

APPENDIX B1.3

ANALYTICAL TEST RESULTS VALIDATION REPORT

NECR MINE AND CHURCH ROCK MILL SITE

MWH

APPENDIX B1.3

DATA VERIFICATION SOIL 2013 SOIL SAMPLING

Introduction. Soil samples were collected at the Northeast Church Rock Mine Site October 29 through December 12, 2013. The following paragraphs summarize the results of the data verification. Radium-226 and Uranium analyses had 10% Level IV verification performed. All other analytes had Level II or III verification.

Analytical Procedures and Detection Limits. All samples were analyzed in accordance with the methodology, detection limits, and quality control (QC) criteria specified in the project *Quality Assurance Project Plan*, United Nuclear Corporation, Northeast Church Rock Site (QAPP; MWH, 2013). Energy Laboratories of Casper, Wyoming provided analytical services.

A summary of qualified data is presented in Table B1.4-1. Table B1.4-2 summarizes data with QC outside acceptance criteria that did not result in data qualification.

Holding times were evaluated. All holding times met method criteria with the exceptions listed in Table B1.4-1 with “HT” as the QC type.

Initial calibration, initial calibration verification (ICV), and continuing calibration criteria were evaluated for uranium. All calibration criteria were met. Calibration data were reproducible for uranium. There is no calibration for EPA method 901.1 for radium-226.

All metals ICV, interference check samples and serial dilutions met acceptance criteria.

Laboratory control samples (LCS) and laboratory fortified blank samples (LFB) (where applicable) met acceptance criteria with the exceptions listed in Table B1.4-1 with “LCS” as the QC type.

Method blanks met acceptance criteria with the exceptions listed in Table B1.4-2 with “MB” as the QC type.

Six field duplicate (FD) samples were collected. All FD criteria were met with the exceptions listed in Table B1.4-1 with “FD” as the QC type.

Laboratory selected batch replicates and matrix spike (MS) and or MS/matrix spike duplicate (MSD) analyses met acceptance criteria with the exceptions listed in Table B1.4-2 with “MS” and/or “MSD” as the QC type.

All uranium and radium-226 results were reproducible and matched the laboratory report.

Dilutions were required during metals and uranium analyses due to the high concentrations of analyte(s). The affected sample results are flagged with a “D” to indicate sample dilution.

Conclusions. Based on the results of the data verification, the data are considered precise, accurate, and representative, as qualified. Analytical completeness for this sampling round is 100 percent.

TABLE B1.3-1
SUMMARY OF QUALIFIED DATA
NORTHEAST CHURCH SITE
(Page 1 of 2)

Location Identification	Field Identification	Sample Date	Analysis	Analyte	Sample Result	Sample Units	QC Type	QC Result	Qualifier	Bias	Comment
P1-CC04-002	P1-CC04-002	11-Nov-13	SW6020	Uranium	2110	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC04-003	P1-CC04-003	11-Nov-13	SW6020	Uranium	176	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC05-003	P1-CC05-003	11-Nov-13	SW6020	Uranium	174	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC07-002	P1-CC07-002	12-Nov-13	SW6020	Uranium	209	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC07-003	P1-CC07-003	12-Nov-13	SW6020	Uranium	183	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC08-001	P1-CC08-001	12-Nov-13	SW6020	Uranium	434	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC08-002	P1-CC08-002	12-Nov-13	SW6020	Uranium	70.7	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC10-003	P1-CC10-003	12-Nov-13	SW6020	Uranium	1220	mg/kg	FD	144%	J	None	Datum is estimated; bias unknown. Field duplicate RPD outside acceptance criteria.
P1-CC11-004	P1-CC11-004	12-Nov-13	SW6020	Uranium	3190	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC12-004	P1-CC12-004	12-Nov-13	SW6020	Uranium	393	mg/kg	FD	138%	J	None	Datum is estimated; bias unknown. Field duplicate RPD outside acceptance criteria.
P1-CC13-002	P1-CC13-002	12-Nov-13	SW6020	Uranium	1330	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
SP-CC04-004	SP-CC04-004	1-Nov-13	SW6020	Uranium	108	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
SP-CC08-001	SP-CC08-001	4-Nov-13	SW6020	Uranium	231	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
SP-CC08-002	SP-CC08-002	4-Nov-13	SW6020	Uranium	184	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
SP-CC10-003 Dup	SP-CC10-203	4-Nov-13	SW6020	Uranium	104	mg/kg	LCS	126%	J+	High	Datum is estimated; potential high bias.
SP-CC11-002	SP-CC11-002	4-Nov-13	SW6020	Uranium	206	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
TPH-01	TPH-01	12-Nov-13	SW846 Ch 7	Sulfide, Reactive	<20	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
TPH-02	TPH-02	13-Nov-13	SW846 Ch 7	Sulfide, Reactive	<20	mg/kg	HT	9 days	J-	Low	Potential false negative. Holding time exceeded.

TABLE B1.3-1
SUMMARY OF QUALIFIED DATA
NORTHEAST CHURCH SITE
 (Page 2 of 2)

Location Identification	Field Identification	Sample Date	Analysis	Analyte	Sample Result	Sample Units	QC Type	QC Result	Qualifier	Bias	Comment
P1-CC10-003	TPH-P1-CC10-003	12-Nov-13	SW6020	Uranium	197	mg/kg	LCS	126%	J+	High	Datum is estimated; potential high bias.
P1-CC10-003	TPH-P1-CC10-003	12-Nov-13	SW846 Ch 7	Sulfide, Reactive Uranium	<20	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
P1-CC11-004	TPH-P1-CC11-004	12-Nov-13	SW6020	Uranium	2940	mg/kg	LCS	126%	J+	High	Datum is estimated; potential high bias.
P1-CC11-004	TPH-P1-CC11-004	12-Nov-13	SW846 Ch 7	Sulfide, Reactive Uranium	<20	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
TPH-P1-CC11-005	TPH-P1-CC11-005	12-Nov-13	SW6020	Uranium	1310	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
TPH-P1-CC11-005	TPH-P1-CC11-005	12-Nov-13	SW846 Ch 7	Sulfide, Reactive Uranium	22	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
P1-CC12-004	TPH-P1-CC12-004	12-Nov-13	SW6020	Uranium	72.7	mg/kg	LCS	121%	J+	High	Datum is estimated; potential high bias.
P1-CC12-004	TPH-P1-CC12-004	12-Nov-13	SW846 Ch 7	Sulfide, Reactive Uranium	26	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
TPH-P1-CC13-003	TPH-P1-CC13-003	12-Nov-13	SW6020	Uranium	1090	mg/kg	LCS	126%	J+	High	Datum is estimated; potential high bias.
TPH-P1-CC13-003	TPH-P1-CC13-003	12-Nov-13	SW846 Ch 7	Sulfide, Reactive Uranium	30	mg/kg	HT	10 days	J-	Low	Potential false negative. Holding time exceeded.
TOPSOIL STOCKPILE	Topsoil Stockpile	21-Nov-13	E901.1	Radium-226	1	pCi/g	FD	35%	J	None	Datum is estimated; bias unknown.

mg/kg milligrams per kilogram
 pCi/g picocuries per gram
 D Sample dilution required for analysis; reported values reflect the dilution.
 FD field duplicate
 HT holding time
 LCS laboratory control standard
 QC quality control

TABLE B1.3-2
SUMMARY OF NON-CONFORMING DATA
NORTHEAST CHURCH SITE
 (Page 1 of 1)

Location Identification	Field Identification	Sample Date	Analysis	Analyte	Sample Result	Sample Units	QC Type	QC Result	Bias	Comment
P1-CC12-004	P1-CC12-004	12-Nov-13	SW6020	Uranium	393	mg/kg	MS/MSD	NC	None	Sample concentration >4X spike concentration. Recovery not evaluated.
SP-CC11-002	SP-CC11-002	4-Nov-13	SW6020	Uranium	206	mg/kg	MS/MSD	NC	None	Sample concentration >4X spike concentration. Recovery not evaluated.
P1-CC12-004	TPH-P1-CC12-004	12-Nov-13	SW6010B	Barium	2	mg/l	MB/MS	0.2 mg/l/NC	None	Analyte detected in an associated blank. Sample concentration > 50X blank concentration. Sample concentration >4X spike concentration; MS not evaluated.

mg/kg	milligrams per kilogram
mg/l	milligrams per liter
NC	not calculated
MB	method blank
MS	matrix spike
MSD	matrix spike duplicate
QC	quality control

APPENDIX B2

FIELD LOGS AND PHOTOGRAPHS

APPENDIX B2.1

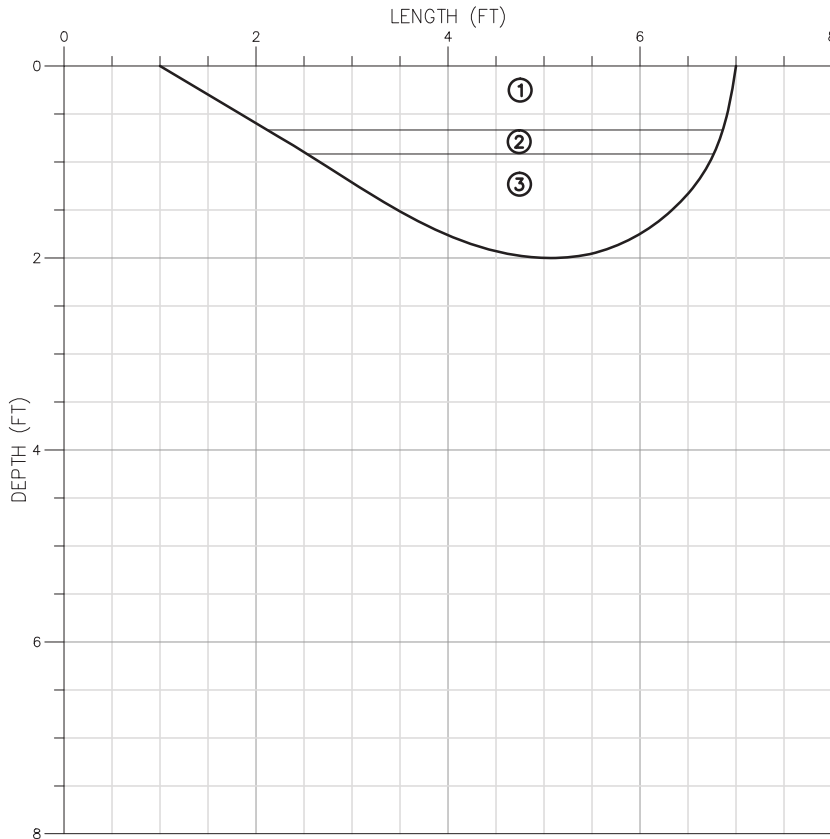
TAILINGS IMPOUNDMENT COVER TEST PIT LOGS

TEST PIT LOG


PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/12/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-1



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS01-01	0-8"	BAG
TI-CS01-02A,B	0-11"	BUCKETS
TI-CS01-03	11-24"	BAG
TI-CS01-04A,B	11-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~6'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|------------|--|
| ① (0-8") | <u>SANDY CLAY</u> - LIGHT BROWN, FIRM, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, SOME ROOTS. |
| ② (8-11") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS. |
| ③ (11-24") | <u>SANDY CLAY</u> - DARK BROWN, HARD, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-2.



MWH

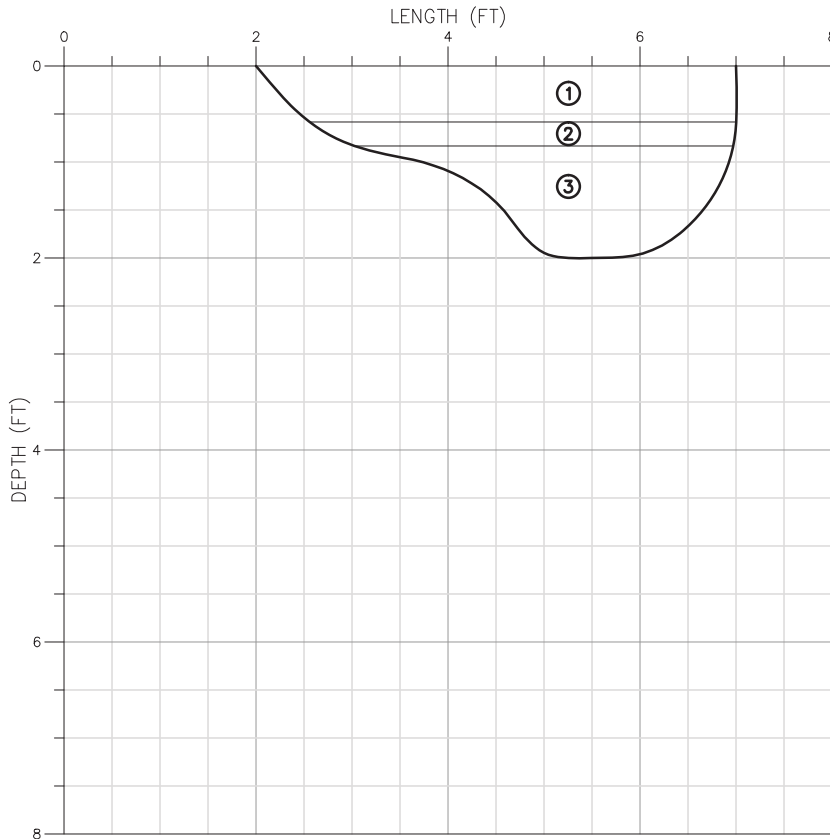
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/12/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-2



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS02-01	0-7"	BAG
TI-CS02-02A,B	0-10"	BUCKETS
TI-CS02-03	10-24"	BAG
TI-CS02-04A,B	10-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~6'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- ① (0-7") SANDY CLAY - LIGHT BROWN, SOFT TO FIRM, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, SOME ROOTS.
- ② (7-10") ROCK - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS.
- ③ (10-24") SANDY CLAY - BROWN, HARD, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED.

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-23.



MWH

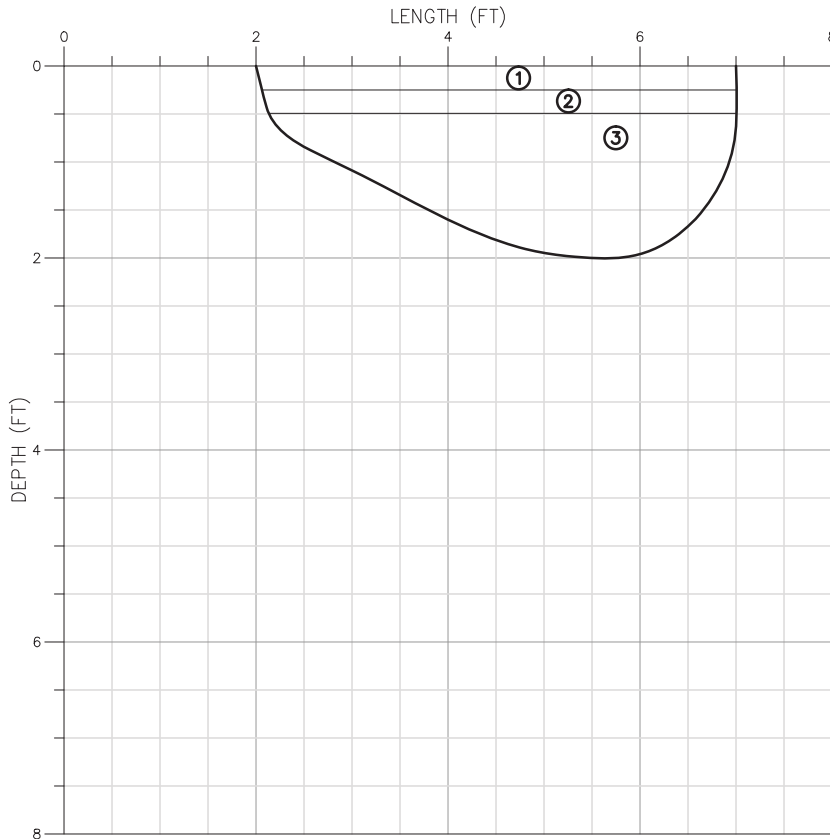
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/12/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-3



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS03-01	0-3"	BAG
TI-CS03-02A,B	0-6"	BUCKETS
TI-CS03-03	6-24"	BAG
TI-CS03-04A,B	6-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~5'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|--|
| ① (0-3") | <u>SANDY CLAY</u> - BROWN, SOFT TO FIRM, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS. |
| ② (3-6") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS. |
| ③ (6-24") | <u>SANDY CLAY</u> - BROWN, FIRM TO HARD, DRY SANDY CLAY, SILTY, SAND IS VERY FINE TO FINE-GRAINED. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-4.



MWH

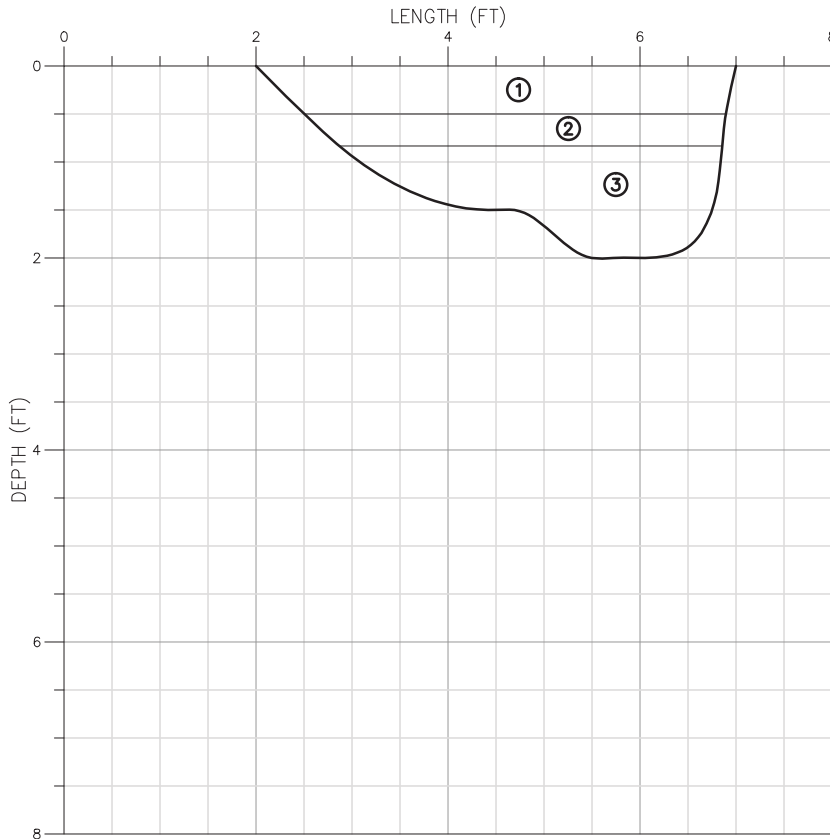
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/12/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-4



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS04-01	0-6"	BAG
TI-CS04-02A,B	0-10"	BUCKETS
TI-CS04-03	10-24"	BAG
TI-CS04-04A,B	10-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~5'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|------------|---|
| ① (0-6") | <u>SANDY CLAY</u> - BROWN, SOFT, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS. |
| ② (6-10") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS. |
| ③ (10-24") | <u>SANDY CLAY</u> - DARK BROWN, FIRM, MOIST TO VERY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-7.



MWH

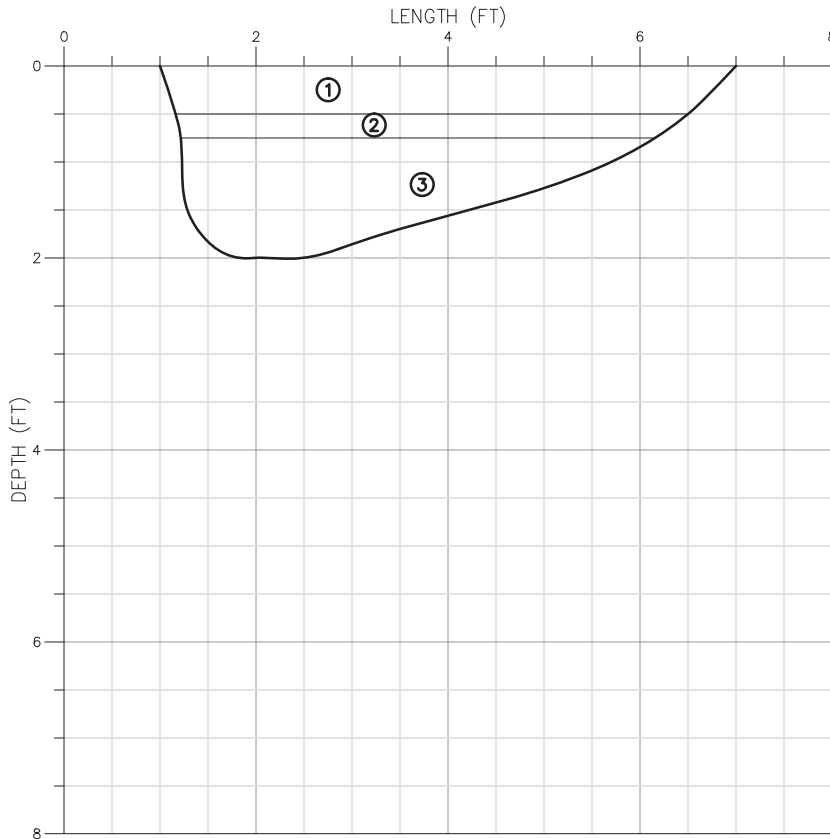
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: W

DATE: 11/12/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-5



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS05-01	0-6"	BAG
TI-CS05-02A,B	0-9"	BUCKETS
TI-CS05-03	9-24"	BAG
TI-CS05-04A,B	9-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~6'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|---|
| ① (0-6") | <u>SANDY CLAY</u> - BROWN, SOFT, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS. |
| ② (6-9") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE. |
| ③ (9-24") | <u>SANDY CLAY</u> - BROWN, HARD, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-15.



MWH

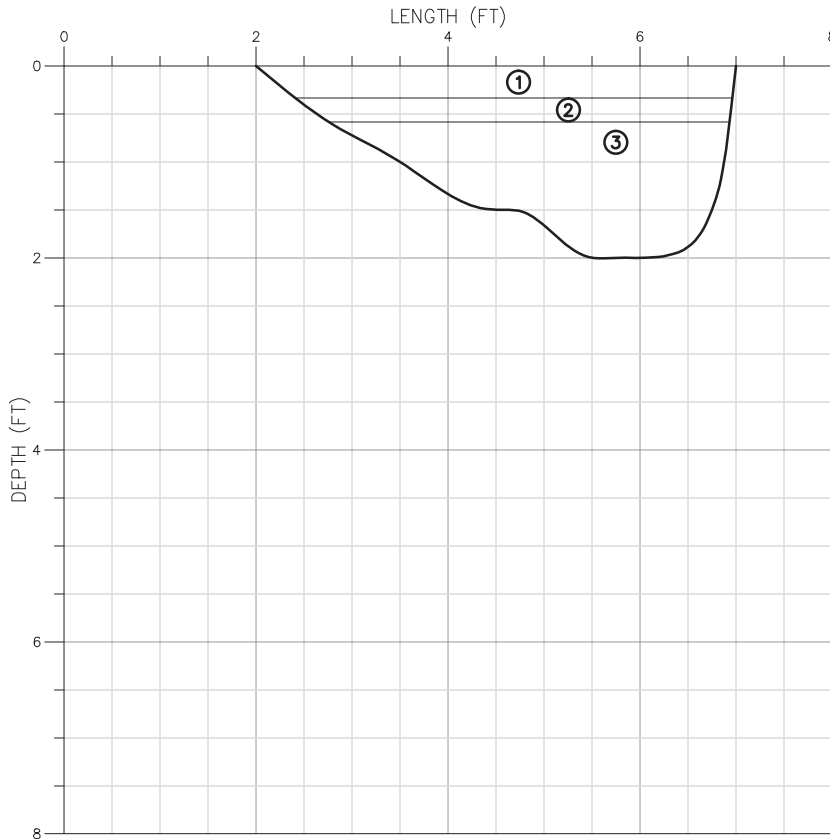
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-6



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS06-01	0-4"	BAG
TI-CS06-02A,B	0-7"	BUCKETS
TI-CS06-03	7-24"	BAG
TI-CS06-04A,B	7-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~5'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|---|
| ① (0-4") | <u>SANDY CLAY</u> - BROWN, SOFT TO FIRM, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE TO FINE-GRAINED, SOME ROOTS. |
| ② (4-7") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS. |
| ③ (7-24") | <u>SANDY CLAY</u> - DARK BROWN, HARD, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE TO FINE-GRAINED, OCCASIONAL COARSE SAND. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-21.



MWH

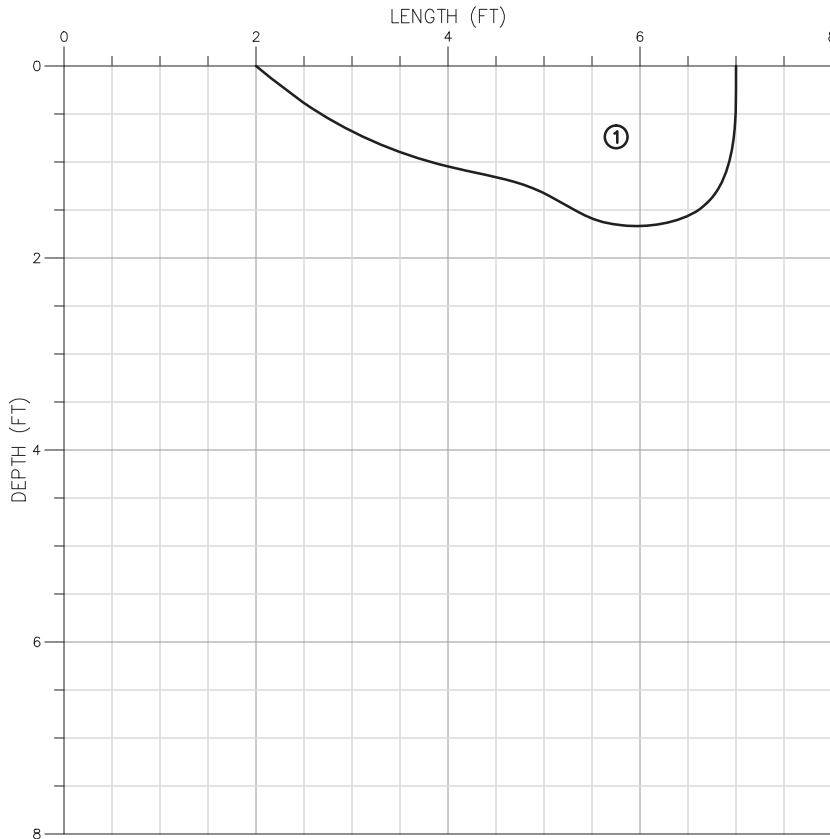
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-7



LEGEND

— CONTACT
 ▽ GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS07-01	0-6"	BAG
TI-CS07-02A,B	0-20"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~5'
 PIT DEPTH: 20"

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

① (0-20")

SANDY CLAY - BROWN, SOFT TO FIRM (0-6"), HARD (6-20"), MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS FROM 0-6".

(APPEARS TO BE UNDISTURBED NATURAL GROUND.)

SPECIAL NOTES:



MWH

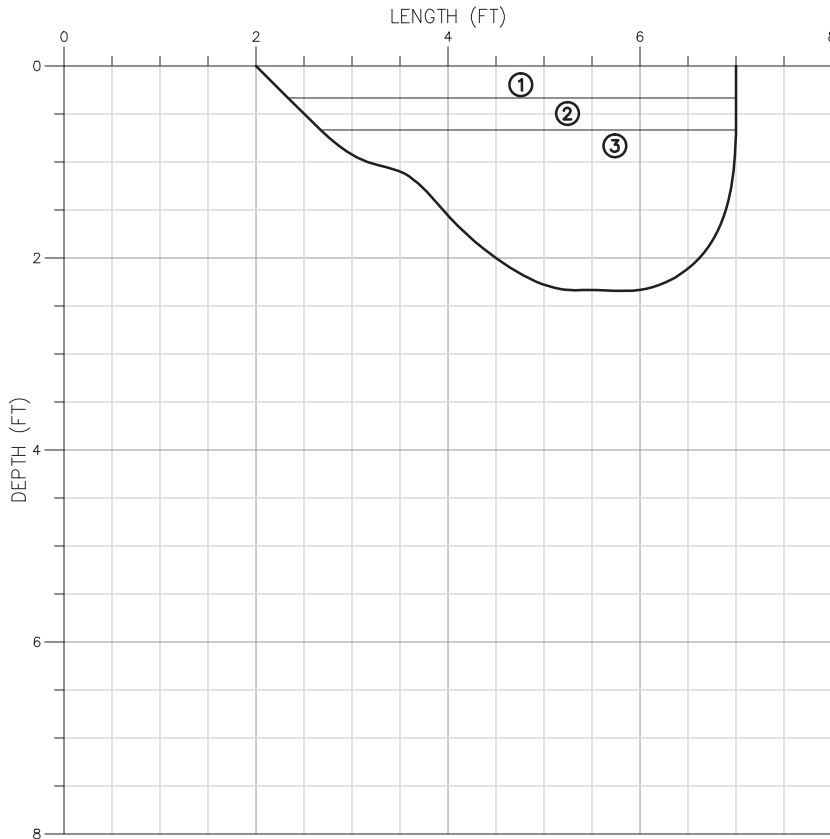
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: E-W
 PIT FACED LOGGED: S

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-8



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS08-01	0-4"	BAG
TI-CS08-02A,B	0-8"	BUCKETS
TI-CS08-03	8-28"	BAG
TI-CS08-04A,B	8-28"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: 5'
 PIT DEPTH: 28"

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|---|
| ① (0-4") | <u>SANDY CLAY</u> - BROWN, SOFT TO FIRM, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS VERY FINE TO FINE-GRAINED, ROOTS. |
| ② (4-8") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS. |
| ③ (8-28") | <u>SANDY CLAY</u> - DARK BROWN, HARD, MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, OCCASIONAL COARSE SAND. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-12.



MWH

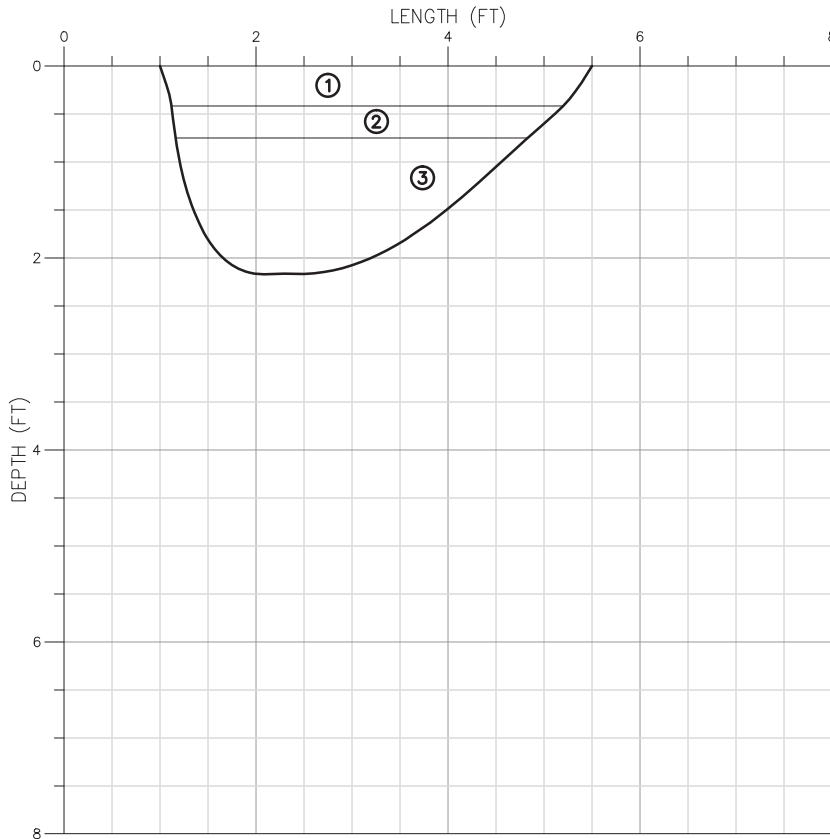
CHURCH ROCK MILL SITE

TEST PIT LOG


PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: N-S
 PIT FACED LOGGED: E

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-9



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS09-01	0-5"	BAG
TI-CS09-02A,B	0-9"	BUCKETS
TI-CS09-03	9-26"	BAG
TI-CS09-04A,B	9-26"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~4.5'
 PIT DEPTH: 26"

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|---|
| ① (0-5") | <u>SANDY CLAY</u> - BROWN, SOFT TO FIRM, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS FINE-GRAINED, OCCASIONAL COARSE SAND, ROOTS. |
| ② (5-9") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE. |
| ③ (9-26") | <u>SANDY CLAY</u> - BROWN, HARD TO VERY HARD, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, OCCASIONAL COARSE SAND TO FINE GRAVEL. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-9.



MWH

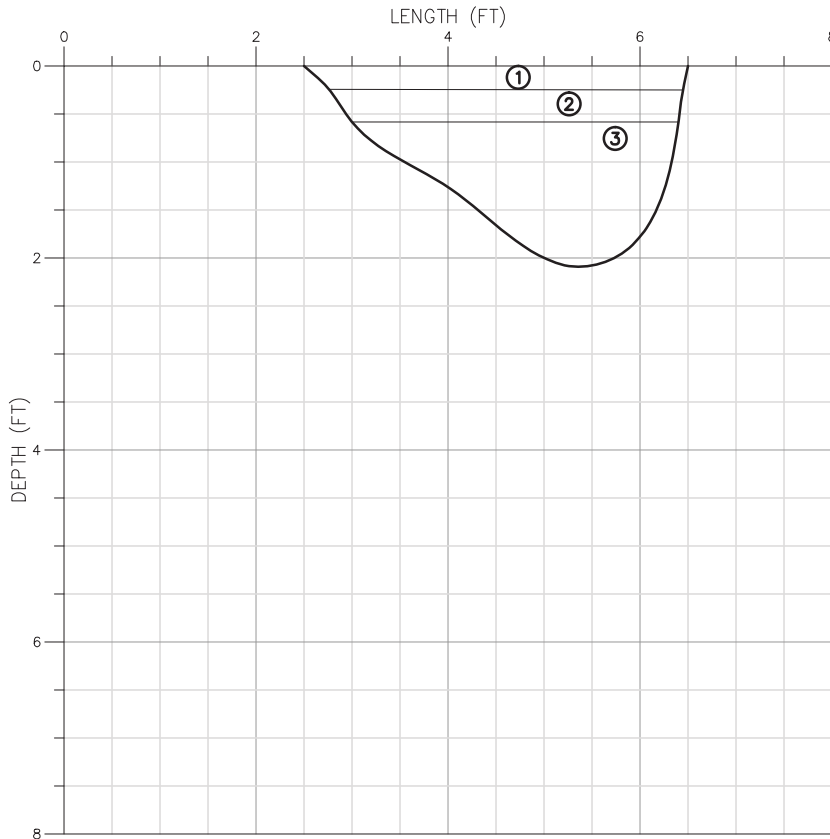
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: NW-SE
 PIT FACED LOGGED: NE

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-10



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS10-01	0-3"	BAG
TI-CS10-02A,B	0-7"	BUCKETS
TI-CS10-03	7-25"	BAG
TI-CS10-04A,B	7-25"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~4'
 PIT DEPTH: 25"

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

- | | |
|-----------|---|
| ① (0-3") | <u>SANDY CLAY</u> - BROWN, FIRM, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, OCCASIONAL FINE TO COARSE SAND, ROOTS. |
| ② (3-7") | <u>ROCK</u> - CRUSHED BASALT, 1/2" TO 3" SIZE, SOIL IN VOIDS. |
| ③ (7-25") | <u>SANDY CLAY</u> - DARK BROWN, HARD, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, OCCASIONAL MEDIUM TO COARSE SAND. |

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-6.



MWH

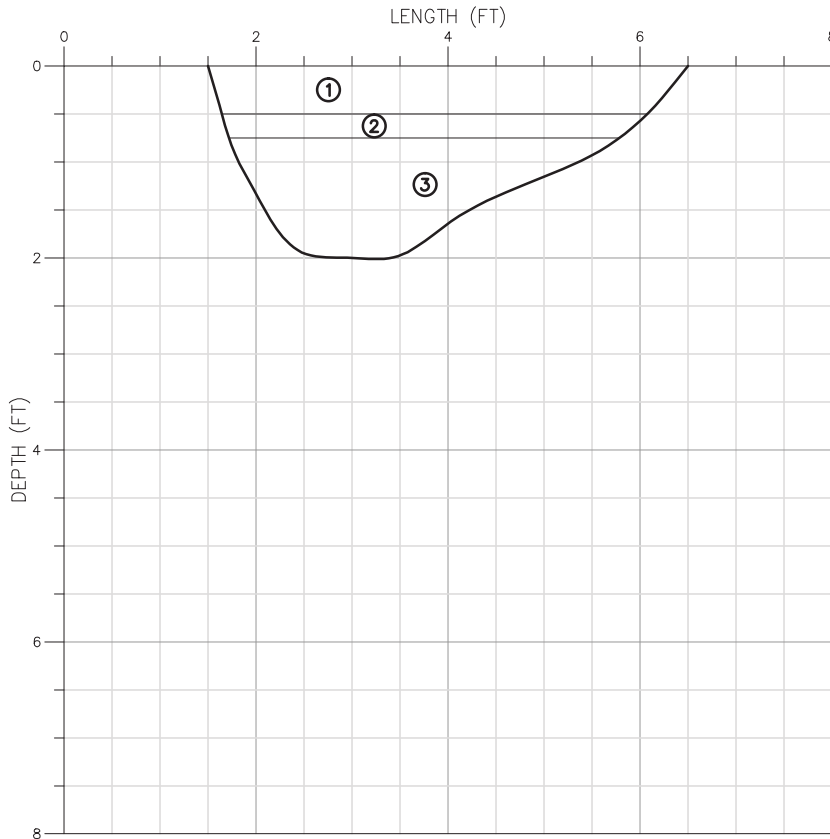
CHURCH ROCK MILL SITE

TEST PIT LOG


PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: NW-SE
 PIT FACED LOGGED: SW

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-11



LEGEND

— CONTACT
 GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS11-01	0-6"	BAG
TI-CS11-02A,B	0-9"	BUCKETS
TI-CS11-03	9-24"	BAG
TI-CS11-04A,B	9-24"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~5'
 PIT DEPTH: 2'

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

① (0-6")

SANDY CLAY - BROWN, SOFT, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS.

② (6-9")

ROCK - CRUSHED BASALT, 1/2" TO 3" SIZE, SANDY CLAY IN VOIDS.

③ (9-24")

SANDY CLAY - DARK BROWN, HARD, SLIGHTLY MOIST TO MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED.

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-5.



MWH

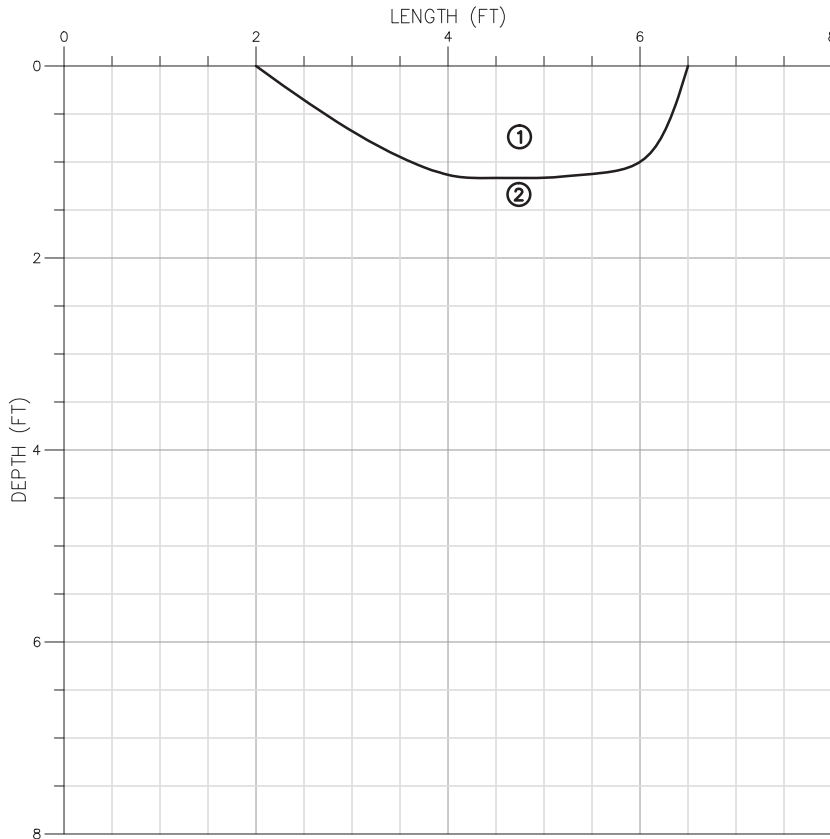
CHURCH ROCK MILL SITE

TEST PIT LOG

PROJECT: NECR PRE-DESIGN
 GENERAL LOCATION: TAILINGS IMPOUNDMENT
 PIT TREND: NW-SE
 PIT FACED LOGGED: NE

DATE: 11/13/13
 FIELD ENGINEER: R. SCHAUT
 EXCAVATOR: RICK SPITZ
 CONTRACTOR: AMEC

TEST PIT
 NO:
CS-12



LEGEND

— CONTACT
 ▽ GROUNDWATER LEVEL

SAMPLE No.	DEPTH	TYPE
TI-CS12-01	0-14"	BAG
TI-CS12-02A,B	0-14"	BUCKETS

PIT WIDTH: 2.5'
 PIT LENGTH: ~4.5'
 PIT DEPTH: 14"

SOIL UNIT

SOIL DESCRIPTION AND EXCAVATION NOTES

① (0-14")

SANDY CLAY - BROWN, SOFT, SLIGHTLY MOIST SANDY CLAY, SILTY, SAND IS VERY FINE-GRAINED, ROOTS.

② (14" →)

ROCK - UNABLE TO PENETRATE.

SPECIAL NOTES:

LOCATED ADJACENT TO CPT-25.



MWH

CHURCH ROCK MILL SITE

APPENDIX B2.2

TAILINGS IMPOUNDMENT COVER TEST PIT PHOTOGRAPHS



Typical Test Pit, Before Sampling (CS-2)
11/12/13



Typical Backhoe Excavation (CS-3)
11/12/13



Typical Backfill Compaction (CS-2)
11/12/13



Typical Test Pit, After Sampling (CS-2)
11/12/13



CS-1 Soil Profile
11/12/13



CS-2 Soil Profile
11/12/13



CS-3 Soil Profile
11/12/13



CS-4 Soil Profile
11/12/13



CS-5 Soil Profile
11/12/13



CS-6 Soil Profile
11/13/13



CS-7 Soil Profile
11/13/13



CS-8 Soil Profile
11/13/13



CS-9 Soil Profile
11/13/13



CS-10 Soil Profile
11/13/13






CS-11 Soil Profile
11/13/13



CS-12 Soil Profile
11/13/13




APPENDIX B2.3

TAILINGS IMPOUNDMENT DRILLING LOGS

		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B1	
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION					
CONTRACTOR INFORMATION		DRILL RIG INFORMATION		BOREHOLE INFORMATION			
DRILLING COMPANY: NATIONAL		DRILLING RIG: CME 85 HD		BIT TYPE: N/A		CASING DEPTH: N/A	
DRILLER: M. CAIN		DRILLING METHOD: HSA/CC		AUGER O.D.: 8.25"		SURFACE ELEV. (FT): 6969.7	
DRILLER'S HELPER: J. RAMIREZ		HAMMER TYPE: AUTO		HOLE DIAM.: 8.25"		FINISH: 11/21/2013	
LOGGED BY: R. SCHAUT		HAMMER WT: 140 lb		CORE DIAM.: 3.0"		DEPTH TO BEDROCK (FT): N/A	
						TOTAL DEPTH (FT): 70.0	
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA			
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS
							GRAPHIC
							WATER CONT. (%)
							DRY DENSITY (PCF)
							SPECIFIC GRAVITY
							ATTERBERG LIMITS (LL/PL/PI)
							% GRAVEL
							% SAND
							% FINES
							SAT. HYD. COND. (cm/s)
							CONSOLIDATION (Co)
							TRIAxIAL (PHI, C (PSF))
14"					NA	(0' - 8") SILTY CLAY (FILL) - Light brown, soft, moist silty clay, trace to few very fine to fine sand.	
1						(8" - 12") ROCK - 1/2" to 3" crushed basalt.	
2						(1' - 18.5') SILTY CLAY WITH SAND (FILL) - Dark brown, firm to hard, slightly moist silty clay, little to some very fine to fine sand, occasional coarse sand and gravel (upper ~5' may be compacted radon barrier).	
3							
4						[0 - 5' Core not retained.]	
5	24"	CA 18"	1C	8			
6			1B	9			
7		AC	2	11			
8							
9							
10	30"	CA 18"	3C	10		[Below ~10', occasional elevated rad readings indicating possible sand tailings mixed with silty clay fill.]	
11			3B	12			
12			3A	14		(~11' - ~11.5') 1/2" to 1" gravel observed.	
13		AC	4				






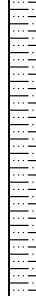
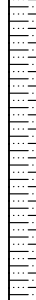


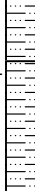


LEGEND:
 CA = CALIFORNIA SAMPLE (2-INCH OD)
 ST = SHELBY TUBE (3-INCH OD)
 AC = ACRYLIC LINER
 HSA = HOLLOW-STEM AUGER
 CC = CONTINUOUS CORE
 NR = NO RECOVERY




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

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B1			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION									
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA				
		MATERIAL DESCRIPTION									

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




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

		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B1											
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
DEPTH (FT)	FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA											
	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
28	30"	AC	10	NA	(29.6' - 34.3') Very fine grained sand tailings, abundant clayey zones.	CL											
29																	
30	36"	CA 18 ⁺	11C	5				13.9									
31			11B	5				14.6	91.6						3.0E-7	0.092	
32			11A	4	(34.3' - ~41') CLAYEY SAND - Loose to medium dense, very moist to wet, very fine-grained clayey sand, increasing clay content with depth.	CL		41.6	76.5	2.69	44/17/27	0.0	30.9	69.1			33.3
33																	
34																	
35	40"	CA 18 ⁺	13C	7													
36			13B	20	(35' - 36.5') High blow counts due to rock in CA shoe.												
37			13A	22													
38																	
39																	
40	42"	CA 18 ⁺	15C	3	(35' - 36.5') High blow counts due to rock in CA shoe.												
41			15B	5													
42			15A	5													
43																	
44					(35' - 36.5') High blow counts due to rock in CA shoe.												
45																	
46																	
47																	
48					(35' - 36.5') High blow counts due to rock in CA shoe.												
49																	
50																	
51																	
52					(35' - 36.5') High blow counts due to rock in CA shoe.												
53																	
54																	
55																	
56					(35' - 36.5') High blow counts due to rock in CA shoe.												
57																	
58																	
59																	
60					(35' - 36.5') High blow counts due to rock in CA shoe.												
61																	
62																	
63																	
64					(35' - 36.5') High blow counts due to rock in CA shoe.												
65																	
66																	
67																	
68					(35' - 36.5') High blow counts due to rock in CA shoe.												
69																	
70																	
71																	
72					(35' - 36.5') High blow counts due to rock in CA shoe.												
73																	
74																	
75																	
76					(35' - 36.5') High blow counts due to rock in CA shoe.												
77																	
78																	
79																	
80					(35' - 36.5') High blow counts due to rock in CA shoe.												
81																	
82																	
83																	
84					(35' - 36.5') High blow counts due to rock in CA shoe.												
85																	
86																	
87																	
88					(35' - 36.5') High blow counts due to rock in CA shoe.												
89																	
90																	
91																	
92					(35' - 36.5') High blow counts due to rock in CA shoe.												
93																	
94																	
95																	
96					(35' - 36.5') High blow counts due to rock in CA shoe.												
97																	
98																	
99																	
100					(35' - 36.5') High blow counts due to rock in CA shoe.												
101																	
102																	
103																	
104					(35' - 36.5') High blow counts due to rock in CA shoe.												
105																	
106																	
107																	
108					(35' - 36.5') High blow counts due to rock in CA shoe.												
109																	
110																	
111																	
112					(35' - 36.5') High blow counts due to rock in CA shoe.												
113																	
114																	
115																	
116					(35' - 36.5') High blow counts due to rock in CA shoe.												
117																	
118																	
119																	
120					(35' - 36.5') High blow counts due to rock in CA shoe.												
121																	
122																	
123																	
124					(35' - 36.5') High blow counts due to rock in CA shoe.												
125																	
126																	
127																	
128					(35' - 36.5') High blow counts due to rock in CA shoe.												
129																	
130																	
131																	
132					(35' - 36.5') High blow counts due to rock in CA shoe.												

		CLIENT:		 		BORING LOG		BOREHOLE ID:		TI-B1			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION											
		FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA					
		MATERIAL DESCRIPTION											

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

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

		CLIENT:		 		BORING LOG		BOREHOLE ID:										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION						TI-B1										
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA												
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
60"					NA													
58																		
59																		
60	60"	CA 18"		5														
		20B		8														
61		20A		12														
62																		
63																		
64																		
65	60"	CA 18"		5														
		21B		7														
66		21A		11														
67																		
68						(68.2' - E.O.B.) SILTY SAND - Brown, silty, moist very fine to fine sand.												
69																		
70						E.O.B. at 70.0'												
71																		
LEGEND:						NOTES:												
CA = CALIFORNIA SAMPLE (2-INCH OD)						Rad levels measured with Ludlum Model 2 meter. Hole backfilled with cement/bentonite grout.												
ST = SHELBY TUBE (3-INCH OD)																		
AC = ACRYLIC LINER																		
HSA = HOLLOW-STEM AUGER																		
CC = CONTINUOUS CORE																		
NR = NO RECOVERY																		
Page 5 of 5																		



CONTRACTOR INFORMATION

DRILLING COMPANY: NATIONAL

DRILL RIG INFORMATION

DRILLING RIG: CME 85 HD

BIT TYPE: N/A

AUGER O.D.: 8.25"

HAMMER TYPE: AUTO

HOLE DIAM.: 8.25"

LOGGED BY: R. SCHAUT

HAMMER WT: 140 lb

CORE DIAM.: 3.0"

TOTAL DEPTH (FT): 38.7

START: 11/20/2013

SURFACE ELEV. (FT): 6959.9	FINISH: 11/21/2013
----------------------------	--------------------

DEPTH TO BEDROCK (FT):	33.5
------------------------	------

TOTAL DEPTH (FT): 38.7













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LEGEND:

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

NOTES:

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

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B2									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA													
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
14-15	40"	AC 7			tailings, very fine silty sand from 12.8' to 13.2', fine to medium sand from 13.2' to 15'.			39.6				0.0	23.1	76.9			
15-16	42"	CA 18" 8C	5		(15' - 25.7') SILTY SAND - Brown, medium dense, moist silty very fine to fine sand, occasional roots. Appears to be natural "alluvium." Occasional dark brown clay lenses. Rad levels ~ background.			6.9	90.4	2.68							
		8B	5														
16-17		8A	7														
		AC 9															
17-18		AC 10															
19-20																	
20-21	42"	CA 18" 11C	4														
		11B	4														
21-22		11A	6					7.0	91.4	2.74		0.0	82.9	17.1			
		AC 12															
22-23		AC 13															
23-24																	
24-25																	
25-26	48"	CA 18" 14C	5														
		14B	6														
26-27		14A	6		(25.7' - 33.5') SILTY CLAY - Dark brown, moist, firm to hard, silty clay, trace to few very fine to fine sand, occasional coarse sand.	CL		23.5	93.2		34/16/18	0.0	20.9	79.1			

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

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




Page 2 of 3

LEGEND:

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

NOTES:




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

		CLIENT:		  P.O. BOX 9877 Gallup, New Mexico 87309-0277		BORING LOG		BOREHOLE ID: TI-B2										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
28-48"																		
29																		
30	54"	CA 18"	15C	6														
			15B	11														
31			15A	12														
32						(32' - 33.5') Softer (soft to firm).												
33																		
34						(33.5' - 38.7') WEATHERED SANDSTONE - Mottled pale yellow and reddish orange, moist, fissile, lightly cemented, very fine to fine sand.												
35	48"	NR		50/1"														
36																		
37																		
38																		
39				16		Bag sample of SS Core. E.O.B. = 38.7' (Practical Auger Refusal)			13.5	X								
40																		
41																		
42																		

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




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

Page 3 of 3

		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B3														
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																		
CONTRACTOR INFORMATION		DRILL RIG INFORMATION		BOREHOLE INFORMATION																
DRILLING COMPANY: NATIONAL		DRILLING RIG: CME 85 HD		BIT TYPE: N/A		CASING DEPTH: N/A														
DRILLER: M. CAIN		DRILLING METHOD: HSA/CC		AUGER O.D.: 8.25"		SURFACE ELEV. (FT): 6968.6														
DRILLER'S HELPER: J. RAMIREZ		HAMMER TYPE: AUTO		HOLE DIAM.: 8.25"		FINISH: 11/19/2013														
LOGGED BY: R. SCHAUT		HAMMER WT: 140 lb		CORE DIAM.: 3.0"		DEPTH TO BEDROCK (FT): N/A														
TOTAL DEPTH (FT): 70.0																				
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA																
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION			USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Co)	TRIAxIAL (Phi, C (PSF))
31"						(0' - 0.8') SANDY CLAY - Brown, hard, slightly moist sandy clay, silty, sand is fine-grained.														
1						(0.8' - 10.8') GRAVELLY SAND - Pale yellow, dense, slightly moist gravelly very fine to medium sand.														
2																				
3																				
4																				
5	33"	CA 7"		18		[Sample loose - not retained.]														
6				50/6"																
7																				
8																				
9																				
10	50"	CA 18"	1C	30																
			1B	34																
11			1A	43		(10.8' - 16.8') SILTY SAND - Yellow/orange, dense, moist very fine to fine sand, silty, occasional gravel.					5.1	108.4	2.64		5.4	74.7	19.9			
12																				
13																				

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

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

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B3									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
50"																	
14																	
15	38"	CA 18"	2C	18													
			2B	21													
16			2A	28				4.7	105.3								
17					(16.8' - 46.5') SANDY CLAY - Dark brown, firm to hard, moist sandy clay, very fine to fine sand.												
18																	
19																	
20	50"	ST 28.5'		3													
21						CL		16.0	111.1		30/12/18	0.0	32.8	67.2			32.2, 195
22																	
23					(22.6' - 26') More sand and gravel.												
24																	
25	52"	CA 18"	4C	10													
			4B	12													
26			4A	16		CL		12.0	106.8		25/13/12						
27																	




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

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

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






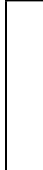
NOTES:
 Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

		CLIENT:				 P.O. BOX 9871 Gallup, New Mexico 87301-0271		BORING LOG		BOREHOLE ID: TI-B3			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION											
		FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA					
		MATERIAL DESCRIPTION											

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

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

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B3									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
57"																	
43																	
44																	
45	48"	CA 17"	6														
		8B	7					17.0	110.1								
46		8A	12					18.0	104.8		28/13/15						29.3, 293
47					(46.5' - ~55') SILTY/CLAYEY SAND - Brown, loose, very moist to wet, silty/clayey very fine sand.												
48																	
49																	
50	27"	CA 17"	9C	2	["B" and "C" samples are best.]												
		9B	3														
51		9A	6														
52																	
53																	
54																	
55	30"	ST 24"	10		(~55' - 57.3') SILTY CLAY - Dark brown, firm to hard, wet silty clay, few to little very fine sand.												
56						CL		22.1	105.3	2.72	43/14/29	0.0	11.7	88.3			22.2, 494
57																	
<div>LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY</div> <div>NOTES: Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.</div>																	
Page 4 of 5																	

 PROJ. LOC.: GALLUP, NM		CLIENT:   NECR - PRE DESIGN STUDY INVESTIGATION		BORING LOG		BOREHOLE ID: TI-B3											
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
30"					(57.3' - 61.9') SILTY SAND - Brown, loose, wet, silty very fine to fine sand.			25.8	99.0			0.0	22.0	78.0			
58																	
59																	
60	33"	CA 18" 11C 11B 11A	3 5 4														
61					(61.9' - E.O.B.) SILTY CLAY - Dark brown, firm to hard, wet silty clay, trace to few very fine to fine sand.												
62																	
63																	
64																	
65	32"	ST 28"	12		E.O.B. at 70'												
66																	
67																	
68																	
69																	
70																	
71																	




LEGEND:




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

NOTES:




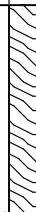







Hold backfilled with cement/bentonite grout. At 7:45 AM on 11/20/14, water was measured at 65.8' bgs.

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 PROJ. LOC.: GALLUP, NM		CLIENT:   NECR - PRE DESIGN STUDY INVESTIGATION			BORING LOG		BOREHOLE ID: TI-B8												
CONTRACTOR INFORMATION			DRILL RIG INFORMATION			BOREHOLE INFORMATION													
DRILLING COMPANY: NATIONAL			DRILLING RIG: CME 85 HD		BIT TYPE: N/A		CASING DEPTH: N/A		START: 12/3/2013										
DRILLER: M. CAIN			DRILLING METHOD: HSA/CC		AUGER O.D.: 8.25"		SURFACE ELEV. (FT): 6976.1		FINISH: 12/4/2013										
DRILLER'S HELPER: L. ALDAZ			HAMMER TYPE: AUTO		HOLE DIAM.: 8.25"		DEPTH TO BEDROCK (FT): 60.5												
LOGGED BY: R. SCHAUT			HAMMER WT: 140 lb		CORE DIAM.: 3.0"		TOTAL DEPTH (FT): 65.5												
FIELD SAMPLE RECOVERY DATA												LABORATORY TEST DATA							
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (Phi, C (PSF))	
1						(0' - ~7') SANDY CLAY - Dark brown, slightly moist sandy clay, silty, sand is very fine to fine-grained, occasional coarse sand and fine gravel.													
2						(0' - 20' No sampling. Material descriptions based on cuttings and should be considered approximate.)													
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY												NOTES: Hole backfilled with cement/bentonite grout.							

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B8										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA												
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
14																		
15																		
16																		
17																		
18						(~18' - 20.7') SANDY CLAY - Dark brown, firm to hard, slightly moist sandy clay, very fine to fine sand, few to little coarse sand and fine gravel.												
19																		
20	36"					Begin sampling at 20'												
21	AC	8				(20.7' - 26.3') SAND TAILINGS - Pale yellow, medium dense, slightly moist to moist, fine to medium sand tailings, silty.												
22																		
23																		
24																		
25	54"	CA 18"	2C	7					9.0	103.7	2.72							
			2B	7					6.2	99.6			0.0	87.9	12.7	3.6E-4		
26			2A	10			SM		16.8	91.7		NP	0.0	76.0	24.0			
27	AC	3B				(26.3' - ~31') FINE TAILINGS - Soft to firm, moist.												
	AC	3A				(26.3' - 28.8') - Pale yellowish brown, few to little very fine sand.												
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY																		
NOTES: Hole backfilled with cement/bentonite grout.																		

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		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B8											
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA													
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
28	54"	AC	3A		(28.8' - 31') Pale gray, no sand.	CH		61.8	62.7		74/25/49	0.0	9.2	90.8			0.43
29																	
30	24"	ST 23"	4		(~31' - ~32.5') SAND TAILINGS - Pale yellowish brown, medium dense, moist, fine to medium sand, trace silt.			41.4									
31																	
32					(~32.5' - 35') FINE TAILINGS WITH SAND - Pale gray, soft, moist, very fine to fine sand.												
33		AC	5														
34					(35' - 38.6') CLAYEY/SILTY SAND TAILINGS - Pale yellowish gray, soft, moist, very fine to fine sand.			14.3	90.9	2.66					1.6E-5		
35	30"	ST 28"	6														
36								16.5	89.6	2.67							
37																	
38		AC	7		(38.6' - 44.5') FINE TAILINGS - Pale gray, firm, moist, trace to few very fine sand.												
39																	
40	37"	ST 27"	8			SC / CL		39.7	80.4	2.63							
41																	
42								34.3	83.6		35/16/19	0.0	51.2	48.8	1.3E-7	0.262	

LEGEND:

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




NOTES:




Hole backfilled with cement/bentonite grout.

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




NOTES:
 Hole backfilled with cement/bentonite grout.





		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B8			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION									
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA				
		MATERIAL DESCRIPTION									




		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B8											
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA													
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
42"																	
58					(58.7' - 59.5') Silty clay with sand.												
59					(59.5' - 60') Reddish brown, fine to medium sand.												
60	48"	CA 18"	13C	16													
			13B	22	(60.5' - 61') COAL - sandy.												
61			13A	50/ 4"	(61' - E.O.B.) SHALE - Dark grayish brown, hard to very hard, moist, silty, trace very fine sand.												
62																	
63																	
64	12"			14	(bagged core)												
					At 64' - becomes fissile, very hard, brittle, more sand (few to little).												
65		CA 2"	15	50/ 2"	65.2' E.O.B. (Practical Auger Refusal at 65.0')												
66																	
67																	
68																	
69																	
70																	
71																	

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

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:						BORING LOG		BOREHOLE ID: TI-B10			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION											
		FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA					
		MATERIAL DESCRIPTION											

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B10									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
30	ST 30"	AC	14	15	(44.3' - 44.6') Appears finer grained (clayey), lighter gray, more moist. (44.6' - 62.5') SILTY SAND - Light brown, medium dense, moist, silty very fine to fine sand, occasional coarse sand and fine gravel.			9.9	95.4	2.74		0.0	65.8	34.2			
43																	
44																	
45	42"	CA 17"	12	12													
46		16B	12														
46		16A	14														
47																	
48																	
49																	
50	48"	CA 18"	10	10													
51		17A	11														
51			14														
52																	
53																	
54																	
55	42"	ST 17"	18		(~56' - 57.5') Gravelly. (Shelby Tube refusal at 56.5')			14.1	100.8						2.4E-5	0.139	
56																	
57																	
<div>LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY</div> <div>NOTES: Hole backfilled with cement/bentonite grout.</div>																	
Page 4 of 8																	

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B10									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
42"																	
58																	
59																	
60	39"	CA 18"	11														
		19B	11														
61		19A	14														
62																	
63					(62.5' - 65.2') WEATHERED SANDSTONE (?) - Hard, moist, gravelly.												
64																	
65	48"	CA 18"	14														
		20B	14		(65.2' - 82') SILTY SAND - See description above for 44.6' - 62.5'.												
66		20A	15			SM / ML		13.8	94.5		NP	0.0	50.1	49.9			
67																	
68																	
69																	
70	30"	CA 18"	4														
		21B	6														
71		21A	10		(70.5' - 71.5') Moist to very moist, increased clay.			18.1	100.8								

LEGEND:

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




NOTES:




Hole backfilled with cement/bentonite grout.




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




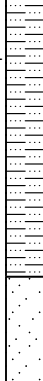

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:		 		BORING LOG		BOREHOLE ID:										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION						TI-B10										
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA												
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
72	30"																	
73																		
74																		
75	42"	CA 18"		5														
		22B		7														
76		22A		11														
77																		
78																		
79																		
80	36"	CA 18"		9		(80' - 82') Gravelly (sandstone fragments)												
		23B		14														
81		23A		17														
82						(82' - 85.5') WEATHERED SANDSTONE - Mottled red/gray/brown, moist, fine to medium weathered sandstone.												
83																		
84	NA	3"	24	50/3"														
85	50"																	
86						(85.5' - 105') CLAYEY SAND - Dark brown, firm, very moist to wet, fine to medium clayey sand, occasional sandstone fragments.												
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY																		
NOTES: Hole backfilled with cement/bentonite grout.																		
Page 6 of 8																		

		CLIENT:		 		BORING LOG		BOREHOLE ID:									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION						TI-B10									
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSFI])
50"																	
87-																	
88-																	
89-																	
90-	40"	CA 18"	7		[CA sampler wet 11/26/13.] [Water measured at approximately 90.2' bgs at 9:30 11/27/13.]												
		25B	12														
91-		25A	10					18.6	105.6	2.66							
92-																	
93-					[Core barrel wet 11/27/13.]												
94-																	
95-	52"	NR	1														
			5														
96-			8														
97-																	
98-																	
99-																	
100-	44"																
101-																	
LEGEND:					NOTES:												
CA = CALIFORNIA SAMPLE (2-INCH OD)					Hole backfilled with cement/bentonite grout.												
ST = SHELBY TUBE (3-INCH OD)																	
AC = ACRYLIC LINER																	
HSA = HOLLOW-STEM AUGER																	
CC = CONTINUOUS CORE																	
NR = NO RECOVERY																	
Page 7 of 8																	

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B10									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])
44"																	
102					[Core barrel wet.]												
103																	
104																	
105	36"				(105' - E.O.B.) WEATHERED SANDSTONE - Pale yellowish brown, very dense, very moist, very fine to fine sandstone, some cemented zones.												
106					[Core barrel wet.]												
107				26	(106.9' - 107.3') Bagged core sample.			14.2	109.1						1.4E-7		
108	1"			27	(107.9' - 108') Bagged core sample. (108') CA sample not retained.												
109			50/ 1.5"		E.O.B. = 108.2 ft at 9:00 on 11/27/13 (practical auger refusal)												
110																	
111																	
112																	
113																	
114																	
115																	
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY					NOTES: Hole backfilled with cement/bentonite grout.												
Page 8 of 8																	




		CLIENT:		 		BORING LOG		BOREHOLE ID:										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION						TI-B11										
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA												
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSFI])
42"																		
14																		
15	45"	ST 13"	3			(15' - 18') CLAYEY SAND - Light yellowish brown, medium dense, slightly moist, fine to medium clayey sand, occasional gravel up to 1".			8.2	110.4	2.67		3.9	57.6	38.5	2.5E-5	0.09	
16																		
17																		
18						(18' - 32.9') SANDY CLAY - Predominantly dark brown, hard, slightly moist sandy clay, silty, very fine to medium sand, few to little coarse sand and gravel up to ~1" size.												
19						(19.2' - 19.4') Sand, very fine to fine.												
20	48"	CA 18"	4C	4														
			4B	7														
21			4A	10					12.3	107.6								
22																		
23																		
24																		
25	56"	CA 18"	5C	7														
			5B	8														
26			5A	13														
27																		
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY																		
NOTES: Hole backfilled with cement/bentonite grout.																		
Page 2 of 8																		




 PROJ. LOC.: GALLUP, NM		CLIENT:  NECR - PRE DESIGN STUDY INVESTIGATION		 FACILITY: 100-100-001 GALLUP, NM (Area) 100-100-001		BORING LOG		BOREHOLE ID: TI-B11									
FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
28.56"																	
29																	
30	47"	ST 21"	6			CL		13.7	112.4		30/13/17	7.1	41.3	51.6	9.0E-7	0.06	
31																	
32																	
33					(32.9' - 34') SAND (TAILINGS?) - Pale yellowish gray, slightly moist, fine to medium sand.												
34	NA				(34' - 45.5') SANDY CLAY WITH GRAVEL - Dark brown, firm to hard, moist sandy clay with very fine to coarse sand and gravel up to ~3", some metallic and fibrous debris.												
35					[34' - 38' Drilling through metallic debris (appears to be metal siding). Center bit required to penetrate debris. No core collected. CA sample attempted at 34' and 35' - no penetration or recovery.]												
36																	
37																	
38																	
39																	
40	51"	CA 3"		25	[Metallic debris in CA shoe - no sample.]												
41				27													
42				22													

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

NOTES:
Hole backfilled with cement/bentonite grout.

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		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B11										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA											
		MATERIAL DESCRIPTION					USCS CLASS											
							GRAPHIC											
							WATER CONT. (%)											
							DRY DENSITY (PCF)											
							SPECIFIC GRAVITY											
							ATTERBERG LIMITS (LL/PL/PI)											
							% GRAVEL											
							% SAND											
							% FINES											
							SAT. HYD. COND. (cm/s)											
							CONSOLIDATION (Cc)											
							TRIAxIAL (PHI, C [PSF])											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.													
51"																		
43-																		
44-																		
45-	60"	7C	7			(Photo 310 at 46'.)												
		7B	7			(45.5' - 53.9') FINE TAILINGS - Mottled orange and dark greenish gray (to 50'), pale yellowish gray (50' - 53.9'), firm, moist tailings.												
46-		7A	8															
						[Photo 311 at 46.5'.]												
47-																		
48-																		
49-																		
50-	43"	ST 28"	8															
51-																		
52-																		
		AC	9			[Photo 312 at 52.5']												
53-																		
54-						(53.9' - 55') SILTY CLAY - Dark brown, hard, moist silty clay, trace very fine sand.												
55-	48"	ST 25"	10			(55' - 77.5') SILTY SAND - Yellowish brown, medium dense, slightly moist to moist, silty, very fine to fine sand.												
56-							CH	59.9	63.7	2.84	91/30/61	0.0	2.7	97.3	3.1E-8	0.48		
57-							SM	16.2	77.9	2.64	NP	0.0	60.4	39.6	5.6E-4	0.129		
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY																		
NOTES: Hole backfilled with cement/bentonite grout.																		
Page 4 of 8																		

		CLIENT:		 		BORING LOG		BOREHOLE ID:		TI-B11							
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
DEPTH (FT)	FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA										
	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
48"																	
58"	48"	AC 11	9														
59"																	
60"	48"	CA 17"	11														
61"		12B	11														
		12A	12		(61.1' - 62.1') Sandy clay.			16.0	95.4			0.0	38.7	61.3			
62"																	
63"					(63.1' - 64') Sandy clay.												
64"																	
65"	49"	CA 18"	7														
		13B	7														
66"		13A	12					14.2	96.2								
67"																	
68"																	
69"																	
70"	44"	CA 18"	7														
		14B	9														
71"		14A	10														

LEGEND:

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




NOTES:

Hole backfilled with cement/bentonite grout.

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

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B11										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
		FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])	
72-74					(71.5' - 73.5') Abundant clayey sand zones.													
75	38"	CA 18"	15C	7														
			15B	8														
76			15A	11														
77																		
78				16	(77.5' - 78') WEATHERED SANDSTONE - Rusty red, moist, fine to medium grained. (Sample #16 is bagged core.)													
79					(78' - 96.9') GRAVELLY SAND - Mottled rusty red/brown/yellow, dense, moist fine to medium sand, silty throughout, some clayey zones, abundant coarse material from coarse sand up to 3" gravel comprised of cemented sandstone.													
80	42"	CA 18"	17C	16														
			17B	21														
81			17A	21				11.0	107.6	2.76		12.9	65.6	21.5				
82																		
83																		
84																		
85	36"	CA 17"	18C	18														
			18B	21														
86			18A	19														

LEGEND:

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





NOTES:

Hole backfilled with cement/bentonite grout.

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

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B11													
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																	
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA															
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])	
102						(102.5' - 103') Reddish brown, strongly cemented sandstone.													
103							E.O.B. at 103.0' at 10:00 (practical auger refusal)												
104																			
105																			
106																			
107																			
108																			
109																			
110																			
111																			
112																			
113																			
114																			
115																			







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

NOTES:
 Hole backfilled with cement/bentonite grout.





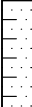
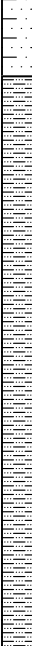
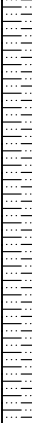
		CLIENT:  			BORING LOG		BOREHOLE ID: TI-B15											
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
CONTRACTOR INFORMATION			DRILL RIG INFORMATION			BOREHOLE INFORMATION												
DRILLING COMPANY: NATIONAL			DRILLING RIG: CME 85 HD		BIT TYPE: N/A		CASING DEPTH: N/A											
DRILLER: M. CAIN			DRILLING METHOD: HSA/CC		AUGER O.D.: 8.25"		SURFACE ELEV. (FT): 6976.8											
DRILLER'S HELPER: L. ALDAZ			HAMMER TYPE: AUTO		HOLE DIAM.: 8.25"		FINISH: 12/5/2013											
LOGGED BY: R. SCHAUT			HAMMER WT: 140 lb		CORE DIAM.: 3.0"		DEPTH TO BEDROCK (FT): N/A											
							TOTAL DEPTH (FT): 71.5											
FIELD SAMPLE RECOVERY DATA					LABORATORY TEST DATA													
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Co)	TRIAxIAL (Phi, C (PSF))
18"						(0' - 0.5') SANDY CLAY - Brown, soft, moist to very moist sandy clay, very fine sand, roots.												
1						(0.5' - 0.8') ROCK - Crushed basalt, up to 3" size, sandy clay in voids.												
2						(0.8' - ~3') SANDY CLAY - Dark yellowish brown, hard, moist sandy clay, very fine to fine sand.												
3																		
4																		
5	30"	CA 18"	1C	10														
6			1B	11														
7			1A	12														
8			AC	2														
9																		
10	30"	CA 18"		3														
11			3B	3														
12			3A	3														
13			AC	4														




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

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:						BORING LOG				BOREHOLE ID: TI-B15							
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																	
FIELD SAMPLE RECOVERY DATA										LABORATORY TEST DATA									
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, C [PSF])	
13.5	30"	AC	4			(13.5' - 13.8') Silty sand tailings.	SM		19.0		2.68	NP	0.0	69.6	30.4				
15	32"	ST 27"	5				SM		14.2	90.4	2.66	NP	0.0	54.9	15.1	8.3E-4	0.126		
18		AC	6																
20	28"	CA 18"	7C	3		(~19.5' to ~25') Becomes slightly finer grained (very fine to medium sand), slightly clayey.													
21			7B	2															
21			7A	4			SM		12.7	99.8	2.68	NP	0.0	80.6	19.4				
22		AC	8																
25	27"	ST 23"	9																
27		AC	10			(~27' and below) Becomes clayey.													
LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY																			
NOTES: Hole backfilled with cement/bentonite grout.																			




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		CLIENT:		 		BORING LOG		BOREHOLE ID:		TI-B15										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																		
FIELD SAMPLE RECOVERY DATA										LABORATORY TEST DATA										
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])			
28	27"	AC	10		(~28.5' - 30') Very fine to fine sand	SM		19.3		2.66	NP	0.0	65.4	34.6						
29																				
30	36"	CA 18"	11C	6	(30' - ~32') SILTY SAND - Dark brown, medium dense, moist silty sand, very fine to fine sand.	SM		22.3												
31			11B	7				17.1	101.8	2.71	NP	6.2	51.9	41.9						
32			11A	10																
33					(~32' - 38') SILTY CLAY - Dark brown, firm to hard, moist silty clay, trace to few very fine to fine sand.															
34																				
35	40"	CA 18"	13C	8																
36			13B	12																
37			13A	15	(38' - 45') CLAYEY SAND - Yellowish brown, medium dense, moist clayey very fine to fine sand, silty, occasional 1-6" sandy clay zones.															
38																				
39																				
40	48"	CA 18"		10																
41			14B	9				11.4	87.1											
42			14A	12																
LEGEND:																				
CA = CALIFORNIA SAMPLE (2-INCH OD)																				
ST = SHELBY TUBE (3-INCH OD)																				
AC = ACRYLIC LINER																				
HSA = HOLLOW-STEM AUGER																				
CC = CONTINUOUS CORE																				
NR = NO RECOVERY																				
NOTES:																				
Hole backfilled with cement/bentonite grout.																				
Page 3 of 5																				




		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B15					
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION											
		FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA					
		MATERIAL DESCRIPTION											

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

NOTES:
 Hole backfilled with cement/bentonite grout.





















 PROJ. LOC.: GALLUP, NM		CLIENT:   NECR - PRE DESIGN STUDY INVESTIGATION		BORING LOG		BOREHOLE ID: TI-B15											
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSF])
18"																	
58																	
59																	
60	60"	CA 18"	18C 8														
		18B	11														
61		18A	15														
62																	
63																	
64																	
65	40"	CA 18"	6		(65' - E.O.B.) CLAYEY SAND - Yellowish brown, medium dense, moist, very fine to fine clayey sand, silty, occasional 1-3" zones of sandy clay.												
		19B	8														
66		19A	10					12.7	100.7								
67																	
68																	
69																	
70		CA 18"	7														
		20B	6														
71		20A	9														
					E.O.B. 71.5' at 14:30												
<div>LEGEND: CA = CALIFORNIA SAMPLE (2-INCH OD) ST = SHELBY TUBE (3-INCH OD) AC = ACRYLIC LINER HSA = HOLLOW-STEM AUGER CC = CONTINUOUS CORE NR = NO RECOVERY</div> <div>NOTES: Hole backfilled with cement/bentonite grout.</div>																	

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		CLIENT:  		BORING LOG		BOREHOLE ID: TI-B23	
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION					
CONTRACTOR INFORMATION		DRILL RIG INFORMATION		BOREHOLE INFORMATION			
DRILLING COMPANY: NATIONAL		DRILLING RIG: CME 85 HD		BIT TYPE: N/A		CASING DEPTH: N/A	
DRILLER: M. CAIN		DRILLING METHOD: HSA/CC		AUGER O.D.: 8.25"		SURFACE ELEV. (FT): 6959.3	
DRILLER'S HELPER: L. ALDAZ		HAMMER TYPE: AUTO		HOLE DIAM.: 8.25"		DEPTH TO BEDROCK (FT): 43.0	
LOGGED BY: R. SCHAUT		HAMMER WT: 140 lb		CORE DIAM.: 3.0"		TOTAL DEPTH (FT): 70.5	
FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA			
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS GRAPHIC
39"						(0' - 0.6') SANDY CLAY - Light brown, soft, moist, very fine to fine sand, roots.	
1						(0.6' - 0.9') ROCK - Crushed basalt, 1/2" - 3", sandy clay in voids.	
2						(0.9' - 5') SANDY CLAY - Firm to hard, slightly moist to moist, sandy clay, very fine to fine sand, occasional coarse sand and very fine gravel.	
3							
4							
5	44"	CA 18"	1C	12		(5' - 7') SILTY SAND WITH GRAVEL - Light brown, medium dense, slightly moist to moist, silty very fine to fine sand with little to some gravel to 2".	
6			1B	14			
7			1A	10			
8							
9							
10	42"	CA 16"	2B	5		(7' - 13.4') SANDY CLAY - See 0.9' to 5' above.	
11			2A	6			
12							
13							

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

NOTES:
 Hole backfilled with cement/bentonite grout.

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B23										
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION																
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA												
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV.	SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, C [PSFI])
42"						(13.4' - 14.2') FINE TAILINGS WITH SAND - Pale gray, soft to firm, moist with very fine to fine sand tailings.												
14						(14.2' - ~16') SILTY SAND TAILINGS - Pale yellowish gray, loose, moist, fine to medium sand.												
15	25"	ST 28"	3						20.7	87.7	2.77		0.0	62.8	37.2			
16																		
17						(~16' - 20.3') SANDY CLAY - Dark yellowish brown, firm, moist, very fine to fine sand.												
18		AC	4															
19																		
20	36"	CA 18"	5C	5														
21			5B	6		(20.3' - 23') SILTY SAND - Yellowish brown, medium dense, moist, silty very fine to fine sand.												
22			5A	7														
23																		
24						(23' - 38.6') SILTY CLAY - Predominantly dark yellowish brown, firm to hard, moist silty clay with varying amount of sand as shown, occasional coarse sand to very fine gravel throughout.												
25						(23' - 27.5') Trace to few sand.												
26	39"	ST 30"	6															
27																		
							CL		21.6	101.7	2.73	49/18/31	0.0	8.8	91.2		0.05	
						(27.5' - 30') Little to some sand.												

LEGEND:

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




NOTES:




Hole backfilled with cement/bentonite grout.




Page 2 of 5

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

NOTES:
 Hole backfilled with cement/bentonite grout.

		 		BORING LOG		BOREHOLE ID: TI-B23			
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION							
		FIELD SAMPLE RECOVERY DATA				LABORATORY TEST DATA			
		MATERIAL DESCRIPTION							
		USCS CLASS							
		GRAPHIC							
		WATER CONT. (%)							
		DRY DENSITY (PCF)							
		SPECIFIC GRAVITY							
		ATTERBERG LIMITS (LL/PL/PI)							
		% GRAVEL							
		% SAND							
		% FINES							
		SAT. HYD. COND. (cm/s)							
		CONSOLIDATION (Cc)							
		TRIAxIAL (PHI, C [PSF])							
DEPTH (FT)									
CORE RECOV. (IN)									
SAMPLES & RECOV.									
SAMPLE NO.									
BLOW COUNT									
BULK SAMPLE NO.									
28.39"									
29									
30.44"									
CA 18"									
7B									
31.7A									
32									
33									
34									
35.42"									
ST 28"									
36									
37									
38									
39									
40.25"									
CA 18"									
9B									
41.9A									
42									
</									

		CLIENT:		 		BORING LOG		BOREHOLE ID: TI-B23									
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAXIAL (PHI, c [PSF])
25"																	
43					(43' - 65.5') SANDSTONE - Mostly very pale yellowish gray, moist, mostly non-or weakly cemented very fine to fine sand, some very hard, strongly cemented, fissile zones as shown, some clay zones as shown ("Zone 3"?).												
44					(43' - 43.6') Strongly cemented, fissile.												
45	32"	CA 8"	10A	13	(44' - 45.5') strongly cemented, fissile.			13.8	108.7						2.4E-7		
46				50/ 3"	(45.5' - 46.2') Clayey sand, yellowish brown.												
47					(~47' - ~48') Very hard, strongly cemented, fissile.												
48	16"																
49		CA NR		50/ 4"													
50	29"																
51																	
52																	
53																	
54																	
55	33"	CA 3"	11A	50/ 5"	(~55' - 63') Coarser (fine to medium).												
56					(~56' - 56.8') Color is reddish yellow.												
57																	
LEGEND:					NOTES:												
CA = CALIFORNIA SAMPLE (2-INCH OD)					Hole backfilled with cement/bentonite grout.												
ST = SHELBY TUBE (3-INCH OD)																	
AC = ACRYLIC LINER																	
HSA = HOLLOW-STEM AUGER																	
CC = CONTINUOUS CORE																	
NR = NO RECOVERY																	
Page 4 of 5																	

		CLIENT:		 		BORING LOG		BOREHOLE ID:		TI-B23							
PROJ. LOC.: GALLUP, NM		NECR - PRE DESIGN STUDY INVESTIGATION															
FIELD SAMPLE RECOVERY DATA						LABORATORY TEST DATA											
DEPTH (FT)	CORE RECOV. (IN)	SAMPLES & RECOV. SAMPLE NO.	BLOW COUNT	BULK SAMPLE NO.	MATERIAL DESCRIPTION	USCS CLASS	GRAPHIC	WATER CONT. (%)	DRY DENSITY (PCF)	SPECIFIC GRAVITY	ATTERBERG LIMITS (LL/PL/PI)	% GRAVEL	% SAND	% FINES	SAT. HYD. COND. (cm/s)	CONSOLIDATION (Cc)	TRIAxIAL (PHI, c [PSF])
33"																	
58																	
59																	
60	24"	CA 3"	12A	50/4"													
61																	
62																	
63					(~63 - 65.5') COAL - Black, hard, dry to slightly moist, fissile.												
64																	
65	30"	CA 13"	13B	24													
66			13A	50/4.5"	(65.5' - E.O.B.) SHALE - Gray, very hard, slightly moist shale, trace silt, non- to weakly-cemented ("Zone 2"?).			10.2	103.0						9.7E-8		
67																	
68																	
69																	
70		CA 4"	14	50/5"													
71					E.O.B. 70.5' @ 13:50												

LEGEND:

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

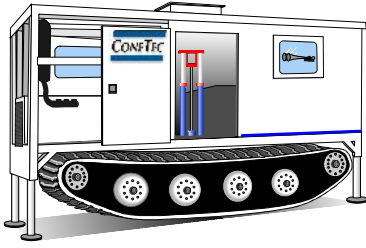
NOTES:

Hole backfilled with cement/bentonite grout.

