	5.00	0.00	0.01	0.01
12.80	3.54	0.09	5.00	0.00	0.01	0.01
12.85	3.54	0.09	5.00	0.00	0.01	0.01
12.90	3.54	0.09	5.00	0.00	0.01	0.01
12.95	3.54	0.09	5.00	0.00	0.01	0.01
13.00	3.54	0.09	5.00	0.00	0.01	0.01
13.05	3.54	0.09	5.00	0.00	0.01	0.01
13.10	3.54	0.09	5.00	0.00	0.01	0.01
13.15	3.54	0.09	5.00	0.00	0.01	0.01

13.20	3.54	0.09	5.00	0.00	0.01	0.01
13.25	3.54	0.09	5.00	0.00	0.01	0.01
13.30	3.54	0.09	5.00	0.00	0.01	0.01
13.35	3.54	0.09	5.00	0.00	0.01	0.01
13.40	3.54	0.09	5.00	0.00	0.01	0.01
13.45	3.54	0.09	5.00	0.00	0.01	0.01
13.50	3.54	0.09	5.00	0.00	0.01	0.01
13.55	3.54	0.09	5.00	0.00	0.01	0.01
13.60	3.54	0.09	5.00	0.00	0.01	0.01
13.65	3.54	0.09	5.00	0.00	0.01	0.01
13.70	3.54	0.09	5.00	0.00	0.01	0.01
13.75	3.54	0.09	5.00	0.00	0.01	0.01
13.80	3.54	0.09	5.00	0.00	0.01	0.01
13.85	3.54	0.09	5.00	0.00	0.01	0.01
13.90	3.54	0.09	5.00	0.00	0.01	0.01
13.95	3.54	0.09	5.00	0.00	0.01	0.01
14.00	3.54	0.09	5.00	0.00	0.01	0.01
14.05	3.54	0.09	5.00	0.00	0.01	0.01
14.10	3.54	0.09	5.00	0.00	0.01	0.01
14.15	3.54	0.09	5.00	0.00	0.01	0.01
14.20	3.54	0.09	5.00	0.00	0.01	0.01
14.25	3.54	0.09	5.00	0.00	0.01	0.01
14.30	3.54	0.09	5.00	0.00	0.01	0.01
14.35	3.54	0.09	5.00	0.00	0.01	0.01
14.40	3.54	0.09	5.00	0.00	0.01	0.01
14.45	3.54	0.09	5.00	0.00	0.01	0.01
14.50	3.54	0.09	5.00	0.00	0.01	0.01
14.55	3.54	0.09	5.00	0.00	0.01	0.01
14.60	3.54	0.09	5.00	0.00	0.01	0.01
14.65	3.54	0.09	5.00	0.00	0.01	0.01
14.70	3.54	0.09	5.00	0.00	0.01	0.01
14.75	3.54	0.09	5.00	0.00	0.01	0.01
14.80	3.54	0.09	5.00	0.00	0.01	0.01
14.85	3.54	0.09	5.00	0.00	0.01	0.01
14.90	3.54	0.09	5.00	0.00	0.01	0.01
14.95	3.54	0.09	5.00	0.00	0.01	0.01
15.00	3.54	0.09	5.00	0.00	0.01	0.01
15.05	3.54	0.09	5.00	0.00	0.01	0.01
15.10	3.54	0.09	5.00	0.00	0.01	0.01
15.15	3.54	0.09	5.00	0.00	0.01	0.01
15.20	3.54	0.09	5.00	0.00	0.01	0.01
15.25	3.54	0.09	5.00	0.00	0.01	0.01
15.30	3.54	0.09	5.00	0.00	0.01	0.01
15.35	3.54	0.09	5.00	0.00	0.01	0.01
15.40	3.54	0.09	5.00	0.00	0.01	0.01
15.45	3.54	0.09	5.00	0.00	0.01	0.01
15.50	3.54	0.09	5.00	0.00	0.01	0.01
15.55	3.54	0.09	5.00	0.00	0.01	0.01
15.60	3.54	0.09	5.00	0.00	0.01	0.01
15.65	3.54	0.09	5.00	0.00	0.01	0.01
15.70	3.54	0.09	5.00	0.00	0.01	0.01
15.75	3.54	0.09	5.00	0.00	0.01	0.01
15.80	3.54	0.09	5.00	0.00	0.01	0.01
15.85	3.54	0.09	5.00	0.00	0.01	0.01
15.90	3.54	0.09	5.00	0.00	0.01	0.01
15.95	3.54	0.09	5.00	0.00	0.01	0.01
16.00	3.54	0.09	5.00	0.00	0.01	0.01
16.05	3.54	0.09	5.00	0.00	0.01	0.01
16.10	3.54	0.09	5.00	0.00	0.01	0.01
16.15	3.54	0.09	5.00	0.00	0.01	0.01
16.20	3.54	0.09	5.00	0.00	0.01	0.01
16.25	3.54	0.09	5.00	0.00	0.01	0.01
16.30	3.54	0.09	5.00	0.00	0.01	0.01
16.35	3.54	0.09	5.00	0.00	0.01	0.01
16.40	3.54	0.09	5.00	0.00	0.01	0.01
16.45	3.54	0.09	5.00	0.00	0.01	0.01
16.50	3.54	0.09	5.00	0.00	0.01	0.01
16.55	3.54	0.09	5.00	0.00	0.01	0.01
16.60	3.54	0.09	5.00	0.00	0.01	0.01
16.65	3.54	0.09	5.00	0.00	0.01	0.01
16.70	3.54	0.09	5.00	0.00	0.01	0.01
16.75	3.54	0.09	5.00	0.00	0.01	0.01
16.80	3.54	0.09	5.00	0.00	0.01	0.01
16.85	3.54	0.09	5.00	0.00	0.01	0.01
16.90	3.54	0.09	5.00	0.00	0.01	0.01
16.95	3.54	0.09	5.00	0.00	0.01	0.01
17.00	3.54	0.09	5.00	0.00	0.01	0.01
17.05	3.54	0.09	5.00	0.00	0.01	0.01
17.10	3.54	0.09	5.00	0.00	0.01	0.01

17.15	3.54	0.09	5.00	0.00	0.01	0.01
17.20	3.54	0.09	5.00	0.00	0.01	0.01
17.25	3.54	0.09	5.00	0.00	0.01	0.01
17.30	3.54	0.09	5.00	0.00	0.01	0.01
17.35	3.54	0.09	5.00	0.00	0.01	0.01
17.40	3.54	0.09	5.00	0.00	0.01	0.01
17.45	3.54	0.09	5.00	0.00	0.01	0.01
17.50	3.54	0.09	5.00	0.00	0.01	0.01
17.55	3.54	0.09	5.00	0.00	0.01	0.01
17.60	3.54	0.09	5.00	0.00	0.01	0.01
17.65	3.54	0.09	5.00	0.00	0.01	0.01
17.70	3.54	0.09	5.00	0.00	0.01	0.01
17.75	3.54	0.09	5.00	0.00	0.01	0.01
17.80	3.54	0.09	5.00	0.00	0.01	0.01
17.85	3.54	0.09	5.00	0.00	0.01	0.01
17.90	3.54	0.09	5.00	0.00	0.01	0.01
17.95	3.54	0.09	5.00	0.00	0.01	0.01
18.00	3.54	0.09	5.00	0.00	0.01	0.01
18.05	3.54	0.09	5.00	0.00	0.01	0.01
18.10	3.54	0.09	5.00	0.00	0.01	0.01
18.15	3.54	0.09	5.00	0.00	0.01	0.01
18.20	3.54	0.09	5.00	0.00	0.01	0.01
18.25	3.54	0.09	5.00	0.00	0.01	0.01
18.30	3.54	0.09	5.00	0.00	0.01	0.01
18.35	3.54	0.09	5.00	0.00	0.01	0.01
18.40	3.54	0.09	5.00	0.00	0.01	0.01
18.45	3.54	0.09	5.00	0.00	0.01	0.01
18.50	3.54	0.09	5.00	0.00	0.01	0.01
18.55	3.54	0.09	5.00	0.00	0.01	0.01
18.60	3.54	0.09	5.00	0.00	0.01	0.01
18.65	3.54	0.09	5.00	0.00	0.01	0.01
18.70	3.54	0.09	5.00	0.00	0.01	0.01
18.75	3.54	0.09	5.00	0.00	0.01	0.01
18.80	3.54	0.09	5.00	0.00	0.01	0.01
18.85	3.54	0.09	5.00	0.00	0.01	0.01
18.90	3.54	0.09	5.00	0.00	0.01	0.01
18.95	3.54	0.09	5.00	0.00	0.01	0.01
19.00	3.54	0.09	5.00	0.00	0.01	0.01
19.05	3.54	0.09	5.00	0.00	0.01	0.01
19.10	3.54	0.09	5.00	0.00	0.01	0.01
19.15	3.54	0.09	5.00	0.00	0.01	0.01
19.20	3.54	0.09	5.00	0.00	0.01	0.01
19.25	3.54	0.09	5.00	0.00	0.01	0.01
19.30	3.54	0.09	5.00	0.00	0.01	0.01
19.35	3.54	0.09	5.00	0.00	0.01	0.01
19.40	3.54	0.09	5.00	0.00	0.01	0.01
19.45	3.54	0.09	5.00	0.00	0.01	0.01
19.50	3.54	0.09	5.00	0.00	0.01	0.01
19.55	3.54	0.09	5.00	0.00	0.01	0.01
19.60	3.54	0.09	5.00	0.00	0.01	0.01
19.65	3.54	0.09	5.00	0.00	0.01	0.01
19.70	3.54	0.09	5.00	0.00	0.01	0.01
19.75	3.54	0.09	5.00	0.00	0.01	0.01
19.80	3.54	0.09	5.00	0.00	0.01	0.01
19.85	3.54	0.09	5.00	0.00	0.01	0.01
19.90	3.54	0.09	5.00	0.00	0.01	0.01
19.95	3.54	0.09	5.00	0.00	0.01	0.01
20.00	3.54	0.09	5.00	0.00	0.01	0.01
20.05	3.54	0.09	5.00	0.00	0.01	0.01
20.10	3.54	0.09	5.00	0.00	0.01	0.01
20.15	3.54	0.09	5.00	0.00	0.01	0.01
20.20	3.54	0.09	5.00	0.00	0.01	0.01
20.25	3.54	0.09	5.00	0.00	0.01	0.01
20.30	3.54	0.09	5.00	0.00	0.01	0.01
20.35	3.54	0.09	5.00	0.00	0.01	0.01
20.40	3.54	0.09	5.00	0.00	0.01	0.01
20.45	3.54	0.09	5.00	0.00	0.01	0.01
20.50	3.54	0.09	5.00	0.00	0.01	0.01
20.55	3.54	0.09	5.00	0.00	0.01	0.01
20.60	3.54	0.09	5.00	0.00	0.01	0.01
20.65	3.54	0.09	5.00	0.00	0.01	0.01
20.70	3.54	0.09	5.00	0.00	0.01	0.01
20.75	3.54	0.09	5.00	0.00	0.01	0.01
20.80	3.54	0.09	5.00	0.00	0.01	0.01
20.85	3.54	0.09	5.00	0.00	0.01	0.01
20.90	3.54	0.09	5.00	0.00	0.01	0.01
20.95	3.54	0.09	5.00	0.00	0.01	0.01
21.00	3.54	0.09	5.00	0.00	0.01	0.01
21.05	3.54	0.09	5.00	0.00	0.01	0.01

21.10	3.54	0.09	5.00	0.00	0.01	0.01
21.15	3.54	0.09	5.00	0.00	0.01	0.01
21.20	3.54	0.09	5.00	0.00	0.01	0.01
21.25	3.54	0.09	5.00	0.00	0.01	0.01
21.30	3.54	0.09	5.00	0.00	0.01	0.01
21.35	3.54	0.09	5.00	0.00	0.01	0.01
21.40	3.54	0.09	5.00	0.00	0.01	0.01
21.45	3.54	0.09	5.00	0.00	0.01	0.01
21.50	3.54	0.09	5.00	0.00	0.01	0.01
21.55	3.54	0.09	5.00	0.00	0.01	0.01
21.60	3.54	0.09	5.00	0.00	0.01	0.01
21.65	3.54	0.09	5.00	0.00	0.01	0.01
21.70	3.54	0.09	5.00	0.00	0.01	0.01
21.75	3.54	0.09	5.00	0.00	0.01	0.01
21.80	3.54	0.09	5.00	0.00	0.01	0.01
21.85	3.54	0.09	5.00	0.00	0.01	0.01
21.90	3.54	0.09	5.00	0.00	0.01	0.01
21.95	3.54	0.09	5.00	0.00	0.01	0.01
22.00	3.54	0.09	5.00	0.00	0.01	0.01
22.05	3.54	0.09	5.00	0.00	0.01	0.01
22.10	3.54	0.09	5.00	0.00	0.01	0.01
22.15	3.54	0.09	5.00	0.00	0.01	0.01
22.20	3.54	0.09	5.00	0.00	0.01	0.01
22.25	3.54	0.09	5.00	0.00	0.01	0.01
22.30	3.54	0.09	5.00	0.00	0.01	0.01
22.35	3.54	0.09	5.00	0.00	0.01	0.01
22.40	3.54	0.09	5.00	0.00	0.01	0.01
22.45	3.54	0.09	5.00	0.00	0.01	0.01
22.50	3.54	0.08	5.00	0.00	0.01	0.01
22.55	3.54	0.08	5.00	0.00	0.01	0.01
22.60	3.54	0.08	5.00	0.00	0.01	0.01
22.65	3.54	0.08	5.00	0.00	0.01	0.01
22.70	3.54	0.08	5.00	0.00	0.01	0.01
22.75	3.54	0.08	5.00	0.00	0.01	0.01
22.80	3.54	0.08	5.00	0.00	0.01	0.01
22.85	3.54	0.08	5.00	0.00	0.01	0.01
22.90	3.54	0.08	5.00	0.00	0.01	0.01
22.95	3.54	0.08	5.00	0.00	0.01	0.01
23.00	3.54	0.08	5.00	0.00	0.01	0.01
23.05	3.54	0.08	5.00	0.00	0.01	0.01
23.10	3.54	0.08	5.00	0.00	0.01	0.01
23.15	3.54	0.08	5.00	0.00	0.01	0.01
23.20	3.54	0.08	5.00	0.00	0.01	0.01
23.25	3.54	0.08	5.00	0.00	0.01	0.01
23.30	3.54	0.08	5.00	0.00	0.01	0.01
23.35	3.54	0.08	5.00	0.00	0.01	0.01
23.40	3.54	0.08	5.00	0.00	0.01	0.01
23.45	3.54	0.08	5.00	0.00	0.01	0.01
23.50	3.54	0.08	5.00	0.00	0.01	0.01
23.55	3.54	0.08	5.00	0.00	0.01	0.01
23.60	3.54	0.08	5.00	0.00	0.01	0.01
23.65	3.54	0.08	5.00	0.00	0.01	0.01
23.70	3.54	0.08	5.00	0.00	0.01	0.01
23.75	3.54	0.08	5.00	0.00	0.01	0.01
23.80	3.54	0.08	5.00	0.00	0.01	0.01
23.85	3.54	0.08	5.00	0.00	0.01	0.01
23.90	3.54	0.08	5.00	0.00	0.01	0.01
23.95	3.54	0.08	5.00	0.00	0.01	0.01
24.00	3.54	0.08	5.00	0.00	0.01	0.01
24.05	3.54	0.08	5.00	0.00	0.01	0.01
24.10	3.54	0.08	5.00	0.00	0.01	0.01
24.15	3.54	0.08	5.00	0.00	0.01	0.01
24.20	3.54	0.08	5.00	0.00	0.01	0.01
24.25	3.54	0.08	5.00	0.00	0.01	0.01
24.30	3.54	0.08	5.00	0.00	0.01	0.01
24.35	3.54	0.08	5.00	0.00	0.01	0.01
24.40	3.54	0.08	5.00	0.00	0.01	0.01
24.45	3.54	0.08	5.00	0.00	0.01	0.01
24.50	3.54	0.08	5.00	0.00	0.01	0.01
24.55	3.54	0.08	5.00	0.00	0.01	0.01
24.60	3.54	0.08	5.00	0.00	0.01	0.01
24.65	3.54	0.08	5.00	0.00	0.01	0.01
24.70	3.54	0.08	5.00	0.00	0.01	0.01
24.75	3.54	0.08	5.00	0.00	0.01	0.01
24.80	3.54	0.08	5.00	0.00	0.01	0.01
24.85	3.54	0.08	5.00	0.00	0.01	0.01
24.90	3.54	0.08	5.00	0.00	0.01	0.01
24.95	3.54	0.08	5.00	0.00	0.01	0.01
25.00	3.54	0.08	5.00	0.00	0.01	0.01

25.05	3.54	0.08	5.00	0.00	0.01	0.01
25.10	3.54	0.08	5.00	0.00	0.01	0.01
25.15	3.54	0.08	5.00	0.00	0.01	0.01
25.20	3.54	0.08	5.00	0.00	0.01	0.01
25.25	3.54	0.08	5.00	0.00	0.01	0.01
25.30	3.54	0.08	5.00	0.00	0.01	0.01
25.35	3.54	0.08	5.00	0.00	0.01	0.01
25.40	3.54	0.08	5.00	0.00	0.01	0.01
25.45	3.54	0.08	5.00	0.00	0.01	0.01
25.50	3.54	0.08	5.00	0.00	0.01	0.01
25.55	3.54	0.08	5.00	0.00	0.01	0.01
25.60	3.54	0.08	5.00	0.00	0.01	0.01
25.65	3.54	0.08	5.00	0.00	0.01	0.01
25.70	3.54	0.08	5.00	0.00	0.01	0.01
25.75	3.54	0.08	5.00	0.00	0.01	0.01
25.80	3.54	0.08	5.00	0.00	0.01	0.01
25.85	3.54	0.08	5.00	0.00	0.01	0.01
25.90	3.54	0.08	5.00	0.00	0.01	0.01
25.95	3.54	0.08	5.00	0.00	0.01	0.01
26.00	3.54	0.08	5.00	0.00	0.01	0.01
26.05	3.54	0.08	5.00	0.00	0.01	0.01
26.10	3.54	0.08	5.00	0.00	0.01	0.01
26.15	3.54	0.08	5.00	0.00	0.01	0.01
26.20	3.54	0.08	5.00	0.00	0.01	0.01
26.25	3.54	0.08	5.00	0.00	0.01	0.01
26.30	3.54	0.08	5.00	0.00	0.01	0.01
26.35	3.54	0.08	5.00	0.00	0.01	0.01
26.40	3.54	0.08	5.00	0.00	0.01	0.01
26.45	3.54	0.08	5.00	0.00	0.01	0.01
26.50	3.54	0.08	5.00	0.00	0.01	0.01
26.55	3.54	0.08	5.00	0.00	0.01	0.01
26.60	3.54	0.08	5.00	0.00	0.01	0.01
26.65	3.54	0.08	5.00	0.00	0.01	0.01
26.70	3.54	0.08	5.00	0.00	0.01	0.01
26.75	3.54	0.08	5.00	0.00	0.01	0.01
26.80	3.54	0.08	5.00	0.00	0.01	0.01
26.85	3.54	0.08	5.00	0.00	0.01	0.01
26.90	3.54	0.08	5.00	0.00	0.01	0.01
26.95	3.54	0.08	5.00	0.00	0.01	0.01
27.00	3.54	0.08	5.00	0.00	0.01	0.01
27.05	3.54	0.08	5.00	0.00	0.01	0.01
27.10	3.54	0.08	5.00	0.00	0.01	0.01
27.15	3.54	0.08	5.00	0.00	0.01	0.01
27.20	3.54	0.08	5.00	0.00	0.01	0.01
27.25	3.54	0.08	5.00	0.00	0.01	0.01
27.30	3.54	0.08	5.00	0.00	0.01	0.01
27.35	3.54	0.08	5.00	0.00	0.01	0.01
27.40	3.54	0.08	5.00	0.00	0.01	0.01
27.45	3.54	0.08	5.00	0.00	0.01	0.01
27.50	3.54	0.08	5.00	0.00	0.01	0.01
27.55	3.54	0.08	5.00	0.00	0.01	0.01
27.60	3.54	0.08	5.00	0.00	0.01	0.01
27.65	3.54	0.08	5.00	0.00	0.01	0.01
27.70	3.54	0.08	5.00	0.00	0.01	0.01
27.75	3.54	0.08	5.00	0.00	0.01	0.01
27.80	3.54	0.08	5.00	0.00	0.01	0.01
27.85	3.54	0.08	5.00	0.00	0.01	0.01
27.90	3.54	0.08	5.00	0.00	0.01	0.01
27.95	3.54	0.08	5.00	0.00	0.01	0.01
28.00	3.54	0.08	5.00	0.00	0.01	0.01
28.05	3.54	0.08	5.00	0.00	0.01	0.01
28.10	3.54	0.08	5.00	0.00	0.01	0.01
28.15	3.54	0.08	5.00	0.00	0.01	0.01
28.20	3.54	0.08	5.00	0.00	0.01	0.01
28.25	3.54	0.08	5.00	0.00	0.01	0.01
28.30	3.54	0.08	5.00	0.00	0.01	0.01
28.35	3.54	0.08	5.00	0.00	0.01	0.01
28.40	3.54	0.08	5.00	0.00	0.01	0.01
28.45	3.54	0.08	5.00	0.00	0.01	0.01
28.50	3.54	0.08	5.00	0.00	0.01	0.01
28.55	3.54	0.08	5.00	0.00	0.01	0.01
28.60	3.54	0.08	5.00	0.00	0.01	0.01
28.65	3.54	0.08	5.00	0.00	0.01	0.01
28.70	3.54	0.08	5.00	0.00	0.01	0.01
28.75	3.54	0.08	5.00	0.00	0.01	0.01
28.80	3.54	0.08	5.00	0.00	0.01	0.01
28.85	3.54	0.08	5.00	0.00	0.01	0.01
28.90	3.54	0.08	5.00	0.00	0.01	0.01
28.95	3.54	0.08	5.00	0.00	0.01	0.01

29.00	3.54	0.08	5.00	0.00	0.01	0.01
29.05	3.54	0.08	5.00	0.00	0.01	0.01
29.10	3.54	0.08	5.00	0.00	0.01	0.01
29.15	3.54	0.08	5.00	0.00	0.01	0.01
29.20	3.54	0.08	5.00	0.00	0.01	0.01
29.25	3.54	0.08	5.00	0.00	0.01	0.01
29.30	3.54	0.08	5.00	0.00	0.01	0.01
29.35	3.54	0.08	5.00	0.00	0.01	0.01
29.40	3.54	0.08	5.00	0.00	0.01	0.01
29.45	3.54	0.08	5.00	0.00	0.01	0.01
29.50	3.54	0.08	5.00	0.00	0.01	0.01
29.55	3.54	0.08	5.00	0.00	0.01	0.01
29.60	3.54	0.08	5.00	0.00	0.01	0.01
29.65	3.54	0.08	5.00	0.00	0.01	0.01
29.70	3.54	0.08	5.00	0.00	0.01	0.01
29.75	3.54	0.08	5.00	0.00	0.01	0.01
29.80	3.54	0.08	5.00	0.00	0.01	0.01
29.85	3.54	0.08	5.00	0.00	0.01	0.01
29.90	3.54	0.08	5.00	0.00	0.01	0.01
29.95	3.54	0.08	5.00	0.00	0.01	0.01
30.00	3.54	0.08	5.00	0.00	0.01	0.01
30.05	3.54	0.08	5.00	0.00	0.01	0.01
30.10	3.54	0.08	5.00	0.00	0.01	0.01
30.15	3.54	0.08	5.00	0.00	0.01	0.01
30.20	3.54	0.08	5.00	0.00	0.01	0.01
30.25	3.54	0.08	5.00	0.00	0.01	0.01
30.30	3.54	0.08	5.00	0.00	0.01	0.01
30.35	3.54	0.08	5.00	0.00	0.01	0.01
30.40	3.56	0.08	5.00	0.00	0.01	0.01
30.45	3.56	0.08	5.00	0.00	0.01	0.01
30.50	3.56	0.08	5.00	0.00	0.01	0.01
30.55	3.56	0.08	5.00	0.00	0.01	0.01
30.60	3.56	0.08	5.00	0.00	0.01	0.01
30.65	3.56	0.08	5.00	0.00	0.01	0.01
30.70	3.56	0.08	5.00	0.00	0.01	0.01
30.75	3.55	0.08	5.00	0.00	0.01	0.01
30.80	3.55	0.08	5.00	0.00	0.01	0.01
30.85	3.55	0.08	5.00	0.00	0.01	0.01
30.90	3.55	0.08	5.00	0.00	0.01	0.01
30.95	3.55	0.08	5.00	0.00	0.01	0.01
31.00	3.55	0.08	5.00	0.00	0.01	0.01
31.05	3.55	0.08	5.00	0.00	0.01	0.01
31.10	3.55	0.08	5.00	0.00	0.01	0.01
31.15	3.55	0.08	5.00	0.00	0.01	0.01
31.20	3.55	0.08	5.00	0.00	0.01	0.01
31.25	3.54	0.08	5.00	0.00	0.01	0.01
31.30	3.54	0.08	5.00	0.00	0.01	0.01
31.35	3.54	0.08	5.00	0.00	0.01	0.01
31.40	3.54	0.08	5.00	0.00	0.01	0.01
31.45	3.54	0.08	5.00	0.00	0.01	0.01
31.50	3.54	0.08	5.00	0.00	0.01	0.01
31.55	3.54	0.08	5.00	0.00	0.01	0.01
31.60	3.54	0.08	5.00	0.00	0.01	0.01
31.65	3.54	0.08	5.00	0.00	0.01	0.01
31.70	3.54	0.08	5.00	0.00	0.01	0.01
31.75	3.54	0.08	5.00	0.00	0.01	0.01
31.80	3.53	0.08	5.00	0.00	0.01	0.01
31.85	3.53	0.08	5.00	0.00	0.01	0.01
31.90	3.53	0.08	5.00	0.00	0.01	0.01
31.95	3.53	0.08	5.00	0.00	0.01	0.01
32.00	3.53	0.08	5.00	0.00	0.01	0.01
32.05	3.53	0.08	5.00	0.00	0.01	0.01
32.10	3.53	0.08	5.00	0.00	0.01	0.01
32.15	3.53	0.08	5.00	0.00	0.01	0.01
32.20	3.53	0.08	5.00	0.00	0.01	0.01
32.25	3.53	0.08	5.00	0.00	0.01	0.01
32.30	3.53	0.08	5.00	0.00	0.01	0.01
32.35	3.52	0.08	5.00	0.00	0.01	0.01
32.40	3.52	0.08	5.00	0.00	0.01	0.01
32.45	3.52	0.08	5.00	0.00	0.01	0.01
32.50	3.52	0.08	5.00	0.00	0.01	0.01
32.55	3.52	0.08	5.00	0.00	0.01	0.01
32.60	3.52	0.08	5.00	0.00	0.01	0.01
32.65	3.52	0.08	5.00	0.00	0.01	0.01
32.70	3.52	0.08	5.00	0.00	0.01	0.01
32.75	3.52	0.08	5.00	0.00	0.01	0.01
32.80	3.52	0.08	5.00	0.00	0.01	0.01
32.85	3.51	0.08	5.00	0.00	0.01	0.01
32.90	3.51	0.08	5.00	0.00	0.01	0.01

32.95	3.51	0.08	5.00	0.00	0.01	0.01
33.00	3.51	0.08	5.00	0.00	0.01	0.01
33.05	3.51	0.08	5.00	0.00	0.01	0.01
33.10	3.51	0.08	5.00	0.00	0.01	0.01
33.15	3.51	0.08	5.00	0.00	0.01	0.01
33.20	3.51	0.08	5.00	0.00	0.01	0.01
33.25	3.51	0.08	5.00	0.00	0.01	0.01
33.30	3.51	0.08	5.00	0.00	0.01	0.01
33.35	3.51	0.08	5.00	0.00	0.01	0.01
33.40	3.50	0.08	5.00	0.00	0.01	0.01
33.45	3.50	0.08	5.00	0.00	0.01	0.01
33.50	3.50	0.08	5.00	0.00	0.01	0.01
33.55	3.50	0.08	5.00	0.00	0.01	0.01
33.60	3.50	0.08	5.00	0.00	0.01	0.01
33.65	3.50	0.08	5.00	0.00	0.01	0.01
33.70	3.50	0.08	5.00	0.00	0.01	0.01
33.75	3.50	0.08	5.00	0.00	0.01	0.01
33.80	3.50	0.08	5.00	0.00	0.01	0.01
33.85	3.50	0.08	5.00	0.00	0.01	0.01
33.90	3.50	0.08	5.00	0.00	0.01	0.01
33.95	3.49	0.08	5.00	0.00	0.00	0.00
34.00	3.49	0.08	5.00	0.00	0.00	0.00
34.05	3.49	0.08	5.00	0.00	0.00	0.00
34.10	3.49	0.08	5.00	0.00	0.00	0.00
34.15	3.49	0.08	5.00	0.00	0.00	0.00
34.20	3.49	0.08	5.00	0.00	0.00	0.00
34.25	3.49	0.08	5.00	0.00	0.00	0.00
34.30	3.49	0.08	5.00	0.00	0.00	0.00
34.35	3.49	0.08	5.00	0.00	0.00	0.00
34.40	3.49	0.08	5.00	0.00	0.00	0.00
34.45	3.49	0.08	5.00	0.00	0.00	0.00
34.50	3.48	0.08	5.00	0.00	0.00	0.00
34.55	3.48	0.08	5.00	0.00	0.00	0.00
34.60	3.48	0.08	5.00	0.00	0.00	0.00
34.65	3.48	0.08	5.00	0.00	0.00	0.00
34.70	3.48	0.08	5.00	0.00	0.00	0.00
34.75	3.48	0.08	5.00	0.00	0.00	0.00
34.80	3.48	0.08	5.00	0.00	0.00	0.00
34.85	3.48	0.08	5.00	0.00	0.00	0.00
34.90	3.48	0.08	5.00	0.00	0.00	0.00
34.95	3.48	0.08	5.00	0.00	0.00	0.00
35.00	3.48	0.08	5.00	0.00	0.00	0.00
35.05	3.47	0.08	5.00	0.00	0.00	0.00
35.10	3.47	0.08	5.00	0.00	0.00	0.00
35.15	3.47	0.08	5.00	0.00	0.00	0.00
35.20	3.47	0.08	5.00	0.00	0.00	0.00
35.25	3.47	0.08	5.00	0.00	0.00	0.00
35.30	3.47	0.08	5.00	0.00	0.00	0.00
35.35	3.47	0.08	5.00	0.00	0.00	0.00
35.40	3.47	0.08	5.00	0.00	0.00	0.00
35.45	3.47	0.08	5.00	0.00	0.00	0.00
35.50	3.47	0.08	5.00	0.00	0.00	0.00
35.55	3.47	0.08	5.00	0.00	0.00	0.00
35.60	3.46	0.08	5.00	0.00	0.00	0.00
35.65	3.46	0.08	5.00	0.00	0.00	0.00
35.70	3.46	0.08	5.00	0.00	0.00	0.00
35.75	3.46	0.08	5.00	0.00	0.00	0.00
35.80	3.46	0.08	5.00	0.00	0.00	0.00
35.85	3.46	0.08	5.00	0.00	0.00	0.00
35.90	3.46	0.08	5.00	0.00	0.00	0.00
35.95	3.46	0.08	5.00	0.00	0.00	0.00
36.00	3.46	0.08	5.00	0.00	0.00	0.00
36.05	3.46	0.08	5.00	0.00	0.00	0.00
36.10	3.46	0.08	5.00	0.00	0.00	0.00
36.15	3.45	0.08	5.00	0.00	0.00	0.00
36.20	3.45	0.08	5.00	0.00	0.00	0.00
36.25	3.45	0.08	5.00	0.00	0.00	0.00
36.30	3.45	0.08	5.00	0.00	0.00	0.00
36.35	3.45	0.08	5.00	0.00	0.00	0.00
36.40	3.45	0.08	5.00	0.00	0.00	0.00
36.45	3.45	0.08	5.00	0.00	0.00	0.00
36.50	3.45	0.08	5.00	0.00	0.00	0.00
36.55	3.45	0.08	5.00	0.00	0.00	0.00
36.60	3.45	0.08	5.00	0.00	0.00	0.00
36.65	3.45	0.08	5.00	0.00	0.00	0.00
36.70	3.44	0.08	5.00	0.00	0.00	0.00
36.75	3.44	0.08	5.00	0.00	0.00	0.00
36.80	3.44	0.08	5.00	0.00	0.00	0.00
36.85	3.44	0.08	5.00	0.00	0.00	0.00

36.90	3.44	0.08	5.00	0.00	0.00	0.00
36.95	3.44	0.08	5.00	0.00	0.00	0.00
37.00	3.44	0.08	5.00	0.00	0.00	0.00
37.05	3.44	0.08	5.00	0.00	0.00	0.00
37.10	3.44	0.08	5.00	0.00	0.00	0.00
37.15	3.44	0.08	5.00	0.00	0.00	0.00
37.20	3.44	0.08	5.00	0.00	0.00	0.00
37.25	3.44	0.08	5.00	0.00	0.00	0.00
37.30	3.43	0.08	5.00	0.00	0.00	0.00
37.35	3.43	0.08	5.00	0.00	0.00	0.00
37.40	3.43	0.08	5.00	0.00	0.00	0.00
37.45	3.43	0.08	5.00	0.00	0.00	0.00
37.50	3.43	0.08	5.00	0.00	0.00	0.00
37.55	3.43	0.08	5.00	0.00	0.00	0.00
37.60	3.43	0.08	5.00	0.00	0.00	0.00
37.65	3.43	0.08	5.00	0.00	0.00	0.00
37.70	3.43	0.08	5.00	0.00	0.00	0.00
37.75	3.43	0.08	5.00	0.00	0.00	0.00
37.80	3.43	0.08	5.00	0.00	0.00	0.00
37.85	3.42	0.08	5.00	0.00	0.00	0.00
37.90	3.42	0.08	5.00	0.00	0.00	0.00
37.95	3.42	0.08	5.00	0.00	0.00	0.00
38.00	3.42	0.08	5.00	0.00	0.00	0.00
38.05	3.42	0.08	5.00	0.00	0.00	0.00
38.10	3.42	0.08	5.00	0.00	0.00	0.00
38.15	3.42	0.08	5.00	0.00	0.00	0.00
38.20	3.42	0.08	5.00	0.00	0.00	0.00
38.25	3.42	0.08	5.00	0.00	0.00	0.00
38.30	3.42	0.08	5.00	0.00	0.00	0.00
38.35	3.42	0.08	5.00	0.00	0.00	0.00
38.40	3.41	0.08	5.00	0.00	0.00	0.00
38.45	3.41	0.08	5.00	0.00	0.00	0.00
38.50	3.41	0.08	5.00	0.00	0.00	0.00
38.55	3.41	0.08	5.00	0.00	0.00	0.00
38.60	3.41	0.08	5.00	0.00	0.00	0.00
38.65	3.41	0.08	5.00	0.00	0.00	0.00
38.70	3.41	0.08	5.00	0.00	0.00	0.00
38.75	3.41	0.08	5.00	0.00	0.00	0.00
38.80	3.41	0.08	5.00	0.00	0.00	0.00
38.85	3.41	0.08	5.00	0.00	0.00	0.00
38.90	3.41	0.08	5.00	0.00	0.00	0.00
38.95	3.41	0.08	5.00	0.00	0.00	0.00
39.00	3.40	0.08	5.00	0.00	0.00	0.00
39.05	3.40	0.08	5.00	0.00	0.00	0.00
39.10	3.40	0.08	5.00	0.00	0.00	0.00
39.15	3.40	0.08	5.00	0.00	0.00	0.00
39.20	3.40	0.08	5.00	0.00	0.00	0.00
39.25	3.40	0.08	5.00	0.00	0.00	0.00
39.30	3.40	0.08	5.00	0.00	0.00	0.00
39.35	3.40	0.08	5.00	0.00	0.00	0.00
39.40	3.40	0.08	5.00	0.00	0.00	0.00
39.45	3.40	0.08	5.00	0.00	0.00	0.00
39.50	3.40	0.08	5.00	0.00	0.00	0.00
39.55	3.40	0.08	5.00	0.00	0.00	0.00
39.60	3.39	0.08	5.00	0.00	0.00	0.00
39.65	3.39	0.08	5.00	0.00	0.00	0.00
39.70	3.39	0.08	5.00	0.00	0.00	0.00
39.75	3.39	0.08	5.00	0.00	0.00	0.00
39.80	3.39	0.08	5.00	0.00	0.00	0.00
39.85	3.39	0.08	5.00	0.00	0.00	0.00
39.90	3.39	0.08	5.00	0.00	0.00	0.00
39.95	3.39	0.08	5.00	0.00	0.00	0.00
40.00	3.39	0.08	5.00	0.00	0.00	0.00
40.05	3.39	0.08	5.00	0.00	0.00	0.00
40.10	3.39	0.08	5.00	0.00	0.00	0.00
40.15	3.38	0.08	5.00	0.00	0.00	0.00
40.20	3.38	0.08	5.00	0.00	0.00	0.00
40.25	3.38	0.08	5.00	0.00	0.00	0.00
40.30	3.38	0.08	5.00	0.00	0.00	0.00
40.35	3.38	0.08	5.00	0.00	0.00	0.00
40.40	3.38	0.08	5.00	0.00	0.00	0.00
40.45	3.38	0.08	5.00	0.00	0.00	0.00
40.50	3.38	0.08	5.00	0.00	0.00	0.00
40.55	3.38	0.08	5.00	0.00	0.00	0.00
40.60	3.38	0.08	5.00	0.00	0.00	0.00
40.65	3.38	0.08	5.00	0.00	0.00	0.00
40.70	3.38	0.08	5.00	0.00	0.00	0.00
40.75	3.37	0.08	5.00	0.00	0.00	0.00
40.80	3.37	0.08	5.00	0.00	0.00	0.00