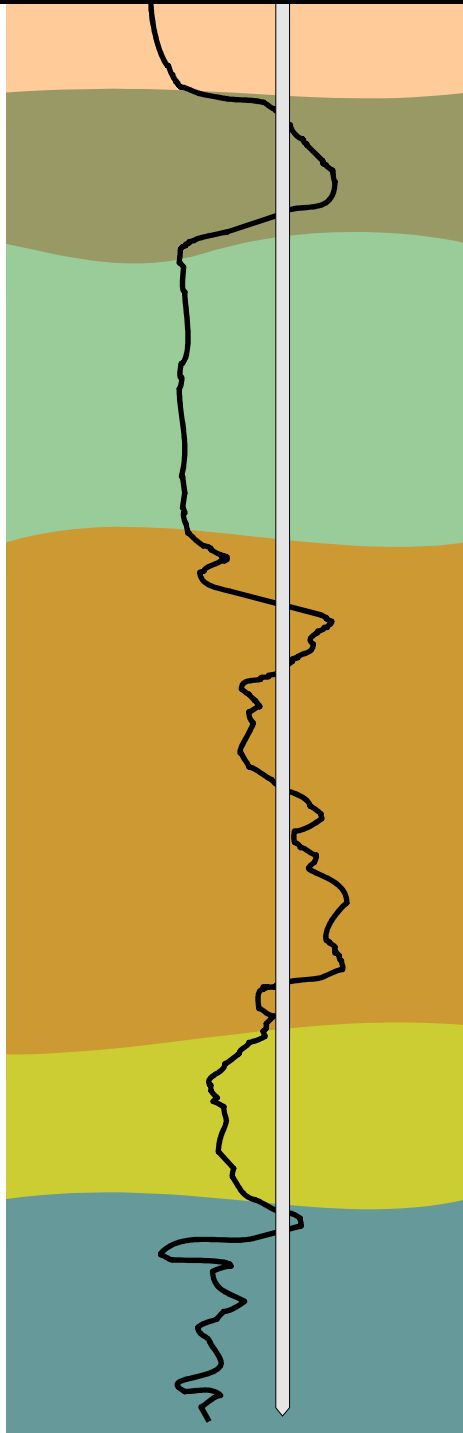
Page 5 of 5

APPENDIX B2.4

TAILINGS IMPOUNDMENT CONE PENETRATION TEST RESULTS



Geotechnical, Environmental and Marine Site Investigation Services



Cone Penetration Test Data

**Church Rock Mill Site TSF
Near Gallup, New Mexico**

November 5 - 10, 2013

Prepared for:

**MWH Americas, Inc.
Ft. Collins, Colorado**

- November 15, 2013 -

CONE PENETRATION TEST DATA

Church Rock Mill Site TSF
Near Gallup, New Mexico

November 5 - 10, 2013

Prepared for:

MWH Americas, Inc.
3665 JFK Parkway
Suite 206
Ft. Collins, CO 80525

Prepared by:

ConeTec, Inc.
Salt Lake City, Utah

November 15, 2013





ConeTec, Inc.

Geotechnical and Environmental Site Investigation Contractors

3750 West 500 South, Salt Lake City, UT 84104 • PO Box 22082, Salt Lake City, UT 84122
Tel: (801) 973-3801 • Fax: (801) 973-3802 • Web: www.conetec.com • Email: saltlakecity@conetec.com

November 15, 2013

Job No.: 13-52118

Mr. Jason Cumbers
MWH Americas, Inc.
3665 JFK Parkway
Suite 206
Fort Collins, CO 80525

Tel: (720) 377-9410
Fax: (720) 377-9406
Email: jason.cumbers@mwhglobal.com

Re: CPT Testing Services Report
Church Rock Mill Site TSF
Near Gallup, New Mexico

Dear Jason,

Per your request, we have completed the CPT investigation for the above referenced project. Included with this report are the standard CPT plots, pore pressure dissipation plots, resistivity CPT plots, shear wave velocity calculations and seismic CPT plots in PDF format. Additionally, the CPT data, PPD data and CPT interpretation files are presented in Excel format. The following table outlines the CPT testing services completed at the site.

All CPT testing was performed in accordance with ASTM D5778-12 and industry standard practices. A compression model electronic piezocone penetrometer, with a 15-cm² tip and a 225-cm² friction sleeve was used for all of the testing. The cone penetrometer is designed with an equal end area friction sleeve and a tip end area ratio of 0.80. At the beginning of the sounding, the cone was outfitted with a vacuum saturated 6-mm thick, porous plastic pore pressure element that is located immediately behind the tip in the u₂ location. Additionally, the coordinates shown on the plots are for location reference only and generally have an accuracy of ±30 feet and are referenced to the WGS84 datum.

Many correlations have been developed for design parameters based on CPT data. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Assumptions have been made regarding soil unit weights, groundwater level and interpretational methods, which may or may not apply to this site. The apparent water table values used in the CPT interpretations are based on results of the shallowest pore pressure dissipation test performed in each sounding. Additionally, the following table summarizes the values assigned to the specific soil behavior type zones that are used in the interpretations.

Zone	SPT qt/N	Unit Wt. (kN/m ³)	Unit Wt. (pcf)	Drainage Condition	Description
0	1.0	18.46	117.5	Neither	Undefined
1	2.0	17.5	111.4	Undrained	Sensitive Fines
2	1.0	12.5	79.6	Undrained	Organic Soil
3	1.0	17.5	111.4	Undrained	Clay
4	1.5	18.0	114.6	Undrained	Silty Clay
5	2.0	18.0	114.6	Undrained	Clayey Silt
6	2.5	18.0	114.6	Both	Silt
7	3.0	18.5	117.8	Drained	Sandy Silt
8	4.0	19.0	120.9	Drained	Silty Sand/Sand
9	5.0	19.5	124.1	Drained	Sand
10	6.0	20.0	127.3	Drained	Gravelly Sand
11	1.0	20.5	130.5	Drained	Stiff Fine Grained
12	2.0	19.0	120.9	Drained	Cemented Sand

We appreciate the opportunity of providing these services to you. If you have any questions regarding the enclosed material or if, we can be of additional assistance, please contact us.

Sincerely,

ConeTec, Inc.

Shawn Steiner

Shawn D. Steiner, P.E.
Regional Manager

Enclosures



Client: MWH Americas, Inc.
 Job No.: 13-52118
 Project: Church Rock Mill Site TSF
 Location: Near Gallup, New Mexico

CPT Testing Summary

CPT Location	CPT Date	CPT Filename	CPT Depth (ft.)	PPD Depth (ft.)	PPD Duration (sec)	Ueq (ft.)	Apparent Water Table (ft.)	Seismic	Comments
RCPT-01	07-Nov-2013	13-52118_RP01	88.42	35.27	500	3.9	31.4	X	Refusal
				72.51	400	6.6	65.9		
RCPT-02	05-Nov-2013	13-52118_RP02	33.96	26.41	500	1.9	24.5	X	Refusal
				30.02	1200				
				33.63	600	13.9	19.8		
RCPT-03	08-Nov-2013	13-52118_RP03	9.51						Refusal
RCPT-03B	08-Nov-2013	13-52118_RP03B	9.02						Refusal
RCPT-04	05-Nov-2013	13-52118_RP04	27.56	25.59	400	1.4	24.2	X	Refusal
RCPT-05	06-Nov-2013	13-52118_RP05	37.89	12.63	900	21.0	-8.4	X	Refusal
				25.92	600	12.0	13.9		
				37.89	500	1.1	36.8		
RCPT-06	06-Nov-2013	13-52118_RP06	36.25	20.67	2000	10.0	10.7	X	Refusal
				36.25	400	8.2	28.1		
RCPT-07	08-Nov-2013	13-52118_RP07	70.05	29.36	800	1.1	28.2	X	Refusal
				43.63	500	6.0	37.6		
RCPT-08	07-Nov-2013	13-52118_RP08	60.86	31.66	800	19.4	12.2	X	Refusal
				54.63	2010	5.1	49.6		
RCPT-09	06-Nov-2013	13-52118_RP09	69.39	26.57	800	9.6	17.0	X	Refusal
RCPT-10	06-Nov-2013	13-52118_RP10	63.16	21.98	2000	21.3	0.7	X	Refusal
				36.74	2500	31.4	5.3		
RCPT-11	07-Nov-2013	13-52118_RP11	96.78	53.15	3600	3.6	49.5	X	Refusal
				55.61	1000	6.2	49.5		
RCPT-12	07-Nov-2013	13-52118_RP12	52.49	40.52	300	5.6	34.9	X	Refusal
RCPT-13	08-Nov-2013	13-52118_RP013	4.27						Refusal
RCPT-13B	08-Nov-2013	13-52118_RP013B	3.45						Refusal
RCPT-13C	08-Nov-2013	13-52118_RP013C	3.94						Refusal

CPT Location	CPT Date	CPT Filename	CPT Depth (ft.)	PPD Depth (ft.)	PPD Duration (sec)	Ueq (ft.)	Apparent Water Table (ft.)	Seismic	Comments
RCPT-14	08-Nov-2013	13-52118_RP14	35.60	21.98	300	1.0	21.0		Refusal
RCPT-15	06-Nov-2013	13-52118_RP15	55.12	37.89	1200	2.6	35.3	X	Refusal
RCPT-16	08-Nov-2013	13-52118_RP16	55.12	43.80	800	9.7	34.1		Refusal
RCPT-17	09-Nov-2013	13-52118_RP17	48.06						Refusal
RCPT-18	09-Nov-2013	13-52118_RP18	50.03	30.68	500	4.6	26.1		Refusal
				45.93	800	12.3	33.6		
RCPT-19	09-Nov-2013	13-52118_RP19	58.23	39.53	2000	13.3	26.2		Refusal
RCPT-20	09-Nov-2013	13-52118_RP20	46.42						Refusal
RCPT-21	08-Nov-2013	13-52118_RP21	20.67						Refusal
RCPT-22	10-Nov-2013	13-52118_RP22	94.32	41.01	600	10.6	30.4		Refusal
RCPT-23	08-Nov-2013	13-52118_RP23	43.96	34.12	300	3.7	30.5		Refusal
RCPT-24	09-Nov-2013	13-52118_RP24	21.65						Refusal
RCPT-25	09-Nov-2013	13-52118_RP25	2.46						Refusal
RCPT-25B	09-Nov-2013	13-52118_RP25B	2.46						Refusal
RCPT-26	09-Nov-2013	13-52118_RP26	27.72	25.92	1200	15.3	10.7		Refusal
RCPT-27	09-Nov-2013	13-52118_RP27	79.72						Refusal
RCPT-28	10-Nov-2013	13-52118_RP28	83.99	67.91	500	7.4	60.5		Refusal
RCPT-29	10-Nov-2013	13-52118_RP29	103.35						Refusal
RCPT-30	10-Nov-2013	13-52118_RP30	74.80						Refusal
RCPT-31	10-Nov-2013	13-52118_RP31	80.05	54.30	300	4.5	49.8		Refusal
RCPT-32	10-Nov-2013	13-52118_RP32	119.09	54.30	400	12.7	41.6		Refusal

CPT PLOTS

With Non-Normalized SBT Classifications





MWH Americas

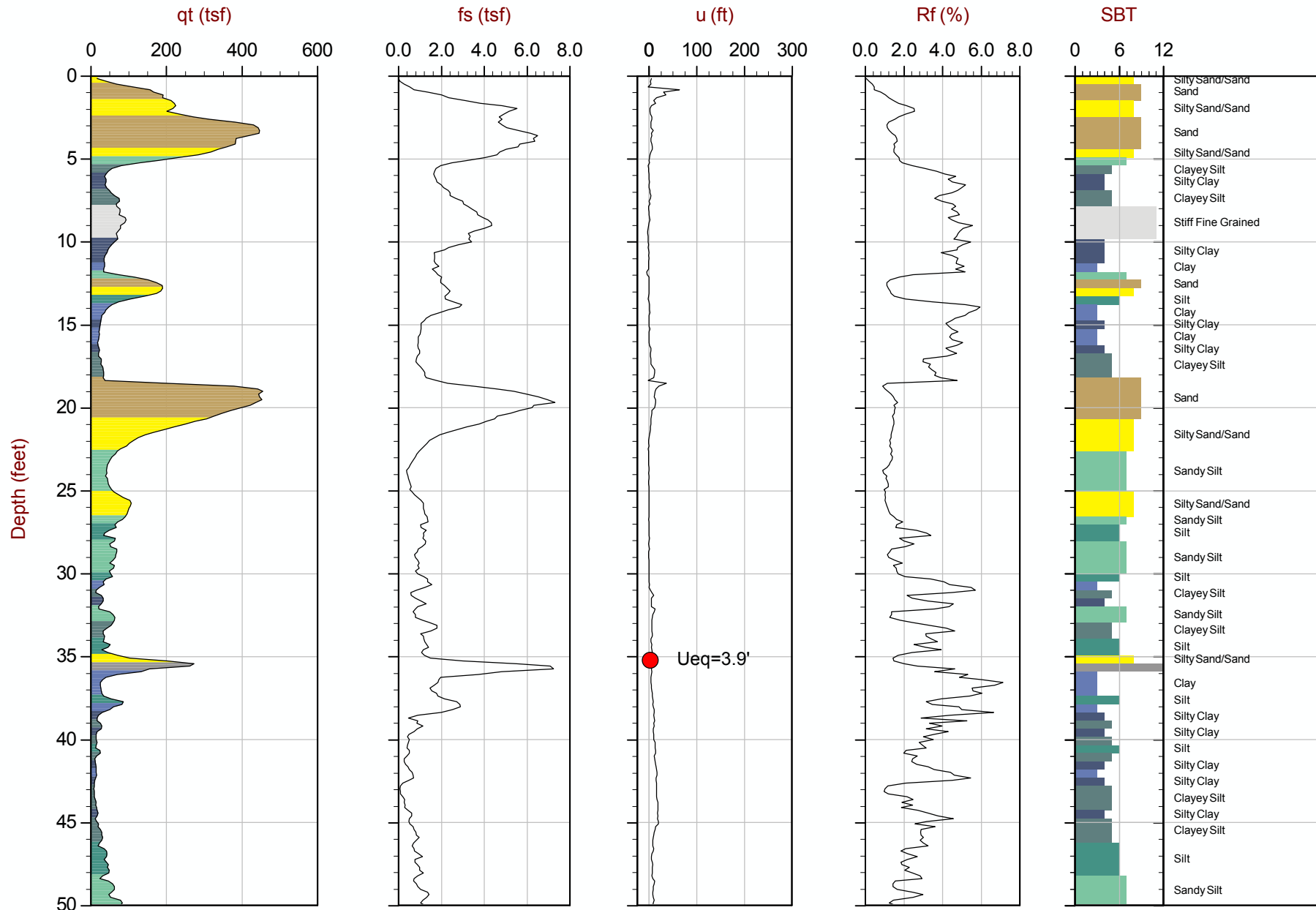
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Sounding: RCPT-01

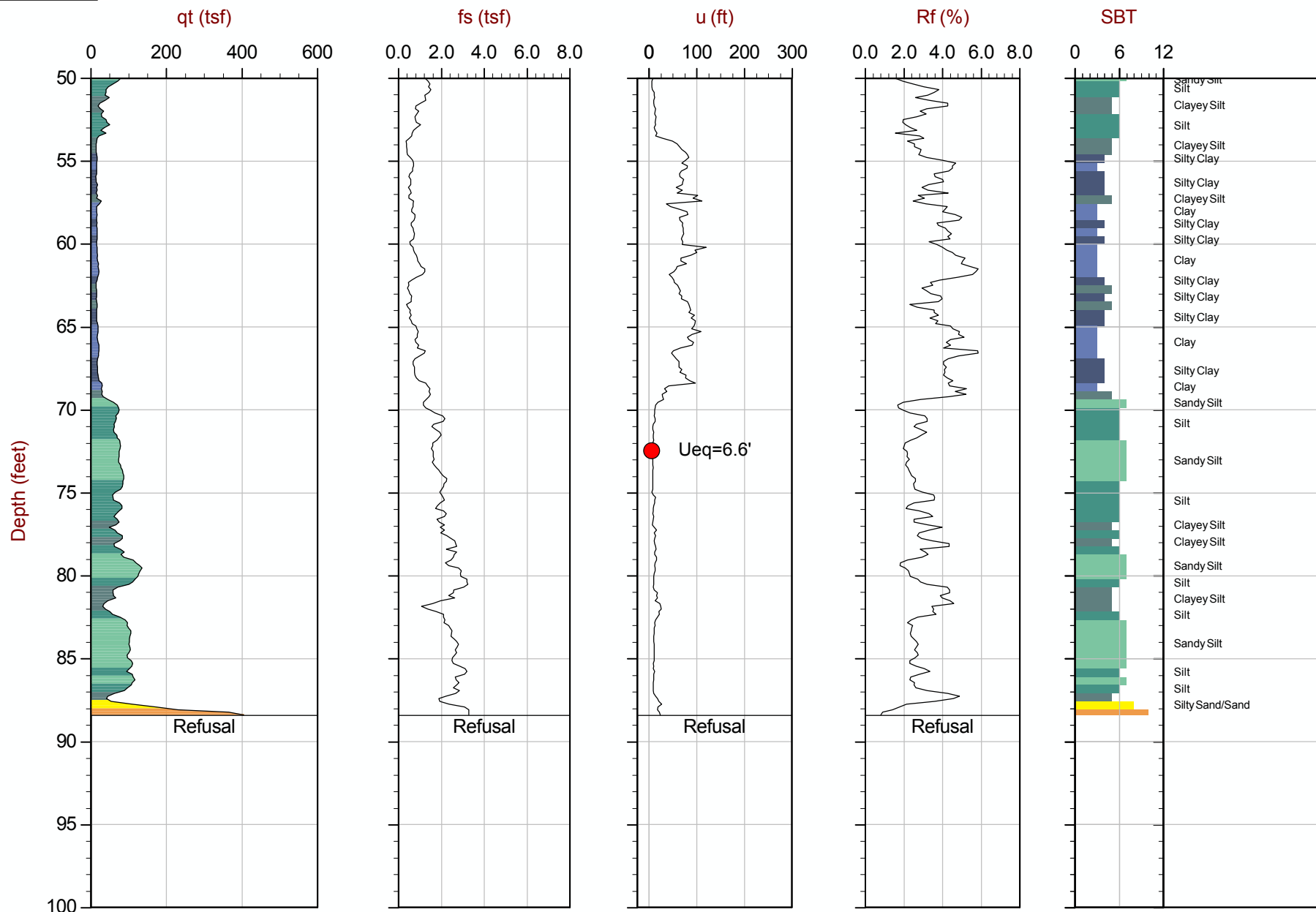
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Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

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Unit Wt: SBT Chart Soil Zones

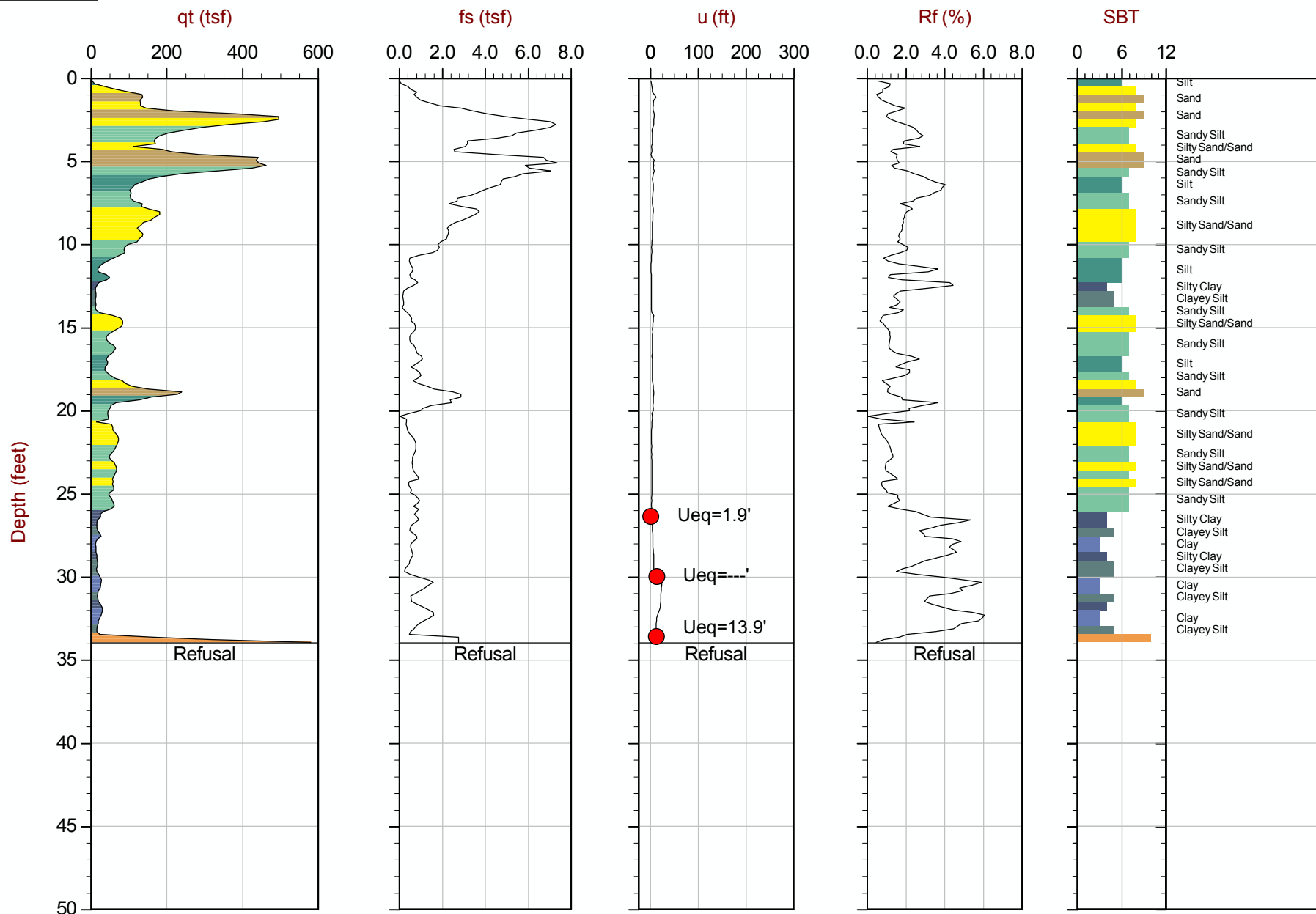
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● Equilibrium Pore Pressure from Dissipation



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.649117 Long: -108.501667
 ● Equilibrium Pore Pressure from Dissipation



Max Depth: 10.350 m / 33.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP02.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
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 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

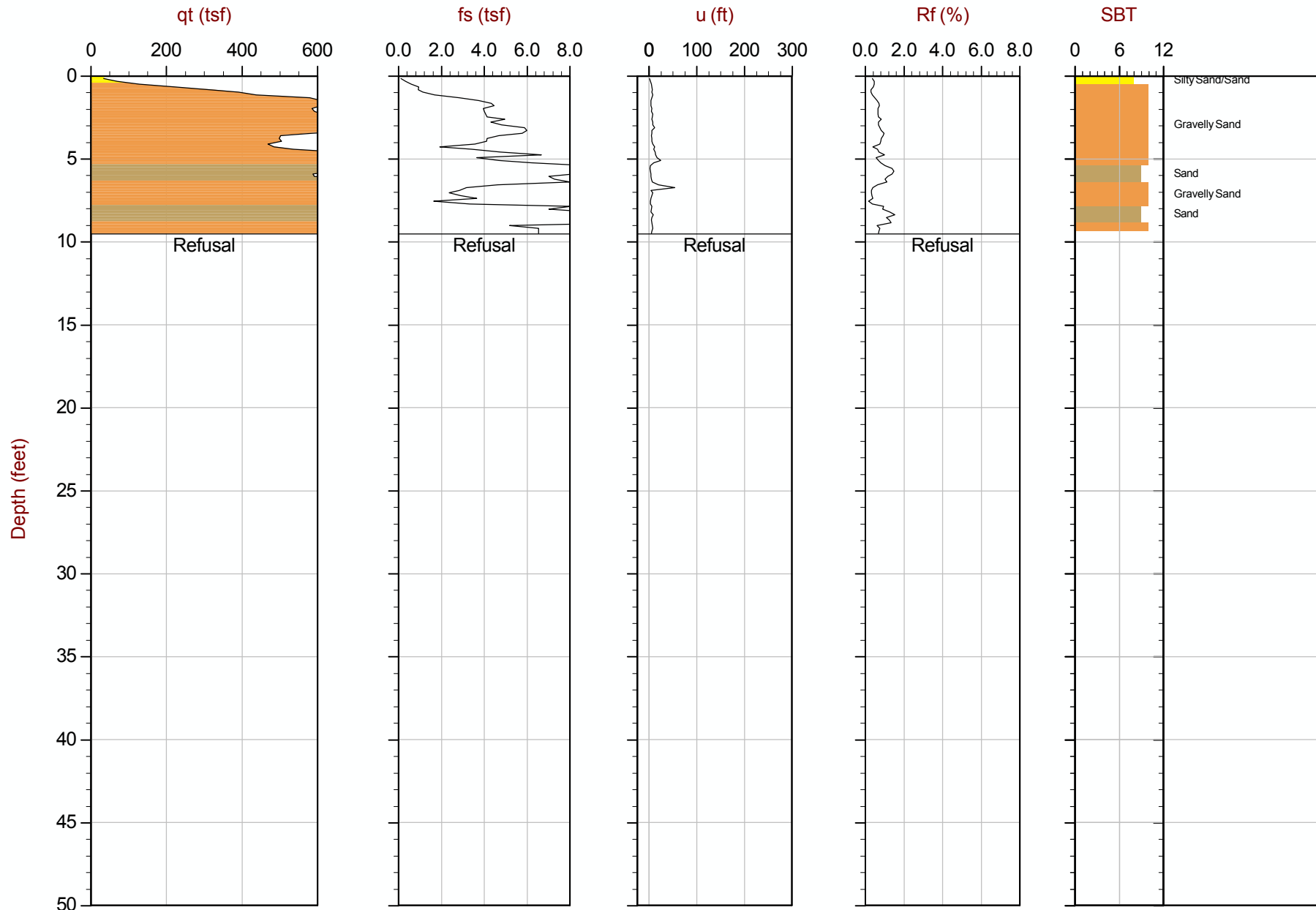
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Sounding: RCPT-03

Cone: 155:T1500F15U500



Max Depth: 2.900 m / 9.51 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP03.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
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● Equilibrium Pore Pressure from Dissipation



MWH Americas

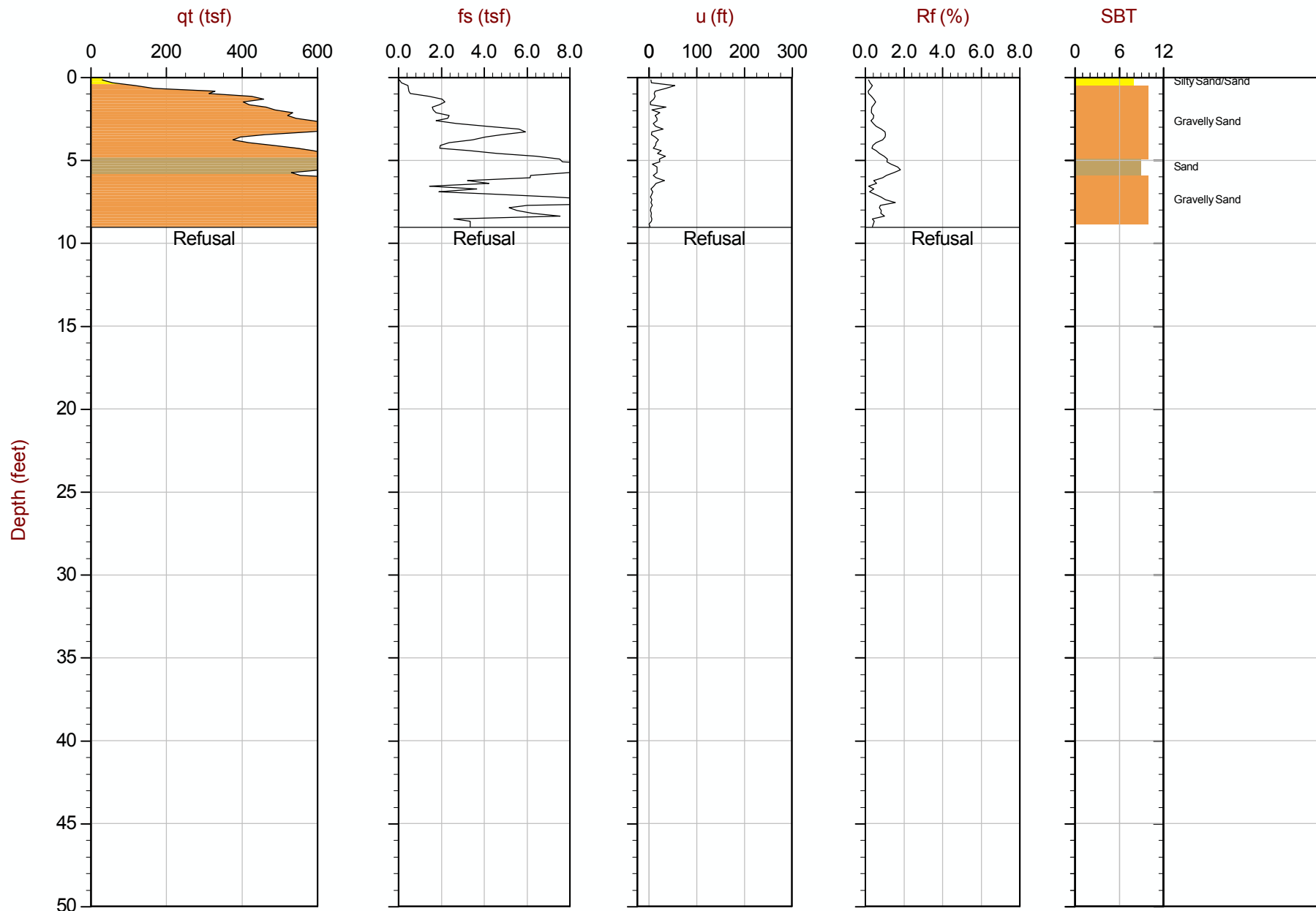
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-03B

Cone: 155:T1500F15U500



Max Depth: 2.750 m / 9.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP03B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649333 Long: -108.502383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

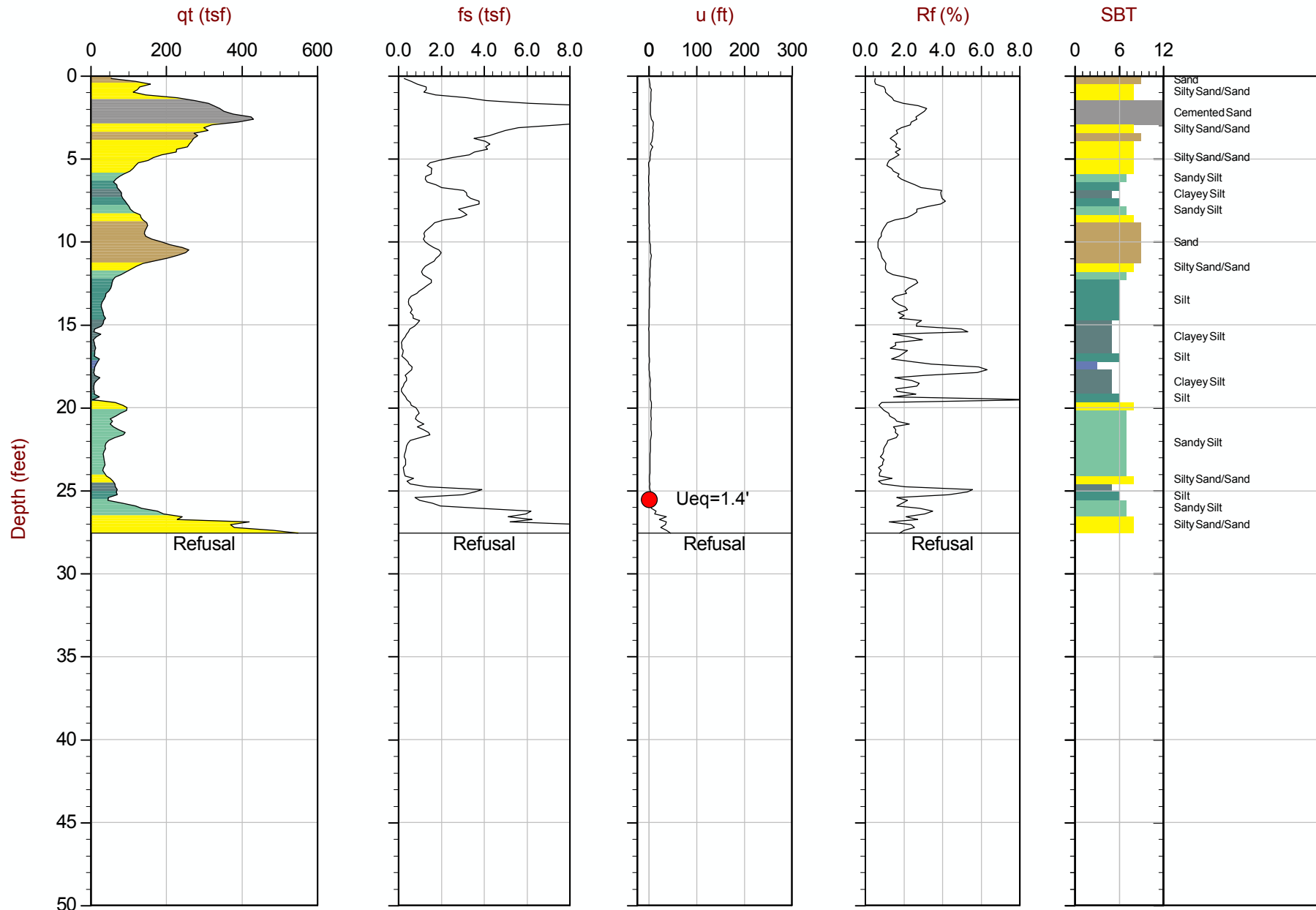
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-04

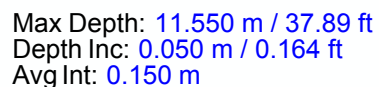
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Max Depth: 8.400 m / 27.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP04.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649533 Long: -108.500483
● Equilibrium Pore Pressure from Dissipation



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Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.648633 Long: -108.498283
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

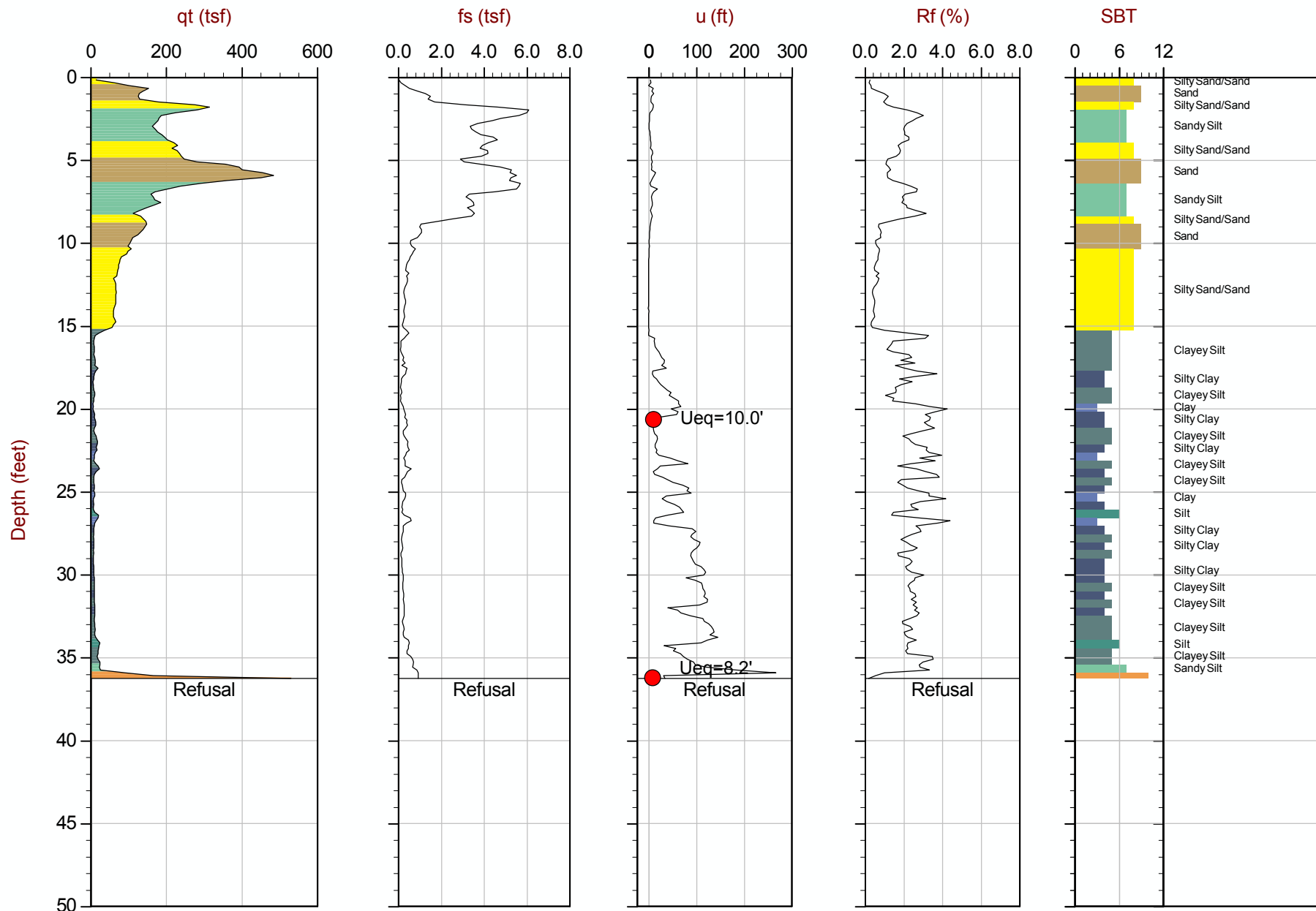
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-06

Cone: 155:T1500F15U500



Max Depth: 11.050 m / 36.25 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP06.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648250 Long: -108.497050
● Equilibrium Pore Pressure from Dissipation



MWH Americas

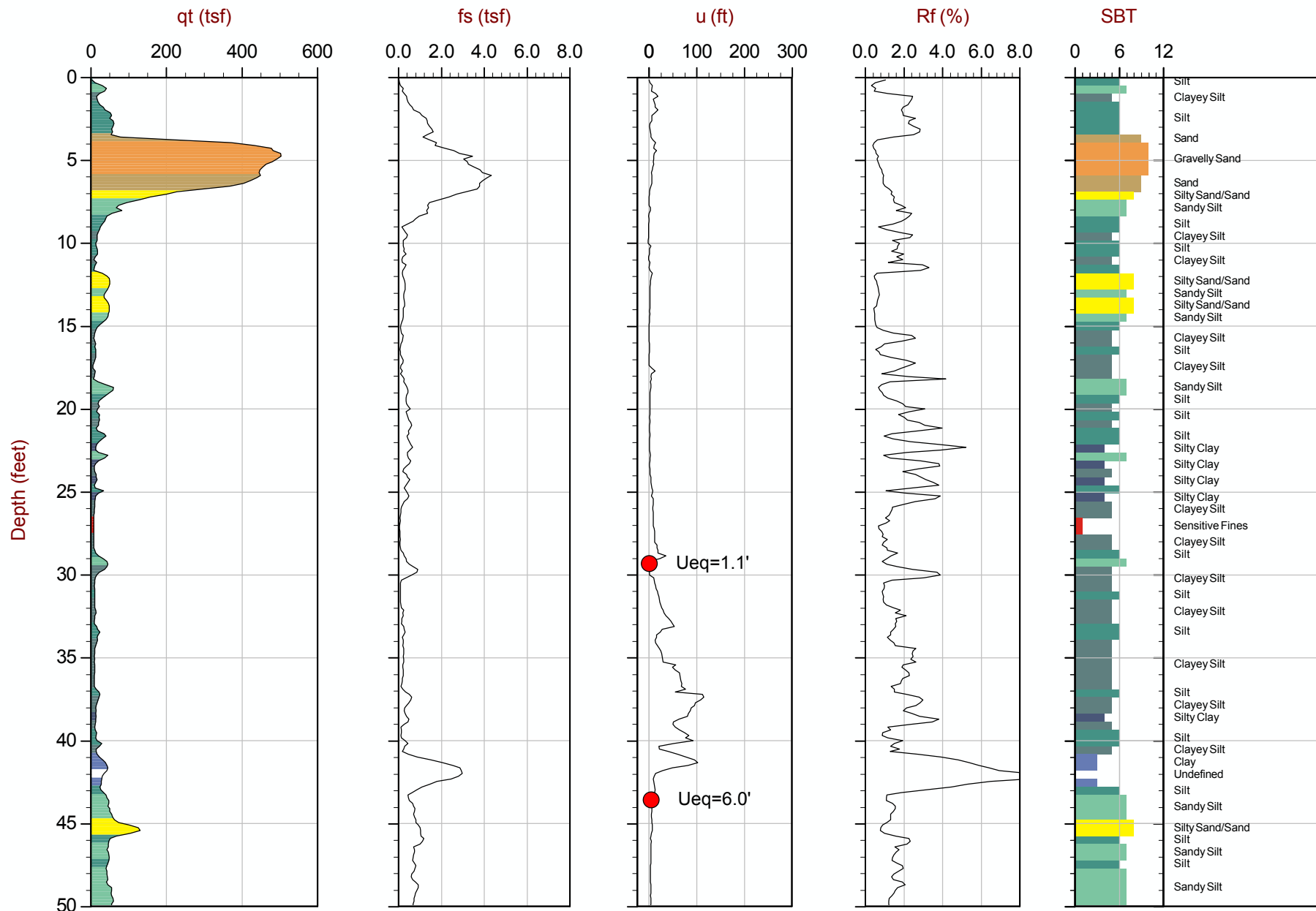
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

Cone: 155:T1500F15U500



Max Depth: 21.350 m / 70.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP07.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647600 Long: -108.501200
● Equilibrium Pore Pressure from Dissipation



MWH Americas

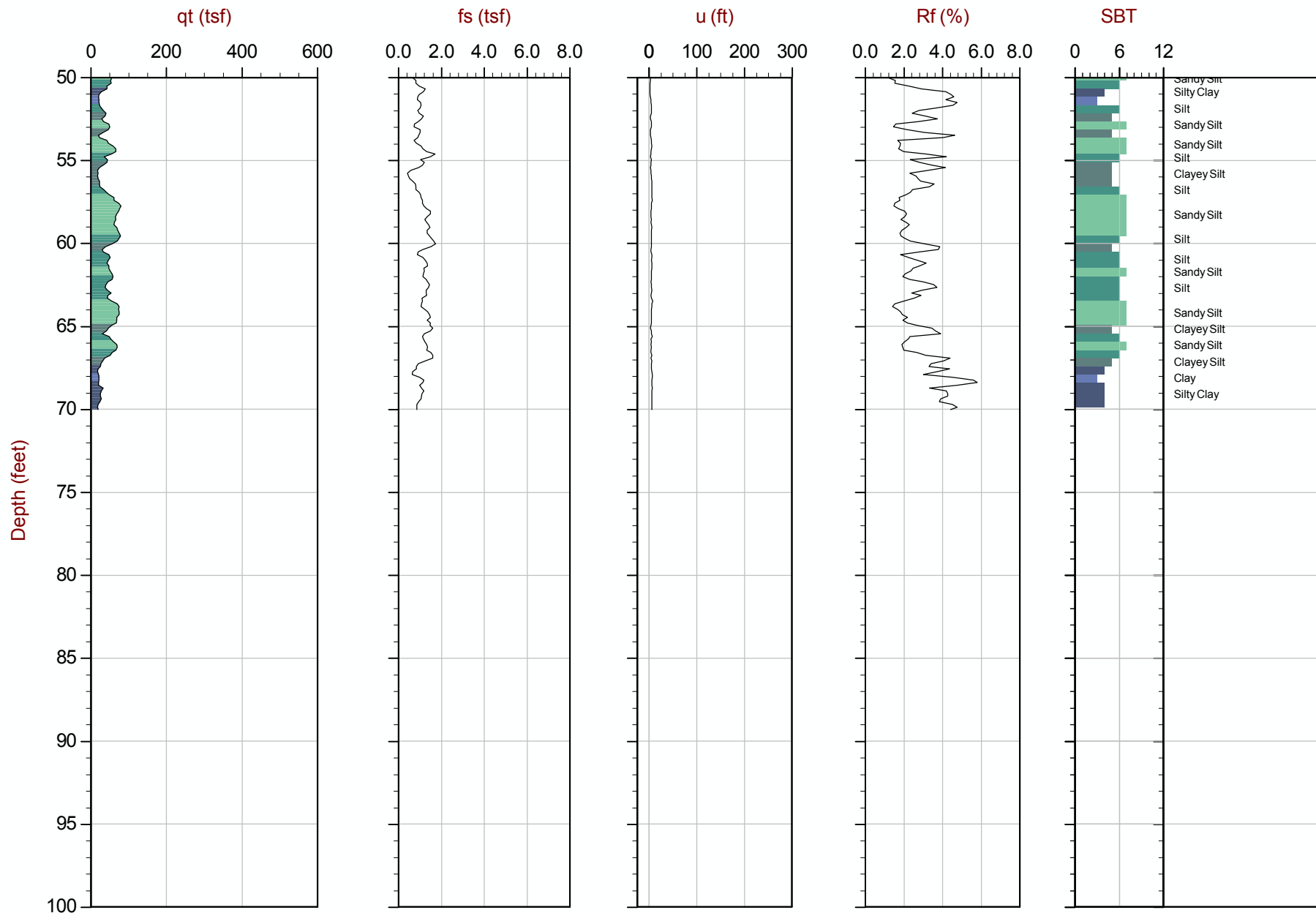
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

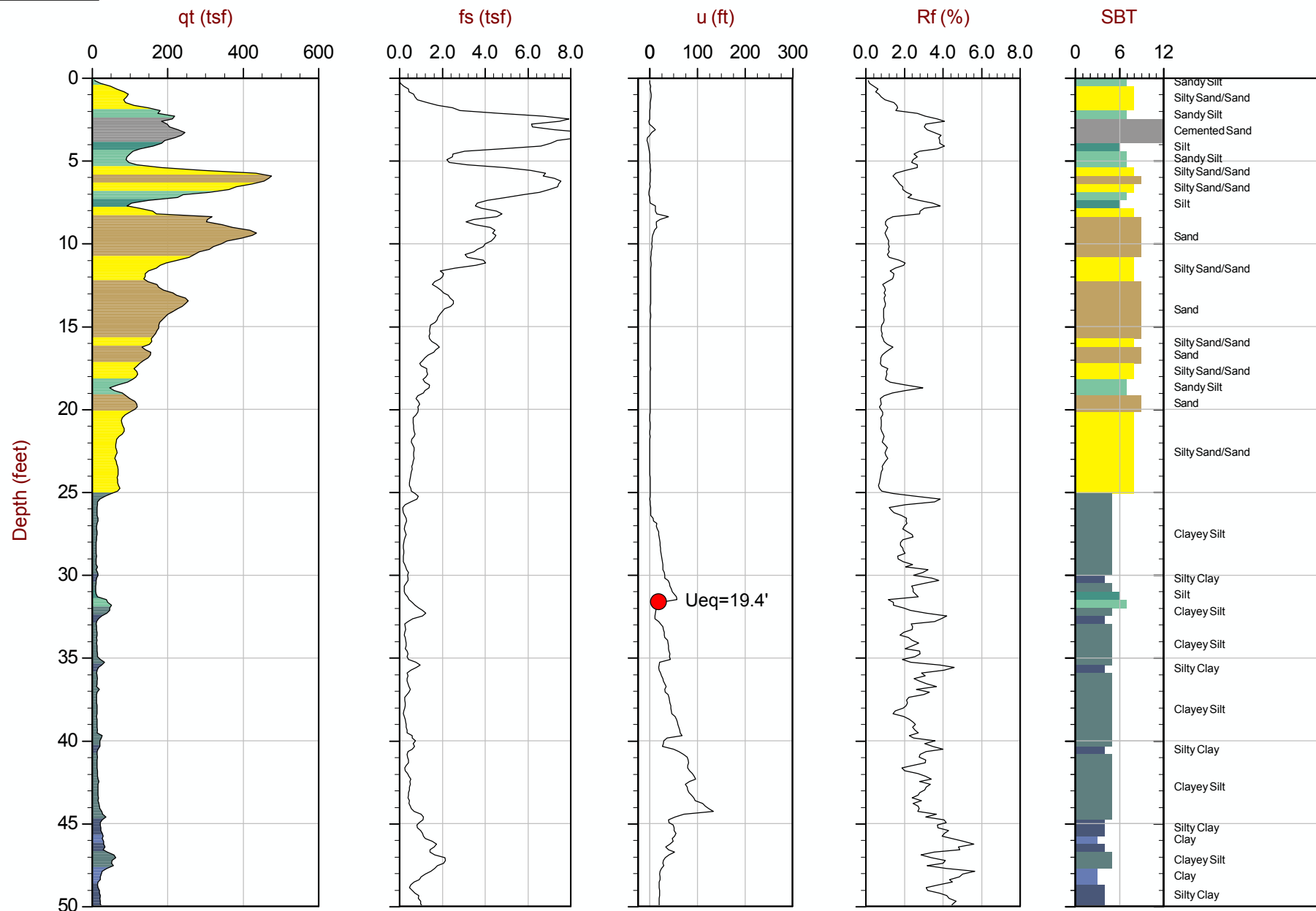
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Max Depth: 21.350 m / 70.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP07.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647600 Long: -108.501200
● Equilibrium Pore Pressure from Dissipation



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647250 Long: -108.497250
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

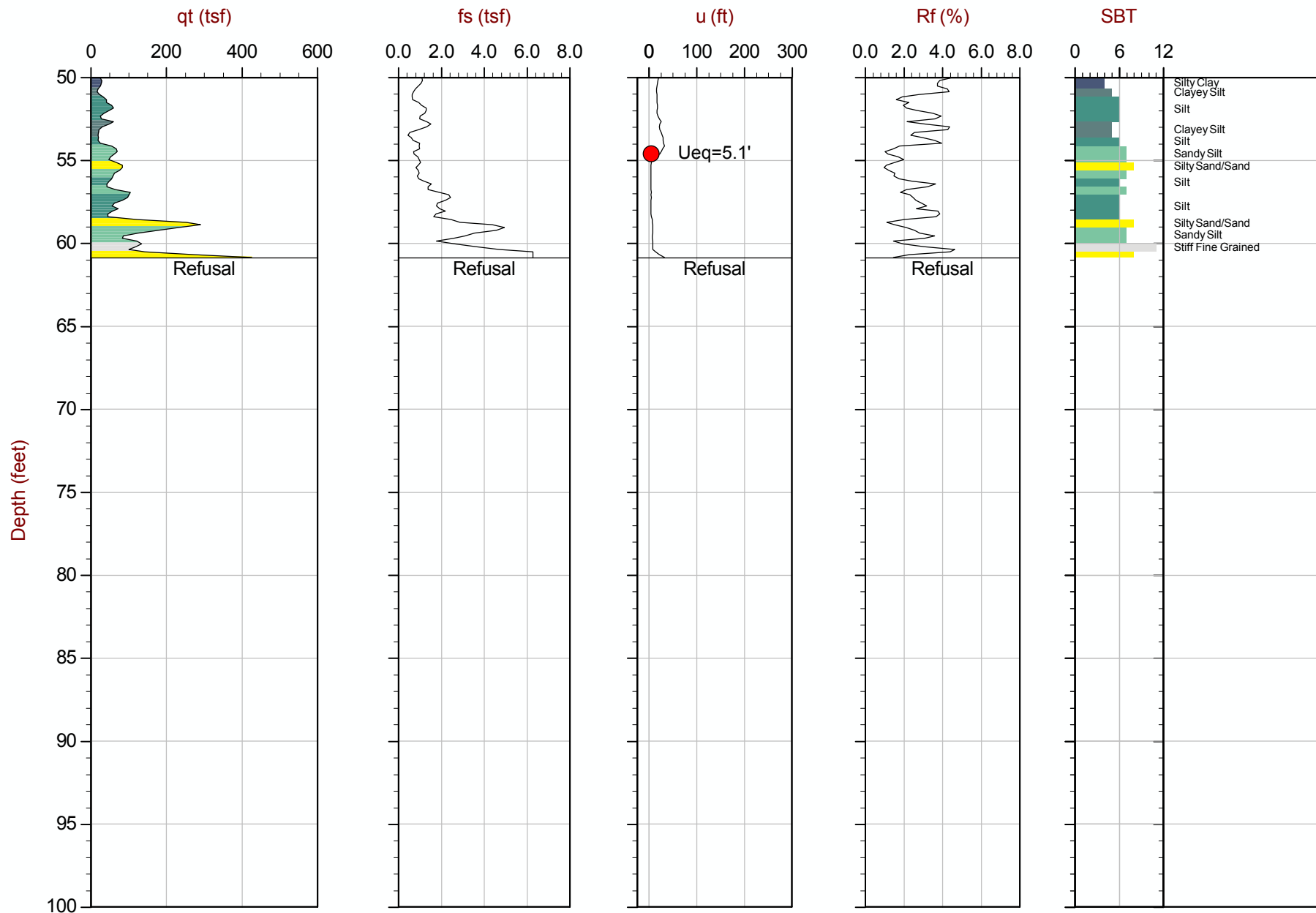
Job No: 13-52118

Date: 11:07:13 08:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08

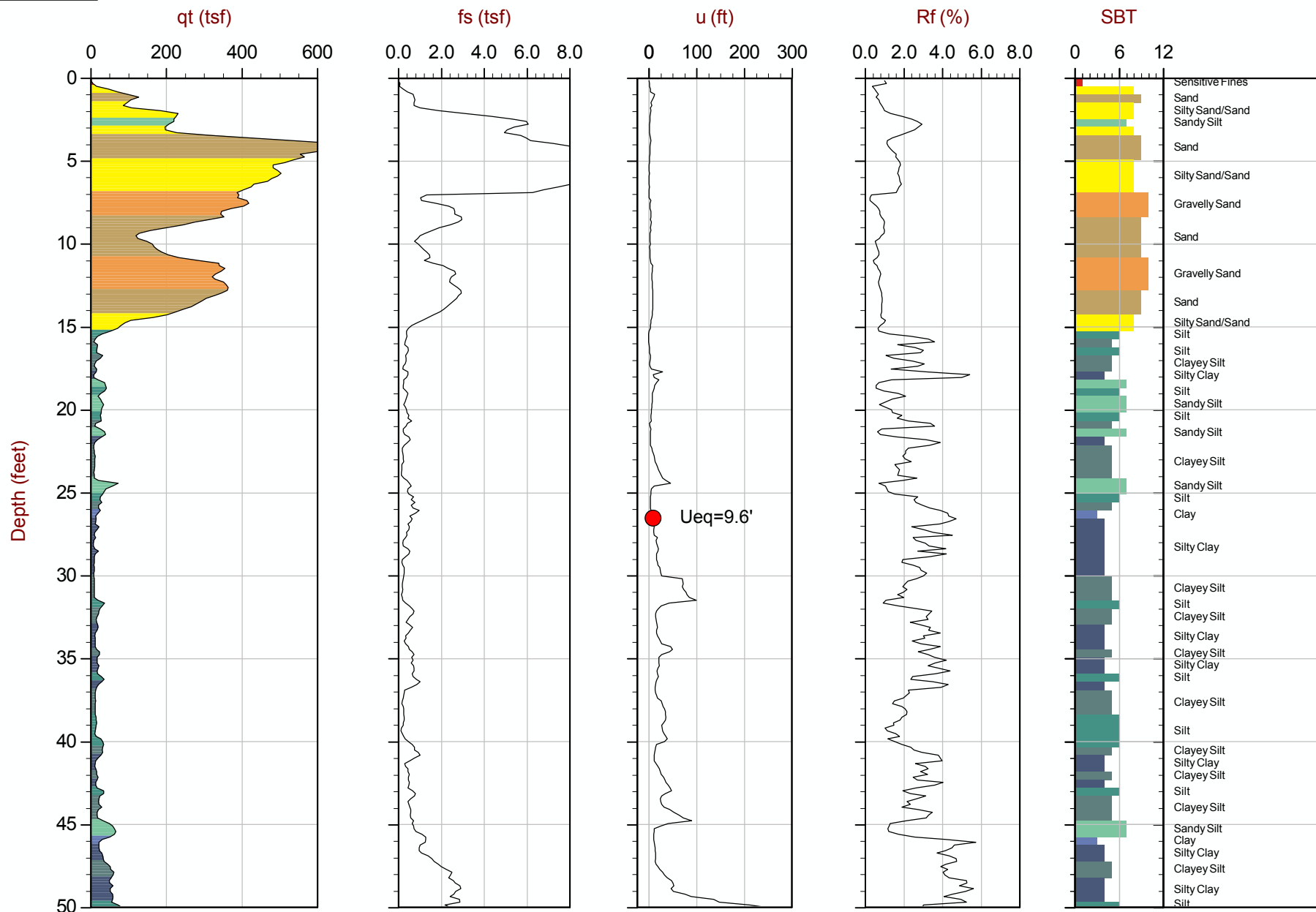
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Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
● Equilibrium Pore Pressure from Dissipation



Max Depth: 21.150 m / 69.39 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647750 Long: -108.498150
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

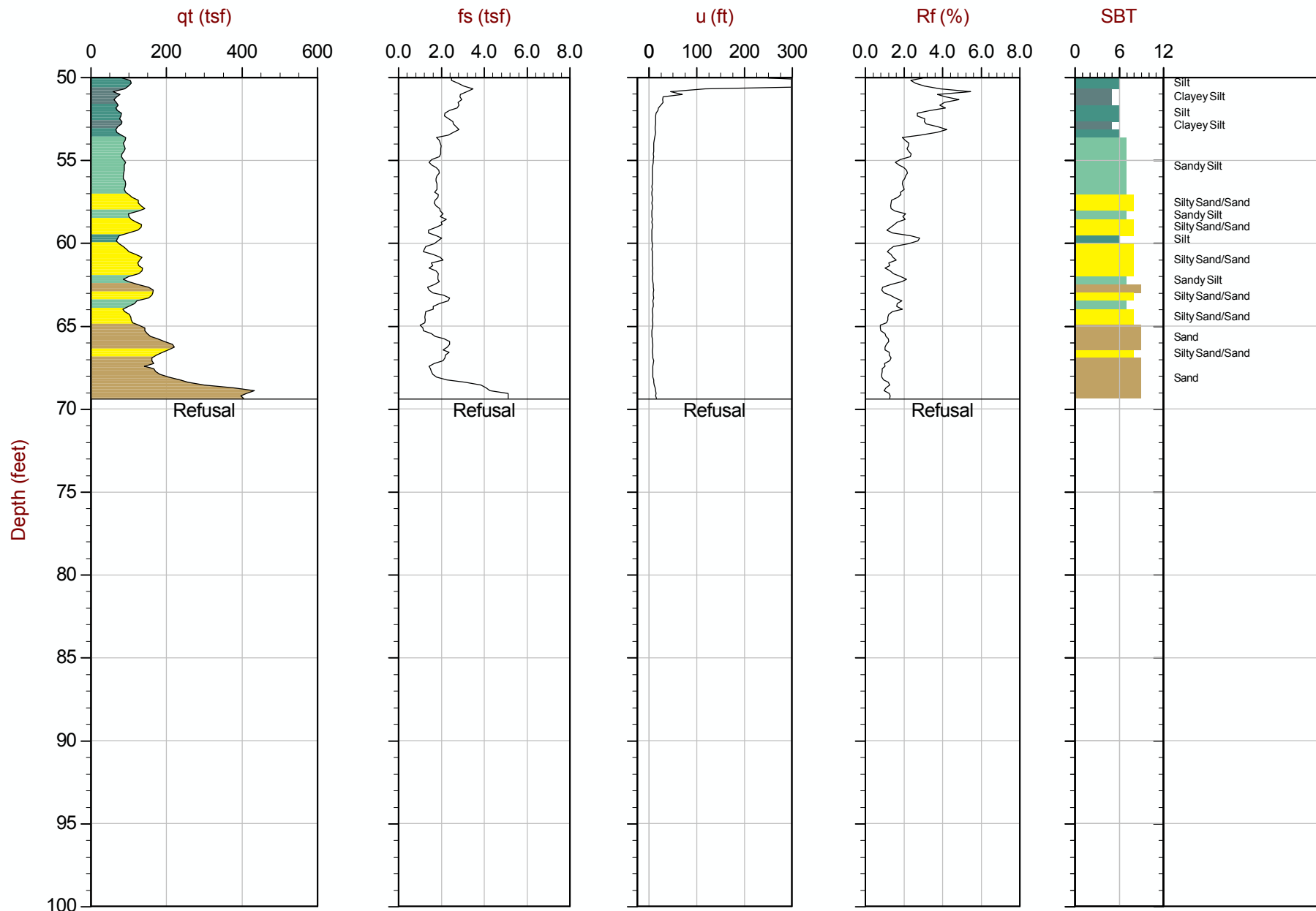
Job No: 13-52118

Date: 11:06:13 14:52

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-09

Cone: 155:T1500F15U500



Max Depth: 21.150 m / 69.39 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647750 Long: -108.498150
● Equilibrium Pore Pressure from Dissipation



MWH Americas

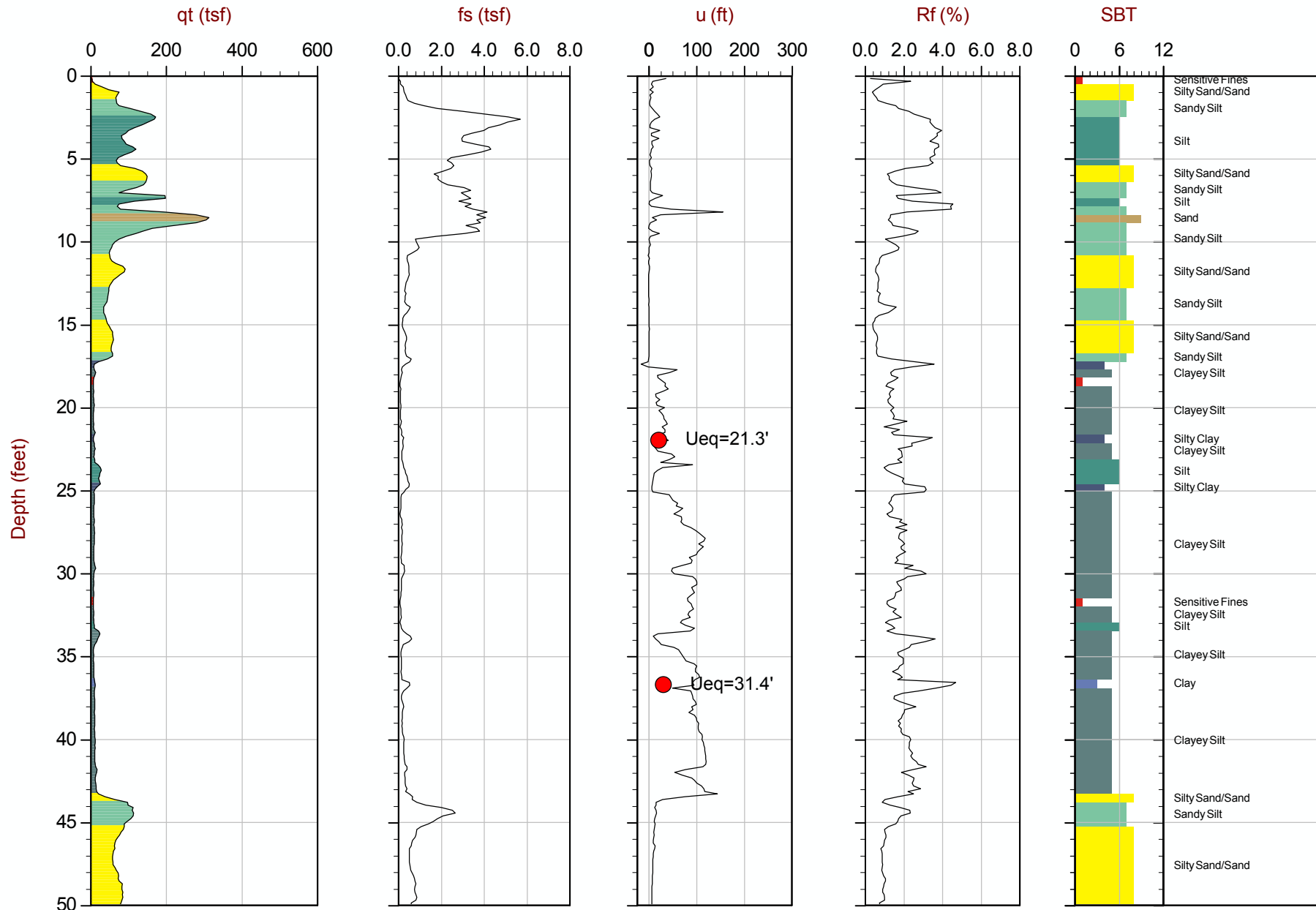
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

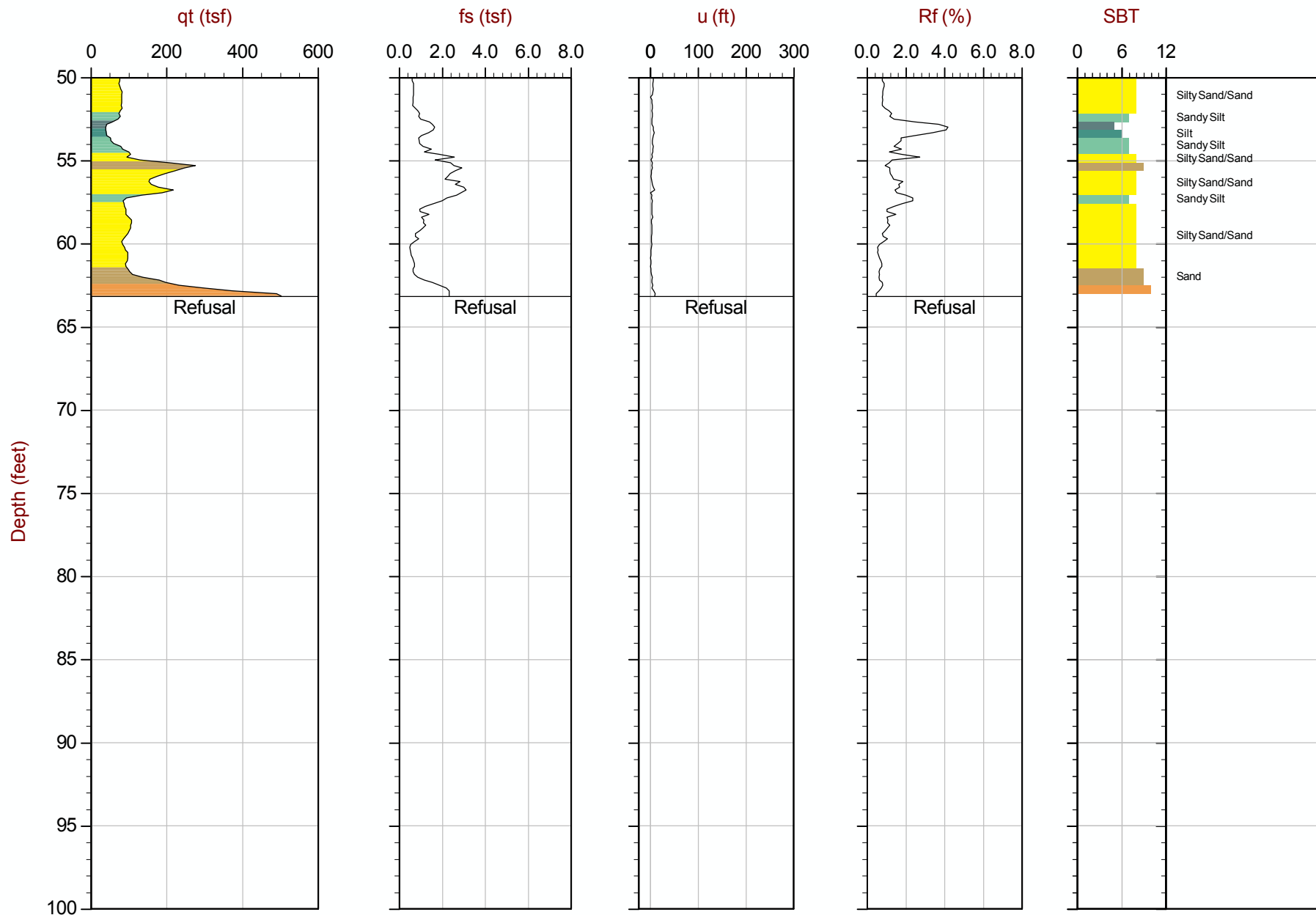
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

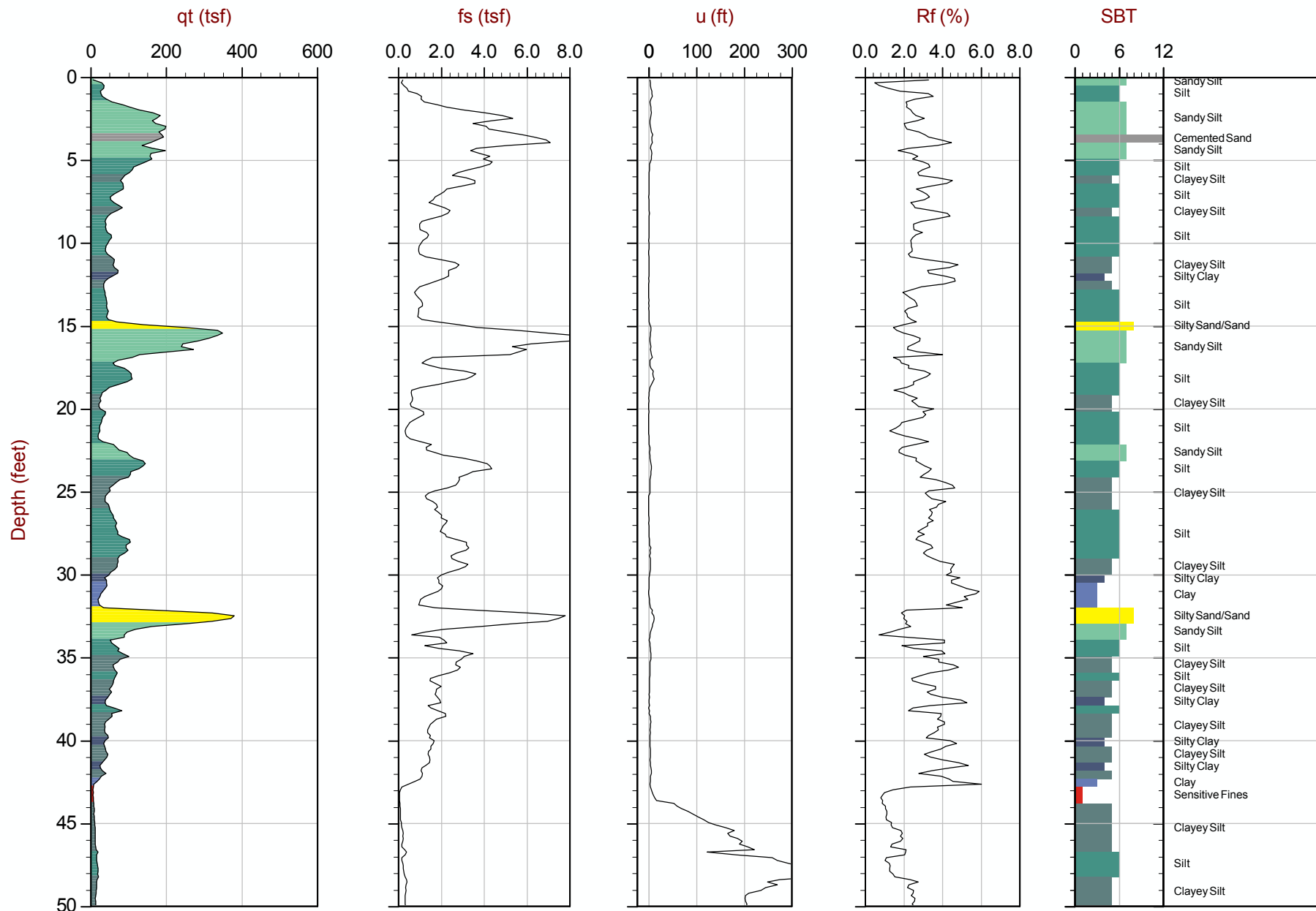
Job No: 13-52118

Date: 11:07:13 12:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation



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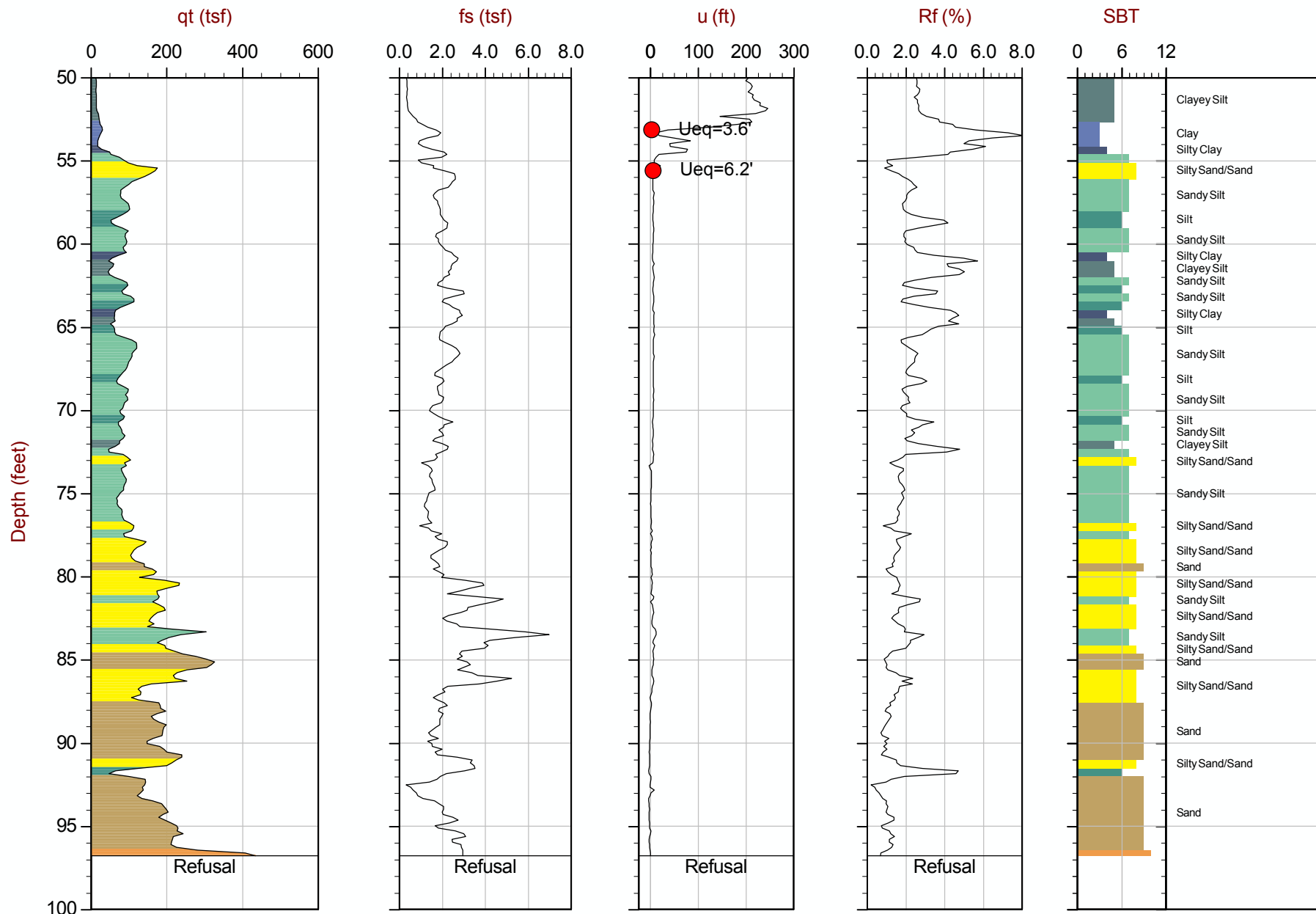
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Date: 11:07:13 12:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

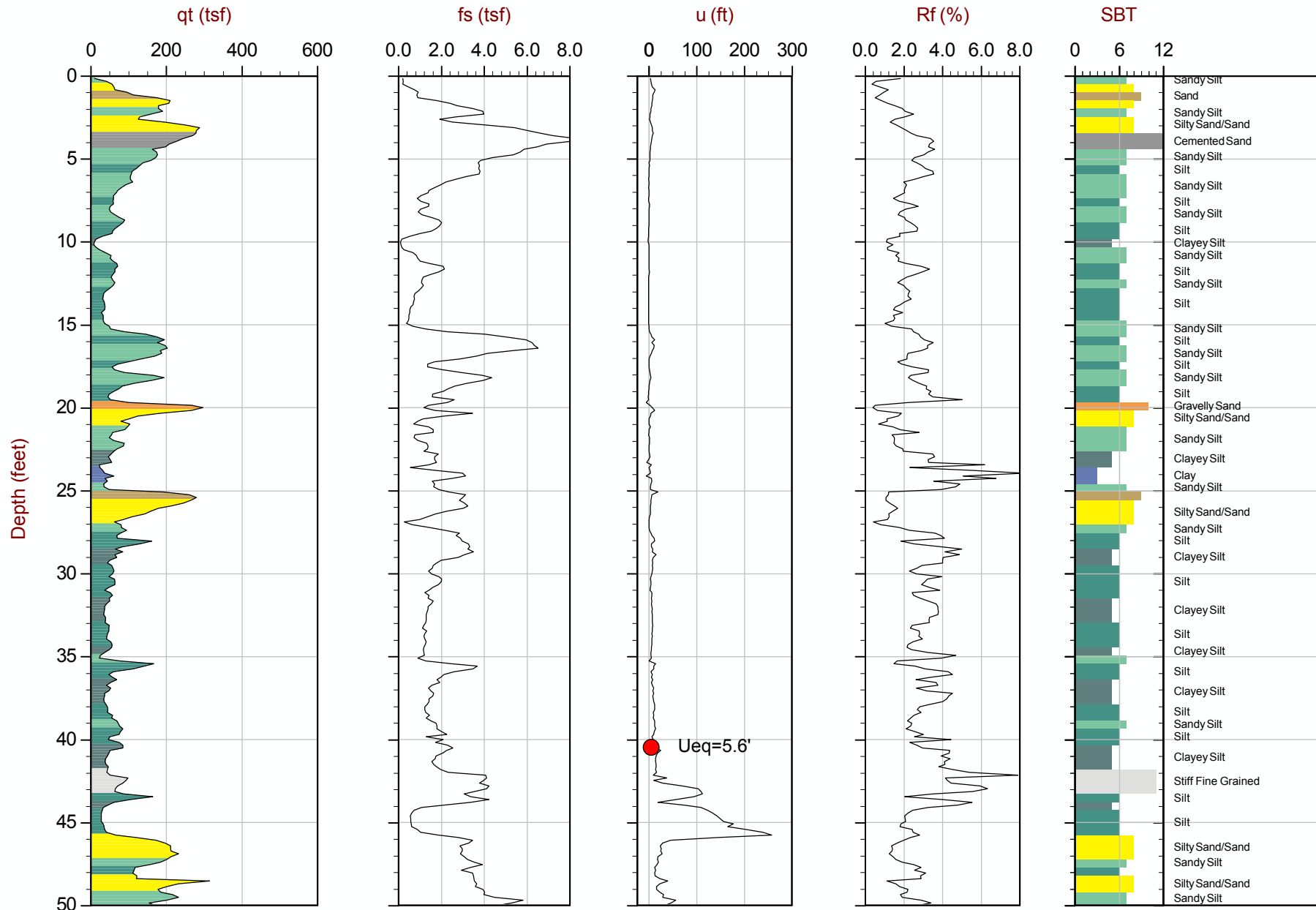
Job No: 13-52118

Date: 11:07:13 10:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155:T1500F15U500



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647150 Long: -108.496000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