40.85	3.37	0.08	5.00	0.00	0.00	0.00
40.90	3.37	0.08	5.00	0.00	0.00	0.00
40.95	3.37	0.08	5.00	0.00	0.00	0.00
41.00	3.37	0.08	5.00	0.00	0.00	0.00
41.05	3.37	0.08	5.00	0.00	0.00	0.00
41.10	3.37	0.08	5.00	0.00	0.00	0.00
41.15	3.37	0.08	5.00	0.00	0.00	0.00
41.20	3.37	0.08	5.00	0.00	0.00	0.00
41.25	3.37	0.08	5.00	0.00	0.00	0.00
41.30	3.37	0.08	5.00	0.00	0.00	0.00
41.35	3.36	0.08	5.00	0.00	0.00	0.00
41.40	3.36	0.08	5.00	0.00	0.00	0.00
41.45	3.36	0.08	5.00	0.00	0.00	0.00
41.50	3.36	0.08	5.00	0.00	0.00	0.00
41.55	3.36	0.07	5.00	0.00	0.00	0.00
41.60	3.36	0.07	5.00	0.00	0.00	0.00
41.65	3.36	0.07	5.00	0.00	0.00	0.00
41.70	3.36	0.07	5.00	0.00	0.00	0.00
41.75	3.36	0.07	5.00	0.00	0.00	0.00
41.80	3.36	0.07	5.00	0.00	0.00	0.00
41.85	3.36	0.07	5.00	0.00	0.00	0.00
41.90	3.36	0.07	5.00	0.00	0.00	0.00
41.95	3.35	0.07	5.00	0.00	0.00	0.00
42.00	3.35	0.07	5.00	0.00	0.00	0.00
42.05	3.35	0.07	5.00	0.00	0.00	0.00
42.10	3.35	0.07	5.00	0.00	0.00	0.00
42.15	3.35	0.07	5.00	0.00	0.00	0.00
42.20	3.35	0.07	5.00	0.00	0.00	0.00
42.25	3.35	0.07	5.00	0.00	0.00	0.00
42.30	3.35	0.07	5.00	0.00	0.00	0.00
42.35	3.35	0.07	5.00	0.00	0.00	0.00
42.40	3.35	0.07	5.00	0.00	0.00	0.00
42.45	3.35	0.07	5.00	0.00	0.00	0.00
42.50	3.35	0.07	5.00	0.00	0.00	0.00
42.55	3.34	0.07	5.00	0.00	0.00	0.00
42.60	3.34	0.07	5.00	0.00	0.00	0.00
42.65	3.34	0.07	5.00	0.00	0.00	0.00
42.70	3.34	0.07	5.00	0.00	0.00	0.00
42.75	3.34	0.07	5.00	0.00	0.00	0.00
42.80	3.34	0.07	5.00	0.00	0.00	0.00
42.85	3.34	0.07	5.00	0.00	0.00	0.00
42.90	3.34	0.07	5.00	0.00	0.00	0.00
42.95	3.34	0.07	5.00	0.00	0.00	0.00
43.00	3.34	0.07	5.00	0.00	0.00	0.00
43.05	3.34	0.07	5.00	0.00	0.00	0.00
43.10	3.34	0.07	5.00	0.00	0.00	0.00
43.15	3.33	0.07	5.00	0.00	0.00	0.00
43.20	3.33	0.07	5.00	0.00	0.00	0.00
43.25	3.33	0.07	5.00	0.00	0.00	0.00
43.30	3.33	0.07	5.00	0.00	0.00	0.00
43.35	3.33	0.07	5.00	0.00	0.00	0.00
43.40	3.33	0.07	5.00	0.00	0.00	0.00
43.45	3.33	0.07	5.00	0.00	0.00	0.00
43.50	3.33	0.07	5.00	0.00	0.00	0.00
43.55	3.33	0.07	5.00	0.00	0.00	0.00
43.60	3.33	0.07	5.00	0.00	0.00	0.00
43.65	3.33	0.07	5.00	0.00	0.00	0.00
43.70	3.33	0.07	5.00	0.00	0.00	0.00
43.75	3.32	0.07	5.00	0.00	0.00	0.00
43.80	3.32	0.07	5.00	0.00	0.00	0.00
43.85	3.32	0.07	5.00	0.00	0.00	0.00
43.90	3.32	0.07	5.00	0.00	0.00	0.00
43.95	3.32	0.07	5.00	0.00	0.00	0.00
44.00	3.32	0.07	5.00	0.00	0.00	0.00
44.05	3.32	0.07	5.00	0.00	0.00	0.00
44.10	3.32	0.07	5.00	0.00	0.00	0.00
44.15	3.32	0.07	5.00	0.00	0.00	0.00
44.20	3.32	0.07	5.00	0.00	0.00	0.00
44.25	3.32	0.07	5.00	0.00	0.00	0.00
44.30	3.32	0.07	5.00	0.00	0.00	0.00
44.35	3.32	0.07	5.00	0.00	0.00	0.00
44.40	3.31	0.07	5.00	0.00	0.00	0.00
44.45	3.31	0.07	5.00	0.00	0.00	0.00
44.50	3.31	0.07	5.00	0.00	0.00	0.00
44.55	3.31	0.07	5.00	0.00	0.00	0.00
44.60	3.31	0.07	5.00	0.00	0.00	0.00
44.65	3.31	0.07	5.00	0.00	0.00	0.00
44.70	3.31	0.07	5.00	0.00	0.00	0.00
44.75	3.31	0.07	5.00	0.00	0.00	0.00

44.80	3.31	0.07	5.00	0.00	0.00	0.00
44.85	3.31	0.07	5.00	0.00	0.00	0.00
44.90	3.31	0.07	5.00	0.00	0.00	0.00
44.95	3.31	0.07	5.00	0.00	0.00	0.00
45.00	3.30	0.07	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

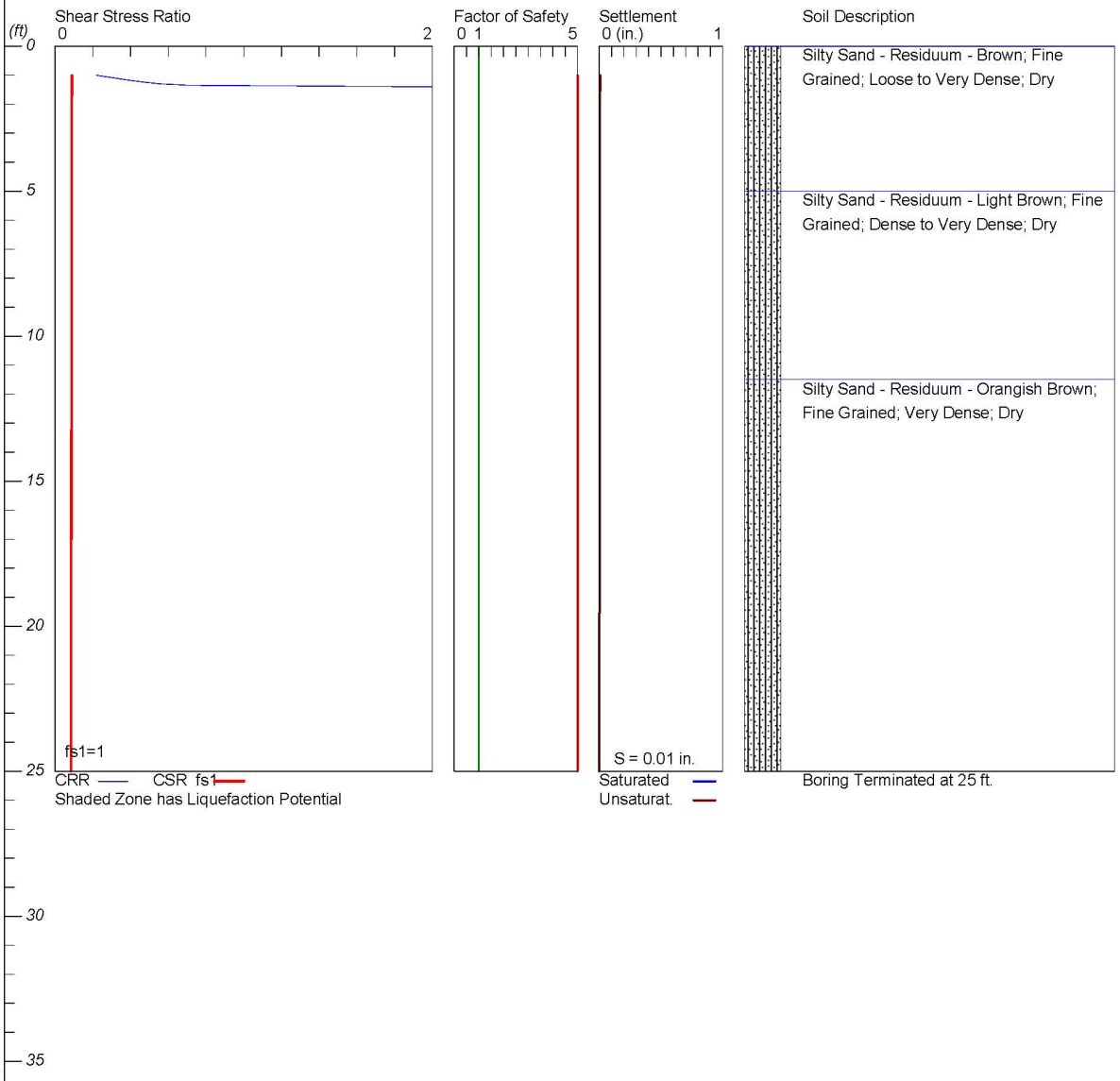
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-102 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-102.liq
Title: Interim Storage Facility NRC
Subtitle: B-102

Surface Elev.=0
Hole No.=B-102
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-102
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	10.00	90.00	0.00
3.00	100.00	90.00	0.00
5.00	46.00	90.00	0.00
8.00	55.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.22	0.09	5.00	0.00	0.01	0.01
1.05	0.27	0.09	5.00	0.00	0.01	0.01
1.10	0.32	0.09	5.00	0.00	0.01	0.01
1.15	0.37	0.09	5.00	0.00	0.01	0.01
1.20	0.42	0.09	5.00	0.00	0.01	0.01
1.25	0.48	0.09	5.00	0.00	0.01	0.01
1.30	0.56	0.09	5.00	0.00	0.01	0.01
1.35	0.71	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.00	0.00
5.95	3.54	0.09	5.00	0.00	0.00	0.00
6.00	3.54	0.09	5.00	0.00	0.00	0.00
6.05	3.54	0.09	5.00	0.00	0.00	0.00
6.10	3.54	0.09	5.00	0.00	0.00	0.00
6.15	3.54	0.09	5.00	0.00	0.00	0.00
6.20	3.54	0.09	5.00	0.00	0.00	0.00
6.25	3.54	0.09	5.00	0.00	0.00	0.00
6.30	3.54	0.09	5.00	0.00	0.00	0.00
6.35	3.54	0.09	5.00	0.00	0.00	0.00
6.40	3.54	0.09	5.00	0.00	0.00	0.00
6.45	3.54	0.09	5.00	0.00	0.00	0.00
6.50	3.54	0.09	5.00	0.00	0.00	0.00
6.55	3.54	0.09	5.00	0.00	0.00	0.00
6.60	3.54	0.09	5.00	0.00	0.00	0.00
6.65	3.54	0.09	5.00	0.00	0.00	0.00
6.70	3.54	0.09	5.00	0.00	0.00	0.00
6.75	3.54	0.09	5.00	0.00	0.00	0.00
6.80	3.54	0.09	5.00	0.00	0.00	0.00
6.85	3.54	0.09	5.00	0.00	0.00	0.00
6.90	3.54	0.09	5.00	0.00	0.00	0.00
6.95	3.54	0.09	5.00	0.00	0.00	0.00
7.00	3.54	0.09	5.00	0.00	0.00	0.00
7.05	3.54	0.09	5.00	0.00	0.00	0.00
7.10	3.54	0.09	5.00	0.00	0.00	0.00
7.15	3.54	0.09	5.00	0.00	0.00	0.00
7.20	3.54	0.09	5.00	0.00	0.00	0.00
7.25	3.54	0.09	5.00	0.00	0.00	0.00
7.30	3.54	0.09	5.00	0.00	0.00	0.00
7.35	3.54	0.09	5.00	0.00	0.00	0.00
7.40	3.54	0.09	5.00	0.00	0.00	0.00
7.45	3.54	0.09	5.00	0.00	0.00	0.00
7.50	3.54	0.09	5.00	0.00	0.00	0.00
7.55	3.54	0.09	5.00	0.00	0.00	0.00
7.60	3.54	0.09	5.00	0.00	0.00	0.00
7.65	3.54	0.09	5.00	0.00	0.00	0.00
7.70	3.54	0.09	5.00	0.00	0.00	0.00
7.75	3.54	0.09	5.00	0.00	0.00	0.00
7.80	3.54	0.09	5.00	0.00	0.00	0.00
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

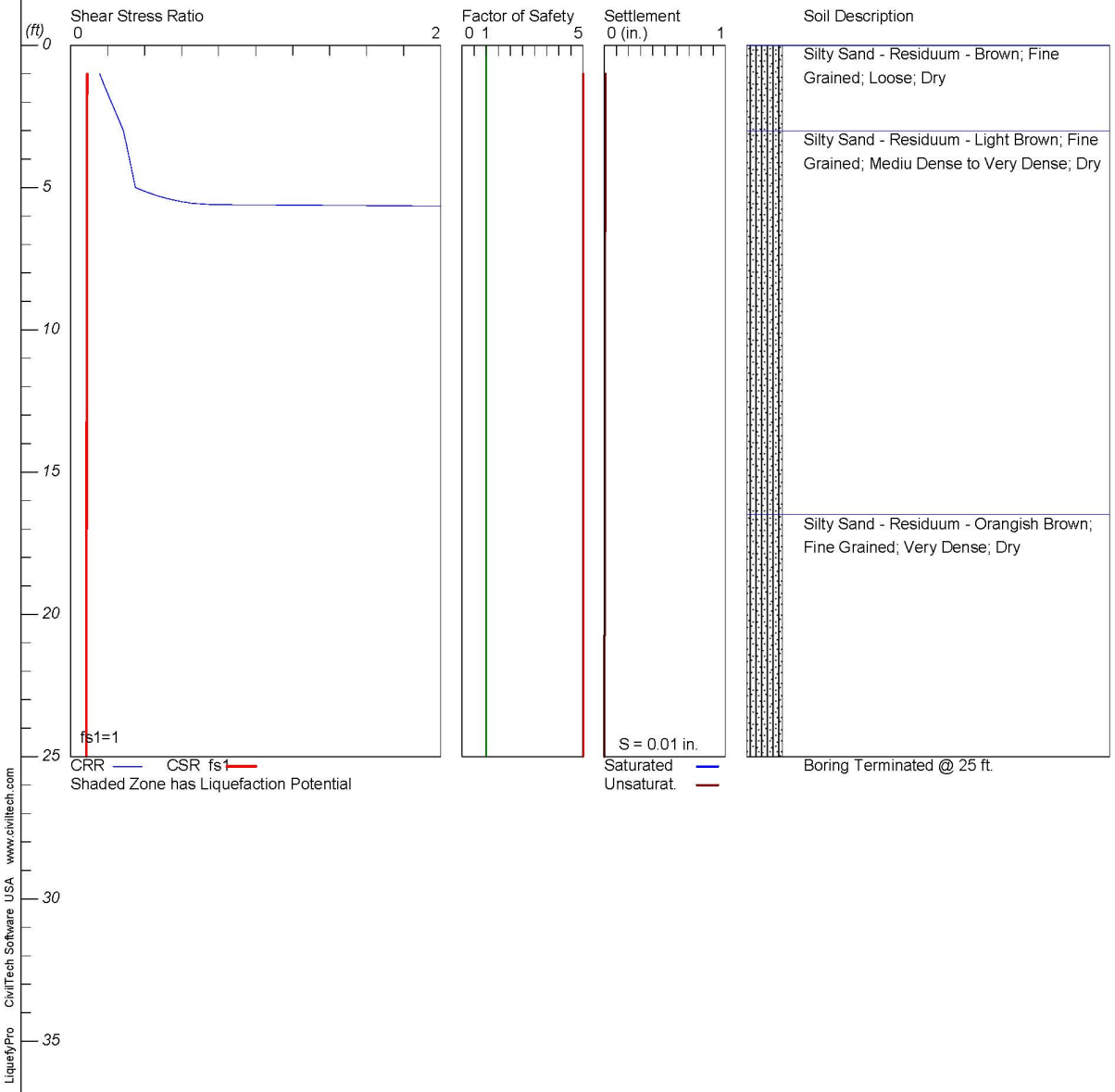
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-103 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-103.liq
Title: Interim Storage Facility NRC
Subtitle: B-103

Surface Elev.=0
Hole No.=B-103
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-103
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	7.00	90.00	0.00
3.00	13.00	90.00	0.00
5.00	16.00	90.00	0.00
8.00	66.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	66.00	110.00	0.00
23.00	56.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.005 to 0.007 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.16	0.09	5.00	0.00	0.01	0.01
1.05	0.16	0.09	5.00	0.00	0.01	0.01
1.10	0.16	0.09	5.00	0.00	0.01	0.01
1.15	0.17	0.09	5.00	0.00	0.01	0.01
1.20	0.17	0.09	5.00	0.00	0.01	0.01
1.25	0.17	0.09	5.00	0.00	0.01	0.01
1.30	0.18	0.09	5.00	0.00	0.01	0.01
1.35	0.18	0.09	5.00	0.00	0.01	0.01
1.40	0.18	0.09	5.00	0.00	0.01	0.01
1.45	0.18	0.09	5.00	0.00	0.01	0.01
1.50	0.19	0.09	5.00	0.00	0.01	0.01
1.55	0.19	0.09	5.00	0.00	0.01	0.01

1.60	0.19	0.09	5.00	0.00	0.01	0.01
1.65	0.20	0.09	5.00	0.00	0.01	0.01
1.70	0.20	0.09	5.00	0.00	0.01	0.01
1.75	0.20	0.09	5.00	0.00	0.01	0.01
1.80	0.21	0.09	5.00	0.00	0.01	0.01
1.85	0.21	0.09	5.00	0.00	0.01	0.01
1.90	0.21	0.09	5.00	0.00	0.01	0.01
1.95	0.22	0.09	5.00	0.00	0.01	0.01
2.00	0.22	0.09	5.00	0.00	0.01	0.01
2.05	0.22	0.09	5.00	0.00	0.01	0.01
2.10	0.23	0.09	5.00	0.00	0.01	0.01
2.15	0.23	0.09	5.00	0.00	0.01	0.01
2.20	0.23	0.09	5.00	0.00	0.01	0.01
2.25	0.24	0.09	5.00	0.00	0.01	0.01
2.30	0.24	0.09	5.00	0.00	0.01	0.01
2.35	0.24	0.09	5.00	0.00	0.01	0.01
2.40	0.25	0.09	5.00	0.00	0.01	0.01
2.45	0.25	0.09	5.00	0.00	0.01	0.01
2.50	0.25	0.09	5.00	0.00	0.01	0.01
2.55	0.26	0.09	5.00	0.00	0.01	0.01
2.60	0.26	0.09	5.00	0.00	0.01	0.01
2.65	0.26	0.09	5.00	0.00	0.01	0.01
2.70	0.27	0.09	5.00	0.00	0.01	0.01
2.75	0.27	0.09	5.00	0.00	0.01	0.01
2.80	0.27	0.09	5.00	0.00	0.01	0.01
2.85	0.28	0.09	5.00	0.00	0.01	0.01
2.90	0.28	0.09	5.00	0.00	0.01	0.01
2.95	0.28	0.09	5.00	0.00	0.01	0.01
3.00	0.29	0.09	5.00	0.00	0.01	0.01
3.05	0.29	0.09	5.00	0.00	0.01	0.01
3.10	0.29	0.09	5.00	0.00	0.01	0.01
3.15	0.29	0.09	5.00	0.00	0.01	0.01
3.20	0.29	0.09	5.00	0.00	0.01	0.01
3.25	0.29	0.09	5.00	0.00	0.01	0.01
3.30	0.30	0.09	5.00	0.00	0.01	0.01
3.35	0.30	0.09	5.00	0.00	0.01	0.01
3.40	0.30	0.09	5.00	0.00	0.01	0.01
3.45	0.30	0.09	5.00	0.00	0.01	0.01
3.50	0.30	0.09	5.00	0.00	0.01	0.01
3.55	0.30	0.09	5.00	0.00	0.01	0.01
3.60	0.30	0.09	5.00	0.00	0.01	0.01
3.65	0.31	0.09	5.00	0.00	0.01	0.01
3.70	0.31	0.09	5.00	0.00	0.01	0.01
3.75	0.31	0.09	5.00	0.00	0.01	0.01
3.80	0.31	0.09	5.00	0.00	0.01	0.01
3.85	0.31	0.09	5.00	0.00	0.01	0.01
3.90	0.31	0.09	5.00	0.00	0.01	0.01
3.95	0.32	0.09	5.00	0.00	0.01	0.01
4.00	0.32	0.09	5.00	0.00	0.01	0.01
4.05	0.32	0.09	5.00	0.00	0.01	0.01
4.10	0.32	0.09	5.00	0.00	0.01	0.01
4.15	0.32	0.09	5.00	0.00	0.01	0.01
4.20	0.32	0.09	5.00	0.00	0.01	0.01
4.25	0.33	0.09	5.00	0.00	0.01	0.01
4.30	0.33	0.09	5.00	0.00	0.01	0.01
4.35	0.33	0.09	5.00	0.00	0.01	0.01
4.40	0.33	0.09	5.00	0.00	0.01	0.01
4.45	0.33	0.09	5.00	0.00	0.01	0.01
4.50	0.33	0.09	5.00	0.00	0.01	0.01
4.55	0.34	0.09	5.00	0.00	0.01	0.01
4.60	0.34	0.09	5.00	0.00	0.01	0.01
4.65	0.34	0.09	5.00	0.00	0.01	0.01
4.70	0.34	0.09	5.00	0.00	0.01	0.01
4.75	0.34	0.09	5.00	0.00	0.01	0.01
4.80	0.34	0.09	5.00	0.00	0.01	0.01
4.85	0.35	0.09	5.00	0.00	0.01	0.01
4.90	0.35	0.09	5.00	0.00	0.01	0.01
4.95	0.35	0.09	5.00	0.00	0.01	0.01
5.00	0.35	0.09	5.00	0.00	0.01	0.01
5.05	0.37	0.09	5.00	0.00	0.01	0.01
5.10	0.39	0.09	5.00	0.00	0.01	0.01
5.15	0.41	0.09	5.00	0.00	0.01	0.01
5.20	0.43	0.09	5.00	0.00	0.01	0.01
5.25	0.45	0.09	5.00	0.00	0.01	0.01
5.30	0.48	0.09	5.00	0.00	0.01	0.01
5.35	0.50	0.09	5.00	0.00	0.01	0.01
5.40	0.53	0.09	5.00	0.00	0.01	0.01
5.45	0.56	0.09	5.00	0.00	0.01	0.01
5.50	0.60	0.09	5.00	0.00	0.01	0.01

5.55	0.66	0.09	5.00	0.00	0.01	0.01
5.60	0.76	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

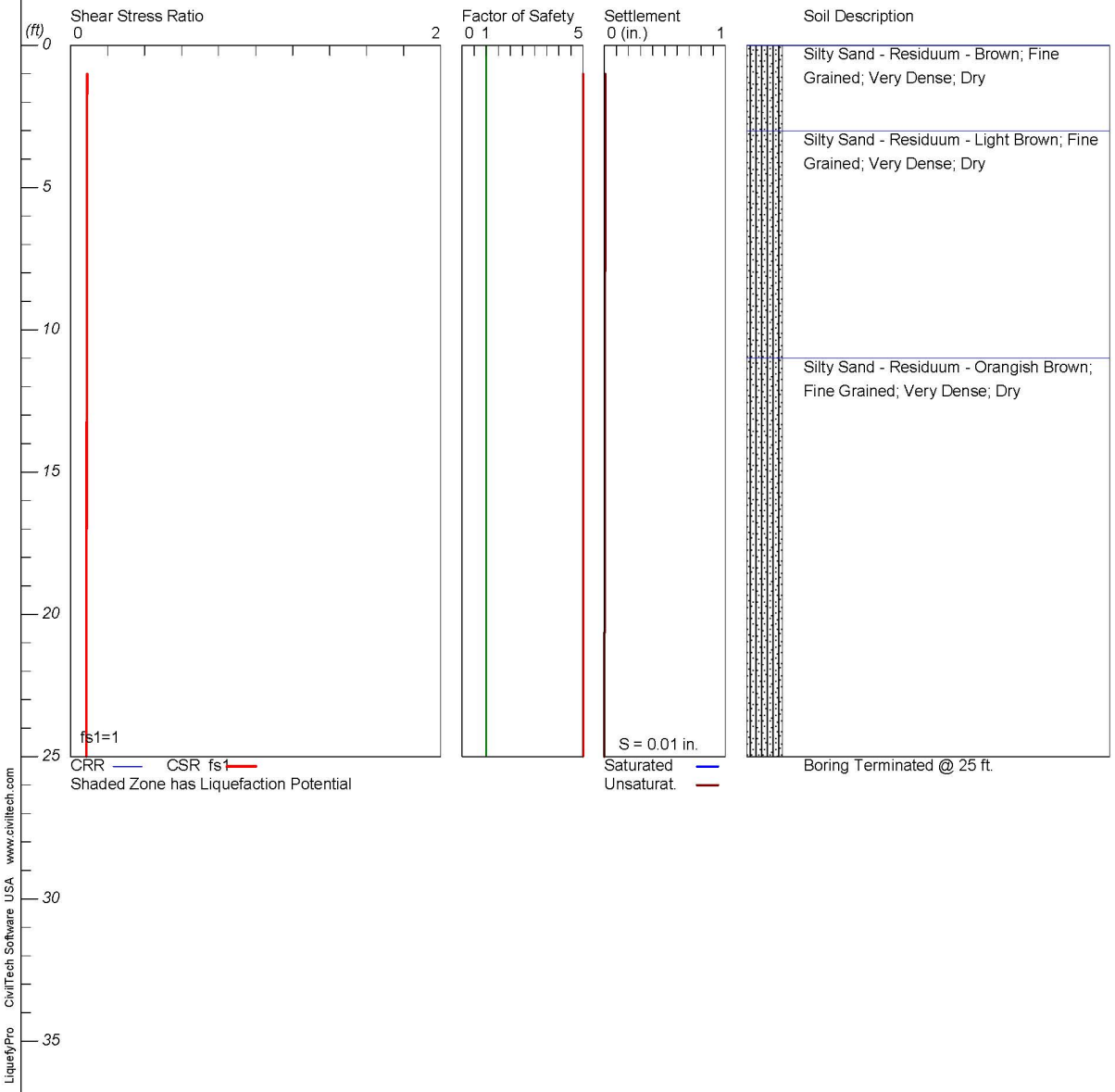
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-104 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-104.liq
Title: Interim Storage Facility NRC
Subtitle: B-104

Surface Elev.=0
Hole No.=B-104
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-104
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	100.00	110.00	0.00
3.00	100.00	110.00	0.00
5.00	39.00	110.00	0.00
8.00	71.00	110.00	0.00
13.00	76.00	110.00	0.00
18.00	78.00	110.00	0.00
23.00	62.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01

9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

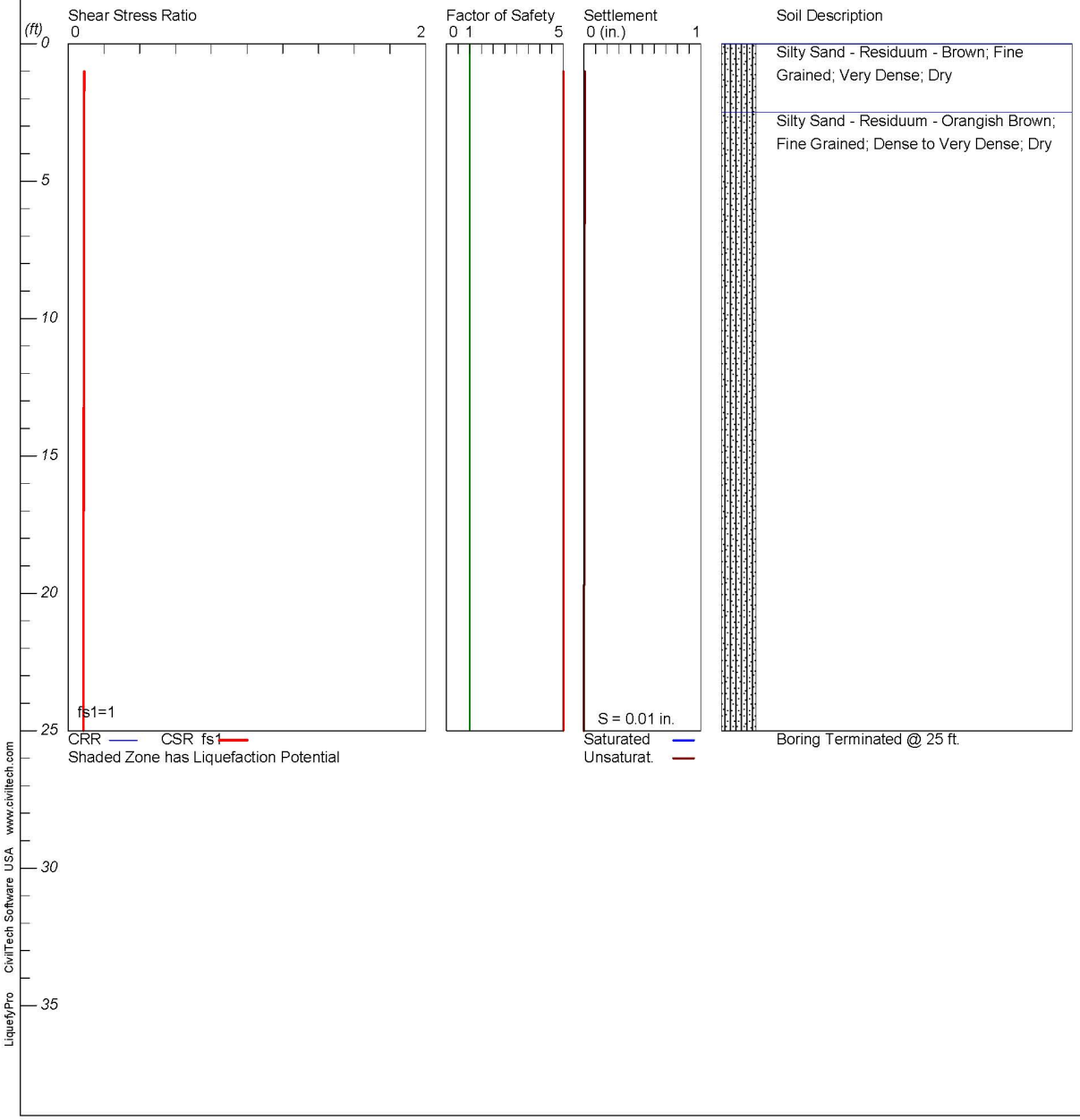
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-105 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-105.liq
Title: Interim Storage Facility NRC
Subtitle: B-105

Surface Elev.=0
Hole No.=B-105
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-105
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	100.00	110.00	0.00
5.00	32.00	110.00	0.00
8.00	56.00	110.00	0.00
13.00	60.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01
1.60	3.54	0.09	5.00	0.00	0.01	0.01

1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01
5.55	3.54	0.09	5.00	0.00	0.01	0.01

5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00
9.50	3.54	0.09	5.00	0.00	0.00	0.00

9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00
13.45	3.54	0.09	5.00	0.00	0.00	0.00

13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00
17.40	3.54	0.09	5.00	0.00	0.00	0.00

17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00
21.35	3.54	0.09	5.00	0.00	0.00	0.00

21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

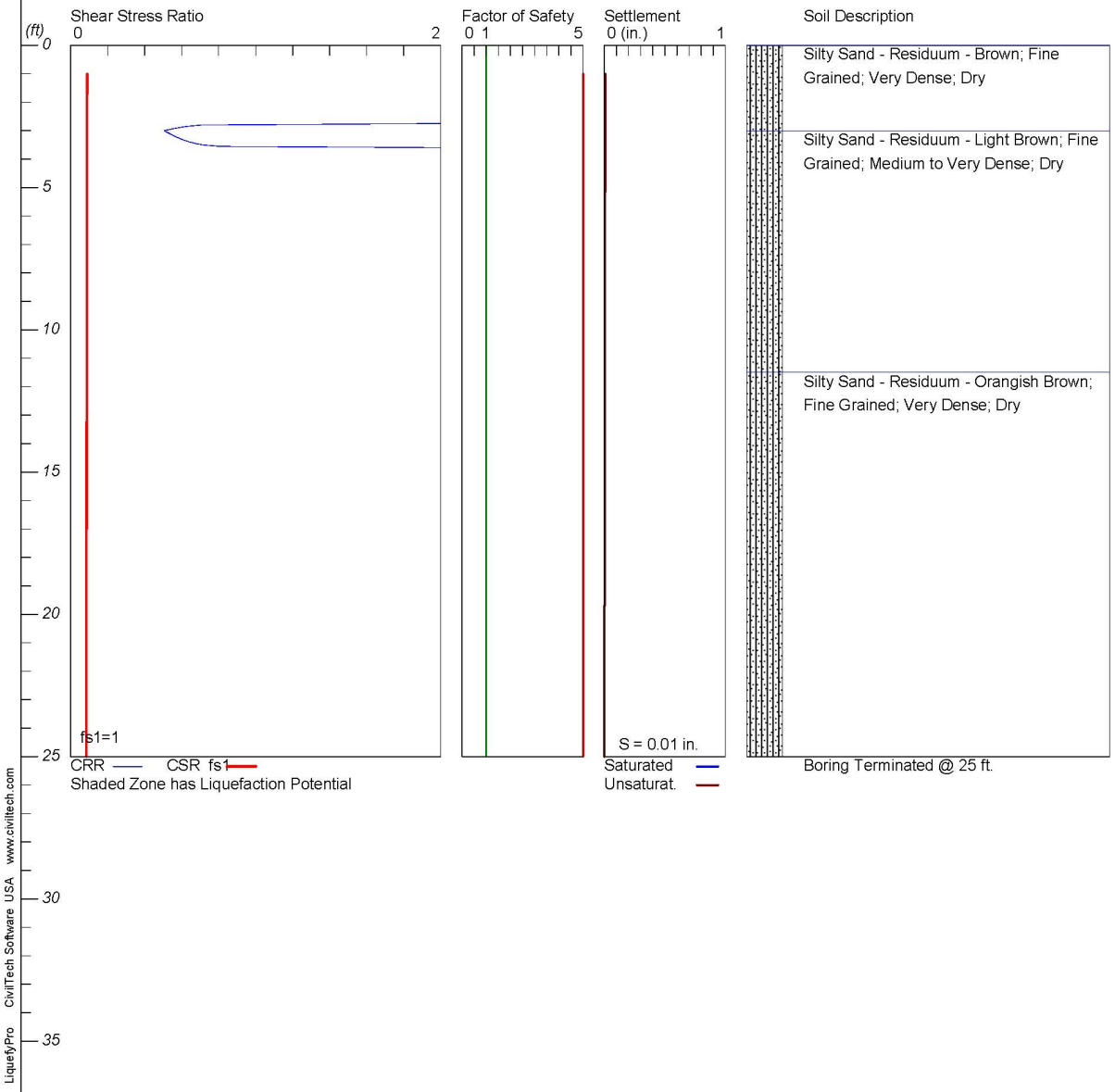
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-106 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-106.liq
Title: Interim Storage Facility NRC
Subtitle: B-106

Surface Elev.=0
Hole No.=B-106
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-106
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	59.00	110.00	0.00
3.00	22.00	110.00	0.00
5.00	37.00	110.00	0.00
8.00	52.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	0.71	0.09	5.00	0.00	0.01	0.01
2.85	0.63	0.09	5.00	0.00	0.01	0.01
2.90	0.58	0.09	5.00	0.00	0.01	0.01
2.95	0.54	0.09	5.00	0.00	0.01	0.01
3.00	0.51	0.09	5.00	0.00	0.01	0.01
3.05	0.52	0.09	5.00	0.00	0.01	0.01
3.10	0.53	0.09	5.00	0.00	0.01	0.01
3.15	0.55	0.09	5.00	0.00	0.01	0.01
3.20	0.56	0.09	5.00	0.00	0.01	0.01
3.25	0.58	0.09	5.00	0.00	0.01	0.01
3.30	0.60	0.09	5.00	0.00	0.01	0.01
3.35	0.62	0.09	5.00	0.00	0.01	0.01
3.40	0.64	0.09	5.00	0.00	0.01	0.01
3.45	0.67	0.09	5.00	0.00	0.01	0.01
3.50	0.71	0.09	5.00	0.00	0.01	0.01
3.55	0.80	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.00	0.00
7.70	3.54	0.09	5.00	0.00	0.00	0.00
7.75	3.54	0.09	5.00	0.00	0.00	0.00
7.80	3.54	0.09	5.00	0.00	0.00	0.00
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

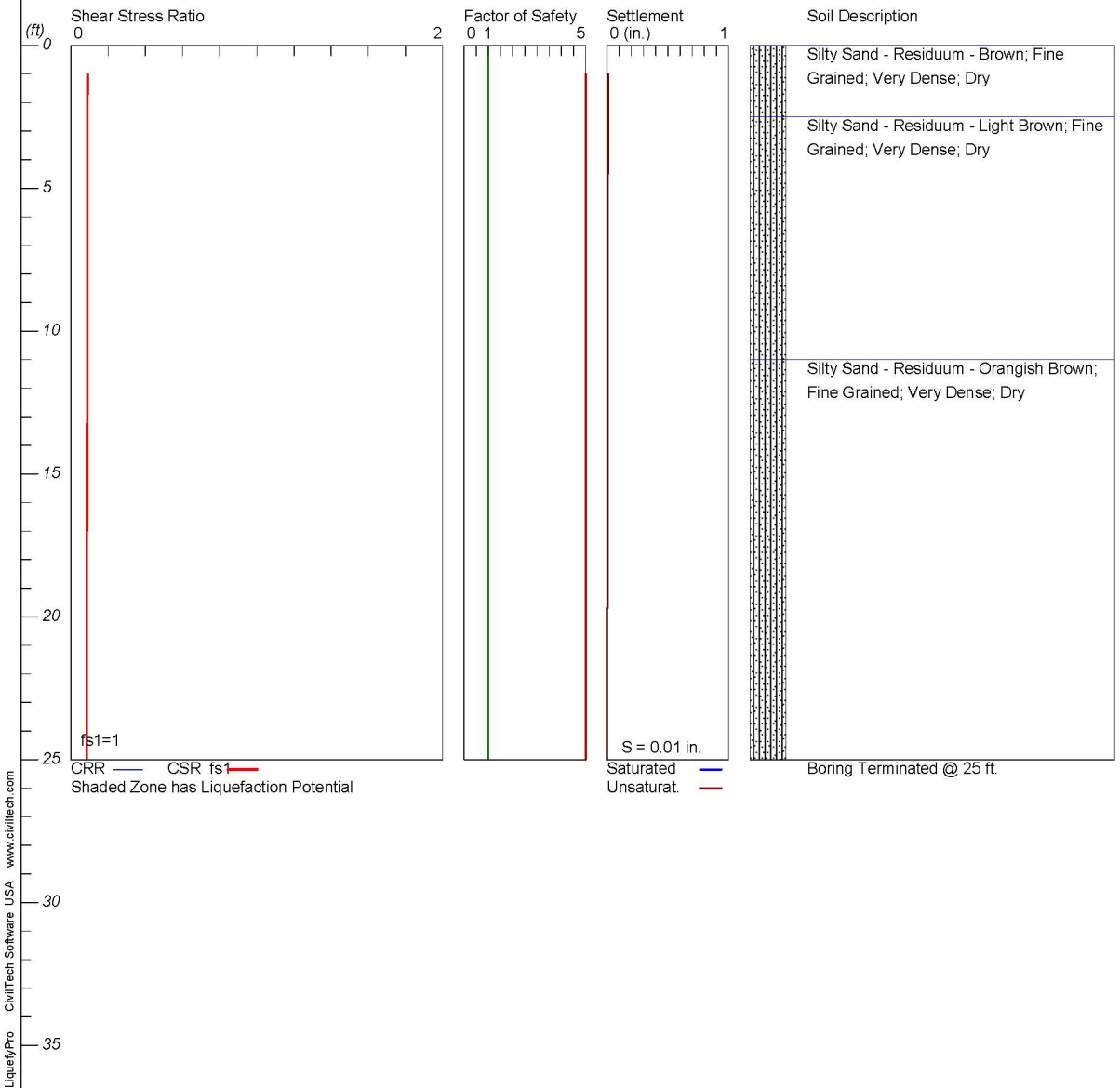
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-107 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-107.liq
Title: Interim Storage Facility NRC
Subtitle: B-107