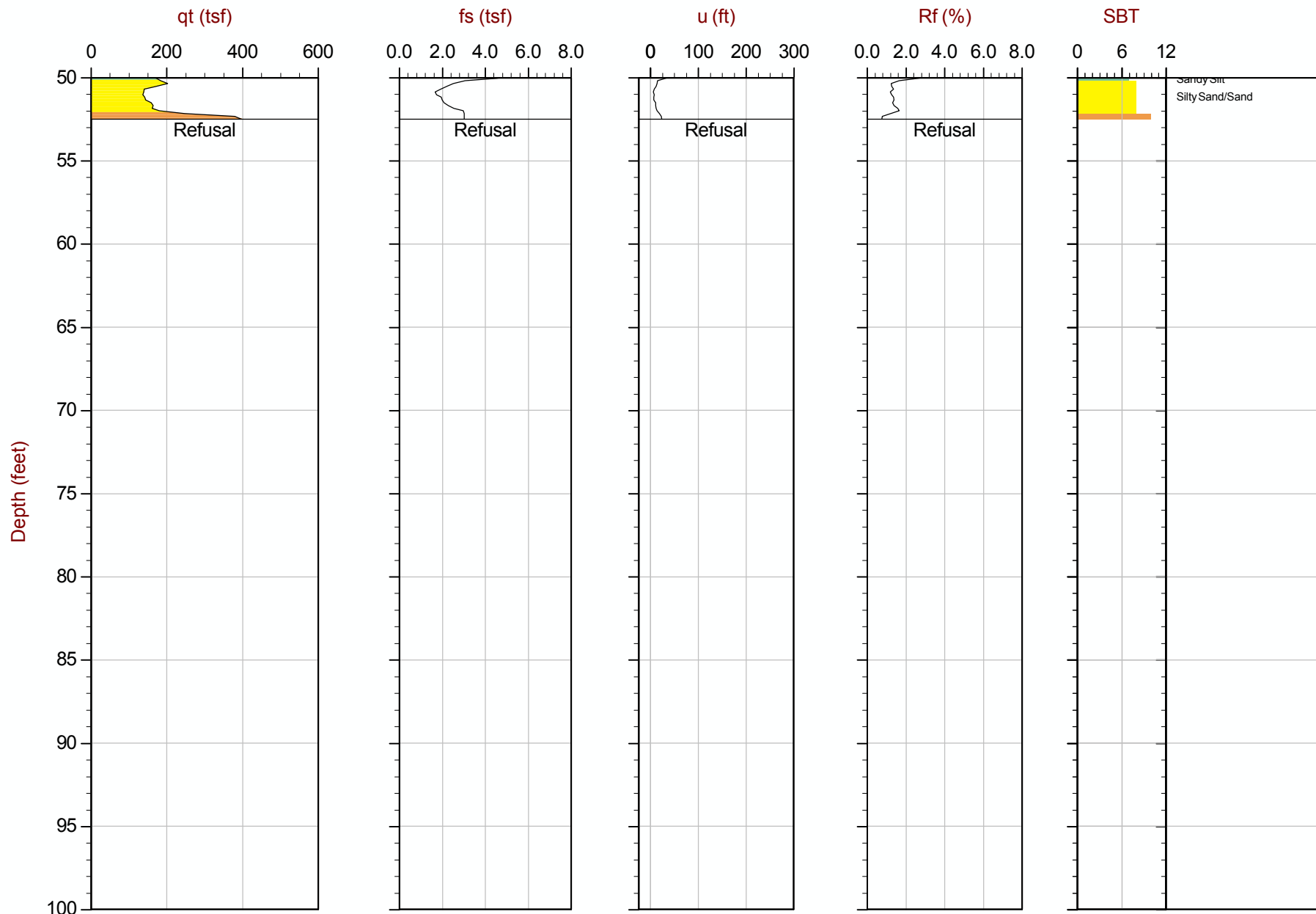
Job No: 13-52118

Date: 11:07:13 10:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155:T1500F15U500



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647150 Long: -108.496000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

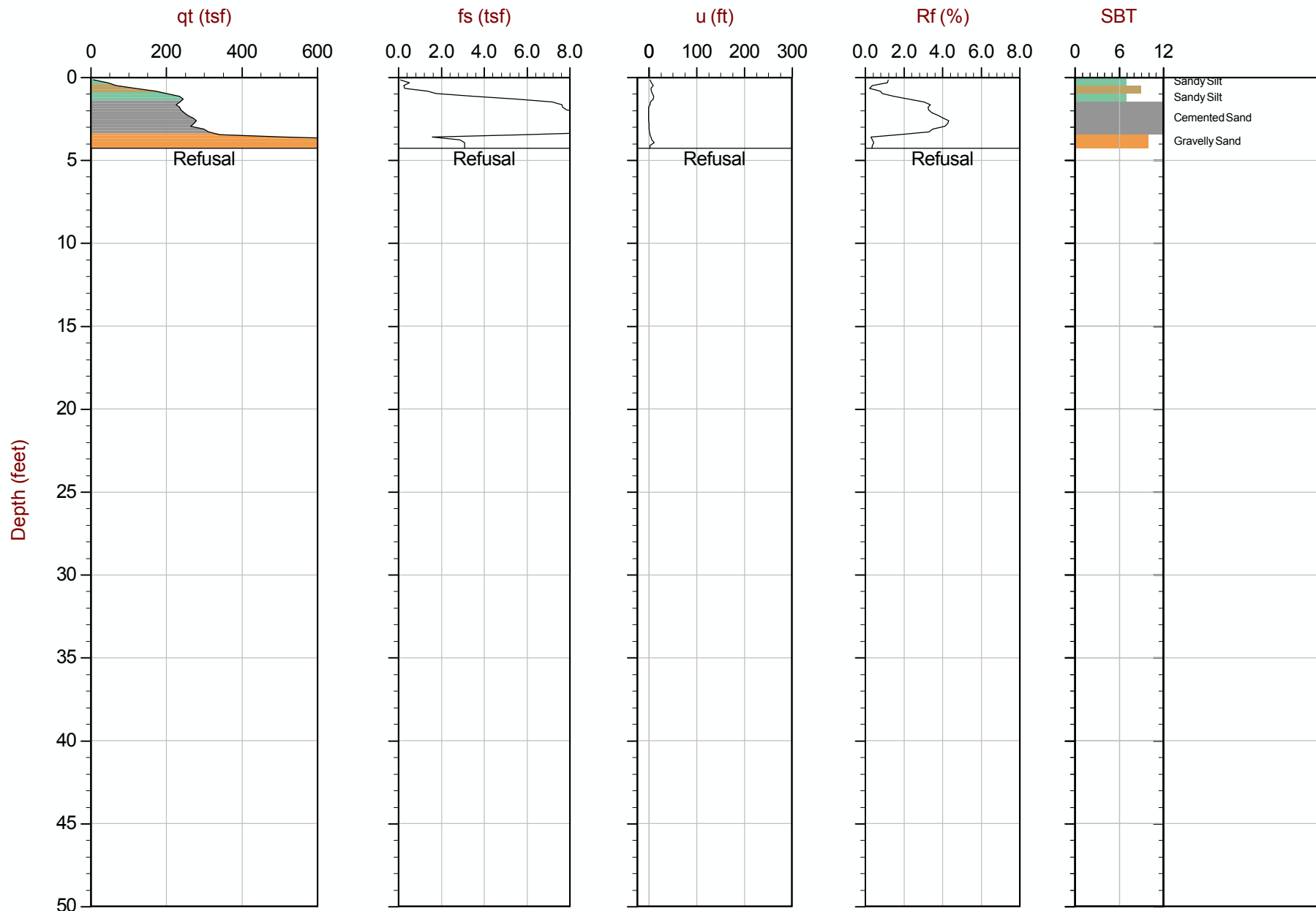
Job No: 13-52118

Date: 11:08:13 09:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13

Cone: 155:T1500F15U500



Max Depth: 1.300 m / 4.27 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649067 Long: -108.499383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

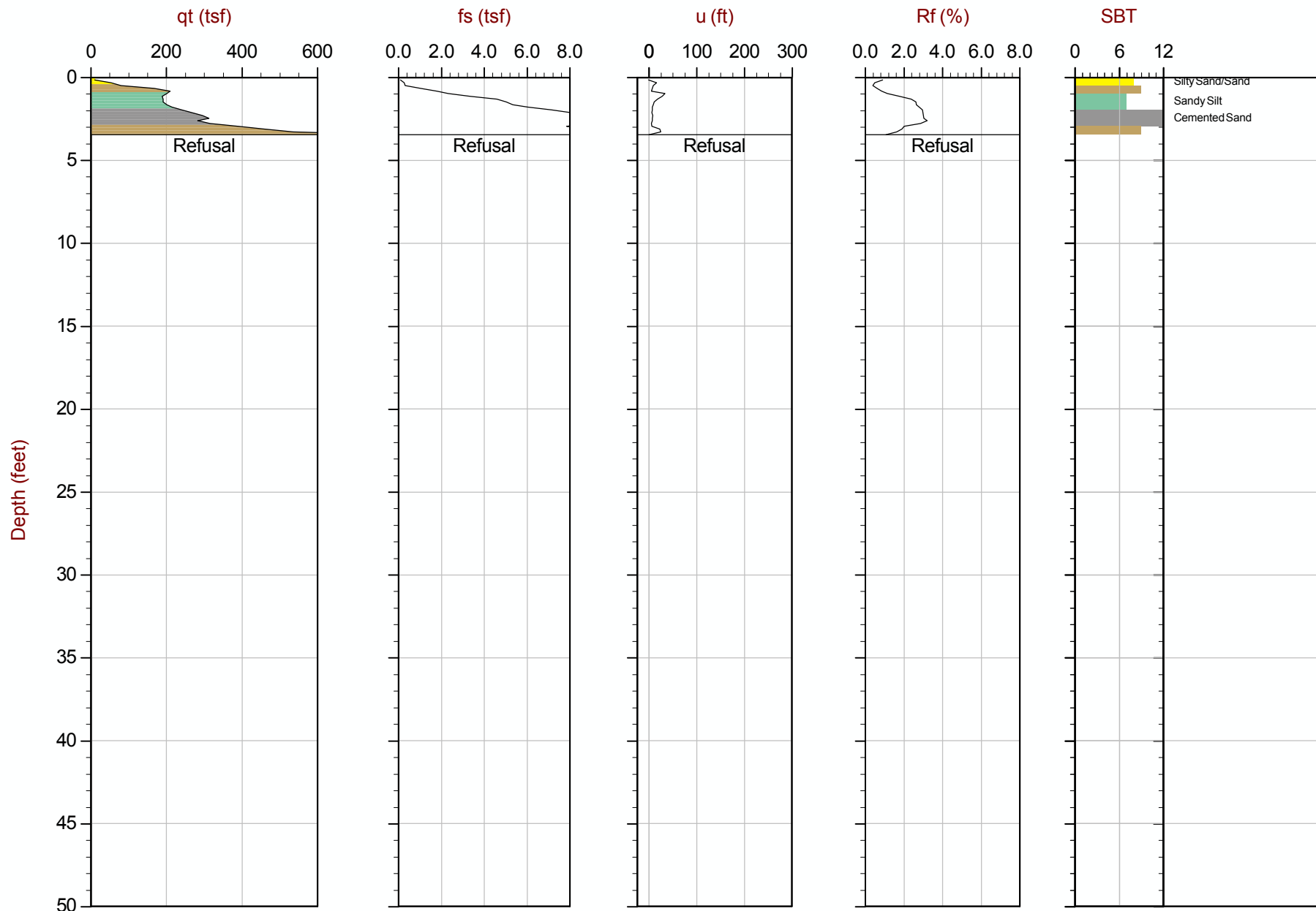
Job No: 13-52118

Date: 11:08:13 10:03

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13B

Cone: 155:T1500F15U500



Max Depth: 1.050 m / 3.44 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649067 Long: -108.499367
● Equilibrium Pore Pressure from Dissipation



MWH Americas

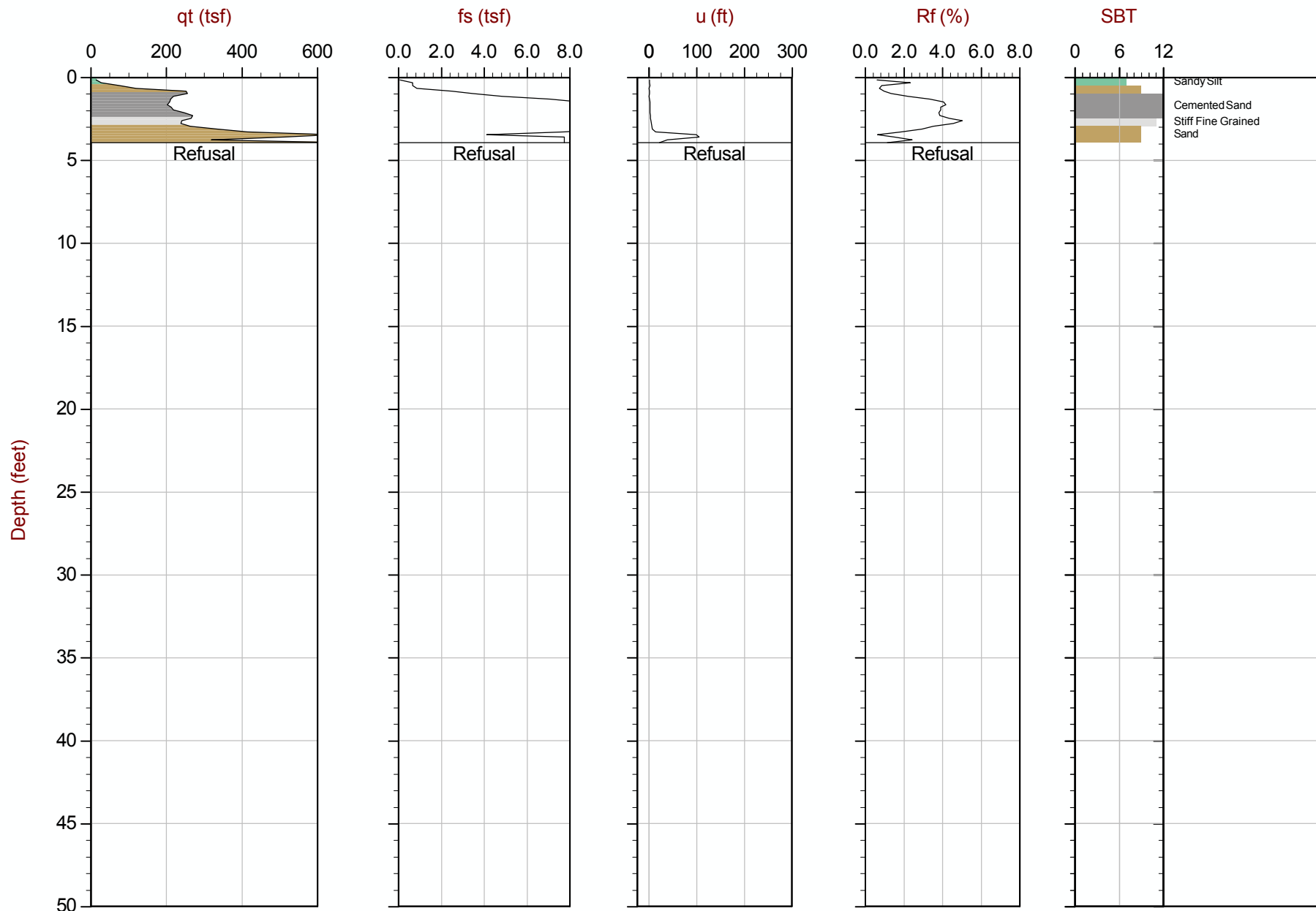
Job No: 13-52118

Date: 11:08:13 10:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13BC

Cone: 155:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13C.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649083 Long: -108.499400
● Equilibrium Pore Pressure from Dissipation



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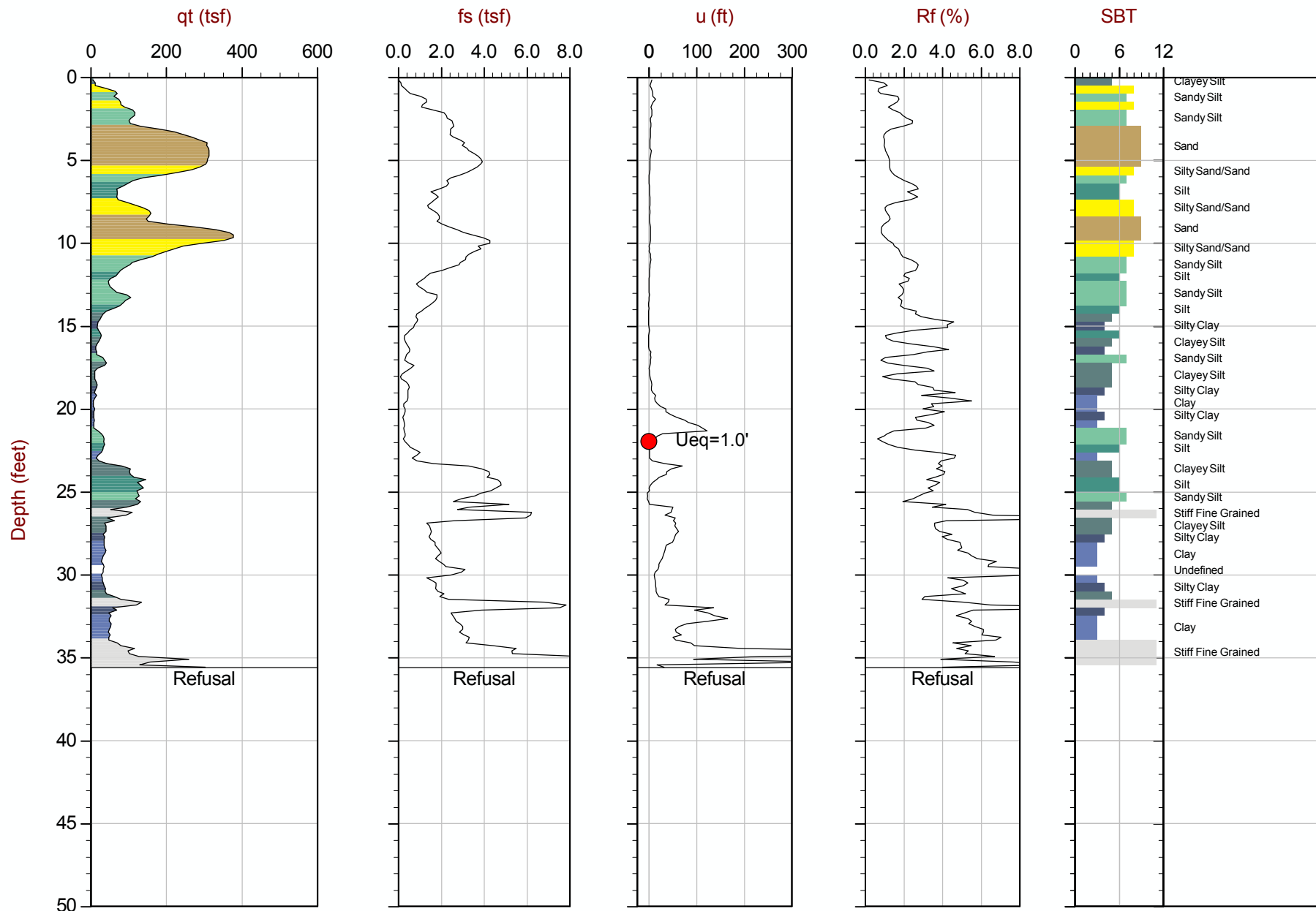
Job No: 13-52118

Date: 11:08:13 14:30

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-14

Cone: 155:T1500F15U500



Max Depth: 10.850 m / 35.60 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP14.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647233 Long: -108.497867
● Equilibrium Pore Pressure from Dissipation



MWH Americas

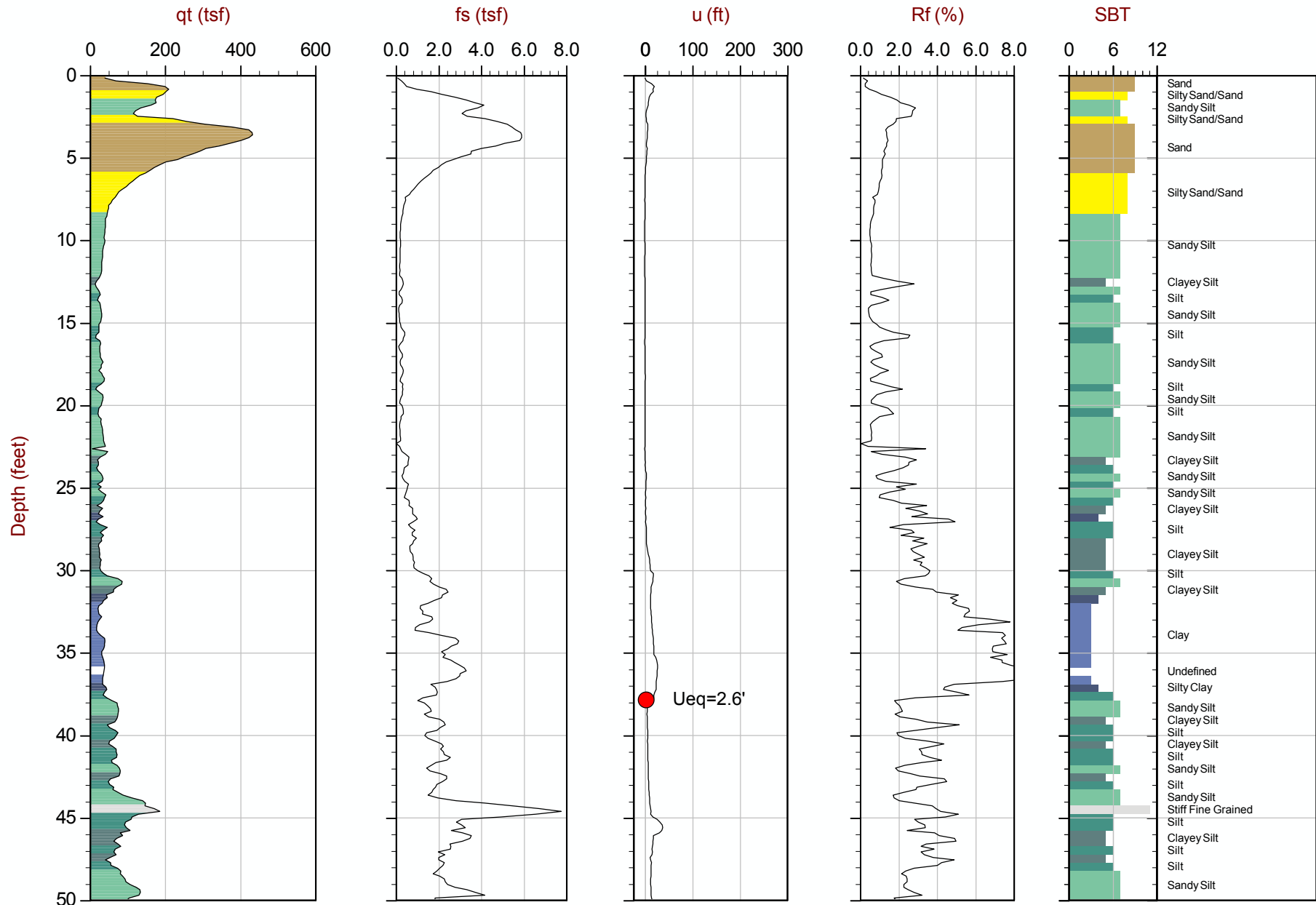
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation



MWH Americas

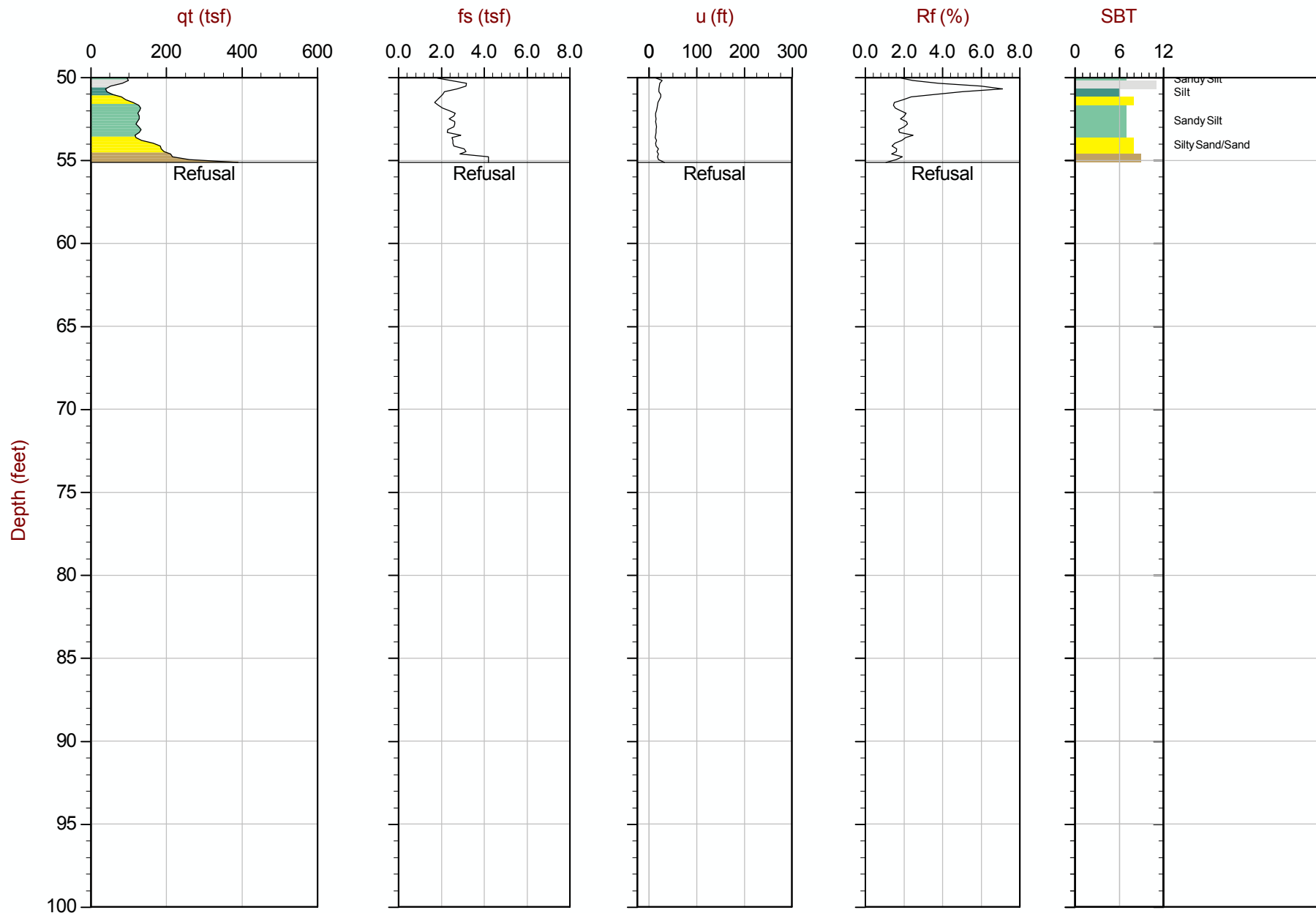
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation



MWH Americas

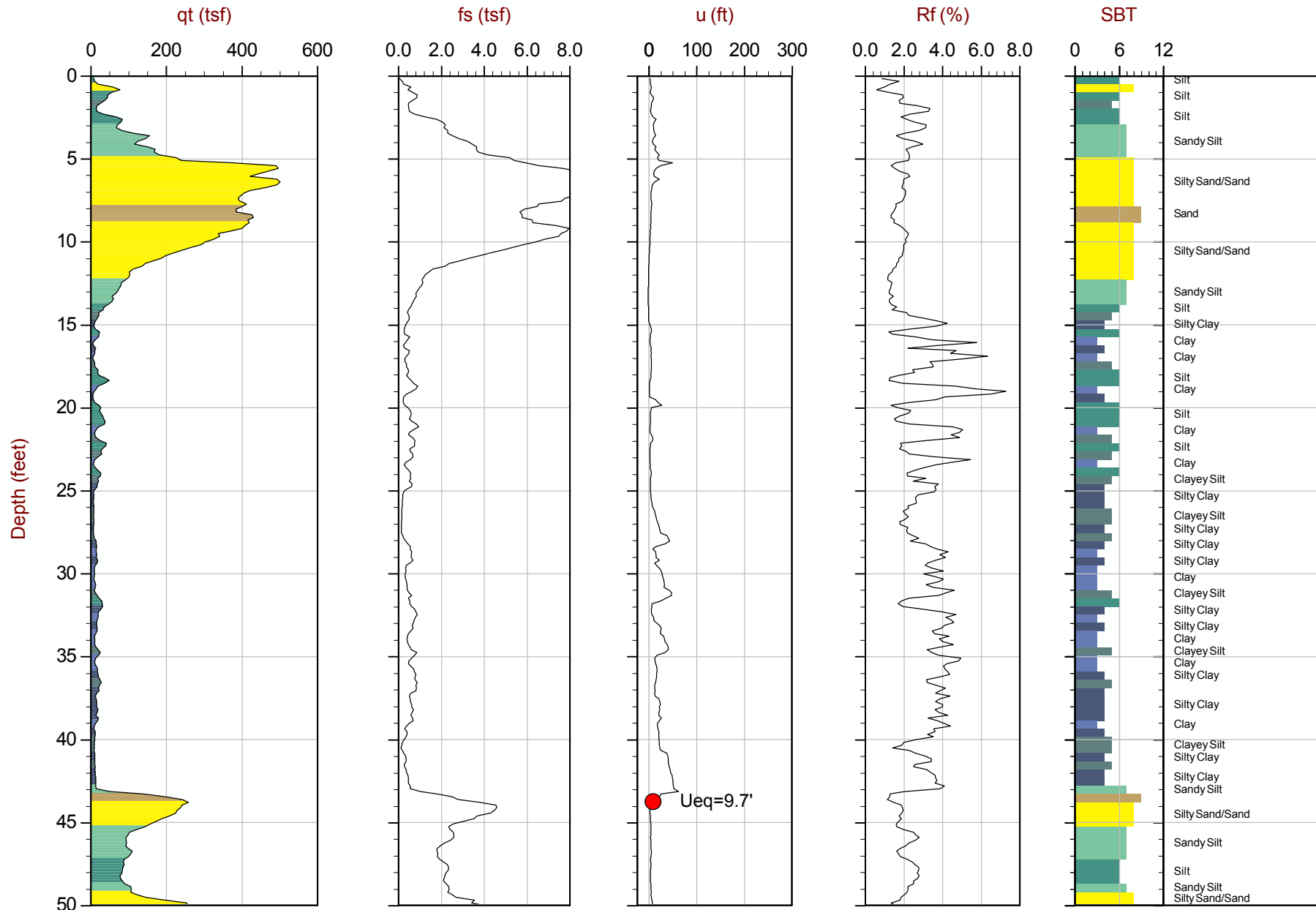
Job No: 13-52118

Date: 11:08:13 12:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-16

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP16.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648200 Long: -108.497850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

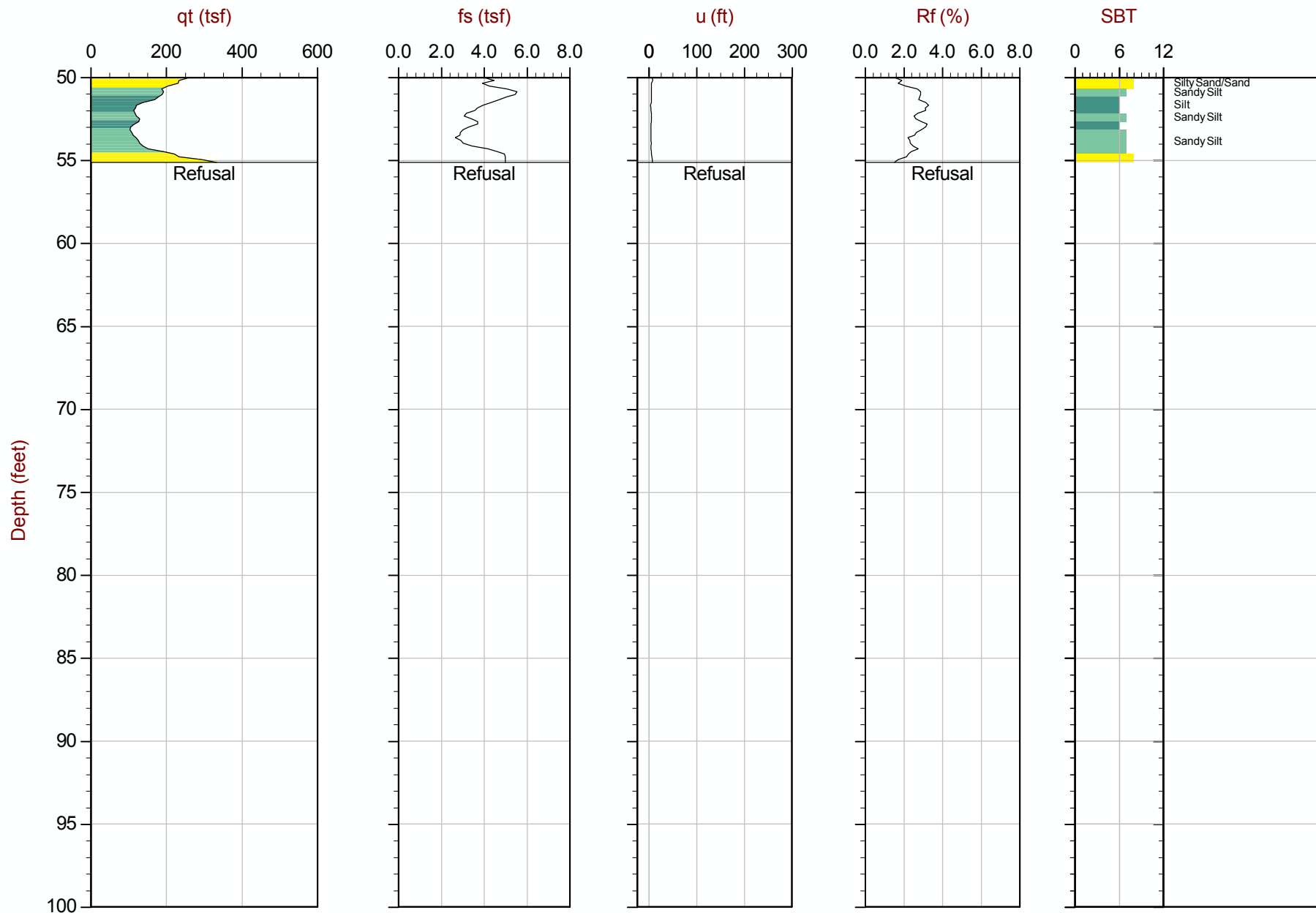
Job No: 13-52118

Date: 11:08:13 12:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-16

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP16.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648200 Long: -108.497850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

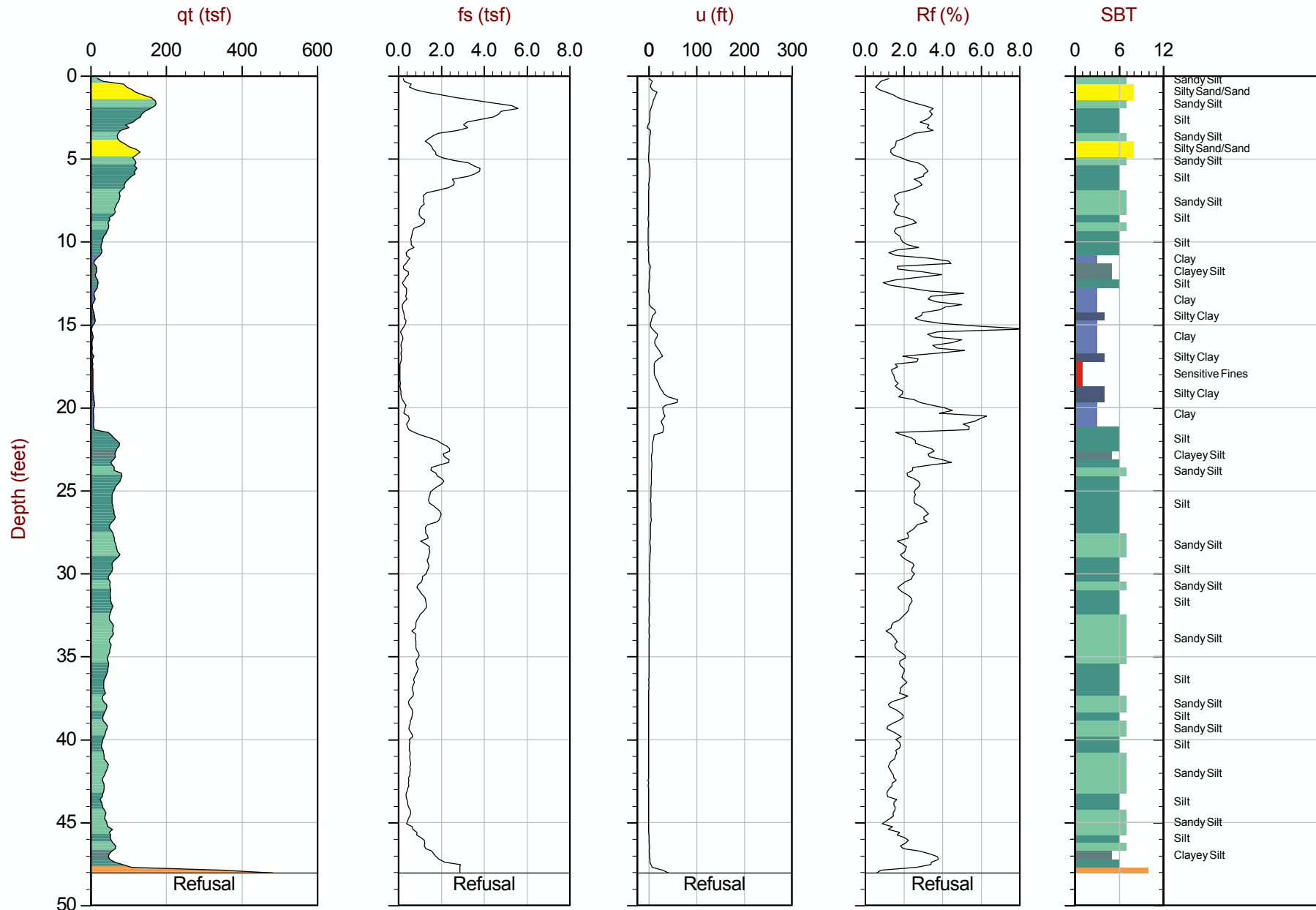
Job No: 13-52118

Date: 11:09:13 14:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-17

Cone: 155:T1500F15U500



Max Depth: 14.650 m / 48.06 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP17.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648617 Long: -108.496383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

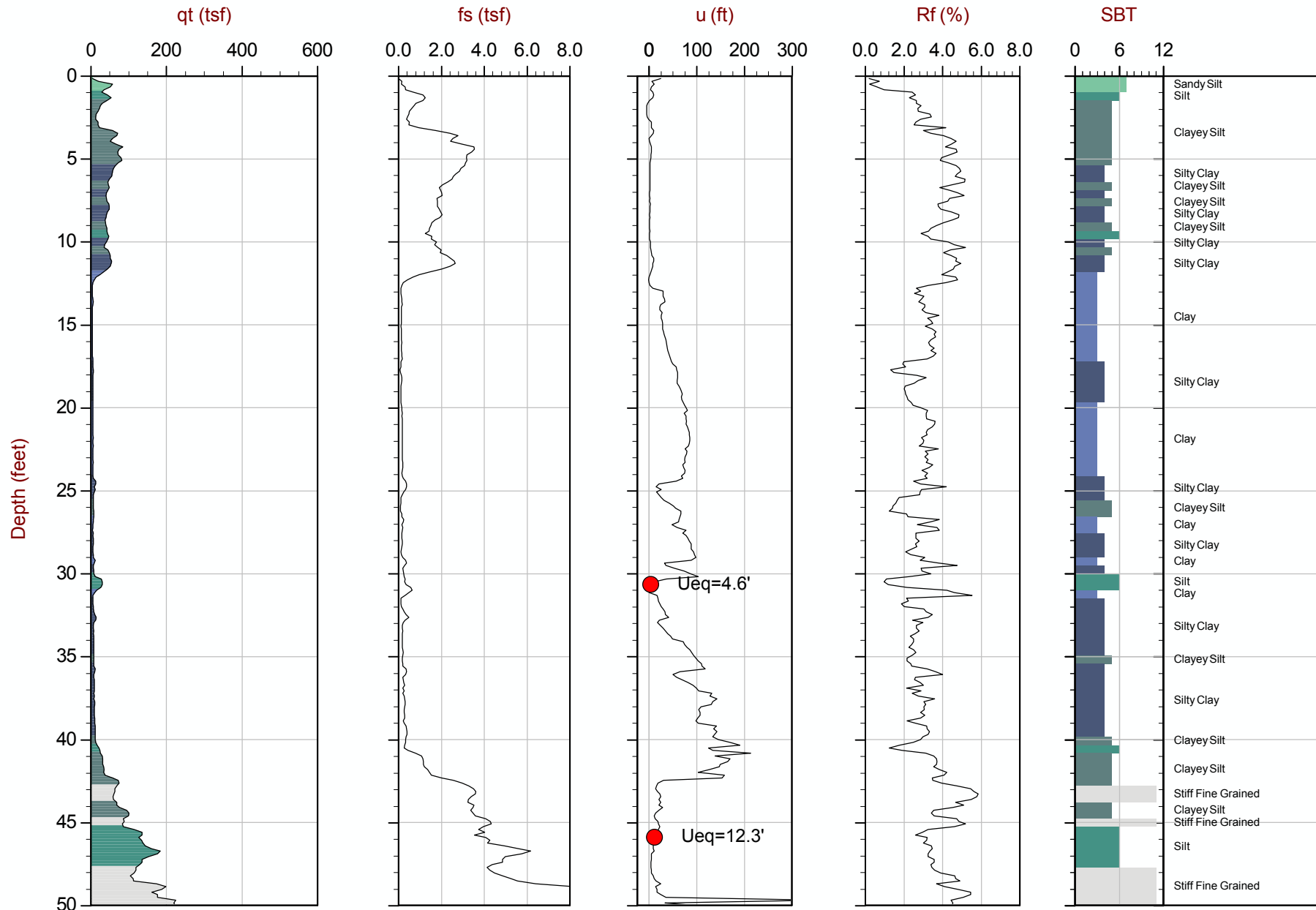
Job No: 13-52118

Date: 11:09:13 10:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-18

Cone: 155:T1500F15U500



Max Depth: 15.250 m / 50.03 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP18.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648000 Long: -108.496683
● Equilibrium Pore Pressure from Dissipation



MWH Americas

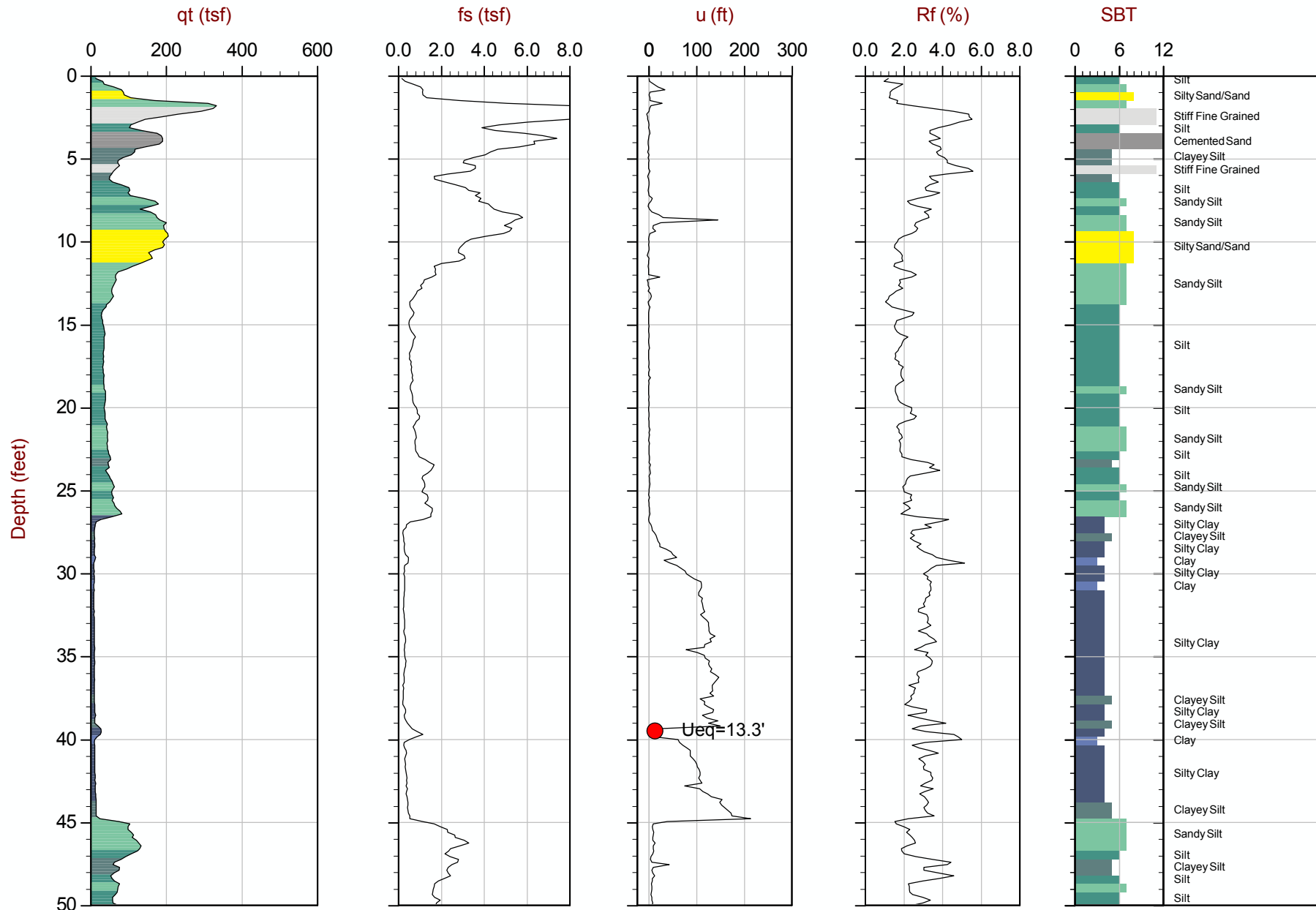
Job No: 13-52118

Date: 11:09:13 11:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-19

Cone: 155:T1500F15U500



Max Depth: 17.750 m / 58.23 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP19.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647450 Long: -108.497000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

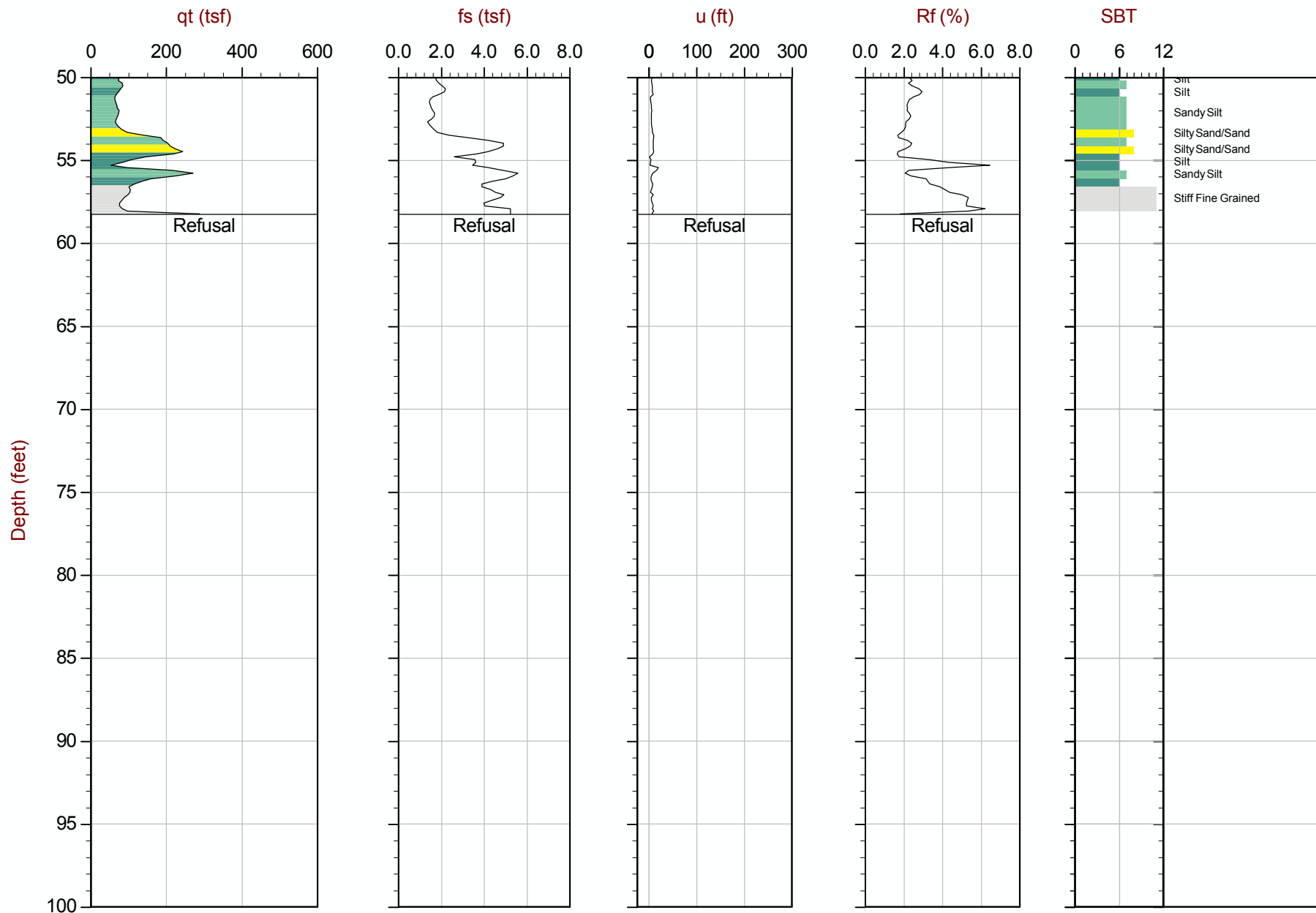
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Date: 11:09:13 11:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-19

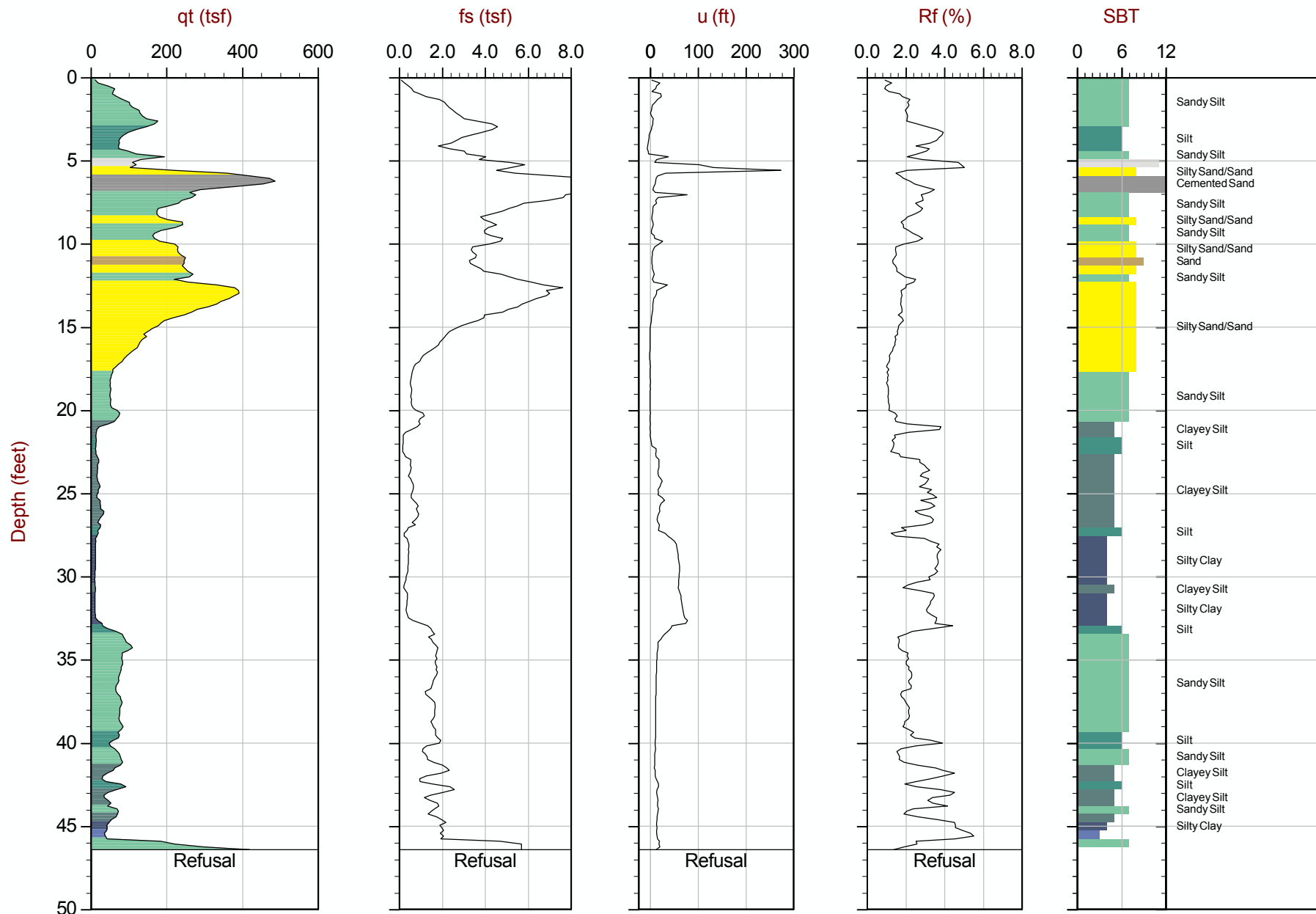
Cone: 155:T1500F15U500



Max Depth: 17.750 m / 58.23 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP19.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647450 Long: -108.497000
● Equilibrium Pore Pressure from Dissipation



Max Depth: 14.150 m / 46.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP20.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.646883 Long: -108.497167
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

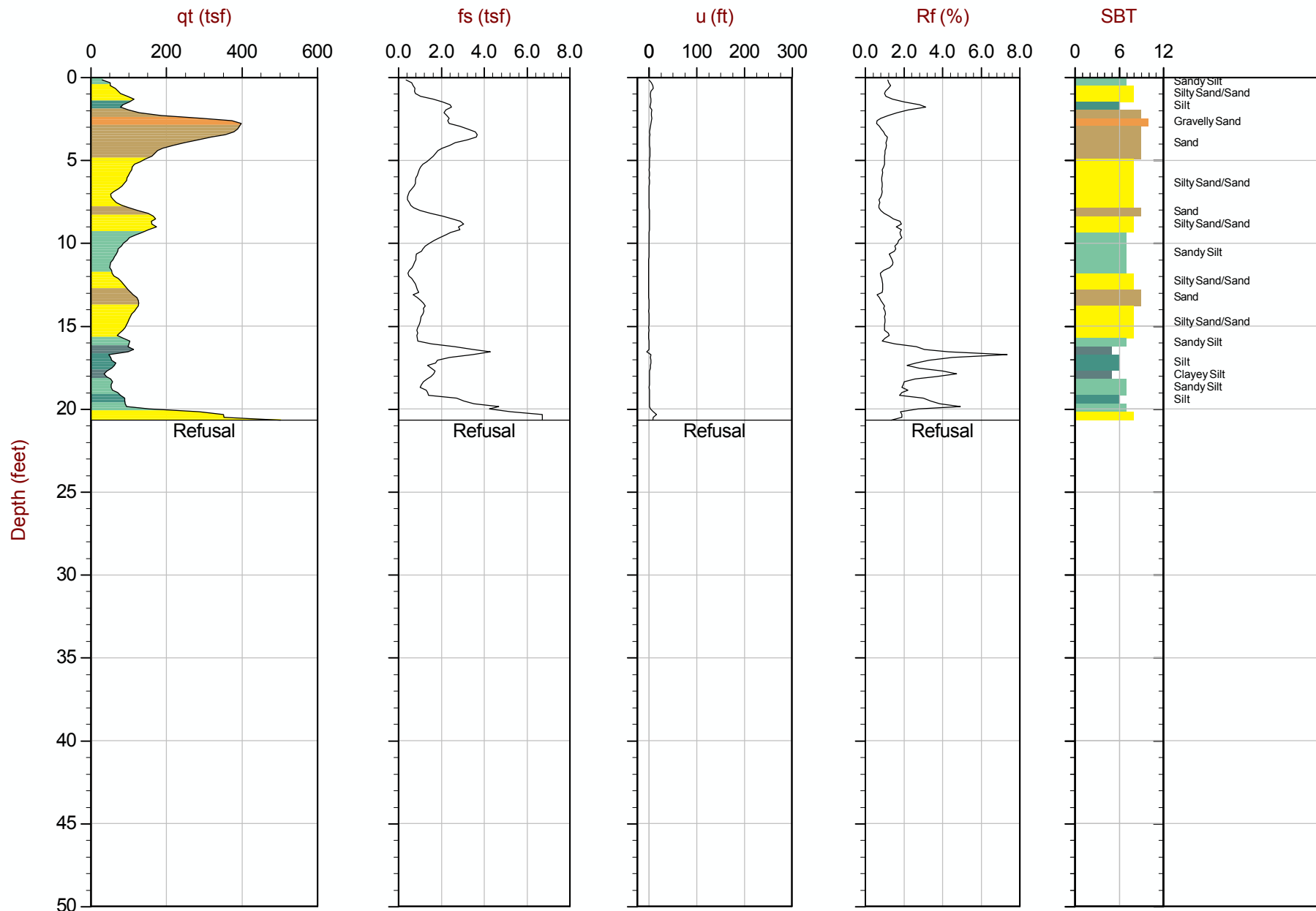
Job No: 13-52118

Date: 11:08:13 15:34

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-21

Cone: 155:T1500F15U500



Max Depth: 6.300 m / 20.67 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP21.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646283 Long: -108.501583
● Equilibrium Pore Pressure from Dissipation



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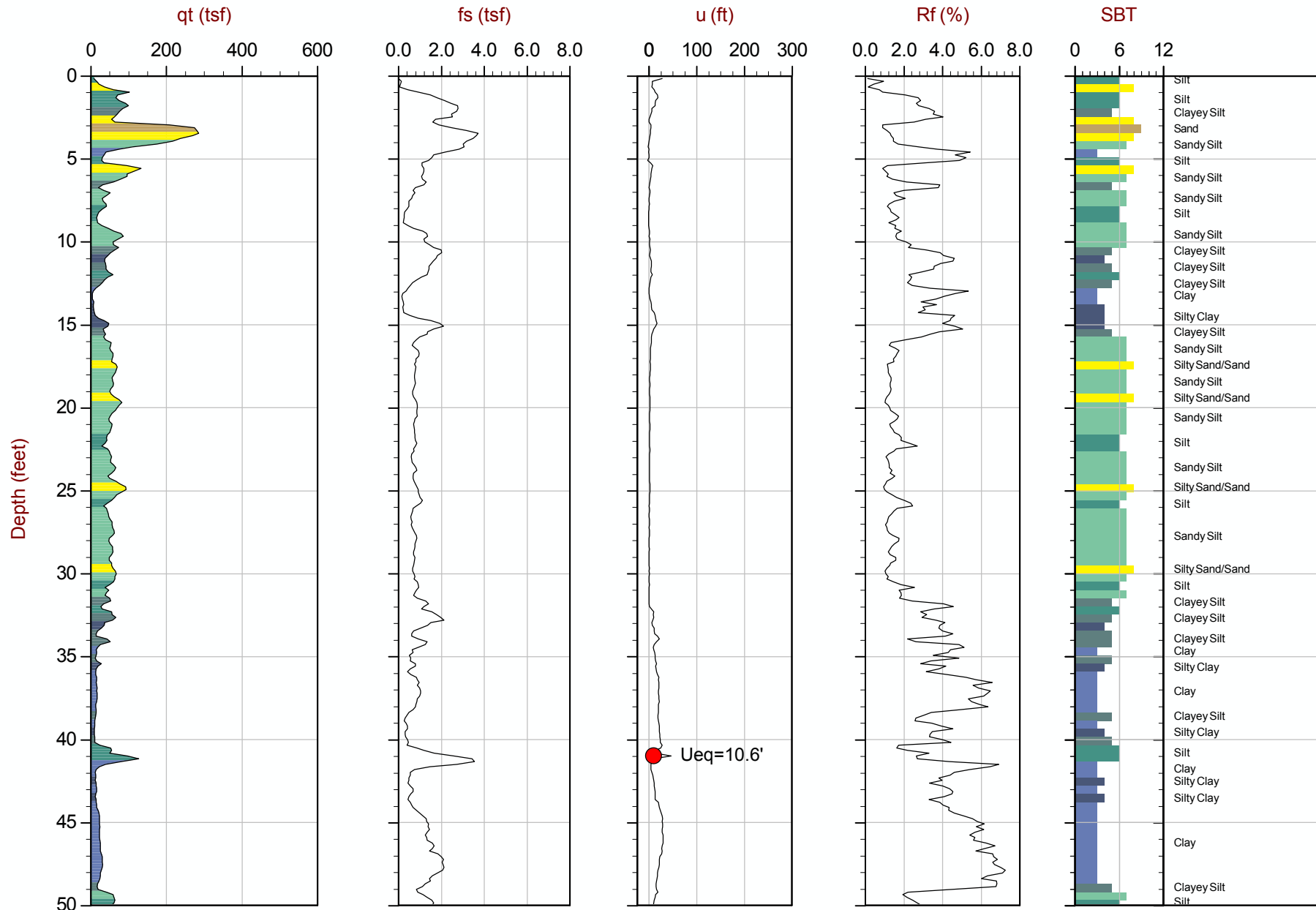
Job No: 13-52118

Date: 11:10:13 11:54

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-22

Cone: 155:T1500F15U500



Max Depth: 28.750 m / 94.32 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP22.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647950 Long: -108.502917
● Equilibrium Pore Pressure from Dissipation



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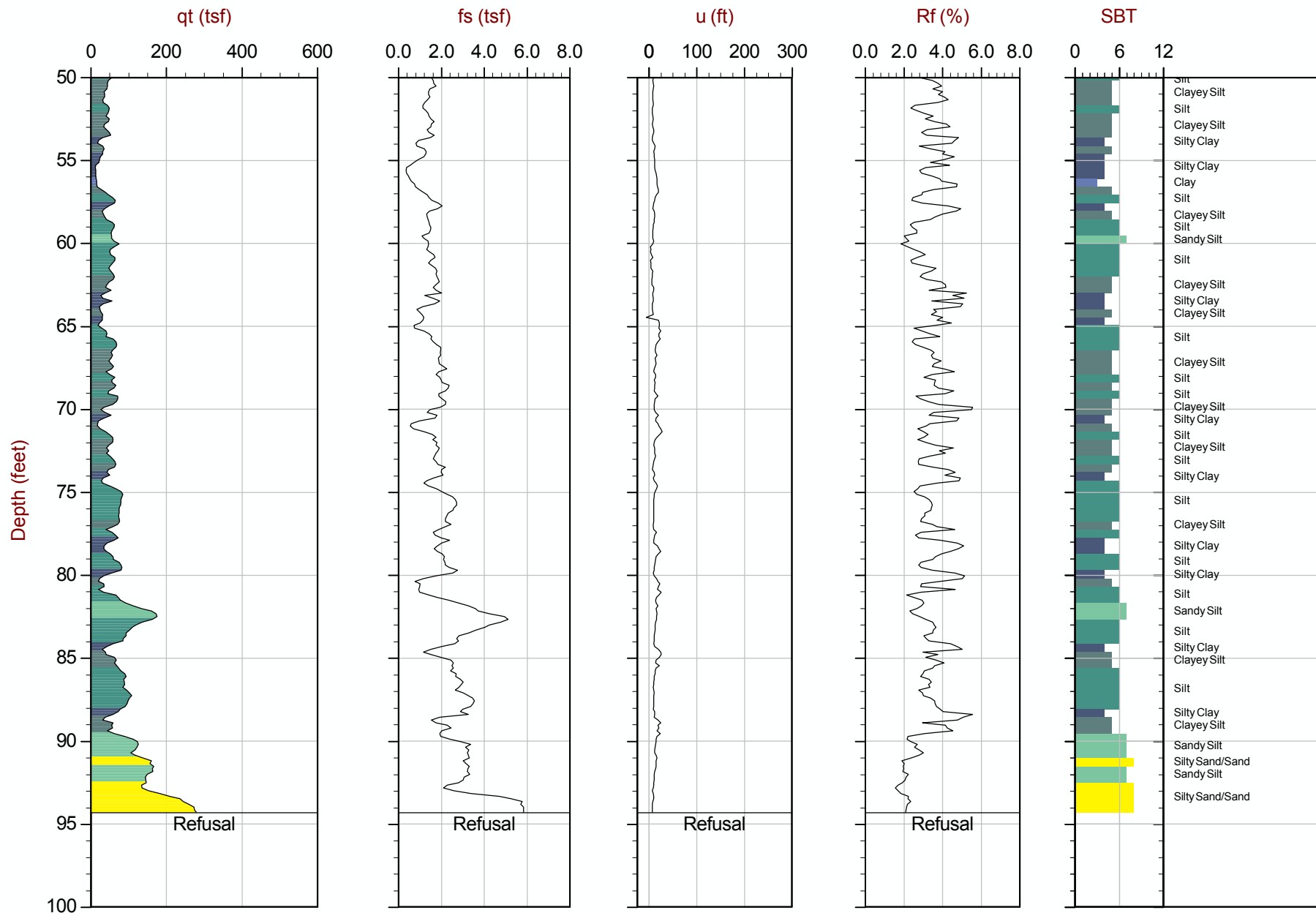
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Date: 11:10:13 11:54

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-22

Cone: 155:T1500F15U500



Max Depth: 28.750 m / 94.32 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP22.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647950 Long: -108.502917
● Equilibrium Pore Pressure from Dissipation



MWH Americas

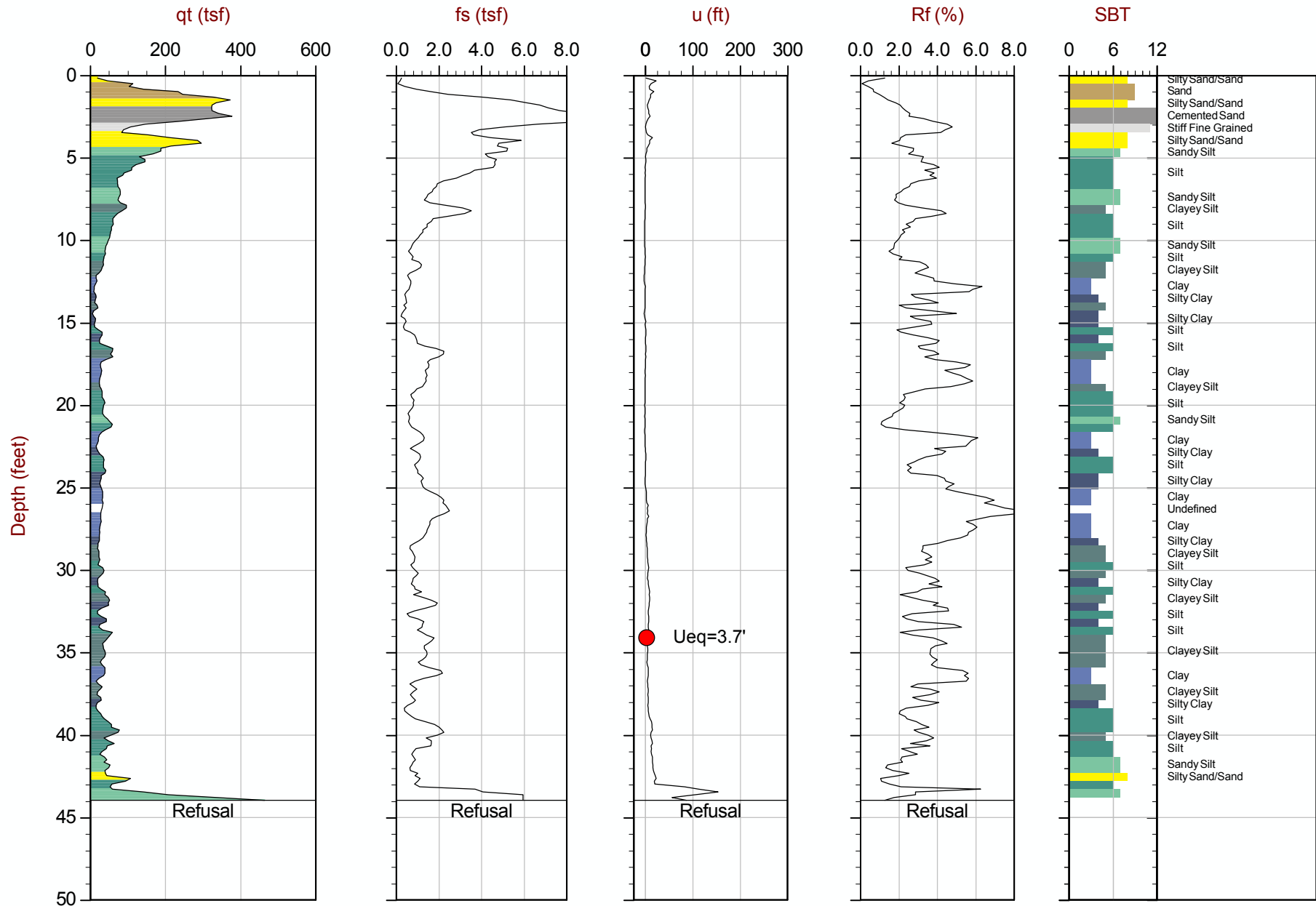
Job No: 13-52118

Date: 11:08:13 16:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-23

Cone: 155:T1500F15U500



Max Depth: 13.400 m / 43.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP23.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650833 Long: -108.497700
● Equilibrium Pore Pressure from Dissipation



MWH Americas

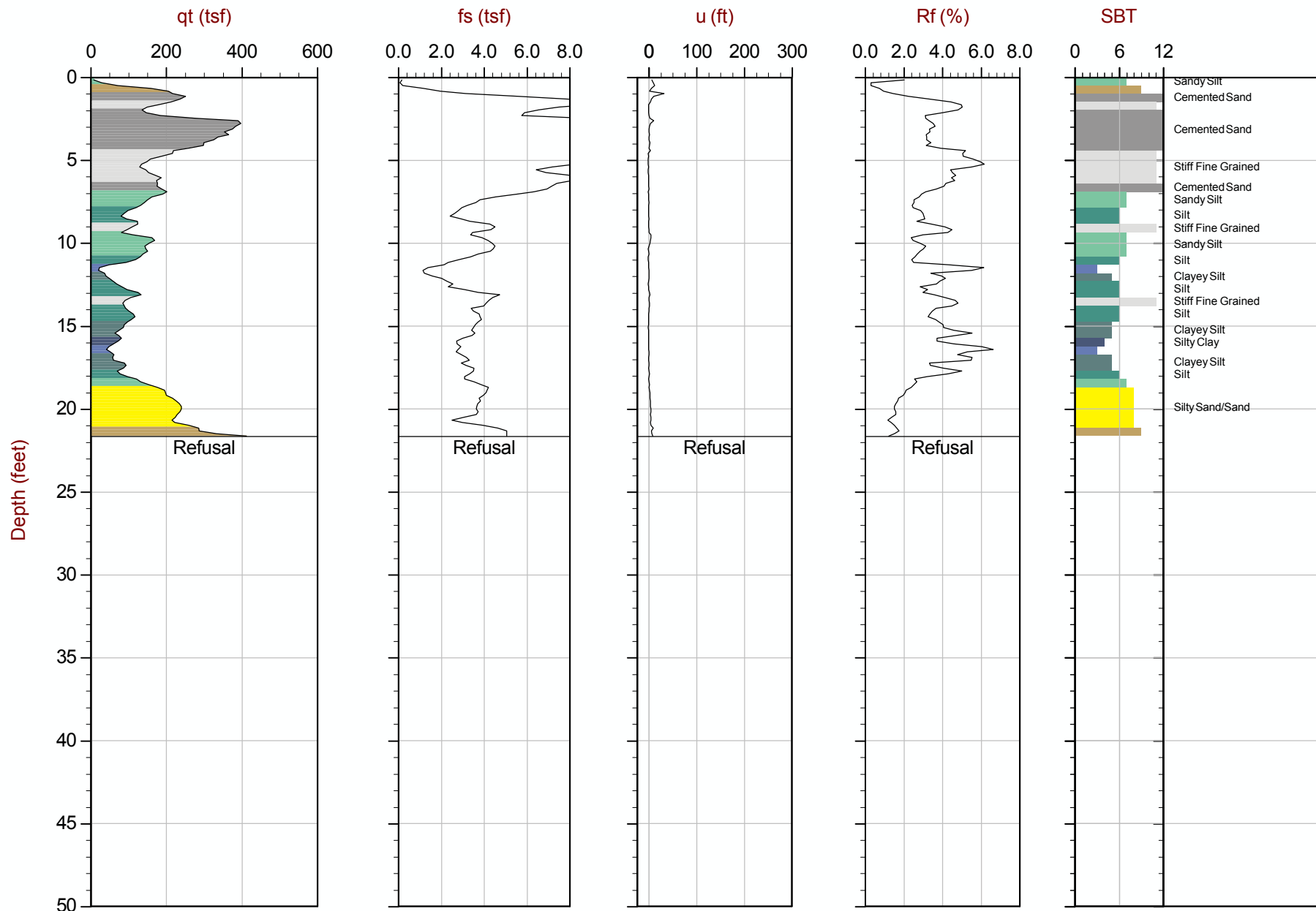
Job No: 13-52118

Date: 11:09:13 16:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-24

Cone: 155:T1500F15U500



Max Depth: 6.600 m / 21.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP24.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650000 Long: -108.498717
● Equilibrium Pore Pressure from Dissipation



MWH Americas

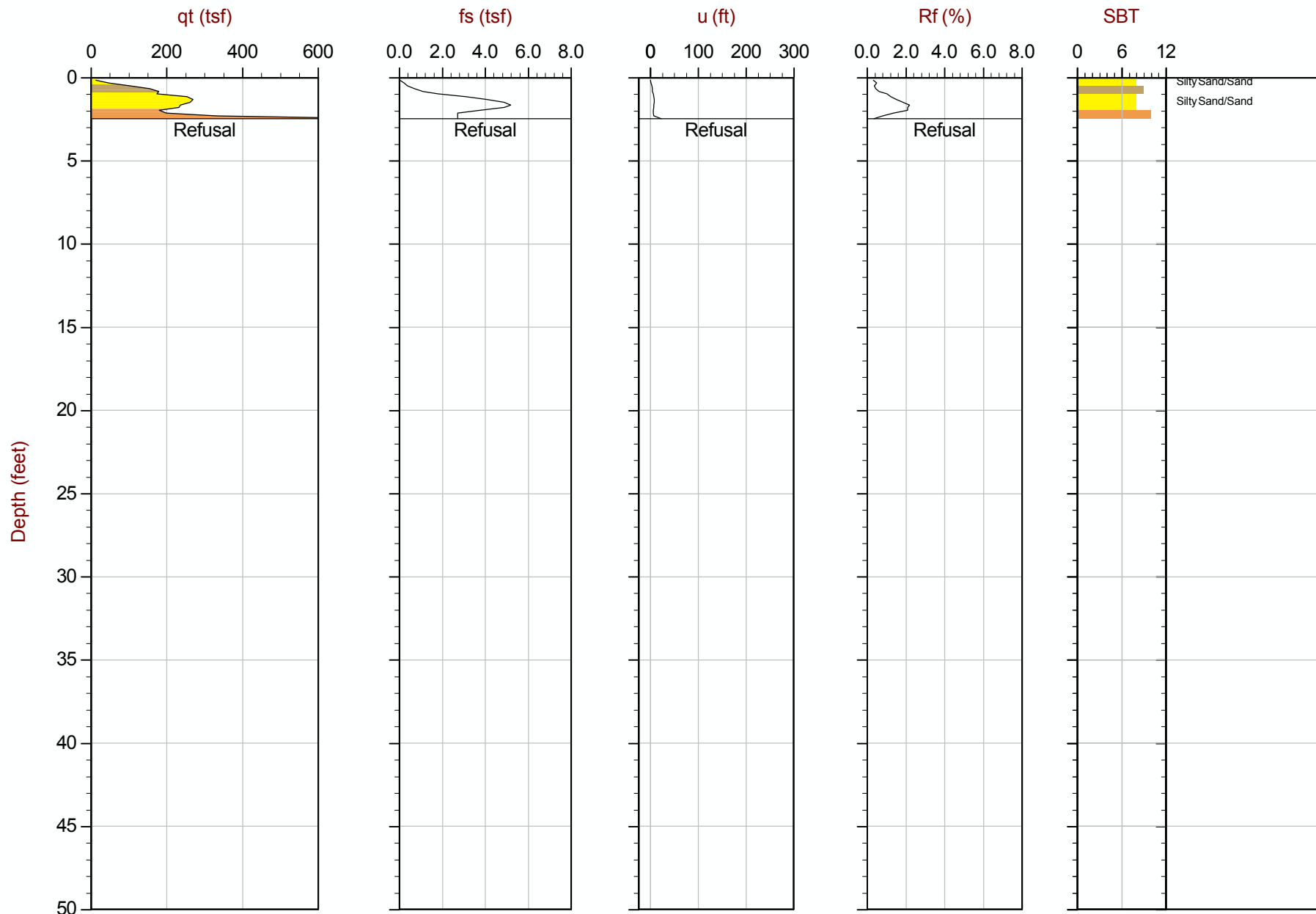
Job No: 13-52118

Date: 11:09:13 08:11

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-25

Cone: 155:T1500F15U500



Max Depth: 0.750 m / 2.46 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP25.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649650 Long: -108.497733
● Equilibrium Pore Pressure from Dissipation



MWH Americas

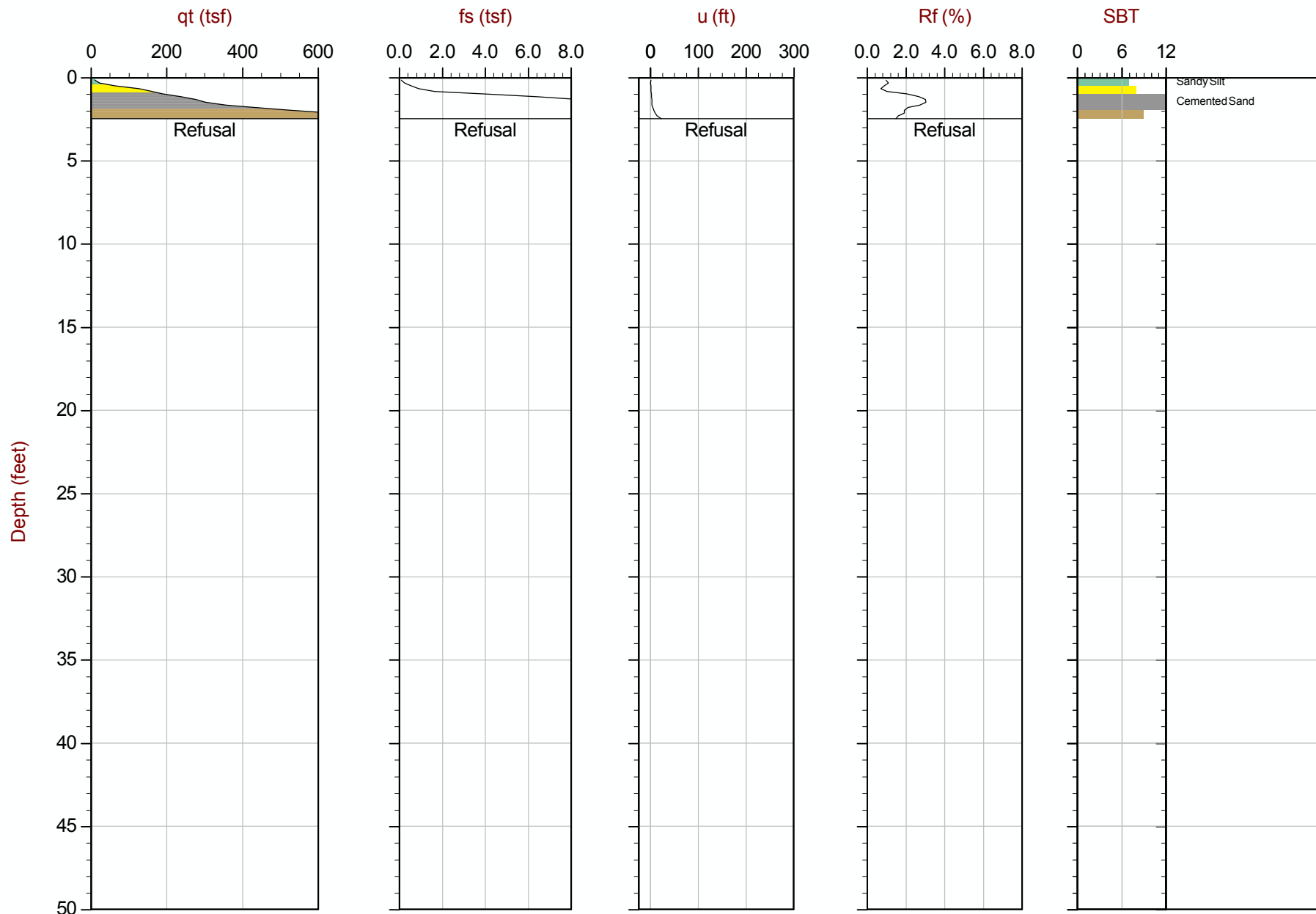
Job No: 13-52118

Date: 11:09:13 08:40

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-25B

Cone: 155:T1500F15U500



Max Depth: 0.750 m / 2.46 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP25B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649650 Long: -108.497767
● Equilibrium Pore Pressure from Dissipation