Surface Elev.=0
Hole No.=B-107
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-107
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	100.00	110.00	0.00
3.00	58.00	110.00	0.00
5.00	36.00	110.00	0.00
8.00	73.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.00	0.00
7.30	3.54	0.09	5.00	0.00	0.00	0.00
7.35	3.54	0.09	5.00	0.00	0.00	0.00
7.40	3.54	0.09	5.00	0.00	0.00	0.00
7.45	3.54	0.09	5.00	0.00	0.00	0.00
7.50	3.54	0.09	5.00	0.00	0.00	0.00
7.55	3.54	0.09	5.00	0.00	0.00	0.00
7.60	3.54	0.09	5.00	0.00	0.00	0.00
7.65	3.54	0.09	5.00	0.00	0.00	0.00
7.70	3.54	0.09	5.00	0.00	0.00	0.00
7.75	3.54	0.09	5.00	0.00	0.00	0.00
7.80	3.54	0.09	5.00	0.00	0.00	0.00
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

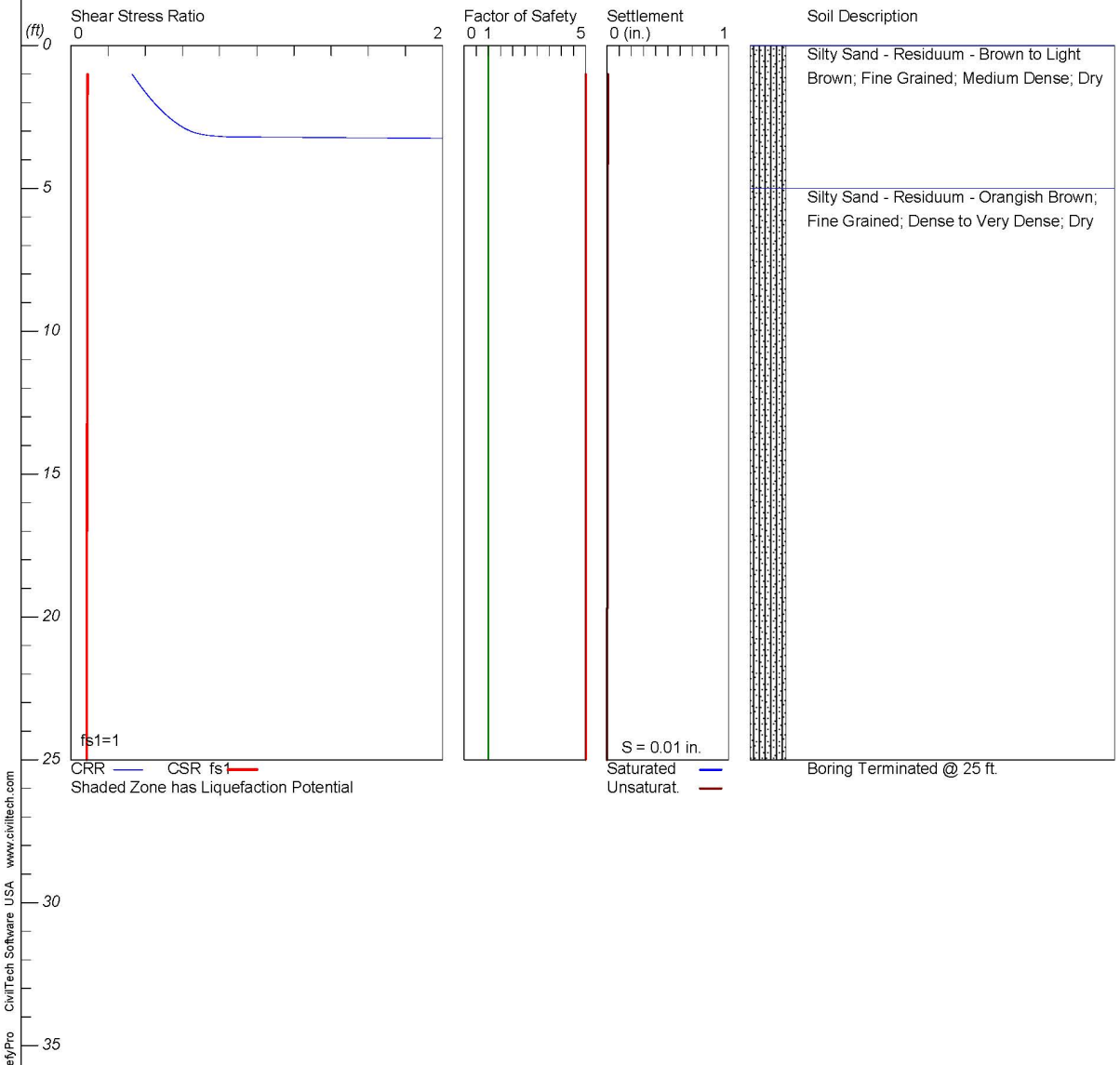
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-108 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-108.liq
Title: Interim Storage Facility NRC
Subtitle: B-108

Surface Elev.=0
Hole No.=B-108
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-108
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	15.00	110.00	0.00
3.00	25.00	110.00	0.00
5.00	37.00	110.00	0.00
8.00	100.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.33	0.09	5.00	0.00	0.01	0.01
1.05	0.33	0.09	5.00	0.00	0.01	0.01
1.10	0.34	0.09	5.00	0.00	0.01	0.01
1.15	0.35	0.09	5.00	0.00	0.01	0.01
1.20	0.35	0.09	5.00	0.00	0.01	0.01
1.25	0.36	0.09	5.00	0.00	0.01	0.01
1.30	0.36	0.09	5.00	0.00	0.01	0.01
1.35	0.37	0.09	5.00	0.00	0.01	0.01
1.40	0.37	0.09	5.00	0.00	0.01	0.01
1.45	0.38	0.09	5.00	0.00	0.01	0.01
1.50	0.38	0.09	5.00	0.00	0.01	0.01
1.55	0.39	0.09	5.00	0.00	0.01	0.01

1.60	0.40	0.09	5.00	0.00	0.01	0.01
1.65	0.40	0.09	5.00	0.00	0.01	0.01
1.70	0.41	0.09	5.00	0.00	0.01	0.01
1.75	0.41	0.09	5.00	0.00	0.01	0.01
1.80	0.42	0.09	5.00	0.00	0.01	0.01
1.85	0.43	0.09	5.00	0.00	0.01	0.01
1.90	0.43	0.09	5.00	0.00	0.01	0.01
1.95	0.44	0.09	5.00	0.00	0.01	0.01
2.00	0.45	0.09	5.00	0.00	0.01	0.01
2.05	0.45	0.09	5.00	0.00	0.01	0.01
2.10	0.46	0.09	5.00	0.00	0.01	0.01
2.15	0.47	0.09	5.00	0.00	0.01	0.01
2.20	0.48	0.09	5.00	0.00	0.01	0.01
2.25	0.48	0.09	5.00	0.00	0.01	0.01
2.30	0.49	0.09	5.00	0.00	0.01	0.01
2.35	0.50	0.09	5.00	0.00	0.01	0.01
2.40	0.51	0.09	5.00	0.00	0.01	0.01
2.45	0.52	0.09	5.00	0.00	0.01	0.01
2.50	0.52	0.09	5.00	0.00	0.01	0.01
2.55	0.53	0.09	5.00	0.00	0.01	0.01
2.60	0.54	0.09	5.00	0.00	0.01	0.01
2.65	0.55	0.09	5.00	0.00	0.01	0.01
2.70	0.56	0.09	5.00	0.00	0.01	0.01
2.75	0.58	0.09	5.00	0.00	0.01	0.01
2.80	0.59	0.09	5.00	0.00	0.01	0.01
2.85	0.60	0.09	5.00	0.00	0.01	0.01
2.90	0.61	0.09	5.00	0.00	0.01	0.01
2.95	0.63	0.09	5.00	0.00	0.01	0.01
3.00	0.64	0.09	5.00	0.00	0.01	0.01
3.05	0.67	0.09	5.00	0.00	0.01	0.01
3.10	0.69	0.09	5.00	0.00	0.01	0.01
3.15	0.74	0.09	5.00	0.00	0.01	0.01
3.20	0.84	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.00	0.00
6.95	3.54	0.09	5.00	0.00	0.00	0.00
7.00	3.54	0.09	5.00	0.00	0.00	0.00
7.05	3.54	0.09	5.00	0.00	0.00	0.00
7.10	3.54	0.09	5.00	0.00	0.00	0.00
7.15	3.54	0.09	5.00	0.00	0.00	0.00
7.20	3.54	0.09	5.00	0.00	0.00	0.00
7.25	3.54	0.09	5.00	0.00	0.00	0.00
7.30	3.54	0.09	5.00	0.00	0.00	0.00
7.35	3.54	0.09	5.00	0.00	0.00	0.00
7.40	3.54	0.09	5.00	0.00	0.00	0.00
7.45	3.54	0.09	5.00	0.00	0.00	0.00
7.50	3.54	0.09	5.00	0.00	0.00	0.00
7.55	3.54	0.09	5.00	0.00	0.00	0.00
7.60	3.54	0.09	5.00	0.00	0.00	0.00
7.65	3.54	0.09	5.00	0.00	0.00	0.00
7.70	3.54	0.09	5.00	0.00	0.00	0.00
7.75	3.54	0.09	5.00	0.00	0.00	0.00
7.80	3.54	0.09	5.00	0.00	0.00	0.00
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

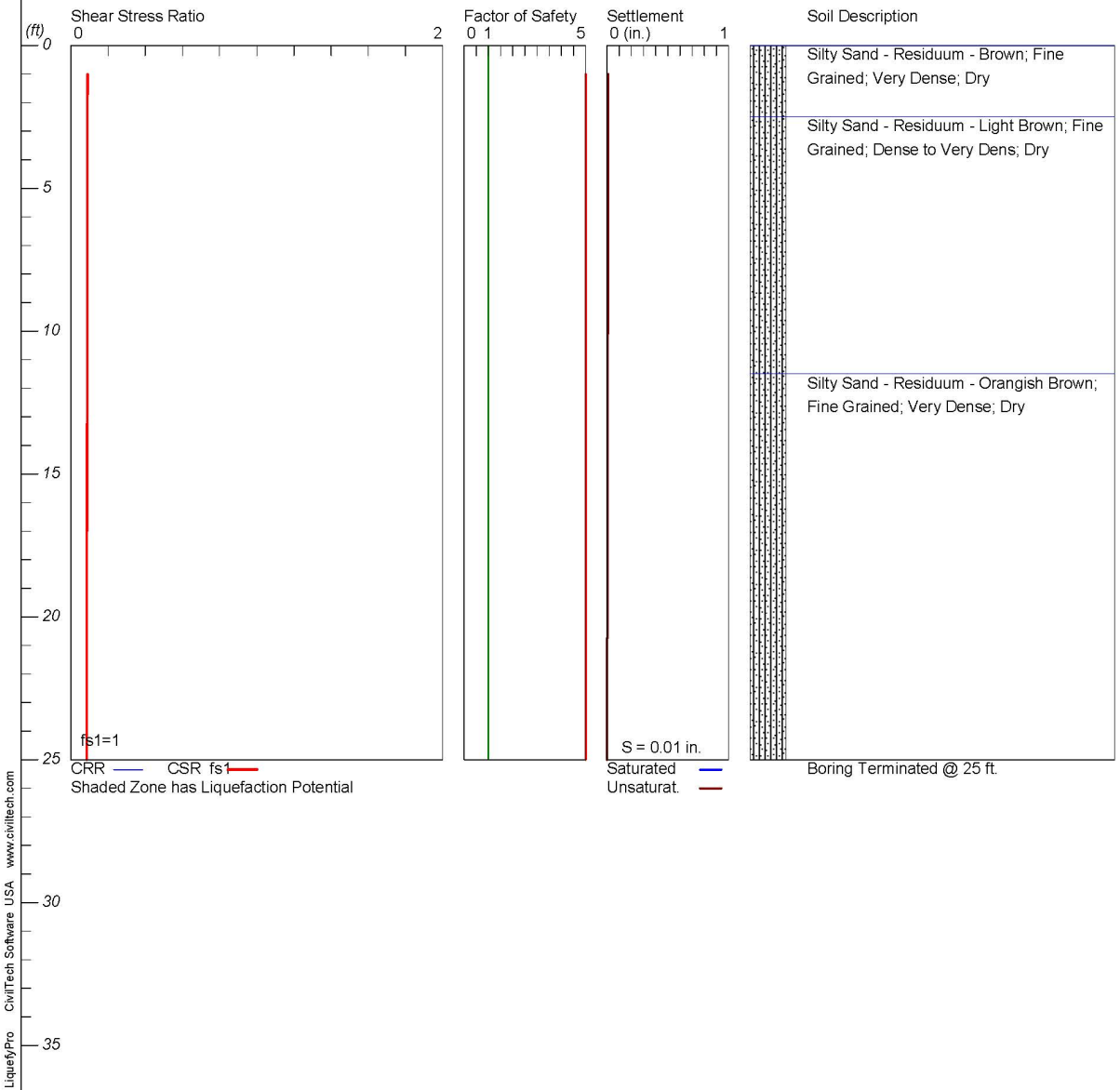
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-109 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-109.liq
Title: Interim Storage Facility NRC
Subtitle: B-109

Surface Elev.=0
Hole No.=B-109
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-109
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	54.00	110.00	0.00
3.00	39.00	110.00	0.00
5.00	42.00	110.00	0.00
8.00	40.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	40.00	110.00	0.00
23.00	63.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.004 to 0.005 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01

9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.01	0.01
10.45	3.54	0.09	5.00	0.00	0.01	0.01
10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.01	0.01
10.75	3.54	0.09	5.00	0.00	0.01	0.01
10.80	3.54	0.09	5.00	0.00	0.01	0.01
10.85	3.54	0.09	5.00	0.00	0.01	0.01
10.90	3.54	0.09	5.00	0.00	0.01	0.01
10.95	3.54	0.09	5.00	0.00	0.01	0.01
11.00	3.54	0.09	5.00	0.00	0.01	0.01
11.05	3.54	0.09	5.00	0.00	0.01	0.01
11.10	3.54	0.09	5.00	0.00	0.01	0.01
11.15	3.54	0.09	5.00	0.00	0.01	0.01
11.20	3.54	0.09	5.00	0.00	0.01	0.01
11.25	3.54	0.09	5.00	0.00	0.01	0.01
11.30	3.54	0.09	5.00	0.00	0.01	0.01
11.35	3.54	0.09	5.00	0.00	0.01	0.01
11.40	3.54	0.09	5.00	0.00	0.01	0.01
11.45	3.54	0.09	5.00	0.00	0.01	0.01
11.50	3.54	0.09	5.00	0.00	0.01	0.01
11.55	3.54	0.09	5.00	0.00	0.01	0.01
11.60	3.54	0.09	5.00	0.00	0.01	0.01
11.65	3.54	0.09	5.00	0.00	0.01	0.01
11.70	3.54	0.09	5.00	0.00	0.01	0.01
11.75	3.54	0.09	5.00	0.00	0.01	0.01
11.80	3.54	0.09	5.00	0.00	0.01	0.01
11.85	3.54	0.09	5.00	0.00	0.01	0.01
11.90	3.54	0.09	5.00	0.00	0.01	0.01
11.95	3.54	0.09	5.00	0.00	0.01	0.01
12.00	3.54	0.09	5.00	0.00	0.01	0.01
12.05	3.54	0.09	5.00	0.00	0.01	0.01
12.10	3.54	0.09	5.00	0.00	0.01	0.01
12.15	3.54	0.09	5.00	0.00	0.01	0.01
12.20	3.54	0.09	5.00	0.00	0.01	0.01
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

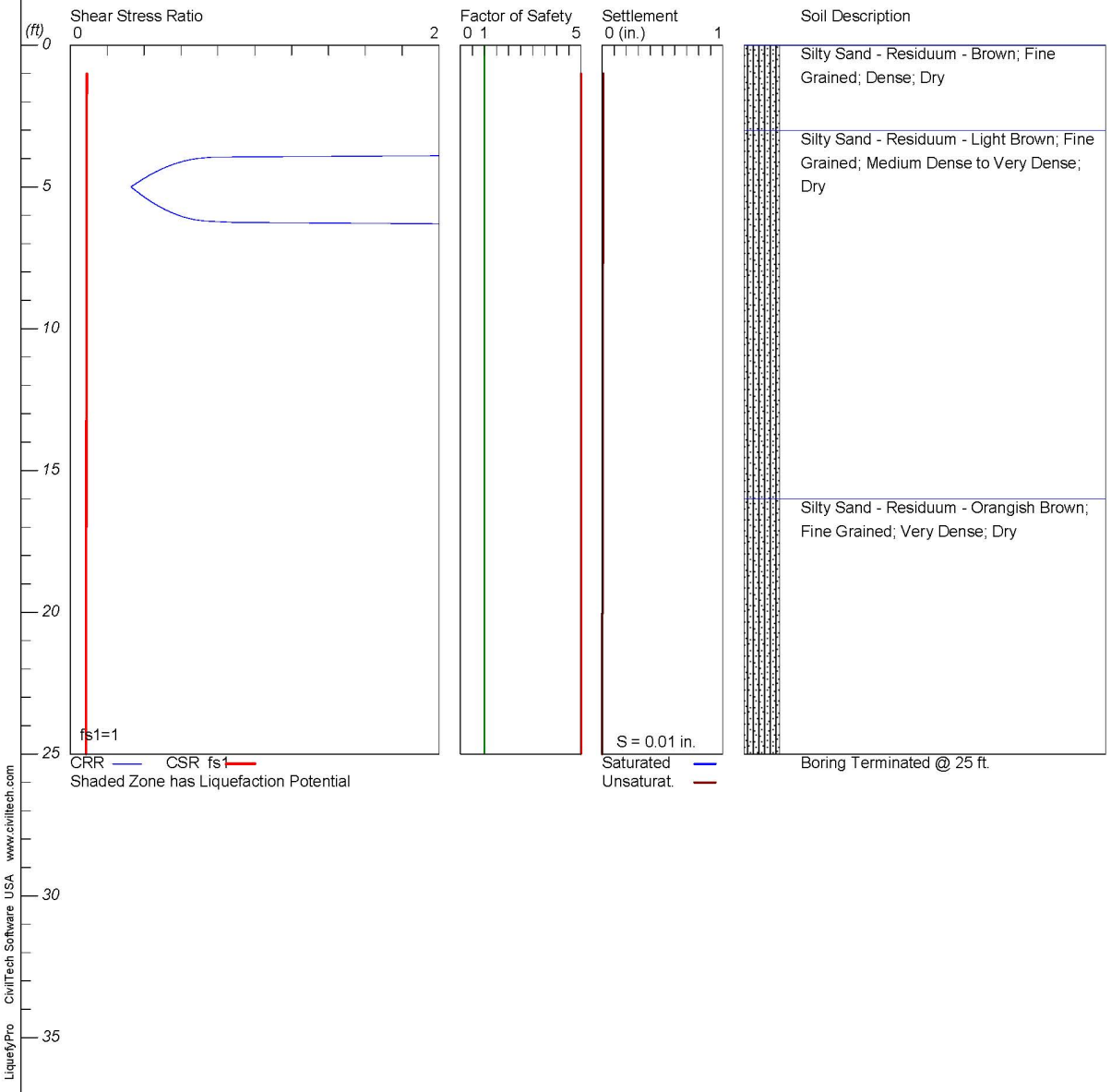
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-110 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-110.liq
Title: Interim Storage Facility NRC
Subtitle: B-110

Surface Elev.=0
Hole No.=B-110
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-110
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	43.00	110.00	0.00
3.00	36.00	110.00	0.00
5.00	15.00	3.00	0.00
8.00	42.00	110.00	0.00
13.00	50.00	110.00	0.00
18.00	40.00	110.00	0.00
23.00	84.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.004 to 0.005 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	0.77	0.09	5.00	0.00	0.01	0.01
4.00	0.68	0.09	5.00	0.00	0.01	0.01
4.05	0.64	0.09	5.00	0.00	0.01	0.01
4.10	0.61	0.09	5.00	0.00	0.01	0.01
4.15	0.58	0.09	5.00	0.00	0.01	0.01
4.20	0.56	0.09	5.00	0.00	0.01	0.01
4.25	0.54	0.09	5.00	0.00	0.01	0.01
4.30	0.52	0.09	5.00	0.00	0.01	0.01
4.35	0.50	0.09	5.00	0.00	0.01	0.01
4.40	0.48	0.09	5.00	0.00	0.01	0.01
4.45	0.47	0.09	5.00	0.00	0.01	0.01
4.50	0.45	0.09	5.00	0.00	0.01	0.01
4.55	0.44	0.09	5.00	0.00	0.01	0.01
4.60	0.43	0.09	5.00	0.00	0.01	0.01
4.65	0.41	0.09	5.00	0.00	0.01	0.01
4.70	0.40	0.09	5.00	0.00	0.01	0.01
4.75	0.39	0.09	5.00	0.00	0.01	0.01
4.80	0.38	0.09	5.00	0.00	0.01	0.01
4.85	0.36	0.09	5.00	0.00	0.01	0.01
4.90	0.35	0.09	5.00	0.00	0.01	0.01
4.95	0.34	0.09	5.00	0.00	0.01	0.01
5.00	0.33	0.09	5.00	0.00	0.01	0.01
5.05	0.34	0.09	5.00	0.00	0.01	0.01
5.10	0.35	0.09	5.00	0.00	0.01	0.01
5.15	0.36	0.09	5.00	0.00	0.01	0.01
5.20	0.37	0.09	5.00	0.00	0.01	0.01
5.25	0.38	0.09	5.00	0.00	0.01	0.01
5.30	0.39	0.09	5.00	0.00	0.01	0.01
5.35	0.40	0.09	5.00	0.00	0.01	0.01
5.40	0.41	0.09	5.00	0.00	0.01	0.01
5.45	0.42	0.09	5.00	0.00	0.01	0.01
5.50	0.43	0.09	5.00	0.00	0.01	0.01

5.55	0.45	0.09	5.00	0.00	0.01	0.01
5.60	0.46	0.09	5.00	0.00	0.01	0.01
5.65	0.47	0.09	5.00	0.00	0.01	0.01
5.70	0.48	0.09	5.00	0.00	0.01	0.01
5.75	0.50	0.09	5.00	0.00	0.01	0.01
5.80	0.51	0.09	5.00	0.00	0.01	0.01
5.85	0.53	0.09	5.00	0.00	0.01	0.01
5.90	0.55	0.09	5.00	0.00	0.01	0.01
5.95	0.57	0.09	5.00	0.00	0.01	0.01
6.00	0.59	0.09	5.00	0.00	0.01	0.01
6.05	0.61	0.09	5.00	0.00	0.01	0.01
6.10	0.64	0.09	5.00	0.00	0.01	0.01
6.15	0.67	0.09	5.00	0.00	0.01	0.01
6.20	0.72	0.09	5.00	0.00	0.01	0.01
6.25	0.88	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01

9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

---

1 atm (atmosphere) = 1 tsf (ton/ft2)

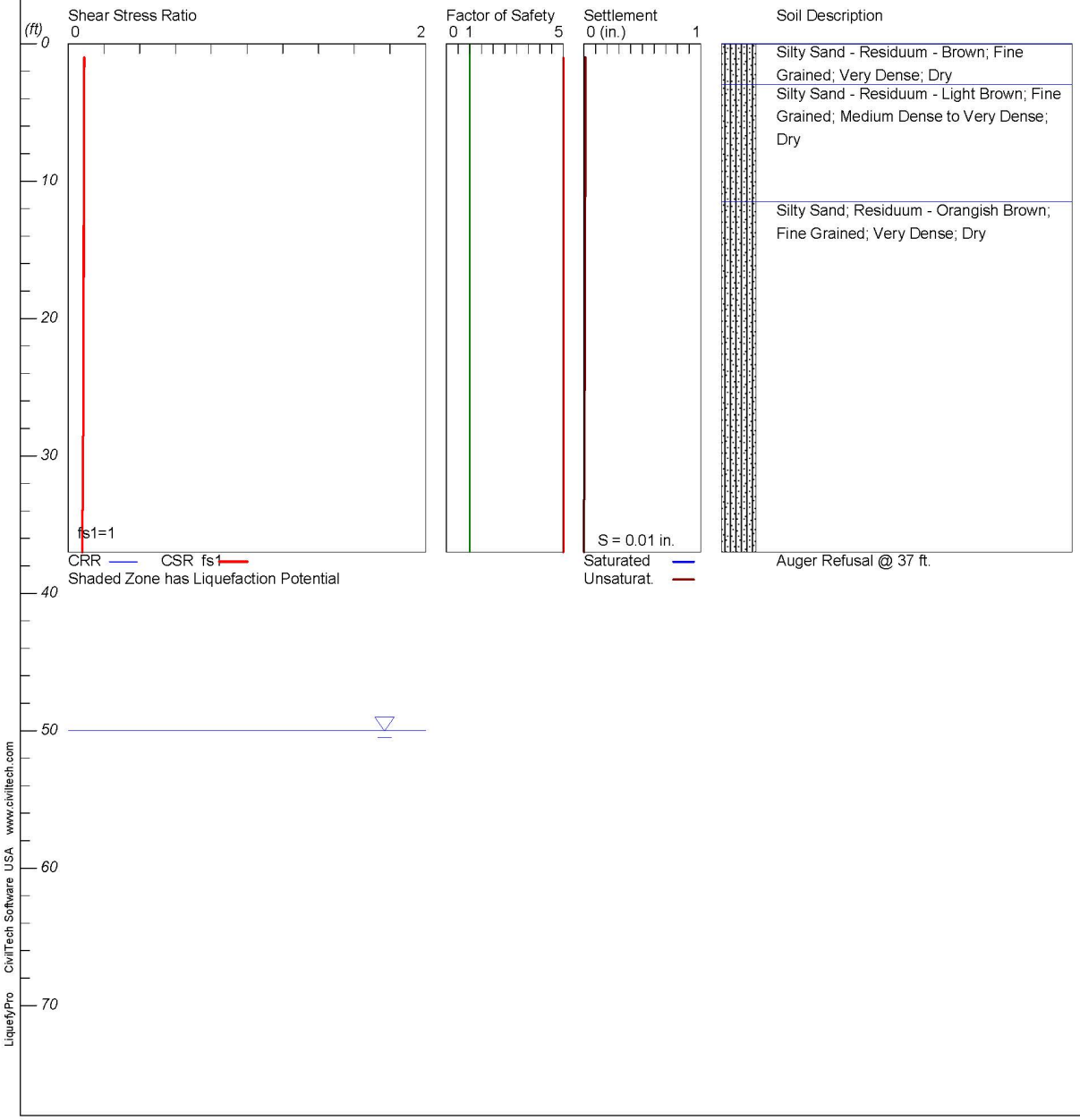
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=B-111 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\B-111.liq
Title: Interim Storage Facility NRC
Subtitle: B-111

Surface Elev.=0
Hole No.=B-111
Depth of Hole= 37.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=B-111
Depth of Hole=37.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	89.00	110.00	0.00
3.00	28.00	110.00	0.00
5.00	52.00	110.00	0.00
8.00	51.00	110.00	0.00
13.00	60.00	110.00	0.00
18.00	90.00	110.00	0.00
23.00	65.00	110.00	0.00
28.00	66.00	110.00	0.00
33.00	79.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.006 to 0.008 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01

1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01
1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01

5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01
5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01

9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01
9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.01	0.01
10.45	3.54	0.09	5.00	0.00	0.01	0.01
10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.01	0.01
10.75	3.54	0.09	5.00	0.00	0.01	0.01
10.80	3.54	0.09	5.00	0.00	0.01	0.01
10.85	3.54	0.09	5.00	0.00	0.01	0.01
10.90	3.54	0.09	5.00	0.00	0.01	0.01
10.95	3.54	0.09	5.00	0.00	0.01	0.01
11.00	3.54	0.09	5.00	0.00	0.01	0.01
11.05	3.54	0.09	5.00	0.00	0.01	0.01
11.10	3.54	0.09	5.00	0.00	0.01	0.01
11.15	3.54	0.09	5.00	0.00	0.01	0.01
11.20	3.54	0.09	5.00	0.00	0.01	0.01
11.25	3.54	0.09	5.00	0.00	0.01	0.01
11.30	3.54	0.09	5.00	0.00	0.01	0.01
11.35	3.54	0.09	5.00	0.00	0.01	0.01
11.40	3.54	0.09	5.00	0.00	0.01	0.01
11.45	3.54	0.09	5.00	0.00	0.01	0.01
11.50	3.54	0.09	5.00	0.00	0.01	0.01
11.55	3.54	0.09	5.00	0.00	0.01	0.01
11.60	3.54	0.09	5.00	0.00	0.01	0.01
11.65	3.54	0.09	5.00	0.00	0.01	0.01
11.70	3.54	0.09	5.00	0.00	0.01	0.01
11.75	3.54	0.09	5.00	0.00	0.01	0.01
11.80	3.54	0.09	5.00	0.00	0.01	0.01
11.85	3.54	0.09	5.00	0.00	0.01	0.01
11.90	3.54	0.09	5.00	0.00	0.01	0.01
11.95	3.54	0.09	5.00	0.00	0.01	0.01
12.00	3.54	0.09	5.00	0.00	0.01	0.01
12.05	3.54	0.09	5.00	0.00	0.01	0.01
12.10	3.54	0.09	5.00	0.00	0.01	0.01
12.15	3.54	0.09	5.00	0.00	0.01	0.01
12.20	3.54	0.09	5.00	0.00	0.01	0.01
12.25	3.54	0.09	5.00	0.00	0.01	0.01
12.30	3.54	0.09	5.00	0.00	0.01	0.01
12.35	3.54	0.09	5.00	0.00	0.01	0.01
12.40	3.54	0.09	5.00	0.00	0.01	0.01
12.45	3.54	0.09	5.00	0.00	0.01	0.01
12.50	3.54	0.09	5.00	0.00	0.01	0.01
12.55	3.54	0.09	5.00	0.00	0.01	0.01
12.60	3.54	0.09	5.00	0.00	0.01	0.01
12.65	3.54	0.09	5.00	0.00	0.01	0.01
12.70	3.54	0.09	5.00	0.00	0.01	0.01
12.75	3.54	0.09	5.00	0.00	0.01	0.01
12.80	3.54	0.09	5.00	0.00	0.01	0.01
12.85	3.54	0.09	5.00	0.00	0.01	0.01
12.90	3.54	0.09	5.00	0.00	0.01	0.01
12.95	3.54	0.09	5.00	0.00	0.01	0.01
13.00	3.54	0.09	5.00	0.00	0.01	0.01
13.05	3.54	0.09	5.00	0.00	0.01	0.01
13.10	3.54	0.09	5.00	0.00	0.01	0.01
13.15	3.54	0.09	5.00	0.00	0.01	0.01
13.20	3.54	0.09	5.00	0.00	0.01	0.01
13.25	3.54	0.09	5.00	0.00	0.01	0.01
13.30	3.54	0.09	5.00	0.00	0.01	0.01

13.35	3.54	0.09	5.00	0.00	0.01	0.01
13.40	3.54	0.09	5.00	0.00	0.01	0.01
13.45	3.54	0.09	5.00	0.00	0.01	0.01
13.50	3.54	0.09	5.00	0.00	0.01	0.01
13.55	3.54	0.09	5.00	0.00	0.01	0.01
13.60	3.54	0.09	5.00	0.00	0.01	0.01
13.65	3.54	0.09	5.00	0.00	0.01	0.01
13.70	3.54	0.09	5.00	0.00	0.01	0.01
13.75	3.54	0.09	5.00	0.00	0.01	0.01
13.80	3.54	0.09	5.00	0.00	0.01	0.01
13.85	3.54	0.09	5.00	0.00	0.01	0.01
13.90	3.54	0.09	5.00	0.00	0.01	0.01
13.95	3.54	0.09	5.00	0.00	0.01	0.01
14.00	3.54	0.09	5.00	0.00	0.01	0.01
14.05	3.54	0.09	5.00	0.00	0.01	0.01
14.10	3.54	0.09	5.00	0.00	0.01	0.01
14.15	3.54	0.09	5.00	0.00	0.01	0.01
14.20	3.54	0.09	5.00	0.00	0.01	0.01
14.25	3.54	0.09	5.00	0.00	0.01	0.01
14.30	3.54	0.09	5.00	0.00	0.01	0.01
14.35	3.54	0.09	5.00	0.00	0.01	0.01
14.40	3.54	0.09	5.00	0.00	0.01	0.01
14.45	3.54	0.09	5.00	0.00	0.01	0.01
14.50	3.54	0.09	5.00	0.00	0.01	0.01
14.55	3.54	0.09	5.00	0.00	0.01	0.01
14.60	3.54	0.09	5.00	0.00	0.01	0.01
14.65	3.54	0.09	5.00	0.00	0.01	0.01
14.70	3.54	0.09	5.00	0.00	0.01	0.01
14.75	3.54	0.09	5.00	0.00	0.01	0.01
14.80	3.54	0.09	5.00	0.00	0.01	0.01
14.85	3.54	0.09	5.00	0.00	0.01	0.01
14.90	3.54	0.09	5.00	0.00	0.01	0.01
14.95	3.54	0.09	5.00	0.00	0.01	0.01
15.00	3.54	0.09	5.00	0.00	0.01	0.01
15.05	3.54	0.09	5.00	0.00	0.01	0.01
15.10	3.54	0.09	5.00	0.00	0.01	0.01
15.15	3.54	0.09	5.00	0.00	0.01	0.01
15.20	3.54	0.09	5.00	0.00	0.01	0.01
15.25	3.54	0.09	5.00	0.00	0.01	0.01
15.30	3.54	0.09	5.00	0.00	0.01	0.01
15.35	3.54	0.09	5.00	0.00	0.01	0.01
15.40	3.54	0.09	5.00	0.00	0.01	0.01
15.45	3.54	0.09	5.00	0.00	0.01	0.01
15.50	3.54	0.09	5.00	0.00	0.01	0.01
15.55	3.54	0.09	5.00	0.00	0.01	0.01
15.60	3.54	0.09	5.00	0.00	0.01	0.01
15.65	3.54	0.09	5.00	0.00	0.01	0.01
15.70	3.54	0.09	5.00	0.00	0.01	0.01
15.75	3.54	0.09	5.00	0.00	0.01	0.01
15.80	3.54	0.09	5.00	0.00	0.01	0.01
15.85	3.54	0.09	5.00	0.00	0.01	0.01
15.90	3.54	0.09	5.00	0.00	0.01	0.01
15.95	3.54	0.09	5.00	0.00	0.01	0.01
16.00	3.54	0.09	5.00	0.00	0.01	0.01
16.05	3.54	0.09	5.00	0.00	0.01	0.01
16.10	3.54	0.09	5.00	0.00	0.01	0.01
16.15	3.54	0.09	5.00	0.00	0.01	0.01
16.20	3.54	0.09	5.00	0.00	0.01	0.01
16.25	3.54	0.09	5.00	0.00	0.01	0.01
16.30	3.54	0.09	5.00	0.00	0.01	0.01
16.35	3.54	0.09	5.00	0.00	0.01	0.01
16.40	3.54	0.09	5.00	0.00	0.01	0.01
16.45	3.54	0.09	5.00	0.00	0.01	0.01
16.50	3.54	0.09	5.00	0.00	0.01	0.01
16.55	3.54	0.09	5.00	0.00	0.01	0.01
16.60	3.54	0.09	5.00	0.00	0.01	0.01
16.65	3.54	0.09	5.00	0.00	0.01	0.01
16.70	3.54	0.09	5.00	0.00	0.01	0.01
16.75	3.54	0.09	5.00	0.00	0.01	0.01
16.80	3.54	0.09	5.00	0.00	0.01	0.01
16.85	3.54	0.09	5.00	0.00	0.01	0.01
16.90	3.54	0.09	5.00	0.00	0.01	0.01
16.95	3.54	0.09	5.00	0.00	0.01	0.01
17.00	3.54	0.09	5.00	0.00	0.01	0.01
17.05	3.54	0.09	5.00	0.00	0.01	0.01
17.10	3.54	0.09	5.00	0.00	0.01	0.01
17.15	3.54	0.09	5.00	0.00	0.01	0.01
17.20	3.54	0.09	5.00	0.00	0.01	0.01
17.25	3.54	0.09	5.00	0.00	0.01	0.01

17.30	3.54	0.09	5.00	0.00	0.01	0.01
17.35	3.54	0.09	5.00	0.00	0.01	0.01
17.40	3.54	0.09	5.00	0.00	0.01	0.01
17.45	3.54	0.09	5.00	0.00	0.01	0.01
17.50	3.54	0.09	5.00	0.00	0.01	0.01
17.55	3.54	0.09	5.00	0.00	0.01	0.01
17.60	3.54	0.09	5.00	0.00	0.01	0.01
17.65	3.54	0.09	5.00	0.00	0.01	0.01
17.70	3.54	0.09	5.00	0.00	0.01	0.01
17.75	3.54	0.09	5.00	0.00	0.01	0.01
17.80	3.54	0.09	5.00	0.00	0.01	0.01
17.85	3.54	0.09	5.00	0.00	0.01	0.01
17.90	3.54	0.09	5.00	0.00	0.01	0.01
17.95	3.54	0.09	5.00	0.00	0.01	0.01
18.00	3.54	0.09	5.00	0.00	0.01	0.01
18.05	3.54	0.09	5.00	0.00	0.01	0.01
18.10	3.54	0.09	5.00	0.00	0.01	0.01
18.15	3.54	0.09	5.00	0.00	0.01	0.01
18.20	3.54	0.09	5.00	0.00	0.01	0.01
18.25	3.54	0.09	5.00	0.00	0.01	0.01
18.30	3.54	0.09	5.00	0.00	0.01	0.01
18.35	3.54	0.09	5.00	0.00	0.01	0.01
18.40	3.54	0.09	5.00	0.00	0.01	0.01
18.45	3.54	0.09	5.00	0.00	0.01	0.01
18.50	3.54	0.09	5.00	0.00	0.01	0.01
18.55	3.54	0.09	5.00	0.00	0.01	0.01
18.60	3.54	0.09	5.00	0.00	0.01	0.01
18.65	3.54	0.09	5.00	0.00	0.01	0.01
18.70	3.54	0.09	5.00	0.00	0.01	0.01
18.75	3.54	0.09	5.00	0.00	0.01	0.01
18.80	3.54	0.09	5.00	0.00	0.01	0.01
18.85	3.54	0.09	5.00	0.00	0.01	0.01
18.90	3.54	0.09	5.00	0.00	0.01	0.01
18.95	3.54	0.09	5.00	0.00	0.01	0.01
19.00	3.54	0.09	5.00	0.00	0.01	0.01
19.05	3.54	0.09	5.00	0.00	0.01	0.01
19.10	3.54	0.09	5.00	0.00	0.01	0.01
19.15	3.54	0.09	5.00	0.00	0.01	0.01
19.20	3.54	0.09	5.00	0.00	0.01	0.01
19.25	3.54	0.09	5.00	0.00	0.01	0.01
19.30	3.54	0.09	5.00	0.00	0.01	0.01
19.35	3.54	0.09	5.00	0.00	0.01	0.01
19.40	3.54	0.09	5.00	0.00	0.01	0.01
19.45	3.54	0.09	5.00	0.00	0.01	0.01
19.50	3.54	0.09	5.00	0.00	0.01	0.01
19.55	3.54	0.09	5.00	0.00	0.01	0.01
19.60	3.54	0.09	5.00	0.00	0.01	0.01
19.65	3.54	0.09	5.00	0.00	0.01	0.01
19.70	3.54	0.09	5.00	0.00	0.01	0.01
19.75	3.54	0.09	5.00	0.00	0.01	0.01
19.80	3.54	0.09	5.00	0.00	0.01	0.01
19.85	3.54	0.09	5.00	0.00	0.01	0.01
19.90	3.54	0.09	5.00	0.00	0.01	0.01
19.95	3.54	0.09	5.00	0.00	0.01	0.01
20.00	3.54	0.09	5.00	0.00	0.01	0.01
20.05	3.54	0.09	5.00	0.00	0.01	0.01
20.10	3.54	0.09	5.00	0.00	0.01	0.01
20.15	3.54	0.09	5.00	0.00	0.01	0.01
20.20	3.54	0.09	5.00	0.00	0.01	0.01
20.25	3.54	0.09	5.00	0.00	0.01	0.01
20.30	3.54	0.09	5.00	0.00	0.01	0.01
20.35	3.54	0.09	5.00	0.00	0.01	0.01
20.40	3.54	0.09	5.00	0.00	0.01	0.01
20.45	3.54	0.09	5.00	0.00	0.01	0.01
20.50	3.54	0.09	5.00	0.00	0.01	0.01
20.55	3.54	0.09	5.00	0.00	0.01	0.01
20.60	3.54	0.09	5.00	0.00	0.01	0.01
20.65	3.54	0.09	5.00	0.00	0.01	0.01
20.70	3.54	0.09	5.00	0.00	0.01	0.01
20.75	3.54	0.09	5.00	0.00	0.01	0.01
20.80	3.54	0.09	5.00	0.00	0.01	0.01
20.85	3.54	0.09	5.00	0.00	0.01	0.01
20.90	3.54	0.09	5.00	0.00	0.01	0.01
20.95	3.54	0.09	5.00	0.00	0.01	0.01
21.00	3.54	0.09	5.00	0.00	0.01	0.01
21.05	3.54	0.09	5.00	0.00	0.01	0.01
21.10	3.54	0.09	5.00	0.00	0.01	0.01
21.15	3.54	0.09	5.00	0.00	0.01	0.01
21.20	3.54	0.09	5.00	0.00	0.01	0.01

21.25	3.54	0.09	5.00	0.00	0.01	0.01
21.30	3.54	0.09	5.00	0.00	0.01	0.01
21.35	3.54	0.09	5.00	0.00	0.01	0.01
21.40	3.54	0.09	5.00	0.00	0.01	0.01
21.45	3.54	0.09	5.00	0.00	0.01	0.01
21.50	3.54	0.09	5.00	0.00	0.01	0.01
21.55	3.54	0.09	5.00	0.00	0.01	0.01
21.60	3.54	0.09	5.00	0.00	0.01	0.01
21.65	3.54	0.09	5.00	0.00	0.01	0.01
21.70	3.54	0.09	5.00	0.00	0.01	0.01
21.75	3.54	0.09	5.00	0.00	0.01	0.01
21.80	3.54	0.09	5.00	0.00	0.01	0.01
21.85	3.54	0.09	5.00	0.00	0.01	0.01
21.90	3.54	0.09	5.00	0.00	0.01	0.01
21.95	3.54	0.09	5.00	0.00	0.01	0.01
22.00	3.54	0.09	5.00	0.00	0.01	0.01
22.05	3.54	0.09	5.00	0.00	0.01	0.01
22.10	3.54	0.09	5.00	0.00	0.01	0.01
22.15	3.54	0.09	5.00	0.00	0.01	0.01
22.20	3.54	0.09	5.00	0.00	0.01	0.01
22.25	3.54	0.09	5.00	0.00	0.01	0.01
22.30	3.54	0.09	5.00	0.00	0.01	0.01
22.35	3.54	0.09	5.00	0.00	0.01	0.01
22.40	3.54	0.09	5.00	0.00	0.01	0.01
22.45	3.54	0.09	5.00	0.00	0.01	0.01
22.50	3.54	0.08	5.00	0.00	0.01	0.01
22.55	3.54	0.08	5.00	0.00	0.01	0.01
22.60	3.54	0.08	5.00	0.00	0.01	0.01
22.65	3.54	0.08	5.00	0.00	0.01	0.01
22.70	3.54	0.08	5.00	0.00	0.01	0.01
22.75	3.54	0.08	5.00	0.00	0.01	0.01
22.80	3.54	0.08	5.00	0.00	0.01	0.01
22.85	3.54	0.08	5.00	0.00	0.01	0.01
22.90	3.54	0.08	5.00	0.00	0.01	0.01
22.95	3.54	0.08	5.00	0.00	0.01	0.01
23.00	3.54	0.08	5.00	0.00	0.01	0.01
23.05	3.54	0.08	5.00	0.00	0.01	0.01
23.10	3.54	0.08	5.00	0.00	0.01	0.01
23.15	3.54	0.08	5.00	0.00	0.01	0.01
23.20	3.54	0.08	5.00	0.00	0.01	0.01
23.25	3.54	0.08	5.00	0.00	0.01	0.01
23.30	3.54	0.08	5.00	0.00	0.01	0.01
23.35	3.54	0.08	5.00	0.00	0.01	0.01
23.40	3.54	0.08	5.00	0.00	0.01	0.01
23.45	3.54	0.08	5.00	0.00	0.01	0.01
23.50	3.54	0.08	5.00	0.00	0.01	0.01
23.55	3.54	0.08	5.00	0.00	0.01	0.01
23.60	3.54	0.08	5.00	0.00	0.01	0.01
23.65	3.54	0.08	5.00	0.00	0.01	0.01
23.70	3.54	0.08	5.00	0.00	0.01	0.01
23.75	3.54	0.08	5.00	0.00	0.01	0.01
23.80	3.54	0.08	5.00	0.00	0.01	0.01
23.85	3.54	0.08	5.00	0.00	0.01	0.01
23.90	3.54	0.08	5.00	0.00	0.01	0.01
23.95	3.54	0.08	5.00	0.00	0.01	0.01
24.00	3.54	0.08	5.00	0.00	0.01	0.01
24.05	3.54	0.08	5.00	0.00	0.01	0.01
24.10	3.54	0.08	5.00	0.00	0.01	0.01
24.15	3.54	0.08	5.00	0.00	0.01	0.01
24.20	3.54	0.08	5.00	0.00	0.01	0.01
24.25	3.54	0.08	5.00	0.00	0.01	0.01
24.30	3.54	0.08	5.00	0.00	0.01	0.01
24.35	3.54	0.08	5.00	0.00	0.01	0.01
24.40	3.54	0.08	5.00	0.00	0.01	0.01
24.45	3.54	0.08	5.00	0.00	0.01	0.01
24.50	3.54	0.08	5.00	0.00	0.01	0.01
24.55	3.54	0.08	5.00	0.00	0.01	0.01
24.60	3.54	0.08	5.00	0.00	0.01	0.01
24.65	3.54	0.08	5.00	0.00	0.01	0.01
24.70	3.54	0.08	5.00	0.00	0.01	0.01
24.75	3.54	0.08	5.00	0.00	0.01	0.01
24.80	3.54	0.08	5.00	0.00	0.01	0.01
24.85	3.54	0.08	5.00	0.00	0.01	0.01
24.90	3.54	0.08	5.00	0.00	0.01	0.01
24.95	3.54	0.08	5.00	0.00	0.01	0.01
25.00	3.54	0.08	5.00	0.00	0.01	0.01
25.05	3.54	0.08	5.00	0.00	0.01	0.01
25.10	3.54	0.08	5.00	0.00	0.01	0.01
25.15	3.54	0.08	5.00	0.00	0.01	0.01

25.20	3.54	0.08	5.00	0.00	0.01	0.01
25.25	3.54	0.08	5.00	0.00	0.01	0.01
25.30	3.54	0.08	5.00	0.00	0.01	0.01
25.35	3.54	0.08	5.00	0.00	0.01	0.01
25.40	3.54	0.08	5.00	0.00	0.01	0.01
25.45	3.54	0.08	5.00	0.00	0.01	0.01
25.50	3.54	0.08	5.00	0.00	0.01	0.01
25.55	3.54	0.08	5.00	0.00	0.01	0.01
25.60	3.54	0.08	5.00	0.00	0.01	0.01
25.65	3.54	0.08	5.00	0.00	0.01	0.01
25.70	3.54	0.08	5.00	0.00	0.01	0.01
25.75	3.54	0.08	5.00	0.00	0.01	0.01
25.80	3.54	0.08	5.00	0.00	0.01	0.01
25.85	3.54	0.08	5.00	0.00	0.01	0.01
25.90	3.54	0.08	5.00	0.00	0.01	0.01
25.95	3.54	0.08	5.00	0.00	0.01	0.01
26.00	3.54	0.08	5.00	0.00	0.01	0.01
26.05	3.54	0.08	5.00	0.00	0.01	0.01
26.10	3.54	0.08	5.00	0.00	0.01	0.01
26.15	3.54	0.08	5.00	0.00	0.01	0.01
26.20	3.54	0.08	5.00	0.00	0.01	0.01
26.25	3.54	0.08	5.00	0.00	0.01	0.01
26.30	3.54	0.08	5.00	0.00	0.01	0.01
26.35	3.54	0.08	5.00	0.00	0.01	0.01
26.40	3.54	0.08	5.00	0.00	0.01	0.01
26.45	3.54	0.08	5.00	0.00	0.00	0.00
26.50	3.54	0.08	5.00	0.00	0.00	0.00
26.55	3.54	0.08	5.00	0.00	0.00	0.00
26.60	3.54	0.08	5.00	0.00	0.00	0.00
26.65	3.54	0.08	5.00	0.00	0.00	0.00
26.70	3.54	0.08	5.00	0.00	0.00	0.00
26.75	3.54	0.08	5.00	0.00	0.00	0.00
26.80	3.54	0.08	5.00	0.00	0.00	0.00
26.85	3.54	0.08	5.00	0.00	0.00	0.00
26.90	3.54	0.08	5.00	0.00	0.00	0.00
26.95	3.54	0.08	5.00	0.00	0.00	0.00
27.00	3.54	0.08	5.00	0.00	0.00	0.00
27.05	3.54	0.08	5.00	0.00	0.00	0.00
27.10	3.54	0.08	5.00	0.00	0.00	0.00
27.15	3.54	0.08	5.00	0.00	0.00	0.00
27.20	3.54	0.08	5.00	0.00	0.00	0.00
27.25	3.54	0.08	5.00	0.00	0.00	0.00
27.30	3.54	0.08	5.00	0.00	0.00	0.00
27.35	3.54	0.08	5.00	0.00	0.00	0.00
27.40	3.54	0.08	5.00	0.00	0.00	0.00
27.45	3.54	0.08	5.00	0.00	0.00	0.00
27.50	3.54	0.08	5.00	0.00	0.00	0.00
27.55	3.54	0.08	5.00	0.00	0.00	0.00
27.60	3.54	0.08	5.00	0.00	0.00	0.00
27.65	3.54	0.08	5.00	0.00	0.00	0.00
27.70	3.54	0.08	5.00	0.00	0.00	0.00
27.75	3.54	0.08	5.00	0.00	0.00	0.00
27.80	3.54	0.08	5.00	0.00	0.00	0.00
27.85	3.54	0.08	5.00	0.00	0.00	0.00
27.90	3.54	0.08	5.00	0.00	0.00	0.00
27.95	3.54	0.08	5.00	0.00	0.00	0.00
28.00	3.54	0.08	5.00	0.00	0.00	0.00
28.05	3.54	0.08	5.00	0.00	0.00	0.00
28.10	3.54	0.08	5.00	0.00	0.00	0.00
28.15	3.54	0.08	5.00	0.00	0.00	0.00
28.20	3.54	0.08	5.00	0.00	0.00	0.00
28.25	3.54	0.08	5.00	0.00	0.00	0.00
28.30	3.54	0.08	5.00	0.00	0.00	0.00
28.35	3.54	0.08	5.00	0.00	0.00	0.00
28.40	3.54	0.08	5.00	0.00	0.00	0.00
28.45	3.54	0.08	5.00	0.00	0.00	0.00
28.50	3.54	0.08	5.00	0.00	0.00	0.00
28.55	3.54	0.08	5.00	0.00	0.00	0.00
28.60	3.54	0.08	5.00	0.00	0.00	0.00
28.65	3.54	0.08	5.00	0.00	0.00	0.00
28.70	3.54	0.08	5.00	0.00	0.00	0.00
28.75	3.54	0.08	5.00	0.00	0.00	0.00
28.80	3.54	0.08	5.00	0.00	0.00	0.00
28.85	3.54	0.08	5.00	0.00	0.00	0.00
28.90	3.54	0.08	5.00	0.00	0.00	0.00
28.95	3.54	0.08	5.00	0.00	0.00	0.00
29.00	3.54	0.08	5.00	0.00	0.00	0.00
29.05	3.54	0.08	5.00	0.00	0.00	0.00
29.10	3.54	0.08	5.00	0.00	0.00	0.00

29.15	3.54	0.08	5.00	0.00	0.00	0.00
29.20	3.54	0.08	5.00	0.00	0.00	0.00
29.25	3.54	0.08	5.00	0.00	0.00	0.00
29.30	3.54	0.08	5.00	0.00	0.00	0.00
29.35	3.54	0.08	5.00	0.00	0.00	0.00
29.40	3.54	0.08	5.00	0.00	0.00	0.00
29.45	3.54	0.08	5.00	0.00	0.00	0.00
29.50	3.54	0.08	5.00	0.00	0.00	0.00
29.55	3.54	0.08	5.00	0.00	0.00	0.00
29.60	3.56	0.08	5.00	0.00	0.00	0.00
29.65	3.56	0.08	5.00	0.00	0.00	0.00
29.70	3.56	0.08	5.00	0.00	0.00	0.00
29.75	3.56	0.08	5.00	0.00	0.00	0.00
29.80	3.56	0.08	5.00	0.00	0.00	0.00
29.85	3.56	0.08	5.00	0.00	0.00	0.00
29.90	3.56	0.08	5.00	0.00	0.00	0.00
29.95	3.55	0.08	5.00	0.00	0.00	0.00
30.00	3.55	0.08	5.00	0.00	0.00	0.00
30.05	3.55	0.08	5.00	0.00	0.00	0.00
30.10	3.55	0.08	5.00	0.00	0.00	0.00
30.15	3.55	0.08	5.00	0.00	0.00	0.00
30.20	3.55	0.08	5.00	0.00	0.00	0.00
30.25	3.55	0.08	5.00	0.00	0.00	0.00
30.30	3.55	0.08	5.00	0.00	0.00	0.00
30.35	3.55	0.08	5.00	0.00	0.00	0.00
30.40	3.55	0.08	5.00	0.00	0.00	0.00
30.45	3.55	0.08	5.00	0.00	0.00	0.00
30.50	3.54	0.08	5.00	0.00	0.00	0.00
30.55	3.54	0.08	5.00	0.00	0.00	0.00
30.60	3.54	0.08	5.00	0.00	0.00	0.00
30.65	3.54	0.08	5.00	0.00	0.00	0.00
30.70	3.54	0.08	5.00	0.00	0.00	0.00
30.75	3.54	0.08	5.00	0.00	0.00	0.00
30.80	3.54	0.08	5.00	0.00	0.00	0.00
30.85	3.54	0.08	5.00	0.00	0.00	0.00
30.90	3.54	0.08	5.00	0.00	0.00	0.00
30.95	3.54	0.08	5.00	0.00	0.00	0.00
31.00	3.54	0.08	5.00	0.00	0.00	0.00
31.05	3.53	0.08	5.00	0.00	0.00	0.00
31.10	3.53	0.08	5.00	0.00	0.00	0.00
31.15	3.53	0.08	5.00	0.00	0.00	0.00
31.20	3.53	0.08	5.00	0.00	0.00	0.00
31.25	3.53	0.08	5.00	0.00	0.00	0.00
31.30	3.53	0.08	5.00	0.00	0.00	0.00
31.35	3.53	0.08	5.00	0.00	0.00	0.00
31.40	3.53	0.08	5.00	0.00	0.00	0.00
31.45	3.53	0.08	5.00	0.00	0.00	0.00
31.50	3.53	0.08	5.00	0.00	0.00	0.00
31.55	3.52	0.08	5.00	0.00	0.00	0.00
31.60	3.52	0.08	5.00	0.00	0.00	0.00
31.65	3.52	0.08	5.00	0.00	0.00	0.00
31.70	3.52	0.08	5.00	0.00	0.00	0.00
31.75	3.52	0.08	5.00	0.00	0.00	0.00
31.80	3.52	0.08	5.00	0.00	0.00	0.00
31.85	3.52	0.08	5.00	0.00	0.00	0.00
31.90	3.52	0.08	5.00	0.00	0.00	0.00
31.95	3.52	0.08	5.00	0.00	0.00	0.00
32.00	3.52	0.08	5.00	0.00	0.00	0.00
32.05	3.52	0.08	5.00	0.00	0.00	0.00
32.10	3.51	0.08	5.00	0.00	0.00	0.00
32.15	3.51	0.08	5.00	0.00	0.00	0.00
32.20	3.51	0.08	5.00	0.00	0.00	0.00
32.25	3.51	0.08	5.00	0.00	0.00	0.00
32.30	3.51	0.08	5.00	0.00	0.00	0.00
32.35	3.51	0.08	5.00	0.00	0.00	0.00
32.40	3.51	0.08	5.00	0.00	0.00	0.00
32.45	3.51	0.08	5.00	0.00	0.00	0.00
32.50	3.51	0.08	5.00	0.00	0.00	0.00
32.55	3.51	0.08	5.00	0.00	0.00	0.00
32.60	3.51	0.08	5.00	0.00	0.00	0.00
32.65	3.50	0.08	5.00	0.00	0.00	0.00
32.70	3.50	0.08	5.00	0.00	0.00	0.00
32.75	3.50	0.08	5.00	0.00	0.00	0.00
32.80	3.50	0.08	5.00	0.00	0.00	0.00
32.85	3.50	0.08	5.00	0.00	0.00	0.00
32.90	3.50	0.08	5.00	0.00	0.00	0.00
32.95	3.50	0.08	5.00	0.00	0.00	0.00
33.00	3.50	0.08	5.00	0.00	0.00	0.00
33.05	3.50	0.08	5.00	0.00	0.00	0.00

33.10	3.50	0.08	5.00	0.00	0.00	0.00
33.15	3.50	0.08	5.00	0.00	0.00	0.00
33.20	3.49	0.08	5.00	0.00	0.00	0.00
33.25	3.49	0.08	5.00	0.00	0.00	0.00
33.30	3.49	0.08	5.00	0.00	0.00	0.00
33.35	3.49	0.08	5.00	0.00	0.00	0.00
33.40	3.49	0.08	5.00	0.00	0.00	0.00
33.45	3.49	0.08	5.00	0.00	0.00	0.00
33.50	3.49	0.08	5.00	0.00	0.00	0.00
33.55	3.49	0.08	5.00	0.00	0.00	0.00
33.60	3.49	0.08	5.00	0.00	0.00	0.00
33.65	3.49	0.08	5.00	0.00	0.00	0.00
33.70	3.48	0.08	5.00	0.00	0.00	0.00
33.75	3.48	0.08	5.00	0.00	0.00	0.00
33.80	3.48	0.08	5.00	0.00	0.00	0.00
33.85	3.48	0.08	5.00	0.00	0.00	0.00
33.90	3.48	0.08	5.00	0.00	0.00	0.00
33.95	3.48	0.08	5.00	0.00	0.00	0.00
34.00	3.48	0.08	5.00	0.00	0.00	0.00
34.05	3.48	0.08	5.00	0.00	0.00	0.00
34.10	3.48	0.08	5.00	0.00	0.00	0.00
34.15	3.48	0.08	5.00	0.00	0.00	0.00
34.20	3.48	0.08	5.00	0.00	0.00	0.00
34.25	3.47	0.08	5.00	0.00	0.00	0.00
34.30	3.47	0.08	5.00	0.00	0.00	0.00
34.35	3.47	0.08	5.00	0.00	0.00	0.00
34.40	3.47	0.08	5.00	0.00	0.00	0.00
34.45	3.47	0.08	5.00	0.00	0.00	0.00
34.50	3.47	0.08	5.00	0.00	0.00	0.00
34.55	3.47	0.08	5.00	0.00	0.00	0.00
34.60	3.47	0.08	5.00	0.00	0.00	0.00
34.65	3.47	0.08	5.00	0.00	0.00	0.00
34.70	3.47	0.08	5.00	0.00	0.00	0.00
34.75	3.47	0.08	5.00	0.00	0.00	0.00
34.80	3.46	0.08	5.00	0.00	0.00	0.00
34.85	3.46	0.08	5.00	0.00	0.00	0.00
34.90	3.46	0.08	5.00	0.00	0.00	0.00
34.95	3.46	0.08	5.00	0.00	0.00	0.00
35.00	3.46	0.08	5.00	0.00	0.00	0.00
35.05	3.46	0.08	5.00	0.00	0.00	0.00
35.10	3.46	0.08	5.00	0.00	0.00	0.00
35.15	3.46	0.08	5.00	0.00	0.00	0.00
35.20	3.46	0.08	5.00	0.00	0.00	0.00
35.25	3.46	0.08	5.00	0.00	0.00	0.00
35.30	3.46	0.08	5.00	0.00	0.00	0.00
35.35	3.46	0.08	5.00	0.00	0.00	0.00
35.40	3.45	0.08	5.00	0.00	0.00	0.00
35.45	3.45	0.08	5.00	0.00	0.00	0.00
35.50	3.45	0.08	5.00	0.00	0.00	0.00
35.55	3.45	0.08	5.00	0.00	0.00	0.00
35.60	3.45	0.08	5.00	0.00	0.00	0.00
35.65	3.45	0.08	5.00	0.00	0.00	0.00
35.70	3.45	0.08	5.00	0.00	0.00	0.00
35.75	3.45	0.08	5.00	0.00	0.00	0.00
35.80	3.45	0.08	5.00	0.00	0.00	0.00
35.85	3.45	0.08	5.00	0.00	0.00	0.00
35.90	3.45	0.08	5.00	0.00	0.00	0.00
35.95	3.44	0.08	5.00	0.00	0.00	0.00
36.00	3.44	0.08	5.00	0.00	0.00	0.00
36.05	3.44	0.08	5.00	0.00	0.00	0.00
36.10	3.44	0.08	5.00	0.00	0.00	0.00
36.15	3.44	0.08	5.00	0.00	0.00	0.00
36.20	3.44	0.08	5.00	0.00	0.00	0.00
36.25	3.44	0.08	5.00	0.00	0.00	0.00
36.30	3.44	0.08	5.00	0.00	0.00	0.00
36.35	3.44	0.08	5.00	0.00	0.00	0.00
36.40	3.44	0.08	5.00	0.00	0.00	0.00
36.45	3.44	0.08	5.00	0.00	0.00	0.00
36.50	3.43	0.08	5.00	0.00	0.00	0.00
36.55	3.43	0.08	5.00	0.00	0.00	0.00
36.60	3.43	0.08	5.00	0.00	0.00	0.00
36.65	3.43	0.08	5.00	0.00	0.00	0.00
36.70	3.43	0.08	5.00	0.00	0.00	0.00
36.75	3.43	0.08	5.00	0.00	0.00	0.00
36.80	3.43	0.08	5.00	0.00	0.00	0.00
36.85	3.43	0.08	5.00	0.00	0.00	0.00
36.90	3.43	0.08	5.00	0.00	0.00	0.00
36.95	3.43	0.08	5.00	0.00	0.00	0.00
37.00	3.43	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

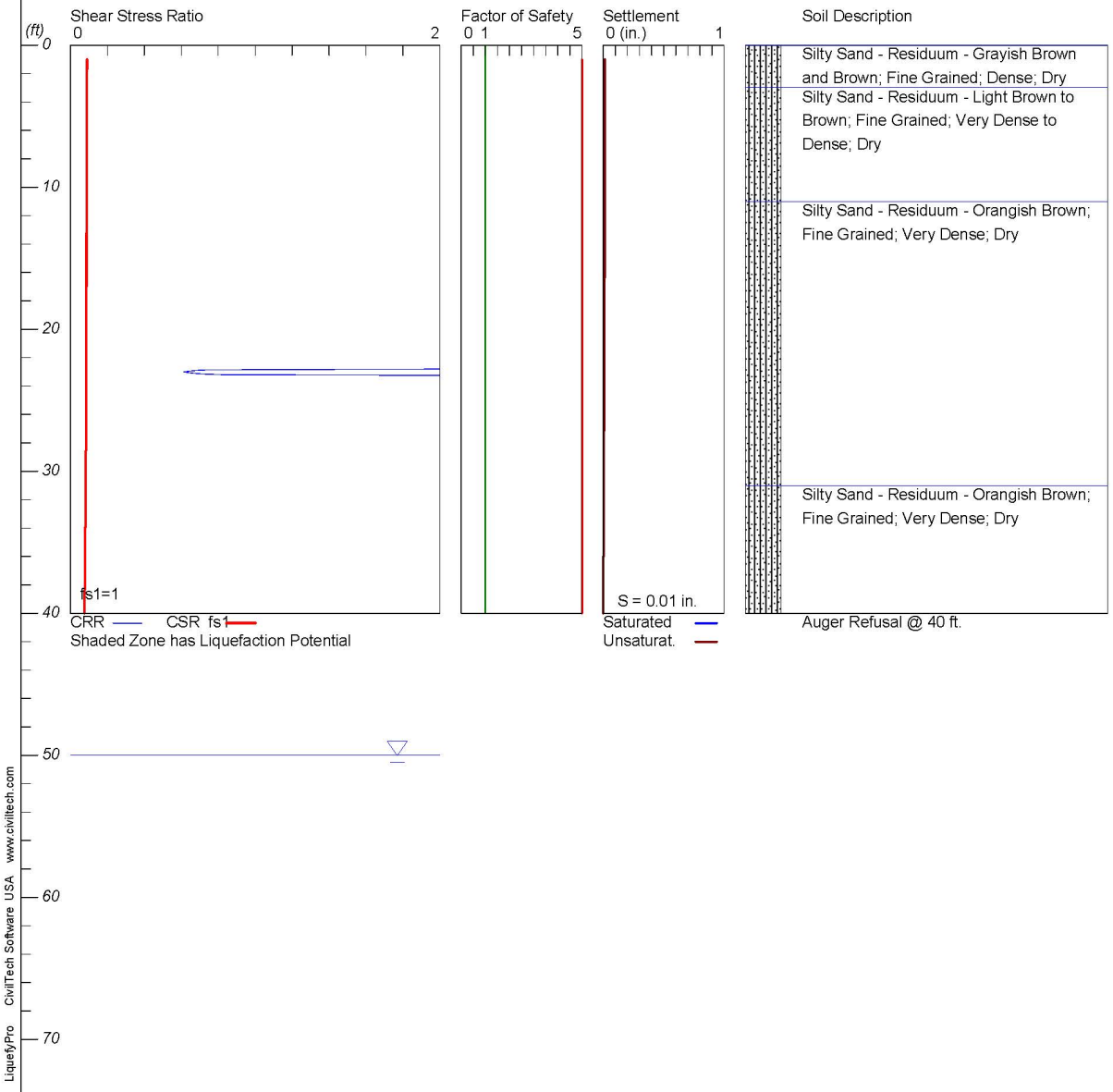
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=TF-1 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\TF-1.liq
Title: Interim Storage Facility NRC
Subtitle: TF-1

Surface Elev.=0
Hole No.=TF-1
Depth of Hole= 40.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=TF-1
Depth of Hole=40.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	39.00	110.00	0.00
3.00	65.00	110.00	0.00
5.00	32.00	110.00	0.00
8.00	48.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	36.00	110.00	0.00
28.00	100.00	110.00	0.00
33.00	100.00	110.00	0.00
38.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.007 to 0.009 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01

1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01
1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01

5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01
5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
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6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01

9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01
9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
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10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.01	0.01
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11.85	3.54	0.09	5.00	0.00	0.01	0.01
11.90	3.54	0.09	5.00	0.00	0.01	0.01
11.95	3.54	0.09	5.00	0.00	0.01	0.01
12.00	3.54	0.09	5.00	0.00	0.01	0.01
12.05	3.54	0.09	5.00	0.00	0.01	0.01
12.10	3.54	0.09	5.00	0.00	0.01	0.01
12.15	3.54	0.09	5.00	0.00	0.01	0.01
12.20	3.54	0.09	5.00	0.00	0.01	0.01
12.25	3.54	0.09	5.00	0.00	0.01	0.01
12.30	3.54	0.09	5.00	0.00	0.01	0.01
12.35	3.54	0.09	5.00	0.00	0.01	0.01
12.40	3.54	0.09	5.00	0.00	0.01	0.01
12.45	3.54	0.09	5.00	0.00	0.01	0.01
12.50	3.54	0.09	5.00	0.00	0.01	0.01
12.55	3.54	0.09	5.00	0.00	0.01	0.01
12.60	3.54	0.09	5.00	0.00	0.01	0.01
12.65	3.54	0.09	5.00	0.00	0.01	0.01
12.70	3.54	0.09	5.00	0.00	0.01	0.01
12.75	3.54	0.09	5.00	0.00	0.01	0.01
12.80	3.54	0.09	5.00	0.00	0.01	0.01
12.85	3.54	0.09	5.00	0.00	0.01	0.01
12.90	3.54	0.09	5.00	0.00	0.01	0.01
12.95	3.54	0.09	5.00	0.00	0.01	0.01
13.00	3.54	0.09	5.00	0.00	0.01	0.01
13.05	3.54	0.09	5.00	0.00	0.01	0.01
13.10	3.54	0.09	5.00	0.00	0.01	0.01
13.15	3.54	0.09	5.00	0.00	0.01	0.01
13.20	3.54	0.09	5.00	0.00	0.01	0.01
13.25	3.54	0.09	5.00	0.00	0.01	0.01

13.30	3.54	0.09	5.00	0.00	0.01	0.01
13.35	3.54	0.09	5.00	0.00	0.01	0.01
13.40	3.54	0.09	5.00	0.00	0.01	0.01
13.45	3.54	0.09	5.00	0.00	0.01	0.01
13.50	3.54	0.09	5.00	0.00	0.01	0.01
13.55	3.54	0.09	5.00	0.00	0.01	0.01
13.60	3.54	0.09	5.00	0.00	0.01	0.01
13.65	3.54	0.09	5.00	0.00	0.01	0.01
13.70	3.54	0.09	5.00	0.00	0.01	0.01
13.75	3.54	0.09	5.00	0.00	0.01	0.01
13.80	3.54	0.09	5.00	0.00	0.01	0.01
13.85	3.54	0.09	5.00	0.00	0.01	0.01
13.90	3.54	0.09	5.00	0.00	0.01	0.01
13.95	3.54	0.09	5.00	0.00	0.01	0.01
14.00	3.54	0.09	5.00	0.00	0.01	0.01
14.05	3.54	0.09	5.00	0.00	0.01	0.01
14.10	3.54	0.09	5.00	0.00	0.01	0.01
14.15	3.54	0.09	5.00	0.00	0.01	0.01
14.20	3.54	0.09	5.00	0.00	0.01	0.01
14.25	3.54	0.09	5.00	0.00	0.01	0.01
14.30	3.54	0.09	5.00	0.00	0.01	0.01
14.35	3.54	0.09	5.00	0.00	0.01	0.01
14.40	3.54	0.09	5.00	0.00	0.01	0.01
14.45	3.54	0.09	5.00	0.00	0.01	0.01
14.50	3.54	0.09	5.00	0.00	0.01	0.01
14.55	3.54	0.09	5.00	0.00	0.01	0.01
14.60	3.54	0.09	5.00	0.00	0.01	0.01
14.65	3.54	0.09	5.00	0.00	0.01	0.01
14.70	3.54	0.09	5.00	0.00	0.01	0.01
14.75	3.54	0.09	5.00	0.00	0.01	0.01
14.80	3.54	0.09	5.00	0.00	0.01	0.01
14.85	3.54	0.09	5.00	0.00	0.01	0.01
14.90	3.54	0.09	5.00	0.00	0.01	0.01
14.95	3.54	0.09	5.00	0.00	0.01	0.01
15.00	3.54	0.09	5.00	0.00	0.01	0.01
15.05	3.54	0.09	5.00	0.00	0.01	0.01
15.10	3.54	0.09	5.00	0.00	0.01	0.01
15.15	3.54	0.09	5.00	0.00	0.01	0.01
15.20	3.54	0.09	5.00	0.00	0.01	0.01
15.25	3.54	0.09	5.00	0.00	0.01	0.01
15.30	3.54	0.09	5.00	0.00	0.01	0.01
15.35	3.54	0.09	5.00	0.00	0.01	0.01
15.40	3.54	0.09	5.00	0.00	0.01	0.01
15.45	3.54	0.09	5.00	0.00	0.01	0.01
15.50	3.54	0.09	5.00	0.00	0.01	0.01
15.55	3.54	0.09	5.00	0.00	0.01	0.01
15.60	3.54	0.09	5.00	0.00	0.01	0.01
15.65	3.54	0.09	5.00	0.00	0.01	0.01
15.70	3.54	0.09	5.00	0.00	0.01	0.01
15.75	3.54	0.09	5.00	0.00	0.01	0.01
15.80	3.54	0.09	5.00	0.00	0.01	0.01
15.85	3.54	0.09	5.00	0.00	0.01	0.01
15.90	3.54	0.09	5.00	0.00	0.01	0.01
15.95	3.54	0.09	5.00	0.00	0.01	0.01
16.00	3.54	0.09	5.00	0.00	0.01	0.01
16.05	3.54	0.09	5.00	0.00	0.01	0.01
16.10	3.54	0.09	5.00	0.00	0.01	0.01
16.15	3.54	0.09	5.00	0.00	0.01	0.01
16.20	3.54	0.09	5.00	0.00	0.01	0.01
16.25	3.54	0.09	5.00	0.00	0.01	0.01
16.30	3.54	0.09	5.00	0.00	0.01	0.01
16.35	3.54	0.09	5.00	0.00	0.01	0.01
16.40	3.54	0.09	5.00	0.00	0.01	0.01
16.45	3.54	0.09	5.00	0.00	0.01	0.01
16.50	3.54	0.09	5.00	0.00	0.01	0.01
16.55	3.54	0.09	5.00	0.00	0.01	0.01
16.60	3.54	0.09	5.00	0.00	0.01	0.01
16.65	3.54	0.09	5.00	0.00	0.01	0.01
16.70	3.54	0.09	5.00	0.00	0.01	0.01
16.75	3.54	0.09	5.00	0.00	0.01	0.01
16.80	3.54	0.09	5.00	0.00	0.01	0.01
16.85	3.54	0.09	5.00	0.00	0.01	0.01
16.90	3.54	0.09	5.00	0.00	0.01	0.01
16.95	3.54	0.09	5.00	0.00	0.01	0.01
17.00	3.54	0.09	5.00	0.00	0.01	0.01
17.05	3.54	0.09	5.00	0.00	0.01	0.01
17.10	3.54	0.09	5.00	0.00	0.01	0.01
17.15	3.54	0.09	5.00	0.00	0.01	0.01
17.20	3.54	0.09	5.00	0.00	0.01	0.01

17.25	3.54	0.09	5.00	0.00	0.01	0.01
17.30	3.54	0.09	5.00	0.00	0.01	0.01
17.35	3.54	0.09	5.00	0.00	0.01	0.01
17.40	3.54	0.09	5.00	0.00	0.01	0.01
17.45	3.54	0.09	5.00	0.00	0.01	0.01
17.50	3.54	0.09	5.00	0.00	0.01	0.01
17.55	3.54	0.09	5.00	0.00	0.01	0.01
17.60	3.54	0.09	5.00	0.00	0.01	0.01
17.65	3.54	0.09	5.00	0.00	0.01	0.01
17.70	3.54	0.09	5.00	0.00	0.01	0.01
17.75	3.54	0.09	5.00	0.00	0.01	0.01
17.80	3.54	0.09	5.00	0.00	0.01	0.01
17.85	3.54	0.09	5.00	0.00	0.01	0.01
17.90	3.54	0.09	5.00	0.00	0.01	0.01
17.95	3.54	0.09	5.00	0.00	0.01	0.01
18.00	3.54	0.09	5.00	0.00	0.01	0.01
18.05	3.54	0.09	5.00	0.00	0.01	0.01
18.10	3.54	0.09	5.00	0.00	0.01	0.01
18.15	3.54	0.09	5.00	0.00	0.01	0.01
18.20	3.54	0.09	5.00	0.00	0.01	0.01
18.25	3.54	0.09	5.00	0.00	0.01	0.01
18.30	3.54	0.09	5.00	0.00	0.01	0.01
18.35	3.54	0.09	5.00	0.00	0.01	0.01
18.40	3.54	0.09	5.00	0.00	0.01	0.01
18.45	3.54	0.09	5.00	0.00	0.01	0.01
18.50	3.54	0.09	5.00	0.00	0.01	0.01
18.55	3.54	0.09	5.00	0.00	0.01	0.01
18.60	3.54	0.09	5.00	0.00	0.01	0.01
18.65	3.54	0.09	5.00	0.00	0.01	0.01
18.70	3.54	0.09	5.00	0.00	0.01	0.01
18.75	3.54	0.09	5.00	0.00	0.01	0.01
18.80	3.54	0.09	5.00	0.00	0.01	0.01
18.85	3.54	0.09	5.00	0.00	0.01	0.01
18.90	3.54	0.09	5.00	0.00	0.01	0.01
18.95	3.54	0.09	5.00	0.00	0.01	0.01
19.00	3.54	0.09	5.00	0.00	0.01	0.01
19.05	3.54	0.09	5.00	0.00	0.01	0.01
19.10	3.54	0.09	5.00	0.00	0.01	0.01
19.15	3.54	0.09	5.00	0.00	0.01	0.01
19.20	3.54	0.09	5.00	0.00	0.01	0.01
19.25	3.54	0.09	5.00	0.00	0.01	0.01
19.30	3.54	0.09	5.00	0.00	0.01	0.01
19.35	3.54	0.09	5.00	0.00	0.01	0.01
19.40	3.54	0.09	5.00	0.00	0.01	0.01
19.45	3.54	0.09	5.00	0.00	0.01	0.01
19.50	3.54	0.09	5.00	0.00	0.01	0.01
19.55	3.54	0.09	5.00	0.00	0.01	0.01
19.60	3.54	0.09	5.00	0.00	0.01	0.01
19.65	3.54	0.09	5.00	0.00	0.01	0.01
19.70	3.54	0.09	5.00	0.00	0.01	0.01
19.75	3.54	0.09	5.00	0.00	0.01	0.01
19.80	3.54	0.09	5.00	0.00	0.01	0.01
19.85	3.54	0.09	5.00	0.00	0.01	0.01
19.90	3.54	0.09	5.00	0.00	0.01	0.01
19.95	3.54	0.09	5.00	0.00	0.01	0.01
20.00	3.54	0.09	5.00	0.00	0.01	0.01
20.05	3.54	0.09	5.00	0.00	0.01	0.01
20.10	3.54	0.09	5.00	0.00	0.01	0.01
20.15	3.54	0.09	5.00	0.00	0.01	0.01
20.20	3.54	0.09	5.00	0.00	0.01	0.01
20.25	3.54	0.09	5.00	0.00	0.01	0.01
20.30	3.54	0.09	5.00	0.00	0.01	0.01
20.35	3.54	0.09	5.00	0.00	0.01	0.01
20.40	3.54	0.09	5.00	0.00	0.01	0.01
20.45	3.54	0.09	5.00	0.00	0.01	0.01
20.50	3.54	0.09	5.00	0.00	0.01	0.01
20.55	3.54	0.09	5.00	0.00	0.01	0.01
20.60	3.54	0.09	5.00	0.00	0.01	0.01
20.65	3.54	0.09	5.00	0.00	0.01	0.01
20.70	3.54	0.09	5.00	0.00	0.01	0.01
20.75	3.54	0.09	5.00	0.00	0.01	0.01
20.80	3.54	0.09	5.00	0.00	0.01	0.01
20.85	3.54	0.09	5.00	0.00	0.01	0.01
20.90	3.54	0.09	5.00	0.00	0.01	0.01
20.95	3.54	0.09	5.00	0.00	0.01	0.01
21.00	3.54	0.09	5.00	0.00	0.01	0.01
21.05	3.54	0.09	5.00	0.00	0.01	0.01
21.10	3.54	0.09	5.00	0.00	0.01	0.01
21.15	3.54	0.09	5.00	0.00	0.01	0.01