MWH Americas

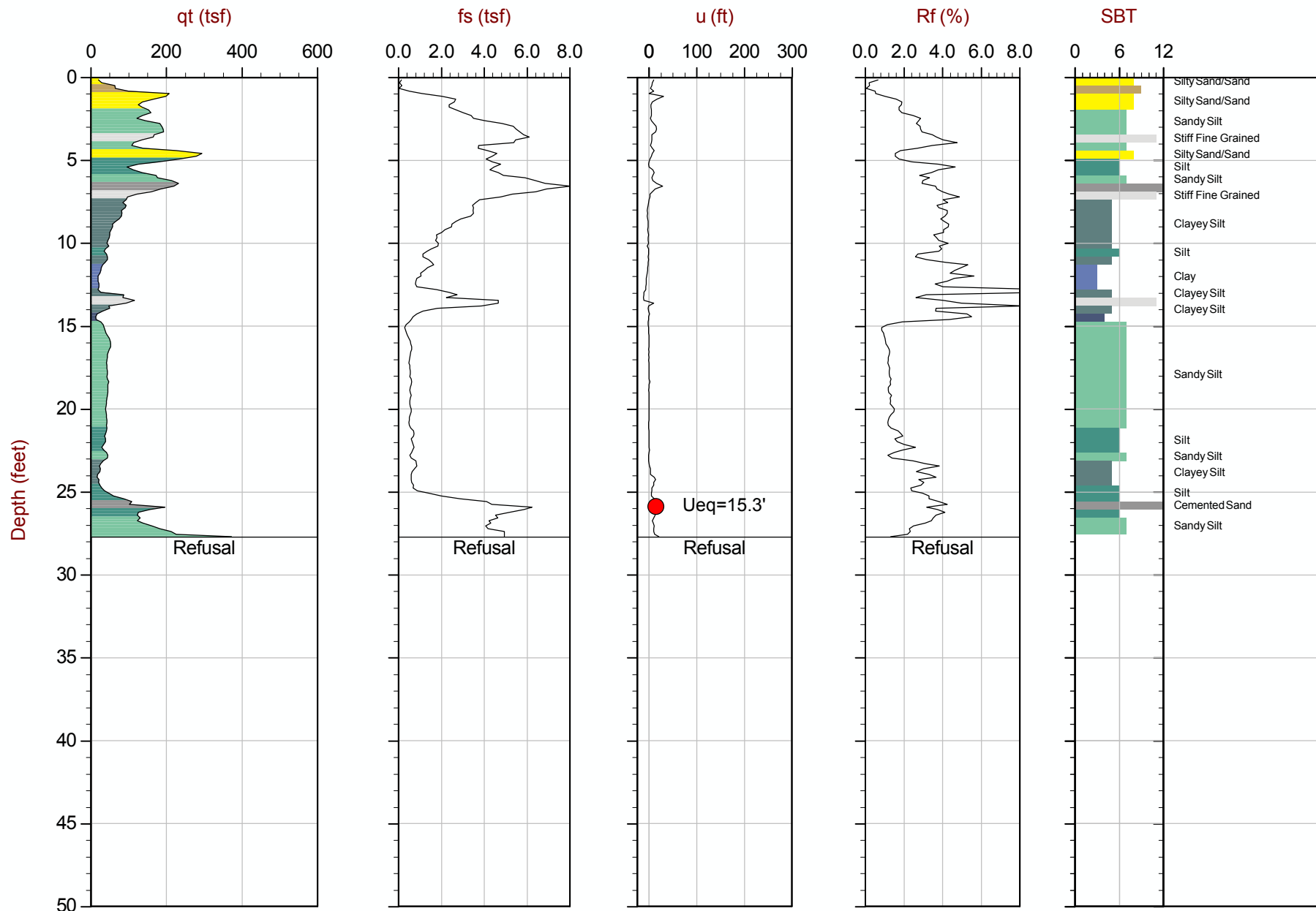
Job No: 13-52118

Date: 11:09:13 09:25

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-26

Cone: 155:T1500F15U500



Max Depth: 8.450 m / 27.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP26.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648417 Long: -108.500567
● Equilibrium Pore Pressure from Dissipation



MWH Americas

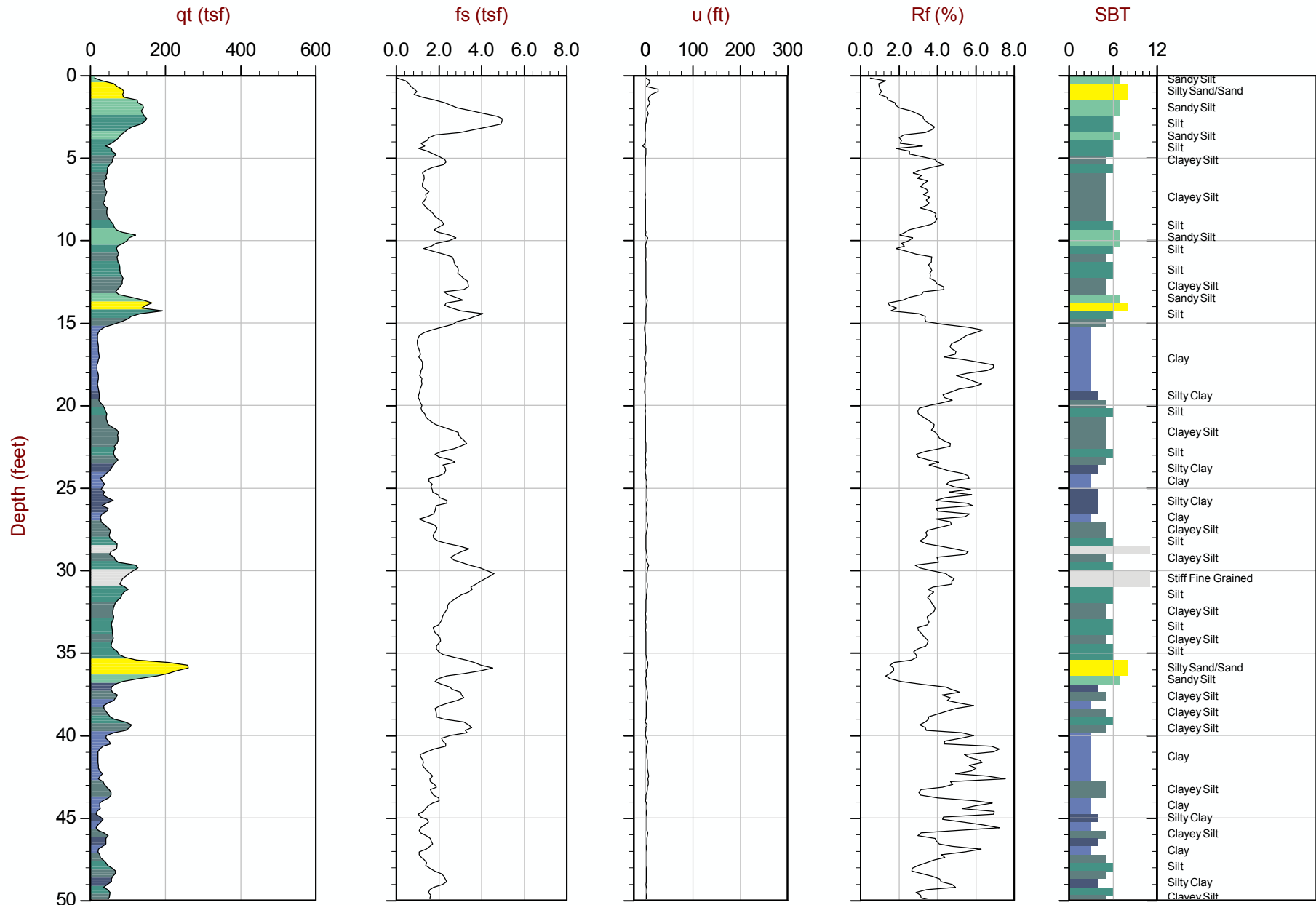
Job No: 13-52118

Date: 11:09:13 15:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-27

Cone: 155:T1500F15U500



Max Depth: 24.300 m / 79.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP27.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.496367
● Equilibrium Pore Pressure from Dissipation



MWH Americas

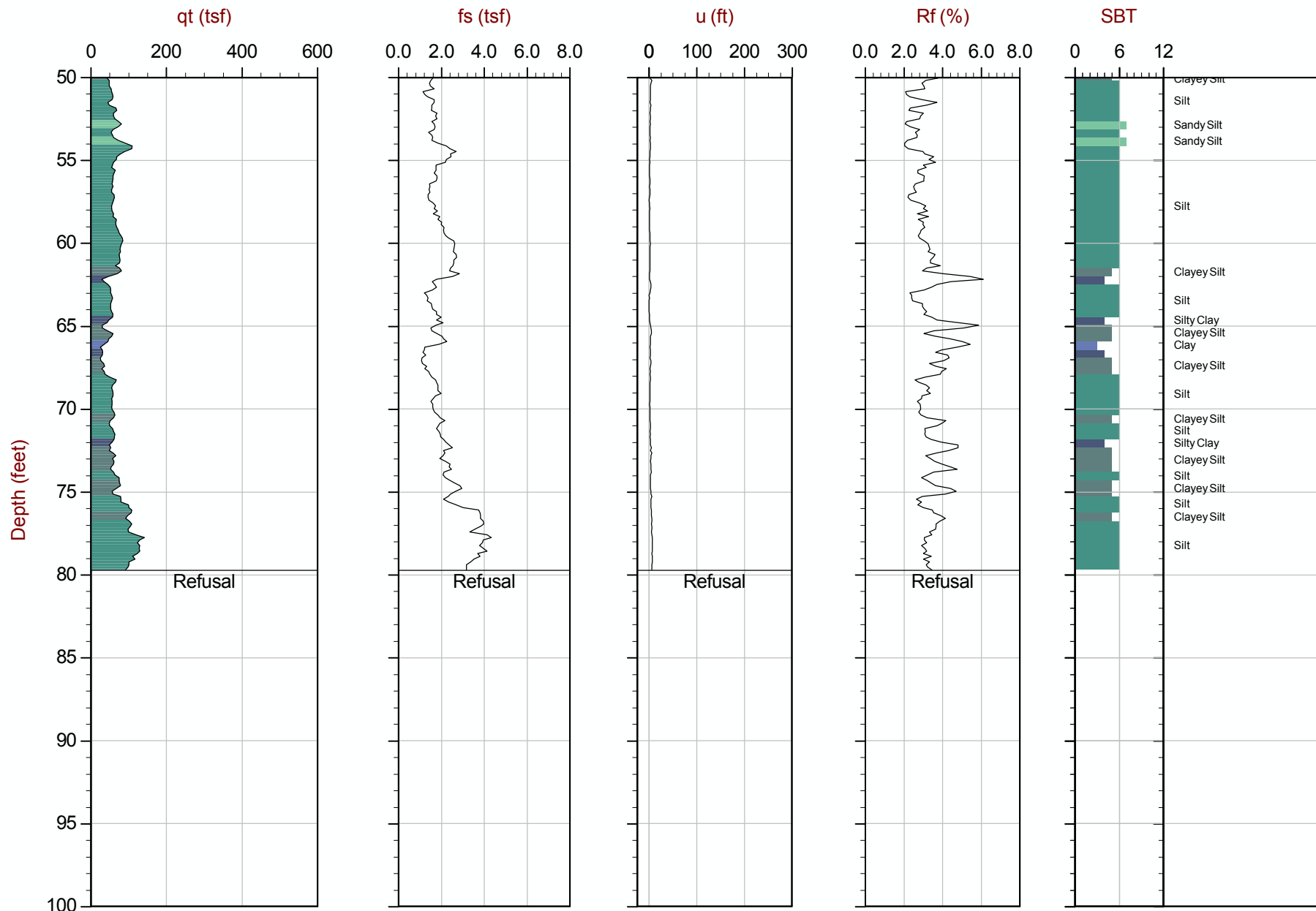
Job No: 13-52118

Date: 11:09:13 15:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-27

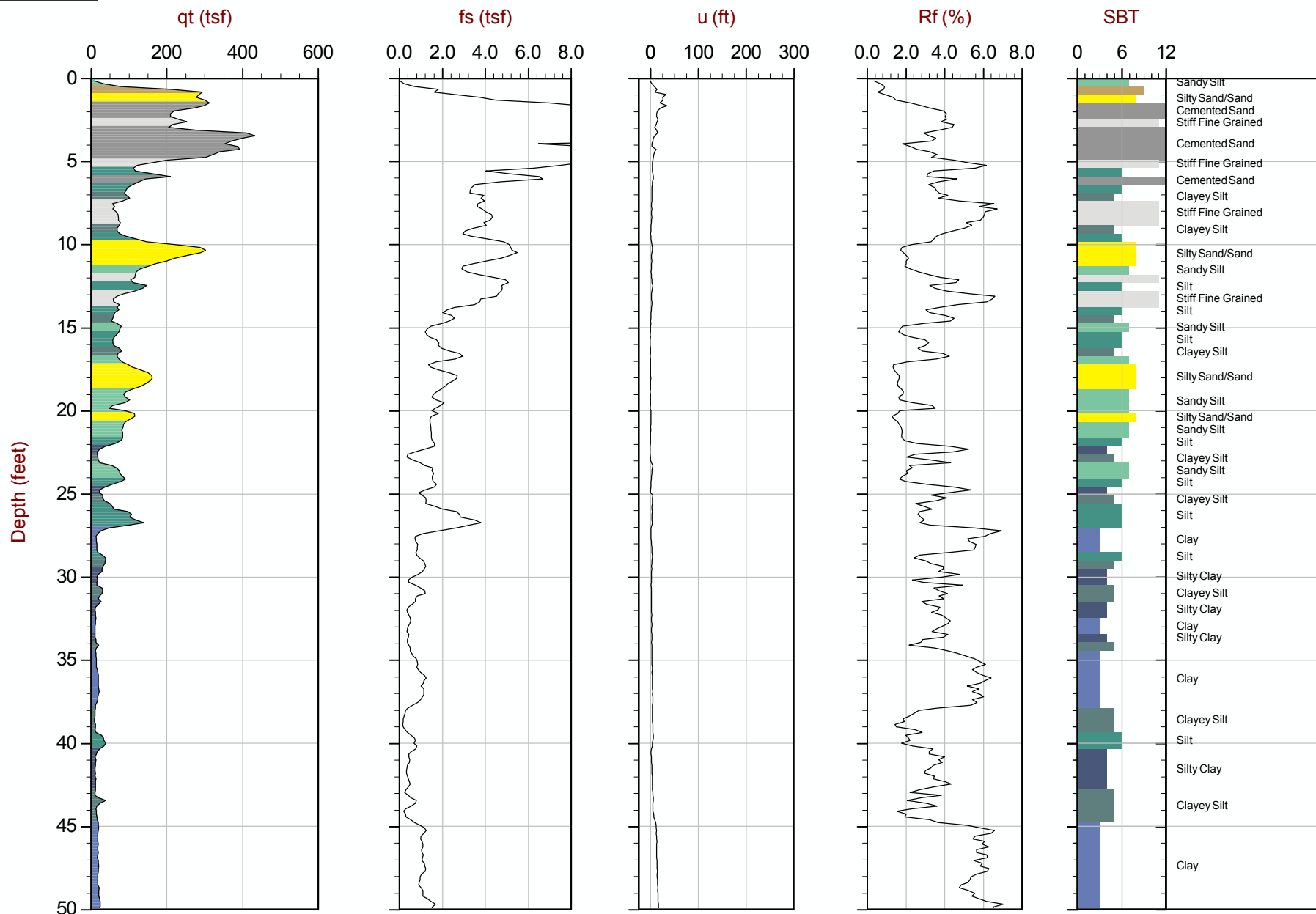
Cone: 155:T1500F15U500



Max Depth: 24.300 m / 79.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP27.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.496367
● Equilibrium Pore Pressure from Dissipation



Max Depth: 25.600 m / 83.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP28.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.649767 Long: -108.501117
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

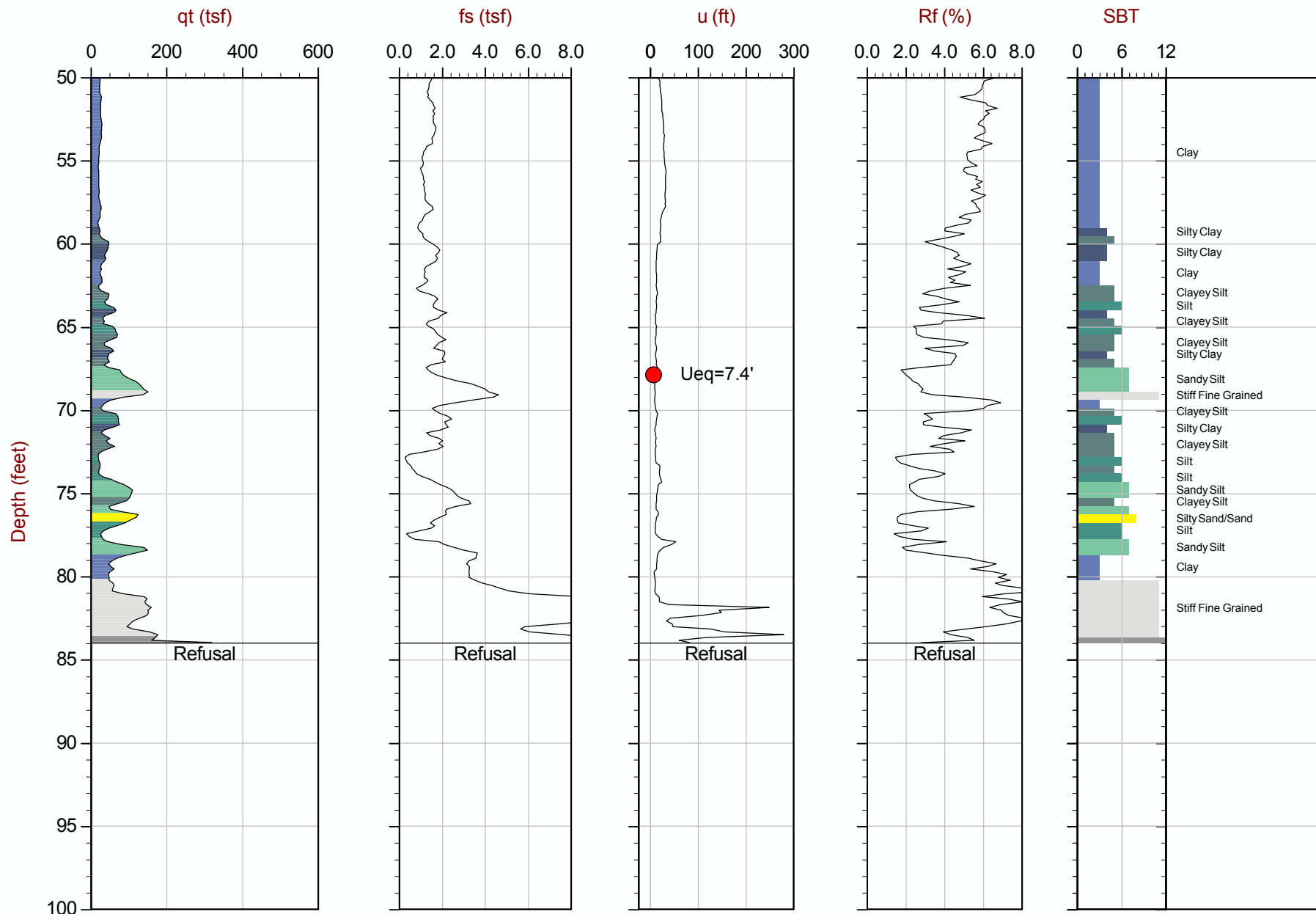
Job No: 13-52118

Date: 11:10:13 08:17

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-28

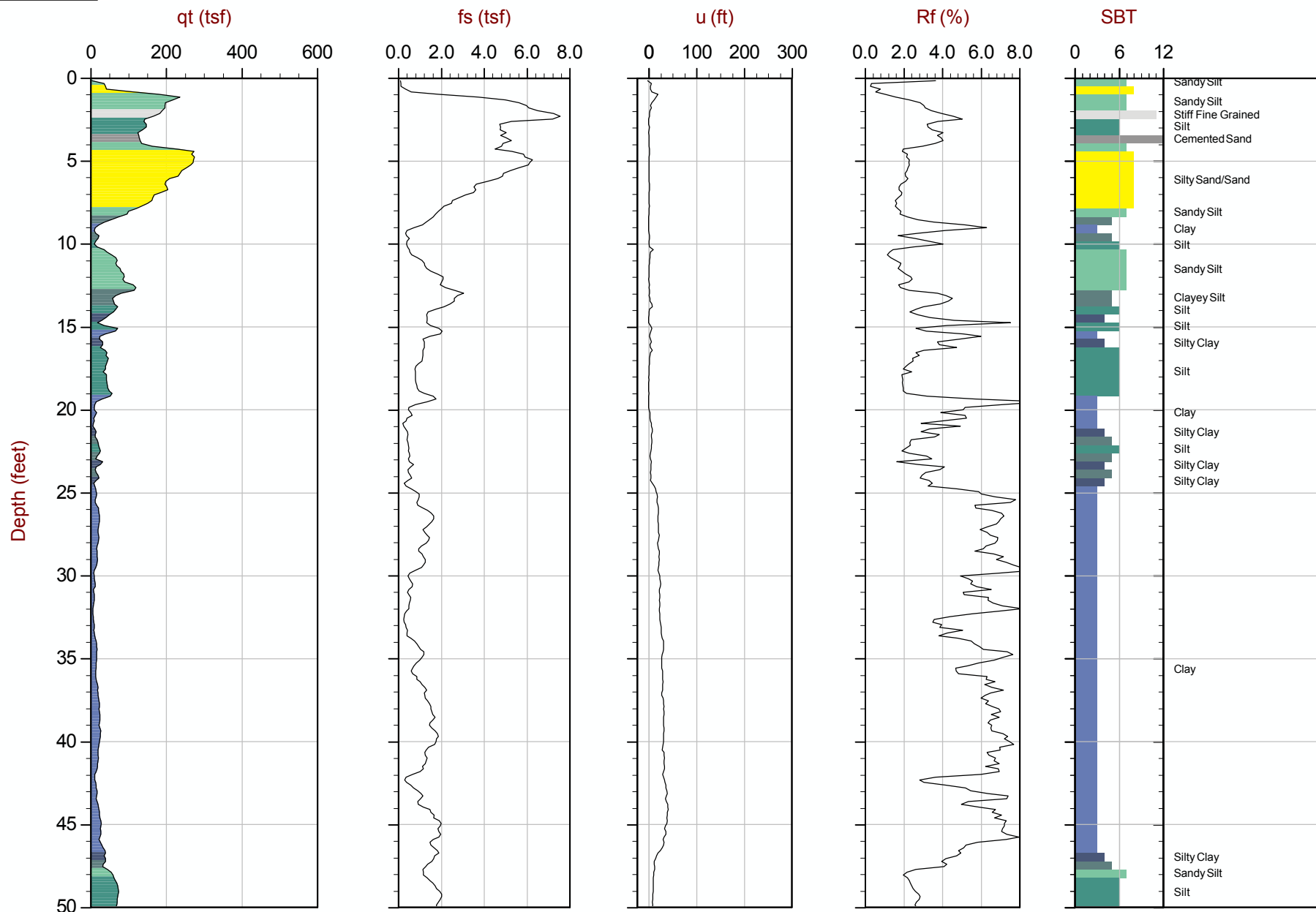
Cone: 155:T1500F15U500



Max Depth: 25.600 m / 83.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP28.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649767 Long: -108.501117
● Equilibrium Pore Pressure from Dissipation



Max Depth: 31.500 m / 103.35 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.651200 Long: -108.499183
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

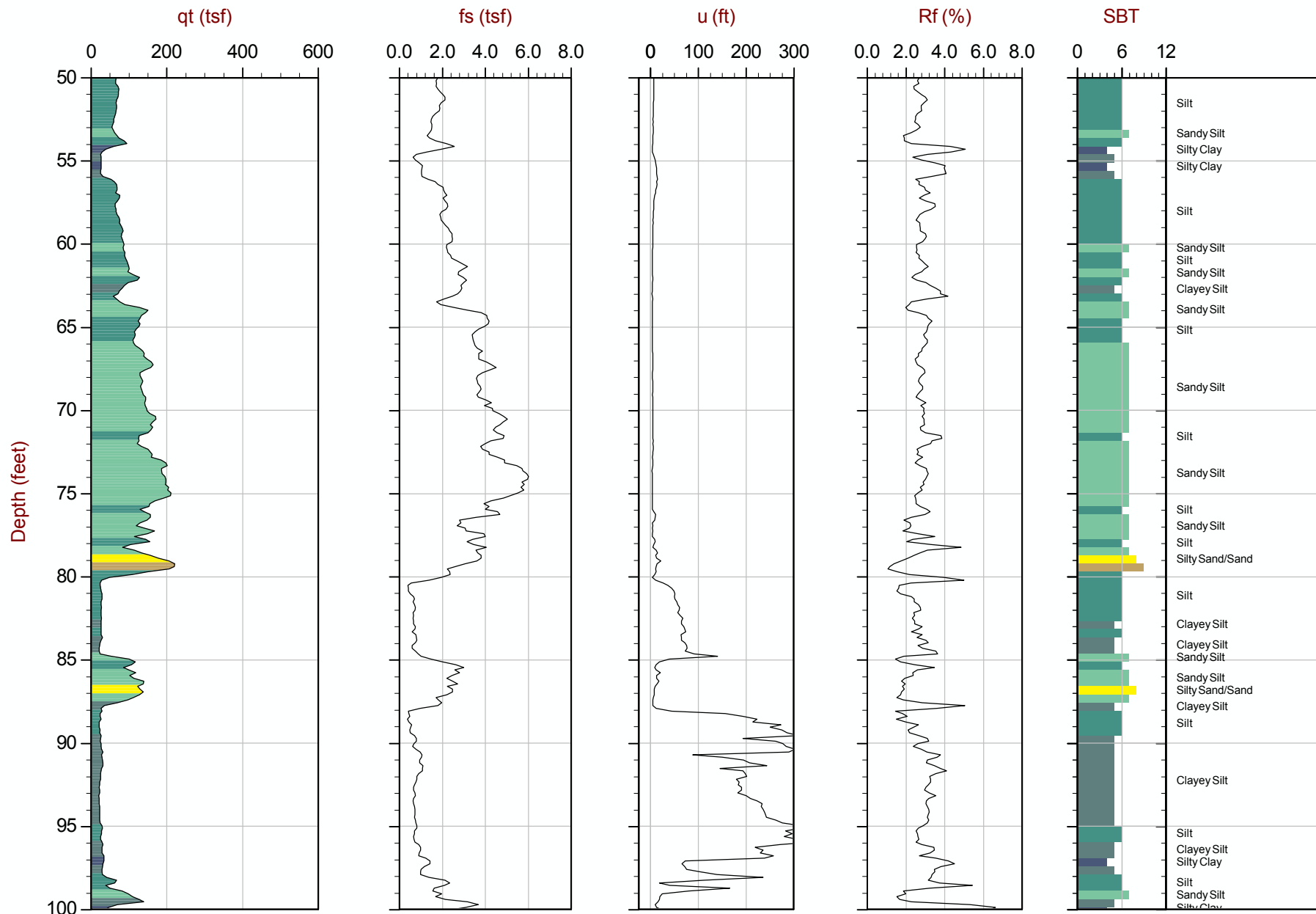
Job No: 13-52118

Date: 11:10:13 09:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-29

Cone: 155:T1500F15U500



Max Depth: 31.500 m / 103.35 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.651200 Long: -108.499183
● Equilibrium Pore Pressure from Dissipation



MWH Americas

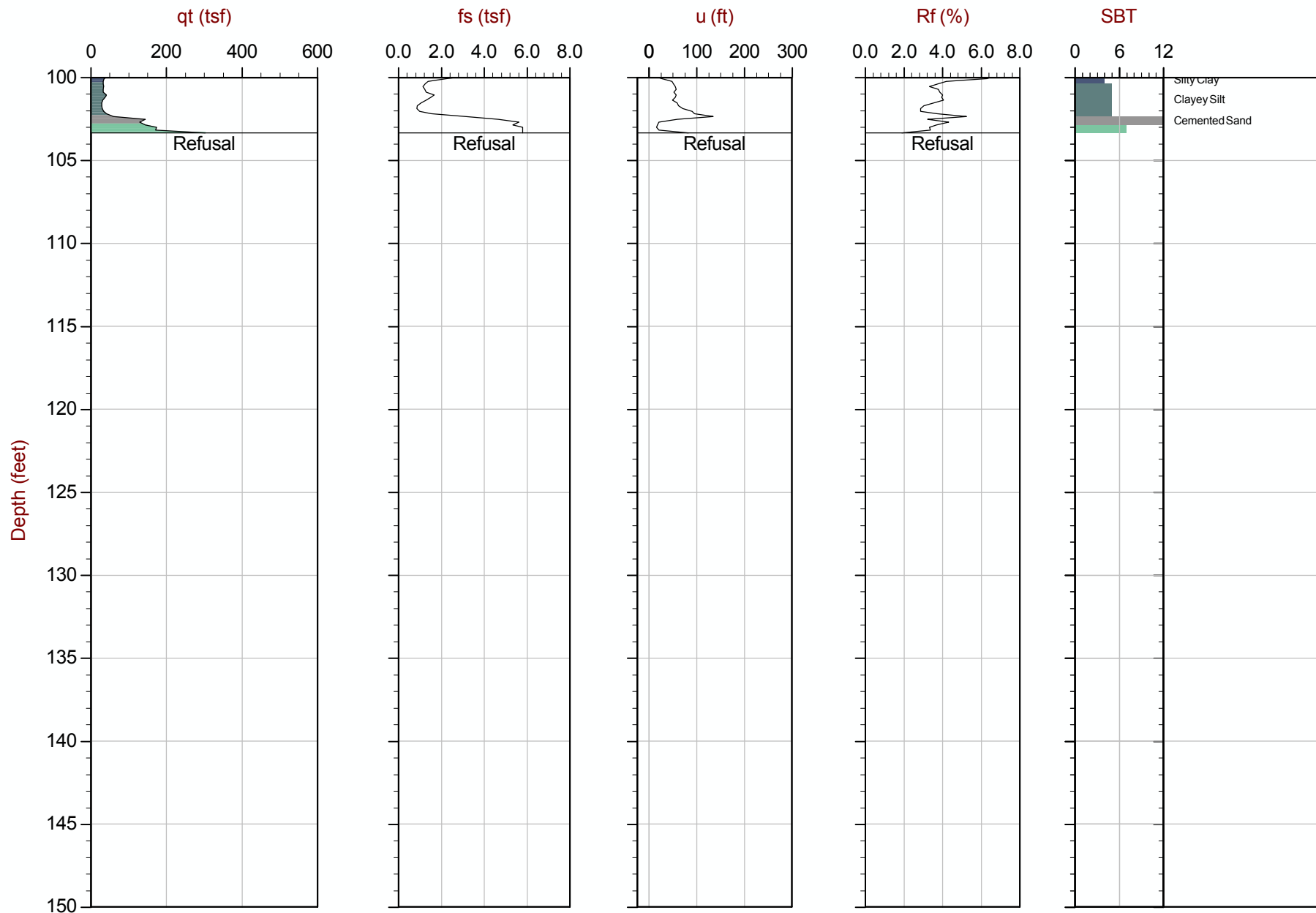
Job No: 13-52118

Date: 11:10:13 09:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-29

Cone: 155:T1500F15U500



Max Depth: 31.500 m / 103.35 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.651200 Long: -108.499183
● Equilibrium Pore Pressure from Dissipation



MWH Americas

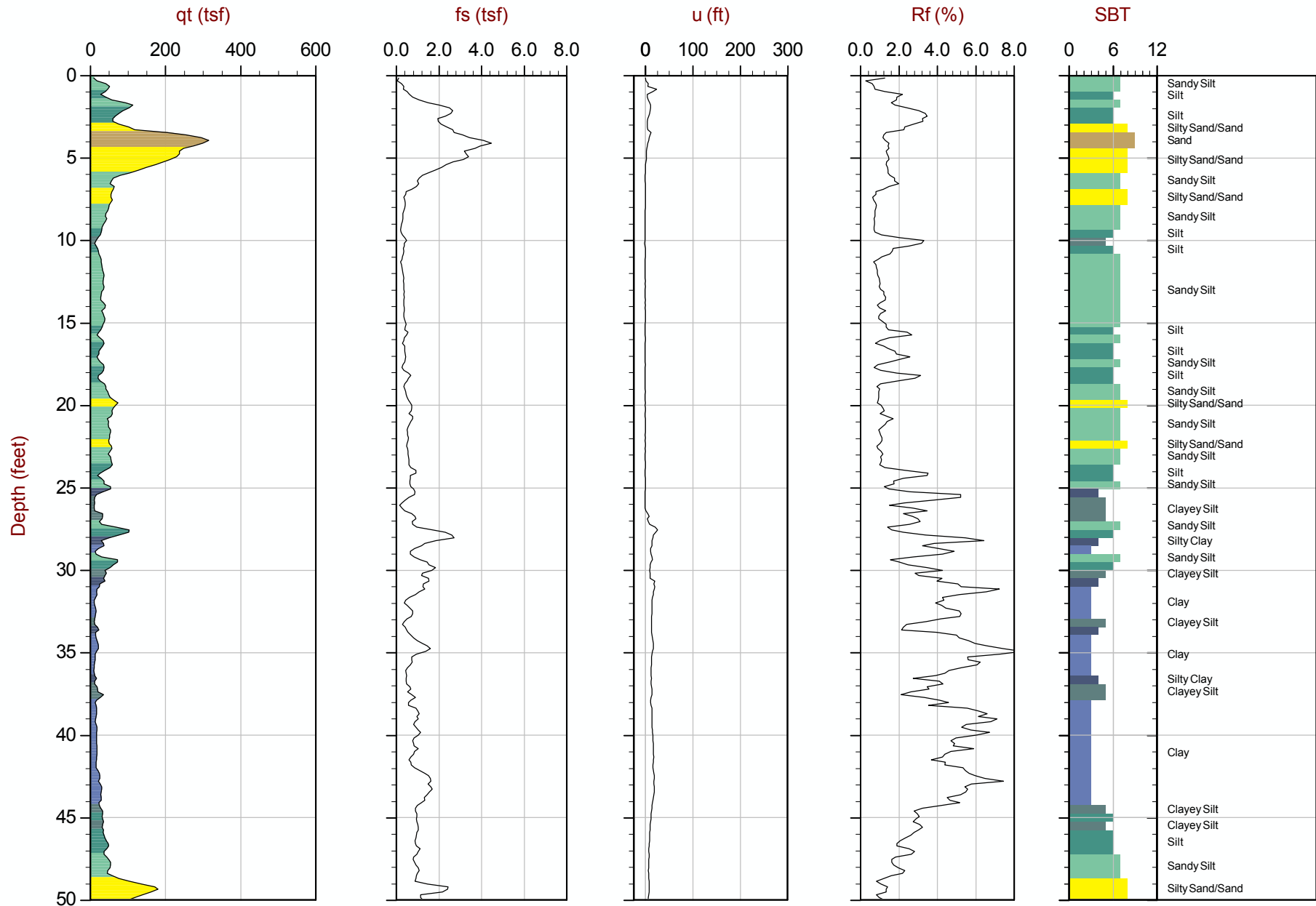
Job No: 13-52118

Date: 11:10:13 10:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-30

Cone: 155:T1500F15U500



Max Depth: 22.800 m / 74.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP30.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.503350
● Equilibrium Pore Pressure from Dissipation



MWH Americas

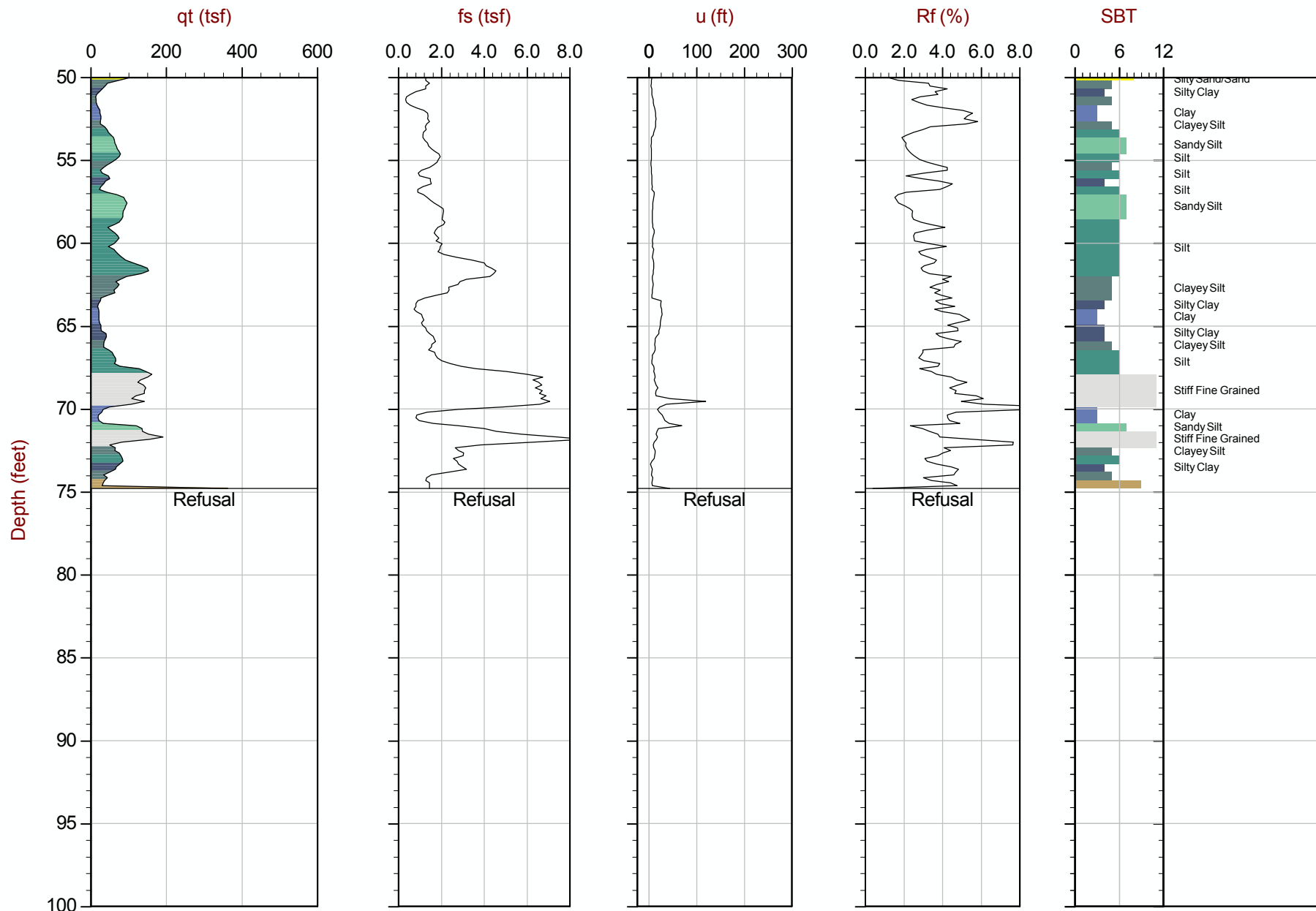
Job No: 13-52118

Date: 11:10:13 10:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-30

Cone: 155:T1500F15U500



Max Depth: 22.800 m / 74.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP30.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.503350
● Equilibrium Pore Pressure from Dissipation



MWH Americas

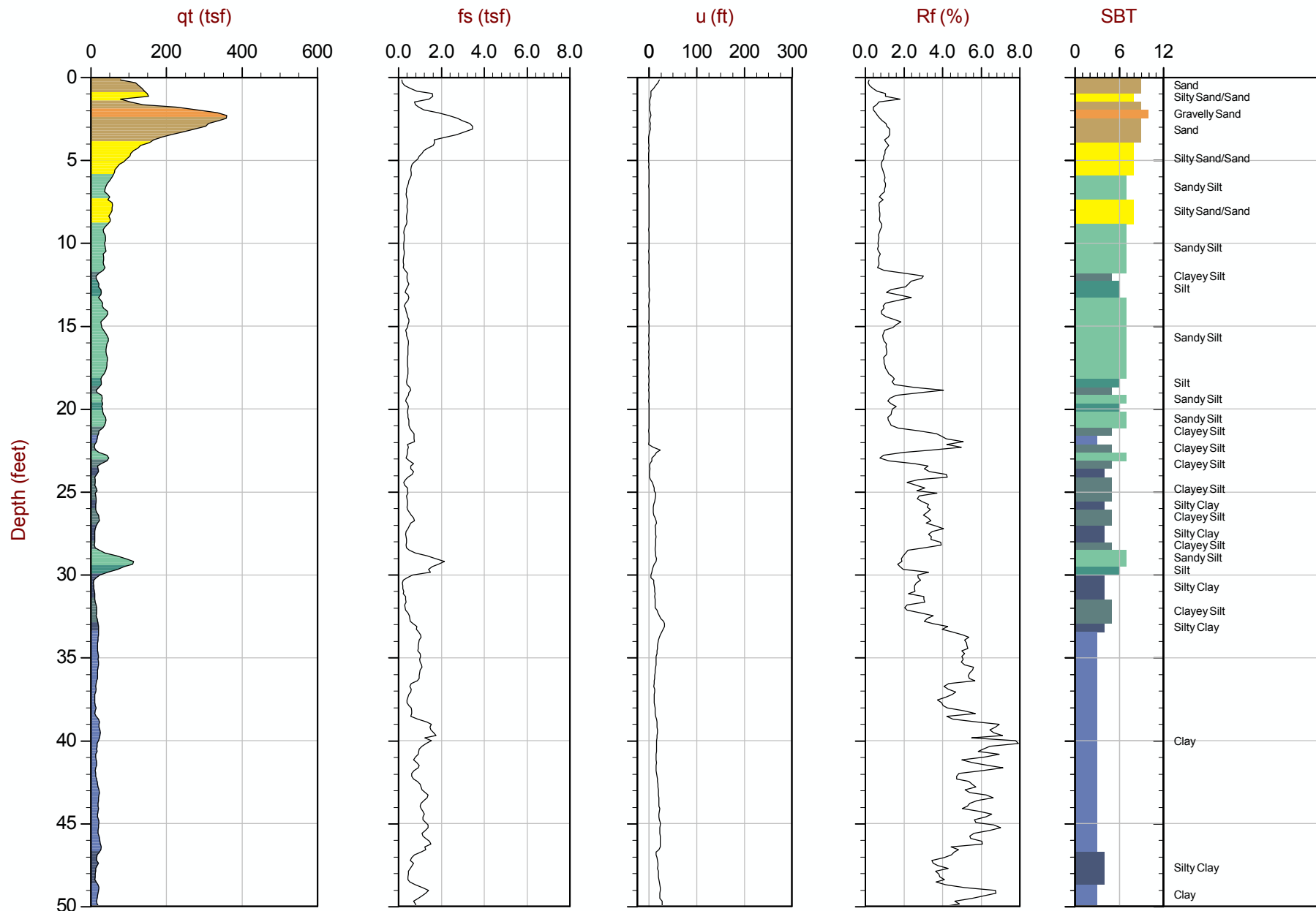
Job No: 13-52118

Date: 11:10:13 13:10

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-31

Cone: 155:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP31.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646450 Long: -108.504917
● Equilibrium Pore Pressure from Dissipation



MWH Americas

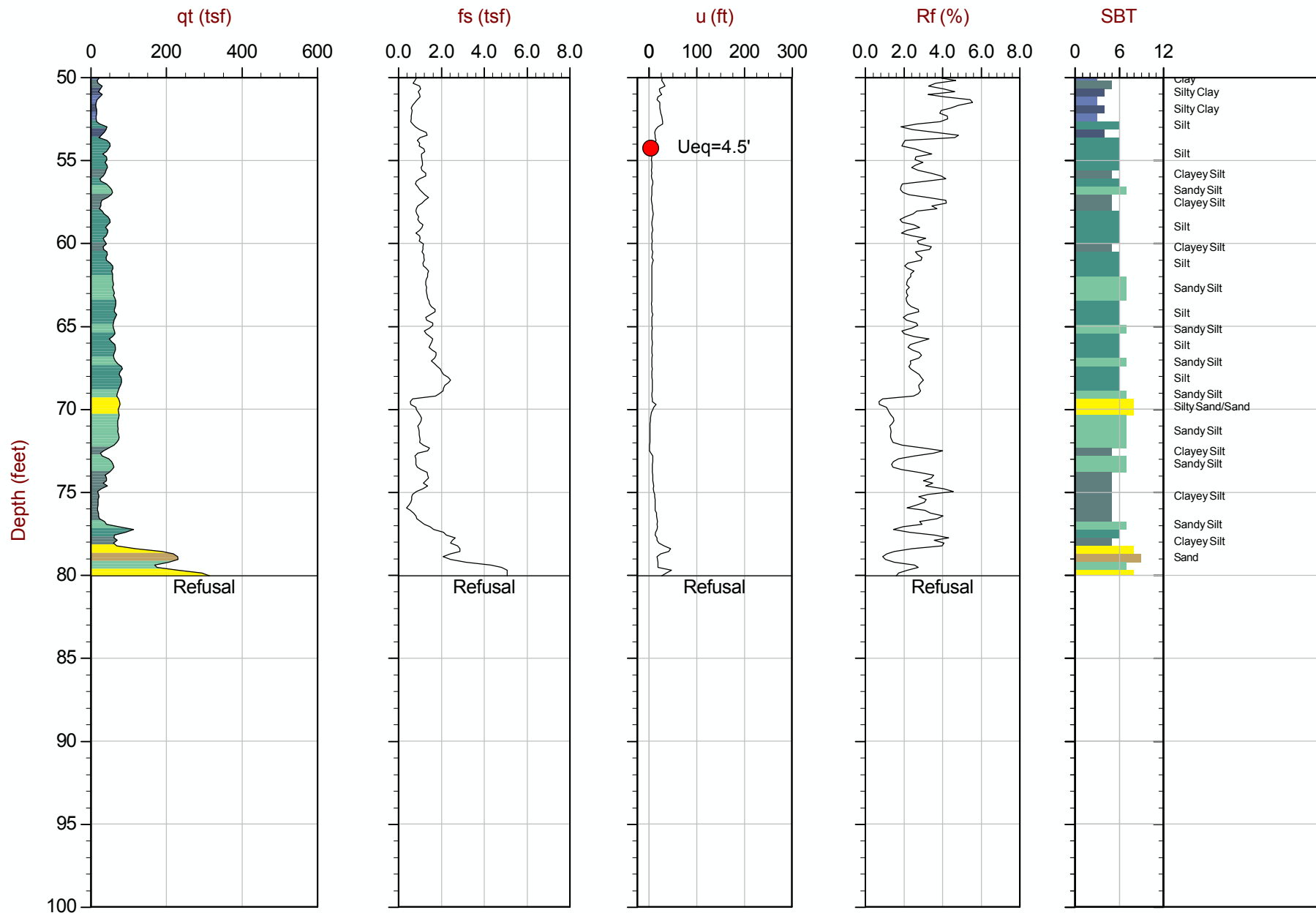
Job No: 13-52118

Date: 11:10:13 13:10

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-31

Cone: 155:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP31.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646450 Long: -108.504917
● Equilibrium Pore Pressure from Dissipation



MWH Americas

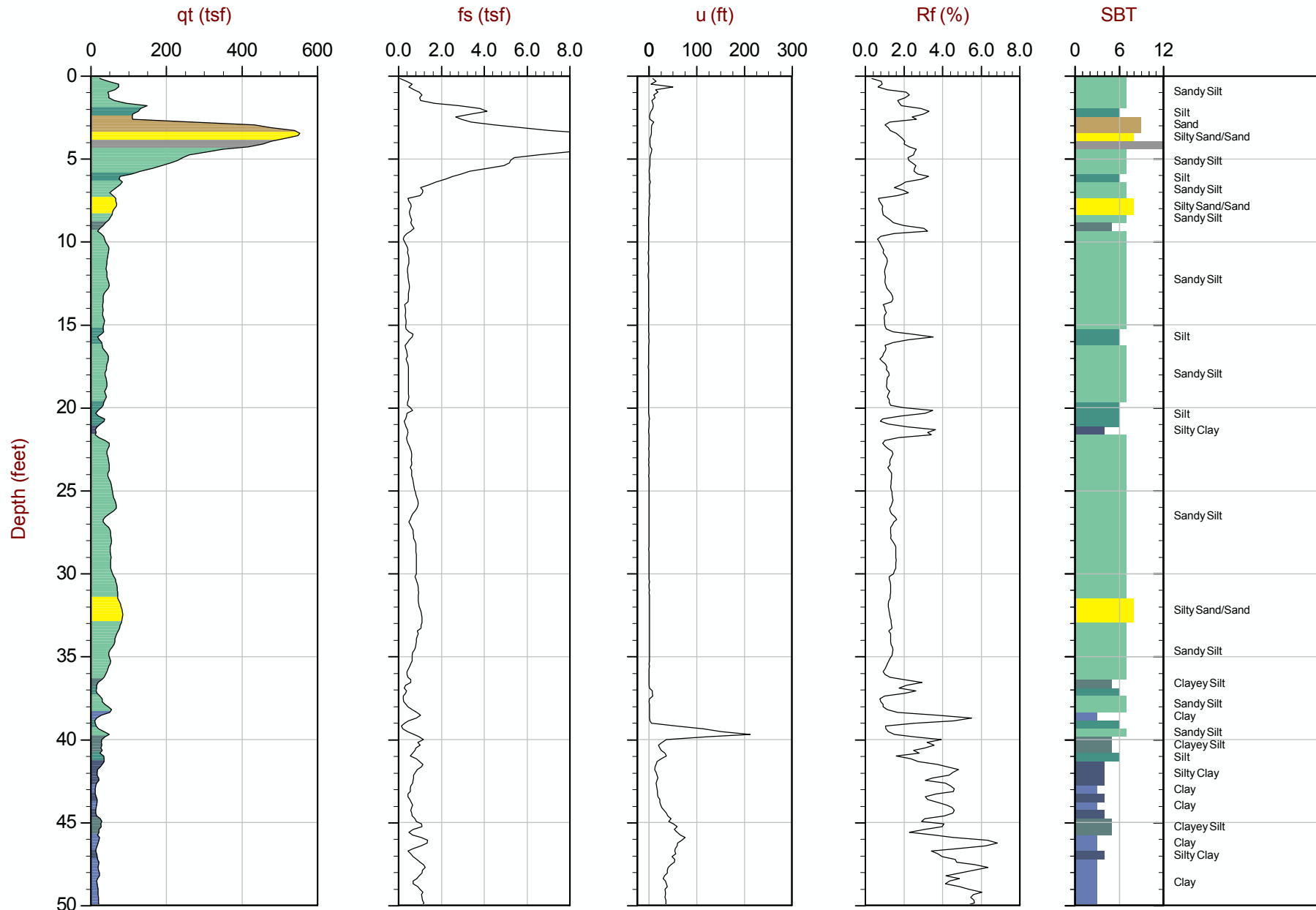
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation



MWH Americas

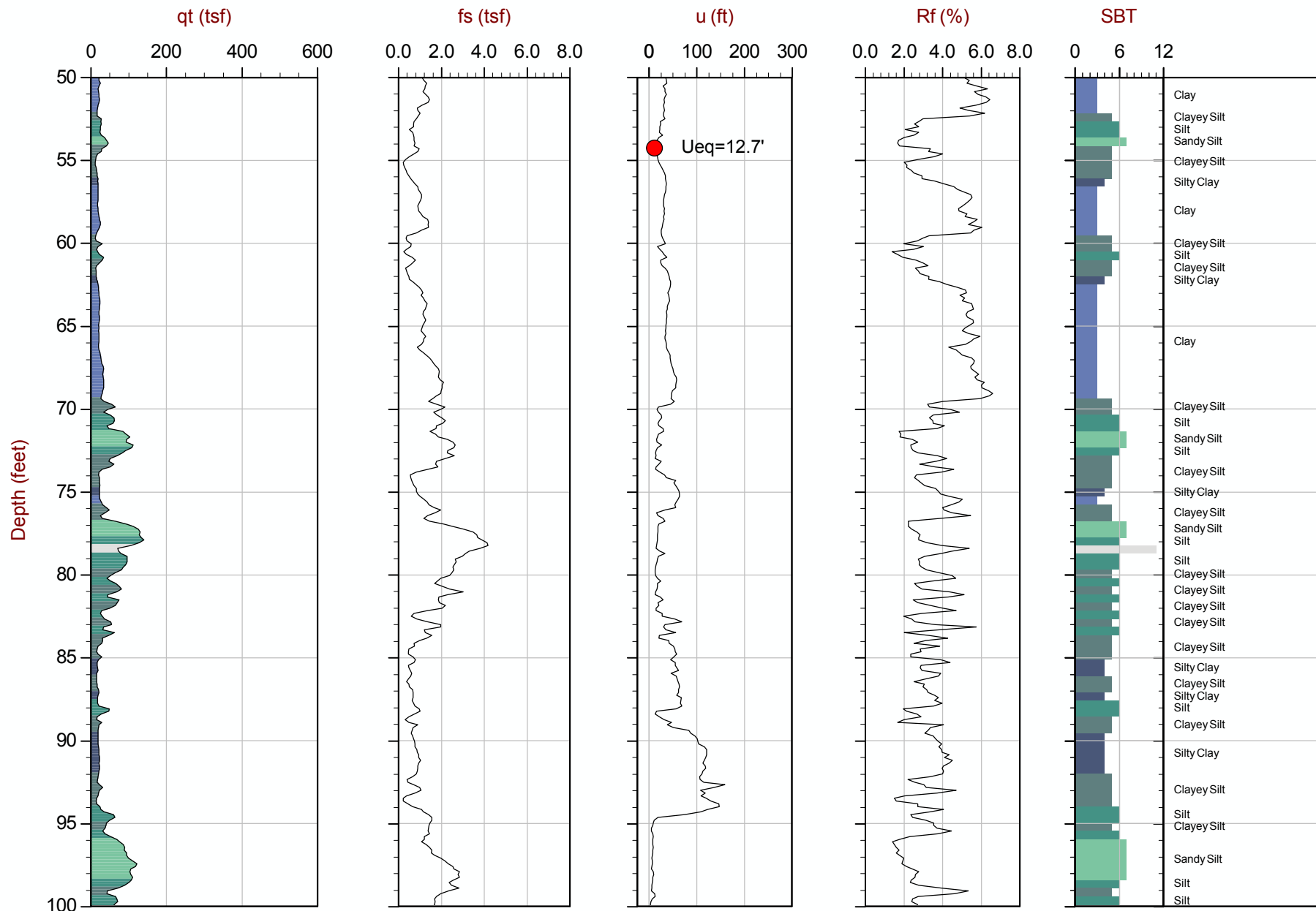
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation



MWH Americas

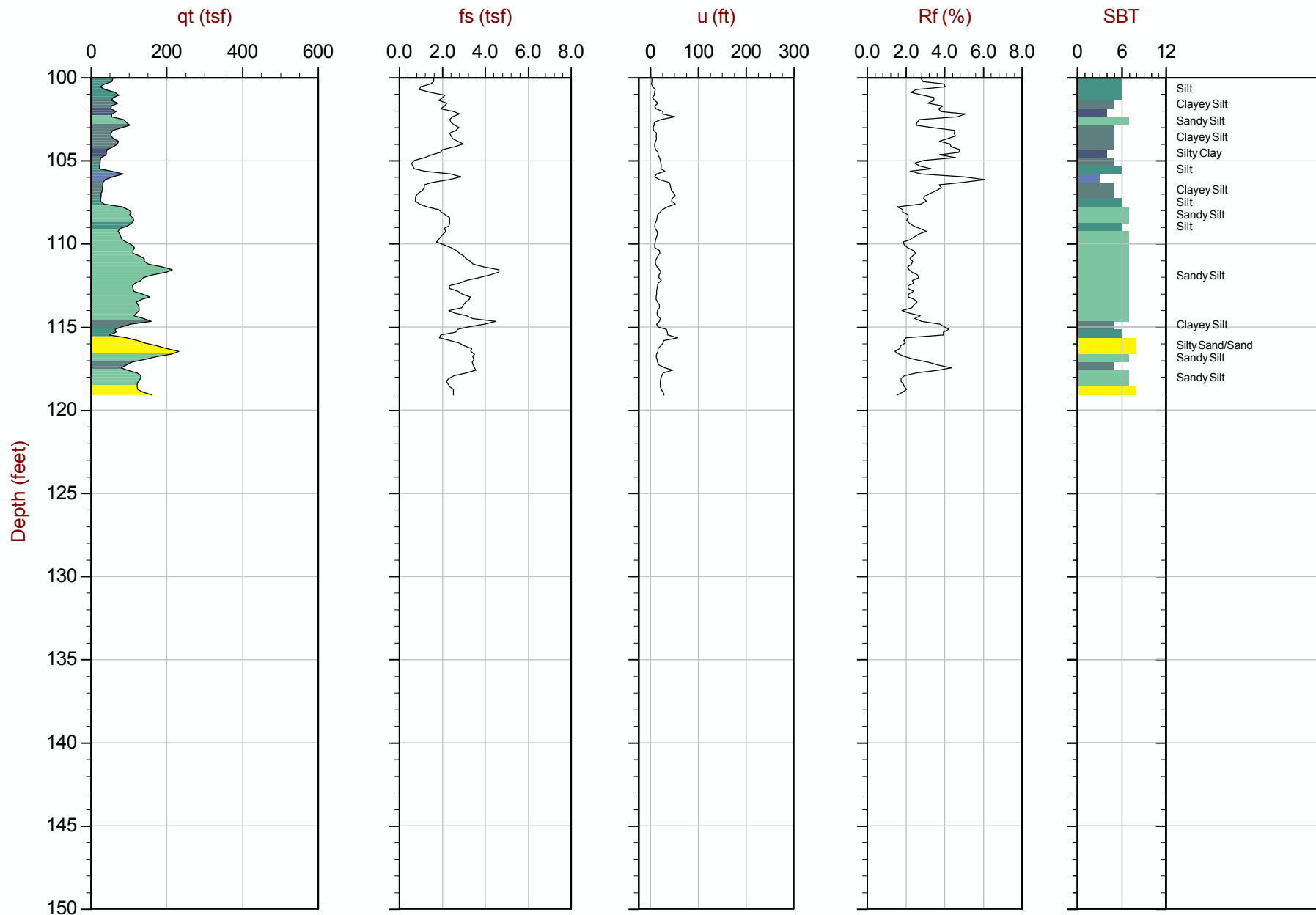
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation

PPD Plots



MWH Americas

Job No: 13-52118

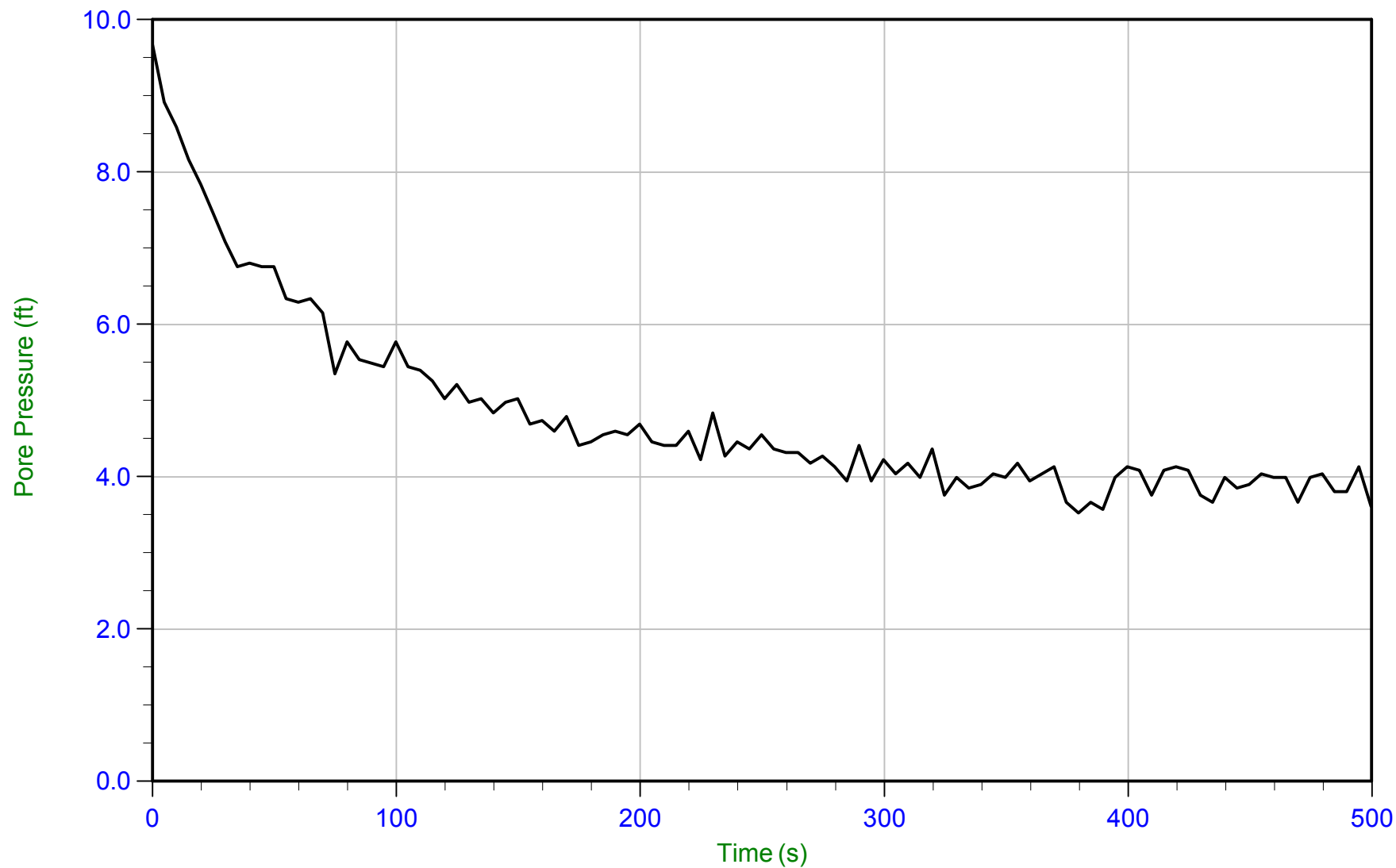
Date: 07-Nov-2013 15:36:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP01.PPD
Depth: 10.750 m / 35.269 ft
Duration: 500.0 s

U Min: 3.5 ft
U Max: 9.7 ft

WT: 9.573 m / 31.407 ft
Ueq: 3.9 ft



MWH Americas

Job No: 13-52118

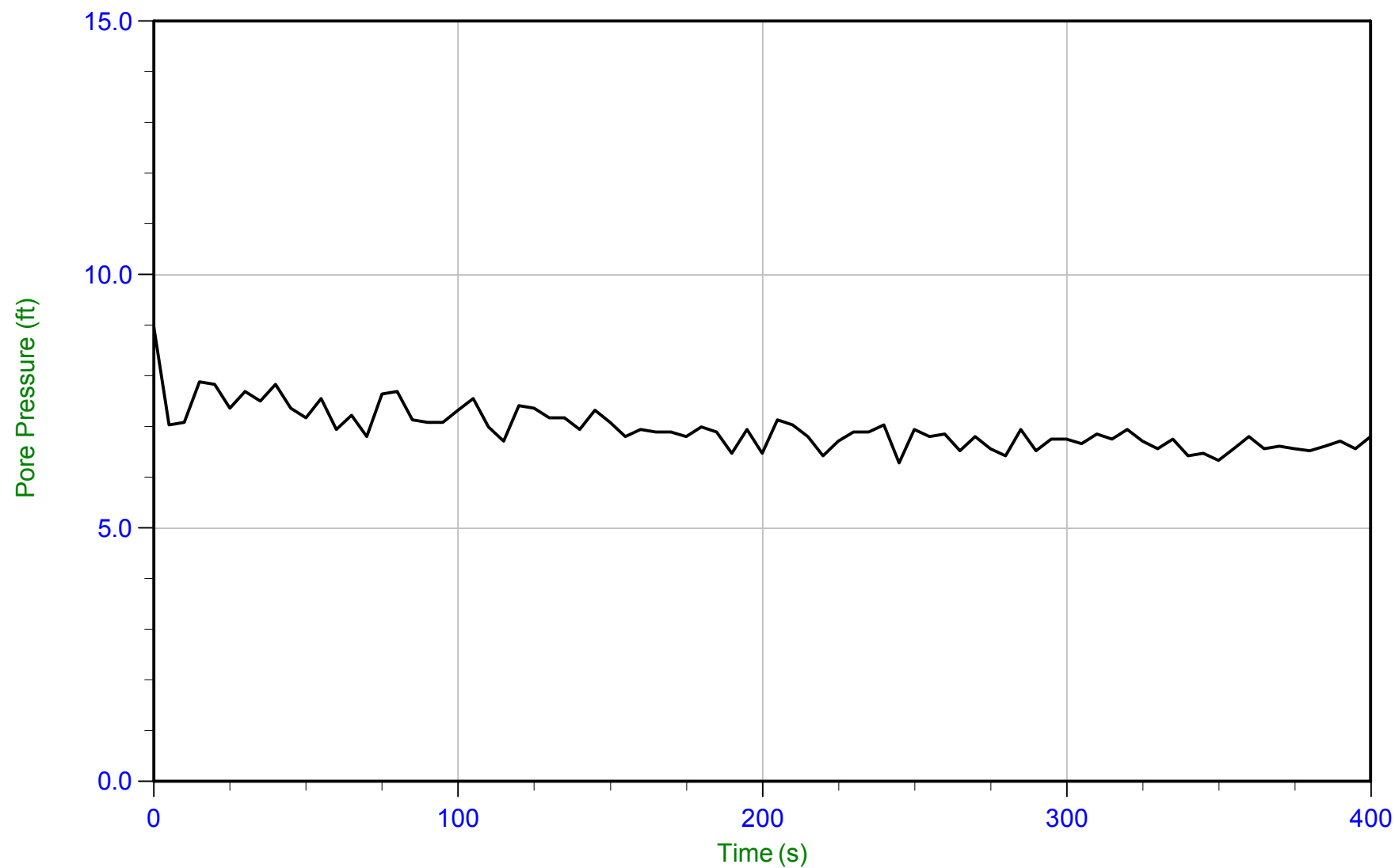
Date: 07-Nov-2013 15:36:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP01.PPD

Depth: 22.100 m / 72.506 ft

Duration: 400.0 s

U Min: 6.3 ft

U Max: 9.0 ft

WT: 20.098 m / 65.937 ft

Ueq: 6.6 ft



MWH Americas

Job No: 13-52118

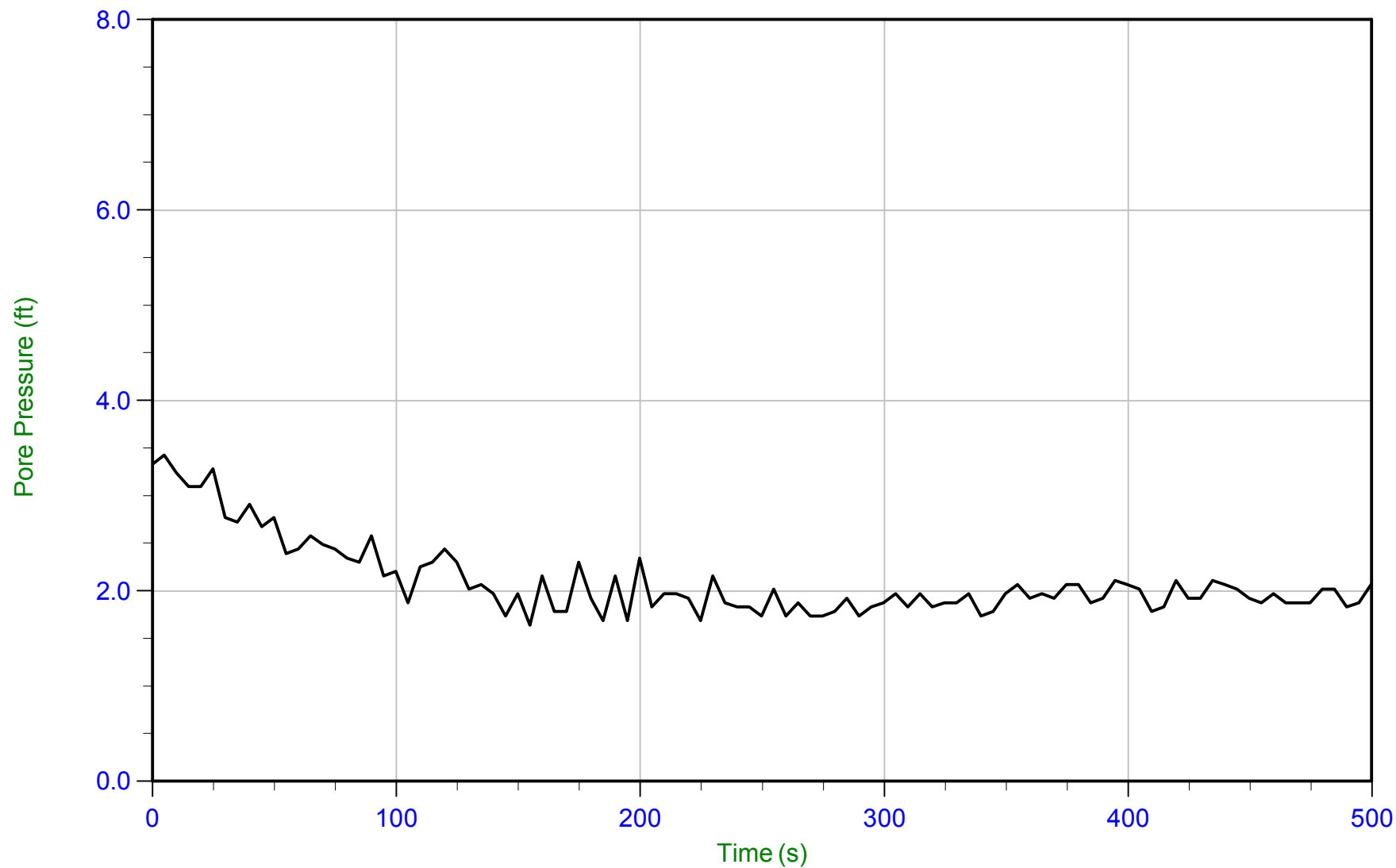
Date: 05-Nov-2013 13:37:58

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP02.PPD
Depth: 8.050 m / 26.410 ft
Duration: 500.0 s

U Min: 1.6 ft
U Max: 3.4 ft

WT: 7.461 m / 24.479 ft
Ueq: 1.9 ft



MWH Americas

Job No: 13-52118

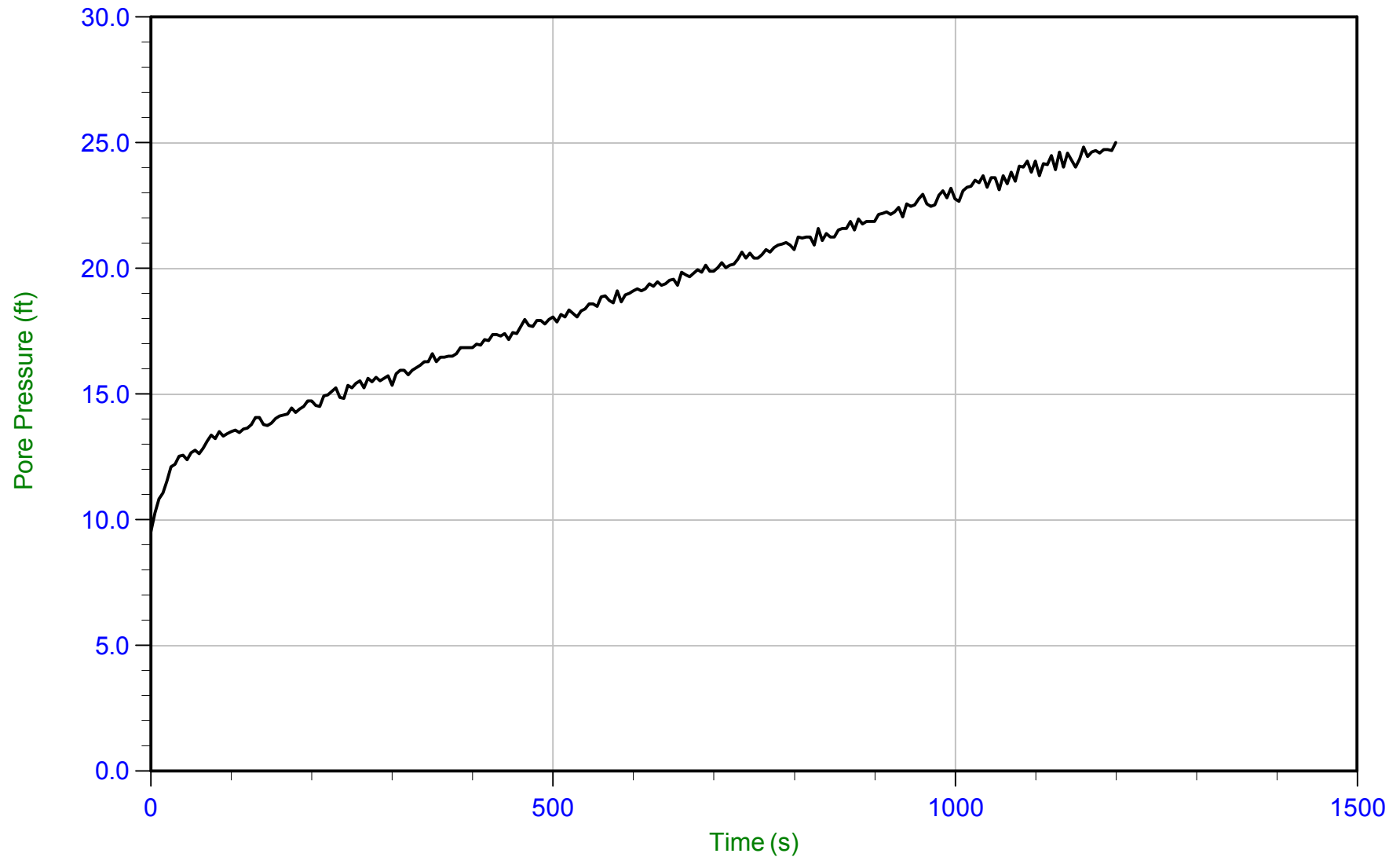
Date: 05-Nov-2013 13:37:58

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP02.PPD U Min: 9.5 ft
Depth: 9.150 m / 30.019 ft U Max: 25.0 ft
Duration: 1200.0 s



MWH Americas

Job No: 13-52118

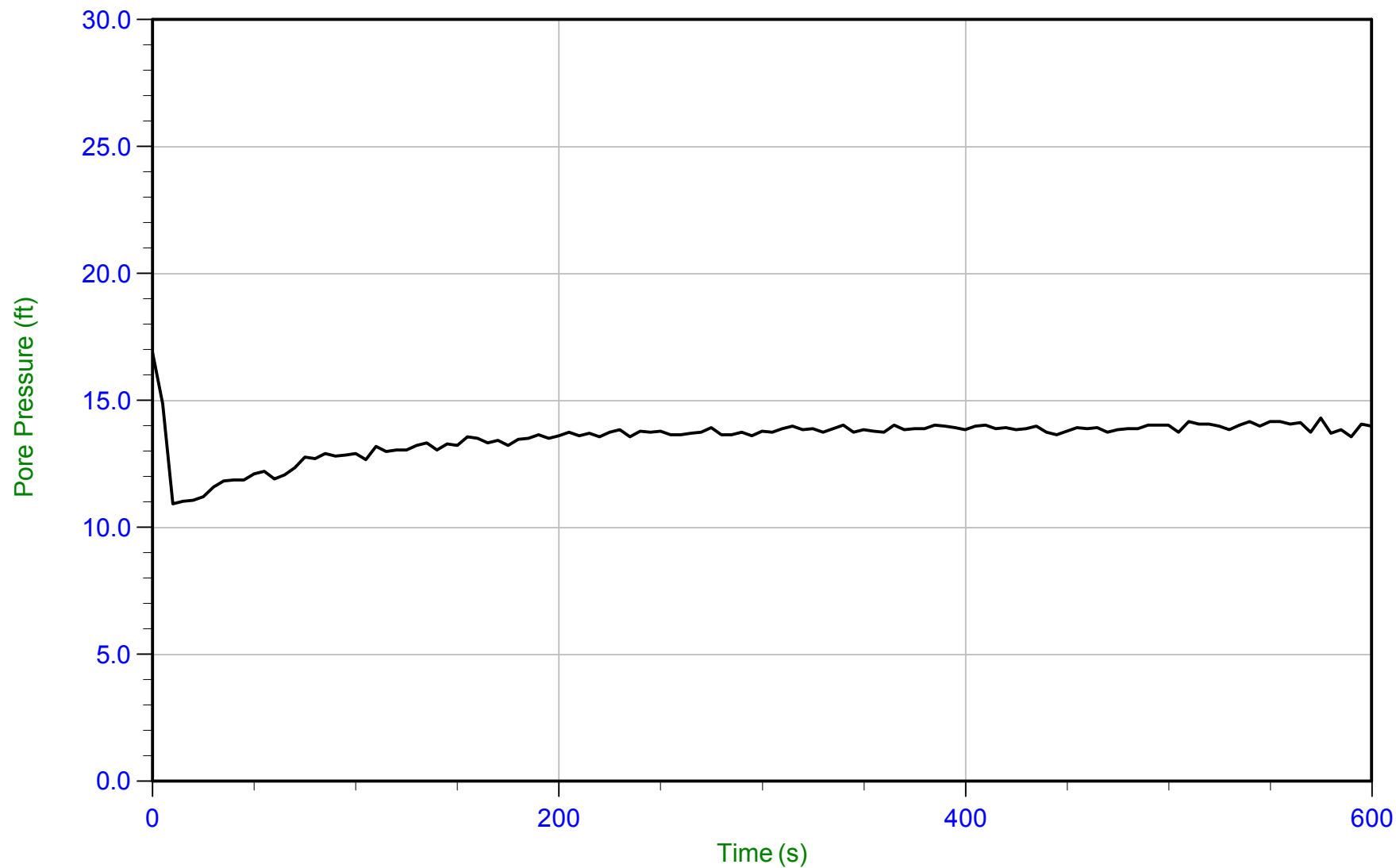
Date: 05-Nov-2013 13:37:58

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP02.PPD U Min: 10.9 ft WT: 6.025 m / 19.766 ft
Depth: 10.250 m / 33.628 ft U Max: 16.9 ft Ueq: 13.9 ft
Duration: 600.0 s



MWH Americas

Job No: 13-52118

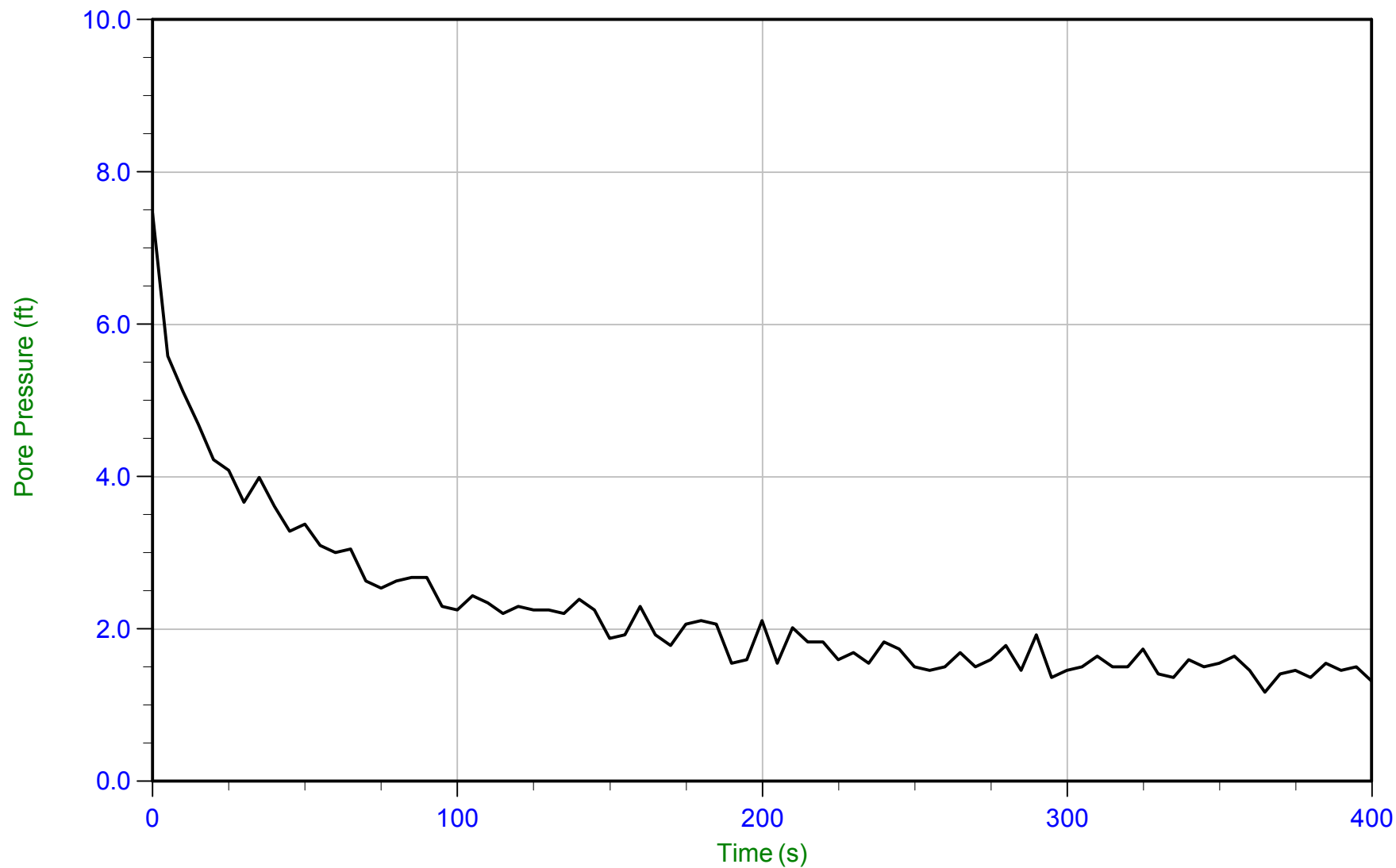
Date: 05-Nov-2013 13:39:58

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-04

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP04.PPD U Min: 1.2 ft WT: 7.369 m / 24.176 ft
Depth: 7.800 m / 25.590 ft U Max: 7.5 ft Ueq: 1.4 ft
Duration: 400.0 s