21.20	3.54	0.09	5.00	0.00	0.01	0.01
21.25	3.54	0.09	5.00	0.00	0.01	0.01
21.30	3.54	0.09	5.00	0.00	0.01	0.01
21.35	3.54	0.09	5.00	0.00	0.01	0.01
21.40	3.54	0.09	5.00	0.00	0.01	0.01
21.45	3.54	0.09	5.00	0.00	0.01	0.01
21.50	3.54	0.09	5.00	0.00	0.01	0.01
21.55	3.54	0.09	5.00	0.00	0.01	0.01
21.60	3.54	0.09	5.00	0.00	0.01	0.01
21.65	3.54	0.09	5.00	0.00	0.01	0.01
21.70	3.54	0.09	5.00	0.00	0.01	0.01
21.75	3.54	0.09	5.00	0.00	0.01	0.01
21.80	3.54	0.09	5.00	0.00	0.01	0.01
21.85	3.54	0.09	5.00	0.00	0.01	0.01
21.90	3.54	0.09	5.00	0.00	0.01	0.01
21.95	3.54	0.09	5.00	0.00	0.01	0.01
22.00	3.54	0.09	5.00	0.00	0.01	0.01
22.05	3.54	0.09	5.00	0.00	0.01	0.01
22.10	3.54	0.09	5.00	0.00	0.01	0.01
22.15	3.54	0.09	5.00	0.00	0.01	0.01
22.20	3.54	0.09	5.00	0.00	0.01	0.01
22.25	3.54	0.09	5.00	0.00	0.01	0.01
22.30	3.54	0.09	5.00	0.00	0.01	0.01
22.35	3.54	0.09	5.00	0.00	0.01	0.01
22.40	3.54	0.09	5.00	0.00	0.01	0.01
22.45	3.54	0.09	5.00	0.00	0.01	0.01
22.50	3.54	0.08	5.00	0.00	0.01	0.01
22.55	3.54	0.08	5.00	0.00	0.01	0.01
22.60	3.54	0.08	5.00	0.00	0.01	0.01
22.65	3.54	0.08	5.00	0.00	0.01	0.01
22.70	3.54	0.08	5.00	0.00	0.01	0.01
22.75	3.54	0.08	5.00	0.00	0.01	0.01
22.80	3.54	0.08	5.00	0.00	0.01	0.01
22.85	0.74	0.08	5.00	0.00	0.01	0.01
22.90	0.68	0.08	5.00	0.00	0.01	0.01
22.95	0.64	0.08	5.00	0.00	0.01	0.01
23.00	0.61	0.08	5.00	0.00	0.01	0.01
23.05	0.64	0.08	5.00	0.00	0.01	0.01
23.10	0.67	0.08	5.00	0.00	0.01	0.01
23.15	0.72	0.08	5.00	0.00	0.01	0.01
23.20	0.82	0.08	5.00	0.00	0.01	0.01
23.25	3.54	0.08	5.00	0.00	0.01	0.01
23.30	3.54	0.08	5.00	0.00	0.01	0.01
23.35	3.54	0.08	5.00	0.00	0.01	0.01
23.40	3.54	0.08	5.00	0.00	0.01	0.01
23.45	3.54	0.08	5.00	0.00	0.01	0.01
23.50	3.54	0.08	5.00	0.00	0.01	0.01
23.55	3.54	0.08	5.00	0.00	0.01	0.01
23.60	3.54	0.08	5.00	0.00	0.01	0.01
23.65	3.54	0.08	5.00	0.00	0.01	0.01
23.70	3.54	0.08	5.00	0.00	0.01	0.01
23.75	3.54	0.08	5.00	0.00	0.01	0.01
23.80	3.54	0.08	5.00	0.00	0.01	0.01
23.85	3.54	0.08	5.00	0.00	0.01	0.01
23.90	3.54	0.08	5.00	0.00	0.01	0.01
23.95	3.54	0.08	5.00	0.00	0.01	0.01
24.00	3.54	0.08	5.00	0.00	0.01	0.01
24.05	3.54	0.08	5.00	0.00	0.01	0.01
24.10	3.54	0.08	5.00	0.00	0.01	0.01
24.15	3.54	0.08	5.00	0.00	0.01	0.01
24.20	3.54	0.08	5.00	0.00	0.01	0.01
24.25	3.54	0.08	5.00	0.00	0.01	0.01
24.30	3.54	0.08	5.00	0.00	0.01	0.01
24.35	3.54	0.08	5.00	0.00	0.01	0.01
24.40	3.54	0.08	5.00	0.00	0.01	0.01
24.45	3.54	0.08	5.00	0.00	0.01	0.01
24.50	3.54	0.08	5.00	0.00	0.01	0.01
24.55	3.54	0.08	5.00	0.00	0.01	0.01
24.60	3.54	0.08	5.00	0.00	0.01	0.01
24.65	3.54	0.08	5.00	0.00	0.01	0.01
24.70	3.54	0.08	5.00	0.00	0.01	0.01
24.75	3.54	0.08	5.00	0.00	0.01	0.01
24.80	3.54	0.08	5.00	0.00	0.01	0.01
24.85	3.54	0.08	5.00	0.00	0.01	0.01
24.90	3.54	0.08	5.00	0.00	0.01	0.01
24.95	3.54	0.08	5.00	0.00	0.01	0.01
25.00	3.54	0.08	5.00	0.00	0.01	0.01
25.05	3.54	0.08	5.00	0.00	0.01	0.01
25.10	3.54	0.08	5.00	0.00	0.01	0.01

25.15	3.54	0.08	5.00	0.00	0.01	0.01
25.20	3.54	0.08	5.00	0.00	0.01	0.01
25.25	3.54	0.08	5.00	0.00	0.01	0.01
25.30	3.54	0.08	5.00	0.00	0.01	0.01
25.35	3.54	0.08	5.00	0.00	0.01	0.01
25.40	3.54	0.08	5.00	0.00	0.01	0.01
25.45	3.54	0.08	5.00	0.00	0.01	0.01
25.50	3.54	0.08	5.00	0.00	0.01	0.01
25.55	3.54	0.08	5.00	0.00	0.01	0.01
25.60	3.54	0.08	5.00	0.00	0.01	0.01
25.65	3.54	0.08	5.00	0.00	0.01	0.01
25.70	3.54	0.08	5.00	0.00	0.01	0.01
25.75	3.54	0.08	5.00	0.00	0.01	0.01
25.80	3.54	0.08	5.00	0.00	0.01	0.01
25.85	3.54	0.08	5.00	0.00	0.01	0.01
25.90	3.54	0.08	5.00	0.00	0.01	0.01
25.95	3.54	0.08	5.00	0.00	0.01	0.01
26.00	3.54	0.08	5.00	0.00	0.01	0.01
26.05	3.54	0.08	5.00	0.00	0.01	0.01
26.10	3.54	0.08	5.00	0.00	0.01	0.01
26.15	3.54	0.08	5.00	0.00	0.01	0.01
26.20	3.54	0.08	5.00	0.00	0.01	0.01
26.25	3.54	0.08	5.00	0.00	0.01	0.01
26.30	3.54	0.08	5.00	0.00	0.01	0.01
26.35	3.54	0.08	5.00	0.00	0.01	0.01
26.40	3.54	0.08	5.00	0.00	0.01	0.01
26.45	3.54	0.08	5.00	0.00	0.01	0.01
26.50	3.54	0.08	5.00	0.00	0.01	0.01
26.55	3.54	0.08	5.00	0.00	0.01	0.01
26.60	3.54	0.08	5.00	0.00	0.01	0.01
26.65	3.54	0.08	5.00	0.00	0.01	0.01
26.70	3.54	0.08	5.00	0.00	0.01	0.01
26.75	3.54	0.08	5.00	0.00	0.01	0.01
26.80	3.54	0.08	5.00	0.00	0.01	0.01
26.85	3.54	0.08	5.00	0.00	0.01	0.01
26.90	3.54	0.08	5.00	0.00	0.01	0.01
26.95	3.54	0.08	5.00	0.00	0.01	0.01
27.00	3.54	0.08	5.00	0.00	0.01	0.01
27.05	3.54	0.08	5.00	0.00	0.01	0.01
27.10	3.54	0.08	5.00	0.00	0.01	0.01
27.15	3.54	0.08	5.00	0.00	0.01	0.01
27.20	3.54	0.08	5.00	0.00	0.01	0.01
27.25	3.54	0.08	5.00	0.00	0.01	0.01
27.30	3.54	0.08	5.00	0.00	0.01	0.01
27.35	3.54	0.08	5.00	0.00	0.01	0.01
27.40	3.54	0.08	5.00	0.00	0.01	0.01
27.45	3.54	0.08	5.00	0.00	0.01	0.01
27.50	3.54	0.08	5.00	0.00	0.01	0.01
27.55	3.54	0.08	5.00	0.00	0.01	0.01
27.60	3.54	0.08	5.00	0.00	0.01	0.01
27.65	3.54	0.08	5.00	0.00	0.01	0.01
27.70	3.54	0.08	5.00	0.00	0.01	0.01
27.75	3.54	0.08	5.00	0.00	0.01	0.01
27.80	3.54	0.08	5.00	0.00	0.01	0.01
27.85	3.54	0.08	5.00	0.00	0.01	0.01
27.90	3.54	0.08	5.00	0.00	0.01	0.01
27.95	3.54	0.08	5.00	0.00	0.01	0.01
28.00	3.54	0.08	5.00	0.00	0.01	0.01
28.05	3.54	0.08	5.00	0.00	0.01	0.01
28.10	3.54	0.08	5.00	0.00	0.01	0.01
28.15	3.54	0.08	5.00	0.00	0.01	0.01
28.20	3.54	0.08	5.00	0.00	0.01	0.01
28.25	3.54	0.08	5.00	0.00	0.01	0.01
28.30	3.54	0.08	5.00	0.00	0.01	0.01
28.35	3.54	0.08	5.00	0.00	0.01	0.01
28.40	3.54	0.08	5.00	0.00	0.01	0.01
28.45	3.54	0.08	5.00	0.00	0.01	0.01
28.50	3.54	0.08	5.00	0.00	0.00	0.00
28.55	3.54	0.08	5.00	0.00	0.00	0.00
28.60	3.54	0.08	5.00	0.00	0.00	0.00
28.65	3.54	0.08	5.00	0.00	0.00	0.00
28.70	3.54	0.08	5.00	0.00	0.00	0.00
28.75	3.54	0.08	5.00	0.00	0.00	0.00
28.80	3.54	0.08	5.00	0.00	0.00	0.00
28.85	3.54	0.08	5.00	0.00	0.00	0.00
28.90	3.54	0.08	5.00	0.00	0.00	0.00
28.95	3.54	0.08	5.00	0.00	0.00	0.00
29.00	3.54	0.08	5.00	0.00	0.00	0.00
29.05	3.54	0.08	5.00	0.00	0.00	0.00

29.10	3.54	0.08	5.00	0.00	0.00	0.00
29.15	3.54	0.08	5.00	0.00	0.00	0.00
29.20	3.54	0.08	5.00	0.00	0.00	0.00
29.25	3.54	0.08	5.00	0.00	0.00	0.00
29.30	3.54	0.08	5.00	0.00	0.00	0.00
29.35	3.54	0.08	5.00	0.00	0.00	0.00
29.40	3.54	0.08	5.00	0.00	0.00	0.00
29.45	3.54	0.08	5.00	0.00	0.00	0.00
29.50	3.54	0.08	5.00	0.00	0.00	0.00
29.55	3.54	0.08	5.00	0.00	0.00	0.00
29.60	3.56	0.08	5.00	0.00	0.00	0.00
29.65	3.56	0.08	5.00	0.00	0.00	0.00
29.70	3.56	0.08	5.00	0.00	0.00	0.00
29.75	3.56	0.08	5.00	0.00	0.00	0.00
29.80	3.56	0.08	5.00	0.00	0.00	0.00
29.85	3.56	0.08	5.00	0.00	0.00	0.00
29.90	3.56	0.08	5.00	0.00	0.00	0.00
29.95	3.55	0.08	5.00	0.00	0.00	0.00
30.00	3.55	0.08	5.00	0.00	0.00	0.00
30.05	3.55	0.08	5.00	0.00	0.00	0.00
30.10	3.55	0.08	5.00	0.00	0.00	0.00
30.15	3.55	0.08	5.00	0.00	0.00	0.00
30.20	3.55	0.08	5.00	0.00	0.00	0.00
30.25	3.55	0.08	5.00	0.00	0.00	0.00
30.30	3.55	0.08	5.00	0.00	0.00	0.00
30.35	3.55	0.08	5.00	0.00	0.00	0.00
30.40	3.55	0.08	5.00	0.00	0.00	0.00
30.45	3.55	0.08	5.00	0.00	0.00	0.00
30.50	3.54	0.08	5.00	0.00	0.00	0.00
30.55	3.54	0.08	5.00	0.00	0.00	0.00
30.60	3.54	0.08	5.00	0.00	0.00	0.00
30.65	3.54	0.08	5.00	0.00	0.00	0.00
30.70	3.54	0.08	5.00	0.00	0.00	0.00
30.75	3.54	0.08	5.00	0.00	0.00	0.00
30.80	3.54	0.08	5.00	0.00	0.00	0.00
30.85	3.54	0.08	5.00	0.00	0.00	0.00
30.90	3.54	0.08	5.00	0.00	0.00	0.00
30.95	3.54	0.08	5.00	0.00	0.00	0.00
31.00	3.54	0.08	5.00	0.00	0.00	0.00
31.05	3.53	0.08	5.00	0.00	0.00	0.00
31.10	3.53	0.08	5.00	0.00	0.00	0.00
31.15	3.53	0.08	5.00	0.00	0.00	0.00
31.20	3.53	0.08	5.00	0.00	0.00	0.00
31.25	3.53	0.08	5.00	0.00	0.00	0.00
31.30	3.53	0.08	5.00	0.00	0.00	0.00
31.35	3.53	0.08	5.00	0.00	0.00	0.00
31.40	3.53	0.08	5.00	0.00	0.00	0.00
31.45	3.53	0.08	5.00	0.00	0.00	0.00
31.50	3.53	0.08	5.00	0.00	0.00	0.00
31.55	3.52	0.08	5.00	0.00	0.00	0.00
31.60	3.52	0.08	5.00	0.00	0.00	0.00
31.65	3.52	0.08	5.00	0.00	0.00	0.00
31.70	3.52	0.08	5.00	0.00	0.00	0.00
31.75	3.52	0.08	5.00	0.00	0.00	0.00
31.80	3.52	0.08	5.00	0.00	0.00	0.00
31.85	3.52	0.08	5.00	0.00	0.00	0.00
31.90	3.52	0.08	5.00	0.00	0.00	0.00
31.95	3.52	0.08	5.00	0.00	0.00	0.00
32.00	3.52	0.08	5.00	0.00	0.00	0.00
32.05	3.52	0.08	5.00	0.00	0.00	0.00
32.10	3.51	0.08	5.00	0.00	0.00	0.00
32.15	3.51	0.08	5.00	0.00	0.00	0.00
32.20	3.51	0.08	5.00	0.00	0.00	0.00
32.25	3.51	0.08	5.00	0.00	0.00	0.00
32.30	3.51	0.08	5.00	0.00	0.00	0.00
32.35	3.51	0.08	5.00	0.00	0.00	0.00
32.40	3.51	0.08	5.00	0.00	0.00	0.00
32.45	3.51	0.08	5.00	0.00	0.00	0.00
32.50	3.51	0.08	5.00	0.00	0.00	0.00
32.55	3.51	0.08	5.00	0.00	0.00	0.00
32.60	3.51	0.08	5.00	0.00	0.00	0.00
32.65	3.50	0.08	5.00	0.00	0.00	0.00
32.70	3.50	0.08	5.00	0.00	0.00	0.00
32.75	3.50	0.08	5.00	0.00	0.00	0.00
32.80	3.50	0.08	5.00	0.00	0.00	0.00
32.85	3.50	0.08	5.00	0.00	0.00	0.00
32.90	3.50	0.08	5.00	0.00	0.00	0.00
32.95	3.50	0.08	5.00	0.00	0.00	0.00
33.00	3.50	0.08	5.00	0.00	0.00	0.00

33.05	3.50	0.08	5.00	0.00	0.00	0.00
33.10	3.50	0.08	5.00	0.00	0.00	0.00
33.15	3.50	0.08	5.00	0.00	0.00	0.00
33.20	3.49	0.08	5.00	0.00	0.00	0.00
33.25	3.49	0.08	5.00	0.00	0.00	0.00
33.30	3.49	0.08	5.00	0.00	0.00	0.00
33.35	3.49	0.08	5.00	0.00	0.00	0.00
33.40	3.49	0.08	5.00	0.00	0.00	0.00
33.45	3.49	0.08	5.00	0.00	0.00	0.00
33.50	3.49	0.08	5.00	0.00	0.00	0.00
33.55	3.49	0.08	5.00	0.00	0.00	0.00
33.60	3.49	0.08	5.00	0.00	0.00	0.00
33.65	3.49	0.08	5.00	0.00	0.00	0.00
33.70	3.48	0.08	5.00	0.00	0.00	0.00
33.75	3.48	0.08	5.00	0.00	0.00	0.00
33.80	3.48	0.08	5.00	0.00	0.00	0.00
33.85	3.48	0.08	5.00	0.00	0.00	0.00
33.90	3.48	0.08	5.00	0.00	0.00	0.00
33.95	3.48	0.08	5.00	0.00	0.00	0.00
34.00	3.48	0.08	5.00	0.00	0.00	0.00
34.05	3.48	0.08	5.00	0.00	0.00	0.00
34.10	3.48	0.08	5.00	0.00	0.00	0.00
34.15	3.48	0.08	5.00	0.00	0.00	0.00
34.20	3.48	0.08	5.00	0.00	0.00	0.00
34.25	3.47	0.08	5.00	0.00	0.00	0.00
34.30	3.47	0.08	5.00	0.00	0.00	0.00
34.35	3.47	0.08	5.00	0.00	0.00	0.00
34.40	3.47	0.08	5.00	0.00	0.00	0.00
34.45	3.47	0.08	5.00	0.00	0.00	0.00
34.50	3.47	0.08	5.00	0.00	0.00	0.00
34.55	3.47	0.08	5.00	0.00	0.00	0.00
34.60	3.47	0.08	5.00	0.00	0.00	0.00
34.65	3.47	0.08	5.00	0.00	0.00	0.00
34.70	3.47	0.08	5.00	0.00	0.00	0.00
34.75	3.47	0.08	5.00	0.00	0.00	0.00
34.80	3.46	0.08	5.00	0.00	0.00	0.00
34.85	3.46	0.08	5.00	0.00	0.00	0.00
34.90	3.46	0.08	5.00	0.00	0.00	0.00
34.95	3.46	0.08	5.00	0.00	0.00	0.00
35.00	3.46	0.08	5.00	0.00	0.00	0.00
35.05	3.46	0.08	5.00	0.00	0.00	0.00
35.10	3.46	0.08	5.00	0.00	0.00	0.00
35.15	3.46	0.08	5.00	0.00	0.00	0.00
35.20	3.46	0.08	5.00	0.00	0.00	0.00
35.25	3.46	0.08	5.00	0.00	0.00	0.00
35.30	3.46	0.08	5.00	0.00	0.00	0.00
35.35	3.46	0.08	5.00	0.00	0.00	0.00
35.40	3.45	0.08	5.00	0.00	0.00	0.00
35.45	3.45	0.08	5.00	0.00	0.00	0.00
35.50	3.45	0.08	5.00	0.00	0.00	0.00
35.55	3.45	0.08	5.00	0.00	0.00	0.00
35.60	3.45	0.08	5.00	0.00	0.00	0.00
35.65	3.45	0.08	5.00	0.00	0.00	0.00
35.70	3.45	0.08	5.00	0.00	0.00	0.00
35.75	3.45	0.08	5.00	0.00	0.00	0.00
35.80	3.45	0.08	5.00	0.00	0.00	0.00
35.85	3.45	0.08	5.00	0.00	0.00	0.00
35.90	3.45	0.08	5.00	0.00	0.00	0.00
35.95	3.44	0.08	5.00	0.00	0.00	0.00
36.00	3.44	0.08	5.00	0.00	0.00	0.00
36.05	3.44	0.08	5.00	0.00	0.00	0.00
36.10	3.44	0.08	5.00	0.00	0.00	0.00
36.15	3.44	0.08	5.00	0.00	0.00	0.00
36.20	3.44	0.08	5.00	0.00	0.00	0.00
36.25	3.44	0.08	5.00	0.00	0.00	0.00
36.30	3.44	0.08	5.00	0.00	0.00	0.00
36.35	3.44	0.08	5.00	0.00	0.00	0.00
36.40	3.44	0.08	5.00	0.00	0.00	0.00
36.45	3.44	0.08	5.00	0.00	0.00	0.00
36.50	3.43	0.08	5.00	0.00	0.00	0.00
36.55	3.43	0.08	5.00	0.00	0.00	0.00
36.60	3.43	0.08	5.00	0.00	0.00	0.00
36.65	3.43	0.08	5.00	0.00	0.00	0.00
36.70	3.43	0.08	5.00	0.00	0.00	0.00
36.75	3.43	0.08	5.00	0.00	0.00	0.00
36.80	3.43	0.08	5.00	0.00	0.00	0.00
36.85	3.43	0.08	5.00	0.00	0.00	0.00
36.90	3.43	0.08	5.00	0.00	0.00	0.00
36.95	3.43	0.08	5.00	0.00	0.00	0.00

37.00	3.43	0.08	5.00	0.00	0.00	0.00
37.05	3.42	0.08	5.00	0.00	0.00	0.00
37.10	3.42	0.08	5.00	0.00	0.00	0.00
37.15	3.42	0.08	5.00	0.00	0.00	0.00
37.20	3.42	0.08	5.00	0.00	0.00	0.00
37.25	3.42	0.08	5.00	0.00	0.00	0.00
37.30	3.42	0.08	5.00	0.00	0.00	0.00
37.35	3.42	0.08	5.00	0.00	0.00	0.00
37.40	3.42	0.08	5.00	0.00	0.00	0.00
37.45	3.42	0.08	5.00	0.00	0.00	0.00
37.50	3.42	0.08	5.00	0.00	0.00	0.00
37.55	3.42	0.08	5.00	0.00	0.00	0.00
37.60	3.42	0.08	5.00	0.00	0.00	0.00
37.65	3.41	0.08	5.00	0.00	0.00	0.00
37.70	3.41	0.08	5.00	0.00	0.00	0.00
37.75	3.41	0.08	5.00	0.00	0.00	0.00
37.80	3.41	0.08	5.00	0.00	0.00	0.00
37.85	3.41	0.08	5.00	0.00	0.00	0.00
37.90	3.41	0.08	5.00	0.00	0.00	0.00
37.95	3.41	0.08	5.00	0.00	0.00	0.00
38.00	3.41	0.08	5.00	0.00	0.00	0.00
38.05	3.41	0.08	5.00	0.00	0.00	0.00
38.10	3.41	0.08	5.00	0.00	0.00	0.00
38.15	3.41	0.08	5.00	0.00	0.00	0.00
38.20	3.40	0.08	5.00	0.00	0.00	0.00
38.25	3.40	0.08	5.00	0.00	0.00	0.00
38.30	3.40	0.08	5.00	0.00	0.00	0.00
38.35	3.40	0.08	5.00	0.00	0.00	0.00
38.40	3.40	0.08	5.00	0.00	0.00	0.00
38.45	3.40	0.08	5.00	0.00	0.00	0.00
38.50	3.40	0.08	5.00	0.00	0.00	0.00
38.55	3.40	0.08	5.00	0.00	0.00	0.00
38.60	3.40	0.08	5.00	0.00	0.00	0.00
38.65	3.40	0.08	5.00	0.00	0.00	0.00
38.70	3.40	0.08	5.00	0.00	0.00	0.00
38.75	3.40	0.08	5.00	0.00	0.00	0.00
38.80	3.39	0.08	5.00	0.00	0.00	0.00
38.85	3.39	0.08	5.00	0.00	0.00	0.00
38.90	3.39	0.08	5.00	0.00	0.00	0.00
38.95	3.39	0.08	5.00	0.00	0.00	0.00
39.00	3.39	0.08	5.00	0.00	0.00	0.00
39.05	3.39	0.08	5.00	0.00	0.00	0.00
39.10	3.39	0.08	5.00	0.00	0.00	0.00
39.15	3.39	0.08	5.00	0.00	0.00	0.00
39.20	3.39	0.08	5.00	0.00	0.00	0.00
39.25	3.39	0.08	5.00	0.00	0.00	0.00
39.30	3.39	0.08	5.00	0.00	0.00	0.00
39.35	3.39	0.08	5.00	0.00	0.00	0.00
39.40	3.38	0.08	5.00	0.00	0.00	0.00
39.45	3.38	0.08	5.00	0.00	0.00	0.00
39.50	3.38	0.08	5.00	0.00	0.00	0.00
39.55	3.38	0.08	5.00	0.00	0.00	0.00
39.60	3.38	0.08	5.00	0.00	0.00	0.00
39.65	3.38	0.08	5.00	0.00	0.00	0.00
39.70	3.38	0.08	5.00	0.00	0.00	0.00
39.75	3.38	0.08	5.00	0.00	0.00	0.00
39.80	3.38	0.08	5.00	0.00	0.00	0.00
39.85	3.38	0.08	5.00	0.00	0.00	0.00
39.90	3.38	0.08	5.00	0.00	0.00	0.00
39.95	3.38	0.08	5.00	0.00	0.00	0.00
40.00	3.37	0.08	5.00	0.00	0.00	0.00

---

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

CRRm Cyclic resistance ratio from soils

CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)

F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf

S_sat Settlement from saturated sands

S_dry Settlement from Unsaturated Sands

S_all Total Settlement from Saturated and Unsaturated Sands

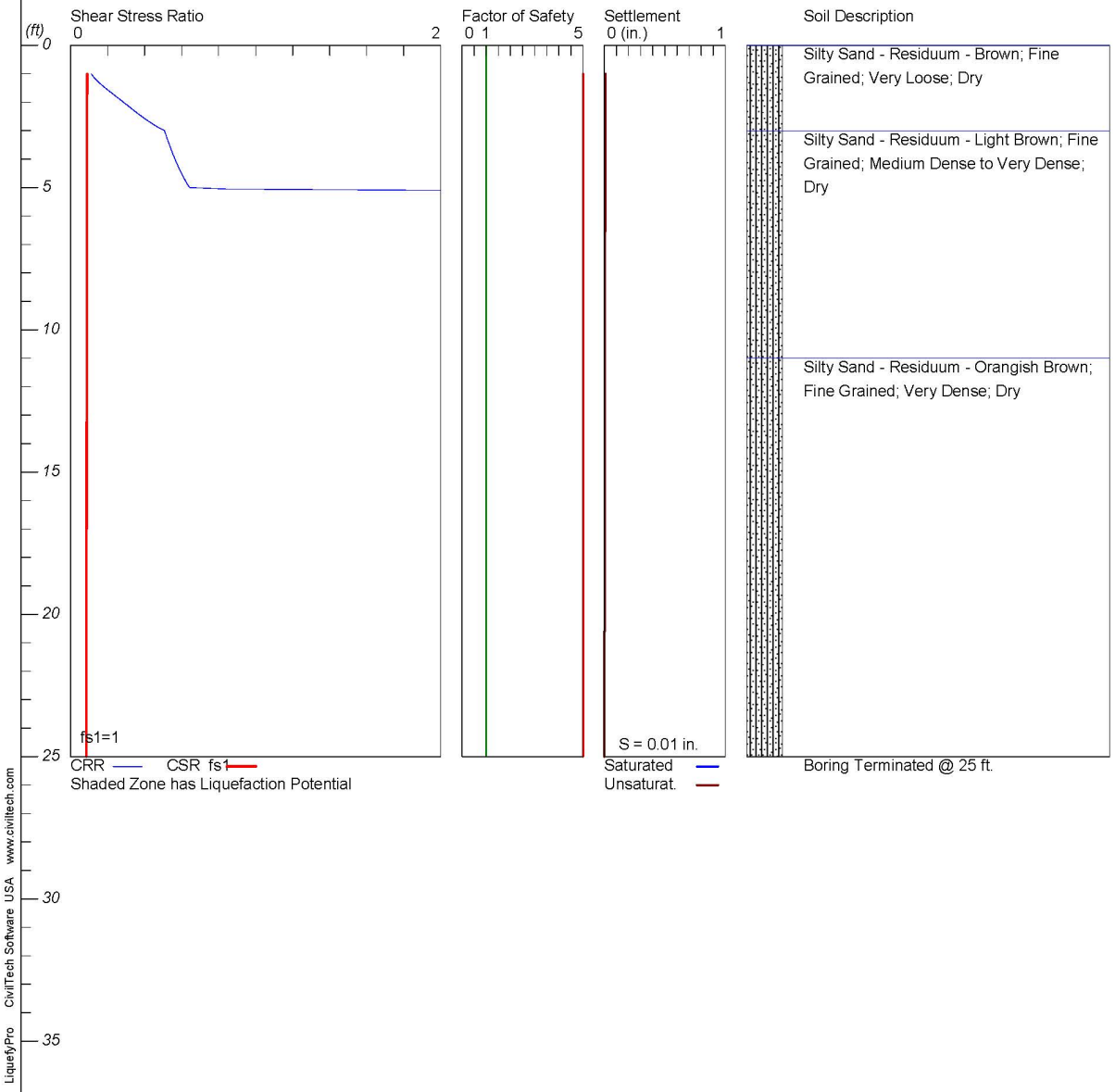
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=TF-2 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



CivilTech Corporation **TF-2** **Plate A-1**

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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\TF-2.liq
Title: Interim Storage Facility NRC
Subtitle: TF-2

Surface Elev.=0
Hole No.=TF-2
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=TF-2
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	4.00	90.00	0.00
3.00	22.00	110.00	0.00
5.00	25.00	110.00	0.00
8.00	97.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	70.00	110.00	0.00
23.00	64.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.004 to 0.006 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.11	0.09	5.00	0.00	0.01	0.01
1.05	0.12	0.09	5.00	0.00	0.01	0.01
1.10	0.12	0.09	5.00	0.00	0.01	0.01
1.15	0.13	0.09	5.00	0.00	0.01	0.01
1.20	0.14	0.09	5.00	0.00	0.01	0.01
1.25	0.14	0.09	5.00	0.00	0.01	0.01
1.30	0.15	0.09	5.00	0.00	0.01	0.01
1.35	0.16	0.09	5.00	0.00	0.01	0.01
1.40	0.17	0.09	5.00	0.00	0.01	0.01
1.45	0.18	0.09	5.00	0.00	0.01	0.01
1.50	0.19	0.09	5.00	0.00	0.01	0.01
1.55	0.20	0.09	5.00	0.00	0.01	0.01

1.60	0.21	0.09	5.00	0.00	0.01	0.01
1.65	0.22	0.09	5.00	0.00	0.01	0.01
1.70	0.23	0.09	5.00	0.00	0.01	0.01
1.75	0.24	0.09	5.00	0.00	0.01	0.01
1.80	0.25	0.09	5.00	0.00	0.01	0.01
1.85	0.26	0.09	5.00	0.00	0.01	0.01
1.90	0.27	0.09	5.00	0.00	0.01	0.01
1.95	0.28	0.09	5.00	0.00	0.01	0.01
2.00	0.29	0.09	5.00	0.00	0.01	0.01
2.05	0.30	0.09	5.00	0.00	0.01	0.01
2.10	0.30	0.09	5.00	0.00	0.01	0.01
2.15	0.31	0.09	5.00	0.00	0.01	0.01
2.20	0.32	0.09	5.00	0.00	0.01	0.01
2.25	0.33	0.09	5.00	0.00	0.01	0.01
2.30	0.34	0.09	5.00	0.00	0.01	0.01
2.35	0.35	0.09	5.00	0.00	0.01	0.01
2.40	0.36	0.09	5.00	0.00	0.01	0.01
2.45	0.37	0.09	5.00	0.00	0.01	0.01
2.50	0.38	0.09	5.00	0.00	0.01	0.01
2.55	0.39	0.09	5.00	0.00	0.01	0.01
2.60	0.41	0.09	5.00	0.00	0.01	0.01
2.65	0.42	0.09	5.00	0.00	0.01	0.01
2.70	0.43	0.09	5.00	0.00	0.01	0.01
2.75	0.44	0.09	5.00	0.00	0.01	0.01
2.80	0.45	0.09	5.00	0.00	0.01	0.01
2.85	0.47	0.09	5.00	0.00	0.01	0.01
2.90	0.48	0.09	5.00	0.00	0.01	0.01
2.95	0.49	0.09	5.00	0.00	0.01	0.01
3.00	0.51	0.09	5.00	0.00	0.01	0.01
3.05	0.51	0.09	5.00	0.00	0.01	0.01
3.10	0.51	0.09	5.00	0.00	0.01	0.01
3.15	0.52	0.09	5.00	0.00	0.01	0.01
3.20	0.52	0.09	5.00	0.00	0.01	0.01
3.25	0.52	0.09	5.00	0.00	0.01	0.01
3.30	0.52	0.09	5.00	0.00	0.01	0.01
3.35	0.53	0.09	5.00	0.00	0.01	0.01
3.40	0.53	0.09	5.00	0.00	0.01	0.01
3.45	0.53	0.09	5.00	0.00	0.01	0.01
3.50	0.53	0.09	5.00	0.00	0.01	0.01
3.55	0.54	0.09	5.00	0.00	0.01	0.01
3.60	0.54	0.09	5.00	0.00	0.01	0.01
3.65	0.54	0.09	5.00	0.00	0.01	0.01
3.70	0.55	0.09	5.00	0.00	0.01	0.01
3.75	0.55	0.09	5.00	0.00	0.01	0.01
3.80	0.55	0.09	5.00	0.00	0.01	0.01
3.85	0.55	0.09	5.00	0.00	0.01	0.01
3.90	0.56	0.09	5.00	0.00	0.01	0.01
3.95	0.56	0.09	5.00	0.00	0.01	0.01
4.00	0.56	0.09	5.00	0.00	0.01	0.01
4.05	0.57	0.09	5.00	0.00	0.01	0.01
4.10	0.57	0.09	5.00	0.00	0.01	0.01
4.15	0.57	0.09	5.00	0.00	0.01	0.01
4.20	0.58	0.09	5.00	0.00	0.01	0.01
4.25	0.58	0.09	5.00	0.00	0.01	0.01
4.30	0.58	0.09	5.00	0.00	0.01	0.01
4.35	0.59	0.09	5.00	0.00	0.01	0.01
4.40	0.59	0.09	5.00	0.00	0.01	0.01
4.45	0.60	0.09	5.00	0.00	0.01	0.01
4.50	0.60	0.09	5.00	0.00	0.01	0.01
4.55	0.60	0.09	5.00	0.00	0.01	0.01
4.60	0.61	0.09	5.00	0.00	0.01	0.01
4.65	0.61	0.09	5.00	0.00	0.01	0.01
4.70	0.62	0.09	5.00	0.00	0.01	0.01
4.75	0.62	0.09	5.00	0.00	0.01	0.01
4.80	0.62	0.09	5.00	0.00	0.01	0.01
4.85	0.63	0.09	5.00	0.00	0.01	0.01
4.90	0.63	0.09	5.00	0.00	0.01	0.01
4.95	0.64	0.09	5.00	0.00	0.01	0.01
5.00	0.64	0.09	5.00	0.00	0.01	0.01
5.05	0.84	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

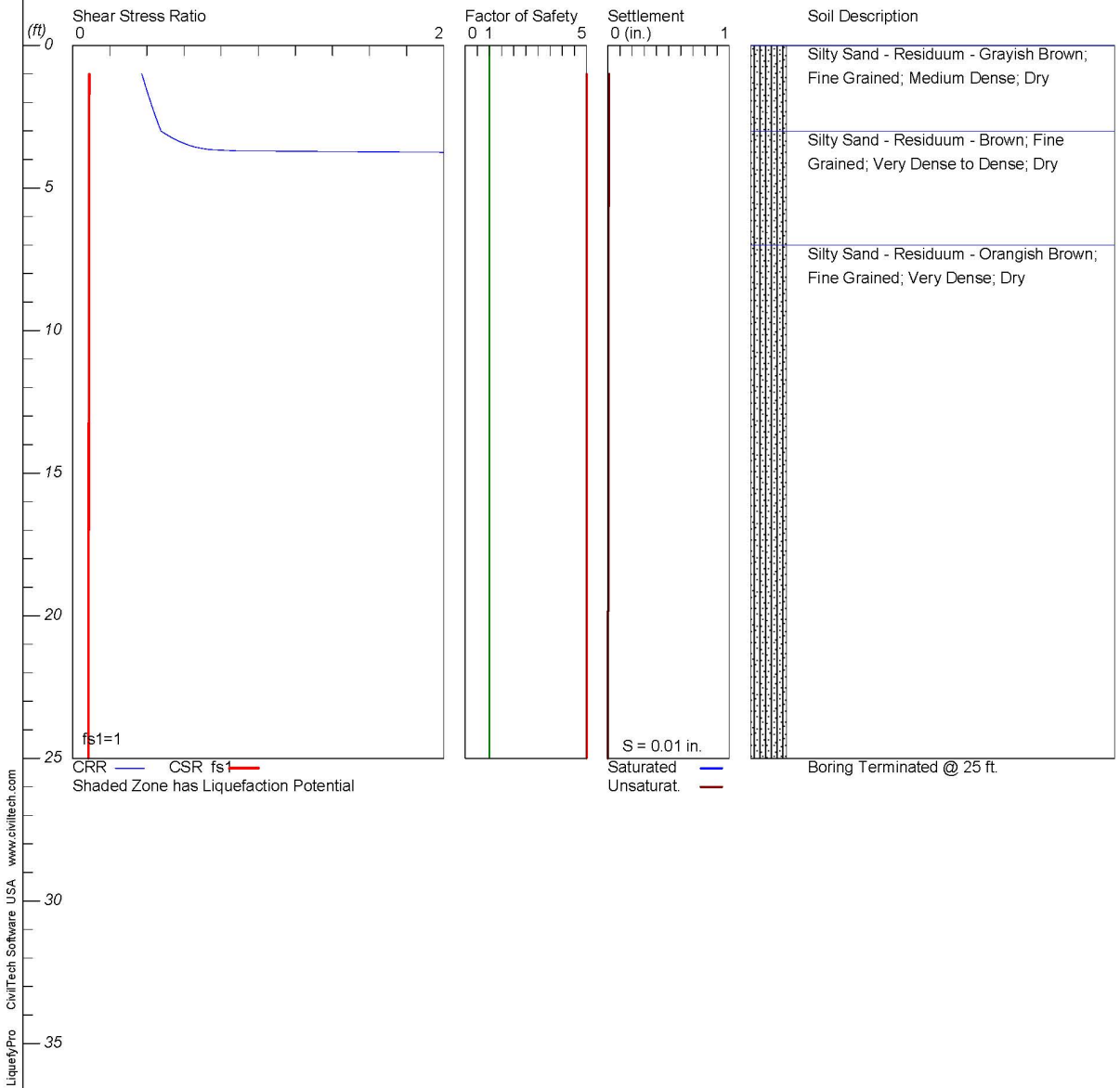
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=TF-3 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\TF-3.liq
Title: Interim Storage Facility NRC
Subtitle: TF-3