MWH Americas

Job No: 13-52118

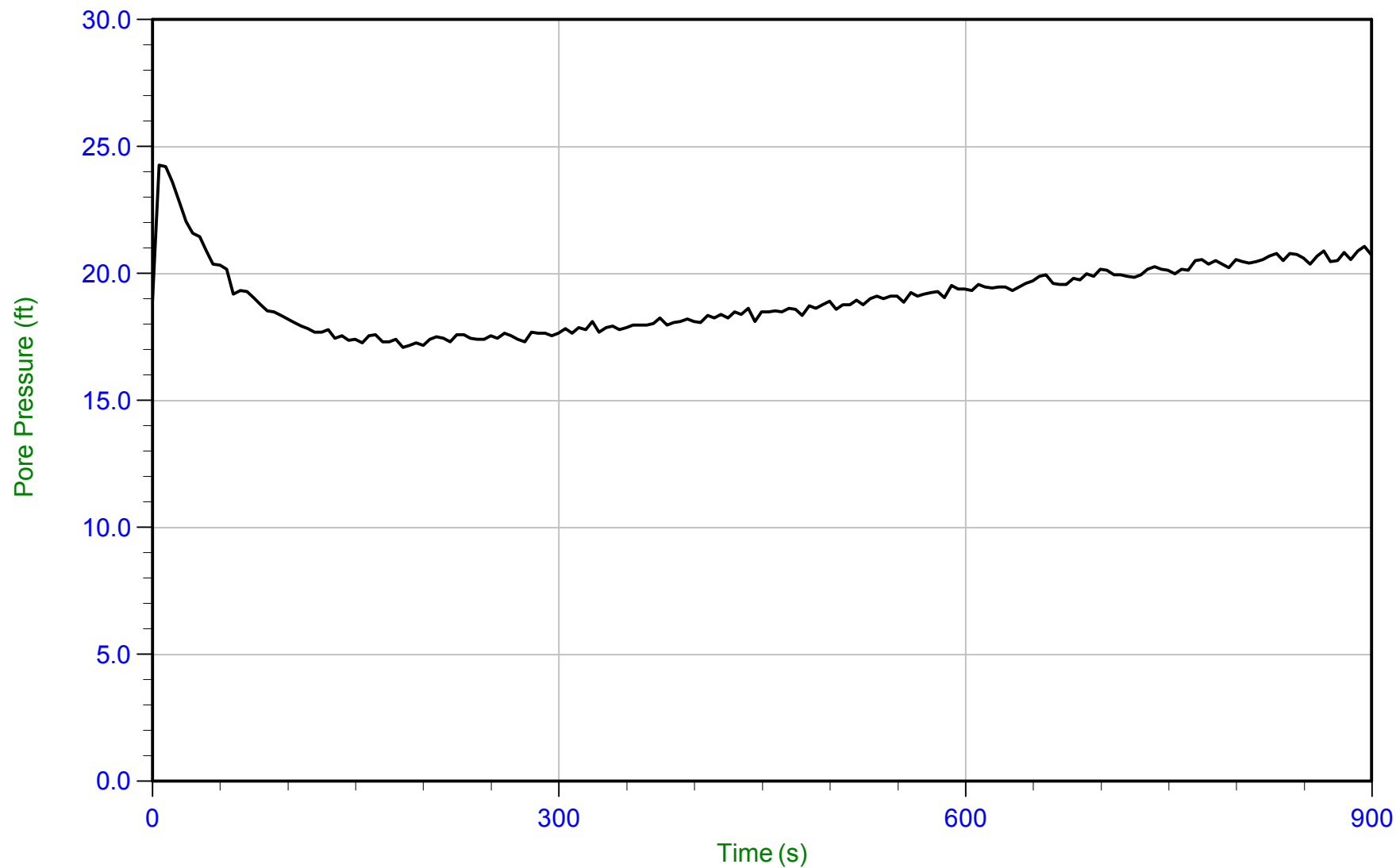
Date: 06-Nov-2013 08:30:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-05

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP05.PPD

Depth: 3.850 m / 12.631 ft

Duration: 900.0 s

U Min: 17.1 ft

U Max: 24.3 ft

WT: -2.551 m / -8.369 ft

Ueq: 21.0 ft



MWH Americas

Job No: 13-52118

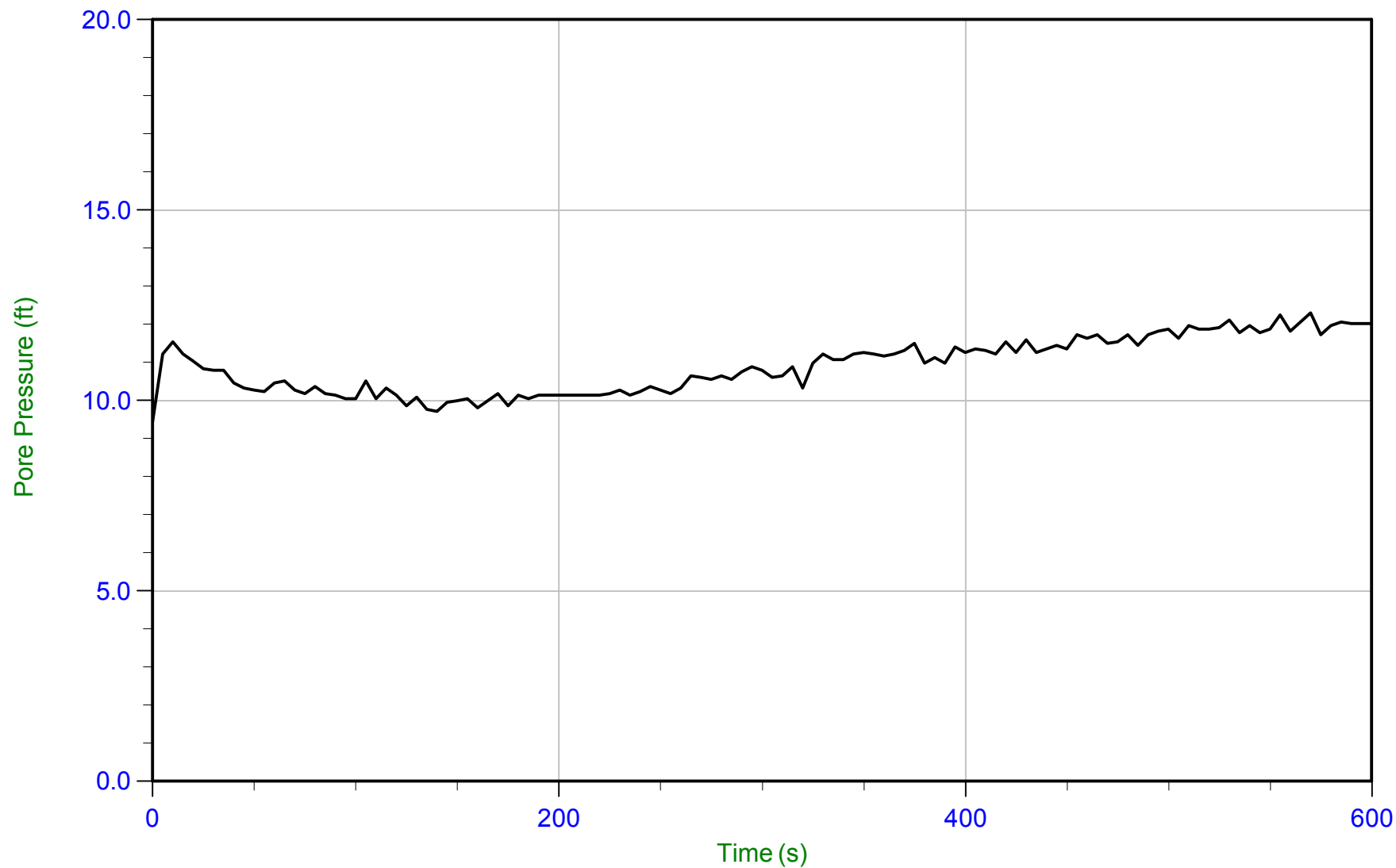
Date: 06-Nov-2013 08:30:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-05

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP05.PPD
Depth: 7.900 m / 25.918 ft
Duration: 600.0 s

U Min: 9.4 ft
U Max: 12.3 ft

WT: 4.242 m / 13.918 ft
Ueq: 12.0 ft



MWH Americas

Job No: 13-52118

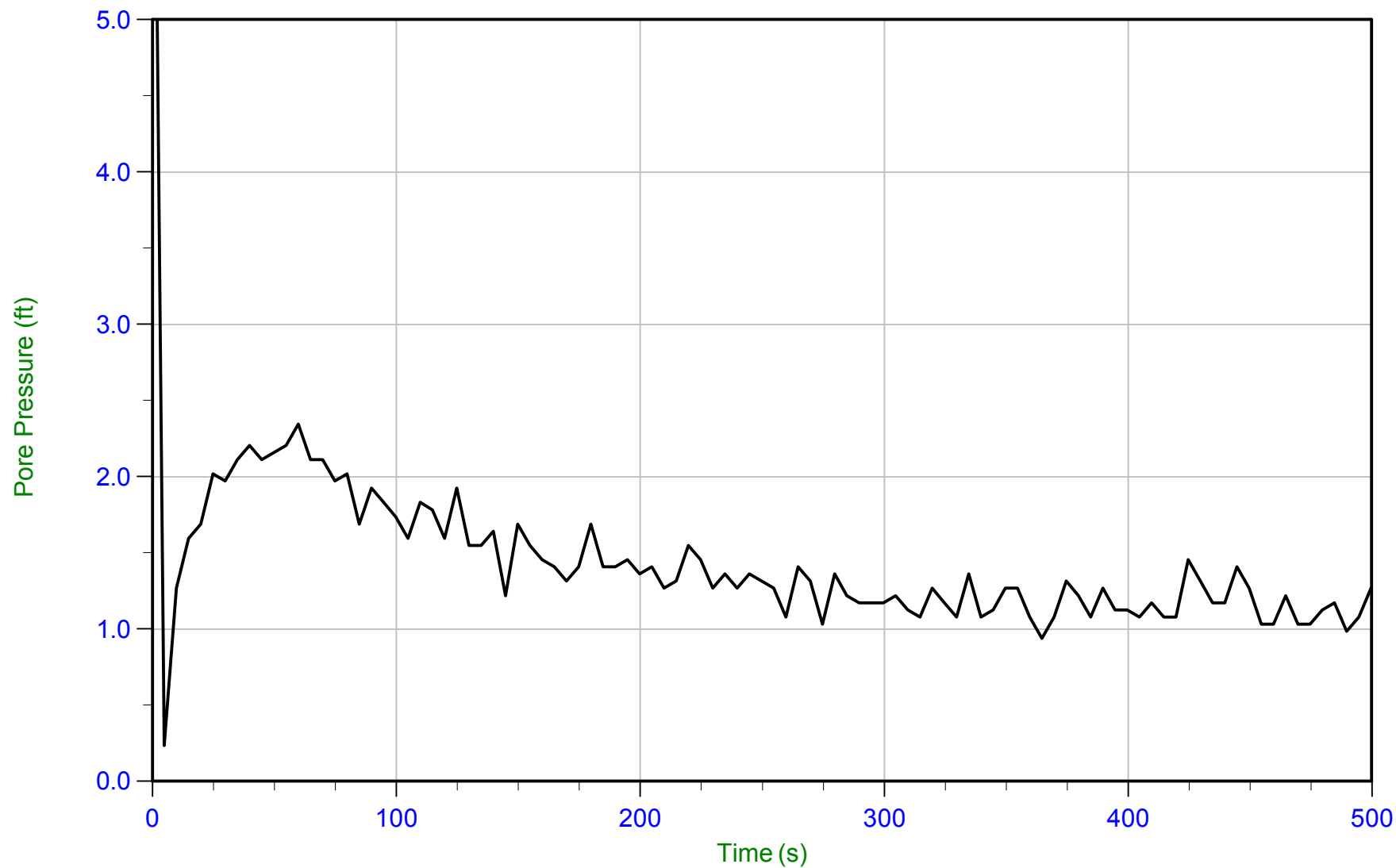
Date: 06-Nov-2013 08:30:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-05

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP05.PPD
Depth: 11.550 m / 37.893 ft
Duration: 500.0 s

U Min: 0.2 ft
U Max: 8.2 ft

WT: 11.203 m / 36.755 ft
Ueq: 1.1 ft



MWH Americas

Job No: 13-52118

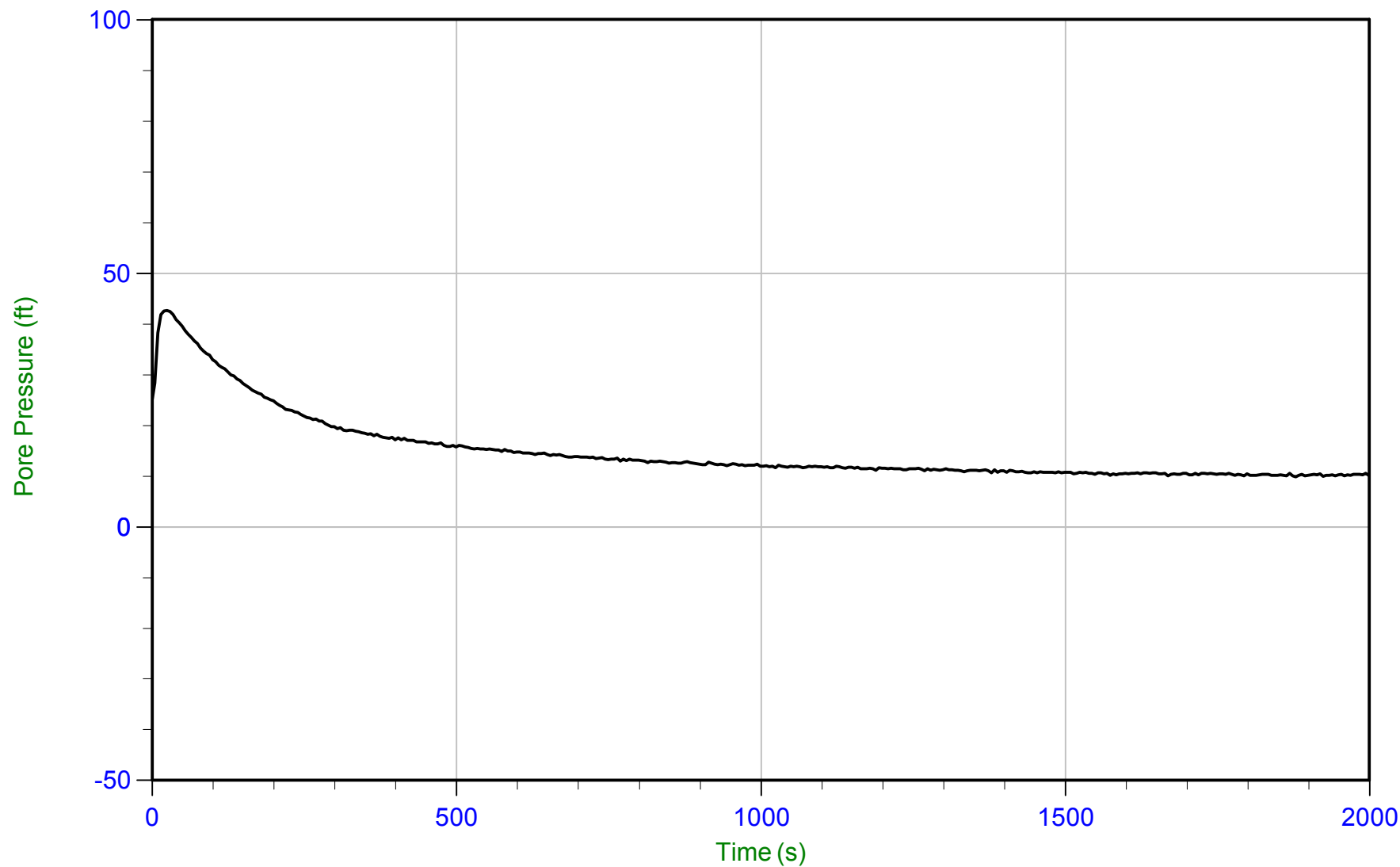
Date: 06-Nov-2013 13:01:16

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-06

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP06.PPD

Depth: 6.300 m / 20.669 ft

Duration: 2000.0 s

U Min: 9.8 ft

U Max: 42.6 ft

WT: 3.252 m / 10.669 ft

Ueq: 10.0 ft



MWH Americas

Job No: 13-52118

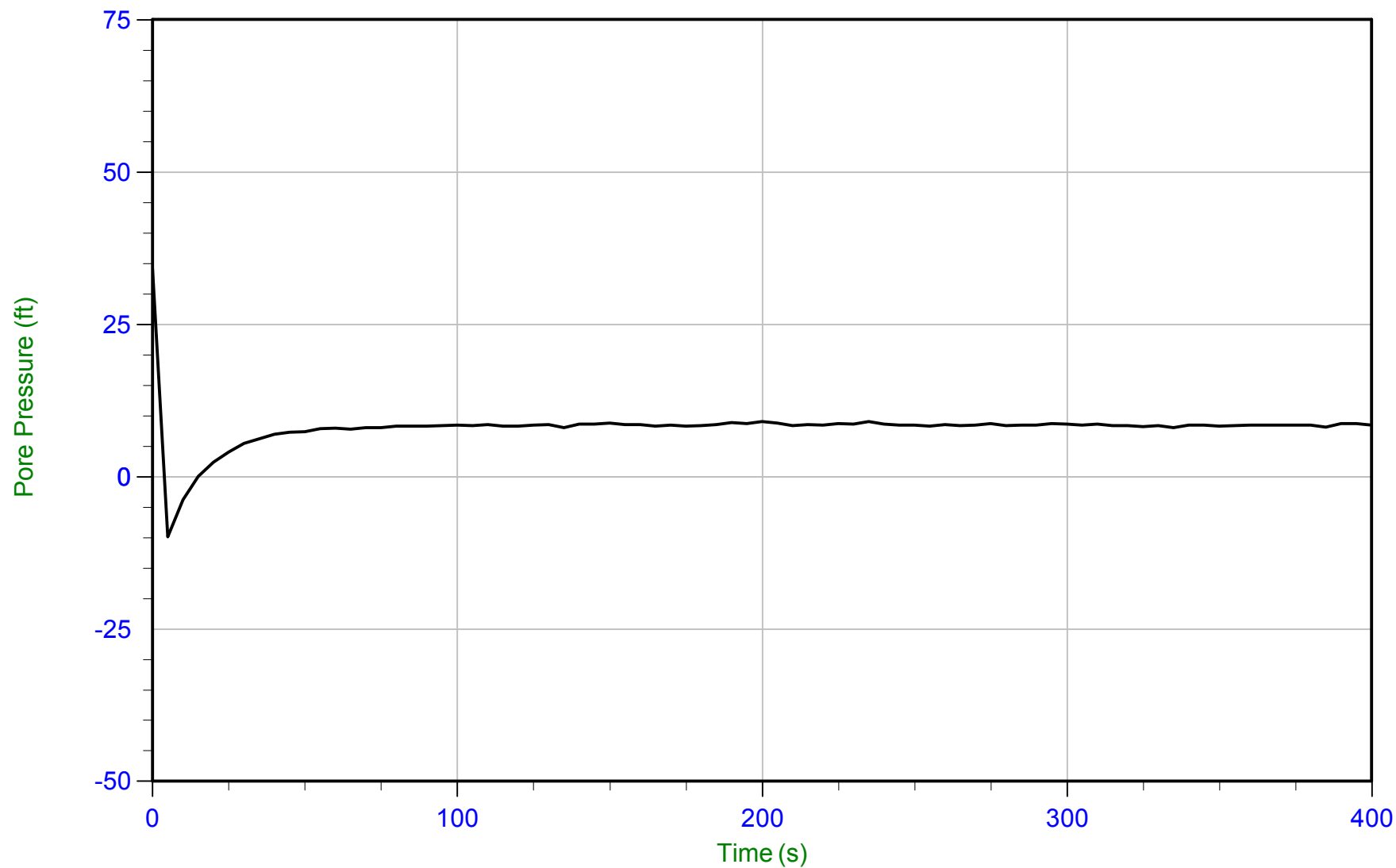
Date: 06-Nov-2013 13:01:16

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-06

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP06.PPD
Depth: 11.050 m / 36.253 ft
Duration: 400.0 s

U Min: -9.9 ft
U Max: 34.1 ft

WT: 8.554 m / 28.063 ft
Ueq: 8.2 ft



MWH Americas

Job No: 13-52118

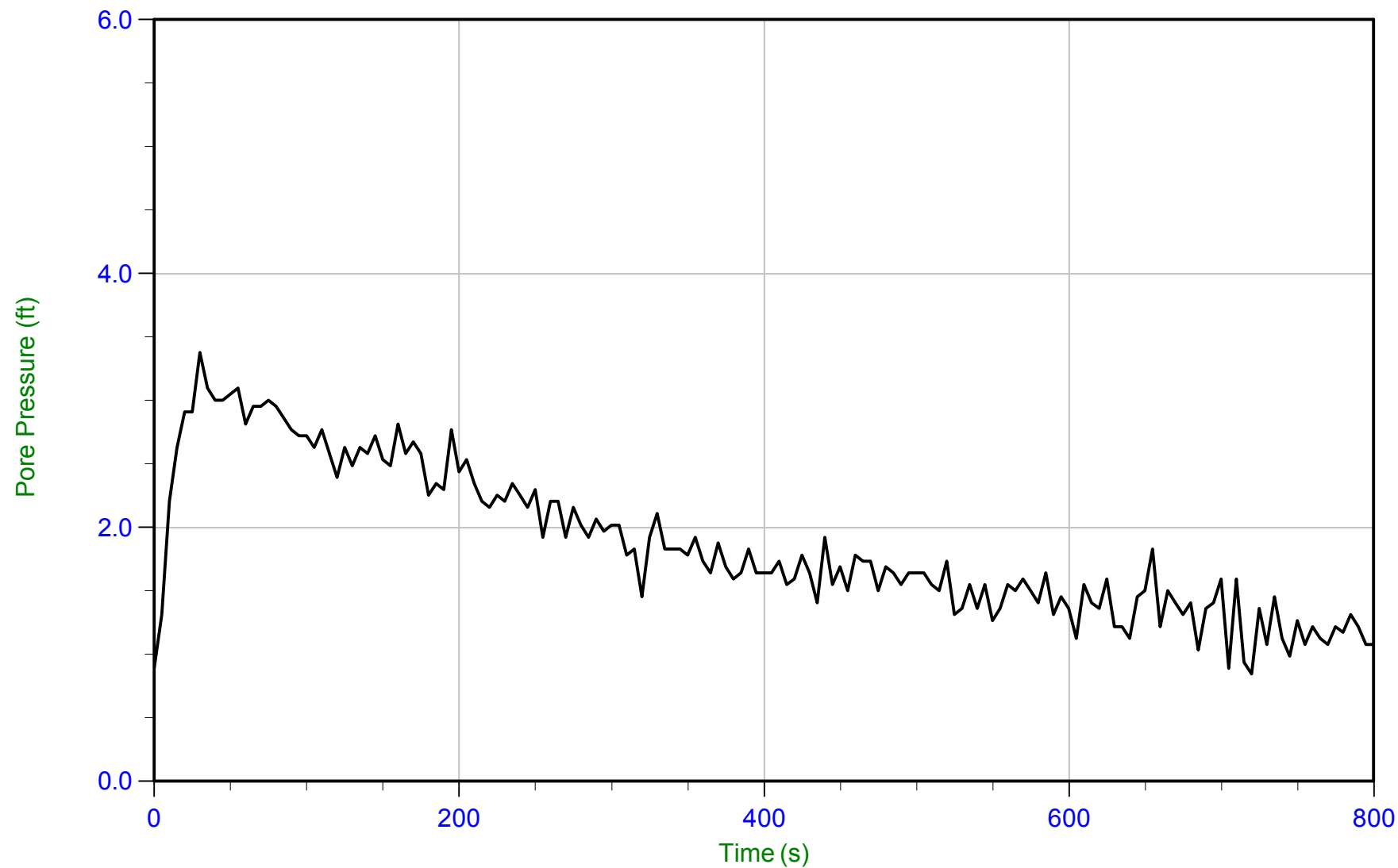
Date: 08-Nov-2013 11:13:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP07.PPD

Depth: 8.950 m / 29.363 ft

Duration: 800.0 s

U Min: 0.8 ft

U Max: 3.4 ft

WT: 8.603 m / 28.225 ft

Ueq: 1.1 ft



MWH Americas

Job No: 13-52118

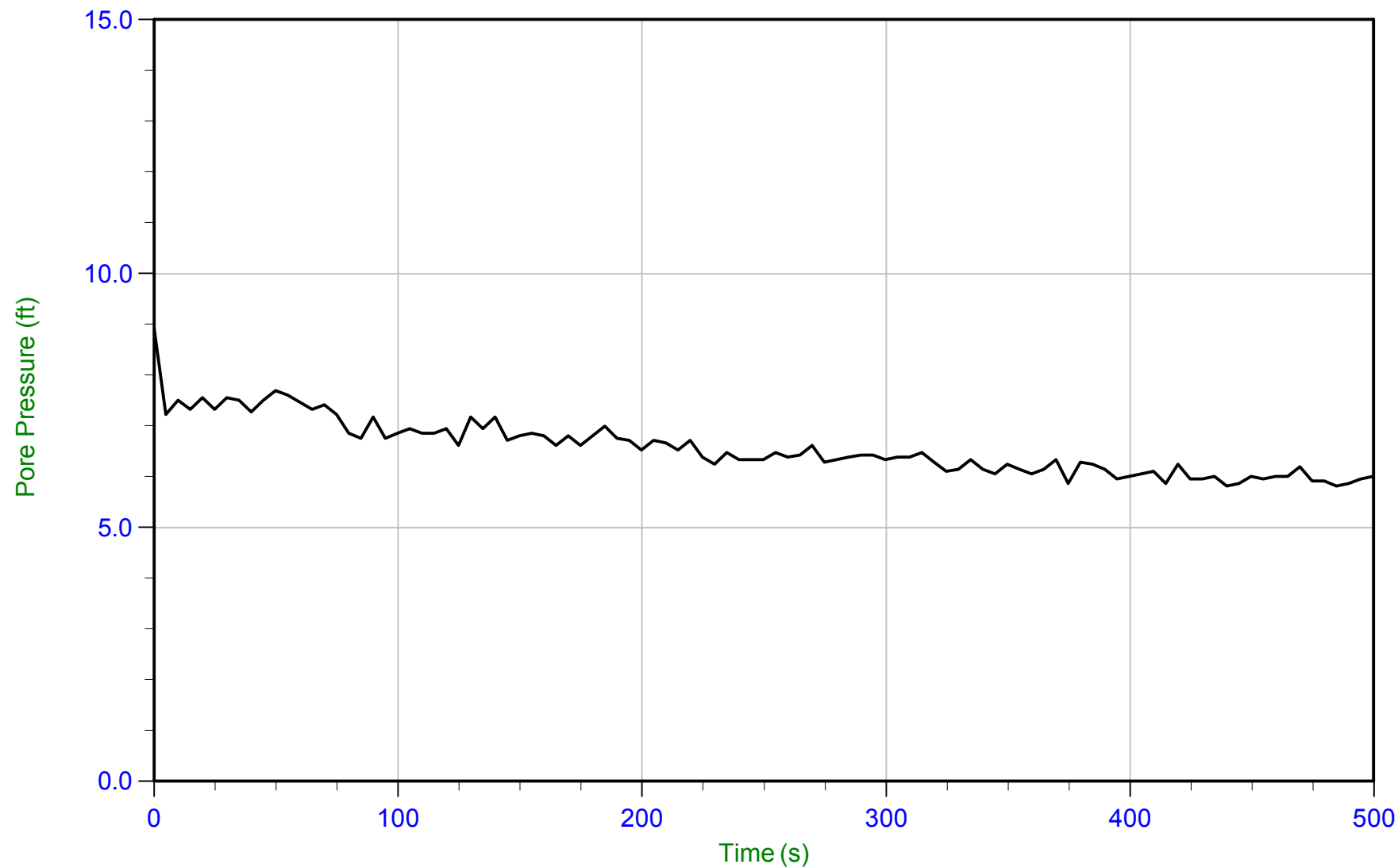
Date: 08-Nov-2013 11:13:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP07.PPD
Depth: 13.300 m / 43.635 ft
Duration: 500.0 s

U Min: 5.8 ft
U Max: 8.9 ft

WT: 11.471 m / 37.635 ft
Ueq: 6.0 ft



MWH Americas

Job No: 13-52118

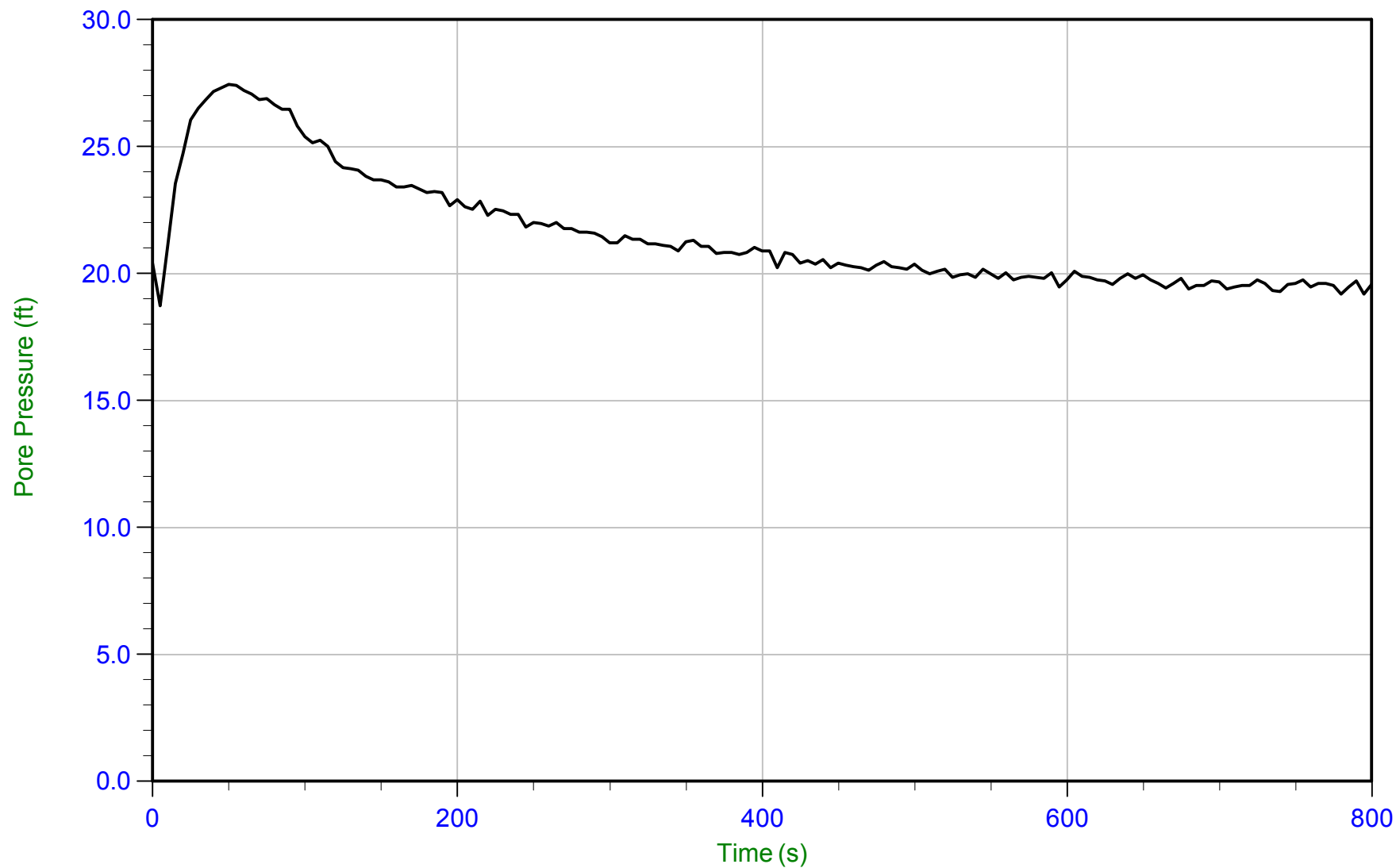
Date: 07-Nov-2013 08:21:49

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP08.PPD

Depth: 9.650 m / 31.660 ft

Duration: 800.0 s

U Min: 18.7 ft

U Max: 27.5 ft

WT: 3.722 m / 12.212 ft

Ueq: 19.4 ft



MWH Americas

Job No: 13-52118

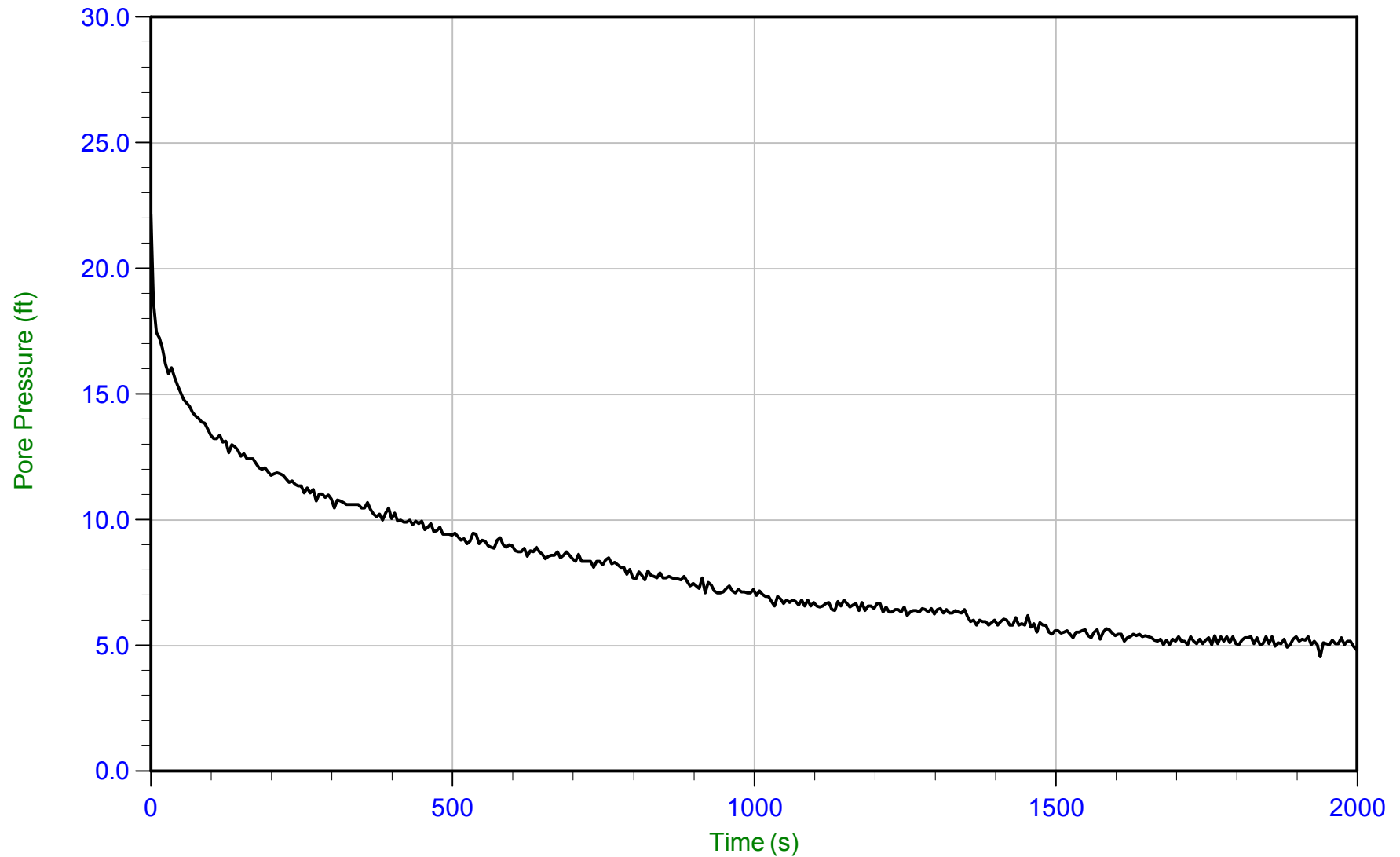
Date: 07-Nov-2013 08:21:49

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP08.PPD
Depth: 16.650 m / 54.625 ft
Duration: 2010.0 s

U Min: 4.6 ft
U Max: 22.1 ft

WT: 15.105 m / 49.556 ft
Ueq: 5.1 ft



MWH Americas

Job No: 13-52118

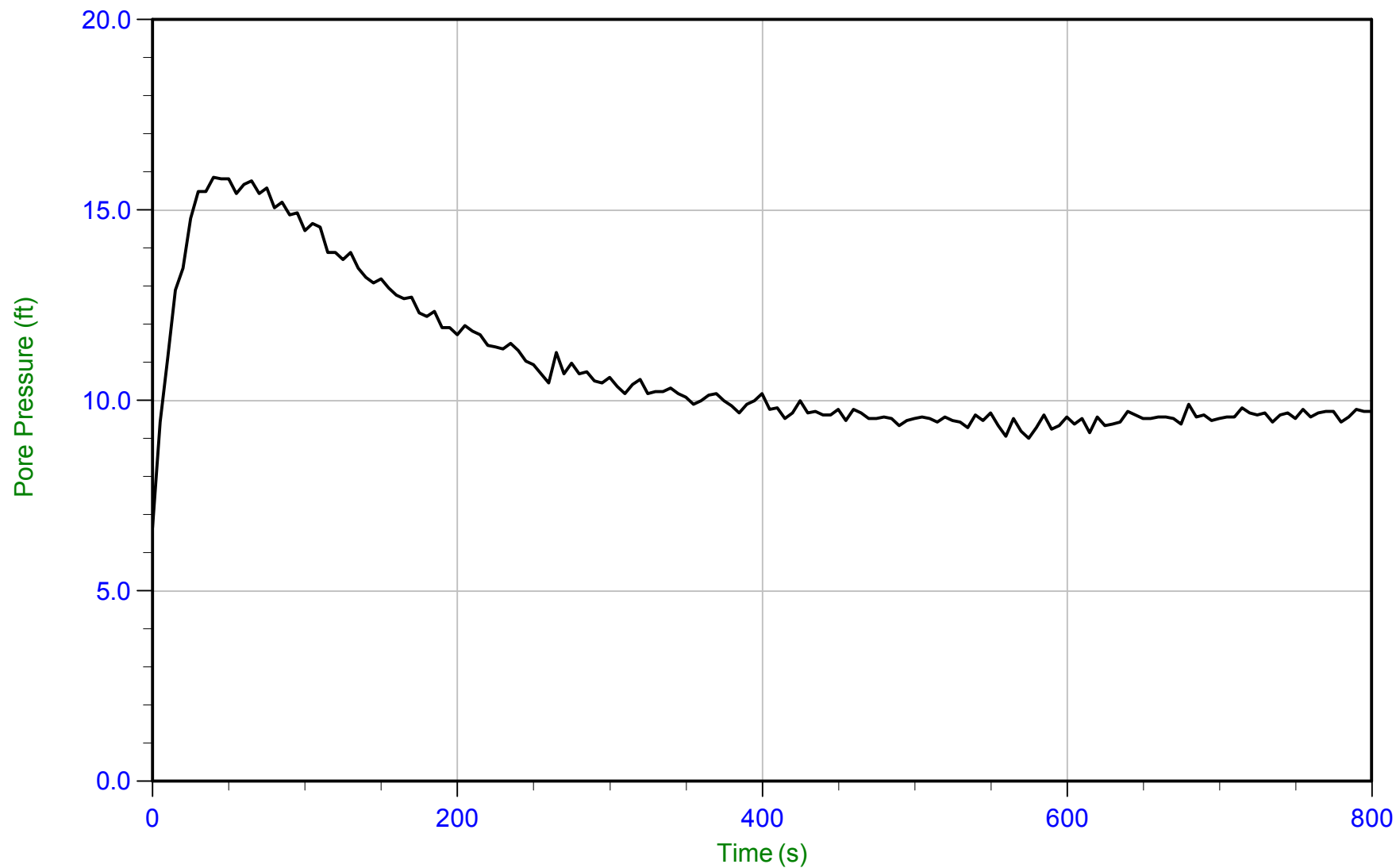
Date: 06-Nov-2013 14:52:26

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-09

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP09.PPD

Depth: 8.100 m / 26.574 ft

Duration: 800.0 s

U Min: 6.7 ft

U Max: 15.9 ft

WT: 5.178 m / 16.988 ft

Ueq: 9.6 ft



MWH Americas

Job No: 13-52118

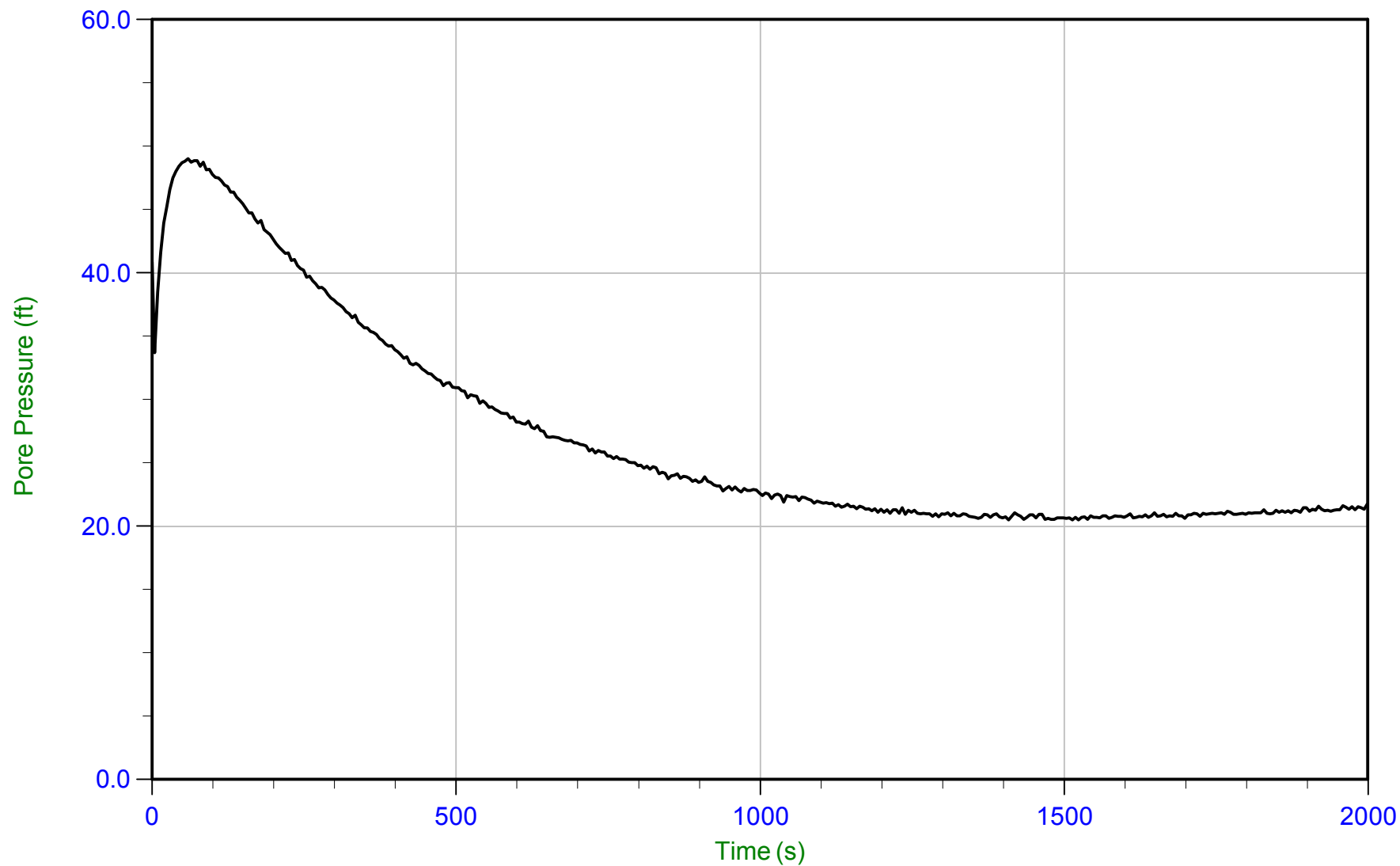
Date: 06-Nov-2013 10:23:48

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP10.PPD U Min: 20.5 ft WT: 0.205 m / 0.671 ft
Depth: 6.700 m / 21.981 ft U Max: 49.0 ft Ueq: 21.3 ft
Duration: 2000.0 s



MWH Americas

Job No: 13-52118

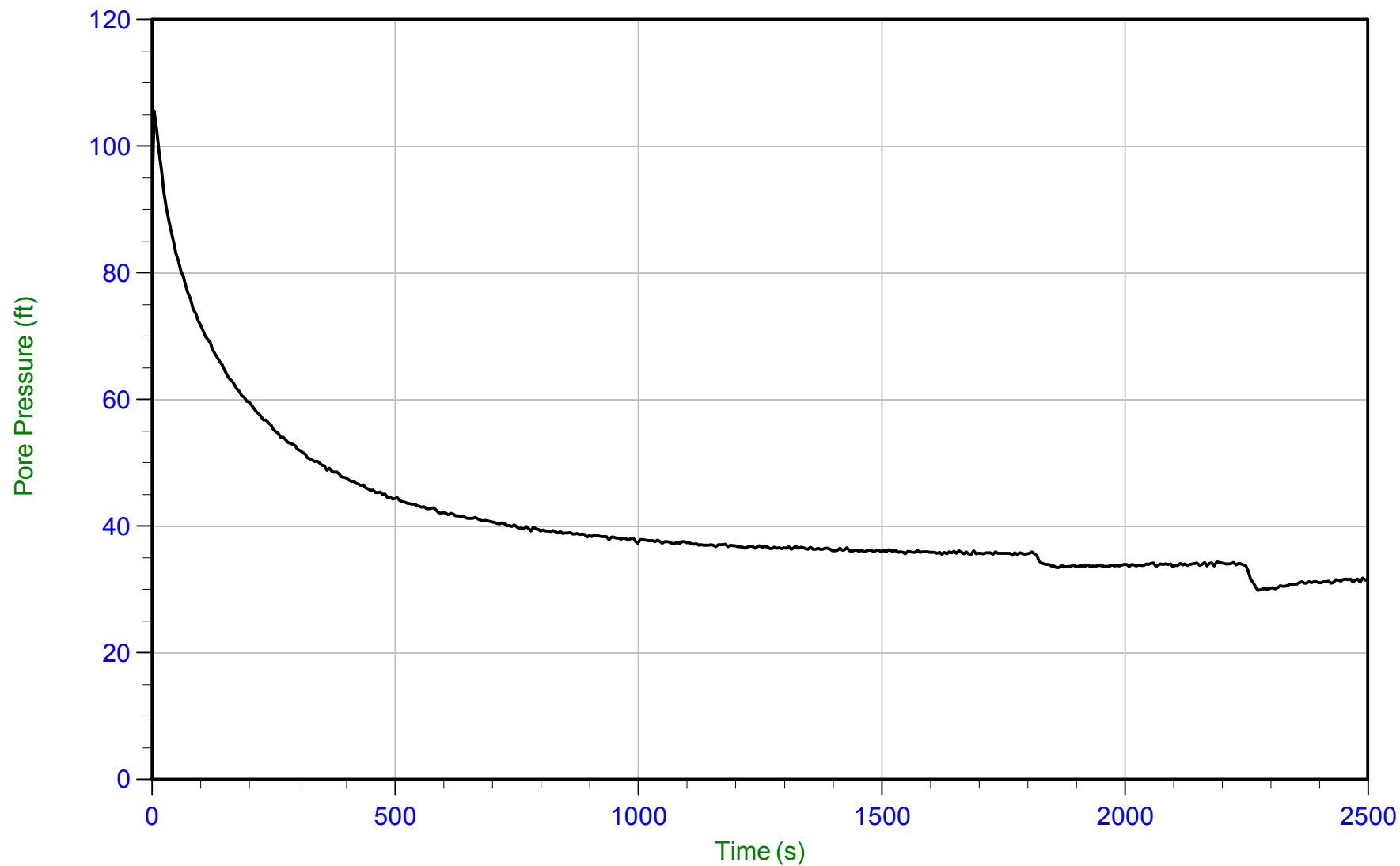
Date: 06-Nov-2013 10:23:48

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP10.PPD
Depth: 11.200 m / 36.745 ft
Duration: 2500.0 s

U Min: 29.9 ft
U Max: 105.5 ft

WT: 1.615 m / 5.297 ft
Ueq: 31.4 ft



MWH Americas

Job No: 13-52118

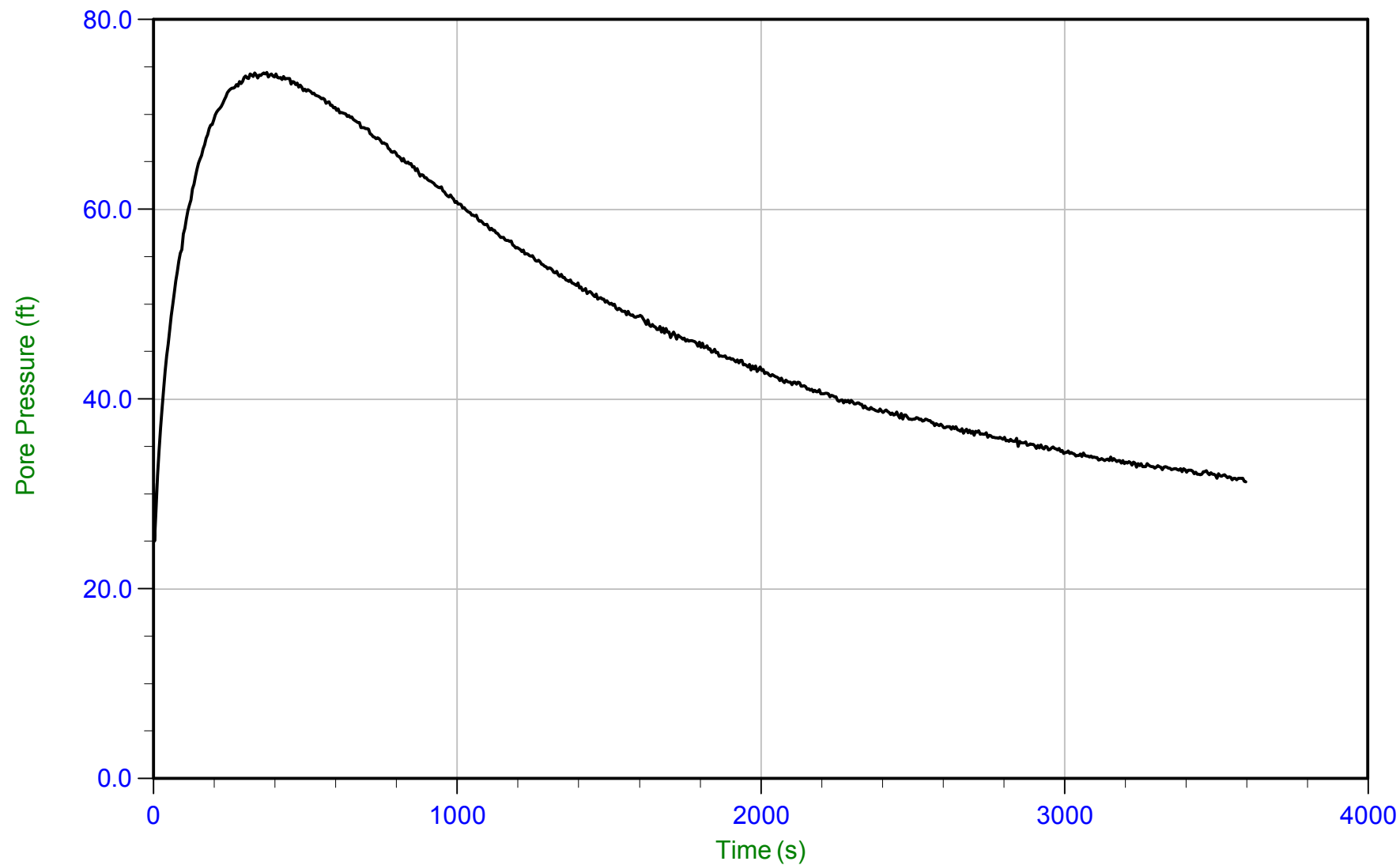
Date: 07-Nov-2013 12:13:16

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155

Cone Area: 15 sq cm



Trace Summary:

Filename: 13-52118_RP11.PPD

Depth: 16.200 m / 53.149 ft

Duration: 3600.0 s

U Min: 25.1 ft

U Max: 74.4 ft

WT: 15.088 m / 49.500 ft

Ueq: 3.6 ft

U(50): 39.04 ft

T(50): 1975.3 s



MWH Americas

Job No: 13-52118

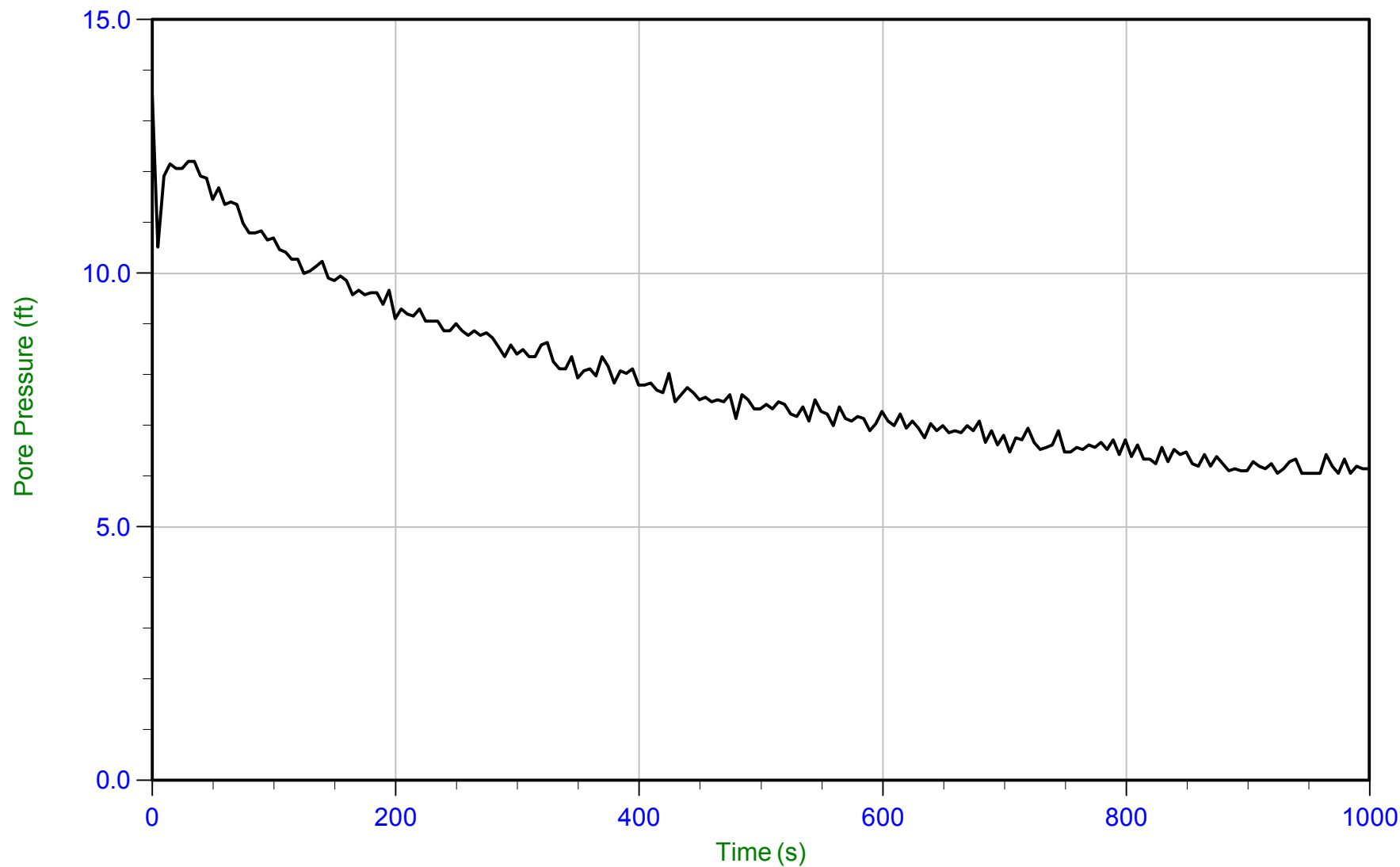
Date: 07-Nov-2013 12:13:16

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP11.PPD
Depth: 16.950 m / 55.610 ft
Duration: 1000.0 s

U Min: 6.1 ft
U Max: 13.5 ft

WT: 15.074 m / 49.454 ft
Ueq: 6.2 ft



MWH Americas

Job No: 13-52118

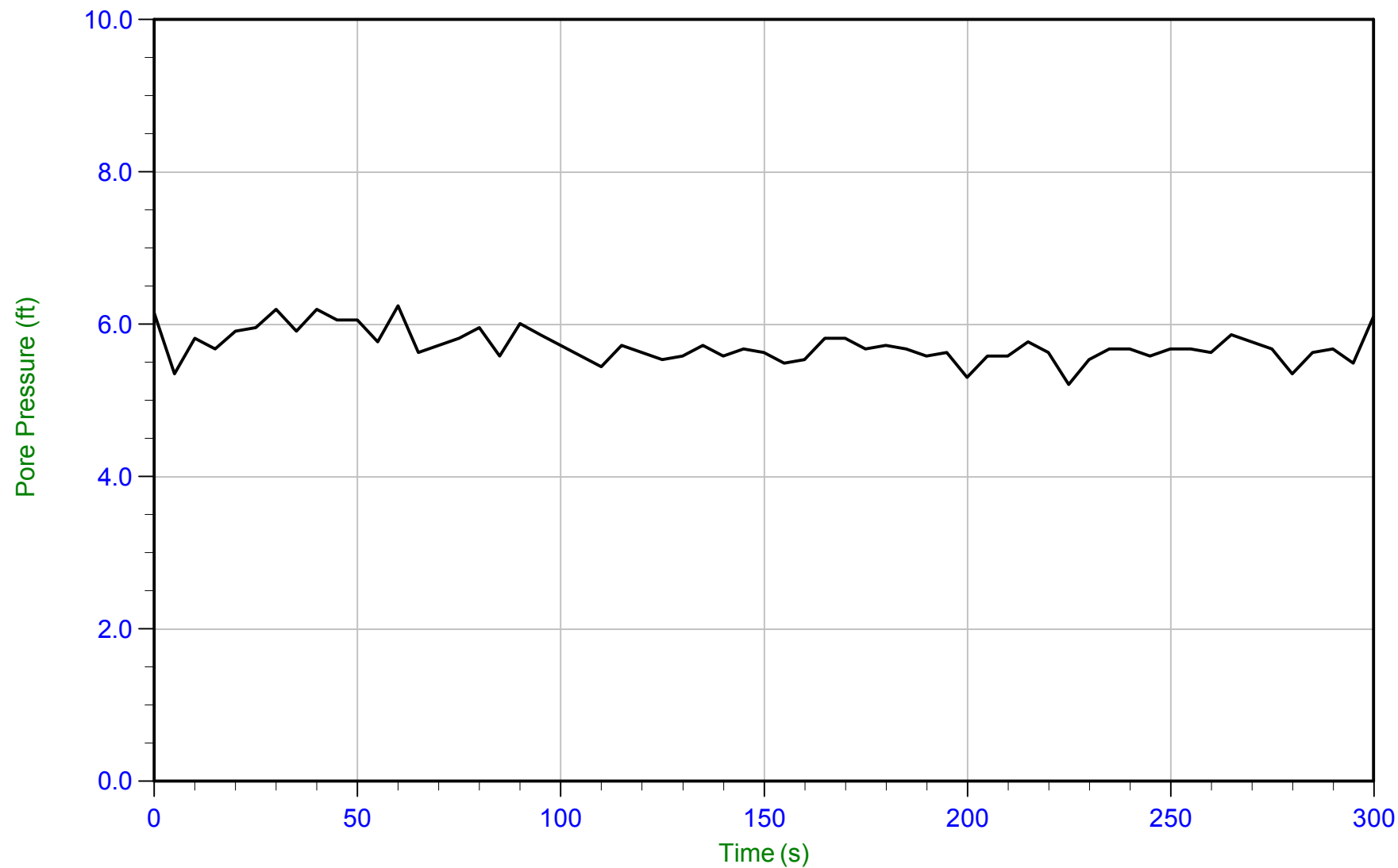
Date: 07-Nov-2013 10:22:20

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP12.PPD
Depth: 12.350 m / 40.518 ft
Duration: 300.0 s

U Min: 5.2 ft
U Max: 6.2 ft

WT: 10.647 m / 34.932 ft
Ueq: 5.6 ft



MWH Americas

Job No: 13-52118

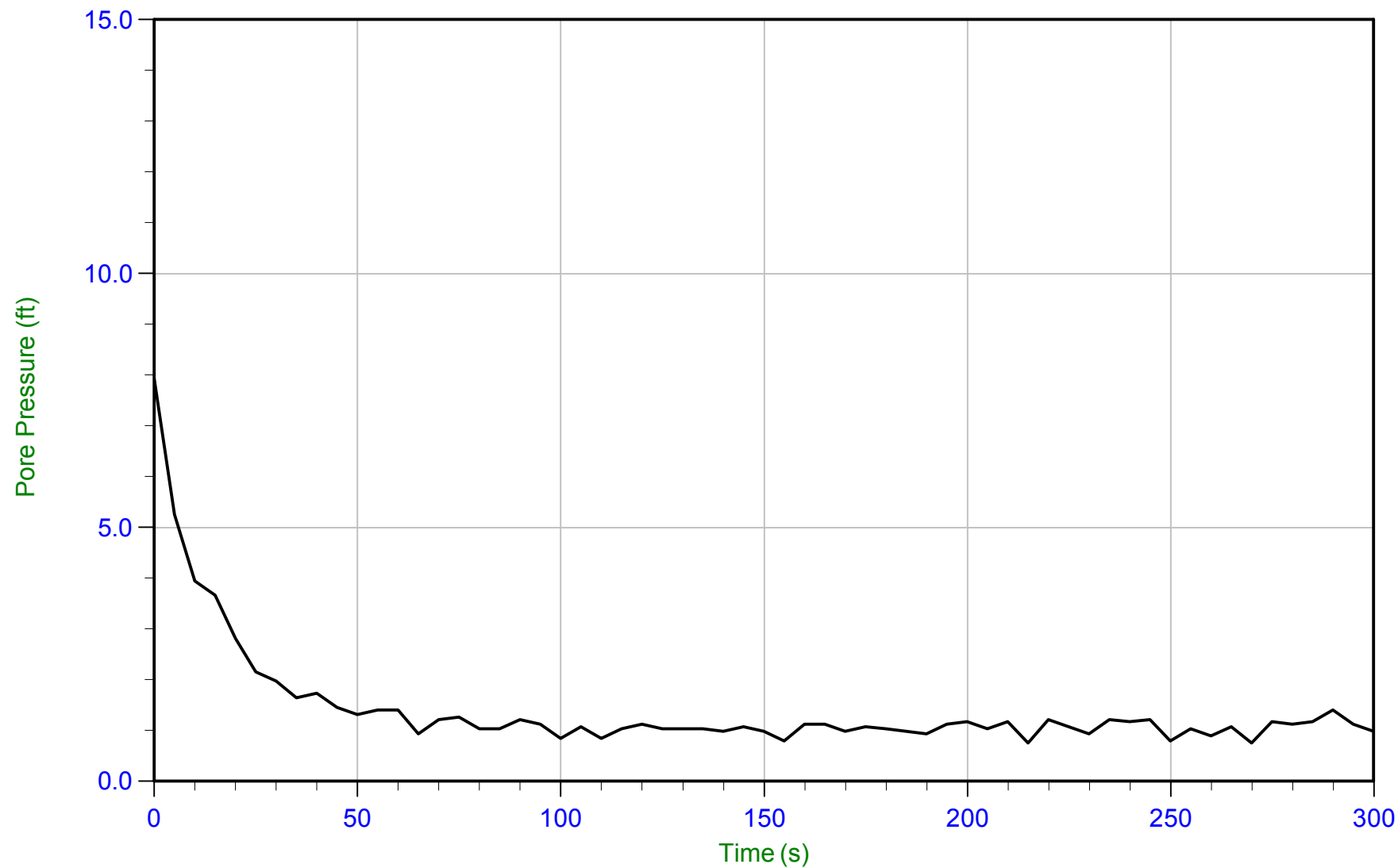
Date: 08-Nov-2013 14:30:14

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-14

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP14.PPD U Min: 0.8 ft WT: 6.400 m / 20.999 ft
Depth: 6.700 m / 21.981 ft U Max: 7.9 ft Ueq: 1.0 ft
Duration: 300.0 s



MWH Americas

Job No: 13-52118

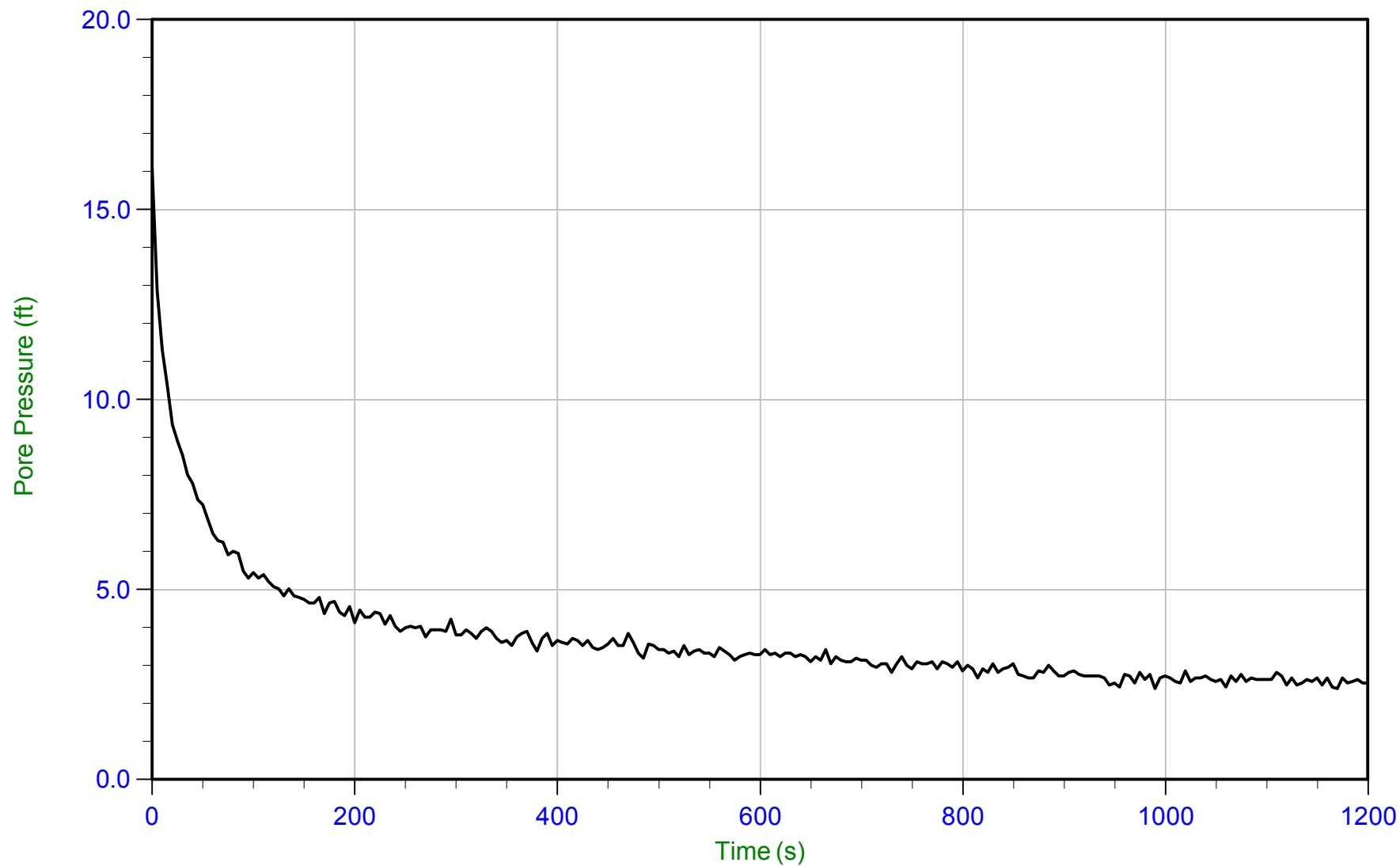
Date: 06-Nov-2013 16:32:17

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP15.PPD U Min: 2.4 ft WT: 10.772 m / 35.342 ft
Depth: 11.550 m / 37.893 ft U Max: 16.1 ft Ueq: 2.6 ft
Duration: 1200.0 s



MWH Americas

Job No: 13-52118

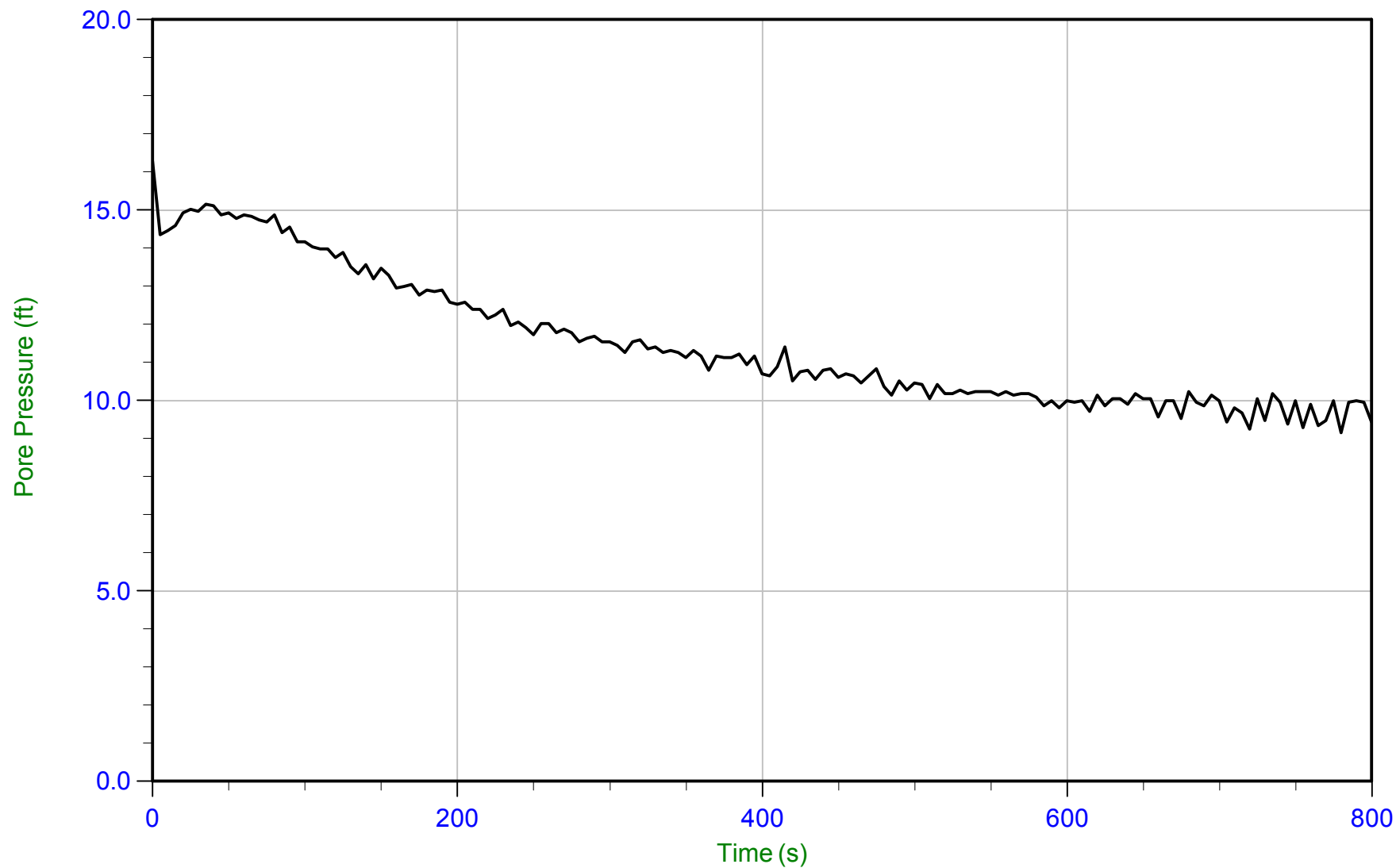
Date: 08-Nov-2013 12:56:11

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-16

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP16.PPD
Depth: 13.350 m / 43.799 ft
Duration: 800.0 s

U Min: 9.2 ft
U Max: 16.3 ft

WT: 10.407 m / 34.144 ft
Ueq: 9.7 ft



MWH Americas

Job No: 13-52118

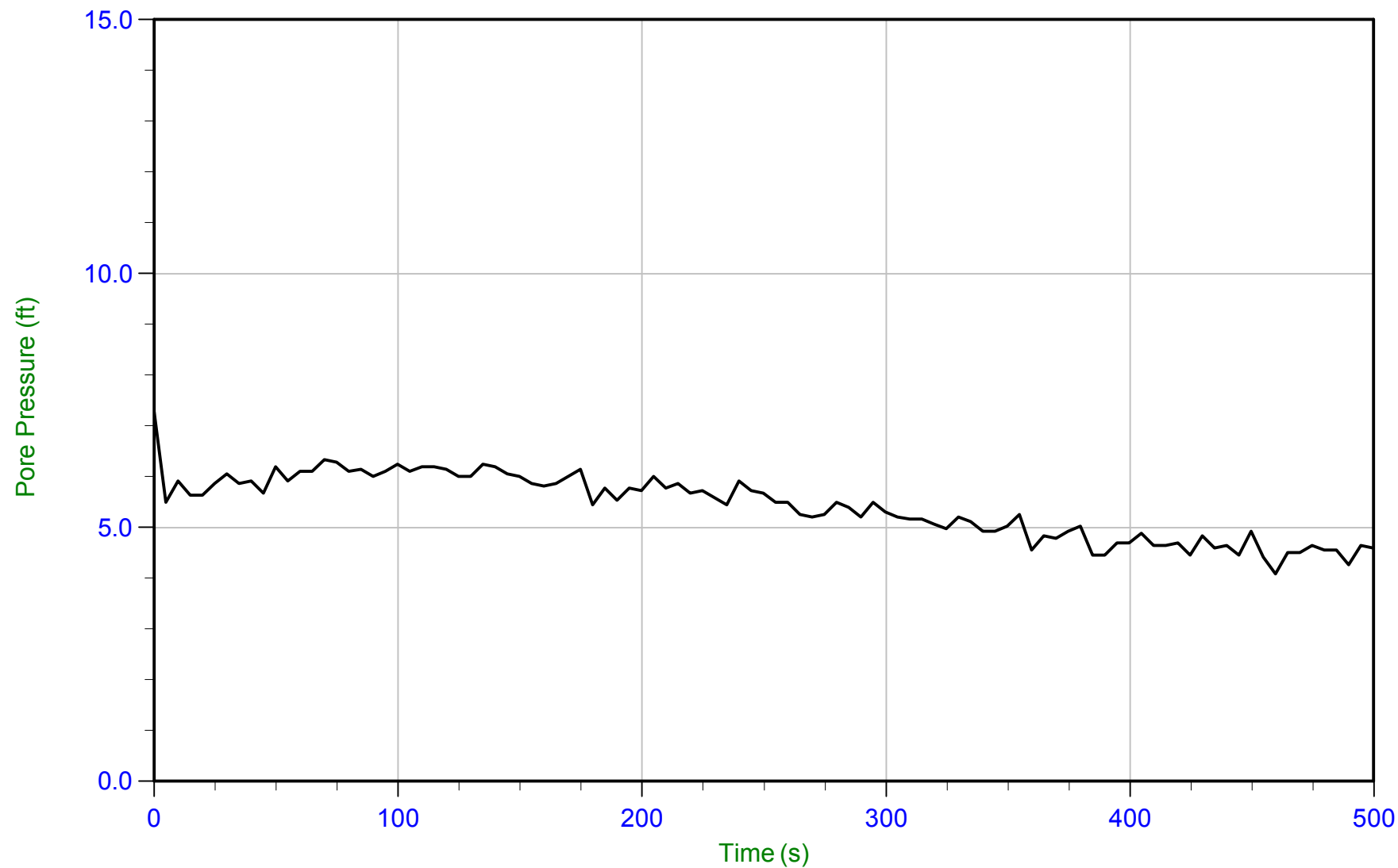
Date: 09-Nov-2013 10:46:19

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-18

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP18.PPD
Depth: 9.350 m / 30.675 ft
Duration: 500.0 s

U Min: 4.1 ft
U Max: 7.3 ft

WT: 7.963 m / 26.124 ft
Ueq: 4.6 ft



MWH Americas

Job No: 13-52118

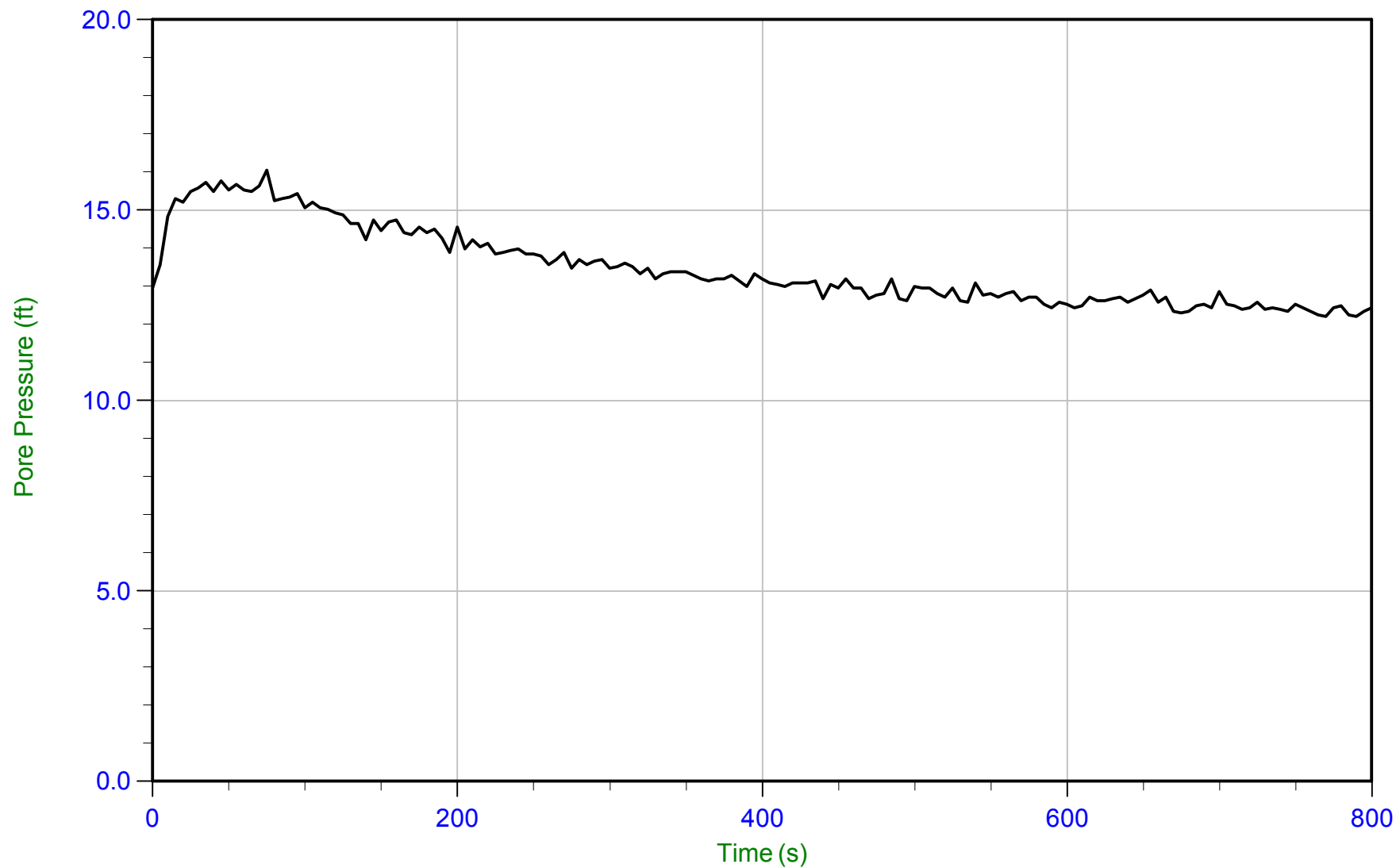
Date: 09-Nov-2013 10:46:19

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-18

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP18.PPD
Depth: 14.000 m / 45.931 ft
Duration: 800.0 s

U Min: 12.2 ft
U Max: 16.1 ft

WT: 10.237 m / 33.587 ft
Ueq: 12.3 ft



MWH Americas

Job No: 13-52118

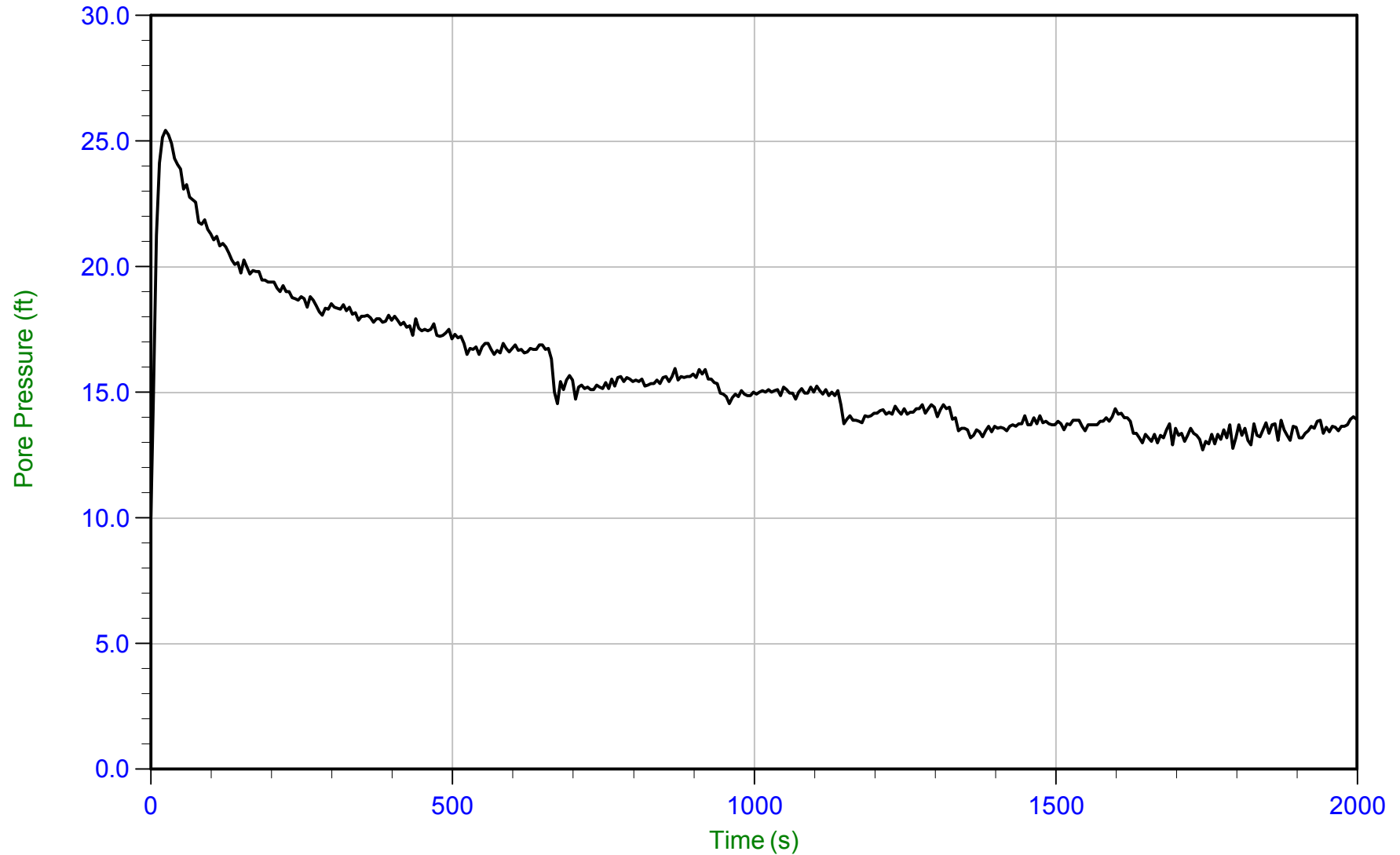
Date: 09-Nov-2013 11:56:27

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-19

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP19.PPD
Depth: 12.050 m / 39.534 ft
Duration: 2000.0 s

U Min: 10.0 ft
U Max: 25.4 ft

WT: 7.982 m / 26.189 ft
Ueq: 13.3 ft



MWH Americas

Job No: 13-52118

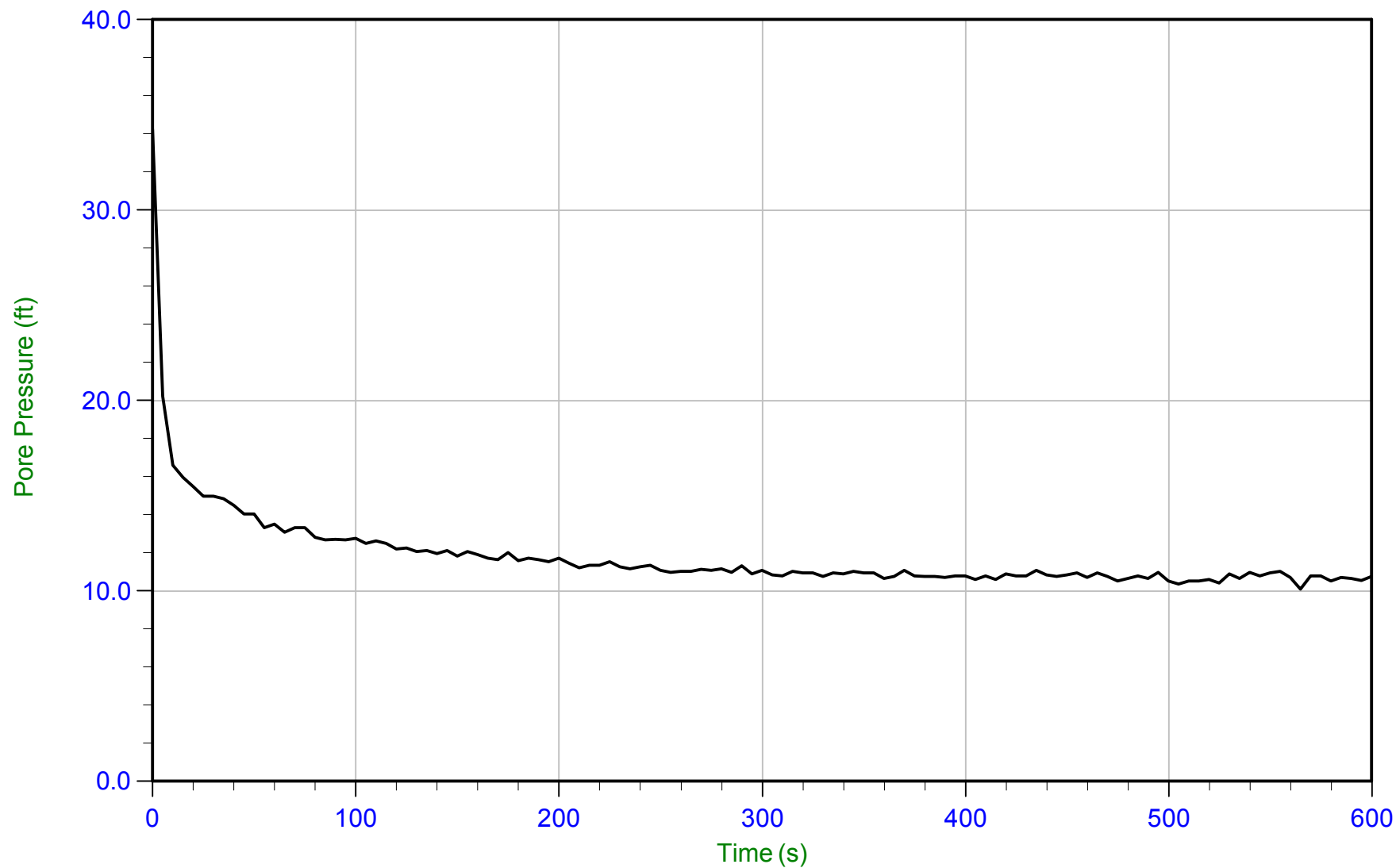
Date: 10-Nov-2013 11:54:14

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-22

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP22.PPD U Min: 10.1 ft WT: 9.263 m / 30.389 ft
Depth: 12.500 m / 41.010 ft U Max: 34.3 ft Ueq: 10.6 ft
Duration: 600.0 s



MWH Americas

Job No: 13-52118

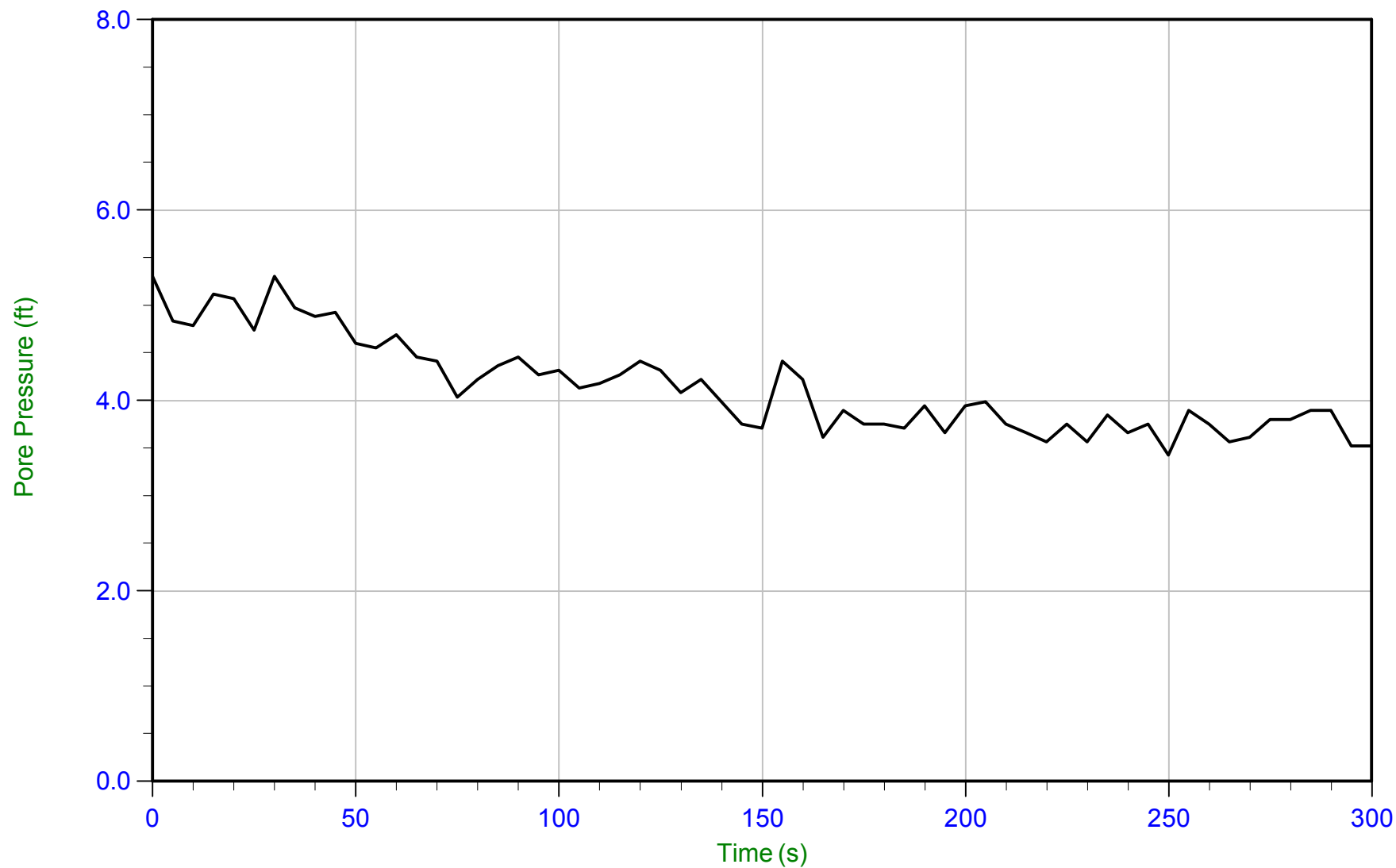
Date: 08-Nov-2013 16:21:35

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-23

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP23.PPD
Depth: 10.400 m / 34.120 ft
Duration: 300.0 s

U Min: 3.4 ft
U Max: 5.3 ft

WT: 9.282 m / 30.451 ft
Ueq: 3.7 ft



MWH Americas

Job No: 13-52118

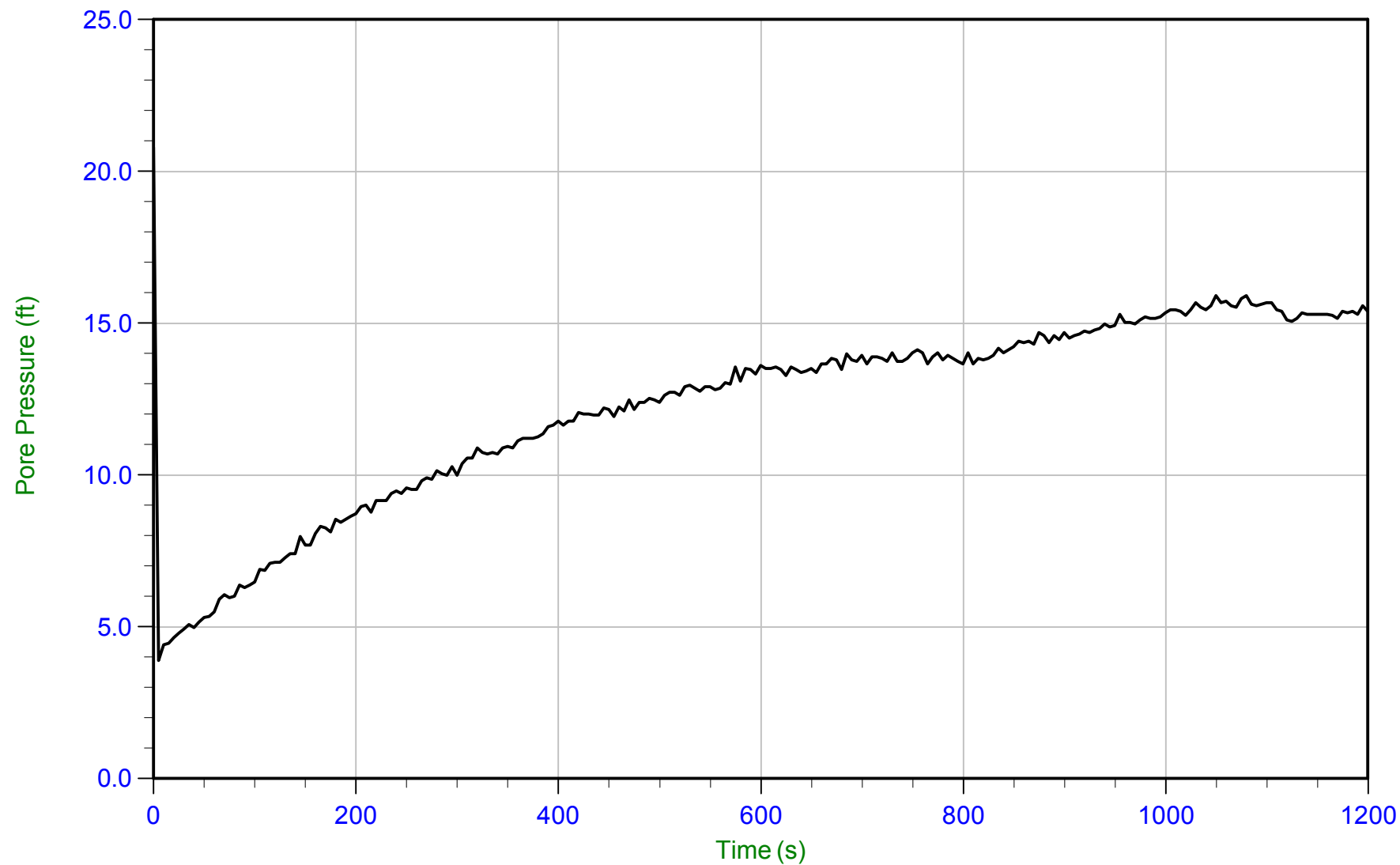
Date: 09-Nov-2013 09:25:08

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-26

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP26.PPD
Depth: 7.900 m / 25.918 ft
Duration: 1200.0 s

U Min: 3.9 ft
U Max: 20.8 ft

WT: 3.249 m / 10.660 ft
Ueq: 15.3 ft



MWH Americas

Job No: 13-52118

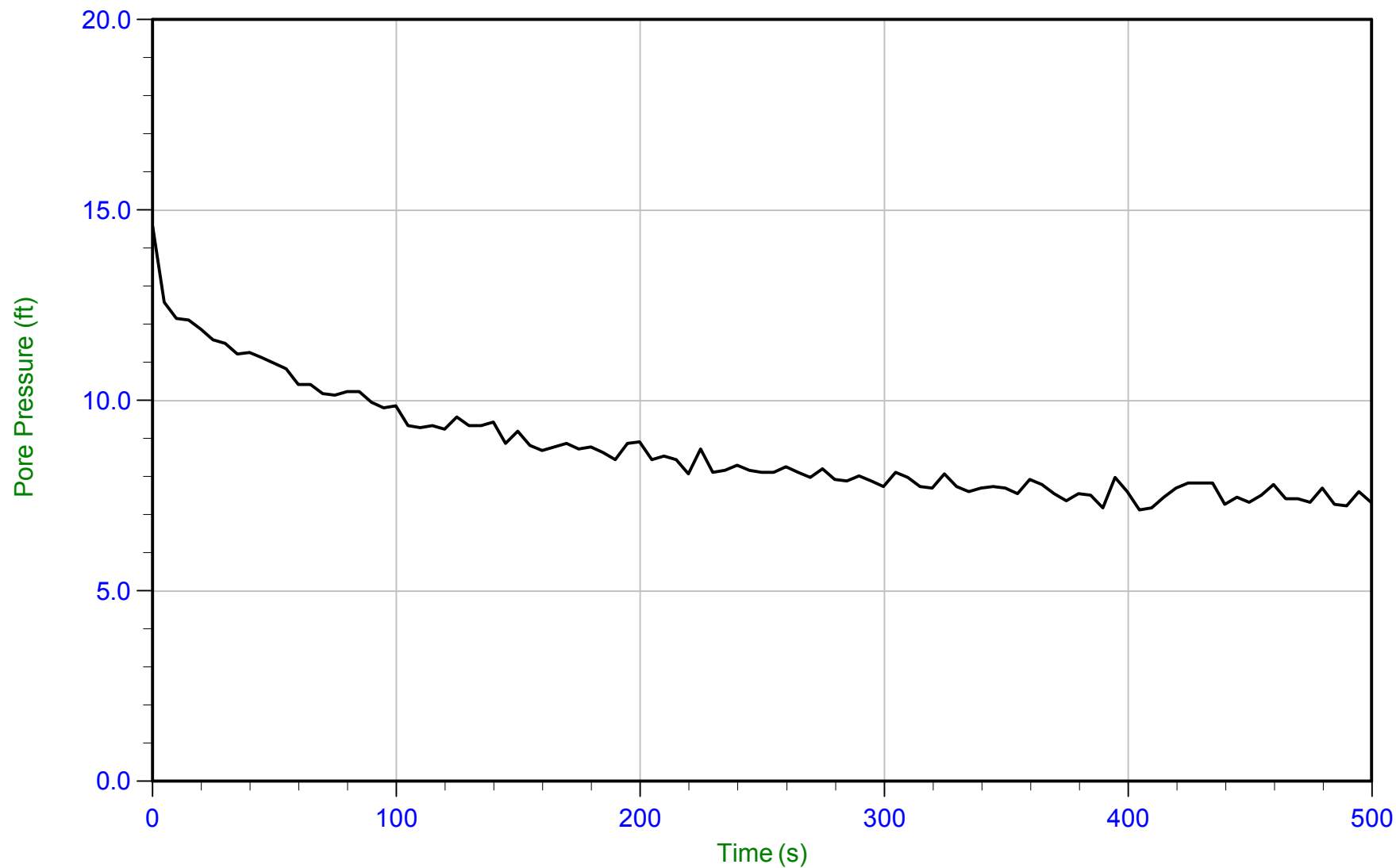
Date: 10-Nov-2013 08:17:14

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-28

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP28.PPD
Depth: 20.700 m / 67.913 ft
Duration: 500.0 s

U Min: 7.1 ft
U Max: 14.6 ft

WT: 18.430 m / 60.464 ft
Ueq: 7.4 ft



MWH Americas

Job No: 13-52118

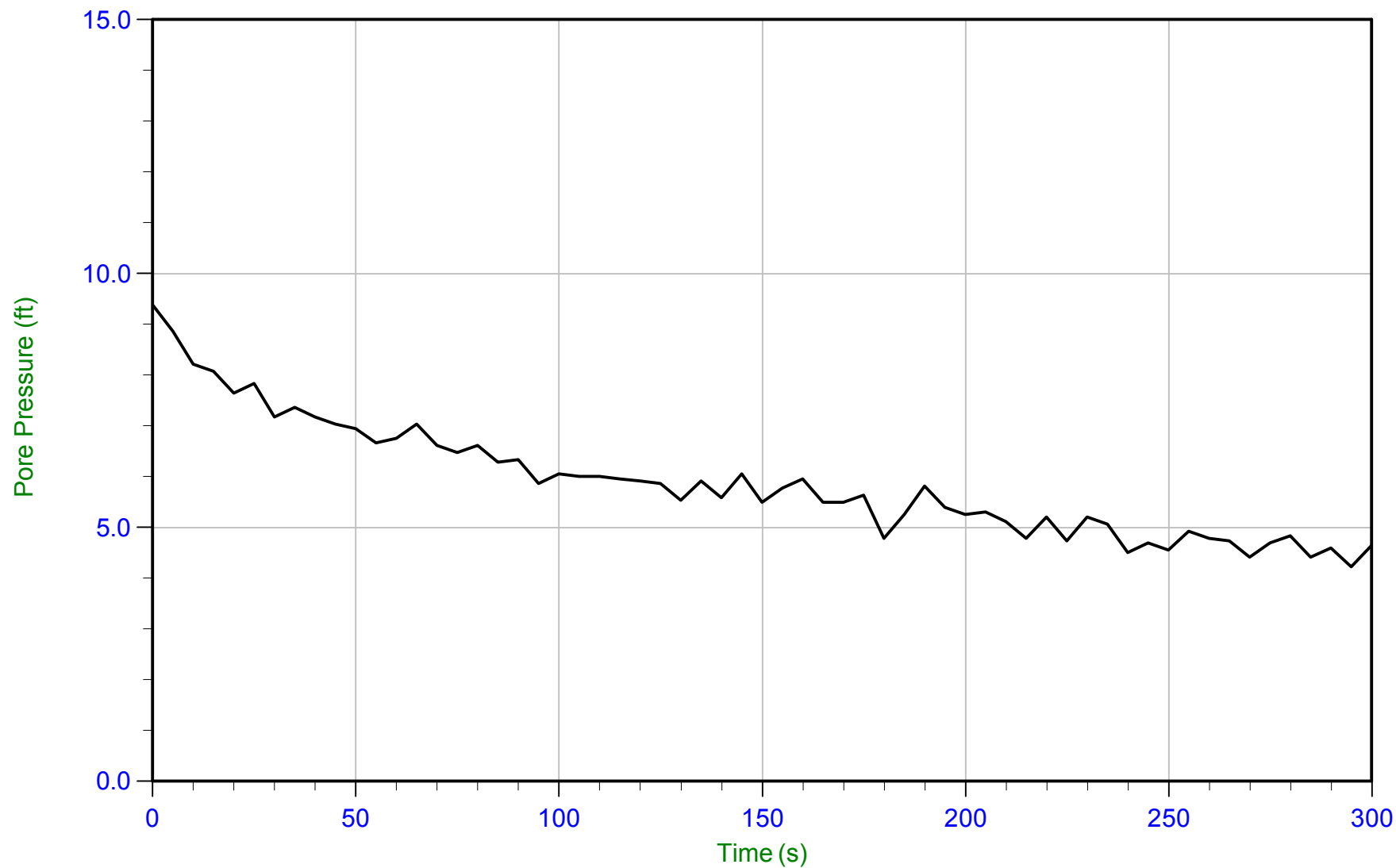
Date: 10-Nov-2013 13:10:58

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-31

Cone: 155

Cone Area: 15 sq cm



Trace Summary: Filename: 13-52118_RP31.PPD
Depth: 16.550 m / 54.297 ft
Duration: 300.0 s

U Min: 4.2 ft
U Max: 9.4 ft

WT: 15.178 m / 49.797 ft
Ueq: 4.5 ft



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Job No: 13-52118

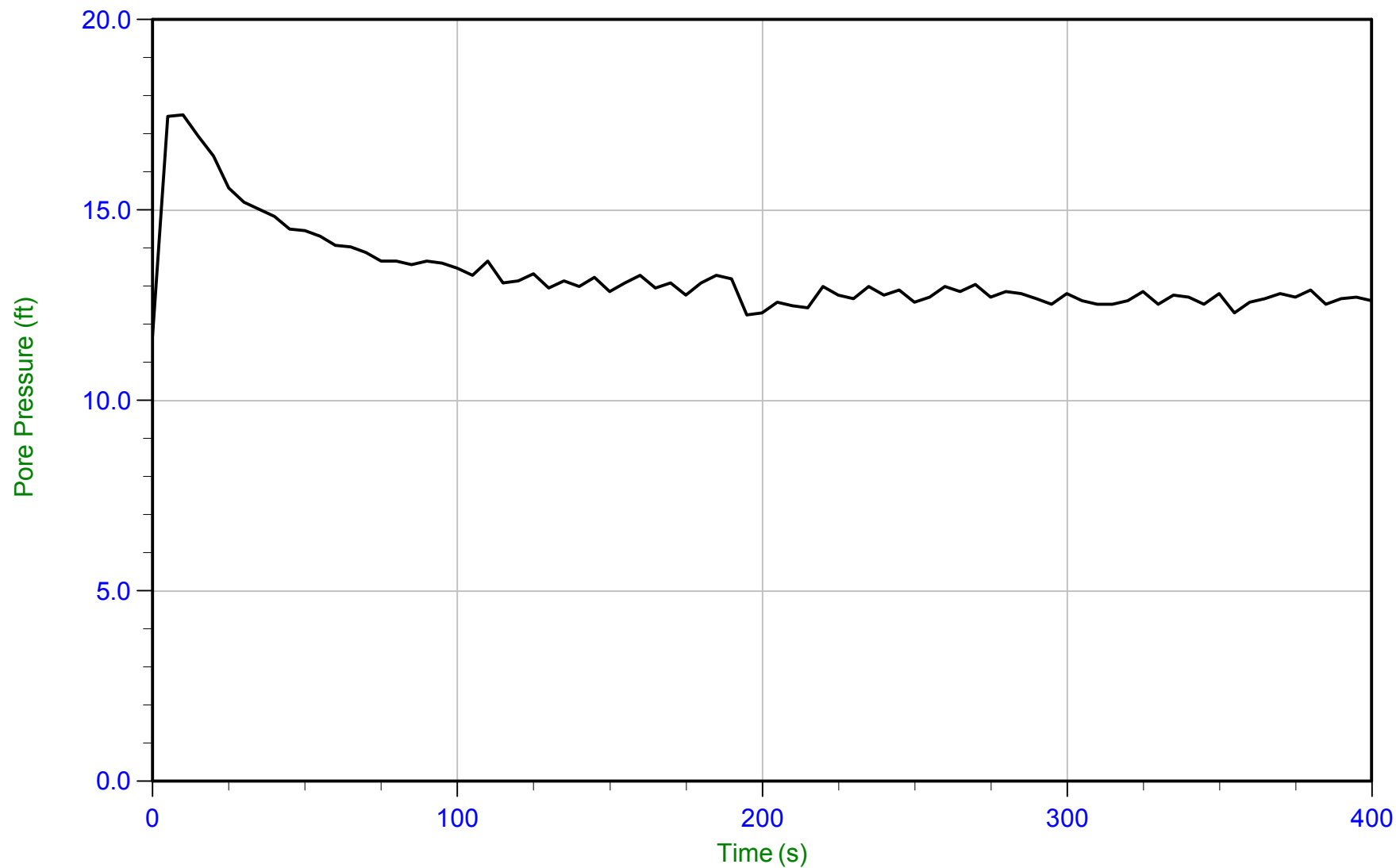
Date: 10-Nov-2013 14:12:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155

Cone Area: 15 sq cm



Trace Summary:	Filename: 13-52118_RP32.PPD	U Min: 11.7 ft	WT: 12.682 m / 41.608 ft
	Depth: 16.550 m / 54.297 ft	U Max: 17.5 ft	Ueq: 12.7 ft
	Duration: 400.0 s		

CPT Plots with Resistivity Measurements



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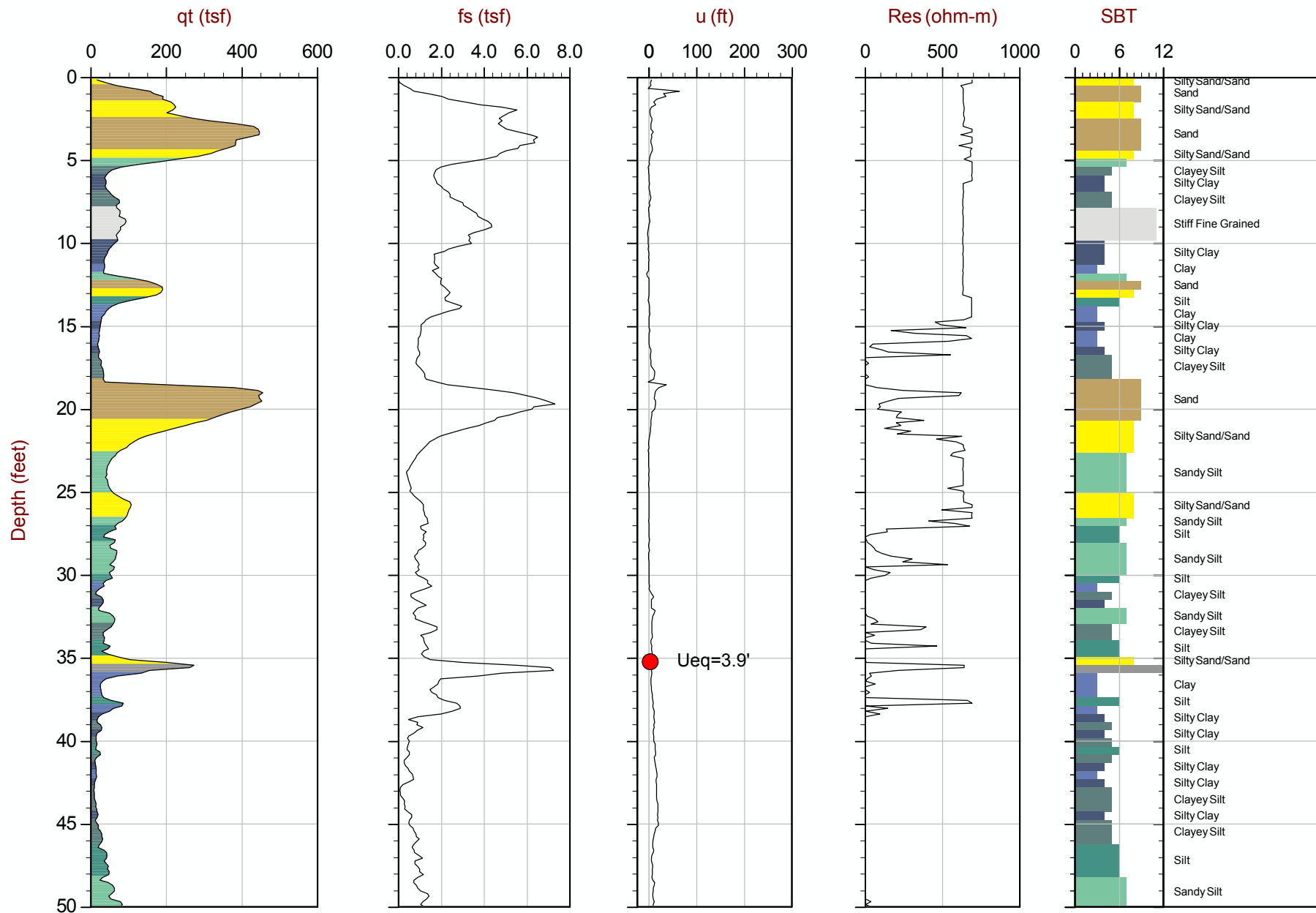
Job No: 13-52118

Date: 11:07:13 15:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01

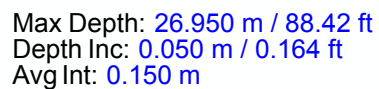
Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.649117 Long: -108.501667
 ● Equilibrium Pore Pressure from Dissipation



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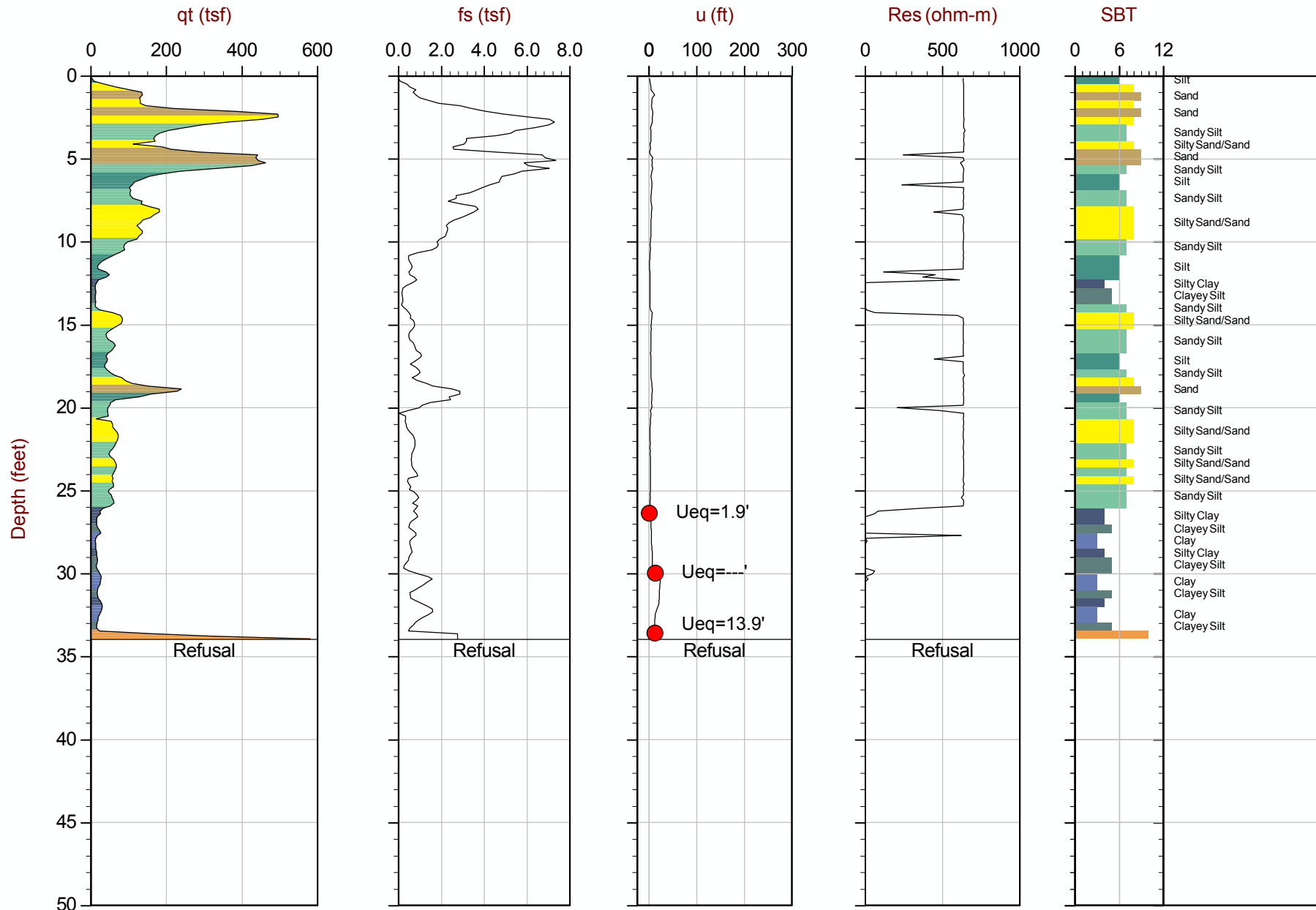
Job No: 13-52118

Date: 11:05:13 13:37

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02

Cone: 155:T1500F15U500



Max Depth: 10.350 m / 33.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP02.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650200 Long: -108.499750
● Equilibrium Pore Pressure from Dissipation



MWH Americas

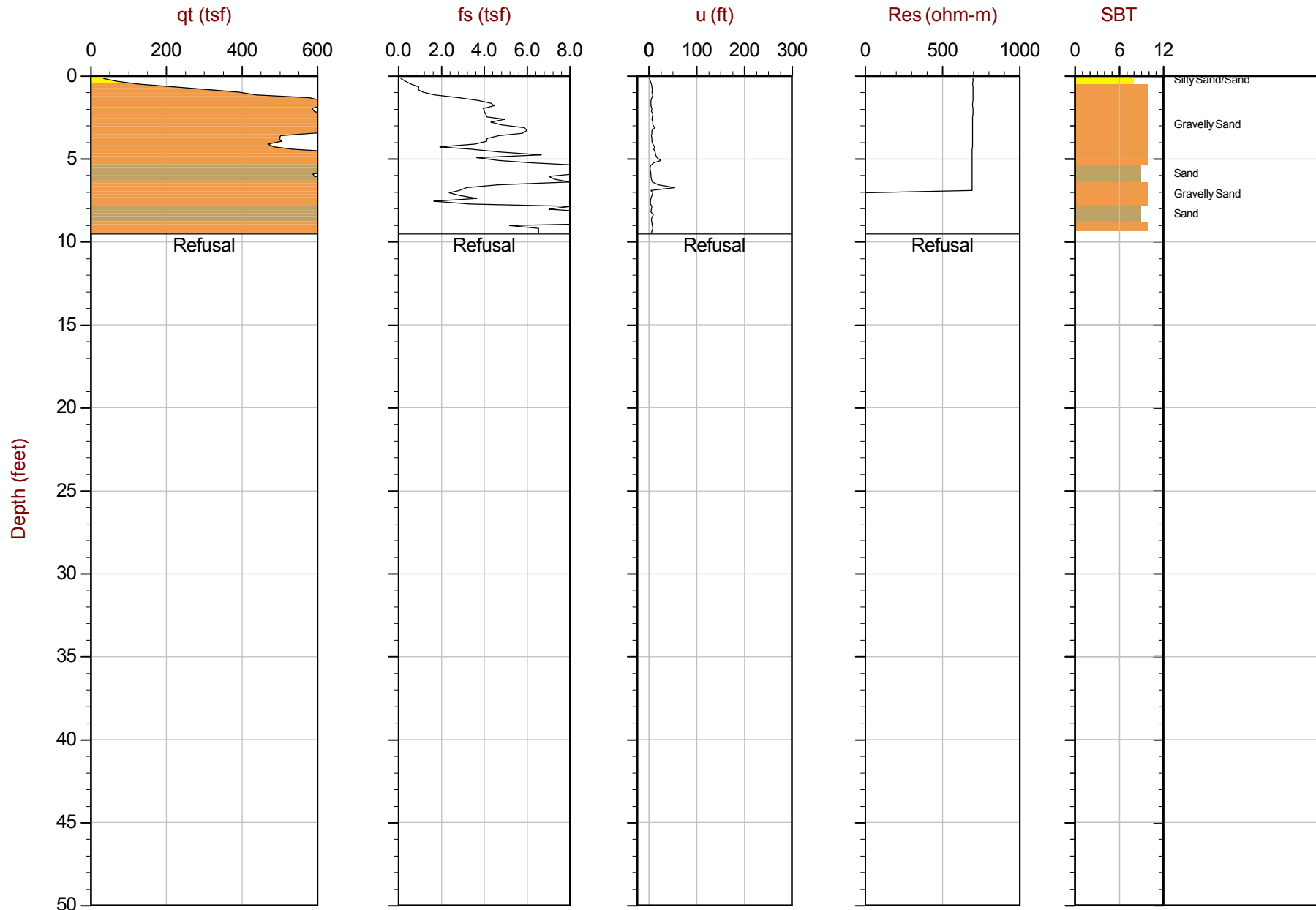
Job No: 13-52118

Date: 11:08:13 07:50

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-03

Cone: 155:T1500F15U500



Max Depth: 2.900 m / 9.51 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP03.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649350 Long: -108.502383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

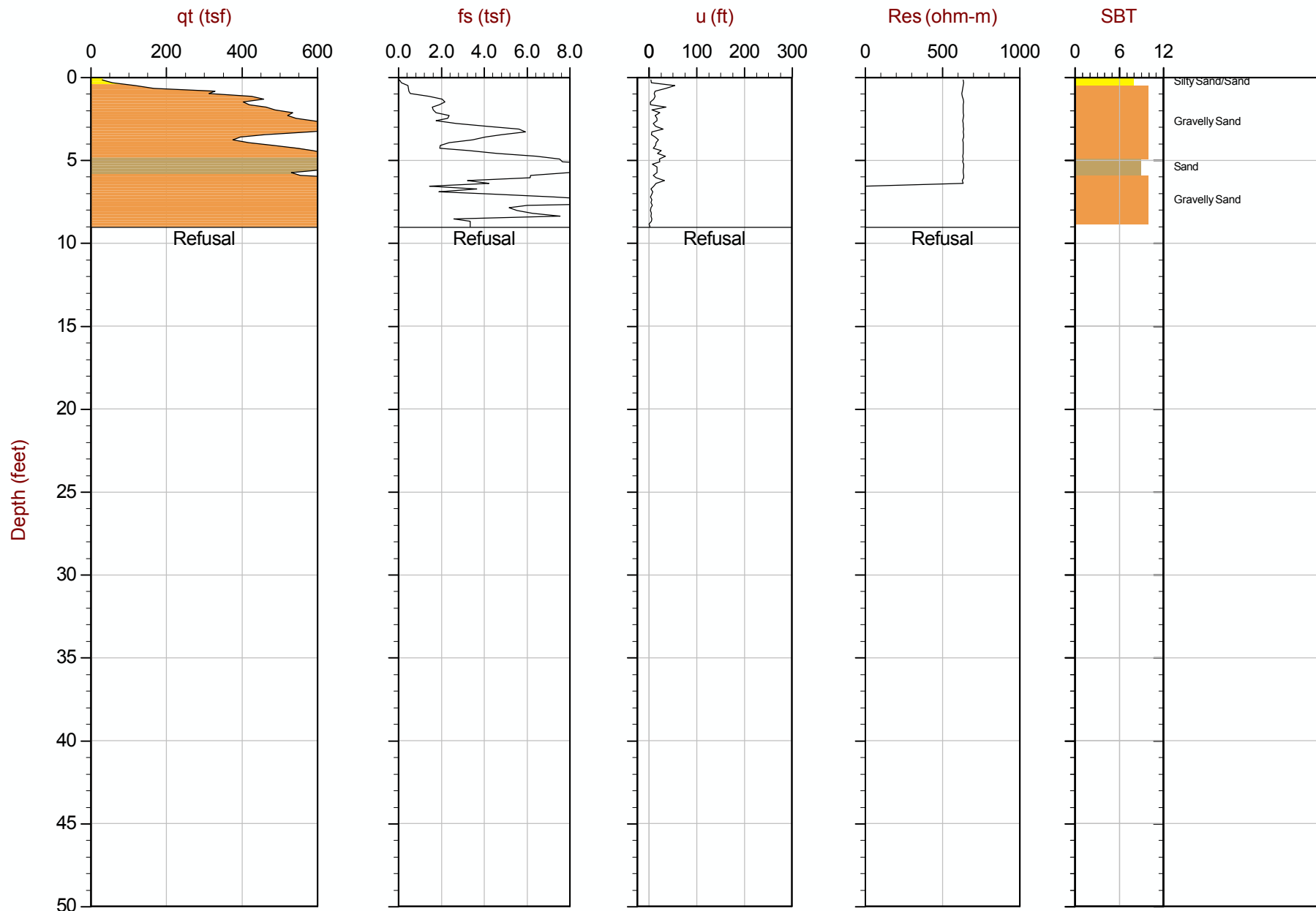
Job No: 13-52118

Date: 11:08:13 08:45

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-03B

Cone: 155:T1500F15U500



Max Depth: 2.750 m / 9.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP03B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649333 Long: -108.502383
● Equilibrium Pore Pressure from Dissipation



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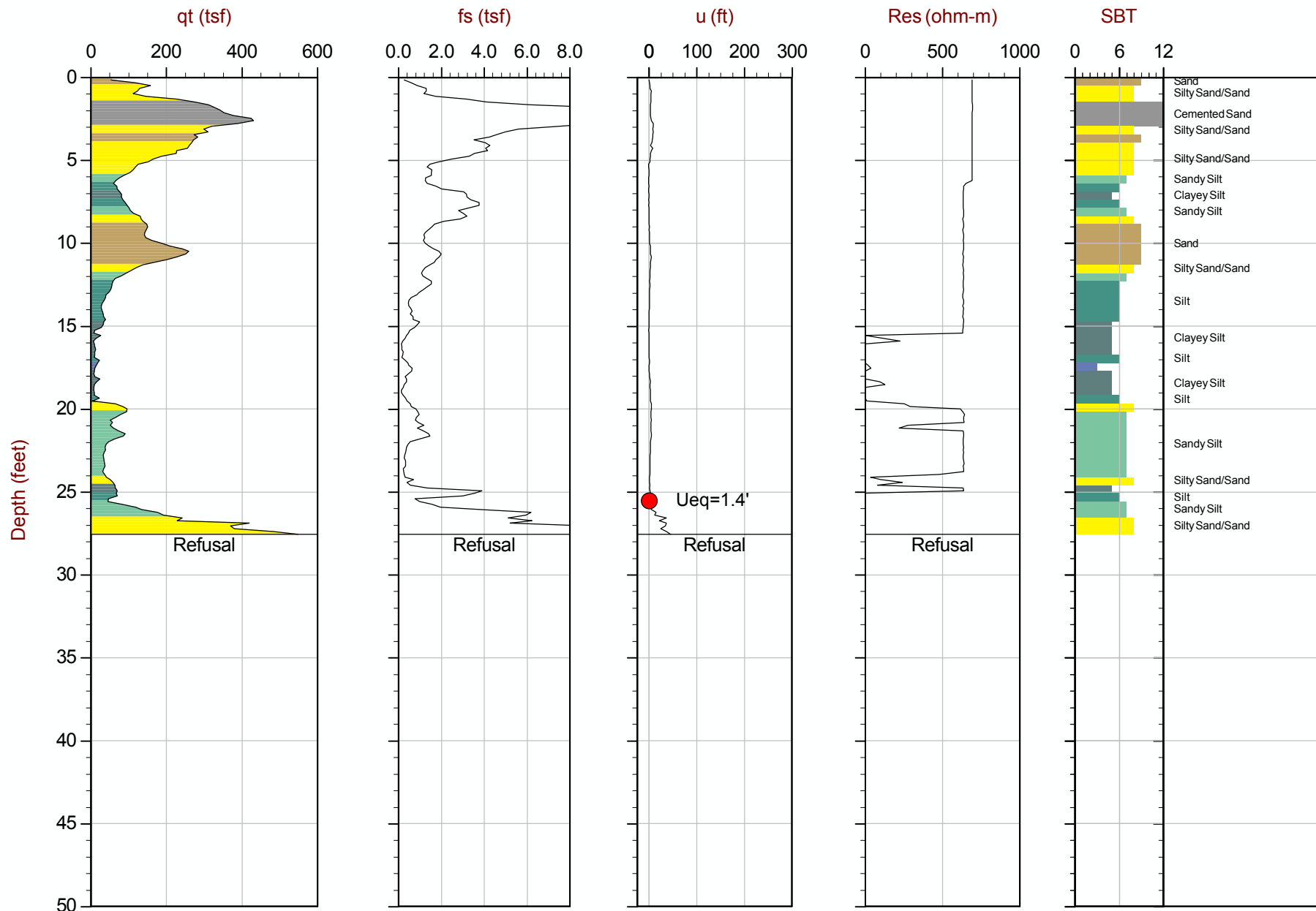
Job No: 13-52118

Date: 11:05:13 13:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-04

Cone: 155:T1500F15U500



Max Depth: 8.400 m / 27.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

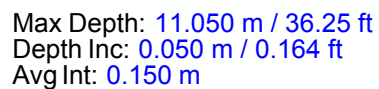
File: 13-52118_RP04.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649533 Long: -108.500483
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP05.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.648633 Long: -108.498283
 ● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP06.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.648250 Long: -108.497050
 ● Equilibrium Pore Pressure from Dissipation





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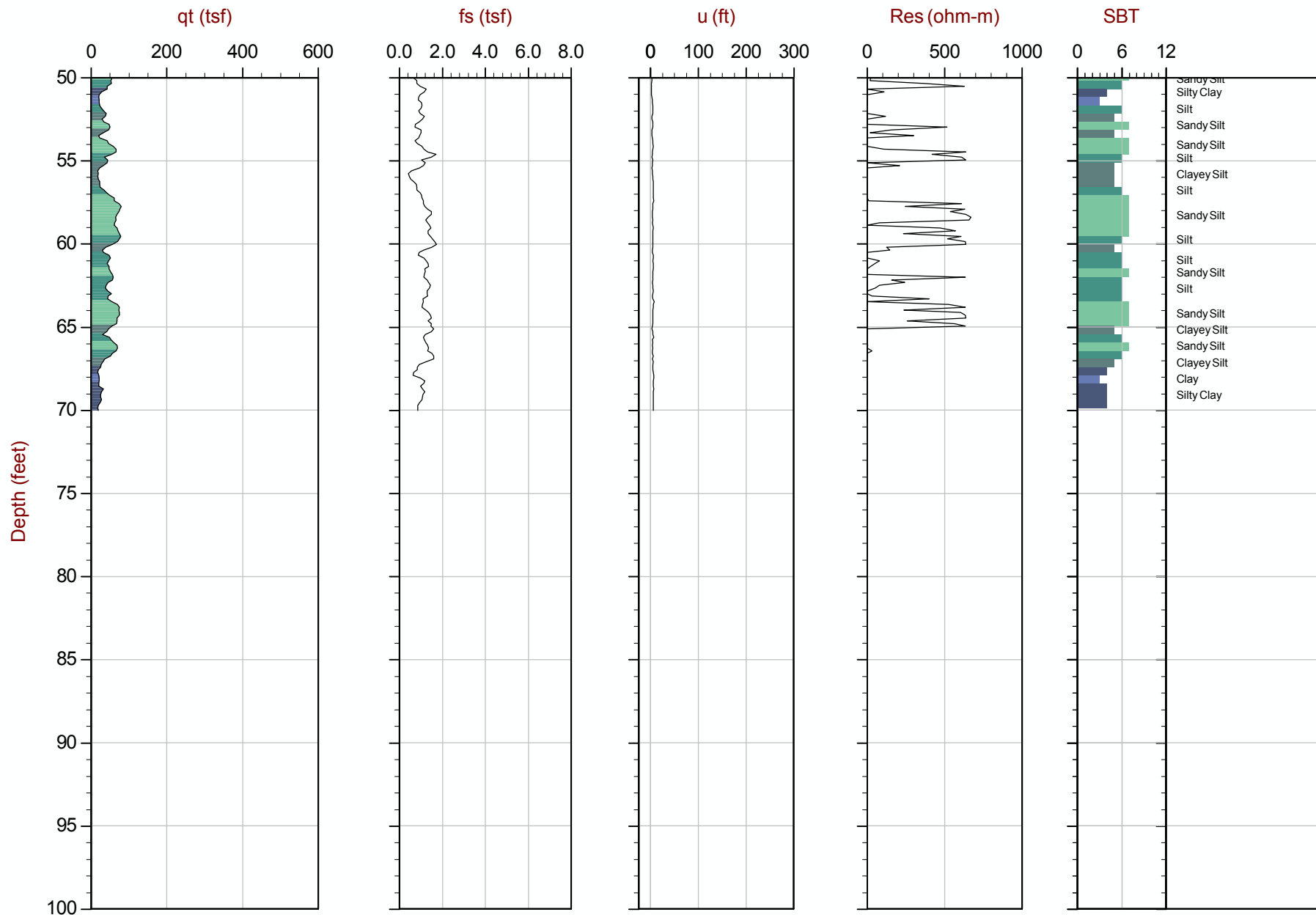
Job No: 13-52118

Date: 11:08:13 11:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

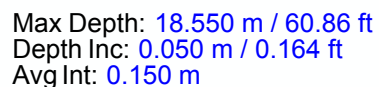
Cone: 155:T1500F15U500



Max Depth: 21.350 m / 70.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP07.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647600 Long: -108.501200
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647250 Long: -108.497250
 ● Equilibrium Pore Pressure from Dissipation



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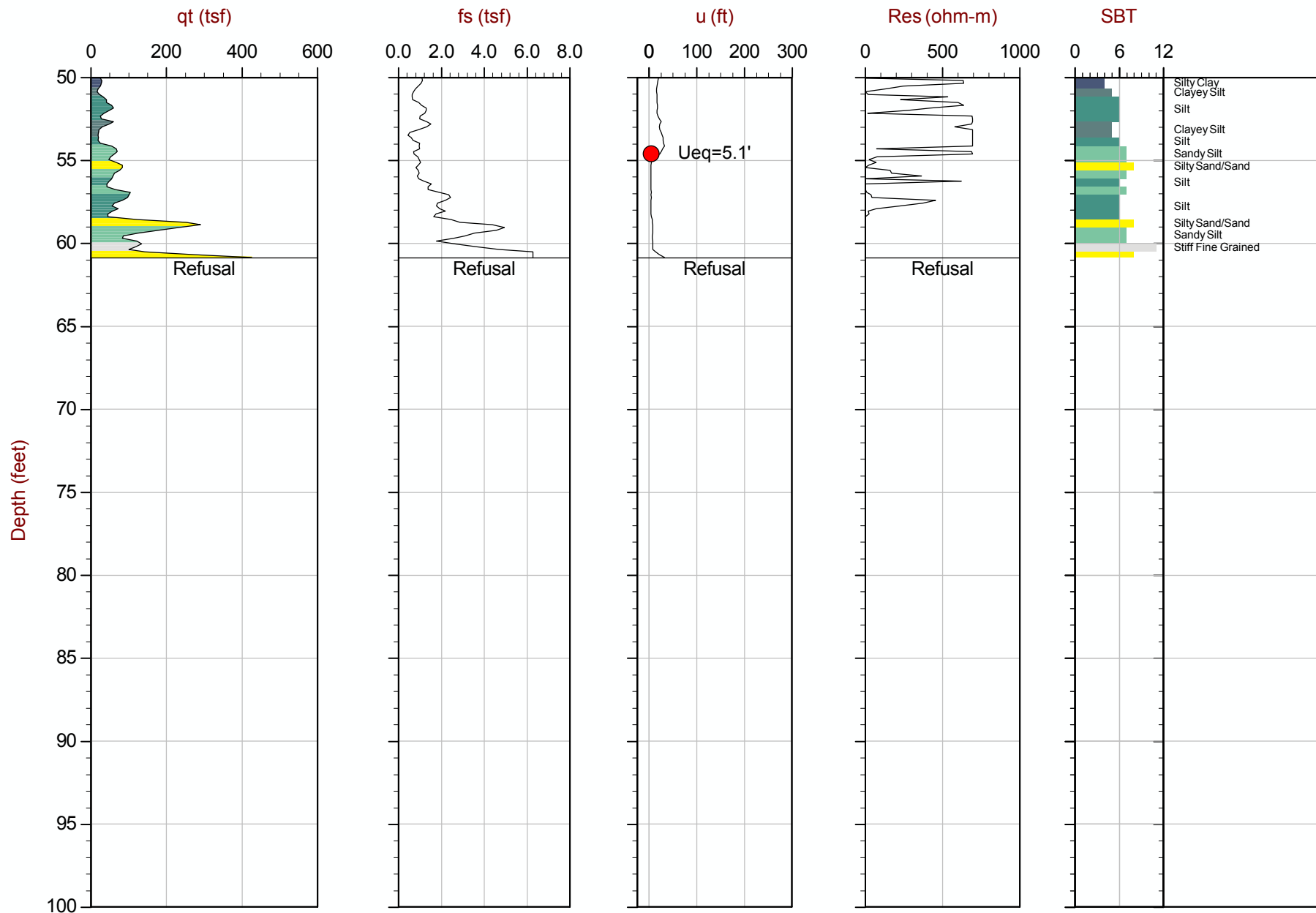
Job No: 13-52118

Date: 11:07:13 08:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08

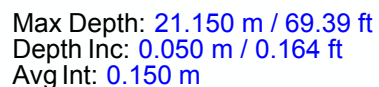
Cone: 155:T1500F15U500



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647750 Long: -108.498150
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

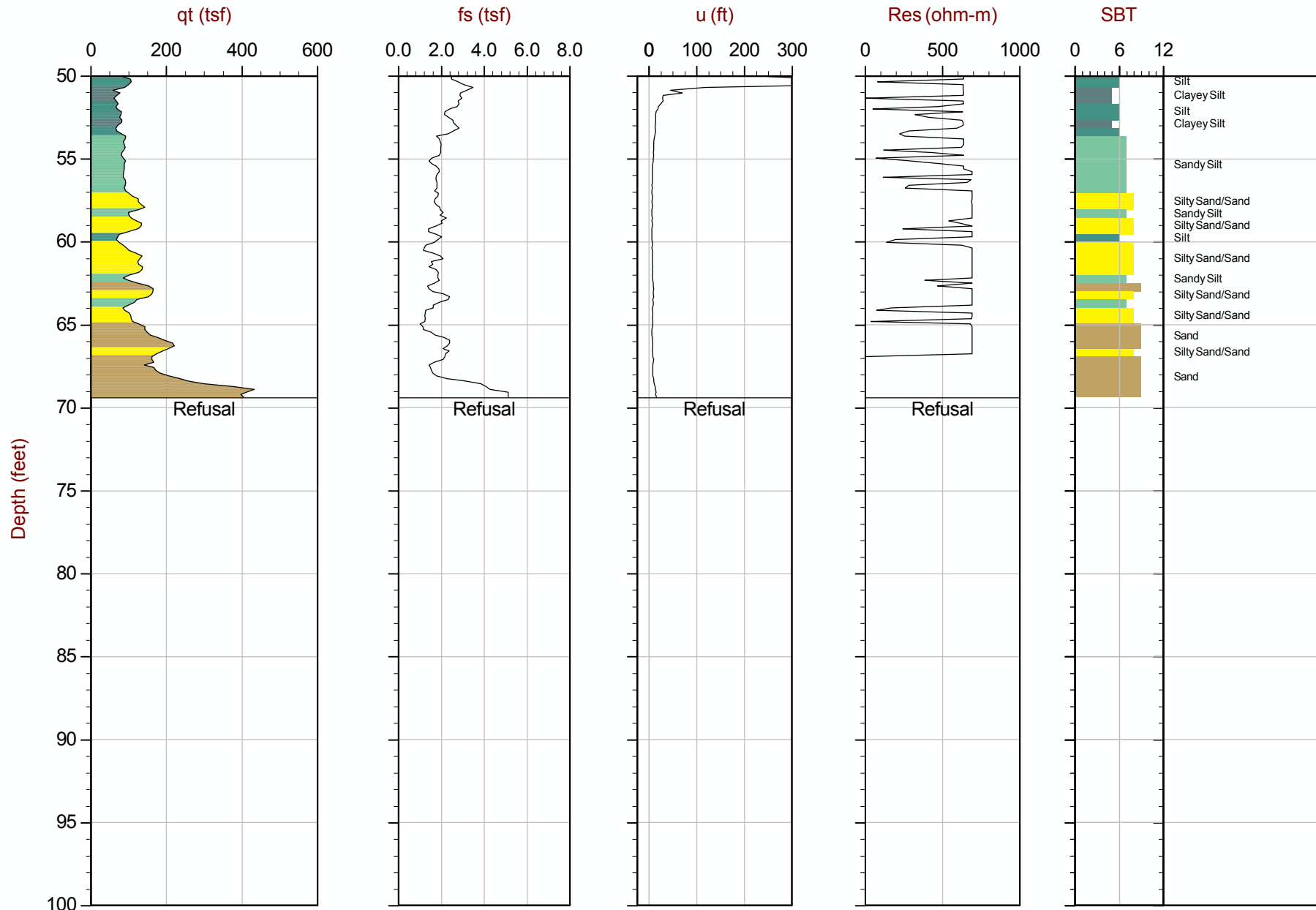
Job No: 13-52118

Date: 11:06:13 14:52

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-09

Cone: 155:T1500F15U500



Max Depth: 21.150 m / 69.39 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647750 Long: -108.498150
● Equilibrium Pore Pressure from Dissipation



MWH Americas

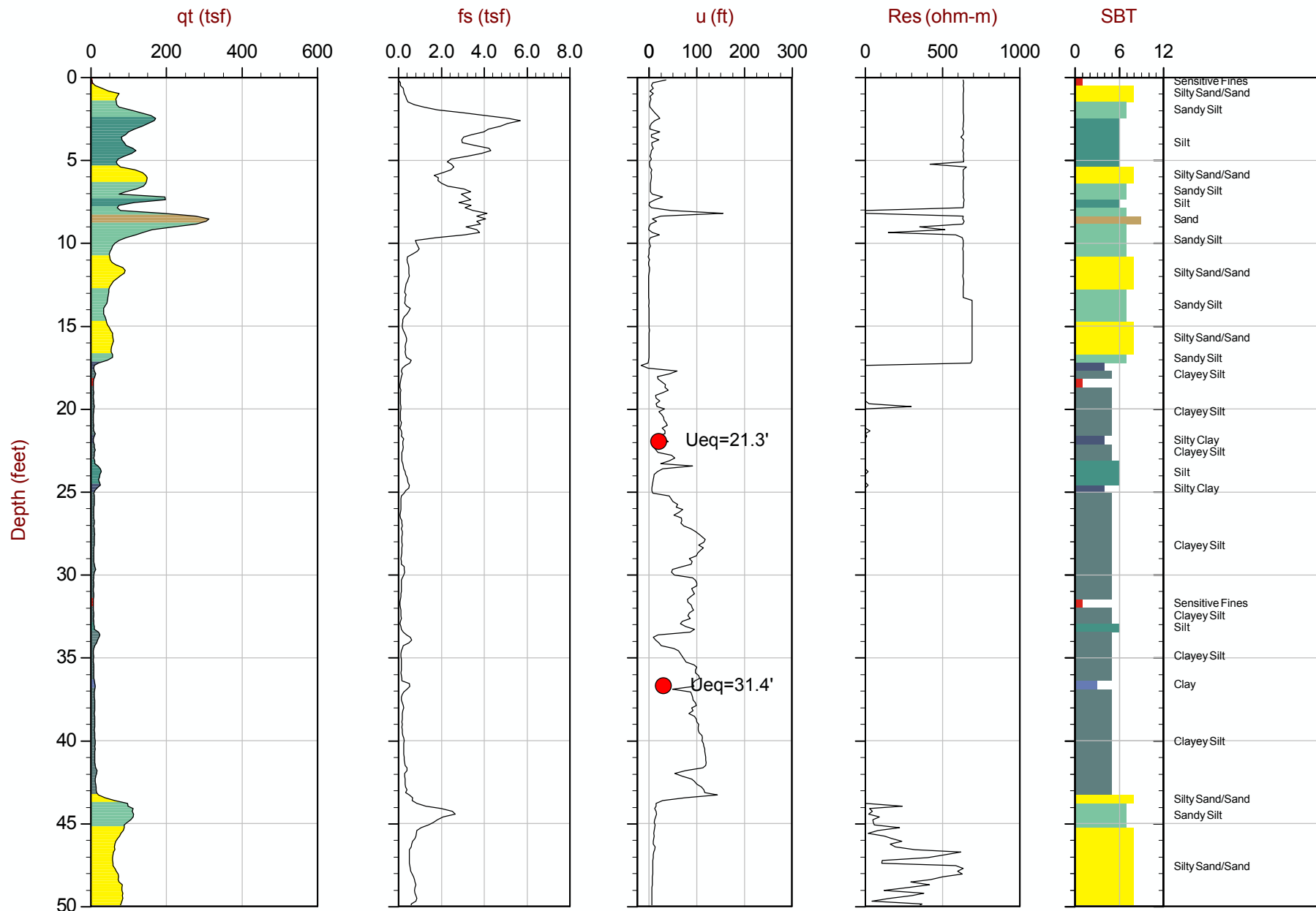
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

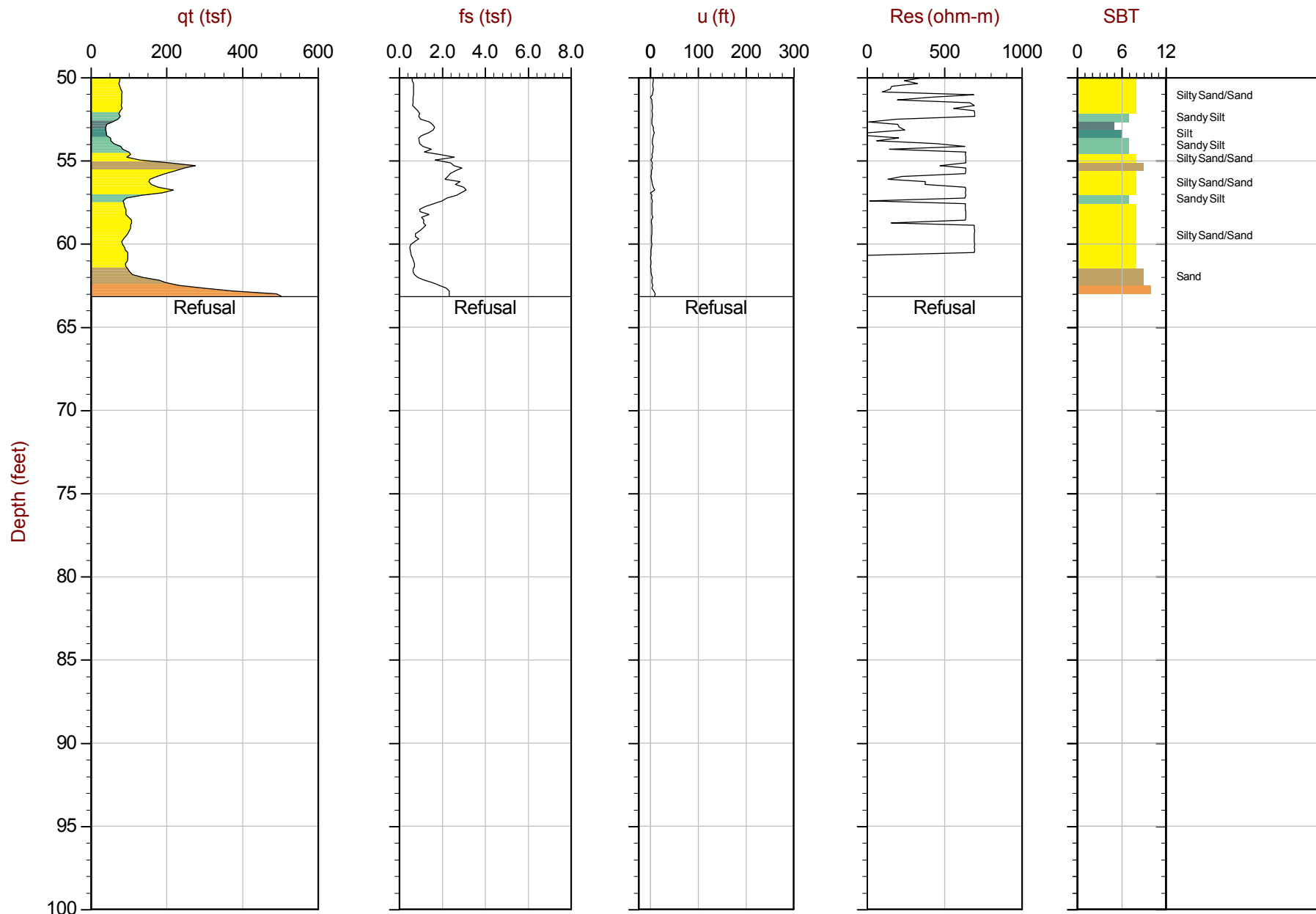
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

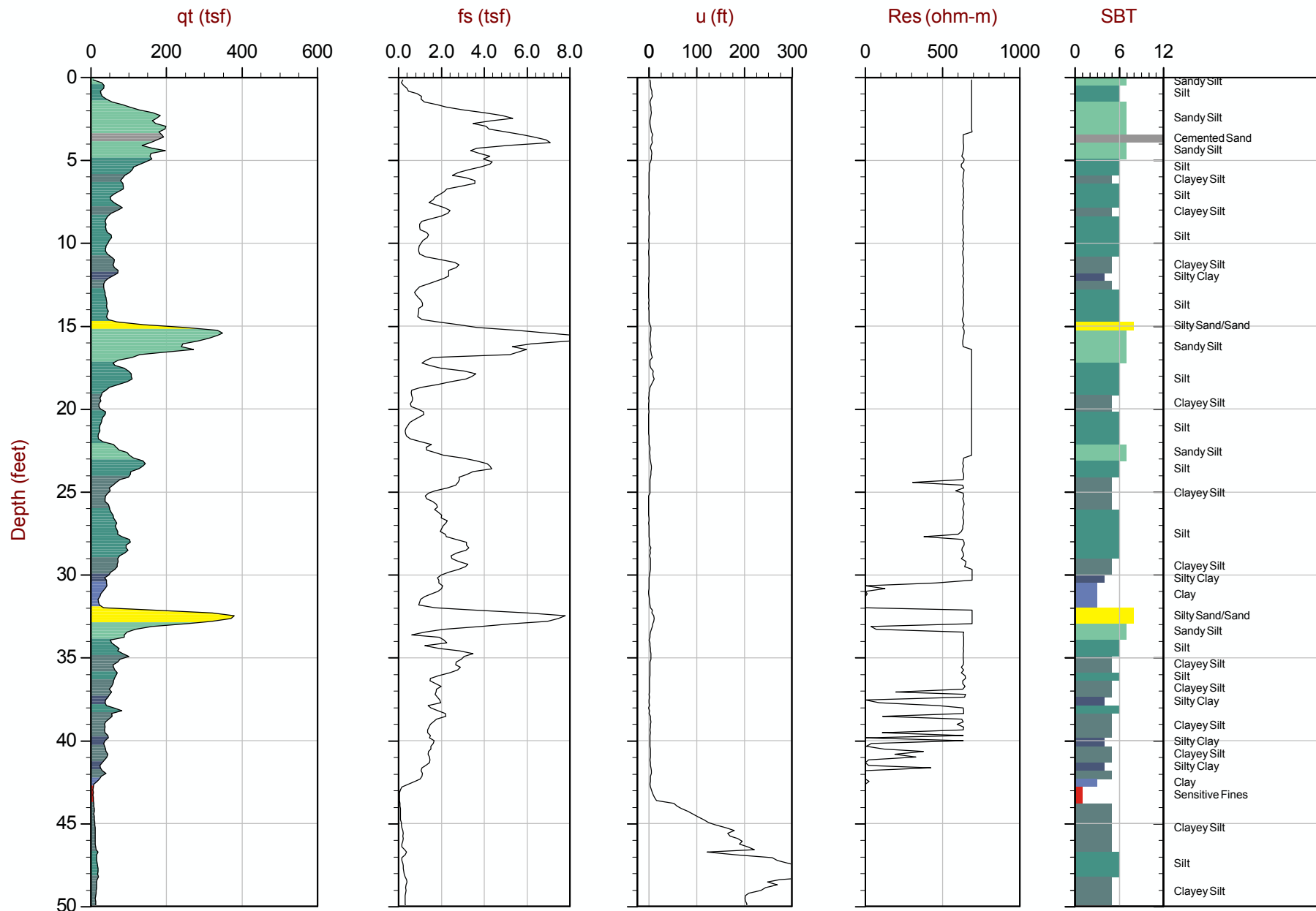
Job No: 13-52118

Date: 11:07:13 12:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

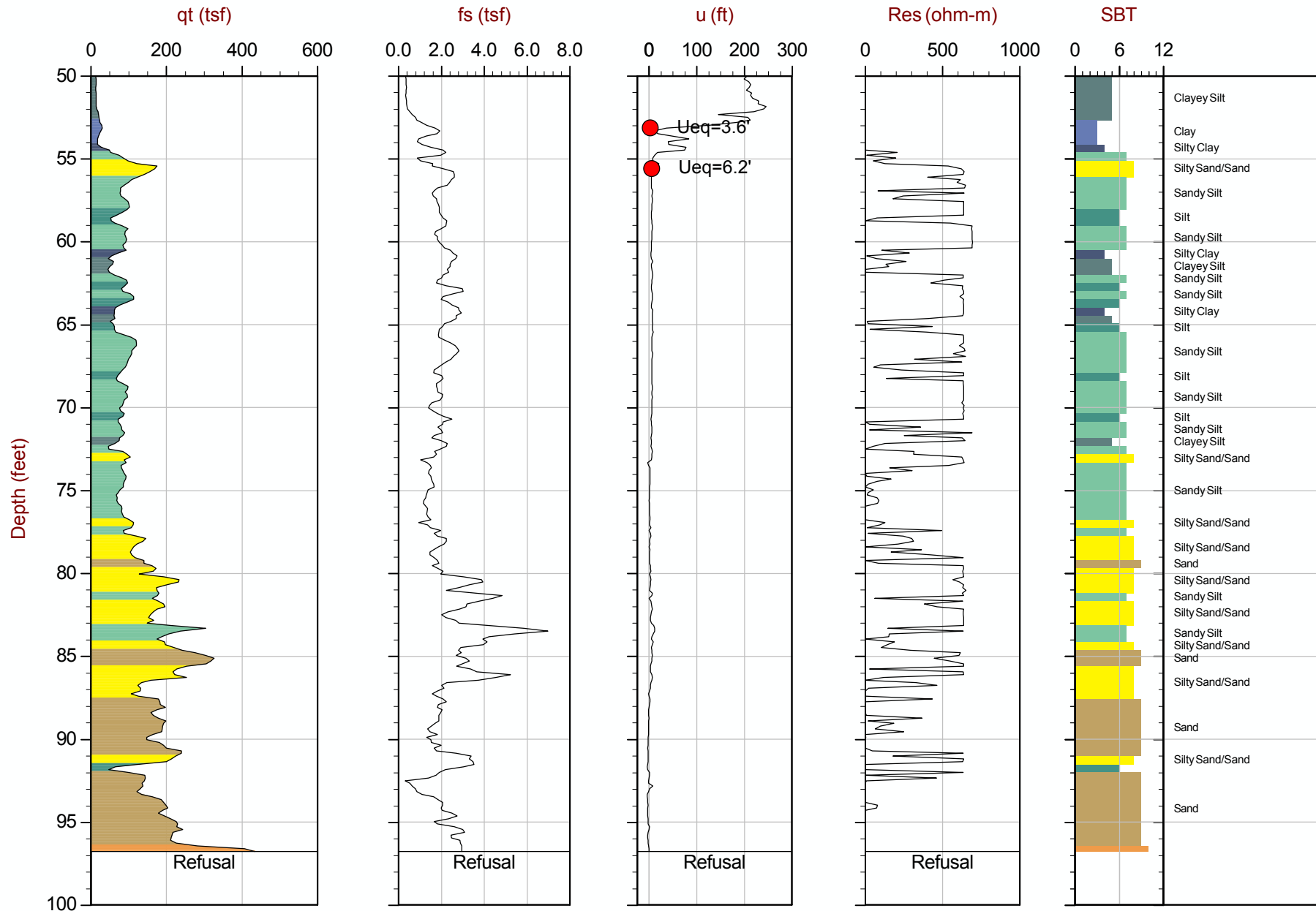
Job No: 13-52118

Date: 11:07:13 12:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

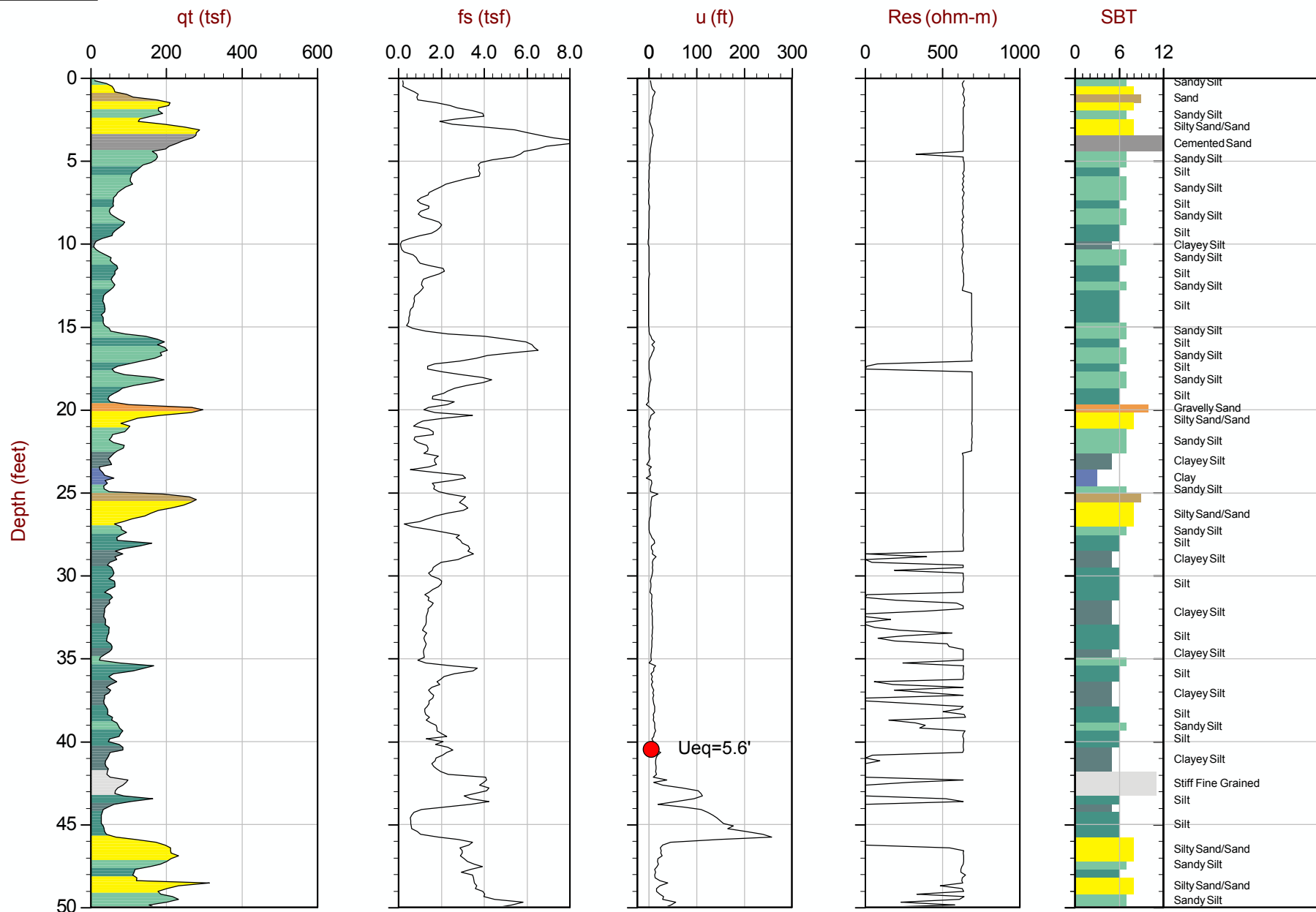
Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647150 Long: -108.496000
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

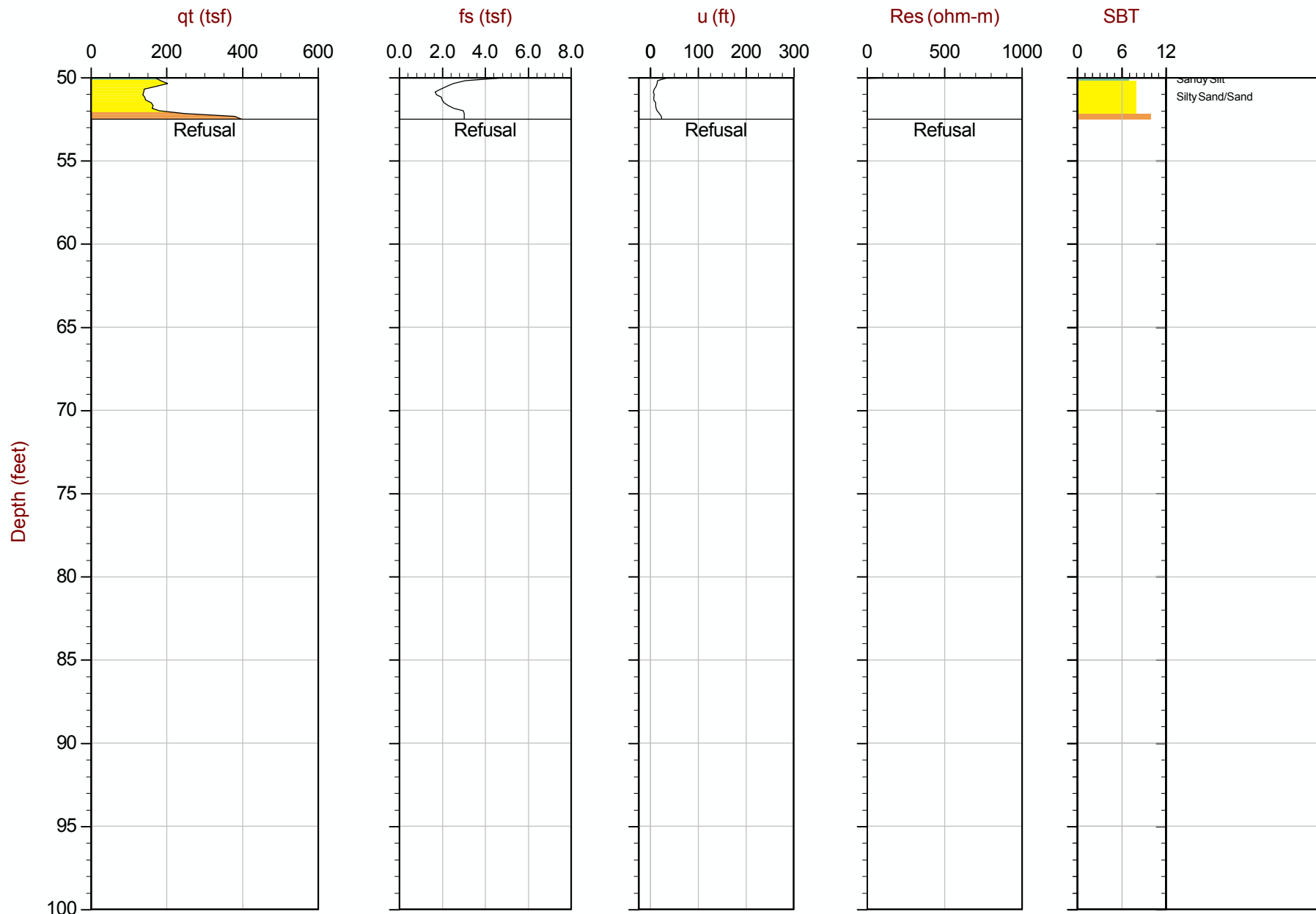
Job No: 13-52118

Date: 11:07:13 10:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155:T1500F15U500



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647150 Long: -108.496000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

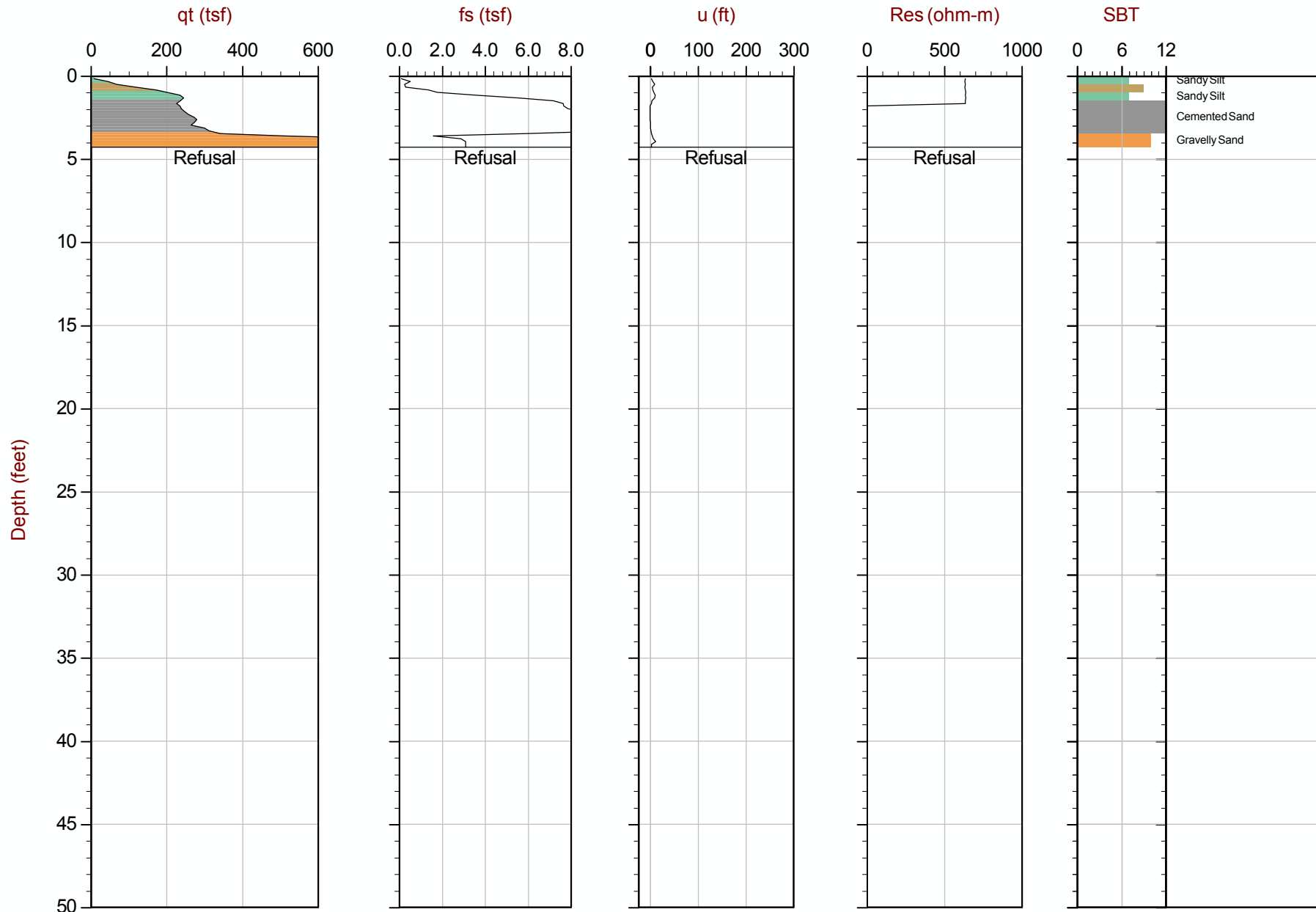
Job No: 13-52118

Date: 11:08:13 09:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13

Cone: 155:T1500F15U500



Max Depth: 1.300 m / 4.27 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649067 Long: -108.499383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