Surface Elev.=0
Hole No.=TF-3
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=TF-3
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	17.00	100.00	0.00
3.00	21.00	110.00	0.00
5.00	36.00	110.00	0.00
8.00	85.00	110.00	0.00
13.00	73.00	110.00	0.00
18.00	83.00	110.00	0.00
23.00	97.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.004 to 0.005 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.37	0.09	5.00	0.00	0.01	0.01
1.05	0.38	0.09	5.00	0.00	0.01	0.01
1.10	0.38	0.09	5.00	0.00	0.01	0.01
1.15	0.38	0.09	5.00	0.00	0.01	0.01
1.20	0.38	0.09	5.00	0.00	0.01	0.01
1.25	0.38	0.09	5.00	0.00	0.01	0.01
1.30	0.39	0.09	5.00	0.00	0.01	0.01
1.35	0.39	0.09	5.00	0.00	0.01	0.01
1.40	0.39	0.09	5.00	0.00	0.01	0.01
1.45	0.39	0.09	5.00	0.00	0.01	0.01
1.50	0.40	0.09	5.00	0.00	0.01	0.01
1.55	0.40	0.09	5.00	0.00	0.01	0.01

1.60	0.40	0.09	5.00	0.00	0.01	0.01
1.65	0.40	0.09	5.00	0.00	0.01	0.01
1.70	0.41	0.09	5.00	0.00	0.01	0.01
1.75	0.41	0.09	5.00	0.00	0.01	0.01
1.80	0.41	0.09	5.00	0.00	0.01	0.01
1.85	0.41	0.09	5.00	0.00	0.01	0.01
1.90	0.42	0.09	5.00	0.00	0.01	0.01
1.95	0.42	0.09	5.00	0.00	0.01	0.01
2.00	0.42	0.09	5.00	0.00	0.01	0.01
2.05	0.42	0.09	5.00	0.00	0.01	0.01
2.10	0.43	0.09	5.00	0.00	0.01	0.01
2.15	0.43	0.09	5.00	0.00	0.01	0.01
2.20	0.43	0.09	5.00	0.00	0.01	0.01
2.25	0.43	0.09	5.00	0.00	0.01	0.01
2.30	0.44	0.09	5.00	0.00	0.01	0.01
2.35	0.44	0.09	5.00	0.00	0.01	0.01
2.40	0.44	0.09	5.00	0.00	0.01	0.01
2.45	0.44	0.09	5.00	0.00	0.01	0.01
2.50	0.45	0.09	5.00	0.00	0.01	0.01
2.55	0.45	0.09	5.00	0.00	0.01	0.01
2.60	0.45	0.09	5.00	0.00	0.01	0.01
2.65	0.46	0.09	5.00	0.00	0.01	0.01
2.70	0.46	0.09	5.00	0.00	0.01	0.01
2.75	0.46	0.09	5.00	0.00	0.01	0.01
2.80	0.46	0.09	5.00	0.00	0.01	0.01
2.85	0.47	0.09	5.00	0.00	0.01	0.01
2.90	0.47	0.09	5.00	0.00	0.01	0.01
2.95	0.47	0.09	5.00	0.00	0.01	0.01
3.00	0.48	0.09	5.00	0.00	0.01	0.01
3.05	0.49	0.09	5.00	0.00	0.01	0.01
3.10	0.50	0.09	5.00	0.00	0.01	0.01
3.15	0.51	0.09	5.00	0.00	0.01	0.01
3.20	0.52	0.09	5.00	0.00	0.01	0.01
3.25	0.54	0.09	5.00	0.00	0.01	0.01
3.30	0.55	0.09	5.00	0.00	0.01	0.01
3.35	0.57	0.09	5.00	0.00	0.01	0.01
3.40	0.59	0.09	5.00	0.00	0.01	0.01
3.45	0.61	0.09	5.00	0.00	0.01	0.01
3.50	0.63	0.09	5.00	0.00	0.01	0.01
3.55	0.65	0.09	5.00	0.00	0.01	0.01
3.60	0.68	0.09	5.00	0.00	0.01	0.01
3.65	0.73	0.09	5.00	0.00	0.01	0.01
3.70	0.88	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

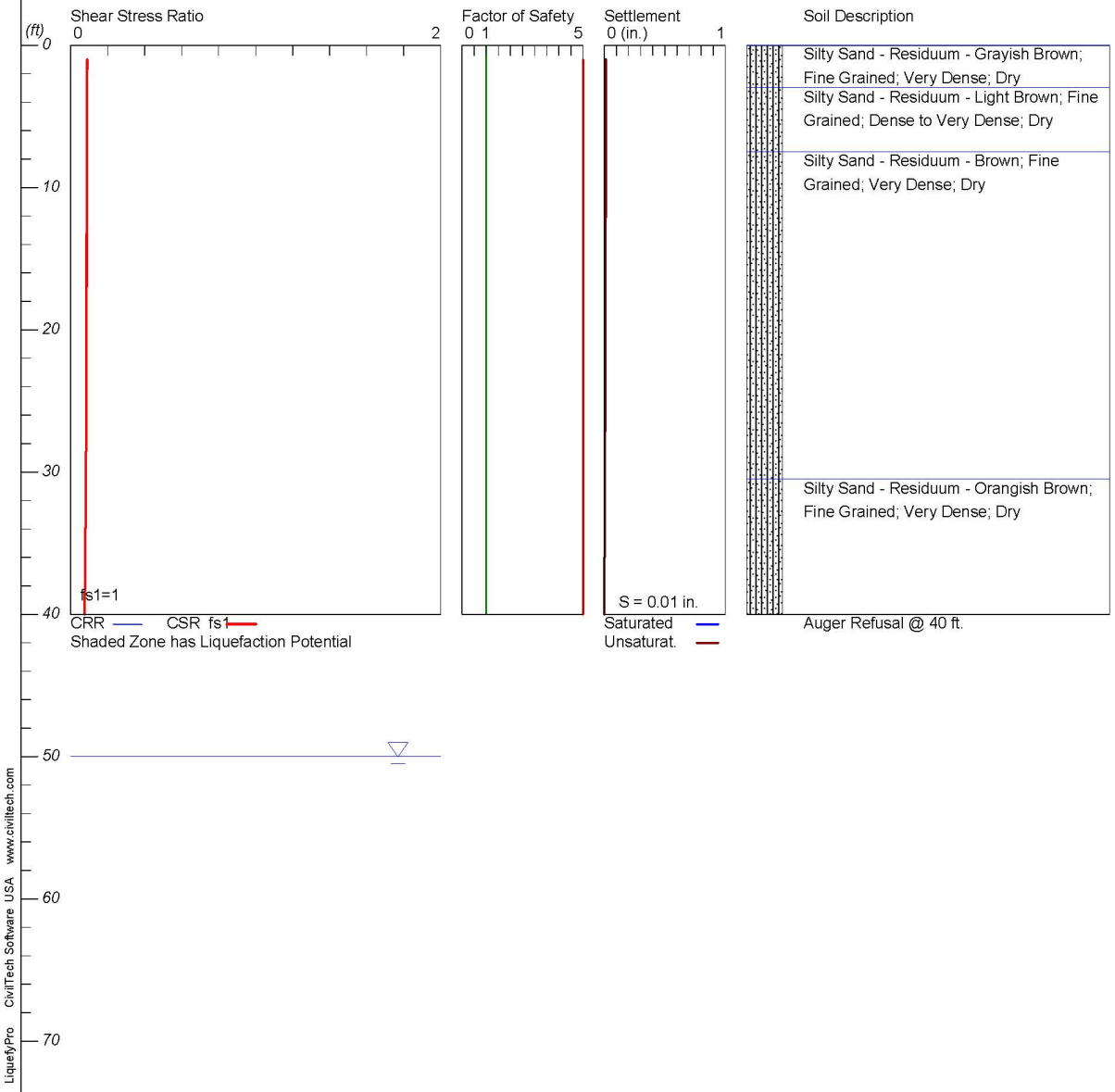
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=TF-4 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\TF-4.liq
Title: Interim Storage Facility NRC
Subtitle: TF-4

Surface Elev.=0
Hole No.=TF-4
Depth of Hole= 40.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=TF-4
Depth of Hole=40.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	60.00	110.00	0.00
3.00	34.00	110.00	0.00
5.00	50.00	110.00	0.00
8.00	59.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	85.00	110.00	0.00
28.00	100.00	110.00	0.00
33.00	100.00	110.00	0.00
38.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.006 to 0.008 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01

1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01
1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01

5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01
5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01

9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01
9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.01	0.01
10.45	3.54	0.09	5.00	0.00	0.01	0.01
10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.01	0.01
10.75	3.54	0.09	5.00	0.00	0.01	0.01
10.80	3.54	0.09	5.00	0.00	0.01	0.01
10.85	3.54	0.09	5.00	0.00	0.01	0.01
10.90	3.54	0.09	5.00	0.00	0.01	0.01
10.95	3.54	0.09	5.00	0.00	0.01	0.01
11.00	3.54	0.09	5.00	0.00	0.01	0.01
11.05	3.54	0.09	5.00	0.00	0.01	0.01
11.10	3.54	0.09	5.00	0.00	0.01	0.01
11.15	3.54	0.09	5.00	0.00	0.01	0.01
11.20	3.54	0.09	5.00	0.00	0.01	0.01
11.25	3.54	0.09	5.00	0.00	0.01	0.01
11.30	3.54	0.09	5.00	0.00	0.01	0.01
11.35	3.54	0.09	5.00	0.00	0.01	0.01
11.40	3.54	0.09	5.00	0.00	0.01	0.01
11.45	3.54	0.09	5.00	0.00	0.01	0.01
11.50	3.54	0.09	5.00	0.00	0.01	0.01
11.55	3.54	0.09	5.00	0.00	0.01	0.01
11.60	3.54	0.09	5.00	0.00	0.01	0.01
11.65	3.54	0.09	5.00	0.00	0.01	0.01
11.70	3.54	0.09	5.00	0.00	0.01	0.01
11.75	3.54	0.09	5.00	0.00	0.01	0.01
11.80	3.54	0.09	5.00	0.00	0.01	0.01
11.85	3.54	0.09	5.00	0.00	0.01	0.01
11.90	3.54	0.09	5.00	0.00	0.01	0.01
11.95	3.54	0.09	5.00	0.00	0.01	0.01
12.00	3.54	0.09	5.00	0.00	0.01	0.01
12.05	3.54	0.09	5.00	0.00	0.01	0.01
12.10	3.54	0.09	5.00	0.00	0.01	0.01
12.15	3.54	0.09	5.00	0.00	0.01	0.01
12.20	3.54	0.09	5.00	0.00	0.01	0.01
12.25	3.54	0.09	5.00	0.00	0.01	0.01
12.30	3.54	0.09	5.00	0.00	0.01	0.01
12.35	3.54	0.09	5.00	0.00	0.01	0.01
12.40	3.54	0.09	5.00	0.00	0.01	0.01
12.45	3.54	0.09	5.00	0.00	0.01	0.01
12.50	3.54	0.09	5.00	0.00	0.01	0.01
12.55	3.54	0.09	5.00	0.00	0.01	0.01
12.60	3.54	0.09	5.00	0.00	0.01	0.01
12.65	3.54	0.09	5.00	0.00	0.01	0.01
12.70	3.54	0.09	5.00	0.00	0.01	0.01
12.75	3.54	0.09	5.00	0.00	0.01	0.01
12.80	3.54	0.09	5.00	0.00	0.01	0.01
12.85	3.54	0.09	5.00	0.00	0.01	0.01
12.90	3.54	0.09	5.00	0.00	0.01	0.01
12.95	3.54	0.09	5.00	0.00	0.01	0.01
13.00	3.54	0.09	5.00	0.00	0.01	0.01
13.05	3.54	0.09	5.00	0.00	0.01	0.01
13.10	3.54	0.09	5.00	0.00	0.01	0.01
13.15	3.54	0.09	5.00	0.00	0.01	0.01
13.20	3.54	0.09	5.00	0.00	0.01	0.01
13.25	3.54	0.09	5.00	0.00	0.01	0.01

13.30	3.54	0.09	5.00	0.00	0.01	0.01
13.35	3.54	0.09	5.00	0.00	0.01	0.01
13.40	3.54	0.09	5.00	0.00	0.01	0.01
13.45	3.54	0.09	5.00	0.00	0.01	0.01
13.50	3.54	0.09	5.00	0.00	0.01	0.01
13.55	3.54	0.09	5.00	0.00	0.01	0.01
13.60	3.54	0.09	5.00	0.00	0.01	0.01
13.65	3.54	0.09	5.00	0.00	0.01	0.01
13.70	3.54	0.09	5.00	0.00	0.01	0.01
13.75	3.54	0.09	5.00	0.00	0.01	0.01
13.80	3.54	0.09	5.00	0.00	0.01	0.01
13.85	3.54	0.09	5.00	0.00	0.01	0.01
13.90	3.54	0.09	5.00	0.00	0.01	0.01
13.95	3.54	0.09	5.00	0.00	0.01	0.01
14.00	3.54	0.09	5.00	0.00	0.01	0.01
14.05	3.54	0.09	5.00	0.00	0.01	0.01
14.10	3.54	0.09	5.00	0.00	0.01	0.01
14.15	3.54	0.09	5.00	0.00	0.01	0.01
14.20	3.54	0.09	5.00	0.00	0.01	0.01
14.25	3.54	0.09	5.00	0.00	0.01	0.01
14.30	3.54	0.09	5.00	0.00	0.01	0.01
14.35	3.54	0.09	5.00	0.00	0.01	0.01
14.40	3.54	0.09	5.00	0.00	0.01	0.01
14.45	3.54	0.09	5.00	0.00	0.01	0.01
14.50	3.54	0.09	5.00	0.00	0.01	0.01
14.55	3.54	0.09	5.00	0.00	0.01	0.01
14.60	3.54	0.09	5.00	0.00	0.01	0.01
14.65	3.54	0.09	5.00	0.00	0.01	0.01
14.70	3.54	0.09	5.00	0.00	0.01	0.01
14.75	3.54	0.09	5.00	0.00	0.01	0.01
14.80	3.54	0.09	5.00	0.00	0.01	0.01
14.85	3.54	0.09	5.00	0.00	0.01	0.01
14.90	3.54	0.09	5.00	0.00	0.01	0.01
14.95	3.54	0.09	5.00	0.00	0.01	0.01
15.00	3.54	0.09	5.00	0.00	0.01	0.01
15.05	3.54	0.09	5.00	0.00	0.01	0.01
15.10	3.54	0.09	5.00	0.00	0.01	0.01
15.15	3.54	0.09	5.00	0.00	0.01	0.01
15.20	3.54	0.09	5.00	0.00	0.01	0.01
15.25	3.54	0.09	5.00	0.00	0.01	0.01
15.30	3.54	0.09	5.00	0.00	0.01	0.01
15.35	3.54	0.09	5.00	0.00	0.01	0.01
15.40	3.54	0.09	5.00	0.00	0.01	0.01
15.45	3.54	0.09	5.00	0.00	0.01	0.01
15.50	3.54	0.09	5.00	0.00	0.01	0.01
15.55	3.54	0.09	5.00	0.00	0.01	0.01
15.60	3.54	0.09	5.00	0.00	0.01	0.01
15.65	3.54	0.09	5.00	0.00	0.01	0.01
15.70	3.54	0.09	5.00	0.00	0.01	0.01
15.75	3.54	0.09	5.00	0.00	0.01	0.01
15.80	3.54	0.09	5.00	0.00	0.01	0.01
15.85	3.54	0.09	5.00	0.00	0.01	0.01
15.90	3.54	0.09	5.00	0.00	0.01	0.01
15.95	3.54	0.09	5.00	0.00	0.01	0.01
16.00	3.54	0.09	5.00	0.00	0.01	0.01
16.05	3.54	0.09	5.00	0.00	0.01	0.01
16.10	3.54	0.09	5.00	0.00	0.01	0.01
16.15	3.54	0.09	5.00	0.00	0.01	0.01
16.20	3.54	0.09	5.00	0.00	0.01	0.01
16.25	3.54	0.09	5.00	0.00	0.01	0.01
16.30	3.54	0.09	5.00	0.00	0.01	0.01
16.35	3.54	0.09	5.00	0.00	0.01	0.01
16.40	3.54	0.09	5.00	0.00	0.01	0.01
16.45	3.54	0.09	5.00	0.00	0.01	0.01
16.50	3.54	0.09	5.00	0.00	0.01	0.01
16.55	3.54	0.09	5.00	0.00	0.01	0.01
16.60	3.54	0.09	5.00	0.00	0.01	0.01
16.65	3.54	0.09	5.00	0.00	0.01	0.01
16.70	3.54	0.09	5.00	0.00	0.01	0.01
16.75	3.54	0.09	5.00	0.00	0.01	0.01
16.80	3.54	0.09	5.00	0.00	0.01	0.01
16.85	3.54	0.09	5.00	0.00	0.01	0.01
16.90	3.54	0.09	5.00	0.00	0.01	0.01
16.95	3.54	0.09	5.00	0.00	0.01	0.01
17.00	3.54	0.09	5.00	0.00	0.01	0.01
17.05	3.54	0.09	5.00	0.00	0.01	0.01
17.10	3.54	0.09	5.00	0.00	0.01	0.01
17.15	3.54	0.09	5.00	0.00	0.01	0.01
17.20	3.54	0.09	5.00	0.00	0.01	0.01

17.25	3.54	0.09	5.00	0.00	0.01	0.01
17.30	3.54	0.09	5.00	0.00	0.01	0.01
17.35	3.54	0.09	5.00	0.00	0.01	0.01
17.40	3.54	0.09	5.00	0.00	0.01	0.01
17.45	3.54	0.09	5.00	0.00	0.01	0.01
17.50	3.54	0.09	5.00	0.00	0.01	0.01
17.55	3.54	0.09	5.00	0.00	0.01	0.01
17.60	3.54	0.09	5.00	0.00	0.01	0.01
17.65	3.54	0.09	5.00	0.00	0.01	0.01
17.70	3.54	0.09	5.00	0.00	0.01	0.01
17.75	3.54	0.09	5.00	0.00	0.01	0.01
17.80	3.54	0.09	5.00	0.00	0.01	0.01
17.85	3.54	0.09	5.00	0.00	0.01	0.01
17.90	3.54	0.09	5.00	0.00	0.01	0.01
17.95	3.54	0.09	5.00	0.00	0.01	0.01
18.00	3.54	0.09	5.00	0.00	0.01	0.01
18.05	3.54	0.09	5.00	0.00	0.01	0.01
18.10	3.54	0.09	5.00	0.00	0.01	0.01
18.15	3.54	0.09	5.00	0.00	0.01	0.01
18.20	3.54	0.09	5.00	0.00	0.01	0.01
18.25	3.54	0.09	5.00	0.00	0.01	0.01
18.30	3.54	0.09	5.00	0.00	0.01	0.01
18.35	3.54	0.09	5.00	0.00	0.01	0.01
18.40	3.54	0.09	5.00	0.00	0.01	0.01
18.45	3.54	0.09	5.00	0.00	0.01	0.01
18.50	3.54	0.09	5.00	0.00	0.01	0.01
18.55	3.54	0.09	5.00	0.00	0.01	0.01
18.60	3.54	0.09	5.00	0.00	0.01	0.01
18.65	3.54	0.09	5.00	0.00	0.01	0.01
18.70	3.54	0.09	5.00	0.00	0.01	0.01
18.75	3.54	0.09	5.00	0.00	0.01	0.01
18.80	3.54	0.09	5.00	0.00	0.01	0.01
18.85	3.54	0.09	5.00	0.00	0.01	0.01
18.90	3.54	0.09	5.00	0.00	0.01	0.01
18.95	3.54	0.09	5.00	0.00	0.01	0.01
19.00	3.54	0.09	5.00	0.00	0.01	0.01
19.05	3.54	0.09	5.00	0.00	0.01	0.01
19.10	3.54	0.09	5.00	0.00	0.01	0.01
19.15	3.54	0.09	5.00	0.00	0.01	0.01
19.20	3.54	0.09	5.00	0.00	0.01	0.01
19.25	3.54	0.09	5.00	0.00	0.01	0.01
19.30	3.54	0.09	5.00	0.00	0.01	0.01
19.35	3.54	0.09	5.00	0.00	0.01	0.01
19.40	3.54	0.09	5.00	0.00	0.01	0.01
19.45	3.54	0.09	5.00	0.00	0.01	0.01
19.50	3.54	0.09	5.00	0.00	0.01	0.01
19.55	3.54	0.09	5.00	0.00	0.01	0.01
19.60	3.54	0.09	5.00	0.00	0.01	0.01
19.65	3.54	0.09	5.00	0.00	0.01	0.01
19.70	3.54	0.09	5.00	0.00	0.01	0.01
19.75	3.54	0.09	5.00	0.00	0.01	0.01
19.80	3.54	0.09	5.00	0.00	0.01	0.01
19.85	3.54	0.09	5.00	0.00	0.01	0.01
19.90	3.54	0.09	5.00	0.00	0.01	0.01
19.95	3.54	0.09	5.00	0.00	0.01	0.01
20.00	3.54	0.09	5.00	0.00	0.01	0.01
20.05	3.54	0.09	5.00	0.00	0.01	0.01
20.10	3.54	0.09	5.00	0.00	0.01	0.01
20.15	3.54	0.09	5.00	0.00	0.01	0.01
20.20	3.54	0.09	5.00	0.00	0.01	0.01
20.25	3.54	0.09	5.00	0.00	0.01	0.01
20.30	3.54	0.09	5.00	0.00	0.01	0.01
20.35	3.54	0.09	5.00	0.00	0.01	0.01
20.40	3.54	0.09	5.00	0.00	0.01	0.01
20.45	3.54	0.09	5.00	0.00	0.01	0.01
20.50	3.54	0.09	5.00	0.00	0.01	0.01
20.55	3.54	0.09	5.00	0.00	0.01	0.01
20.60	3.54	0.09	5.00	0.00	0.01	0.01
20.65	3.54	0.09	5.00	0.00	0.01	0.01
20.70	3.54	0.09	5.00	0.00	0.01	0.01
20.75	3.54	0.09	5.00	0.00	0.01	0.01
20.80	3.54	0.09	5.00	0.00	0.01	0.01
20.85	3.54	0.09	5.00	0.00	0.01	0.01
20.90	3.54	0.09	5.00	0.00	0.01	0.01
20.95	3.54	0.09	5.00	0.00	0.01	0.01
21.00	3.54	0.09	5.00	0.00	0.01	0.01
21.05	3.54	0.09	5.00	0.00	0.01	0.01
21.10	3.54	0.09	5.00	0.00	0.01	0.01
21.15	3.54	0.09	5.00	0.00	0.01	0.01

21.20	3.54	0.09	5.00	0.00	0.01	0.01
21.25	3.54	0.09	5.00	0.00	0.01	0.01
21.30	3.54	0.09	5.00	0.00	0.01	0.01
21.35	3.54	0.09	5.00	0.00	0.01	0.01
21.40	3.54	0.09	5.00	0.00	0.01	0.01
21.45	3.54	0.09	5.00	0.00	0.01	0.01
21.50	3.54	0.09	5.00	0.00	0.01	0.01
21.55	3.54	0.09	5.00	0.00	0.01	0.01
21.60	3.54	0.09	5.00	0.00	0.01	0.01
21.65	3.54	0.09	5.00	0.00	0.01	0.01
21.70	3.54	0.09	5.00	0.00	0.01	0.01
21.75	3.54	0.09	5.00	0.00	0.01	0.01
21.80	3.54	0.09	5.00	0.00	0.01	0.01
21.85	3.54	0.09	5.00	0.00	0.01	0.01
21.90	3.54	0.09	5.00	0.00	0.01	0.01
21.95	3.54	0.09	5.00	0.00	0.01	0.01
22.00	3.54	0.09	5.00	0.00	0.01	0.01
22.05	3.54	0.09	5.00	0.00	0.01	0.01
22.10	3.54	0.09	5.00	0.00	0.01	0.01
22.15	3.54	0.09	5.00	0.00	0.01	0.01
22.20	3.54	0.09	5.00	0.00	0.01	0.01
22.25	3.54	0.09	5.00	0.00	0.01	0.01
22.30	3.54	0.09	5.00	0.00	0.01	0.01
22.35	3.54	0.09	5.00	0.00	0.01	0.01
22.40	3.54	0.09	5.00	0.00	0.01	0.01
22.45	3.54	0.09	5.00	0.00	0.01	0.01
22.50	3.54	0.08	5.00	0.00	0.01	0.01
22.55	3.54	0.08	5.00	0.00	0.01	0.01
22.60	3.54	0.08	5.00	0.00	0.01	0.01
22.65	3.54	0.08	5.00	0.00	0.01	0.01
22.70	3.54	0.08	5.00	0.00	0.01	0.01
22.75	3.54	0.08	5.00	0.00	0.01	0.01
22.80	3.54	0.08	5.00	0.00	0.01	0.01
22.85	3.54	0.08	5.00	0.00	0.01	0.01
22.90	3.54	0.08	5.00	0.00	0.01	0.01
22.95	3.54	0.08	5.00	0.00	0.01	0.01
23.00	3.54	0.08	5.00	0.00	0.01	0.01
23.05	3.54	0.08	5.00	0.00	0.01	0.01
23.10	3.54	0.08	5.00	0.00	0.01	0.01
23.15	3.54	0.08	5.00	0.00	0.01	0.01
23.20	3.54	0.08	5.00	0.00	0.01	0.01
23.25	3.54	0.08	5.00	0.00	0.01	0.01
23.30	3.54	0.08	5.00	0.00	0.01	0.01
23.35	3.54	0.08	5.00	0.00	0.01	0.01
23.40	3.54	0.08	5.00	0.00	0.01	0.01
23.45	3.54	0.08	5.00	0.00	0.01	0.01
23.50	3.54	0.08	5.00	0.00	0.01	0.01
23.55	3.54	0.08	5.00	0.00	0.01	0.01
23.60	3.54	0.08	5.00	0.00	0.01	0.01
23.65	3.54	0.08	5.00	0.00	0.01	0.01
23.70	3.54	0.08	5.00	0.00	0.01	0.01
23.75	3.54	0.08	5.00	0.00	0.01	0.01
23.80	3.54	0.08	5.00	0.00	0.01	0.01
23.85	3.54	0.08	5.00	0.00	0.01	0.01
23.90	3.54	0.08	5.00	0.00	0.01	0.01
23.95	3.54	0.08	5.00	0.00	0.01	0.01
24.00	3.54	0.08	5.00	0.00	0.01	0.01
24.05	3.54	0.08	5.00	0.00	0.01	0.01
24.10	3.54	0.08	5.00	0.00	0.01	0.01
24.15	3.54	0.08	5.00	0.00	0.01	0.01
24.20	3.54	0.08	5.00	0.00	0.01	0.01
24.25	3.54	0.08	5.00	0.00	0.01	0.01
24.30	3.54	0.08	5.00	0.00	0.01	0.01
24.35	3.54	0.08	5.00	0.00	0.01	0.01
24.40	3.54	0.08	5.00	0.00	0.01	0.01
24.45	3.54	0.08	5.00	0.00	0.01	0.01
24.50	3.54	0.08	5.00	0.00	0.01	0.01
24.55	3.54	0.08	5.00	0.00	0.01	0.01
24.60	3.54	0.08	5.00	0.00	0.01	0.01
24.65	3.54	0.08	5.00	0.00	0.01	0.01
24.70	3.54	0.08	5.00	0.00	0.01	0.01
24.75	3.54	0.08	5.00	0.00	0.01	0.01
24.80	3.54	0.08	5.00	0.00	0.01	0.01
24.85	3.54	0.08	5.00	0.00	0.01	0.01
24.90	3.54	0.08	5.00	0.00	0.01	0.01
24.95	3.54	0.08	5.00	0.00	0.01	0.01
25.00	3.54	0.08	5.00	0.00	0.01	0.01
25.05	3.54	0.08	5.00	0.00	0.01	0.01
25.10	3.54	0.08	5.00	0.00	0.01	0.01

25.15	3.54	0.08	5.00	0.00	0.01	0.01
25.20	3.54	0.08	5.00	0.00	0.01	0.01
25.25	3.54	0.08	5.00	0.00	0.01	0.01
25.30	3.54	0.08	5.00	0.00	0.01	0.01
25.35	3.54	0.08	5.00	0.00	0.01	0.01
25.40	3.54	0.08	5.00	0.00	0.01	0.01
25.45	3.54	0.08	5.00	0.00	0.01	0.01
25.50	3.54	0.08	5.00	0.00	0.01	0.01
25.55	3.54	0.08	5.00	0.00	0.01	0.01
25.60	3.54	0.08	5.00	0.00	0.01	0.01
25.65	3.54	0.08	5.00	0.00	0.01	0.01
25.70	3.54	0.08	5.00	0.00	0.01	0.01
25.75	3.54	0.08	5.00	0.00	0.01	0.01
25.80	3.54	0.08	5.00	0.00	0.01	0.01
25.85	3.54	0.08	5.00	0.00	0.01	0.01
25.90	3.54	0.08	5.00	0.00	0.01	0.01
25.95	3.54	0.08	5.00	0.00	0.01	0.01
26.00	3.54	0.08	5.00	0.00	0.01	0.01
26.05	3.54	0.08	5.00	0.00	0.01	0.01
26.10	3.54	0.08	5.00	0.00	0.01	0.01
26.15	3.54	0.08	5.00	0.00	0.01	0.01
26.20	3.54	0.08	5.00	0.00	0.01	0.01
26.25	3.54	0.08	5.00	0.00	0.01	0.01
26.30	3.54	0.08	5.00	0.00	0.01	0.01
26.35	3.54	0.08	5.00	0.00	0.01	0.01
26.40	3.54	0.08	5.00	0.00	0.01	0.01
26.45	3.54	0.08	5.00	0.00	0.01	0.01
26.50	3.54	0.08	5.00	0.00	0.01	0.01
26.55	3.54	0.08	5.00	0.00	0.01	0.01
26.60	3.54	0.08	5.00	0.00	0.01	0.01
26.65	3.54	0.08	5.00	0.00	0.01	0.01
26.70	3.54	0.08	5.00	0.00	0.01	0.01
26.75	3.54	0.08	5.00	0.00	0.01	0.01
26.80	3.54	0.08	5.00	0.00	0.01	0.01
26.85	3.54	0.08	5.00	0.00	0.01	0.01
26.90	3.54	0.08	5.00	0.00	0.01	0.01
26.95	3.54	0.08	5.00	0.00	0.01	0.01
27.00	3.54	0.08	5.00	0.00	0.01	0.01
27.05	3.54	0.08	5.00	0.00	0.01	0.01
27.10	3.54	0.08	5.00	0.00	0.01	0.01
27.15	3.54	0.08	5.00	0.00	0.01	0.01
27.20	3.54	0.08	5.00	0.00	0.01	0.01
27.25	3.54	0.08	5.00	0.00	0.01	0.01
27.30	3.54	0.08	5.00	0.00	0.01	0.01
27.35	3.54	0.08	5.00	0.00	0.01	0.01
27.40	3.54	0.08	5.00	0.00	0.01	0.01
27.45	3.54	0.08	5.00	0.00	0.01	0.01
27.50	3.54	0.08	5.00	0.00	0.01	0.01
27.55	3.54	0.08	5.00	0.00	0.01	0.01
27.60	3.54	0.08	5.00	0.00	0.01	0.01
27.65	3.54	0.08	5.00	0.00	0.01	0.01
27.70	3.54	0.08	5.00	0.00	0.01	0.01
27.75	3.54	0.08	5.00	0.00	0.01	0.01
27.80	3.54	0.08	5.00	0.00	0.01	0.01
27.85	3.54	0.08	5.00	0.00	0.01	0.01
27.90	3.54	0.08	5.00	0.00	0.01	0.01
27.95	3.54	0.08	5.00	0.00	0.01	0.01
28.00	3.54	0.08	5.00	0.00	0.01	0.01
28.05	3.54	0.08	5.00	0.00	0.01	0.01
28.10	3.54	0.08	5.00	0.00	0.01	0.01
28.15	3.54	0.08	5.00	0.00	0.01	0.01
28.20	3.54	0.08	5.00	0.00	0.01	0.01
28.25	3.54	0.08	5.00	0.00	0.01	0.01
28.30	3.54	0.08	5.00	0.00	0.01	0.01
28.35	3.54	0.08	5.00	0.00	0.01	0.01
28.40	3.54	0.08	5.00	0.00	0.01	0.01
28.45	3.54	0.08	5.00	0.00	0.01	0.01
28.50	3.54	0.08	5.00	0.00	0.00	0.00
28.55	3.54	0.08	5.00	0.00	0.00	0.00
28.60	3.54	0.08	5.00	0.00	0.00	0.00
28.65	3.54	0.08	5.00	0.00	0.00	0.00
28.70	3.54	0.08	5.00	0.00	0.00	0.00
28.75	3.54	0.08	5.00	0.00	0.00	0.00
28.80	3.54	0.08	5.00	0.00	0.00	0.00
28.85	3.54	0.08	5.00	0.00	0.00	0.00
28.90	3.54	0.08	5.00	0.00	0.00	0.00
28.95	3.54	0.08	5.00	0.00	0.00	0.00
29.00	3.54	0.08	5.00	0.00	0.00	0.00
29.05	3.54	0.08	5.00	0.00	0.00	0.00

29.10	3.54	0.08	5.00	0.00	0.00	0.00
29.15	3.54	0.08	5.00	0.00	0.00	0.00
29.20	3.54	0.08	5.00	0.00	0.00	0.00
29.25	3.54	0.08	5.00	0.00	0.00	0.00
29.30	3.54	0.08	5.00	0.00	0.00	0.00
29.35	3.54	0.08	5.00	0.00	0.00	0.00
29.40	3.54	0.08	5.00	0.00	0.00	0.00
29.45	3.54	0.08	5.00	0.00	0.00	0.00
29.50	3.54	0.08	5.00	0.00	0.00	0.00
29.55	3.54	0.08	5.00	0.00	0.00	0.00
29.60	3.56	0.08	5.00	0.00	0.00	0.00
29.65	3.56	0.08	5.00	0.00	0.00	0.00
29.70	3.56	0.08	5.00	0.00	0.00	0.00
29.75	3.56	0.08	5.00	0.00	0.00	0.00
29.80	3.56	0.08	5.00	0.00	0.00	0.00
29.85	3.56	0.08	5.00	0.00	0.00	0.00
29.90	3.56	0.08	5.00	0.00	0.00	0.00
29.95	3.55	0.08	5.00	0.00	0.00	0.00
30.00	3.55	0.08	5.00	0.00	0.00	0.00
30.05	3.55	0.08	5.00	0.00	0.00	0.00
30.10	3.55	0.08	5.00	0.00	0.00	0.00
30.15	3.55	0.08	5.00	0.00	0.00	0.00
30.20	3.55	0.08	5.00	0.00	0.00	0.00
30.25	3.55	0.08	5.00	0.00	0.00	0.00
30.30	3.55	0.08	5.00	0.00	0.00	0.00
30.35	3.55	0.08	5.00	0.00	0.00	0.00
30.40	3.55	0.08	5.00	0.00	0.00	0.00
30.45	3.55	0.08	5.00	0.00	0.00	0.00
30.50	3.54	0.08	5.00	0.00	0.00	0.00
30.55	3.54	0.08	5.00	0.00	0.00	0.00
30.60	3.54	0.08	5.00	0.00	0.00	0.00
30.65	3.54	0.08	5.00	0.00	0.00	0.00
30.70	3.54	0.08	5.00	0.00	0.00	0.00
30.75	3.54	0.08	5.00	0.00	0.00	0.00
30.80	3.54	0.08	5.00	0.00	0.00	0.00
30.85	3.54	0.08	5.00	0.00	0.00	0.00
30.90	3.54	0.08	5.00	0.00	0.00	0.00
30.95	3.54	0.08	5.00	0.00	0.00	0.00
31.00	3.54	0.08	5.00	0.00	0.00	0.00
31.05	3.53	0.08	5.00	0.00	0.00	0.00
31.10	3.53	0.08	5.00	0.00	0.00	0.00
31.15	3.53	0.08	5.00	0.00	0.00	0.00
31.20	3.53	0.08	5.00	0.00	0.00	0.00
31.25	3.53	0.08	5.00	0.00	0.00	0.00
31.30	3.53	0.08	5.00	0.00	0.00	0.00
31.35	3.53	0.08	5.00	0.00	0.00	0.00
31.40	3.53	0.08	5.00	0.00	0.00	0.00
31.45	3.53	0.08	5.00	0.00	0.00	0.00
31.50	3.53	0.08	5.00	0.00	0.00	0.00
31.55	3.52	0.08	5.00	0.00	0.00	0.00
31.60	3.52	0.08	5.00	0.00	0.00	0.00
31.65	3.52	0.08	5.00	0.00	0.00	0.00
31.70	3.52	0.08	5.00	0.00	0.00	0.00
31.75	3.52	0.08	5.00	0.00	0.00	0.00
31.80	3.52	0.08	5.00	0.00	0.00	0.00
31.85	3.52	0.08	5.00	0.00	0.00	0.00
31.90	3.52	0.08	5.00	0.00	0.00	0.00
31.95	3.52	0.08	5.00	0.00	0.00	0.00
32.00	3.52	0.08	5.00	0.00	0.00	0.00
32.05	3.52	0.08	5.00	0.00	0.00	0.00
32.10	3.51	0.08	5.00	0.00	0.00	0.00
32.15	3.51	0.08	5.00	0.00	0.00	0.00
32.20	3.51	0.08	5.00	0.00	0.00	0.00
32.25	3.51	0.08	5.00	0.00	0.00	0.00
32.30	3.51	0.08	5.00	0.00	0.00	0.00
32.35	3.51	0.08	5.00	0.00	0.00	0.00
32.40	3.51	0.08	5.00	0.00	0.00	0.00
32.45	3.51	0.08	5.00	0.00	0.00	0.00
32.50	3.51	0.08	5.00	0.00	0.00	0.00
32.55	3.51	0.08	5.00	0.00	0.00	0.00
32.60	3.51	0.08	5.00	0.00	0.00	0.00
32.65	3.50	0.08	5.00	0.00	0.00	0.00
32.70	3.50	0.08	5.00	0.00	0.00	0.00
32.75	3.50	0.08	5.00	0.00	0.00	0.00
32.80	3.50	0.08	5.00	0.00	0.00	0.00
32.85	3.50	0.08	5.00	0.00	0.00	0.00
32.90	3.50	0.08	5.00	0.00	0.00	0.00
32.95	3.50	0.08	5.00	0.00	0.00	0.00
33.00	3.50	0.08	5.00	0.00	0.00	0.00

33.05	3.50	0.08	5.00	0.00	0.00	0.00
33.10	3.50	0.08	5.00	0.00	0.00	0.00
33.15	3.50	0.08	5.00	0.00	0.00	0.00
33.20	3.49	0.08	5.00	0.00	0.00	0.00
33.25	3.49	0.08	5.00	0.00	0.00	0.00
33.30	3.49	0.08	5.00	0.00	0.00	0.00
33.35	3.49	0.08	5.00	0.00	0.00	0.00
33.40	3.49	0.08	5.00	0.00	0.00	0.00
33.45	3.49	0.08	5.00	0.00	0.00	0.00
33.50	3.49	0.08	5.00	0.00	0.00	0.00
33.55	3.49	0.08	5.00	0.00	0.00	0.00
33.60	3.49	0.08	5.00	0.00	0.00	0.00
33.65	3.49	0.08	5.00	0.00	0.00	0.00
33.70	3.48	0.08	5.00	0.00	0.00	0.00
33.75	3.48	0.08	5.00	0.00	0.00	0.00
33.80	3.48	0.08	5.00	0.00	0.00	0.00
33.85	3.48	0.08	5.00	0.00	0.00	0.00
33.90	3.48	0.08	5.00	0.00	0.00	0.00
33.95	3.48	0.08	5.00	0.00	0.00	0.00
34.00	3.48	0.08	5.00	0.00	0.00	0.00
34.05	3.48	0.08	5.00	0.00	0.00	0.00
34.10	3.48	0.08	5.00	0.00	0.00	0.00
34.15	3.48	0.08	5.00	0.00	0.00	0.00
34.20	3.48	0.08	5.00	0.00	0.00	0.00
34.25	3.47	0.08	5.00	0.00	0.00	0.00
34.30	3.47	0.08	5.00	0.00	0.00	0.00
34.35	3.47	0.08	5.00	0.00	0.00	0.00
34.40	3.47	0.08	5.00	0.00	0.00	0.00
34.45	3.47	0.08	5.00	0.00	0.00	0.00
34.50	3.47	0.08	5.00	0.00	0.00	0.00
34.55	3.47	0.08	5.00	0.00	0.00	0.00
34.60	3.47	0.08	5.00	0.00	0.00	0.00
34.65	3.47	0.08	5.00	0.00	0.00	0.00
34.70	3.47	0.08	5.00	0.00	0.00	0.00
34.75	3.47	0.08	5.00	0.00	0.00	0.00
34.80	3.46	0.08	5.00	0.00	0.00	0.00
34.85	3.46	0.08	5.00	0.00	0.00	0.00
34.90	3.46	0.08	5.00	0.00	0.00	0.00
34.95	3.46	0.08	5.00	0.00	0.00	0.00
35.00	3.46	0.08	5.00	0.00	0.00	0.00
35.05	3.46	0.08	5.00	0.00	0.00	0.00
35.10	3.46	0.08	5.00	0.00	0.00	0.00
35.15	3.46	0.08	5.00	0.00	0.00	0.00
35.20	3.46	0.08	5.00	0.00	0.00	0.00
35.25	3.46	0.08	5.00	0.00	0.00	0.00
35.30	3.46	0.08	5.00	0.00	0.00	0.00
35.35	3.46	0.08	5.00	0.00	0.00	0.00
35.40	3.45	0.08	5.00	0.00	0.00	0.00
35.45	3.45	0.08	5.00	0.00	0.00	0.00
35.50	3.45	0.08	5.00	0.00	0.00	0.00
35.55	3.45	0.08	5.00	0.00	0.00	0.00
35.60	3.45	0.08	5.00	0.00	0.00	0.00
35.65	3.45	0.08	5.00	0.00	0.00	0.00
35.70	3.45	0.08	5.00	0.00	0.00	0.00
35.75	3.45	0.08	5.00	0.00	0.00	0.00
35.80	3.45	0.08	5.00	0.00	0.00	0.00
35.85	3.45	0.08	5.00	0.00	0.00	0.00
35.90	3.45	0.08	5.00	0.00	0.00	0.00
35.95	3.44	0.08	5.00	0.00	0.00	0.00
36.00	3.44	0.08	5.00	0.00	0.00	0.00
36.05	3.44	0.08	5.00	0.00	0.00	0.00
36.10	3.44	0.08	5.00	0.00	0.00	0.00
36.15	3.44	0.08	5.00	0.00	0.00	0.00
36.20	3.44	0.08	5.00	0.00	0.00	0.00
36.25	3.44	0.08	5.00	0.00	0.00	0.00
36.30	3.44	0.08	5.00	0.00	0.00	0.00
36.35	3.44	0.08	5.00	0.00	0.00	0.00
36.40	3.44	0.08	5.00	0.00	0.00	0.00
36.45	3.44	0.08	5.00	0.00	0.00	0.00
36.50	3.43	0.08	5.00	0.00	0.00	0.00
36.55	3.43	0.08	5.00	0.00	0.00	0.00
36.60	3.43	0.08	5.00	0.00	0.00	0.00
36.65	3.43	0.08	5.00	0.00	0.00	0.00
36.70	3.43	0.08	5.00	0.00	0.00	0.00
36.75	3.43	0.08	5.00	0.00	0.00	0.00
36.80	3.43	0.08	5.00	0.00	0.00	0.00
36.85	3.43	0.08	5.00	0.00	0.00	0.00
36.90	3.43	0.08	5.00	0.00	0.00	0.00
36.95	3.43	0.08	5.00	0.00	0.00	0.00

37.00	3.43	0.08	5.00	0.00	0.00	0.00
37.05	3.42	0.08	5.00	0.00	0.00	0.00
37.10	3.42	0.08	5.00	0.00	0.00	0.00
37.15	3.42	0.08	5.00	0.00	0.00	0.00
37.20	3.42	0.08	5.00	0.00	0.00	0.00
37.25	3.42	0.08	5.00	0.00	0.00	0.00
37.30	3.42	0.08	5.00	0.00	0.00	0.00
37.35	3.42	0.08	5.00	0.00	0.00	0.00
37.40	3.42	0.08	5.00	0.00	0.00	0.00
37.45	3.42	0.08	5.00	0.00	0.00	0.00
37.50	3.42	0.08	5.00	0.00	0.00	0.00
37.55	3.42	0.08	5.00	0.00	0.00	0.00
37.60	3.42	0.08	5.00	0.00	0.00	0.00
37.65	3.41	0.08	5.00	0.00	0.00	0.00
37.70	3.41	0.08	5.00	0.00	0.00	0.00
37.75	3.41	0.08	5.00	0.00	0.00	0.00
37.80	3.41	0.08	5.00	0.00	0.00	0.00
37.85	3.41	0.08	5.00	0.00	0.00	0.00
37.90	3.41	0.08	5.00	0.00	0.00	0.00
37.95	3.41	0.08	5.00	0.00	0.00	0.00
38.00	3.41	0.08	5.00	0.00	0.00	0.00
38.05	3.41	0.08	5.00	0.00	0.00	0.00
38.10	3.41	0.08	5.00	0.00	0.00	0.00
38.15	3.41	0.08	5.00	0.00	0.00	0.00
38.20	3.40	0.08	5.00	0.00	0.00	0.00
38.25	3.40	0.08	5.00	0.00	0.00	0.00
38.30	3.40	0.08	5.00	0.00	0.00	0.00
38.35	3.40	0.08	5.00	0.00	0.00	0.00
38.40	3.40	0.08	5.00	0.00	0.00	0.00
38.45	3.40	0.08	5.00	0.00	0.00	0.00
38.50	3.40	0.08	5.00	0.00	0.00	0.00
38.55	3.40	0.08	5.00	0.00	0.00	0.00
38.60	3.40	0.08	5.00	0.00	0.00	0.00
38.65	3.40	0.08	5.00	0.00	0.00	0.00
38.70	3.40	0.08	5.00	0.00	0.00	0.00
38.75	3.40	0.08	5.00	0.00	0.00	0.00
38.80	3.39	0.08	5.00	0.00	0.00	0.00
38.85	3.39	0.08	5.00	0.00	0.00	0.00
38.90	3.39	0.08	5.00	0.00	0.00	0.00
38.95	3.39	0.08	5.00	0.00	0.00	0.00
39.00	3.39	0.08	5.00	0.00	0.00	0.00
39.05	3.39	0.08	5.00	0.00	0.00	0.00
39.10	3.39	0.08	5.00	0.00	0.00	0.00
39.15	3.39	0.08	5.00	0.00	0.00	0.00
39.20	3.39	0.08	5.00	0.00	0.00	0.00
39.25	3.39	0.08	5.00	0.00	0.00	0.00
39.30	3.39	0.08	5.00	0.00	0.00	0.00
39.35	3.39	0.08	5.00	0.00	0.00	0.00
39.40	3.38	0.08	5.00	0.00	0.00	0.00
39.45	3.38	0.08	5.00	0.00	0.00	0.00
39.50	3.38	0.08	5.00	0.00	0.00	0.00
39.55	3.38	0.08	5.00	0.00	0.00	0.00
39.60	3.38	0.08	5.00	0.00	0.00	0.00
39.65	3.38	0.08	5.00	0.00	0.00	0.00
39.70	3.38	0.08	5.00	0.00	0.00	0.00
39.75	3.38	0.08	5.00	0.00	0.00	0.00
39.80	3.38	0.08	5.00	0.00	0.00	0.00
39.85	3.38	0.08	5.00	0.00	0.00	0.00
39.90	3.38	0.08	5.00	0.00	0.00	0.00
39.95	3.38	0.08	5.00	0.00	0.00	0.00
40.00	3.37	0.08	5.00	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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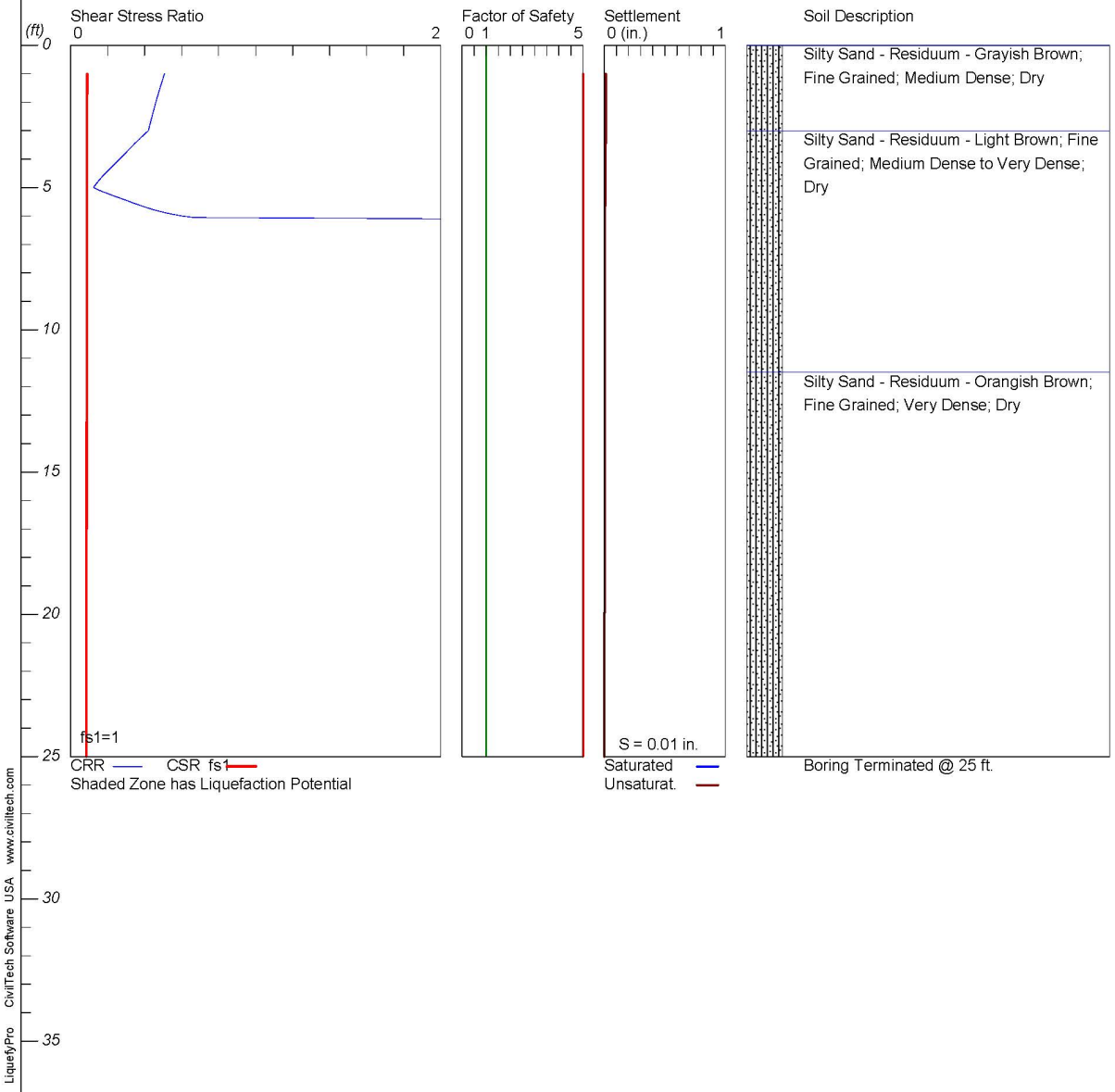
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=TF-5 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\TF-5.liq
Title: Interim Storage Facility NRC
Subtitle: TF-5

Surface Elev.=0
Hole No.=TF-5
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=TF-5
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	22.00	110.00	0.00
3.00	19.00	100.00	0.00
5.00	5.00	90.00	0.00
8.00	63.00	110.00	0.00
13.00	106.00	110.00	0.00
18.00	97.00	110.00	0.00
23.00	86.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.006 to 0.008 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.51	0.09	5.00	0.00	0.01	0.01
1.05	0.50	0.09	5.00	0.00	0.01	0.01
1.10	0.50	0.09	5.00	0.00	0.01	0.01
1.15	0.50	0.09	5.00	0.00	0.01	0.01
1.20	0.50	0.09	5.00	0.00	0.01	0.01
1.25	0.49	0.09	5.00	0.00	0.01	0.01
1.30	0.49	0.09	5.00	0.00	0.01	0.01
1.35	0.49	0.09	5.00	0.00	0.01	0.01
1.40	0.49	0.09	5.00	0.00	0.01	0.01
1.45	0.49	0.09	5.00	0.00	0.01	0.01
1.50	0.48	0.09	5.00	0.00	0.01	0.01
1.55	0.48	0.09	5.00	0.00	0.01	0.01

1.60	0.48	0.09	5.00	0.00	0.01	0.01
1.65	0.48	0.09	5.00	0.00	0.01	0.01
1.70	0.47	0.09	5.00	0.00	0.01	0.01
1.75	0.47	0.09	5.00	0.00	0.01	0.01
1.80	0.47	0.09	5.00	0.00	0.01	0.01
1.85	0.47	0.09	5.00	0.00	0.01	0.01
1.90	0.47	0.09	5.00	0.00	0.01	0.01
1.95	0.46	0.09	5.00	0.00	0.01	0.01
2.00	0.46	0.09	5.00	0.00	0.01	0.01
2.05	0.46	0.09	5.00	0.00	0.01	0.01
2.10	0.46	0.09	5.00	0.00	0.01	0.01
2.15	0.45	0.09	5.00	0.00	0.01	0.01
2.20	0.45	0.09	5.00	0.00	0.01	0.01
2.25	0.45	0.09	5.00	0.00	0.01	0.01
2.30	0.45	0.09	5.00	0.00	0.01	0.01
2.35	0.45	0.09	5.00	0.00	0.01	0.01
2.40	0.44	0.09	5.00	0.00	0.01	0.01
2.45	0.44	0.09	5.00	0.00	0.01	0.01
2.50	0.44	0.09	5.00	0.00	0.01	0.01
2.55	0.44	0.09	5.00	0.00	0.01	0.01
2.60	0.44	0.09	5.00	0.00	0.01	0.01
2.65	0.43	0.09	5.00	0.00	0.01	0.01
2.70	0.43	0.09	5.00	0.00	0.01	0.01
2.75	0.43	0.09	5.00	0.00	0.01	0.01
2.80	0.43	0.09	5.00	0.00	0.01	0.01
2.85	0.43	0.09	5.00	0.00	0.01	0.01
2.90	0.42	0.09	5.00	0.00	0.01	0.01
2.95	0.42	0.09	5.00	0.00	0.01	0.01
3.00	0.42	0.09	5.00	0.00	0.01	0.01
3.05	0.41	0.09	5.00	0.00	0.01	0.01
3.10	0.40	0.09	5.00	0.00	0.01	0.01
3.15	0.39	0.09	5.00	0.00	0.01	0.01
3.20	0.39	0.09	5.00	0.00	0.01	0.01
3.25	0.38	0.09	5.00	0.00	0.01	0.01
3.30	0.37	0.09	5.00	0.00	0.01	0.01
3.35	0.36	0.09	5.00	0.00	0.01	0.01
3.40	0.35	0.09	5.00	0.00	0.01	0.01
3.45	0.35	0.09	5.00	0.00	0.01	0.01
3.50	0.34	0.09	5.00	0.00	0.01	0.01
3.55	0.33	0.09	5.00	0.00	0.01	0.01
3.60	0.32	0.09	5.00	0.00	0.01	0.01
3.65	0.32	0.09	5.00	0.00	0.01	0.01
3.70	0.31	0.09	5.00	0.00	0.01	0.01
3.75	0.30	0.09	5.00	0.00	0.01	0.01
3.80	0.29	0.09	5.00	0.00	0.01	0.01
3.85	0.29	0.09	5.00	0.00	0.01	0.01
3.90	0.28	0.09	5.00	0.00	0.01	0.01
3.95	0.27	0.09	5.00	0.00	0.01	0.01
4.00	0.26	0.09	5.00	0.00	0.01	0.01
4.05	0.26	0.09	5.00	0.00	0.01	0.01
4.10	0.25	0.09	5.00	0.00	0.01	0.01
4.15	0.24	0.09	5.00	0.00	0.01	0.01
4.20	0.23	0.09	5.00	0.00	0.01	0.01
4.25	0.23	0.09	5.00	0.00	0.01	0.01
4.30	0.22	0.09	5.00	0.00	0.01	0.01
4.35	0.21	0.09	5.00	0.00	0.01	0.01
4.40	0.20	0.09	5.00	0.00	0.01	0.01
4.45	0.19	0.09	5.00	0.00	0.01	0.01
4.50	0.19	0.09	5.00	0.00	0.01	0.01
4.55	0.18	0.09	5.00	0.00	0.01	0.01
4.60	0.17	0.09	5.00	0.00	0.01	0.01
4.65	0.17	0.09	5.00	0.00	0.01	0.01
4.70	0.16	0.09	5.00	0.00	0.01	0.01
4.75	0.15	0.09	5.00	0.00	0.01	0.01
4.80	0.15	0.09	5.00	0.00	0.01	0.01
4.85	0.14	0.09	5.00	0.00	0.01	0.01
4.90	0.13	0.09	5.00	0.00	0.01	0.01
4.95	0.13	0.09	5.00	0.00	0.01	0.01
5.00	0.12	0.09	5.00	0.00	0.01	0.01
5.05	0.14	0.09	5.00	0.00	0.01	0.01
5.10	0.16	0.09	5.00	0.00	0.01	0.01
5.15	0.18	0.09	5.00	0.00	0.01	0.01
5.20	0.20	0.09	5.00	0.00	0.01	0.01
5.25	0.22	0.09	5.00	0.00	0.01	0.01
5.30	0.24	0.09	5.00	0.00	0.01	0.01
5.35	0.26	0.09	5.00	0.00	0.01	0.01
5.40	0.28	0.09	5.00	0.00	0.01	0.01
5.45	0.30	0.09	5.00	0.00	0.01	0.01
5.50	0.32	0.09	5.00	0.00	0.01	0.01

5.55	0.34	0.09	5.00	0.00	0.01	0.01
5.60	0.36	0.09	5.00	0.00	0.01	0.01
5.65	0.39	0.09	5.00	0.00	0.01	0.01
5.70	0.41	0.09	5.00	0.00	0.01	0.01
5.75	0.43	0.09	5.00	0.00	0.01	0.01
5.80	0.46	0.09	5.00	0.00	0.01	0.01
5.85	0.49	0.09	5.00	0.00	0.01	0.01
5.90	0.52	0.09	5.00	0.00	0.01	0.01
5.95	0.56	0.09	5.00	0.00	0.01	0.01
6.00	0.60	0.09	5.00	0.00	0.01	0.01
6.05	0.67	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.00	0.00
7.10	3.54	0.09	5.00	0.00	0.00	0.00
7.15	3.54	0.09	5.00	0.00	0.00	0.00
7.20	3.54	0.09	5.00	0.00	0.00	0.00
7.25	3.54	0.09	5.00	0.00	0.00	0.00
7.30	3.54	0.09	5.00	0.00	0.00	0.00
7.35	3.54	0.09	5.00	0.00	0.00	0.00
7.40	3.54	0.09	5.00	0.00	0.00	0.00
7.45	3.54	0.09	5.00	0.00	0.00	0.00
7.50	3.54	0.09	5.00	0.00	0.00	0.00
7.55	3.54	0.09	5.00	0.00	0.00	0.00
7.60	3.54	0.09	5.00	0.00	0.00	0.00
7.65	3.54	0.09	5.00	0.00	0.00	0.00
7.70	3.54	0.09	5.00	0.00	0.00	0.00
7.75	3.54	0.09	5.00	0.00	0.00	0.00
7.80	3.54	0.09	5.00	0.00	0.00	0.00
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

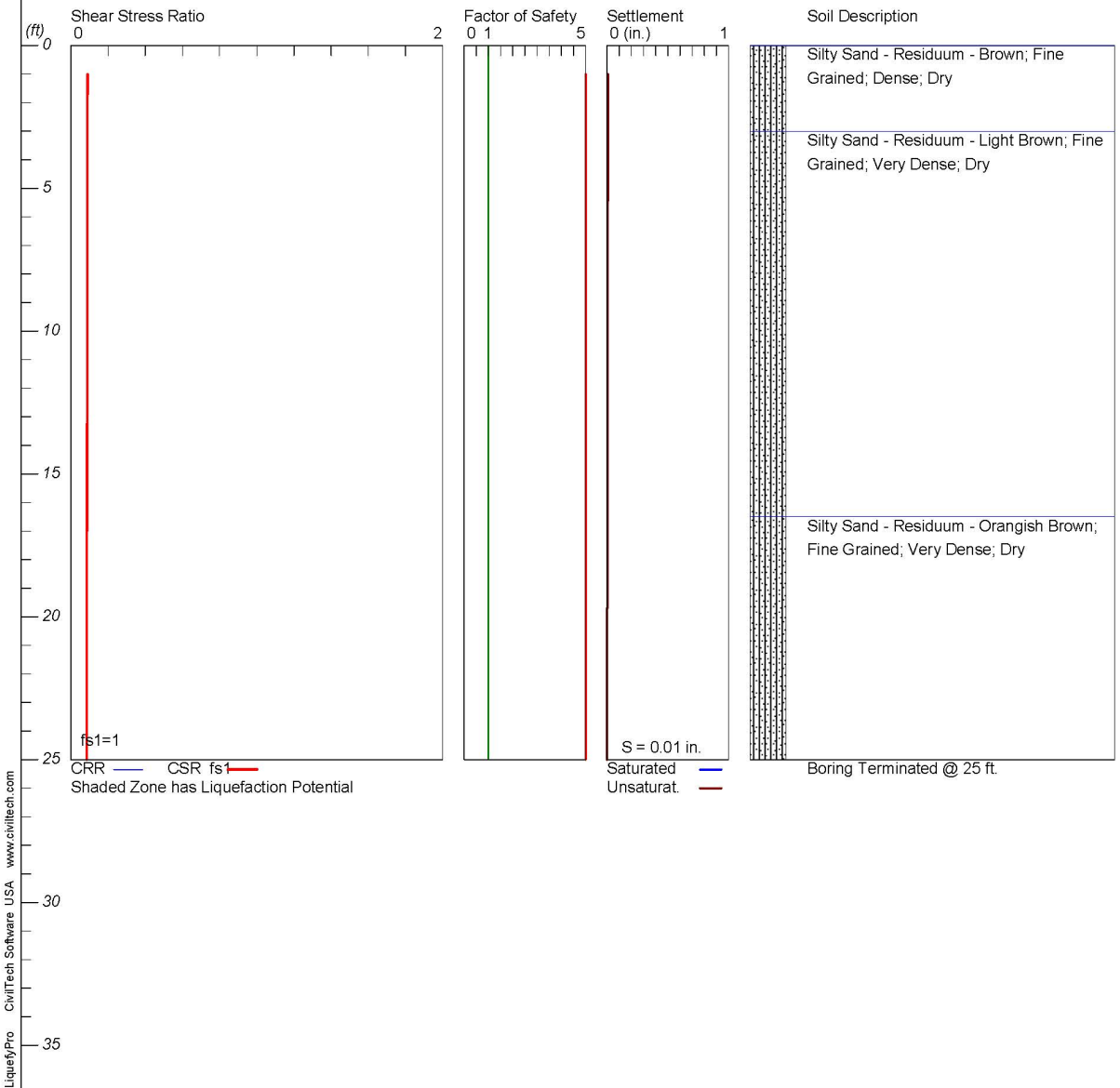
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=AB-1 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\AB-1.liq
Title: Interim Storage Facility NRC
Subtitle: AB-1

Surface Elev.=0
Hole No.=AB-1
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=AB-1
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	48.00	110.00	0.00
3.00	52.00	110.00	0.00
5.00	39.00	110.00	0.00
8.00	43.00	110.00	0.00
13.00	100.00	110.00	0.00
18.00	100.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.003 to 0.004 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	3.54	0.09	5.00	0.00	0.01	0.01
1.05	3.54	0.09	5.00	0.00	0.01	0.01
1.10	3.54	0.09	5.00	0.00	0.01	0.01
1.15	3.54	0.09	5.00	0.00	0.01	0.01
1.20	3.54	0.09	5.00	0.00	0.01	0.01
1.25	3.54	0.09	5.00	0.00	0.01	0.01
1.30	3.54	0.09	5.00	0.00	0.01	0.01
1.35	3.54	0.09	5.00	0.00	0.01	0.01
1.40	3.54	0.09	5.00	0.00	0.01	0.01
1.45	3.54	0.09	5.00	0.00	0.01	0.01
1.50	3.54	0.09	5.00	0.00	0.01	0.01
1.55	3.54	0.09	5.00	0.00	0.01	0.01

1.60	3.54	0.09	5.00	0.00	0.01	0.01
1.65	3.54	0.09	5.00	0.00	0.01	0.01
1.70	3.54	0.09	5.00	0.00	0.01	0.01
1.75	3.54	0.09	5.00	0.00	0.01	0.01
1.80	3.54	0.09	5.00	0.00	0.01	0.01
1.85	3.54	0.09	5.00	0.00	0.01	0.01
1.90	3.54	0.09	5.00	0.00	0.01	0.01
1.95	3.54	0.09	5.00	0.00	0.01	0.01
2.00	3.54	0.09	5.00	0.00	0.01	0.01
2.05	3.54	0.09	5.00	0.00	0.01	0.01
2.10	3.54	0.09	5.00	0.00	0.01	0.01
2.15	3.54	0.09	5.00	0.00	0.01	0.01
2.20	3.54	0.09	5.00	0.00	0.01	0.01
2.25	3.54	0.09	5.00	0.00	0.01	0.01
2.30	3.54	0.09	5.00	0.00	0.01	0.01
2.35	3.54	0.09	5.00	0.00	0.01	0.01
2.40	3.54	0.09	5.00	0.00	0.01	0.01
2.45	3.54	0.09	5.00	0.00	0.01	0.01
2.50	3.54	0.09	5.00	0.00	0.01	0.01
2.55	3.54	0.09	5.00	0.00	0.01	0.01
2.60	3.54	0.09	5.00	0.00	0.01	0.01
2.65	3.54	0.09	5.00	0.00	0.01	0.01
2.70	3.54	0.09	5.00	0.00	0.01	0.01
2.75	3.54	0.09	5.00	0.00	0.01	0.01
2.80	3.54	0.09	5.00	0.00	0.01	0.01
2.85	3.54	0.09	5.00	0.00	0.01	0.01
2.90	3.54	0.09	5.00	0.00	0.01	0.01
2.95	3.54	0.09	5.00	0.00	0.01	0.01
3.00	3.54	0.09	5.00	0.00	0.01	0.01
3.05	3.54	0.09	5.00	0.00	0.01	0.01
3.10	3.54	0.09	5.00	0.00	0.01	0.01
3.15	3.54	0.09	5.00	0.00	0.01	0.01
3.20	3.54	0.09	5.00	0.00	0.01	0.01
3.25	3.54	0.09	5.00	0.00	0.01	0.01
3.30	3.54	0.09	5.00	0.00	0.01	0.01
3.35	3.54	0.09	5.00	0.00	0.01	0.01
3.40	3.54	0.09	5.00	0.00	0.01	0.01
3.45	3.54	0.09	5.00	0.00	0.01	0.01
3.50	3.54	0.09	5.00	0.00	0.01	0.01
3.55	3.54	0.09	5.00	0.00	0.01	0.01
3.60	3.54	0.09	5.00	0.00	0.01	0.01
3.65	3.54	0.09	5.00	0.00	0.01	0.01
3.70	3.54	0.09	5.00	0.00	0.01	0.01
3.75	3.54	0.09	5.00	0.00	0.01	0.01
3.80	3.54	0.09	5.00	0.00	0.01	0.01
3.85	3.54	0.09	5.00	0.00	0.01	0.01
3.90	3.54	0.09	5.00	0.00	0.01	0.01
3.95	3.54	0.09	5.00	0.00	0.01	0.01
4.00	3.54	0.09	5.00	0.00	0.01	0.01
4.05	3.54	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.00	0.00
7.90	3.54	0.09	5.00	0.00	0.00	0.00
7.95	3.54	0.09	5.00	0.00	0.00	0.00
8.00	3.54	0.09	5.00	0.00	0.00	0.00
8.05	3.54	0.09	5.00	0.00	0.00	0.00
8.10	3.54	0.09	5.00	0.00	0.00	0.00
8.15	3.54	0.09	5.00	0.00	0.00	0.00
8.20	3.54	0.09	5.00	0.00	0.00	0.00
8.25	3.54	0.09	5.00	0.00	0.00	0.00
8.30	3.54	0.09	5.00	0.00	0.00	0.00
8.35	3.54	0.09	5.00	0.00	0.00	0.00
8.40	3.54	0.09	5.00	0.00	0.00	0.00
8.45	3.54	0.09	5.00	0.00	0.00	0.00
8.50	3.54	0.09	5.00	0.00	0.00	0.00
8.55	3.54	0.09	5.00	0.00	0.00	0.00
8.60	3.54	0.09	5.00	0.00	0.00	0.00
8.65	3.54	0.09	5.00	0.00	0.00	0.00
8.70	3.54	0.09	5.00	0.00	0.00	0.00
8.75	3.54	0.09	5.00	0.00	0.00	0.00
8.80	3.54	0.09	5.00	0.00	0.00	0.00
8.85	3.54	0.09	5.00	0.00	0.00	0.00
8.90	3.54	0.09	5.00	0.00	0.00	0.00
8.95	3.54	0.09	5.00	0.00	0.00	0.00
9.00	3.54	0.09	5.00	0.00	0.00	0.00
9.05	3.54	0.09	5.00	0.00	0.00	0.00
9.10	3.54	0.09	5.00	0.00	0.00	0.00
9.15	3.54	0.09	5.00	0.00	0.00	0.00
9.20	3.54	0.09	5.00	0.00	0.00	0.00
9.25	3.54	0.09	5.00	0.00	0.00	0.00
9.30	3.54	0.09	5.00	0.00	0.00	0.00
9.35	3.54	0.09	5.00	0.00	0.00	0.00
9.40	3.54	0.09	5.00	0.00	0.00	0.00
9.45	3.54	0.09	5.00	0.00	0.00	0.00

9.50	3.54	0.09	5.00	0.00	0.00	0.00
9.55	3.54	0.09	5.00	0.00	0.00	0.00
9.60	3.54	0.09	5.00	0.00	0.00	0.00
9.65	3.54	0.09	5.00	0.00	0.00	0.00
9.70	3.54	0.09	5.00	0.00	0.00	0.00
9.75	3.54	0.09	5.00	0.00	0.00	0.00
9.80	3.54	0.09	5.00	0.00	0.00	0.00
9.85	3.54	0.09	5.00	0.00	0.00	0.00
9.90	3.54	0.09	5.00	0.00	0.00	0.00
9.95	3.54	0.09	5.00	0.00	0.00	0.00
10.00	3.54	0.09	5.00	0.00	0.00	0.00
10.05	3.54	0.09	5.00	0.00	0.00	0.00
10.10	3.54	0.09	5.00	0.00	0.00	0.00
10.15	3.54	0.09	5.00	0.00	0.00	0.00
10.20	3.54	0.09	5.00	0.00	0.00	0.00
10.25	3.54	0.09	5.00	0.00	0.00	0.00
10.30	3.54	0.09	5.00	0.00	0.00	0.00
10.35	3.54	0.09	5.00	0.00	0.00	0.00
10.40	3.54	0.09	5.00	0.00	0.00	0.00
10.45	3.54	0.09	5.00	0.00	0.00	0.00
10.50	3.54	0.09	5.00	0.00	0.00	0.00
10.55	3.54	0.09	5.00	0.00	0.00	0.00
10.60	3.54	0.09	5.00	0.00	0.00	0.00
10.65	3.54	0.09	5.00	0.00	0.00	0.00
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

---

1 atm (atmosphere) = 1 tsf (ton/ft2)

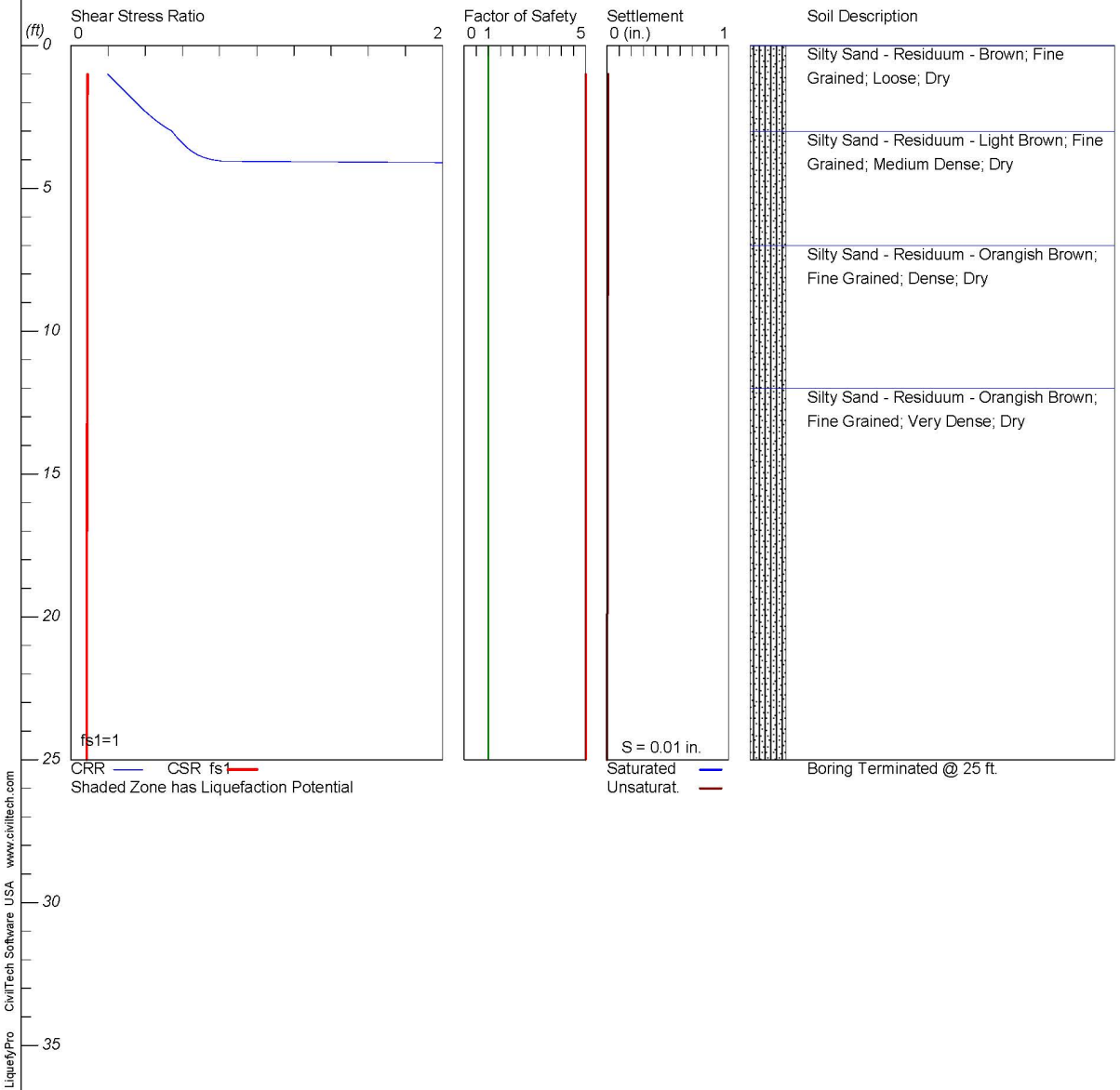
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Interim Storage Facility NRC

Hole No.=AB-2 Water Depth=50 ft Surface Elev.=0

Magnitude=6
Acceleration=.138g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\Nathan Think\Documents\DBA\2016\16-071 NRC Andrews Texas\AB-2.liq
Title: Interim Storage Facility NRC
Subtitle: AB-2

Surface Elev.=0
Hole No.=AB-2
Depth of Hole= 25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.14 g
Earthquake Magnitude= 6.00

Input Data:
Surface Elev.=0
Hole No.=AB-2
Depth of Hole=25.00 ft
Water Table during Earthquake= 50.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.14 g
Earthquake Magnitude=6.00
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = .9
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
1.00	9.00	90.00	0.00
3.00	23.00	110.00	0.00
5.00	29.00	110.00	0.00
8.00	37.00	110.00	0.00
13.00	55.00	110.00	0.00
18.00	52.00	110.00	0.00
23.00	100.00	110.00	0.00

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.004 to 0.005 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
1.00	0.20	0.09	5.00	0.00	0.01	0.01
1.05	0.21	0.09	5.00	0.00	0.01	0.01
1.10	0.21	0.09	5.00	0.00	0.01	0.01
1.15	0.22	0.09	5.00	0.00	0.01	0.01
1.20	0.23	0.09	5.00	0.00	0.01	0.01
1.25	0.24	0.09	5.00	0.00	0.01	0.01
1.30	0.24	0.09	5.00	0.00	0.01	0.01
1.35	0.25	0.09	5.00	0.00	0.01	0.01
1.40	0.26	0.09	5.00	0.00	0.01	0.01
1.45	0.27	0.09	5.00	0.00	0.01	0.01
1.50	0.27	0.09	5.00	0.00	0.01	0.01
1.55	0.28	0.09	5.00	0.00	0.01	0.01