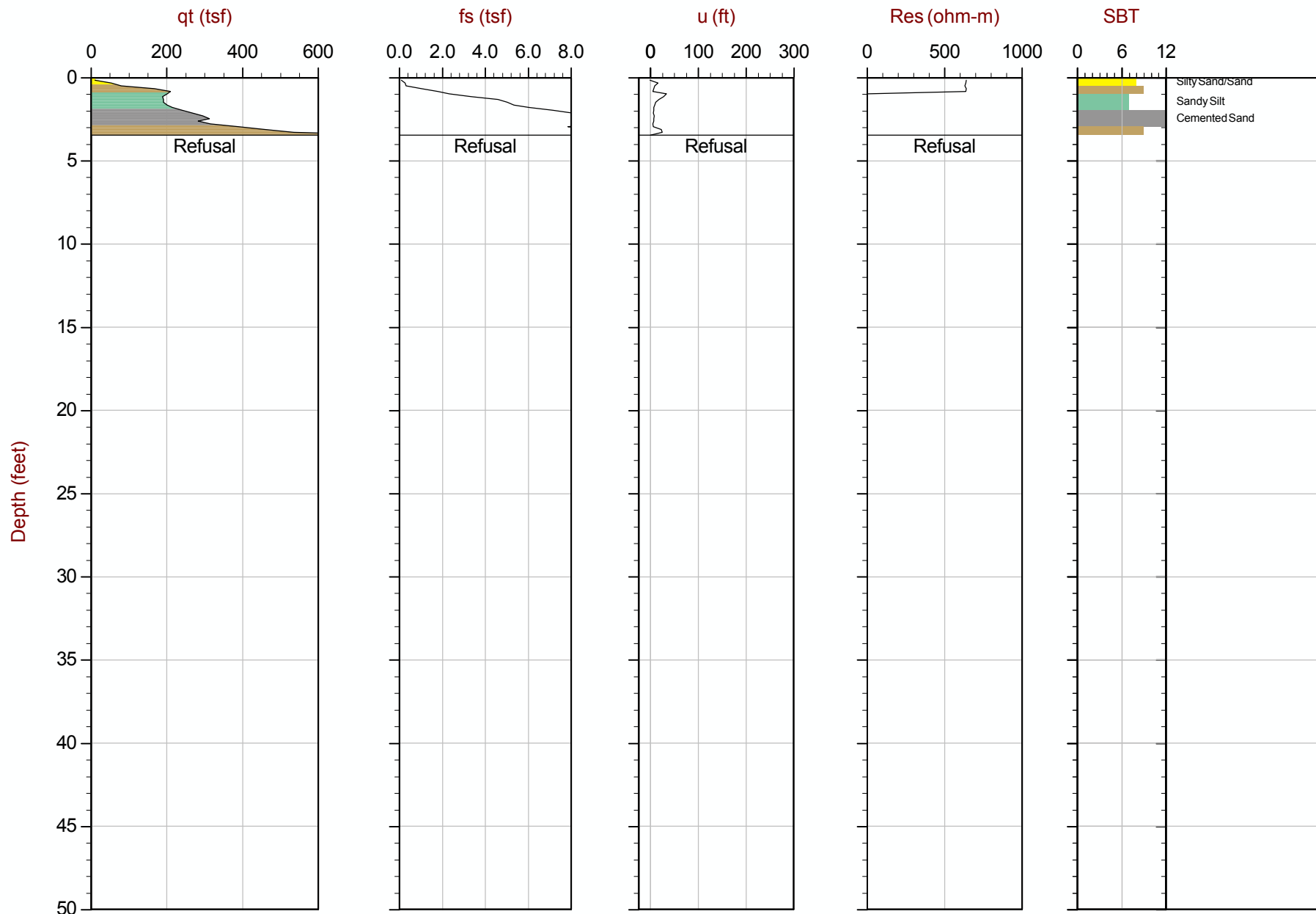
Job No: 13-52118

Date: 11:08:13 10:03

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13B

Cone: 155:T1500F15U500



Max Depth: 1.050 m / 3.44 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649067 Long: -108.499367
● Equilibrium Pore Pressure from Dissipation



MWH Americas

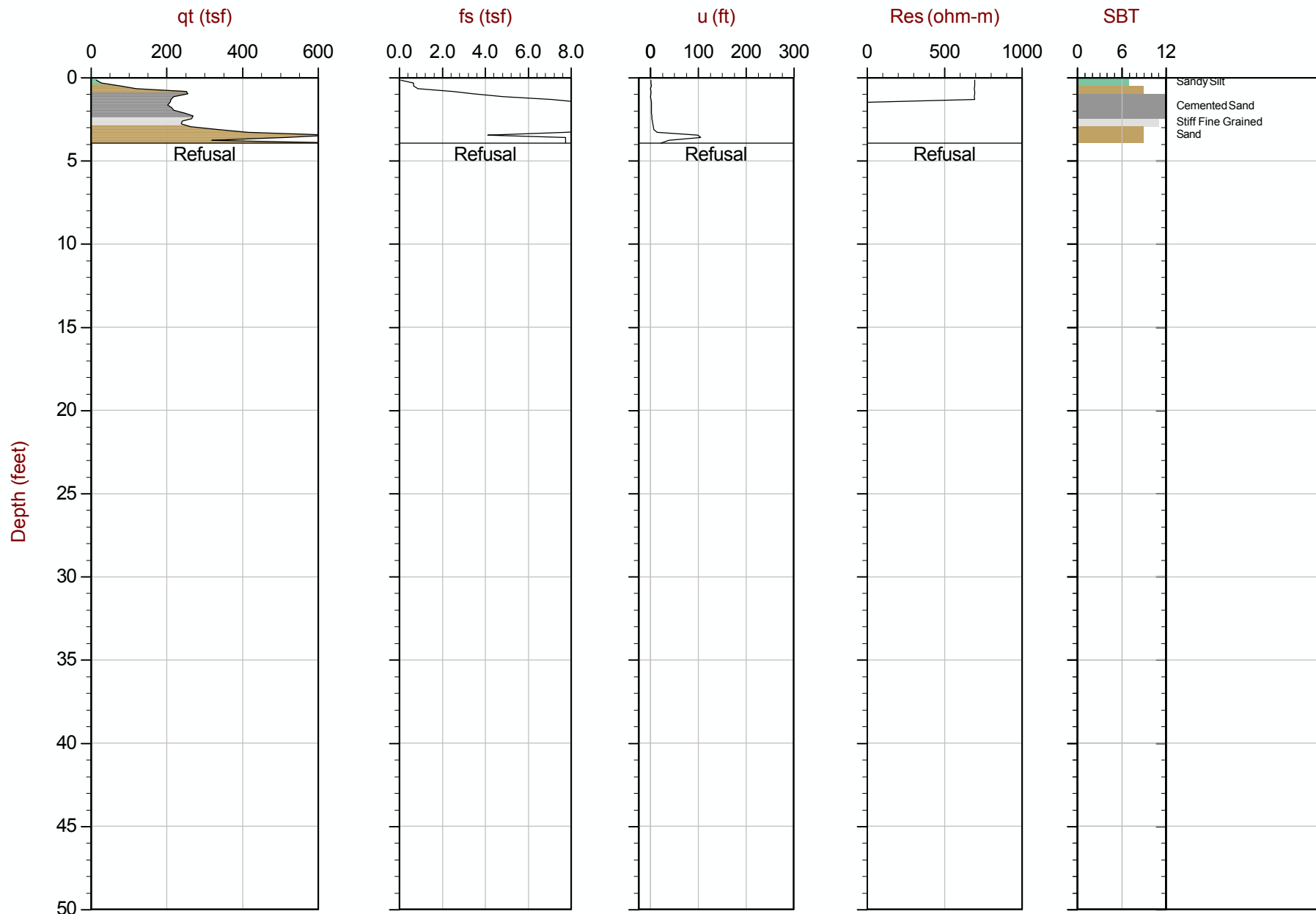
Job No: 13-52118

Date: 11:08:13 10:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-13BC

Cone: 155:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP13C.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649083 Long: -108.499400
● Equilibrium Pore Pressure from Dissipation



MWH Americas

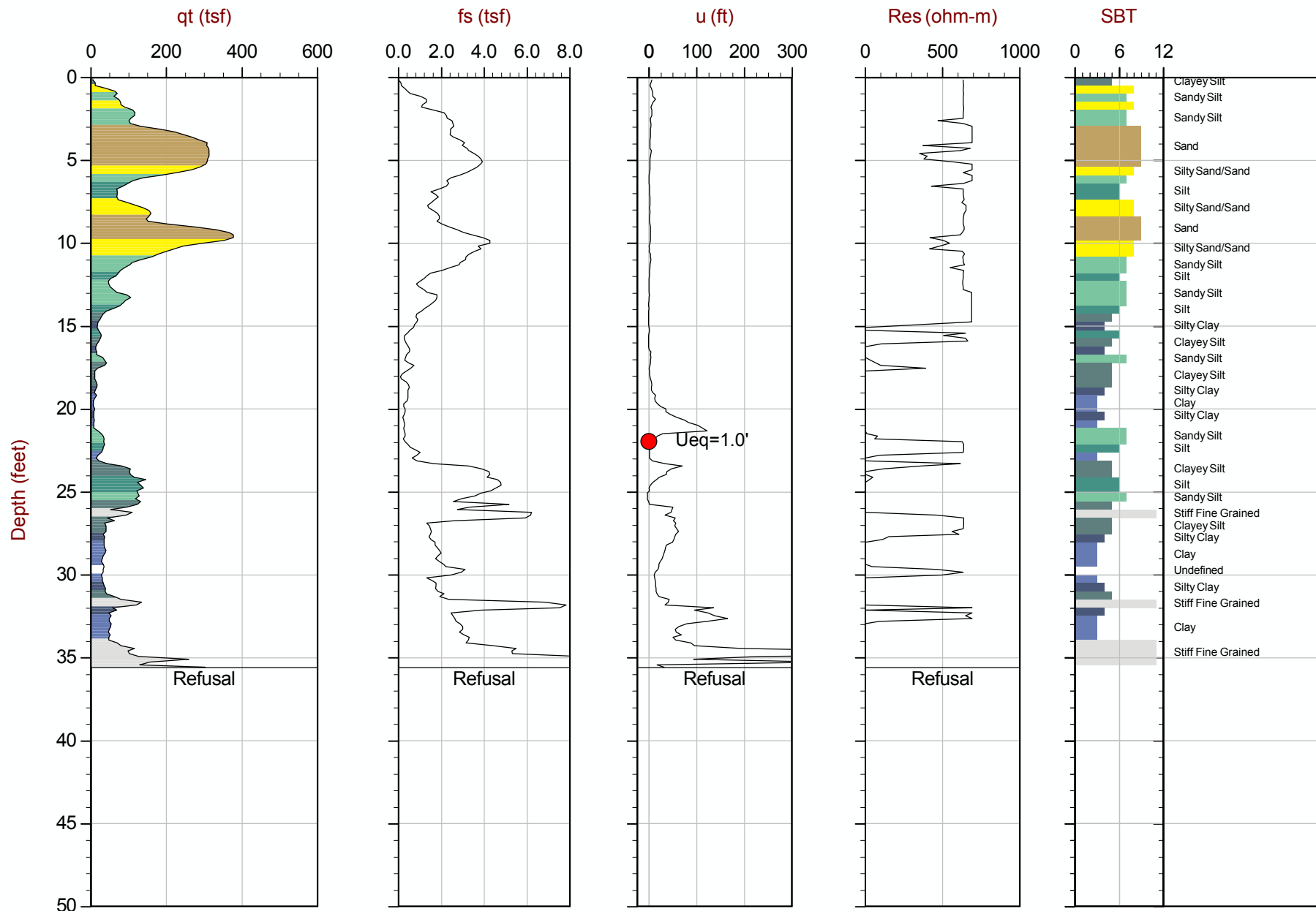
Job No: 13-52118

Date: 11:08:13 14:30

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-14

Cone: 155:T1500F15U500



Max Depth: 10.850 m / 35.60 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP14.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647233 Long: -108.497867
● Equilibrium Pore Pressure from Dissipation



MWH Americas

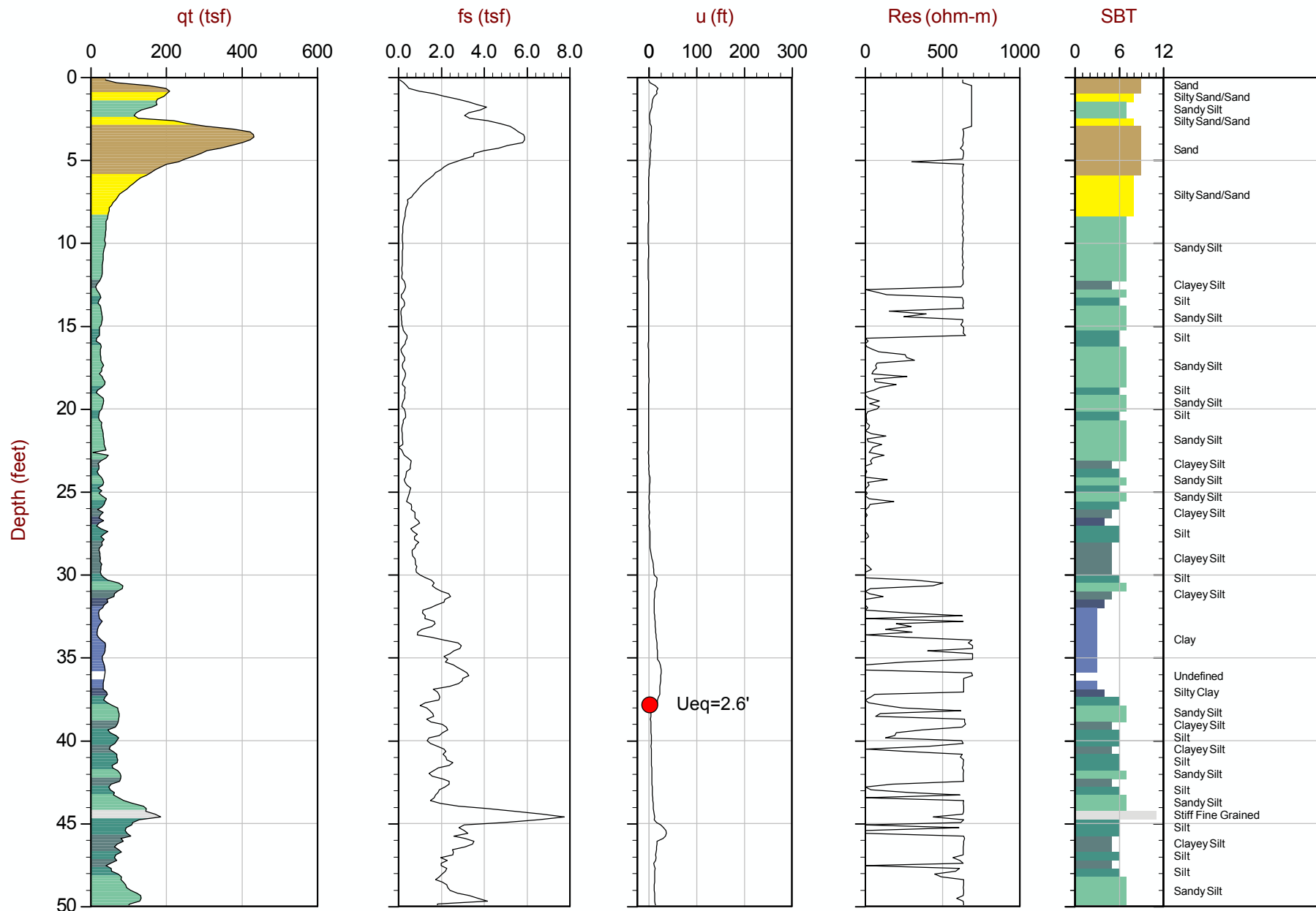
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation



MWH Americas

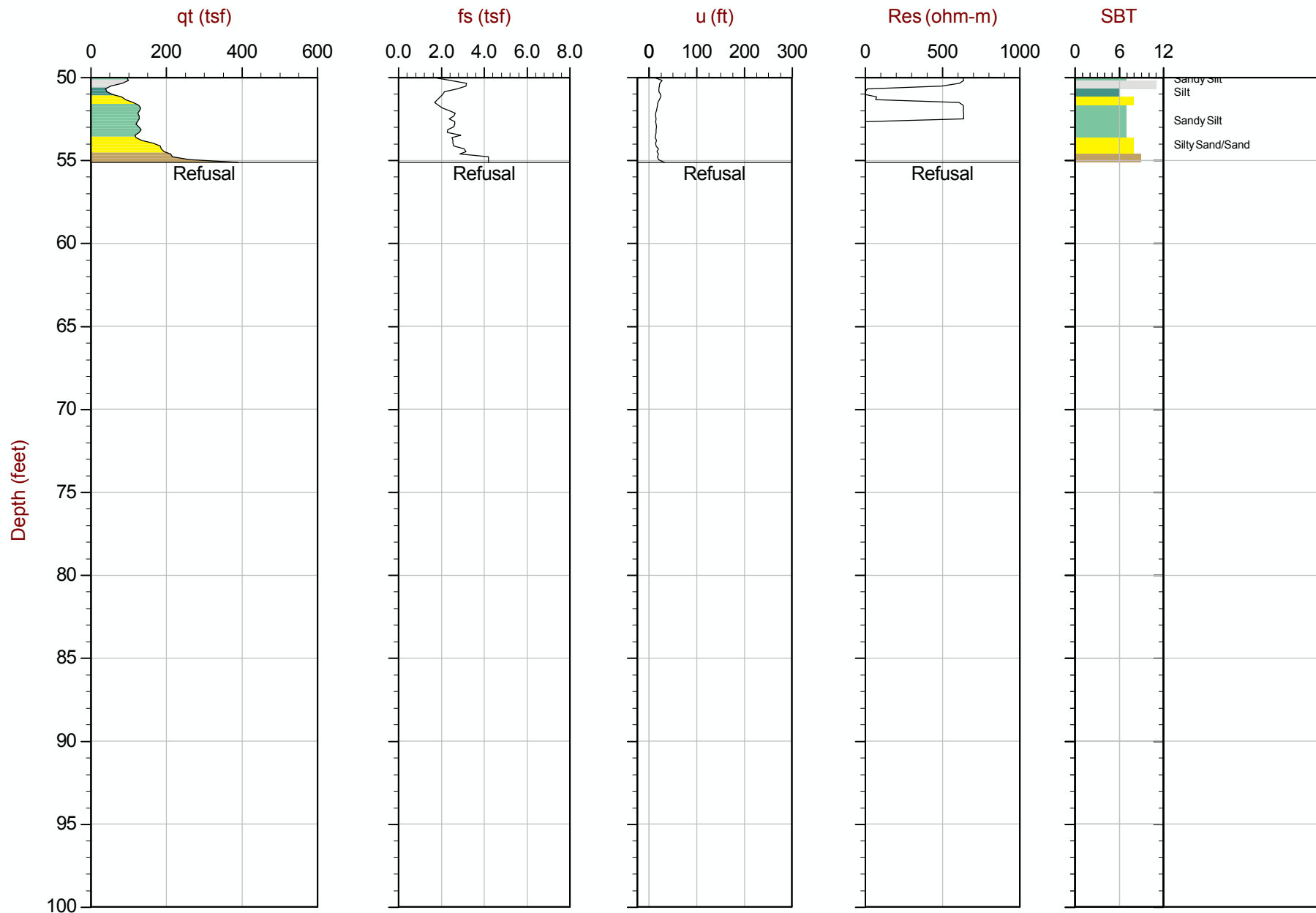
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

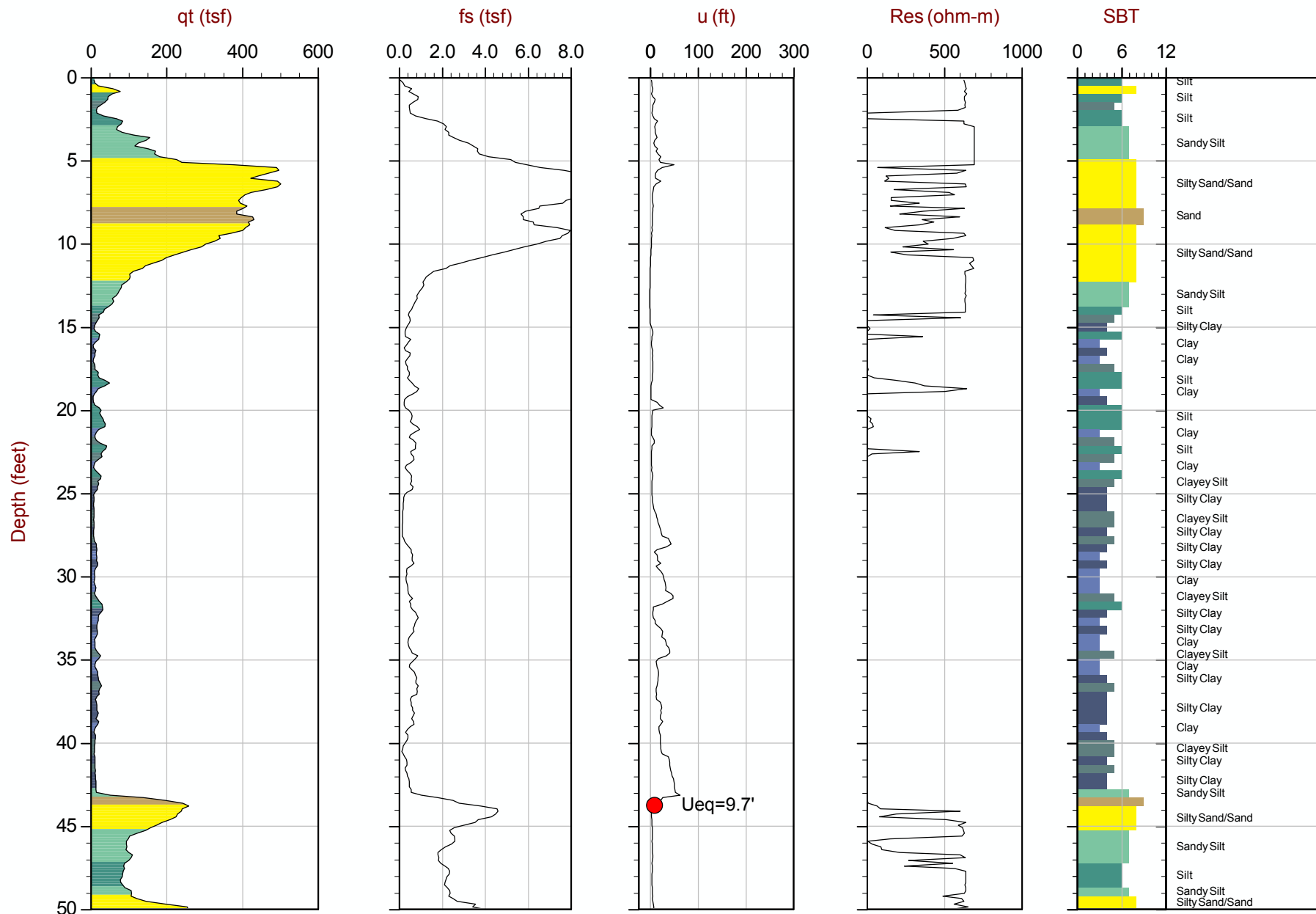
Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP16.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.648200 Long: -108.497850
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

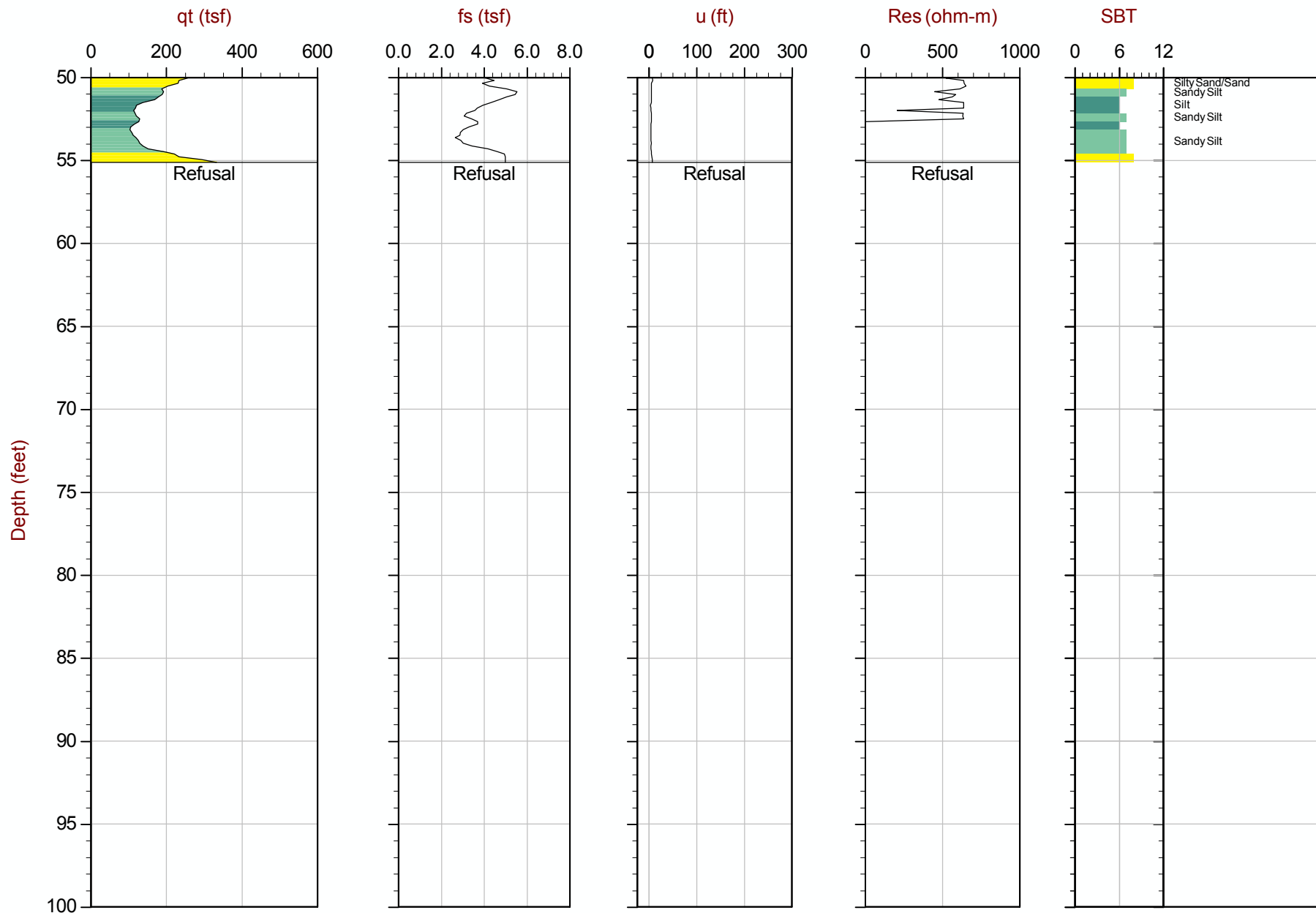
Job No: 13-52118

Date: 11:08:13 12:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-16

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP16.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648200 Long: -108.497850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

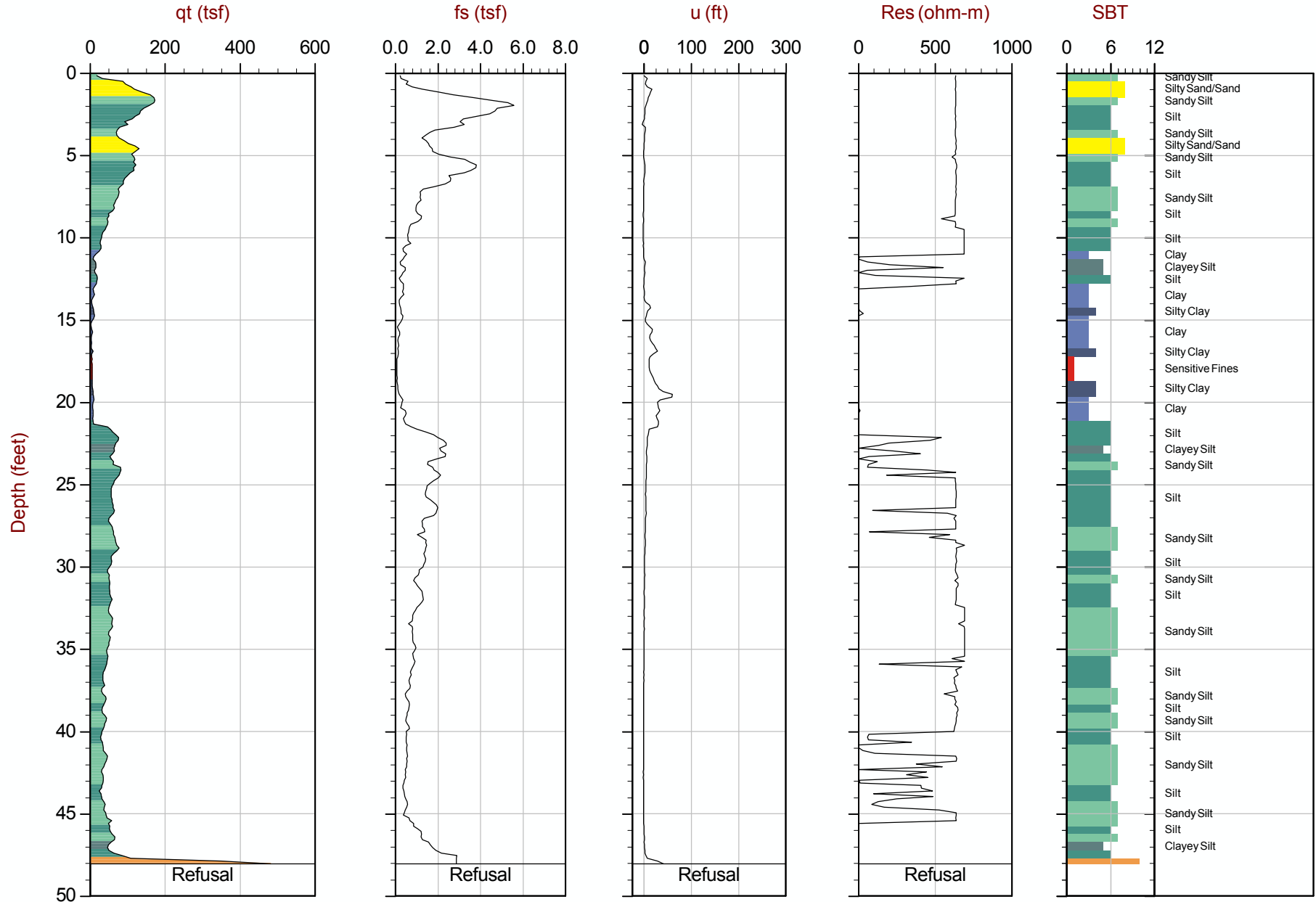
Job No: 13-52118

Date: 11:09:13 14:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-17

Cone: 155:T1500F15U500



Max Depth: 14.650 m / 48.06 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP17.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648617 Long: -108.496383
● Equilibrium Pore Pressure from Dissipation



MWH Americas

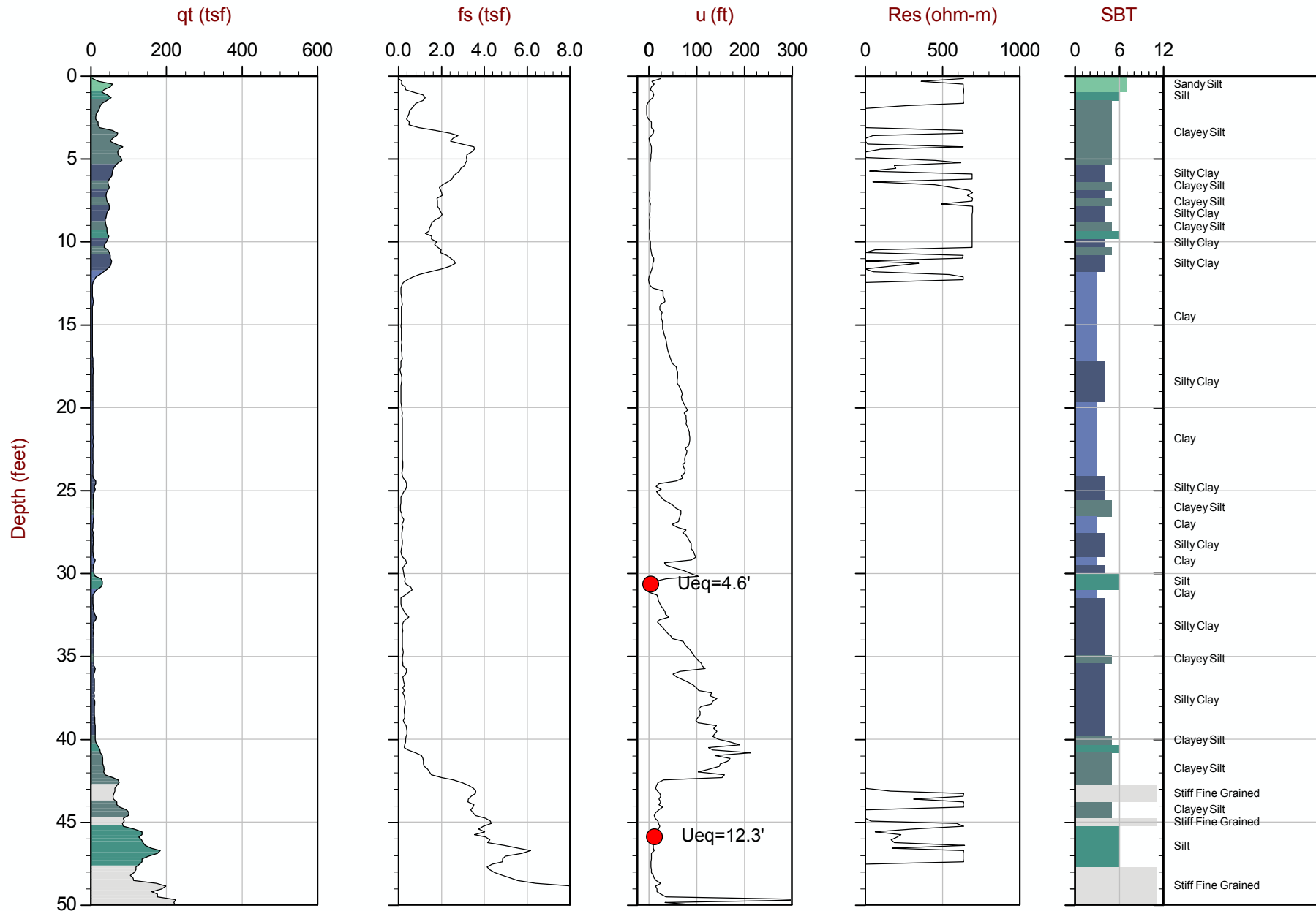
Job No: 13-52118

Date: 11:09:13 10:46

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-18

Cone: 155:T1500F15U500



Max Depth: 15.250 m / 50.03 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP18.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648000 Long: -108.496683
● Equilibrium Pore Pressure from Dissipation



MWH Americas

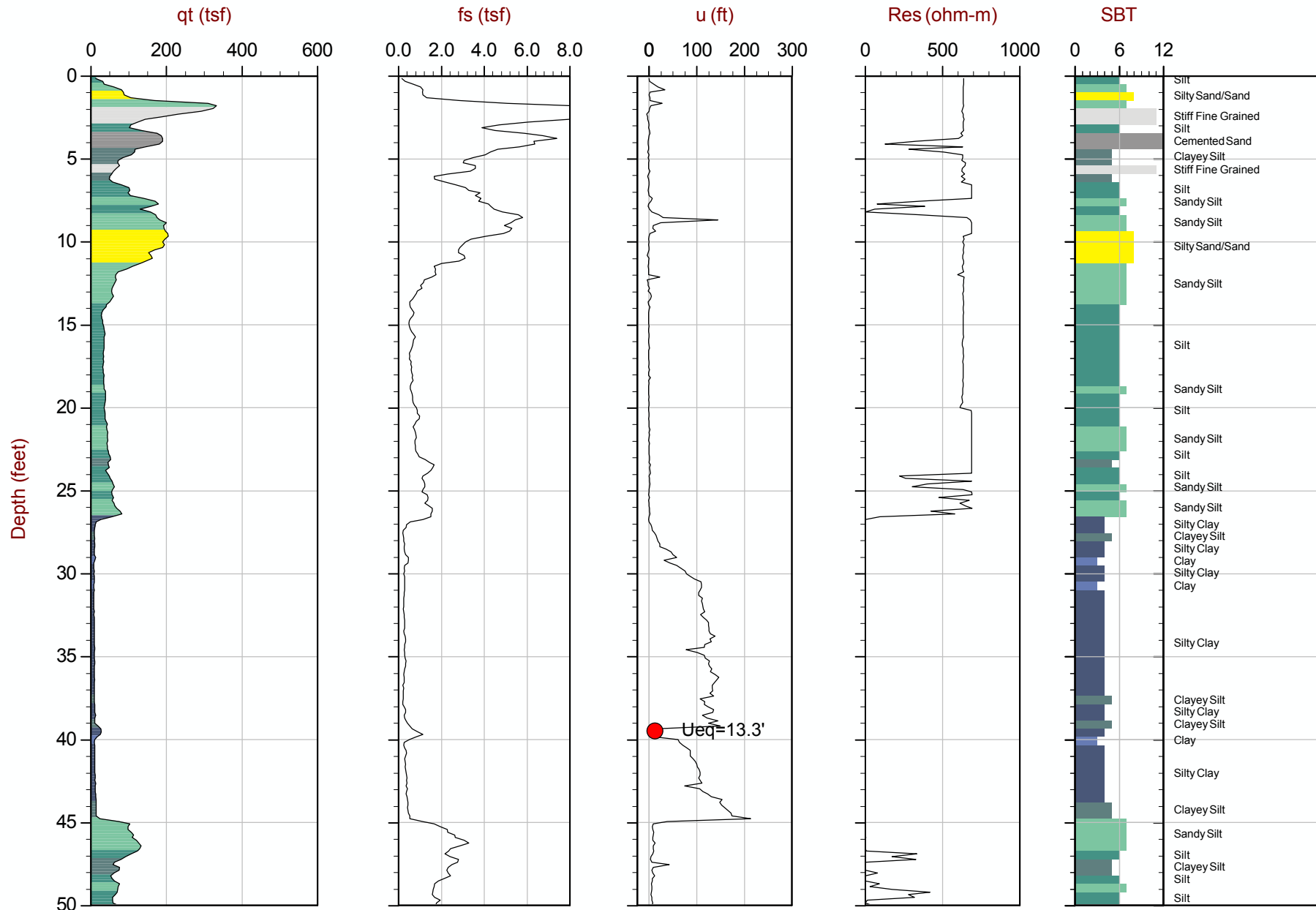
Job No: 13-52118

Date: 11:09:13 11:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-19

Cone: 155:T1500F15U500



Max Depth: 17.750 m / 58.23 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP19.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647450 Long: -108.497000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

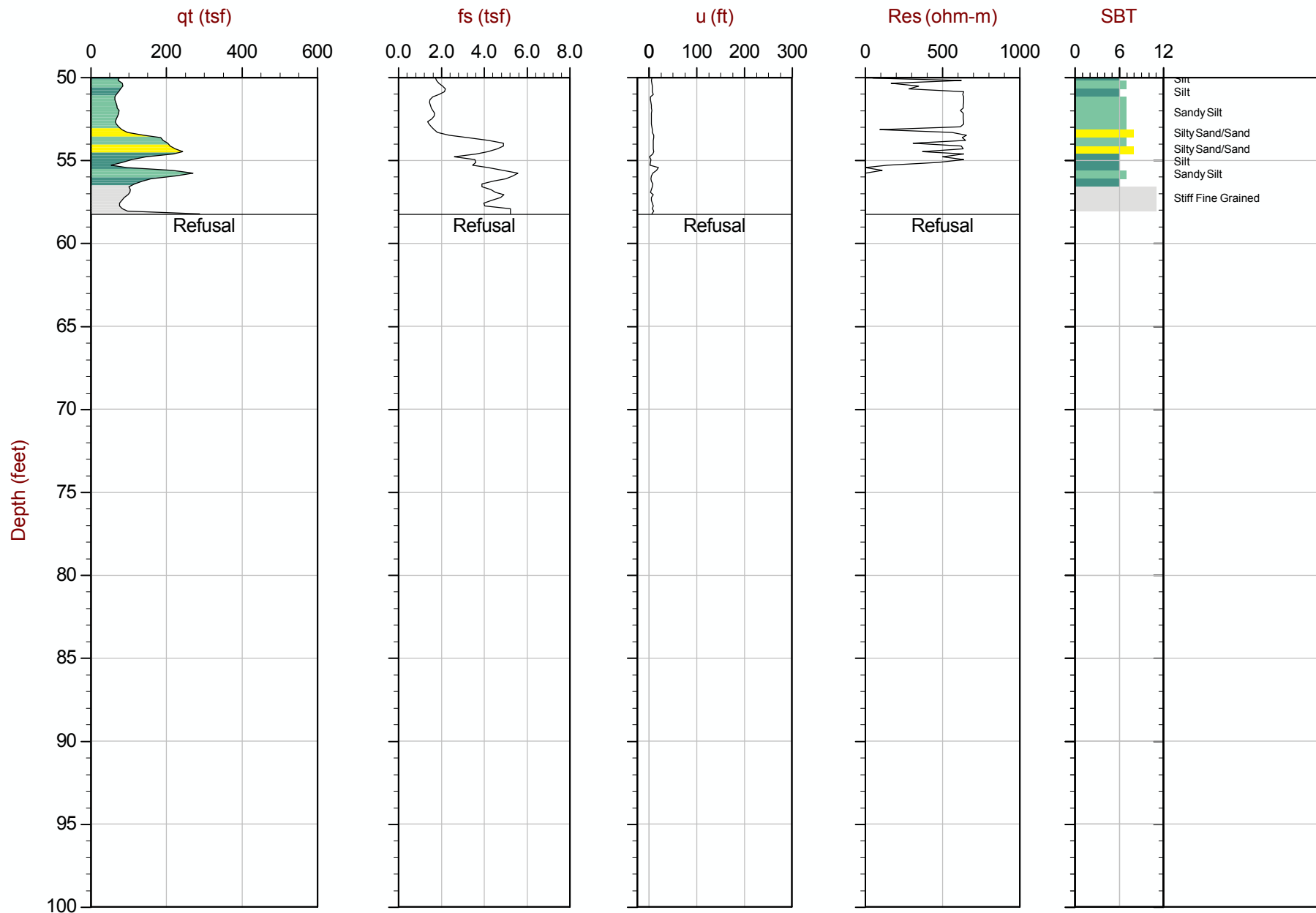
Job No: 13-52118

Date: 11:09:13 11:56

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-19

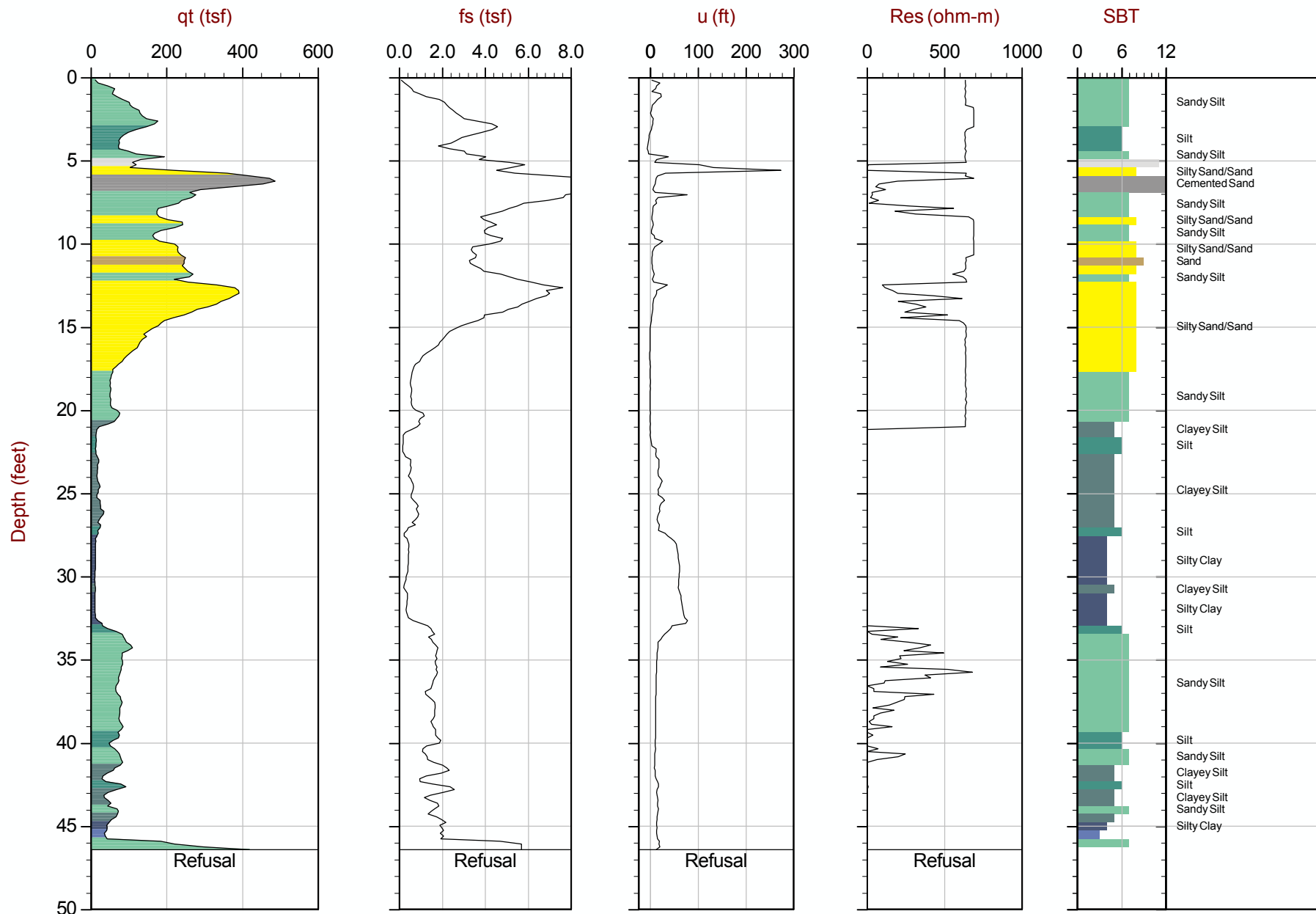
Cone: 155:T1500F15U500



Max Depth: 17.750 m / 58.23 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP19.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647450 Long: -108.497000
● Equilibrium Pore Pressure from Dissipation



Max Depth: 14.150 m / 46.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP20.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.646883 Long: -108.497167
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

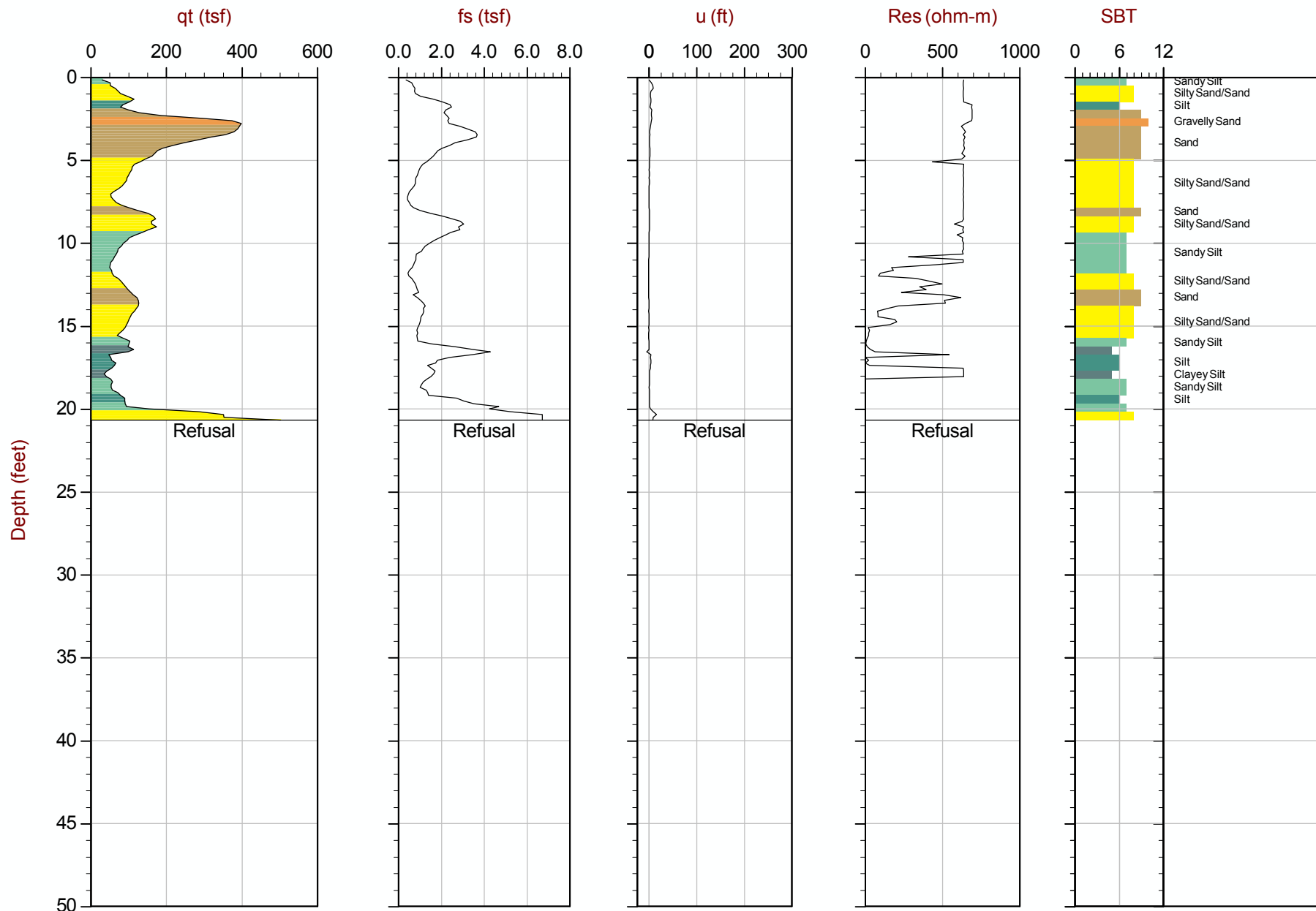
Job No: 13-52118

Date: 11:08:13 15:34

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-21

Cone: 155:T1500F15U500



Max Depth: 6.300 m / 20.67 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP21.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646283 Long: -108.501583
● Equilibrium Pore Pressure from Dissipation



MWH Americas

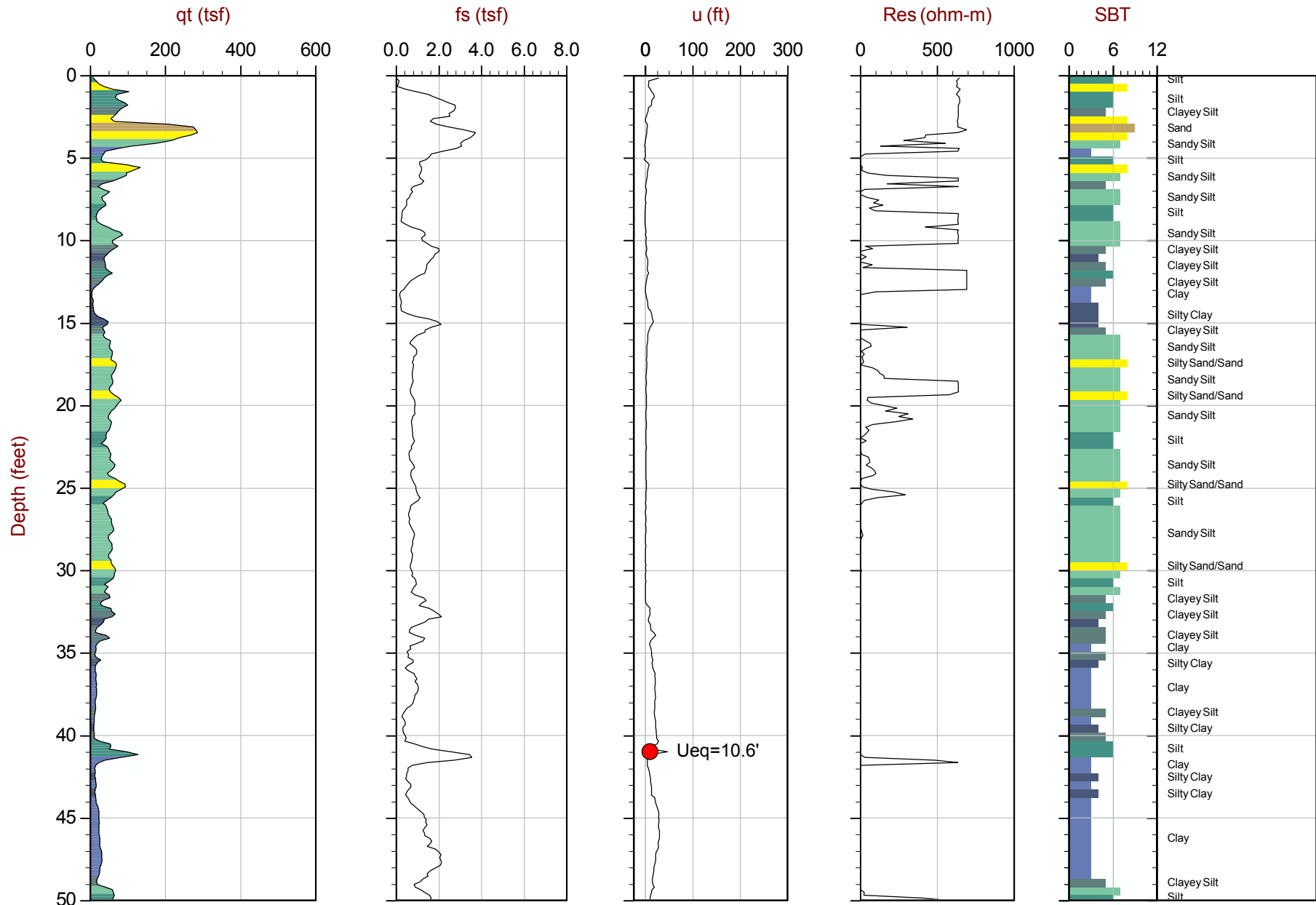
Job No: 13-52118

Date: 11:10:13 11:54

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-22

Cone: 155:T1500F15U500



Max Depth: 28.750 m / 94.32 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

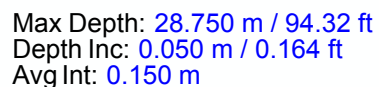
File: 13-52118_RP22.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647950 Long: -108.502917
● Equilibrium Pore Pressure from Dissipation



Site: CHURCH ROCK MILL SITE TSF

Cone: 155:T1500F15U500



File: 13-52118_RP22.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647950 Long: -108.502917
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

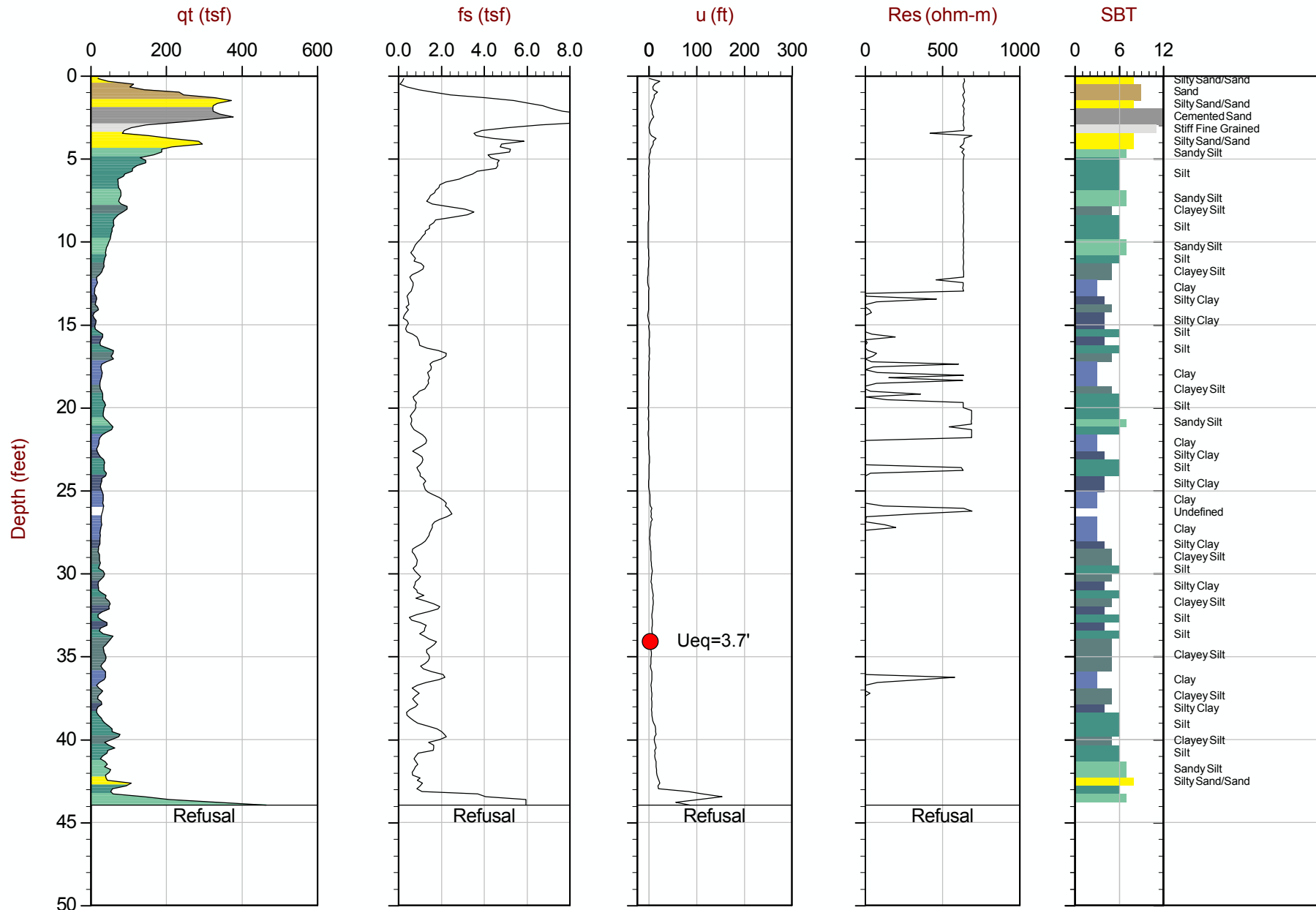
Job No: 13-52118

Date: 11:08:13 16:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-23

Cone: 155:T1500F15U500



Max Depth: 13.400 m / 43.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP23.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650833 Long: -108.497700
● Equilibrium Pore Pressure from Dissipation



MWH Americas

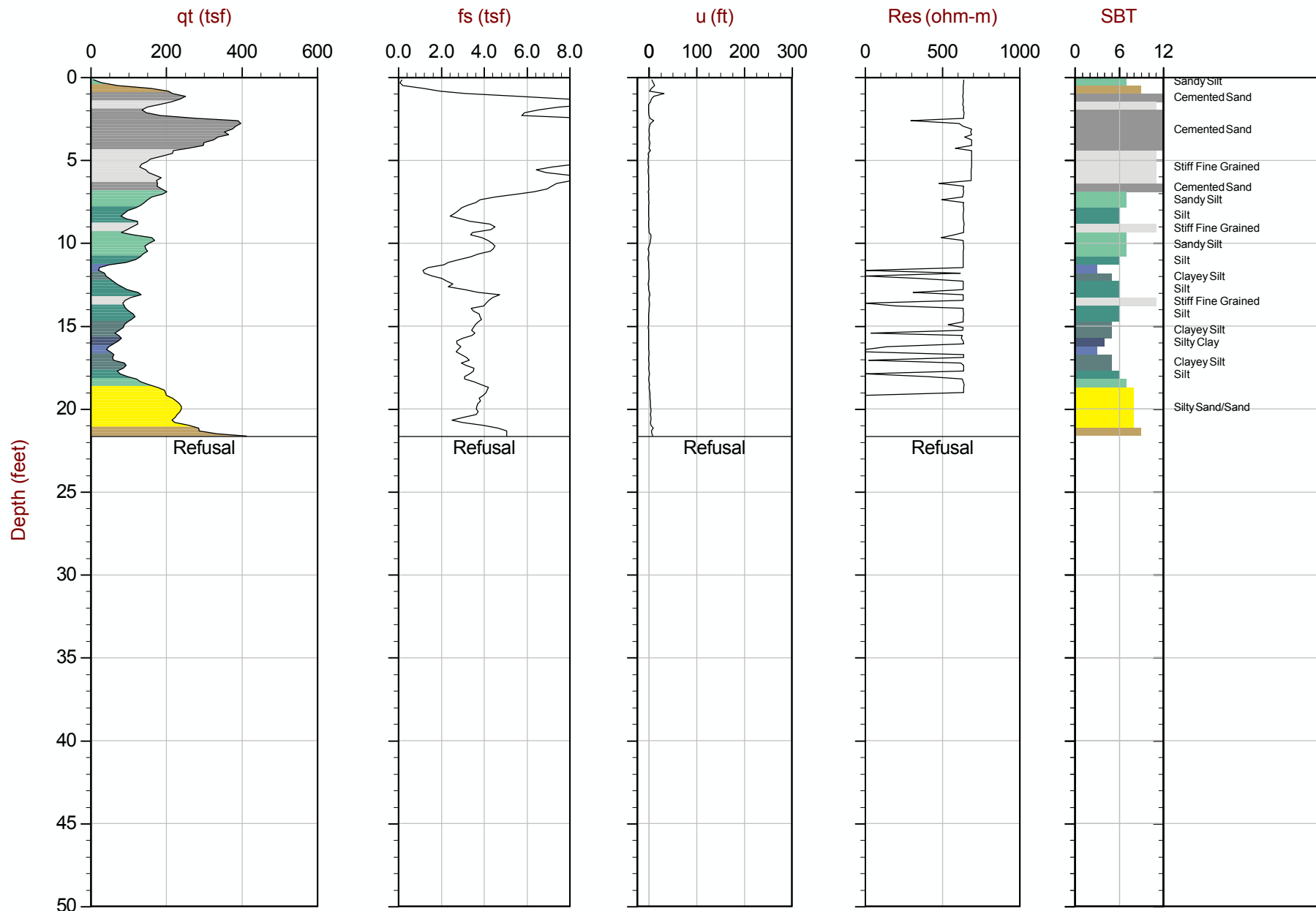
Job No: 13-52118

Date: 11:09:13 16:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-24

Cone: 155:T1500F15U500



Max Depth: 6.600 m / 21.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP24.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650000 Long: -108.498717
● Equilibrium Pore Pressure from Dissipation



MWH Americas

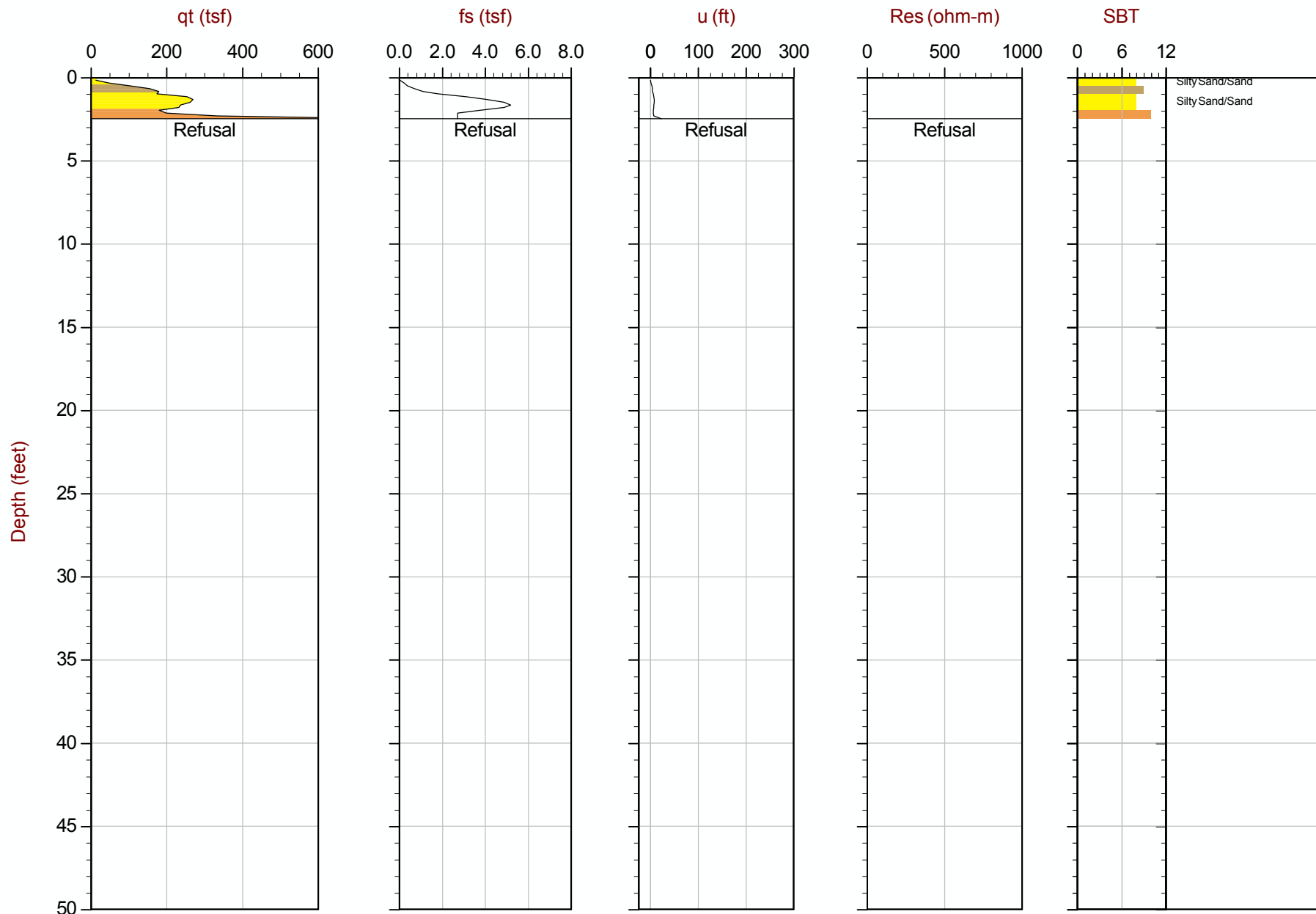
Job No: 13-52118

Date: 11:09:13 08:11

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-25

Cone: 155:T1500F15U500



Max Depth: 0.750 m / 2.46 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP25.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649650 Long: -108.497733
● Equilibrium Pore Pressure from Dissipation



MWH Americas

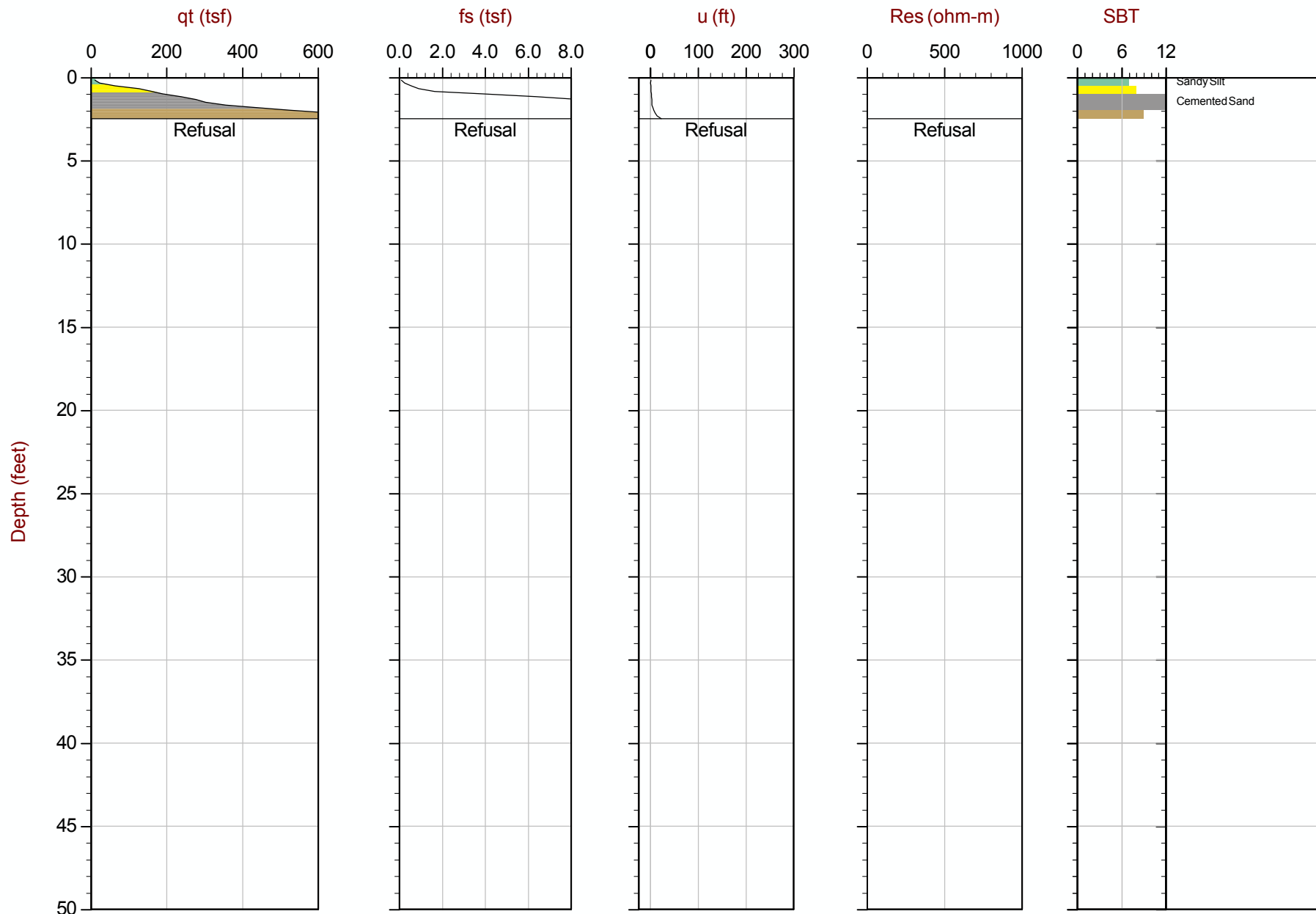
Job No: 13-52118

Date: 11:09:13 08:40

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-25B

Cone: 155:T1500F15U500



Max Depth: 0.750 m / 2.46 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP25B.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649650 Long: -108.497767
● Equilibrium Pore Pressure from Dissipation



MWH Americas

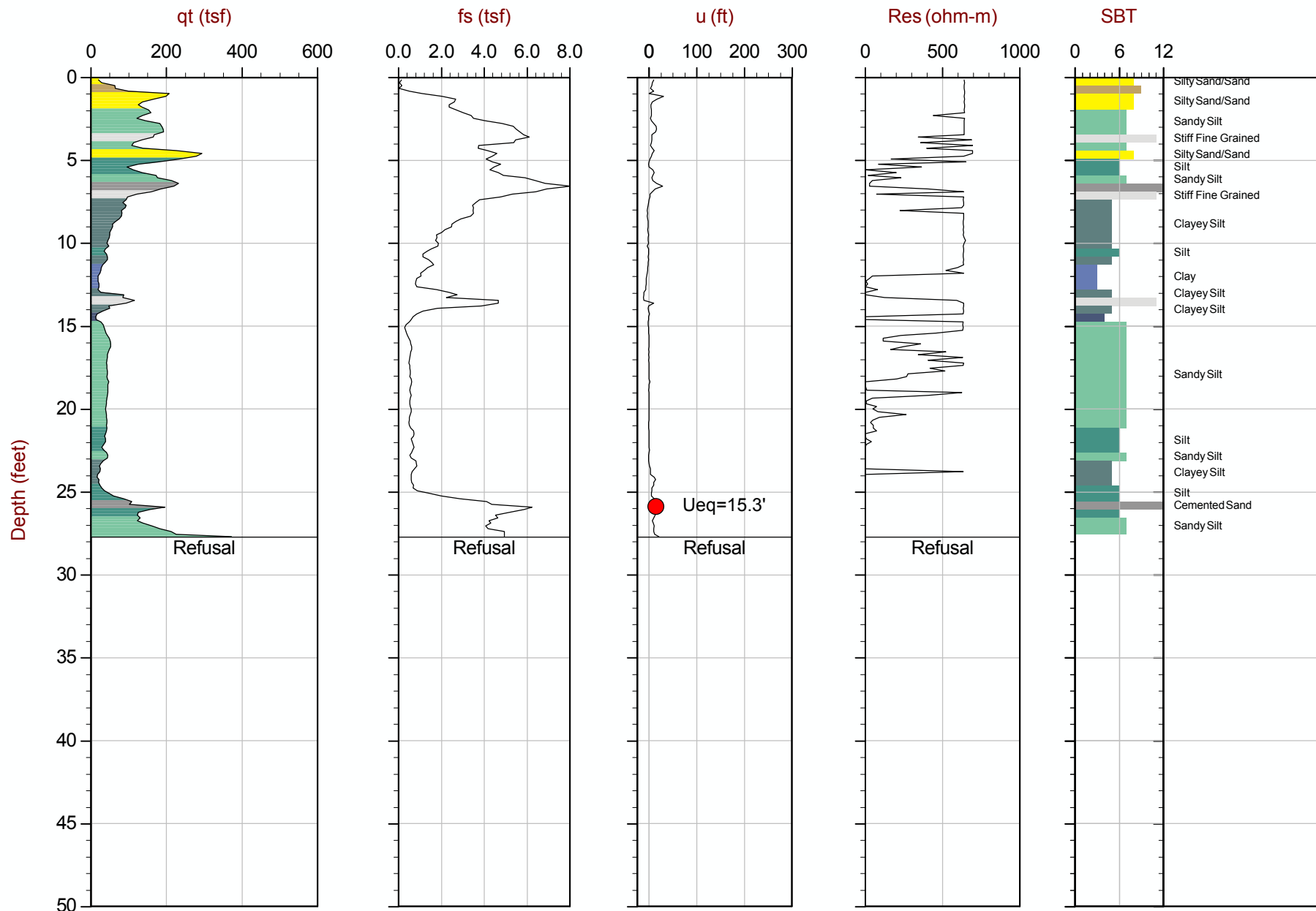
Job No: 13-52118

Date: 11:09:13 09:25

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-26

Cone: 155:T1500F15U500



Max Depth: 8.450 m / 27.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP26.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648417 Long: -108.500567
● Equilibrium Pore Pressure from Dissipation



MWH Americas

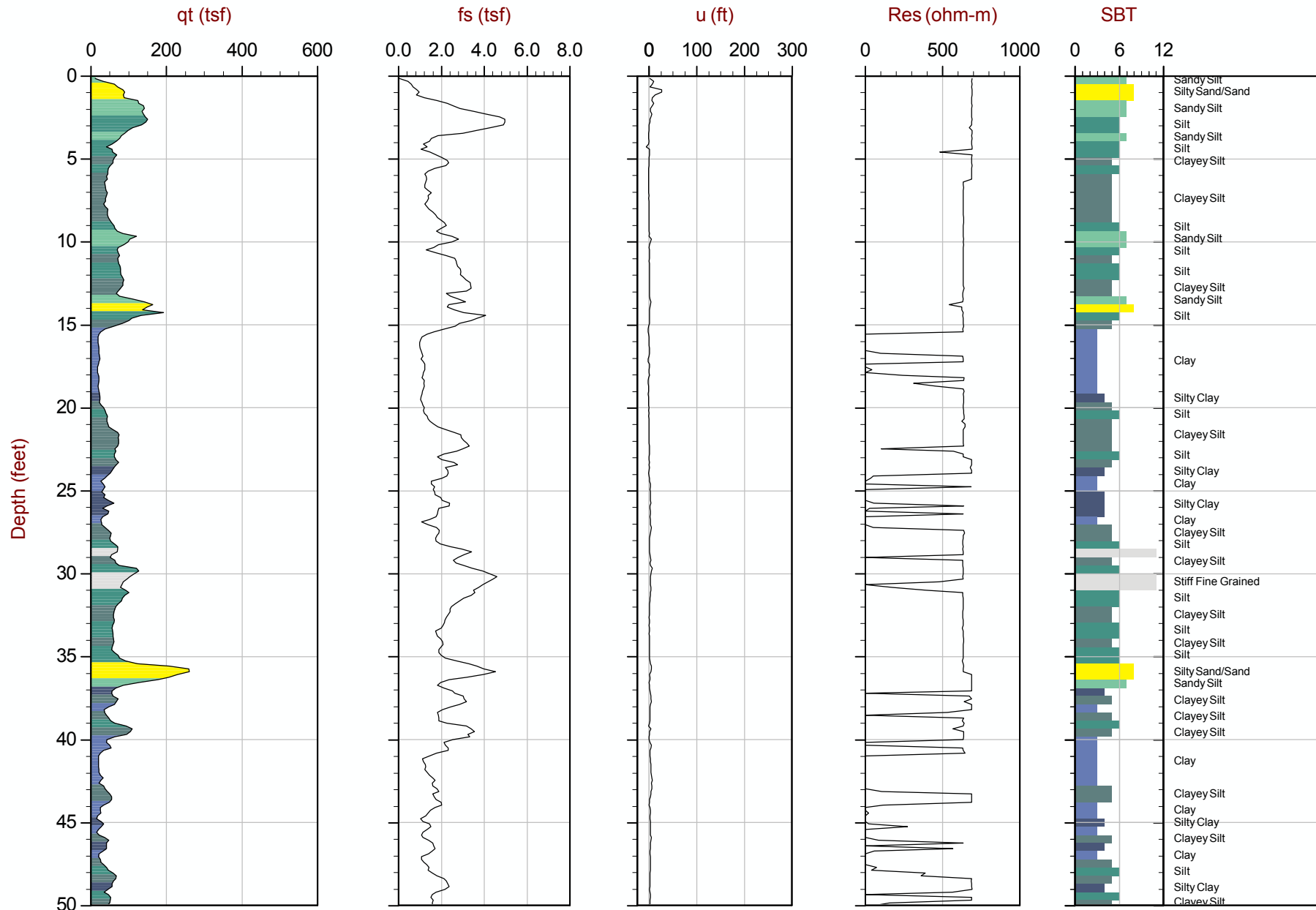
Job No: 13-52118

Date: 11:09:13 15:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-27

Cone: 155:T1500F15U500



Max Depth: 24.300 m / 79.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP27.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.496367
● Equilibrium Pore Pressure from Dissipation