1.60	0.29	0.09	5.00	0.00	0.01	0.01
1.65	0.30	0.09	5.00	0.00	0.01	0.01
1.70	0.30	0.09	5.00	0.00	0.01	0.01
1.75	0.31	0.09	5.00	0.00	0.01	0.01
1.80	0.32	0.09	5.00	0.00	0.01	0.01
1.85	0.33	0.09	5.00	0.00	0.01	0.01
1.90	0.34	0.09	5.00	0.00	0.01	0.01
1.95	0.34	0.09	5.00	0.00	0.01	0.01
2.00	0.35	0.09	5.00	0.00	0.01	0.01
2.05	0.36	0.09	5.00	0.00	0.01	0.01
2.10	0.37	0.09	5.00	0.00	0.01	0.01
2.15	0.37	0.09	5.00	0.00	0.01	0.01
2.20	0.38	0.09	5.00	0.00	0.01	0.01
2.25	0.39	0.09	5.00	0.00	0.01	0.01
2.30	0.40	0.09	5.00	0.00	0.01	0.01
2.35	0.41	0.09	5.00	0.00	0.01	0.01
2.40	0.42	0.09	5.00	0.00	0.01	0.01
2.45	0.42	0.09	5.00	0.00	0.01	0.01
2.50	0.43	0.09	5.00	0.00	0.01	0.01
2.55	0.44	0.09	5.00	0.00	0.01	0.01
2.60	0.45	0.09	5.00	0.00	0.01	0.01
2.65	0.46	0.09	5.00	0.00	0.01	0.01
2.70	0.47	0.09	5.00	0.00	0.01	0.01
2.75	0.48	0.09	5.00	0.00	0.01	0.01
2.80	0.49	0.09	5.00	0.00	0.01	0.01
2.85	0.51	0.09	5.00	0.00	0.01	0.01
2.90	0.52	0.09	5.00	0.00	0.01	0.01
2.95	0.53	0.09	5.00	0.00	0.01	0.01
3.00	0.54	0.09	5.00	0.00	0.01	0.01
3.05	0.55	0.09	5.00	0.00	0.01	0.01
3.10	0.56	0.09	5.00	0.00	0.01	0.01
3.15	0.56	0.09	5.00	0.00	0.01	0.01
3.20	0.57	0.09	5.00	0.00	0.01	0.01
3.25	0.58	0.09	5.00	0.00	0.01	0.01
3.30	0.58	0.09	5.00	0.00	0.01	0.01
3.35	0.59	0.09	5.00	0.00	0.01	0.01
3.40	0.60	0.09	5.00	0.00	0.01	0.01
3.45	0.60	0.09	5.00	0.00	0.01	0.01
3.50	0.61	0.09	5.00	0.00	0.01	0.01
3.55	0.62	0.09	5.00	0.00	0.01	0.01
3.60	0.63	0.09	5.00	0.00	0.01	0.01
3.65	0.64	0.09	5.00	0.00	0.01	0.01
3.70	0.65	0.09	5.00	0.00	0.01	0.01
3.75	0.66	0.09	5.00	0.00	0.01	0.01
3.80	0.67	0.09	5.00	0.00	0.01	0.01
3.85	0.69	0.09	5.00	0.00	0.01	0.01
3.90	0.71	0.09	5.00	0.00	0.01	0.01
3.95	0.73	0.09	5.00	0.00	0.01	0.01
4.00	0.76	0.09	5.00	0.00	0.01	0.01
4.05	0.81	0.09	5.00	0.00	0.01	0.01
4.10	3.54	0.09	5.00	0.00	0.01	0.01
4.15	3.54	0.09	5.00	0.00	0.01	0.01
4.20	3.54	0.09	5.00	0.00	0.01	0.01
4.25	3.54	0.09	5.00	0.00	0.01	0.01
4.30	3.54	0.09	5.00	0.00	0.01	0.01
4.35	3.54	0.09	5.00	0.00	0.01	0.01
4.40	3.54	0.09	5.00	0.00	0.01	0.01
4.45	3.54	0.09	5.00	0.00	0.01	0.01
4.50	3.54	0.09	5.00	0.00	0.01	0.01
4.55	3.54	0.09	5.00	0.00	0.01	0.01
4.60	3.54	0.09	5.00	0.00	0.01	0.01
4.65	3.54	0.09	5.00	0.00	0.01	0.01
4.70	3.54	0.09	5.00	0.00	0.01	0.01
4.75	3.54	0.09	5.00	0.00	0.01	0.01
4.80	3.54	0.09	5.00	0.00	0.01	0.01
4.85	3.54	0.09	5.00	0.00	0.01	0.01
4.90	3.54	0.09	5.00	0.00	0.01	0.01
4.95	3.54	0.09	5.00	0.00	0.01	0.01
5.00	3.54	0.09	5.00	0.00	0.01	0.01
5.05	3.54	0.09	5.00	0.00	0.01	0.01
5.10	3.54	0.09	5.00	0.00	0.01	0.01
5.15	3.54	0.09	5.00	0.00	0.01	0.01
5.20	3.54	0.09	5.00	0.00	0.01	0.01
5.25	3.54	0.09	5.00	0.00	0.01	0.01
5.30	3.54	0.09	5.00	0.00	0.01	0.01
5.35	3.54	0.09	5.00	0.00	0.01	0.01
5.40	3.54	0.09	5.00	0.00	0.01	0.01
5.45	3.54	0.09	5.00	0.00	0.01	0.01
5.50	3.54	0.09	5.00	0.00	0.01	0.01

5.55	3.54	0.09	5.00	0.00	0.01	0.01
5.60	3.54	0.09	5.00	0.00	0.01	0.01
5.65	3.54	0.09	5.00	0.00	0.01	0.01
5.70	3.54	0.09	5.00	0.00	0.01	0.01
5.75	3.54	0.09	5.00	0.00	0.01	0.01
5.80	3.54	0.09	5.00	0.00	0.01	0.01
5.85	3.54	0.09	5.00	0.00	0.01	0.01
5.90	3.54	0.09	5.00	0.00	0.01	0.01
5.95	3.54	0.09	5.00	0.00	0.01	0.01
6.00	3.54	0.09	5.00	0.00	0.01	0.01
6.05	3.54	0.09	5.00	0.00	0.01	0.01
6.10	3.54	0.09	5.00	0.00	0.01	0.01
6.15	3.54	0.09	5.00	0.00	0.01	0.01
6.20	3.54	0.09	5.00	0.00	0.01	0.01
6.25	3.54	0.09	5.00	0.00	0.01	0.01
6.30	3.54	0.09	5.00	0.00	0.01	0.01
6.35	3.54	0.09	5.00	0.00	0.01	0.01
6.40	3.54	0.09	5.00	0.00	0.01	0.01
6.45	3.54	0.09	5.00	0.00	0.01	0.01
6.50	3.54	0.09	5.00	0.00	0.01	0.01
6.55	3.54	0.09	5.00	0.00	0.01	0.01
6.60	3.54	0.09	5.00	0.00	0.01	0.01
6.65	3.54	0.09	5.00	0.00	0.01	0.01
6.70	3.54	0.09	5.00	0.00	0.01	0.01
6.75	3.54	0.09	5.00	0.00	0.01	0.01
6.80	3.54	0.09	5.00	0.00	0.01	0.01
6.85	3.54	0.09	5.00	0.00	0.01	0.01
6.90	3.54	0.09	5.00	0.00	0.01	0.01
6.95	3.54	0.09	5.00	0.00	0.01	0.01
7.00	3.54	0.09	5.00	0.00	0.01	0.01
7.05	3.54	0.09	5.00	0.00	0.01	0.01
7.10	3.54	0.09	5.00	0.00	0.01	0.01
7.15	3.54	0.09	5.00	0.00	0.01	0.01
7.20	3.54	0.09	5.00	0.00	0.01	0.01
7.25	3.54	0.09	5.00	0.00	0.01	0.01
7.30	3.54	0.09	5.00	0.00	0.01	0.01
7.35	3.54	0.09	5.00	0.00	0.01	0.01
7.40	3.54	0.09	5.00	0.00	0.01	0.01
7.45	3.54	0.09	5.00	0.00	0.01	0.01
7.50	3.54	0.09	5.00	0.00	0.01	0.01
7.55	3.54	0.09	5.00	0.00	0.01	0.01
7.60	3.54	0.09	5.00	0.00	0.01	0.01
7.65	3.54	0.09	5.00	0.00	0.01	0.01
7.70	3.54	0.09	5.00	0.00	0.01	0.01
7.75	3.54	0.09	5.00	0.00	0.01	0.01
7.80	3.54	0.09	5.00	0.00	0.01	0.01
7.85	3.54	0.09	5.00	0.00	0.01	0.01
7.90	3.54	0.09	5.00	0.00	0.01	0.01
7.95	3.54	0.09	5.00	0.00	0.01	0.01
8.00	3.54	0.09	5.00	0.00	0.01	0.01
8.05	3.54	0.09	5.00	0.00	0.01	0.01
8.10	3.54	0.09	5.00	0.00	0.01	0.01
8.15	3.54	0.09	5.00	0.00	0.01	0.01
8.20	3.54	0.09	5.00	0.00	0.01	0.01
8.25	3.54	0.09	5.00	0.00	0.01	0.01
8.30	3.54	0.09	5.00	0.00	0.01	0.01
8.35	3.54	0.09	5.00	0.00	0.01	0.01
8.40	3.54	0.09	5.00	0.00	0.01	0.01
8.45	3.54	0.09	5.00	0.00	0.01	0.01
8.50	3.54	0.09	5.00	0.00	0.01	0.01
8.55	3.54	0.09	5.00	0.00	0.01	0.01
8.60	3.54	0.09	5.00	0.00	0.01	0.01
8.65	3.54	0.09	5.00	0.00	0.01	0.01
8.70	3.54	0.09	5.00	0.00	0.01	0.01
8.75	3.54	0.09	5.00	0.00	0.01	0.01
8.80	3.54	0.09	5.00	0.00	0.01	0.01
8.85	3.54	0.09	5.00	0.00	0.01	0.01
8.90	3.54	0.09	5.00	0.00	0.01	0.01
8.95	3.54	0.09	5.00	0.00	0.01	0.01
9.00	3.54	0.09	5.00	0.00	0.01	0.01
9.05	3.54	0.09	5.00	0.00	0.01	0.01
9.10	3.54	0.09	5.00	0.00	0.01	0.01
9.15	3.54	0.09	5.00	0.00	0.01	0.01
9.20	3.54	0.09	5.00	0.00	0.01	0.01
9.25	3.54	0.09	5.00	0.00	0.01	0.01
9.30	3.54	0.09	5.00	0.00	0.01	0.01
9.35	3.54	0.09	5.00	0.00	0.01	0.01
9.40	3.54	0.09	5.00	0.00	0.01	0.01
9.45	3.54	0.09	5.00	0.00	0.01	0.01

9.50	3.54	0.09	5.00	0.00	0.01	0.01
9.55	3.54	0.09	5.00	0.00	0.01	0.01
9.60	3.54	0.09	5.00	0.00	0.01	0.01
9.65	3.54	0.09	5.00	0.00	0.01	0.01
9.70	3.54	0.09	5.00	0.00	0.01	0.01
9.75	3.54	0.09	5.00	0.00	0.01	0.01
9.80	3.54	0.09	5.00	0.00	0.01	0.01
9.85	3.54	0.09	5.00	0.00	0.01	0.01
9.90	3.54	0.09	5.00	0.00	0.01	0.01
9.95	3.54	0.09	5.00	0.00	0.01	0.01
10.00	3.54	0.09	5.00	0.00	0.01	0.01
10.05	3.54	0.09	5.00	0.00	0.01	0.01
10.10	3.54	0.09	5.00	0.00	0.01	0.01
10.15	3.54	0.09	5.00	0.00	0.01	0.01
10.20	3.54	0.09	5.00	0.00	0.01	0.01
10.25	3.54	0.09	5.00	0.00	0.01	0.01
10.30	3.54	0.09	5.00	0.00	0.01	0.01
10.35	3.54	0.09	5.00	0.00	0.01	0.01
10.40	3.54	0.09	5.00	0.00	0.01	0.01
10.45	3.54	0.09	5.00	0.00	0.01	0.01
10.50	3.54	0.09	5.00	0.00	0.01	0.01
10.55	3.54	0.09	5.00	0.00	0.01	0.01
10.60	3.54	0.09	5.00	0.00	0.01	0.01
10.65	3.54	0.09	5.00	0.00	0.01	0.01
10.70	3.54	0.09	5.00	0.00	0.00	0.00
10.75	3.54	0.09	5.00	0.00	0.00	0.00
10.80	3.54	0.09	5.00	0.00	0.00	0.00
10.85	3.54	0.09	5.00	0.00	0.00	0.00
10.90	3.54	0.09	5.00	0.00	0.00	0.00
10.95	3.54	0.09	5.00	0.00	0.00	0.00
11.00	3.54	0.09	5.00	0.00	0.00	0.00
11.05	3.54	0.09	5.00	0.00	0.00	0.00
11.10	3.54	0.09	5.00	0.00	0.00	0.00
11.15	3.54	0.09	5.00	0.00	0.00	0.00
11.20	3.54	0.09	5.00	0.00	0.00	0.00
11.25	3.54	0.09	5.00	0.00	0.00	0.00
11.30	3.54	0.09	5.00	0.00	0.00	0.00
11.35	3.54	0.09	5.00	0.00	0.00	0.00
11.40	3.54	0.09	5.00	0.00	0.00	0.00
11.45	3.54	0.09	5.00	0.00	0.00	0.00
11.50	3.54	0.09	5.00	0.00	0.00	0.00
11.55	3.54	0.09	5.00	0.00	0.00	0.00
11.60	3.54	0.09	5.00	0.00	0.00	0.00
11.65	3.54	0.09	5.00	0.00	0.00	0.00
11.70	3.54	0.09	5.00	0.00	0.00	0.00
11.75	3.54	0.09	5.00	0.00	0.00	0.00
11.80	3.54	0.09	5.00	0.00	0.00	0.00
11.85	3.54	0.09	5.00	0.00	0.00	0.00
11.90	3.54	0.09	5.00	0.00	0.00	0.00
11.95	3.54	0.09	5.00	0.00	0.00	0.00
12.00	3.54	0.09	5.00	0.00	0.00	0.00
12.05	3.54	0.09	5.00	0.00	0.00	0.00
12.10	3.54	0.09	5.00	0.00	0.00	0.00
12.15	3.54	0.09	5.00	0.00	0.00	0.00
12.20	3.54	0.09	5.00	0.00	0.00	0.00
12.25	3.54	0.09	5.00	0.00	0.00	0.00
12.30	3.54	0.09	5.00	0.00	0.00	0.00
12.35	3.54	0.09	5.00	0.00	0.00	0.00
12.40	3.54	0.09	5.00	0.00	0.00	0.00
12.45	3.54	0.09	5.00	0.00	0.00	0.00
12.50	3.54	0.09	5.00	0.00	0.00	0.00
12.55	3.54	0.09	5.00	0.00	0.00	0.00
12.60	3.54	0.09	5.00	0.00	0.00	0.00
12.65	3.54	0.09	5.00	0.00	0.00	0.00
12.70	3.54	0.09	5.00	0.00	0.00	0.00
12.75	3.54	0.09	5.00	0.00	0.00	0.00
12.80	3.54	0.09	5.00	0.00	0.00	0.00
12.85	3.54	0.09	5.00	0.00	0.00	0.00
12.90	3.54	0.09	5.00	0.00	0.00	0.00
12.95	3.54	0.09	5.00	0.00	0.00	0.00
13.00	3.54	0.09	5.00	0.00	0.00	0.00
13.05	3.54	0.09	5.00	0.00	0.00	0.00
13.10	3.54	0.09	5.00	0.00	0.00	0.00
13.15	3.54	0.09	5.00	0.00	0.00	0.00
13.20	3.54	0.09	5.00	0.00	0.00	0.00
13.25	3.54	0.09	5.00	0.00	0.00	0.00
13.30	3.54	0.09	5.00	0.00	0.00	0.00
13.35	3.54	0.09	5.00	0.00	0.00	0.00
13.40	3.54	0.09	5.00	0.00	0.00	0.00

13.45	3.54	0.09	5.00	0.00	0.00	0.00
13.50	3.54	0.09	5.00	0.00	0.00	0.00
13.55	3.54	0.09	5.00	0.00	0.00	0.00
13.60	3.54	0.09	5.00	0.00	0.00	0.00
13.65	3.54	0.09	5.00	0.00	0.00	0.00
13.70	3.54	0.09	5.00	0.00	0.00	0.00
13.75	3.54	0.09	5.00	0.00	0.00	0.00
13.80	3.54	0.09	5.00	0.00	0.00	0.00
13.85	3.54	0.09	5.00	0.00	0.00	0.00
13.90	3.54	0.09	5.00	0.00	0.00	0.00
13.95	3.54	0.09	5.00	0.00	0.00	0.00
14.00	3.54	0.09	5.00	0.00	0.00	0.00
14.05	3.54	0.09	5.00	0.00	0.00	0.00
14.10	3.54	0.09	5.00	0.00	0.00	0.00
14.15	3.54	0.09	5.00	0.00	0.00	0.00
14.20	3.54	0.09	5.00	0.00	0.00	0.00
14.25	3.54	0.09	5.00	0.00	0.00	0.00
14.30	3.54	0.09	5.00	0.00	0.00	0.00
14.35	3.54	0.09	5.00	0.00	0.00	0.00
14.40	3.54	0.09	5.00	0.00	0.00	0.00
14.45	3.54	0.09	5.00	0.00	0.00	0.00
14.50	3.54	0.09	5.00	0.00	0.00	0.00
14.55	3.54	0.09	5.00	0.00	0.00	0.00
14.60	3.54	0.09	5.00	0.00	0.00	0.00
14.65	3.54	0.09	5.00	0.00	0.00	0.00
14.70	3.54	0.09	5.00	0.00	0.00	0.00
14.75	3.54	0.09	5.00	0.00	0.00	0.00
14.80	3.54	0.09	5.00	0.00	0.00	0.00
14.85	3.54	0.09	5.00	0.00	0.00	0.00
14.90	3.54	0.09	5.00	0.00	0.00	0.00
14.95	3.54	0.09	5.00	0.00	0.00	0.00
15.00	3.54	0.09	5.00	0.00	0.00	0.00
15.05	3.54	0.09	5.00	0.00	0.00	0.00
15.10	3.54	0.09	5.00	0.00	0.00	0.00
15.15	3.54	0.09	5.00	0.00	0.00	0.00
15.20	3.54	0.09	5.00	0.00	0.00	0.00
15.25	3.54	0.09	5.00	0.00	0.00	0.00
15.30	3.54	0.09	5.00	0.00	0.00	0.00
15.35	3.54	0.09	5.00	0.00	0.00	0.00
15.40	3.54	0.09	5.00	0.00	0.00	0.00
15.45	3.54	0.09	5.00	0.00	0.00	0.00
15.50	3.54	0.09	5.00	0.00	0.00	0.00
15.55	3.54	0.09	5.00	0.00	0.00	0.00
15.60	3.54	0.09	5.00	0.00	0.00	0.00
15.65	3.54	0.09	5.00	0.00	0.00	0.00
15.70	3.54	0.09	5.00	0.00	0.00	0.00
15.75	3.54	0.09	5.00	0.00	0.00	0.00
15.80	3.54	0.09	5.00	0.00	0.00	0.00
15.85	3.54	0.09	5.00	0.00	0.00	0.00
15.90	3.54	0.09	5.00	0.00	0.00	0.00
15.95	3.54	0.09	5.00	0.00	0.00	0.00
16.00	3.54	0.09	5.00	0.00	0.00	0.00
16.05	3.54	0.09	5.00	0.00	0.00	0.00
16.10	3.54	0.09	5.00	0.00	0.00	0.00
16.15	3.54	0.09	5.00	0.00	0.00	0.00
16.20	3.54	0.09	5.00	0.00	0.00	0.00
16.25	3.54	0.09	5.00	0.00	0.00	0.00
16.30	3.54	0.09	5.00	0.00	0.00	0.00
16.35	3.54	0.09	5.00	0.00	0.00	0.00
16.40	3.54	0.09	5.00	0.00	0.00	0.00
16.45	3.54	0.09	5.00	0.00	0.00	0.00
16.50	3.54	0.09	5.00	0.00	0.00	0.00
16.55	3.54	0.09	5.00	0.00	0.00	0.00
16.60	3.54	0.09	5.00	0.00	0.00	0.00
16.65	3.54	0.09	5.00	0.00	0.00	0.00
16.70	3.54	0.09	5.00	0.00	0.00	0.00
16.75	3.54	0.09	5.00	0.00	0.00	0.00
16.80	3.54	0.09	5.00	0.00	0.00	0.00
16.85	3.54	0.09	5.00	0.00	0.00	0.00
16.90	3.54	0.09	5.00	0.00	0.00	0.00
16.95	3.54	0.09	5.00	0.00	0.00	0.00
17.00	3.54	0.09	5.00	0.00	0.00	0.00
17.05	3.54	0.09	5.00	0.00	0.00	0.00
17.10	3.54	0.09	5.00	0.00	0.00	0.00
17.15	3.54	0.09	5.00	0.00	0.00	0.00
17.20	3.54	0.09	5.00	0.00	0.00	0.00
17.25	3.54	0.09	5.00	0.00	0.00	0.00
17.30	3.54	0.09	5.00	0.00	0.00	0.00
17.35	3.54	0.09	5.00	0.00	0.00	0.00

17.40	3.54	0.09	5.00	0.00	0.00	0.00
17.45	3.54	0.09	5.00	0.00	0.00	0.00
17.50	3.54	0.09	5.00	0.00	0.00	0.00
17.55	3.54	0.09	5.00	0.00	0.00	0.00
17.60	3.54	0.09	5.00	0.00	0.00	0.00
17.65	3.54	0.09	5.00	0.00	0.00	0.00
17.70	3.54	0.09	5.00	0.00	0.00	0.00
17.75	3.54	0.09	5.00	0.00	0.00	0.00
17.80	3.54	0.09	5.00	0.00	0.00	0.00
17.85	3.54	0.09	5.00	0.00	0.00	0.00
17.90	3.54	0.09	5.00	0.00	0.00	0.00
17.95	3.54	0.09	5.00	0.00	0.00	0.00
18.00	3.54	0.09	5.00	0.00	0.00	0.00
18.05	3.54	0.09	5.00	0.00	0.00	0.00
18.10	3.54	0.09	5.00	0.00	0.00	0.00
18.15	3.54	0.09	5.00	0.00	0.00	0.00
18.20	3.54	0.09	5.00	0.00	0.00	0.00
18.25	3.54	0.09	5.00	0.00	0.00	0.00
18.30	3.54	0.09	5.00	0.00	0.00	0.00
18.35	3.54	0.09	5.00	0.00	0.00	0.00
18.40	3.54	0.09	5.00	0.00	0.00	0.00
18.45	3.54	0.09	5.00	0.00	0.00	0.00
18.50	3.54	0.09	5.00	0.00	0.00	0.00
18.55	3.54	0.09	5.00	0.00	0.00	0.00
18.60	3.54	0.09	5.00	0.00	0.00	0.00
18.65	3.54	0.09	5.00	0.00	0.00	0.00
18.70	3.54	0.09	5.00	0.00	0.00	0.00
18.75	3.54	0.09	5.00	0.00	0.00	0.00
18.80	3.54	0.09	5.00	0.00	0.00	0.00
18.85	3.54	0.09	5.00	0.00	0.00	0.00
18.90	3.54	0.09	5.00	0.00	0.00	0.00
18.95	3.54	0.09	5.00	0.00	0.00	0.00
19.00	3.54	0.09	5.00	0.00	0.00	0.00
19.05	3.54	0.09	5.00	0.00	0.00	0.00
19.10	3.54	0.09	5.00	0.00	0.00	0.00
19.15	3.54	0.09	5.00	0.00	0.00	0.00
19.20	3.54	0.09	5.00	0.00	0.00	0.00
19.25	3.54	0.09	5.00	0.00	0.00	0.00
19.30	3.54	0.09	5.00	0.00	0.00	0.00
19.35	3.54	0.09	5.00	0.00	0.00	0.00
19.40	3.54	0.09	5.00	0.00	0.00	0.00
19.45	3.54	0.09	5.00	0.00	0.00	0.00
19.50	3.54	0.09	5.00	0.00	0.00	0.00
19.55	3.54	0.09	5.00	0.00	0.00	0.00
19.60	3.54	0.09	5.00	0.00	0.00	0.00
19.65	3.54	0.09	5.00	0.00	0.00	0.00
19.70	3.54	0.09	5.00	0.00	0.00	0.00
19.75	3.54	0.09	5.00	0.00	0.00	0.00
19.80	3.54	0.09	5.00	0.00	0.00	0.00
19.85	3.54	0.09	5.00	0.00	0.00	0.00
19.90	3.54	0.09	5.00	0.00	0.00	0.00
19.95	3.54	0.09	5.00	0.00	0.00	0.00
20.00	3.54	0.09	5.00	0.00	0.00	0.00
20.05	3.54	0.09	5.00	0.00	0.00	0.00
20.10	3.54	0.09	5.00	0.00	0.00	0.00
20.15	3.54	0.09	5.00	0.00	0.00	0.00
20.20	3.54	0.09	5.00	0.00	0.00	0.00
20.25	3.54	0.09	5.00	0.00	0.00	0.00
20.30	3.54	0.09	5.00	0.00	0.00	0.00
20.35	3.54	0.09	5.00	0.00	0.00	0.00
20.40	3.54	0.09	5.00	0.00	0.00	0.00
20.45	3.54	0.09	5.00	0.00	0.00	0.00
20.50	3.54	0.09	5.00	0.00	0.00	0.00
20.55	3.54	0.09	5.00	0.00	0.00	0.00
20.60	3.54	0.09	5.00	0.00	0.00	0.00
20.65	3.54	0.09	5.00	0.00	0.00	0.00
20.70	3.54	0.09	5.00	0.00	0.00	0.00
20.75	3.54	0.09	5.00	0.00	0.00	0.00
20.80	3.54	0.09	5.00	0.00	0.00	0.00
20.85	3.54	0.09	5.00	0.00	0.00	0.00
20.90	3.54	0.09	5.00	0.00	0.00	0.00
20.95	3.54	0.09	5.00	0.00	0.00	0.00
21.00	3.54	0.09	5.00	0.00	0.00	0.00
21.05	3.54	0.09	5.00	0.00	0.00	0.00
21.10	3.54	0.09	5.00	0.00	0.00	0.00
21.15	3.54	0.09	5.00	0.00	0.00	0.00
21.20	3.54	0.09	5.00	0.00	0.00	0.00
21.25	3.54	0.09	5.00	0.00	0.00	0.00
21.30	3.54	0.09	5.00	0.00	0.00	0.00

21.35	3.54	0.09	5.00	0.00	0.00	0.00
21.40	3.54	0.09	5.00	0.00	0.00	0.00
21.45	3.54	0.09	5.00	0.00	0.00	0.00
21.50	3.54	0.09	5.00	0.00	0.00	0.00
21.55	3.54	0.09	5.00	0.00	0.00	0.00
21.60	3.54	0.09	5.00	0.00	0.00	0.00
21.65	3.54	0.09	5.00	0.00	0.00	0.00
21.70	3.54	0.09	5.00	0.00	0.00	0.00
21.75	3.54	0.09	5.00	0.00	0.00	0.00
21.80	3.54	0.09	5.00	0.00	0.00	0.00
21.85	3.54	0.09	5.00	0.00	0.00	0.00
21.90	3.54	0.09	5.00	0.00	0.00	0.00
21.95	3.54	0.09	5.00	0.00	0.00	0.00
22.00	3.54	0.09	5.00	0.00	0.00	0.00
22.05	3.54	0.09	5.00	0.00	0.00	0.00
22.10	3.54	0.09	5.00	0.00	0.00	0.00
22.15	3.54	0.09	5.00	0.00	0.00	0.00
22.20	3.54	0.09	5.00	0.00	0.00	0.00
22.25	3.54	0.09	5.00	0.00	0.00	0.00
22.30	3.54	0.09	5.00	0.00	0.00	0.00
22.35	3.54	0.09	5.00	0.00	0.00	0.00
22.40	3.54	0.09	5.00	0.00	0.00	0.00
22.45	3.54	0.09	5.00	0.00	0.00	0.00
22.50	3.54	0.08	5.00	0.00	0.00	0.00
22.55	3.54	0.08	5.00	0.00	0.00	0.00
22.60	3.54	0.08	5.00	0.00	0.00	0.00
22.65	3.54	0.08	5.00	0.00	0.00	0.00
22.70	3.54	0.08	5.00	0.00	0.00	0.00
22.75	3.54	0.08	5.00	0.00	0.00	0.00
22.80	3.54	0.08	5.00	0.00	0.00	0.00
22.85	3.54	0.08	5.00	0.00	0.00	0.00
22.90	3.54	0.08	5.00	0.00	0.00	0.00
22.95	3.54	0.08	5.00	0.00	0.00	0.00
23.00	3.54	0.08	5.00	0.00	0.00	0.00
23.05	3.54	0.08	5.00	0.00	0.00	0.00
23.10	3.54	0.08	5.00	0.00	0.00	0.00
23.15	3.54	0.08	5.00	0.00	0.00	0.00
23.20	3.54	0.08	5.00	0.00	0.00	0.00
23.25	3.54	0.08	5.00	0.00	0.00	0.00
23.30	3.54	0.08	5.00	0.00	0.00	0.00
23.35	3.54	0.08	5.00	0.00	0.00	0.00
23.40	3.54	0.08	5.00	0.00	0.00	0.00
23.45	3.54	0.08	5.00	0.00	0.00	0.00
23.50	3.54	0.08	5.00	0.00	0.00	0.00
23.55	3.54	0.08	5.00	0.00	0.00	0.00
23.60	3.54	0.08	5.00	0.00	0.00	0.00
23.65	3.54	0.08	5.00	0.00	0.00	0.00
23.70	3.54	0.08	5.00	0.00	0.00	0.00
23.75	3.54	0.08	5.00	0.00	0.00	0.00
23.80	3.54	0.08	5.00	0.00	0.00	0.00
23.85	3.54	0.08	5.00	0.00	0.00	0.00
23.90	3.54	0.08	5.00	0.00	0.00	0.00
23.95	3.54	0.08	5.00	0.00	0.00	0.00
24.00	3.54	0.08	5.00	0.00	0.00	0.00
24.05	3.54	0.08	5.00	0.00	0.00	0.00
24.10	3.54	0.08	5.00	0.00	0.00	0.00
24.15	3.54	0.08	5.00	0.00	0.00	0.00
24.20	3.54	0.08	5.00	0.00	0.00	0.00
24.25	3.54	0.08	5.00	0.00	0.00	0.00
24.30	3.54	0.08	5.00	0.00	0.00	0.00
24.35	3.54	0.08	5.00	0.00	0.00	0.00
24.40	3.54	0.08	5.00	0.00	0.00	0.00
24.45	3.54	0.08	5.00	0.00	0.00	0.00
24.50	3.54	0.08	5.00	0.00	0.00	0.00
24.55	3.54	0.08	5.00	0.00	0.00	0.00
24.60	3.54	0.08	5.00	0.00	0.00	0.00
24.65	3.54	0.08	5.00	0.00	0.00	0.00
24.70	3.54	0.08	5.00	0.00	0.00	0.00
24.75	3.54	0.08	5.00	0.00	0.00	0.00
24.80	3.54	0.08	5.00	0.00	0.00	0.00
24.85	3.54	0.08	5.00	0.00	0.00	0.00
24.90	3.54	0.08	5.00	0.00	0.00	0.00
24.95	3.54	0.08	5.00	0.00	0.00	0.00
25.00	3.54	0.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;

Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

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APPENDIX G

Date: 7/15/2016
Project: Consolidated Interim Storage Facility
Location: Andrews, Texas
Project No: 31-151247

BEARING CAPACITY CALCULATIONS

Terzaghi Bearing Capacity Formulas

for Square Foundations $q_{ult} = 1.3c'N_c + \sigma'_{ZD}N_q + 0.4\Upsilon'BN_\Upsilon$

for Continuous Foundations $q_{ult} = c'N_c + \sigma'_{ZD}N_q + 0.5\Upsilon'BN_\Upsilon$

where,

q_{ult}	=	ultimate bearing capacity
c'	=	effective cohesion for soil beneath foundation
ϕ'	=	effective friction angle for soil beneath foundation
σ'_{ZD}	=	vertical effective stress at depth D below ground surface
Υ'	=	effective unit weight of the soil
D	=	depth of foundation below ground surface
B	=	width of foundation
N_c, N_q, N_Υ	=	Terzaghi's bearing capacity factors = f(ϕ'), factors follow

Table 10 - Terzaghi Bearing Capacity Factors

ϕ' (deg)	N_c	N_q	N_Υ	ϕ' (deg)	N_c	N_q	N_Υ	ϕ' (deg)	N_c	N_q	N_Υ
11	10.2	3.0	1.2	21.0	18.9	8.3	5.1	31.0	40.4	25.3	23.7
12	10.8	3.3	1.4	22.0	20.3	9.2	5.9	32.0	44.0	28.5	28.0
13	11.4	3.6	1.6	23.0	21.7	10.2	6.8	33.0	48.1	32.2	33.3
14	12.1	4.0	1.9	24.0	23.4	11.4	7.9	34.0	52.6	36.5	39.6
15	12.9	4.4	2.2	25.0	25.1	12.7	9.2	35.0	57.8	41.4	47.3
16	13.7	4.9	2.5	26.0	27.1	14.2	10.7	36.0	63.5	47.2	56.7
17	14.6	5.5	2.9	27.0	29.2	15.9	12.5	37.0	70.1	53.8	68.1
18	15.5	6.0	3.3	28.0	31.6	17.8	14.6	38.0	77.5	61.5	82.3
19	16.6	6.7	3.8	29.0	34.2	20.0	17.1	39.0	86.0	70.6	99.8
20	17.7	7.4	4.4	30.0	37.2	22.5	20.1	40.0	95.7	81.3	121.5

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Project Specific Information:

At this time specific information regarding foundation bearing elevation and foundation width are unknown. As such bearing capacity calculations have been performed for a variety of foundation depths and widths. Once more detailed foundation information is completed, we recommend that GEOServices be allowed to re-evaluate the bearing capacity and settlement criteria provided in the report.

Table 11 - Square Foundations Bearing in the Upper Ten Feet Below Grade											
c' (psf)	ϒ'	ϕ' (deg)	N_c	N_q	N_γ	B (feet)	D (feet)	q_{ult} (psf)	FOS	Static q_{all} (psf)	Dynamic q_{all} (psf)
0	95	27	29.2	15.9	12.5	6	2	5871	3	1957	2603
0	95	27	29.2	15.9	12.5	6	3	7382	3	2461	3272
0	95	27	29.2	15.9	12.5	6	4	8892	3	2964	3942
0	95	27	29.2	15.9	12.5	6	5	10403	3	3468	4612
0	130	35	57.8	41.4	47.3	6	6	47050	3	15683	20859
0	130	35	57.8	41.4	47.3	6	7	52432	3	17477	23245
0	130	35	57.8	41.4	47.3	6	8	57814	3	19271	25631
0	130	35	57.8	41.4	47.3	6	9	63196	3	21065	28017
0	130	35	57.8	41.4	47.3	6	10	68578	3	22859	30403
0	95	27	29.2	15.9	12.5	8	2	6821	3	2274	3024
0	95	27	29.2	15.9	12.5	8	3	8332	3	2777	3694
0	95	27	29.2	15.9	12.5	8	4	9842	3	3281	4363
0	95	27	29.2	15.9	12.5	8	5	11353	3	3784	5033
0	130	35	57.8	41.4	47.3	8	6	51969	3	17323	23040
0	130	35	57.8	41.4	47.3	8	7	57351	3	19117	25426
0	130	35	57.8	41.4	47.3	8	8	62733	3	20911	27812
0	130	35	57.8	41.4	47.3	8	9	68115	3	22705	30198
0	130	35	57.8	41.4	47.3	8	10	73497	3	24499	32584
0	95	27	29.2	15.9	12.5	10	2	7771	3	2590	3445
0	95	27	29.2	15.9	12.5	10	3	9282	3	3094	4115
0	95	27	29.2	15.9	12.5	10	4	10792	3	3597	4784
0	95	27	29.2	15.9	12.5	10	5	12303	3	4101	5454
0	130	35	57.8	41.4	47.3	10	6	56888	3	18963	25220
0	130	35	57.8	41.4	47.3	10	7	62270	3	20757	27606
0	130	35	57.8	41.4	47.3	10	8	67652	3	22551	29992
0	130	35	57.8	41.4	47.3	10	9	73034	3	24345	32378
0	130	35	57.8	41.4	47.3	10	10	78416	3	26139	34764

Table 12 - Continuous Foundations Bearing in the Upper Ten Feet Below Grade											
c' (psf)	ϒ'	ϕ' (deg)	N_c	N_q	N_Y	B (feet)	D (feet)	q_{ult} (psf)	FOS	Static q_{all} (psf)	Dynamic q_{all} (psf)
0	95	27	29.2	15.9	12.5	3	2	4802	3	1601	2129
0	95	27	29.2	15.9	12.5	3	3	6313	3	2104	2799
0	95	27	29.2	15.9	12.5	3	4	7823	3	2608	3468
0	95	27	29.2	15.9	12.5	3	5	9334	3	3111	4138
0	130	35	57.8	41.4	47.3	3	6	41516	3	13839	18405
0	130	35	57.8	41.4	47.3	3	7	46898	3	15633	20791
0	130	35	57.8	41.4	47.3	3	8	52280	3	17427	23177
0	130	35	57.8	41.4	47.3	3	9	57662	3	19221	25563
0	130	35	57.8	41.4	47.3	3	10	63044	3	21015	27949
0	95	27	29.2	15.9	12.5	4	2	5396	3	1799	2392
0	95	27	29.2	15.9	12.5	4	3	6907	3	2302	3062
0	95	27	29.2	15.9	12.5	4	4	8417	3	2806	3732
0	95	27	29.2	15.9	12.5	4	5	9928	3	3309	4401
0	130	35	57.8	41.4	47.3	4	6	44590	3	14863	19768
0	130	35	57.8	41.4	47.3	4	7	49972	3	16657	22154
0	130	35	57.8	41.4	47.3	4	8	55354	3	18451	24540
0	130	35	57.8	41.4	47.3	4	9	60736	3	20245	26926
0	130	35	57.8	41.4	47.3	4	10	66118	3	22039	29312
0	95	27	29.2	15.9	12.5	5	2	5990	3	1997	2655
0	95	27	29.2	15.9	12.5	5	3	7500	3	2500	3325
0	95	27	29.2	15.9	12.5	5	4	9011	3	3004	3995
0	95	27	29.2	15.9	12.5	5	5	10521	3	3507	4664
0	130	35	57.8	41.4	47.3	5	6	47665	3	15888	21131
0	130	35	57.8	41.4	47.3	5	7	53047	3	17682	23517
0	130	35	57.8	41.4	47.3	5	8	58429	3	19476	25903
0	130	35	57.8	41.4	47.3	5	9	63811	3	21270	28289
0	130	35	57.8	41.4	47.3	5	10	69193	3	23064	30675

Note: As can be seen above, the allowable bearing capacity varies significantly with foundation bearing depth. You will also note that the calculated allowable bearing capacities often exceed those provided in the text of the report. Typically, on structures which are supported on shallow foundations bearing capacity (of the soil) does not control the foundation size. Typically, settlement values are the controlling factor in the selected design allowable bearing capacity and foundation depth. Once the foundation loads and bearing elevations are finalized the bearing capacity and subsequent settlements should be verified (by GEOServices) and provided to the structural engineer to verify compliance.

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