MWH Americas

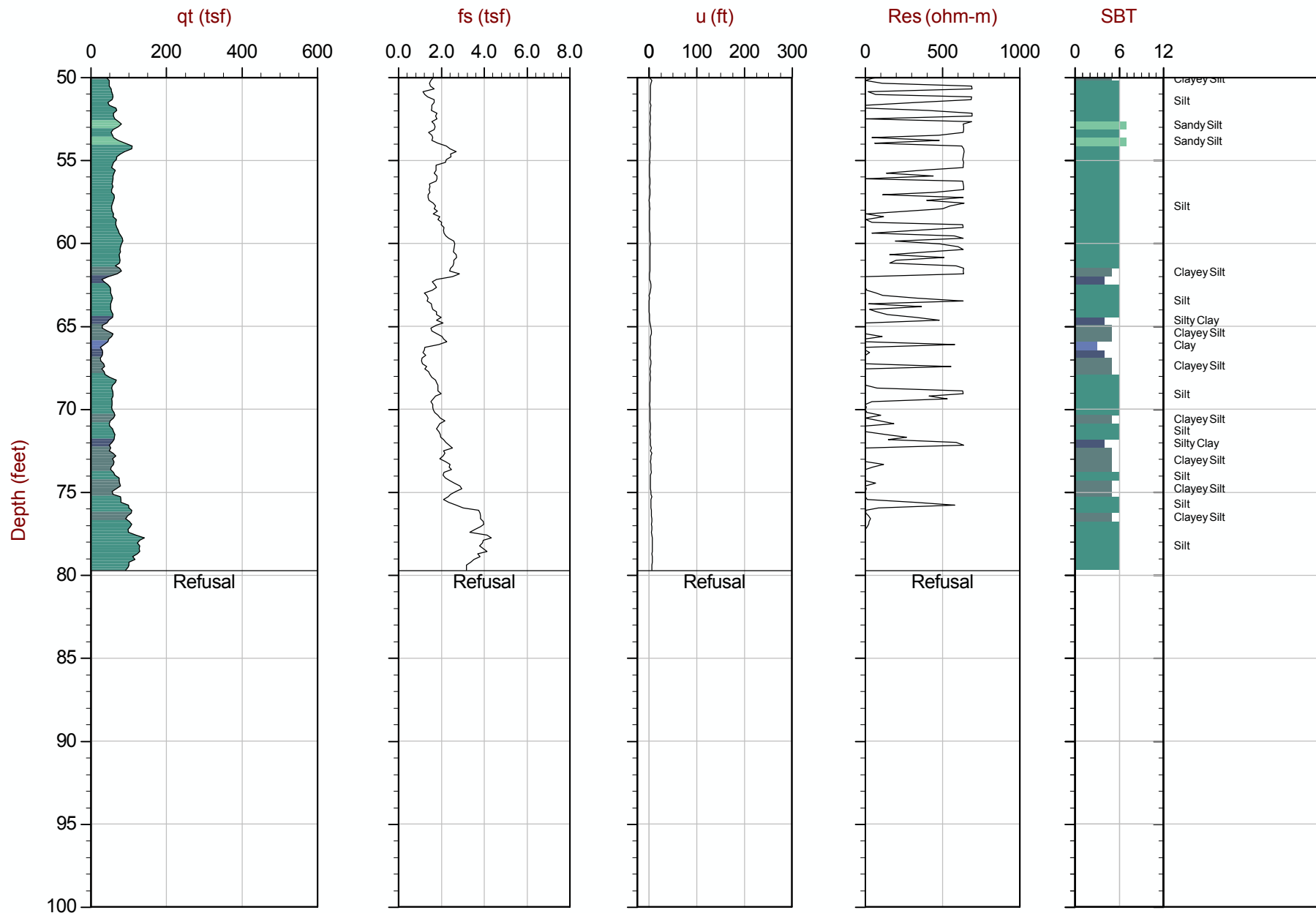
Job No: 13-52118

Date: 11:09:13 15:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-27

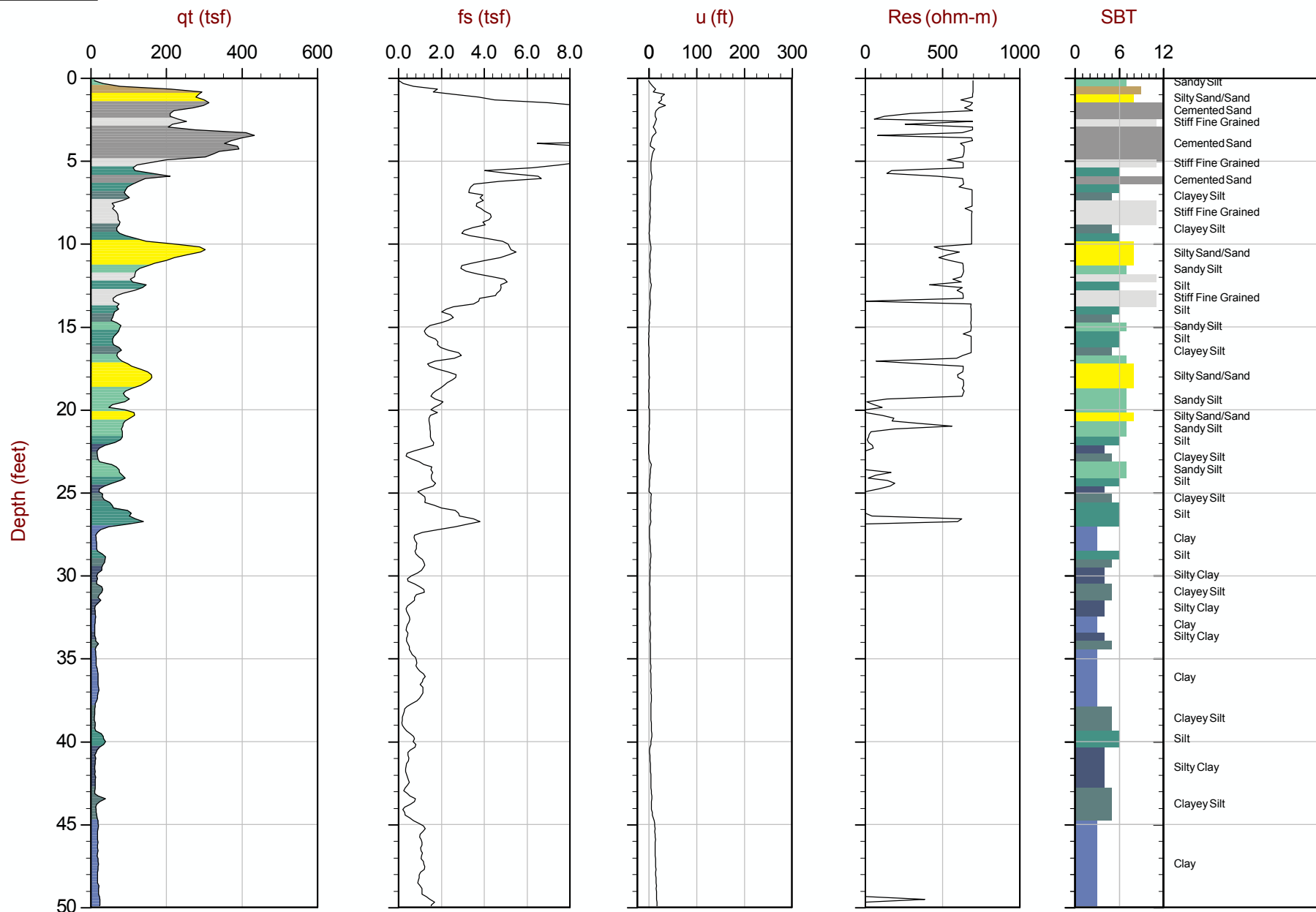
Cone: 155:T1500F15U500



Max Depth: 24.300 m / 79.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP27.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.496367
● Equilibrium Pore Pressure from Dissipation



Max Depth: 25.600 m / 83.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP28.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.649767 Long: -108.501117
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

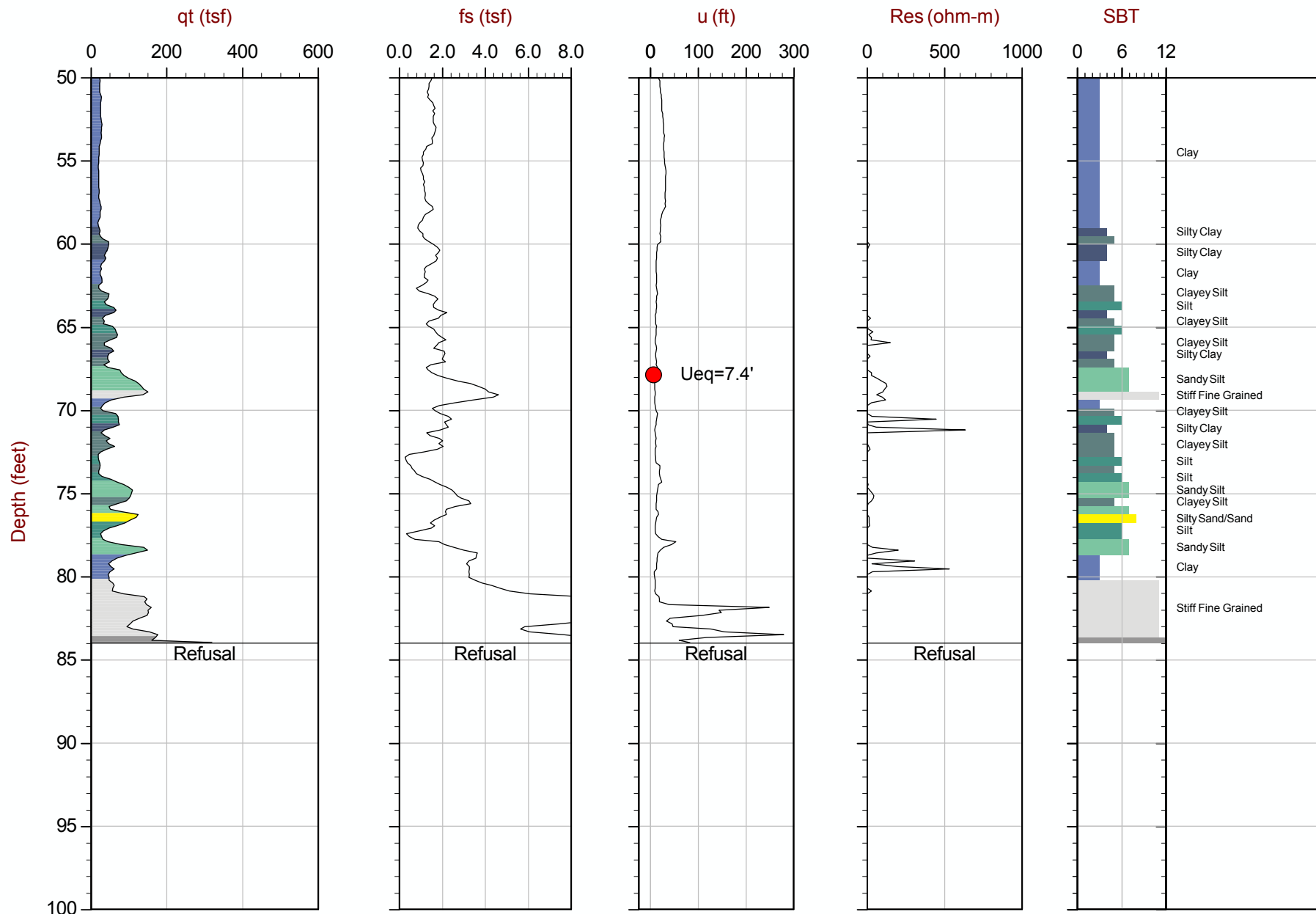
Job No: 13-52118

Date: 11:10:13 08:17

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-28

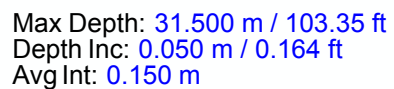
Cone: 155:T1500F15U500



Max Depth: 25.600 m / 83.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP28.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649767 Long: -108.501117
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.651200 Long: -108.499183
 ● Equilibrium Pore Pressure from Dissipation



MWH Americas

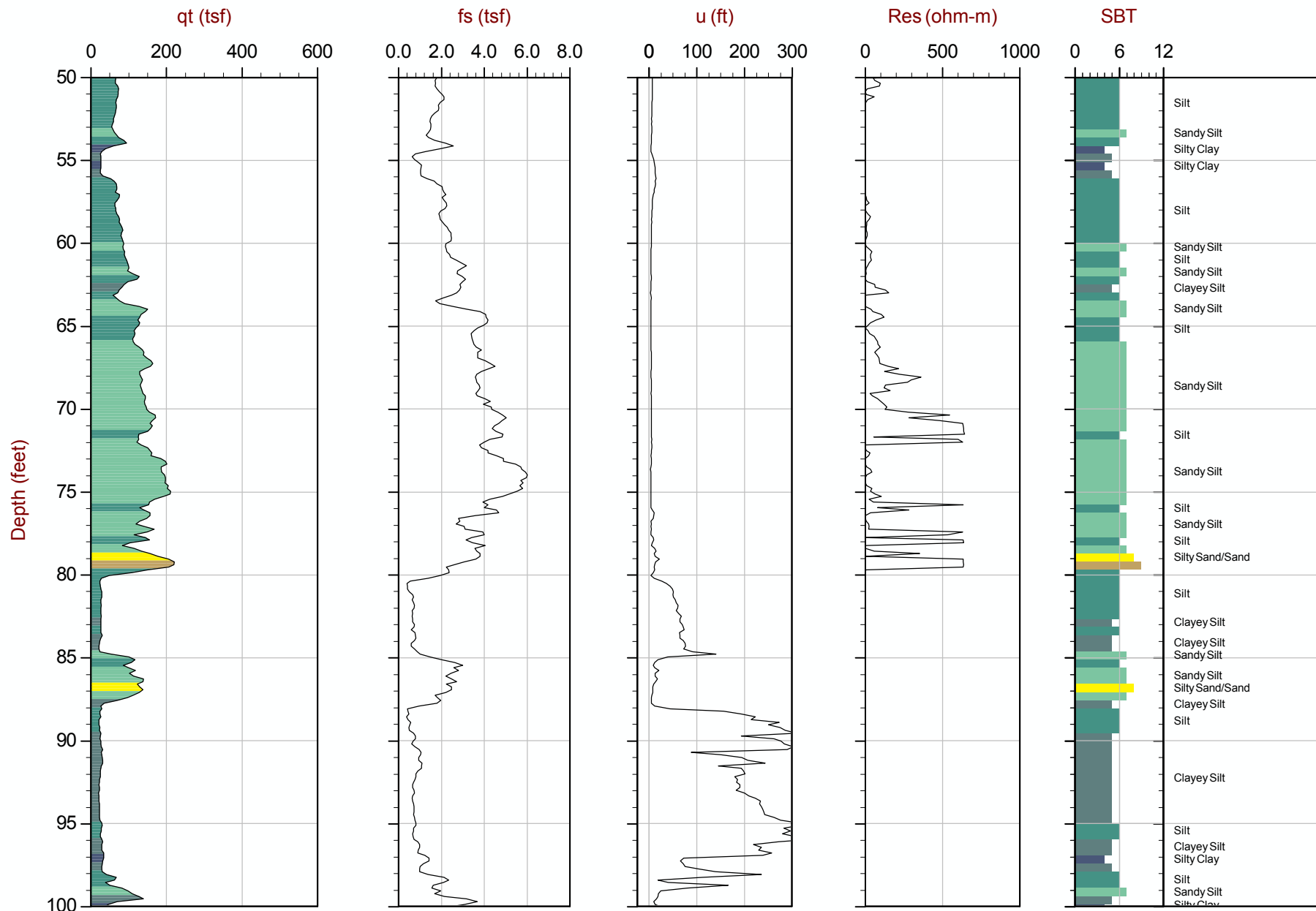
Job No: 13-52118

Date: 11:10:13 09:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-29

Cone: 155:T1500F15U500



Max Depth: 31.500 m / 103.35 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.651200 Long: -108.499183
● Equilibrium Pore Pressure from Dissipation



MWH Americas

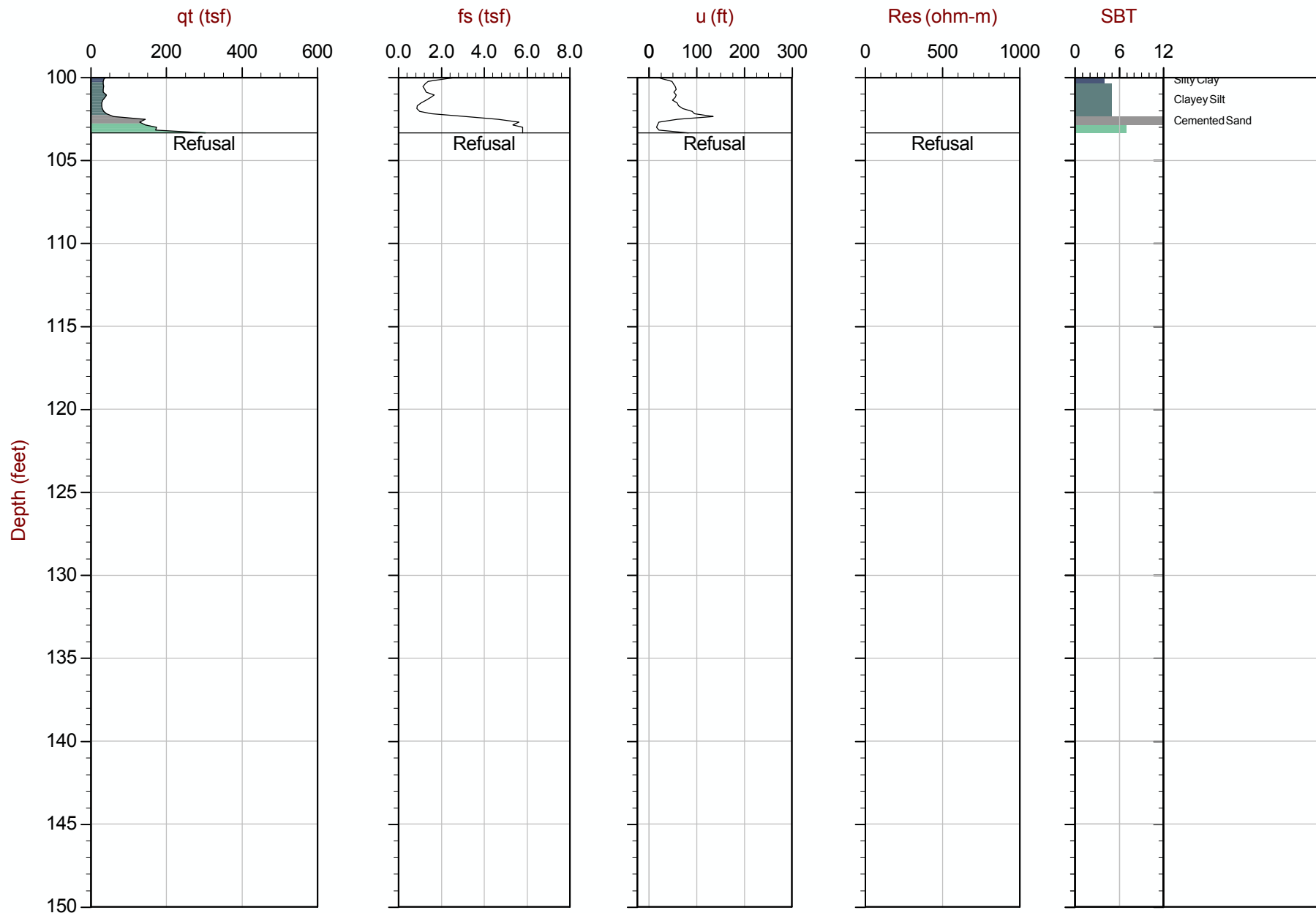
Job No: 13-52118

Date: 11:10:13 09:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-29

Cone: 155:T1500F15U500



Max Depth: 31.500 m / 103.35 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP29.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.651200 Long: -108.499183
● Equilibrium Pore Pressure from Dissipation



MWH Americas

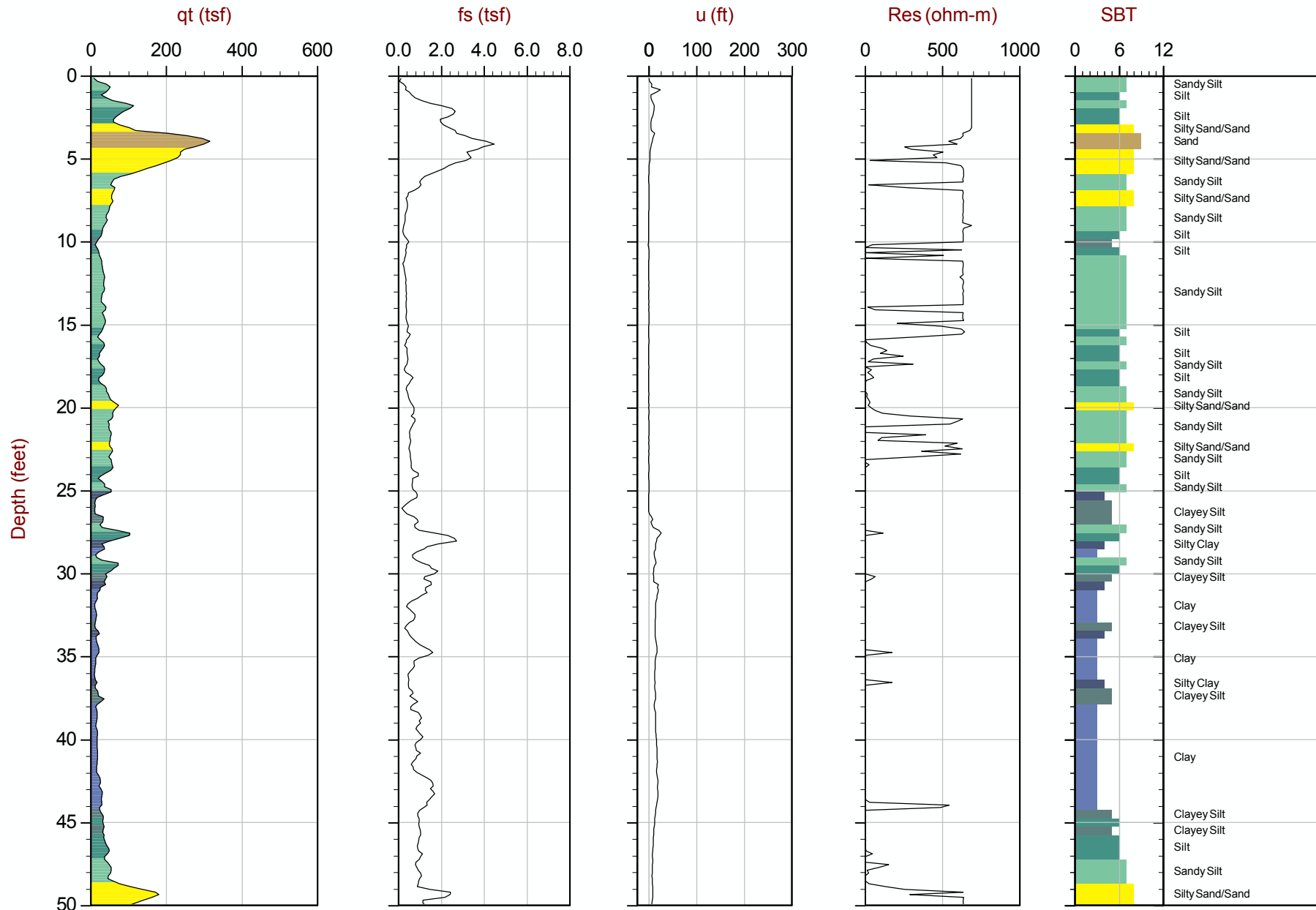
Job No: 13-52118

Date: 11:10:13 10:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-30

Cone: 155:T1500F15U500



Max Depth: 22.800 m / 74.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP30.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.503350
● Equilibrium Pore Pressure from Dissipation



MWH Americas

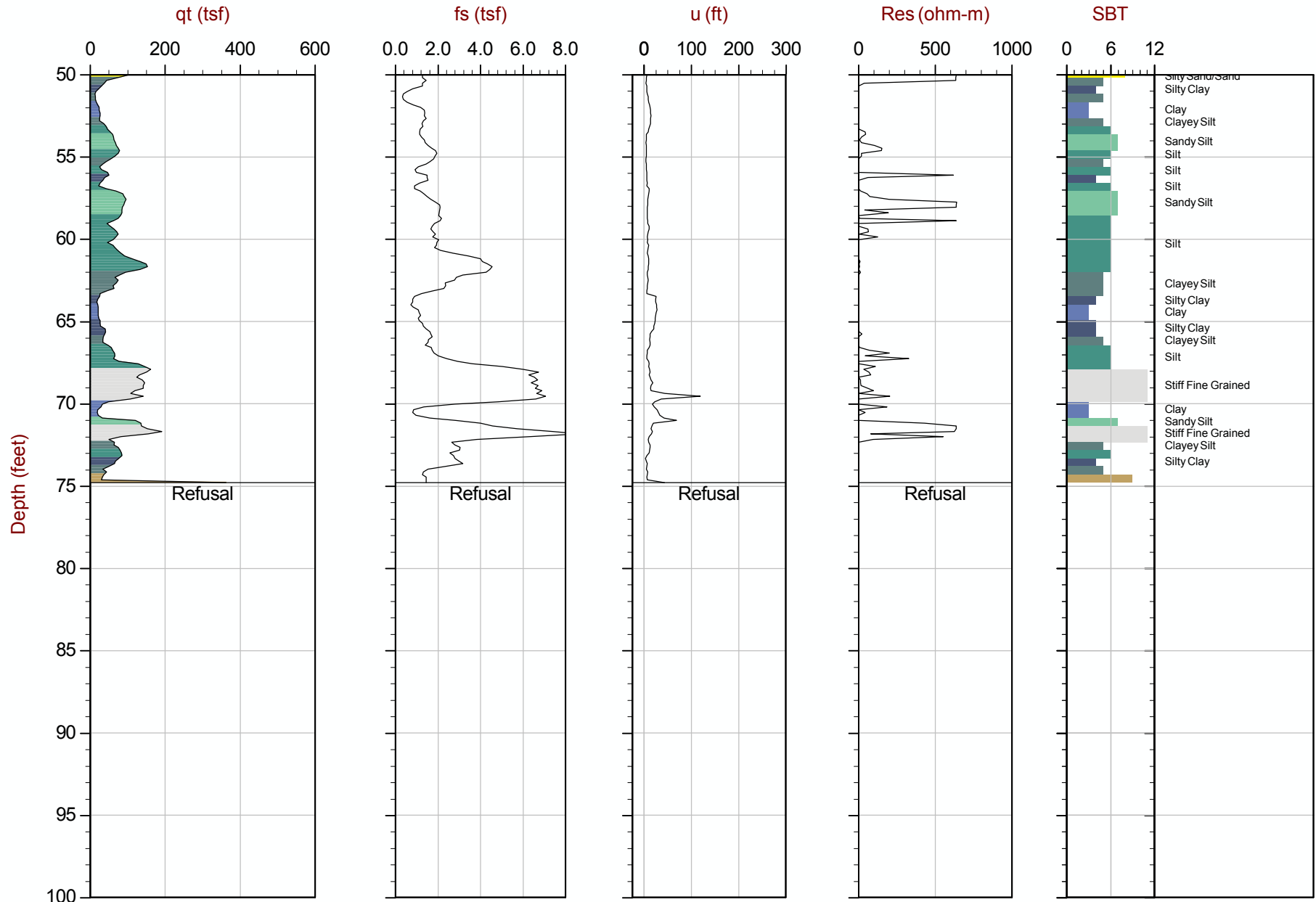
Job No: 13-52118

Date: 11:10:13 10:57

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-30

Cone: 155:T1500F15U500



Max Depth: 22.800 m / 74.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP30.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.503350
● Equilibrium Pore Pressure from Dissipation



MWH Americas

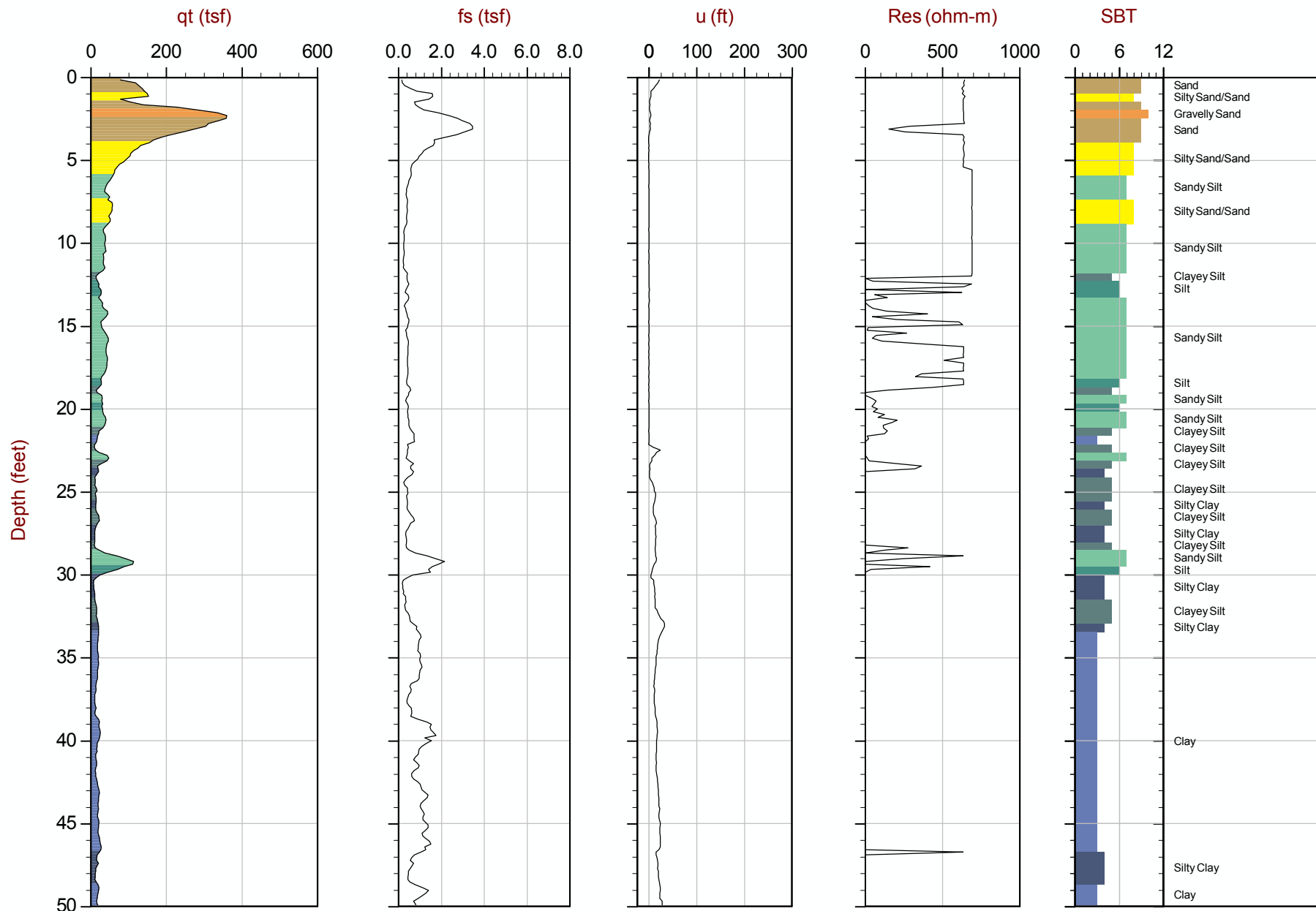
Job No: 13-52118

Date: 11:10:13 13:10

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-31

Cone: 155:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP31.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646450 Long: -108.504917
● Equilibrium Pore Pressure from Dissipation



MWH Americas

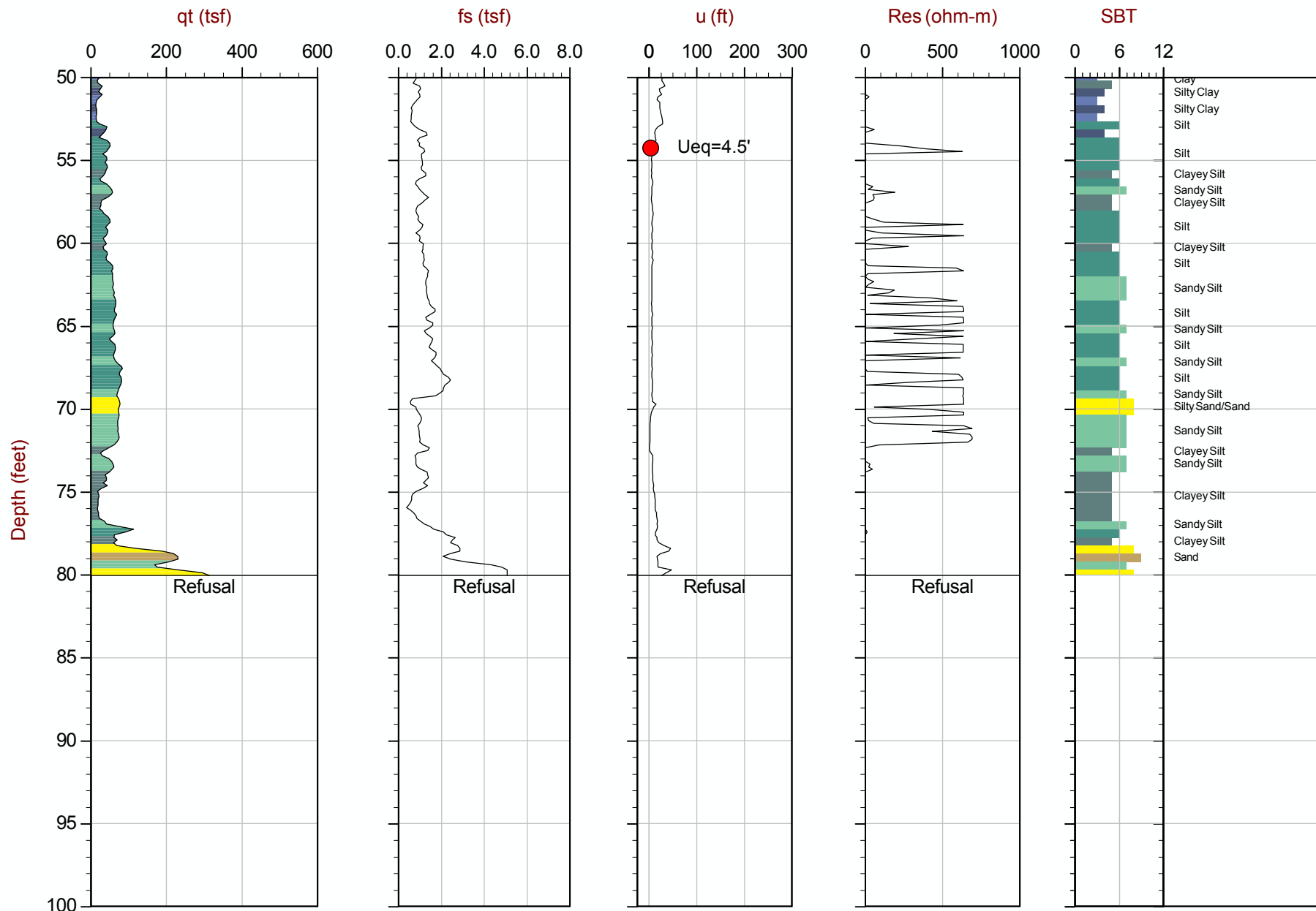
Job No: 13-52118

Date: 11:10:13 13:10

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-31

Cone: 155:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP31.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.646450 Long: -108.504917
● Equilibrium Pore Pressure from Dissipation



MWH Americas

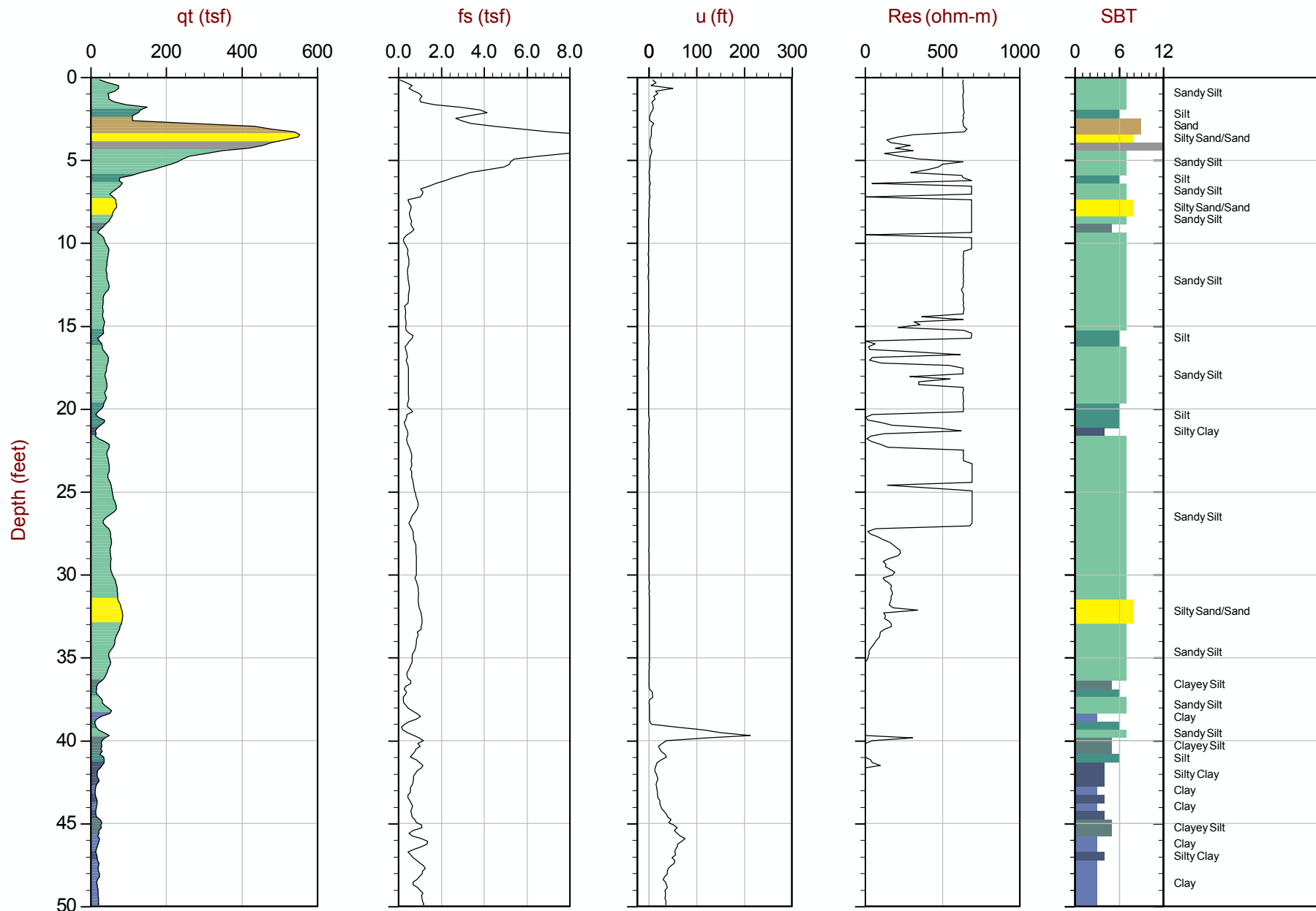
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation



MWH Americas

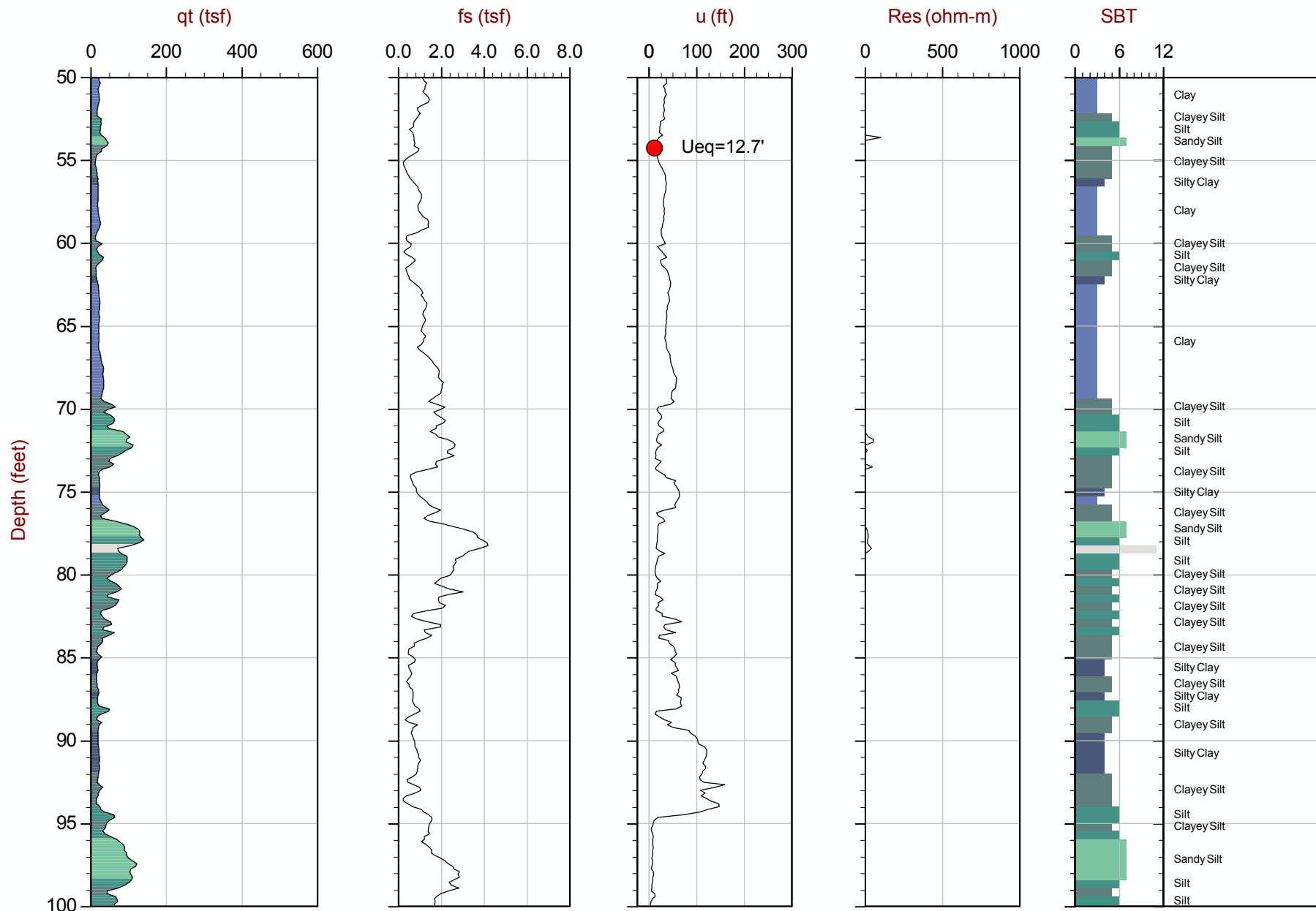
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation



MWH Americas

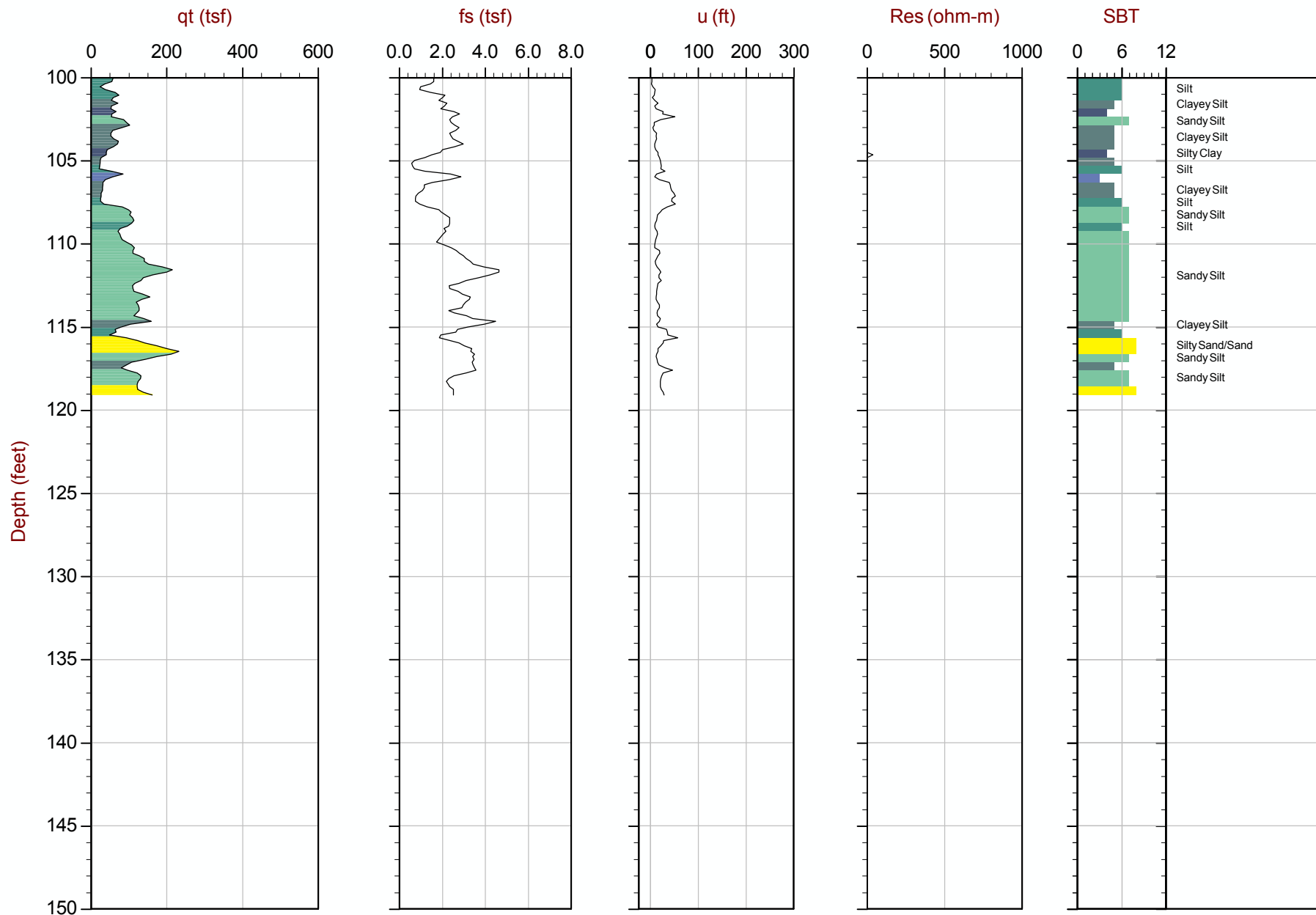
Job No: 13-52118

Date: 11:10:13 14:12

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-32

Cone: 155:T1500F15U500



Max Depth: 36.300 m / 119.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP32.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.645383 Long: -108.505983
● Equilibrium Pore Pressure from Dissipation

Shear Wave Velocity Calculations

(V_s Calcs)



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-01
Location: Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	6.36	230	2.10	754	6.9
15.09	14.44	14.51	5.04	6.12	251	3.62	824	11.9
20.01	19.36	19.41	4.90	6.81	219	5.15	720	16.9
25.10	24.44	24.49	5.07	7.19	215	6.67	705	21.9
30.02	29.36	29.40	4.91	7.68	195	8.20	639	26.9
40.03	39.37	39.40	10.00	13.12	232	10.47	762	34.4
45.11	44.46	44.48	5.08	6.58	235	12.77	772	41.9
50.03	49.38	49.40	4.92	6.19	242	14.30	794	46.9
55.12	54.46	54.48	5.08	6.72	231	15.82	757	51.9
60.04	59.38	59.40	4.92	7.42	202	17.35	663	56.9
65.12	64.47	64.49	5.08	7.64	203	18.87	666	61.9
70.05	69.39	69.41	4.92	6.65	225	20.40	740	66.9
75.13	74.47	74.49	5.08	5.30	292	21.92	959	71.9
79.72	79.07	79.08	4.59	5.17	271	23.40	888	76.8
85.14	84.48	84.49	5.41	5.95	277	24.92	910	81.8



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-02
Location: Church Rock Mill Site TSF
Date: November 5, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
4.43	3.77	4.06						
10.99	10.33	10.44	6.38	6.82	285	2.15	936	7.1
15.09	14.44	14.51	4.07	7.31	170	3.77	557	12.4
20.01	19.36	19.41	4.90	4.91	304	5.15	998	16.9
25.10	24.44	24.49	5.07	5.67	273	6.67	894	21.9
30.02	29.36	29.40	4.91	5.69	263	8.20	864	26.9
33.96	33.30	33.33	3.93	3.09	389	9.55	1275	31.3



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-04
Location: Church Rock Mill Site TSF
Date: November 5, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	5.18	282	2.10	925	6.9
15.09	14.44	14.51	5.04	6.78	227	3.62	743	11.9
20.51	19.85	19.91	5.39	11.70	141	5.22	461	17.1
25.10	24.44	24.49	4.58	4.50	310	6.75	1019	22.1
27.56	26.90	26.94	2.46	1.01	739	7.82	2423	25.7



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-05
Location: Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	8.76	167	2.10	547	6.9
15.09	14.44	14.51	5.04	9.00	171	3.62	560	11.9
20.01	19.36	19.41	4.90	6.12	244	5.15	801	16.9
25.10	24.44	24.49	5.07	6.41	241	6.67	791	21.9
30.68	30.02	30.06	5.57	6.76	251	8.30	823	27.2
35.10	34.45	34.48	4.42	6.65	203	9.82	666	32.2
37.89	37.24	37.27	2.79	2.76	307	10.92	1008	35.8



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-06
Location: Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	4.36	335	2.10	1100	6.9
15.09	14.44	14.51	5.04	6.47	238	3.62	779	11.9
20.01	19.36	19.41	4.90	7.74	193	5.15	633	16.9
25.10	24.44	24.49	5.07	9.47	163	6.67	535	21.9
30.02	29.36	29.40	4.91	10.78	139	8.20	456	26.9
35.10	34.45	34.48	5.08	9.30	167	9.72	546	31.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-07
Location: Church Rock Mill Site TSF
Date: November 8, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	6.43	227	2.10	746	6.9
15.09	14.44	14.51	5.04	8.92	172	3.62	565	11.9
20.34	19.68	19.74	5.23	9.52	167	5.20	549	17.1
25.26	24.61	24.65	4.91	9.80	153	6.75	501	22.1
30.02	29.36	29.40	4.75	10.46	138	8.22	454	27.0
35.27	34.61	34.65	5.24	10.92	146	9.75	480	32.0
40.03	39.37	39.40	4.75	7.79	186	11.27	610	37.0
45.28	44.62	44.64	5.25	5.56	288	12.80	944	42.0
50.03	49.38	49.40	4.75	5.70	254	14.32	834	47.0
55.12	54.46	54.48	5.08	5.99	259	15.82	849	51.9
60.04	59.38	59.40	4.92	6.56	229	17.35	750	56.9
65.12	64.47	64.49	5.08	6.19	250	18.87	821	61.9
70.05	69.39	69.41	4.92	6.24	240	20.40	789	66.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-08
Location: Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	4.07	359	2.10	1177	6.9
15.09	14.44	14.51	5.04	5.91	260	3.62	853	11.9
20.01	19.36	19.41	4.90	6.06	247	5.15	809	16.9
25.10	24.44	24.49	5.07	6.67	232	6.67	761	21.9
30.02	29.36	29.40	4.91	8.27	181	8.20	594	26.9
35.10	34.45	34.48	5.08	8.65	179	9.72	587	31.9
40.35	39.70	39.73	5.25	8.20	195	11.30	639	37.1
46.26	45.60	45.63	5.90	8.61	209	13.00	685	42.7
50.03	49.38	49.40	3.77	2.97	388	14.47	1272	47.5
55.12	54.46	54.48	5.08	4.17	372	15.82	1220	51.9
60.04	59.38	59.40	4.92	3.79	396	17.35	1298	56.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-09
Location: Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	4.77	306	2.10	1004	6.9
15.09	14.44	14.51	5.04	5.72	269	3.62	882	11.9
20.67	20.01	20.07	5.56	8.87	191	5.25	626	17.2
25.10	24.44	24.49	4.42	8.97	150	6.77	492	22.2
30.02	29.36	29.40	4.91	8.65	173	8.20	568	26.9
35.10	34.45	34.48	5.08	8.90	174	9.72	571	31.9
40.03	39.37	39.40	4.92	8.43	178	11.25	583	36.9
45.11	44.46	44.48	5.08	7.97	194	12.77	637	41.9
50.03	49.38	49.40	4.92	5.22	287	14.30	943	46.9
55.12	54.46	54.48	5.08	4.85	320	15.82	1048	51.9
60.04	59.38	59.40	4.92	5.29	283	17.35	929	56.9
65.12	64.47	64.49	5.08	5.20	298	18.87	978	61.9
69.39	68.73	68.75	4.26	3.73	349	20.30	1144	66.6



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-10
Location: Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	5.18	282	2.10	926	6.9
15.09	14.44	14.51	5.04	6.94	222	3.62	727	11.9
20.01	19.36	19.41	4.90	8.32	180	5.15	589	16.9
25.10	24.44	24.49	5.07	10.81	143	6.67	469	21.9
30.02	29.36	29.40	4.91	9.68	155	8.20	508	26.9
35.27	34.61	34.65	5.24	10.72	149	9.75	489	32.0
40.03	39.37	39.40	4.75	9.45	153	11.27	503	37.0
46.26	45.60	45.63	6.23	9.24	206	12.95	674	42.5
50.03	49.38	49.40	3.77	3.16	364	14.47	1194	47.5
55.12	54.46	54.48	5.08	3.37	459	15.82	1507	51.9
60.04	59.38	59.40	4.92	2.69	558	17.35	1829	56.9
63.16	62.50	62.52	3.12	2.06	461	18.57	1514	60.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-11
Location: Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	5.03	291	2.10	953	6.9
15.26	14.60	14.68	5.21	6.35	250	3.65	821	12.0
20.01	19.36	19.41	4.74	5.65	255	5.17	838	17.0
25.10	24.44	24.49	5.07	5.95	260	6.67	853	21.9
30.02	29.36	29.40	4.91	5.48	273	8.20	897	26.9
35.10	34.45	34.48	5.08	5.15	301	9.72	987	31.9
40.03	39.37	39.40	4.92	5.36	280	11.25	918	36.9
45.11	44.46	44.48	5.08	6.13	253	12.77	829	41.9
50.03	49.38	49.40	4.92	7.59	197	14.30	648	46.9
55.12	54.46	54.48	5.08	7.94	195	15.82	640	51.9
60.04	59.38	59.40	4.92	4.00	375	17.35	1229	56.9
65.29	64.63	64.65	5.25	4.81	332	18.90	1091	62.0
70.21	69.55	69.57	4.92	4.64	323	20.45	1060	67.1
75.13	74.47	74.49	4.92	4.90	306	21.95	1003	72.0
80.05	79.40	79.41	4.92	4.90	306	23.45	1005	76.9
85.14	84.48	84.49	5.08	4.12	376	24.97	1235	81.9
90.06	89.40	89.42	4.92	4.84	310	26.50	1016	86.9
95.14	94.49	94.50	5.08	3.11	499	28.02	1637	91.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-12
Location: Church Rock Mill Site TSF
Date: November 7, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	4.69	311	2.10	1021	6.9
15.09	14.44	14.51	5.04	5.05	305	3.62	999	11.9
20.01	19.36	19.41	4.90	5.17	289	5.15	948	16.9
25.10	24.44	24.49	5.07	5.42	285	6.67	936	21.9
30.02	29.36	29.40	4.91	5.58	268	8.20	881	26.9
35.10	34.45	34.48	5.08	5.56	278	9.72	913	31.9
40.03	39.37	39.40	4.92	5.55	270	11.25	886	36.9
45.11	44.46	44.48	5.08	4.67	332	12.77	1089	41.9
50.03	49.38	49.40	4.92	5.18	289	14.30	949	46.9



Shear Wave Velocity Calculations

Job No.: 13-52118
Client: MWH Americas, Inc.
CPT No.: RCPT-15
Location: Church Rock Mill Site TSF
Date: November 6, 2013

Geophone Offset: 0.66 (ft)
Source Offset: 1.50 (ft)

Test Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Incremental Distance (ft)	Time Interval (ms)	Interval Velocity (m/s)	Interval Depth (m)	Interval Velocity (ft/s)	Interval Depth (ft)
5.08	4.43	4.68						
10.01	9.35	9.47	4.79	7.05	207	2.10	680	6.9
15.09	14.44	14.51	5.04	8.31	185	3.62	607	11.9
20.01	19.36	19.41	4.90	8.07	185	5.15	607	16.9
25.10	24.44	24.49	5.07	8.24	188	6.67	616	21.9
30.02	29.36	29.40	4.91	7.72	194	8.20	636	26.9
35.10	34.45	34.48	5.08	6.35	244	9.72	801	31.9
40.03	39.37	39.40	4.92	4.49	334	11.25	1095	36.9
45.93	45.28	45.30	5.90	5.41	333	12.90	1092	42.3
50.03	49.38	49.40	4.10	3.40	367	14.42	1206	47.3
55.12	54.46	54.48	5.08	4.45	348	15.82	1142	51.9

Seismic CPT Plots (SCPT Plots)



MWH Americas

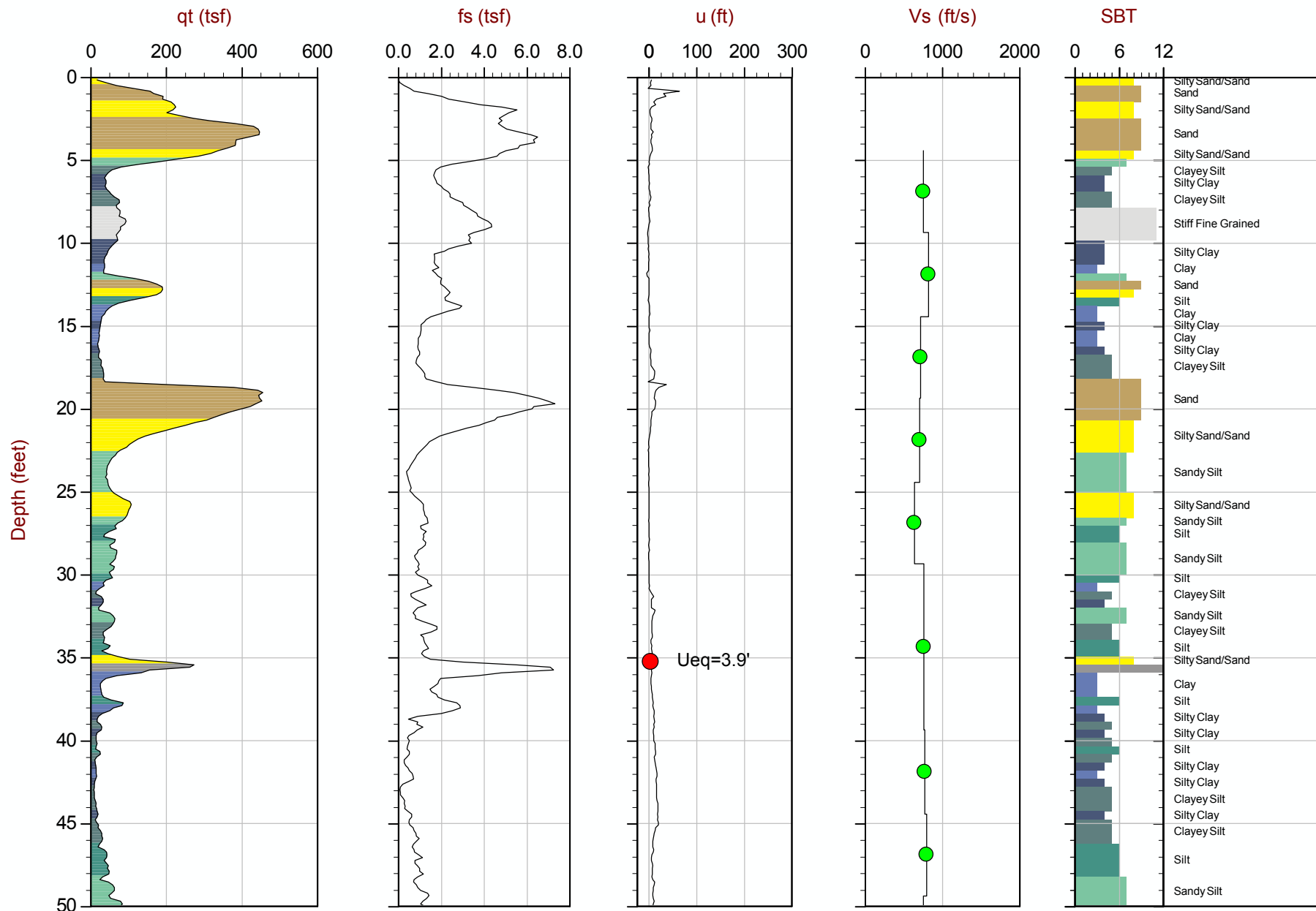
Job No: 13-52118

Date: 11:07:13 15:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01

Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
● Equilibrium Pore Pressure from Dissipation



MWH Americas

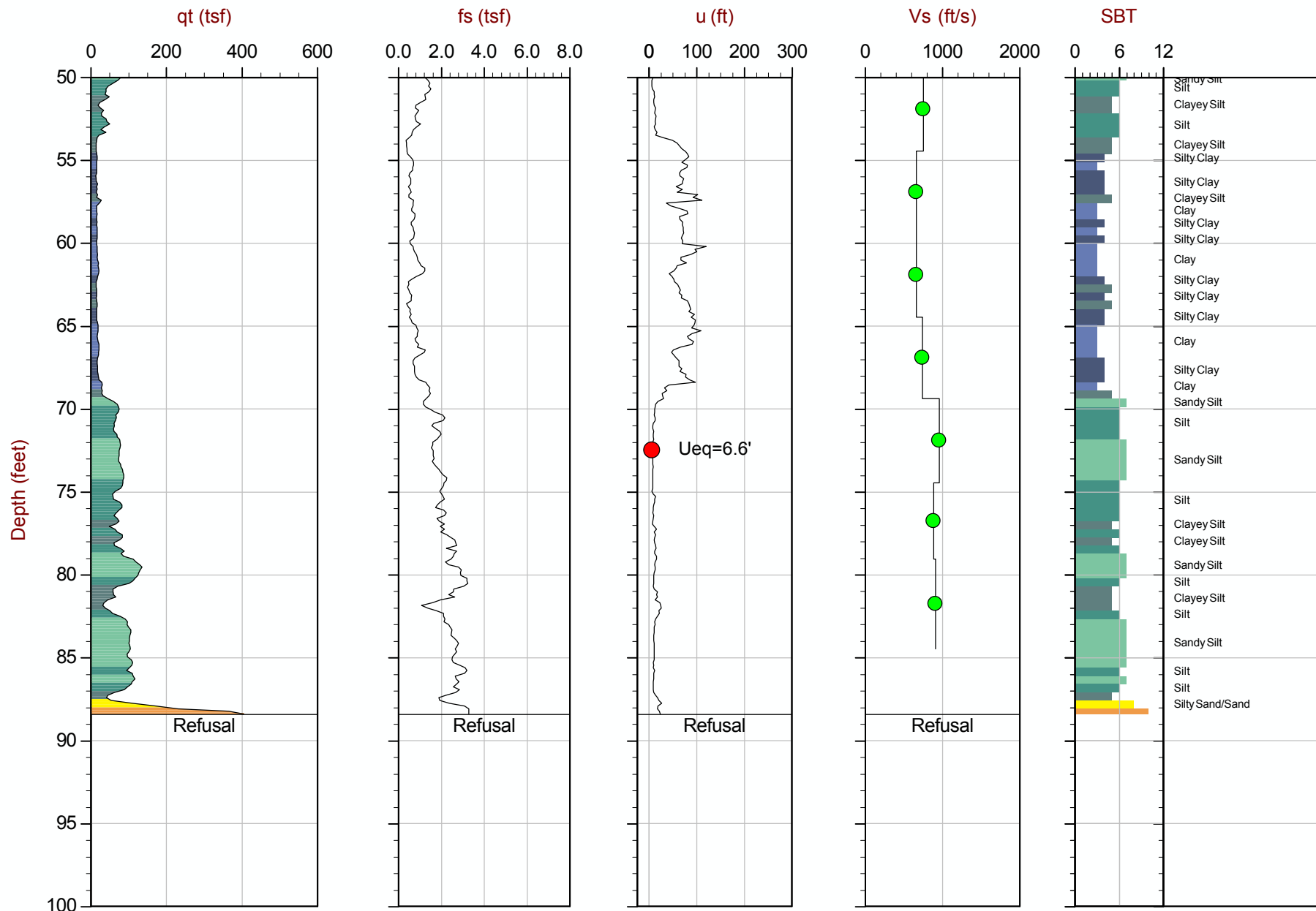
Job No: 13-52118

Date: 11:07:13 15:36

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-01

Cone: 155:T1500F15U500



Max Depth: 26.950 m / 88.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP01.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649117 Long: -108.501667
● Equilibrium Pore Pressure from Dissipation



MWH Americas

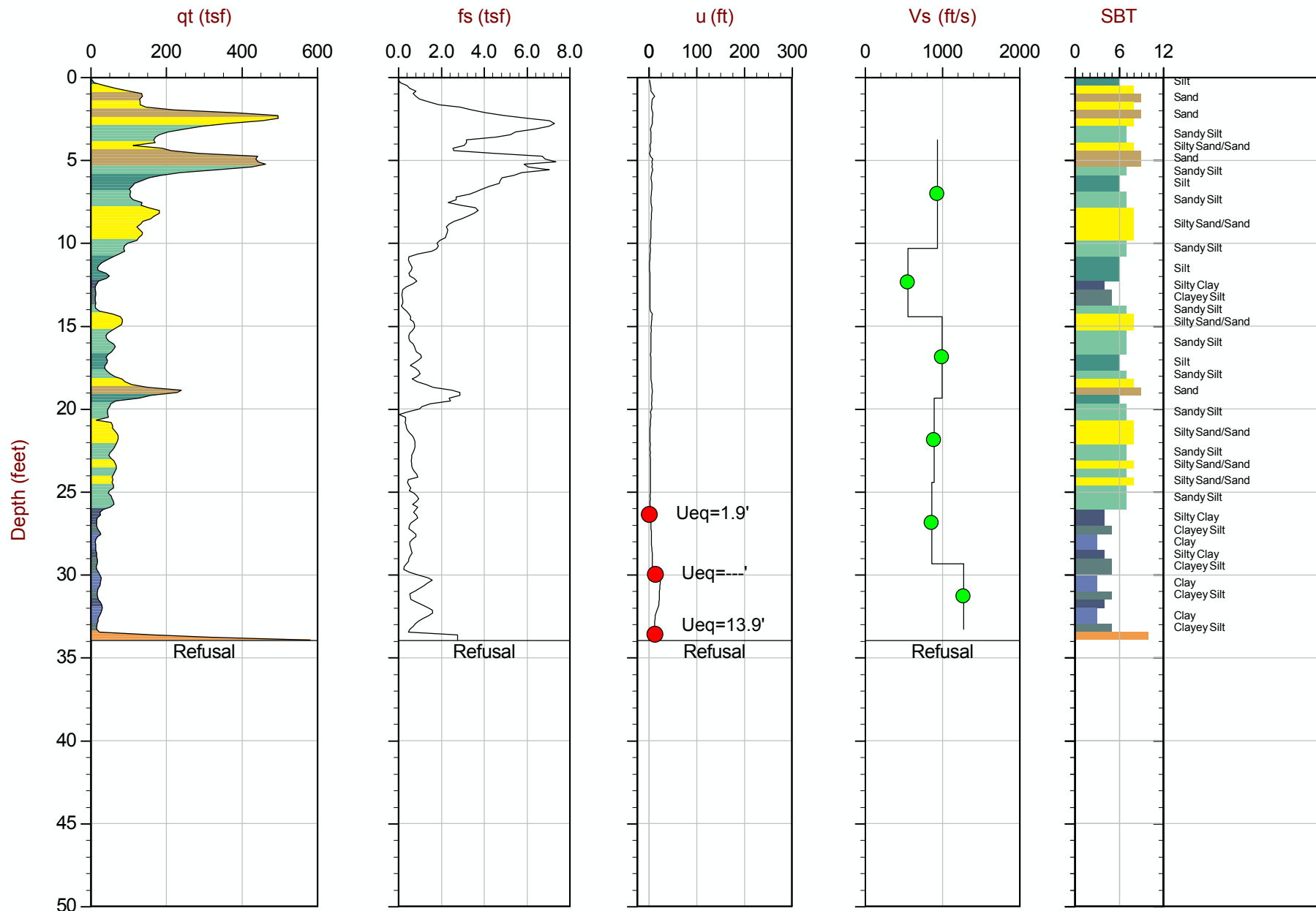
Job No: 13-52118

Date: 11:05:13 13:37

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-02

Cone: 155:T1500F15U500



Max Depth: 10.350 m / 33.96 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP02.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.650200 Long: -108.499750
● Equilibrium Pore Pressure from Dissipation



MWH Americas

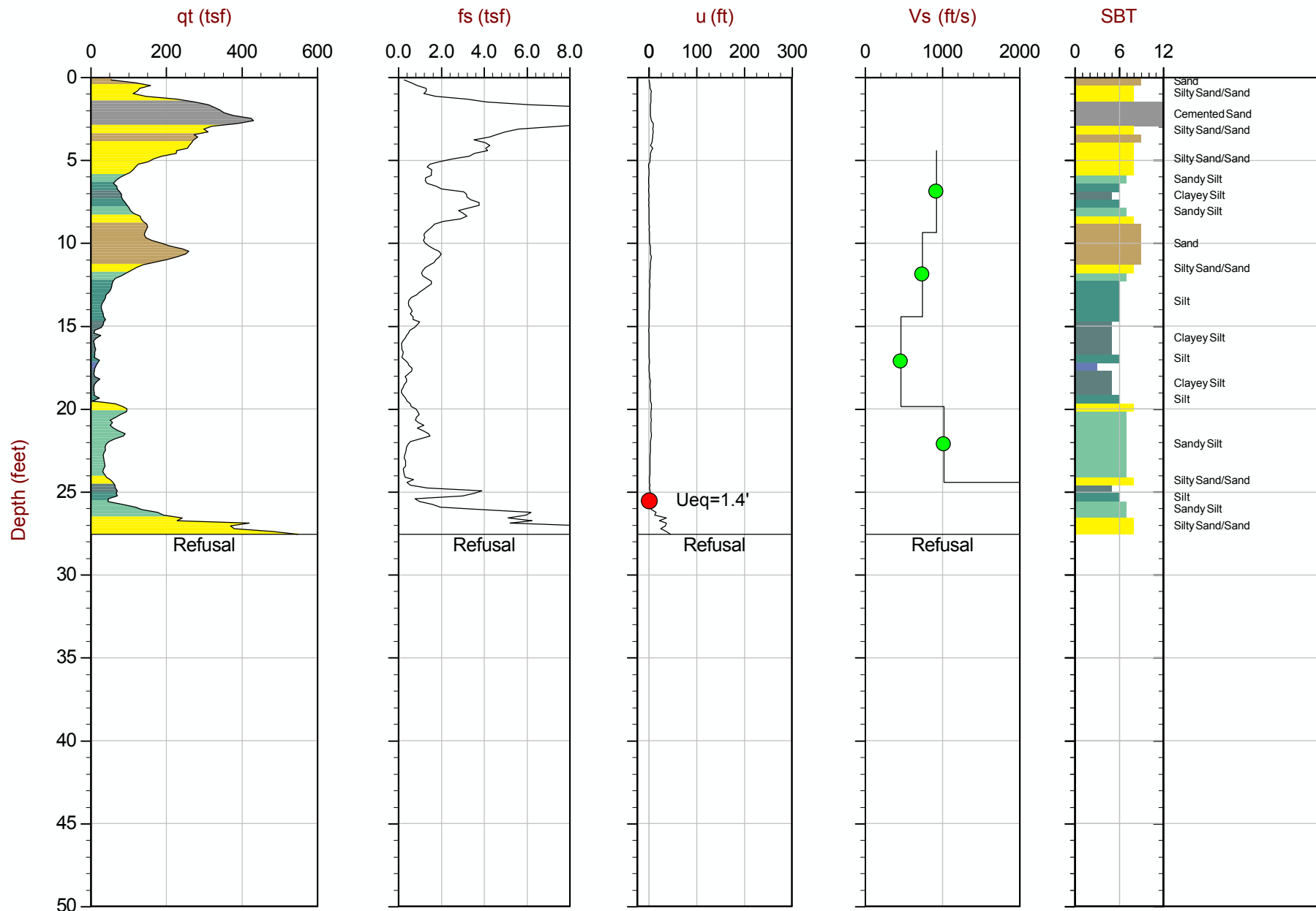
Job No: 13-52118

Date: 11:05:13 13:39

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-04

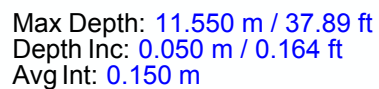
Cone: 155:T1500F15U500



Max Depth: 8.400 m / 27.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP04.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.649533 Long: -108.500483
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP05.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.648633 Long: -108.498283
 ● Equilibrium Pore Pressure from Dissipation



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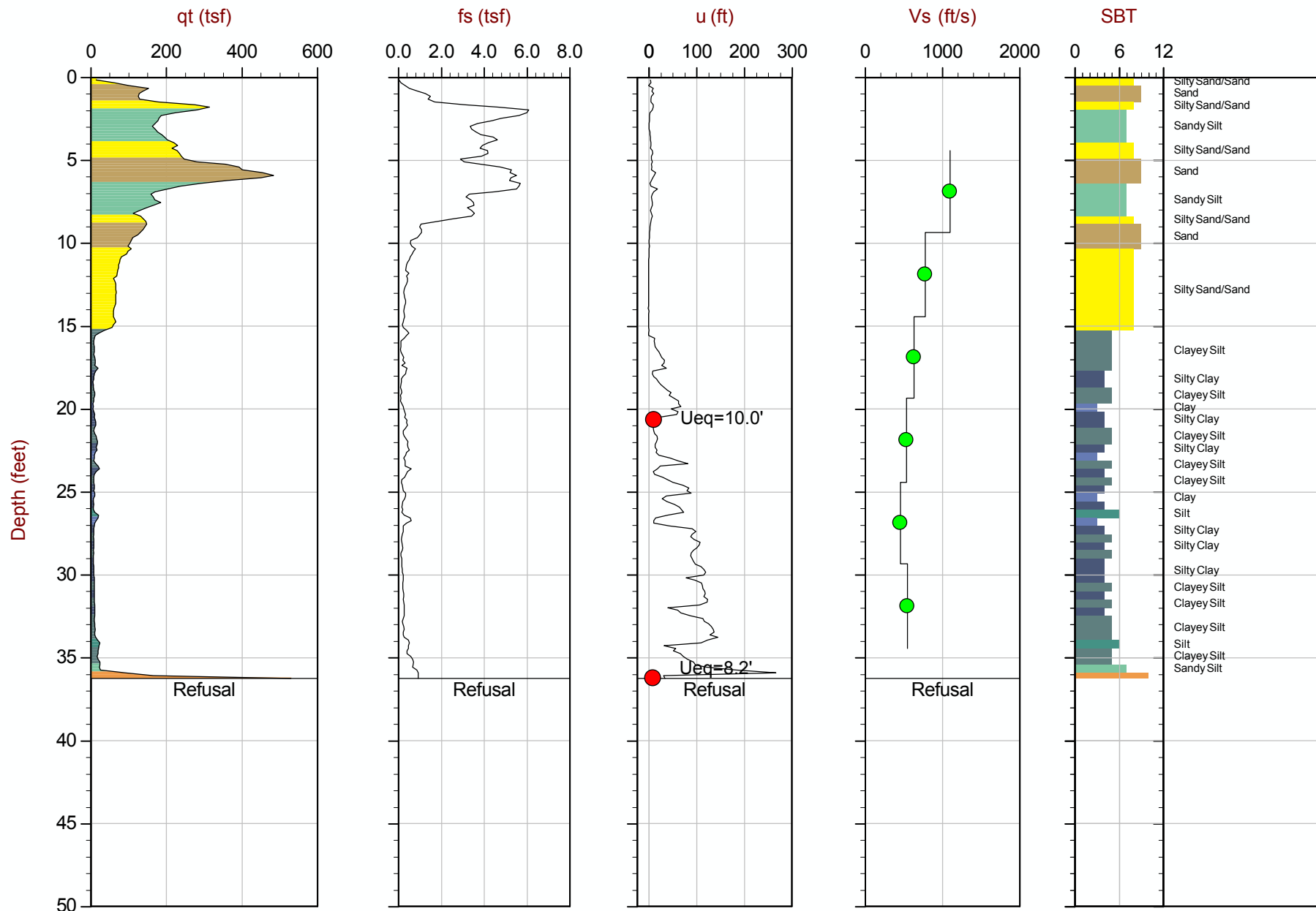
Job No: 13-52118

Date: 11:06:13 13:01

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-06

Cone: 155:T1500F15U500



Max Depth: 11.050 m / 36.25 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP06.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.648250 Long: -108.497050
● Equilibrium Pore Pressure from Dissipation



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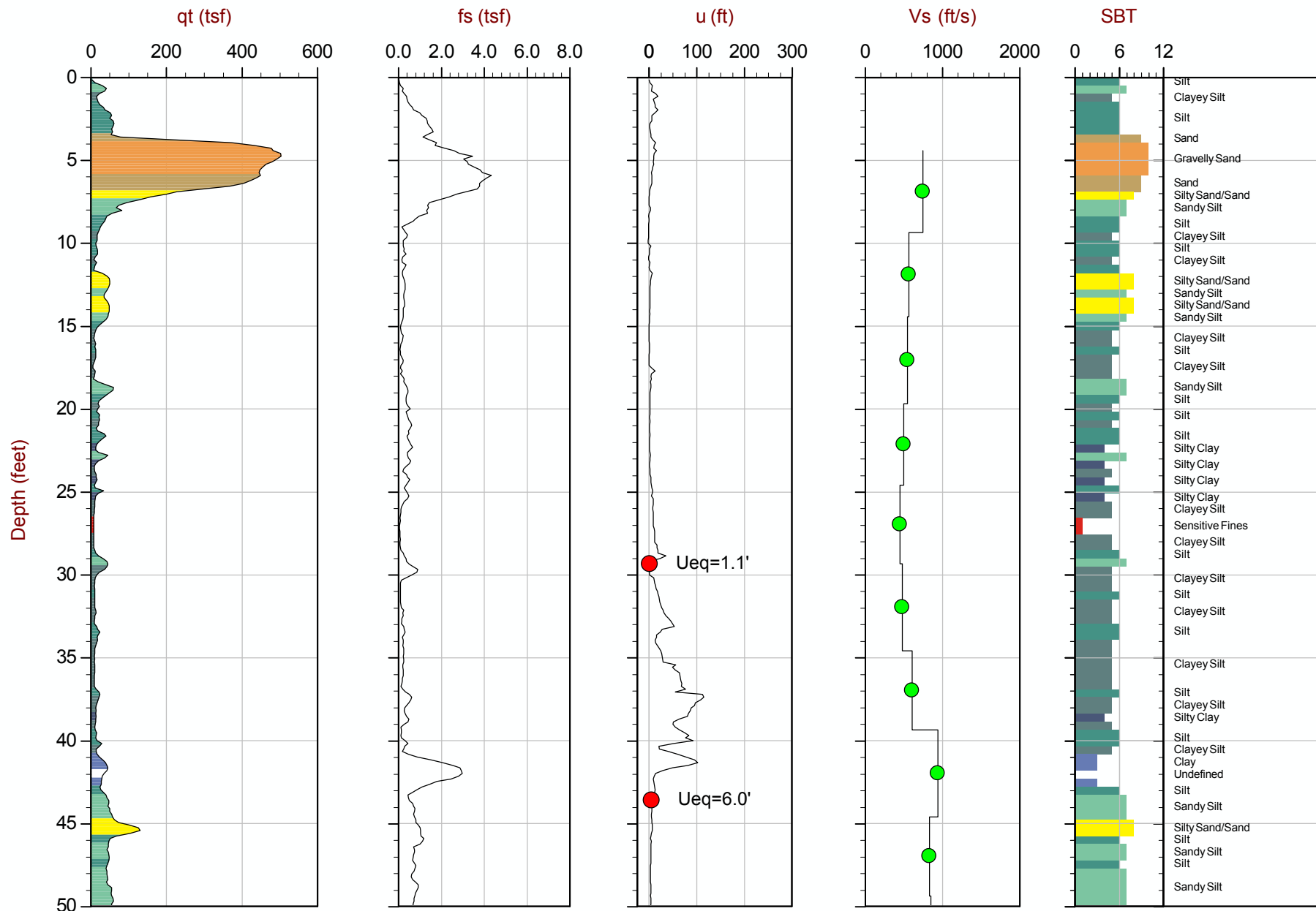
Job No: 13-52118

Date: 11:08:13 11:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

Cone: 155:T1500F15U500



Max Depth: 21.350 m / 70.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP07.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647600 Long: -108.501200
● Equilibrium Pore Pressure from Dissipation



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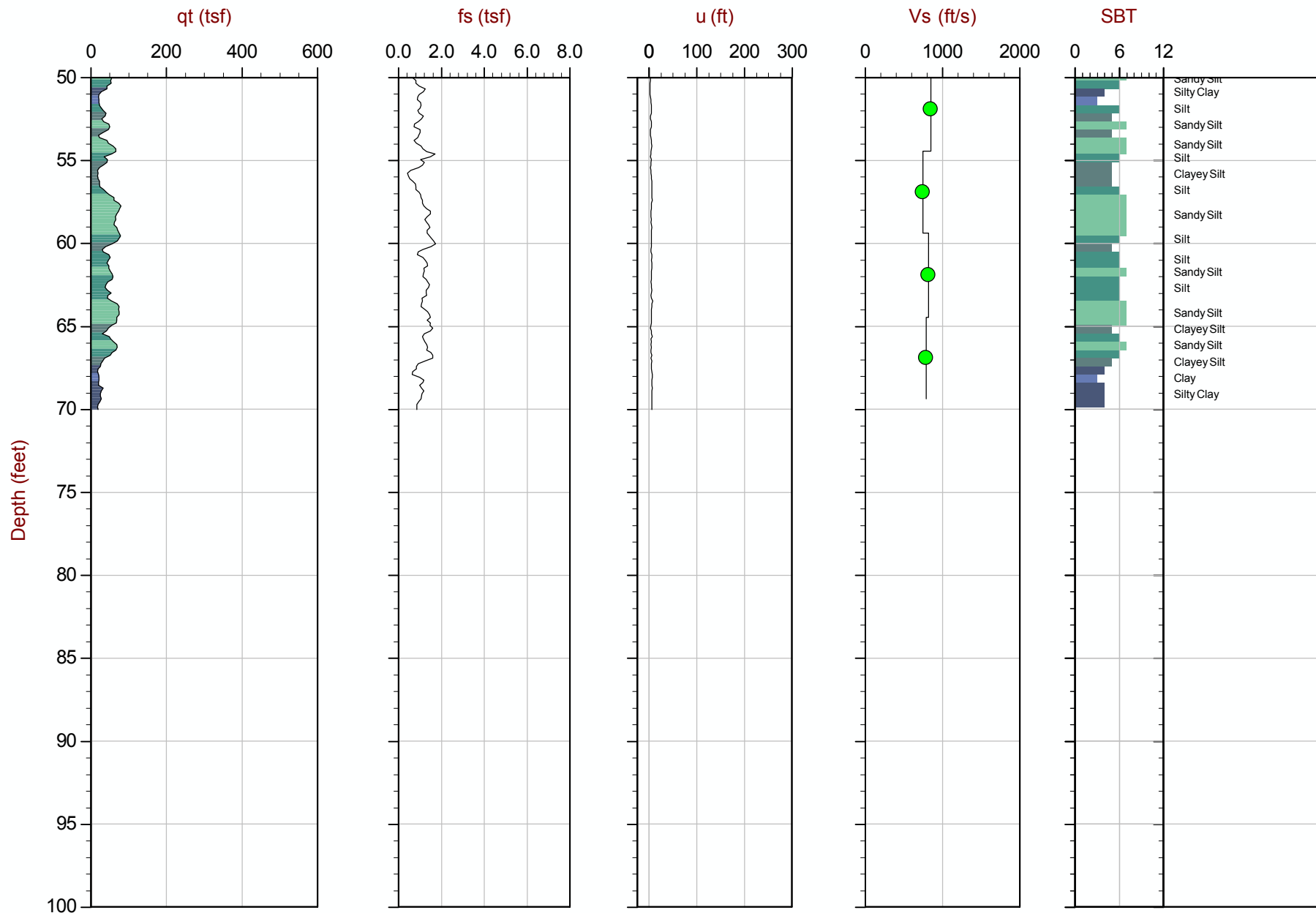
Job No: 13-52118

Date: 11:08:13 11:13

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-07

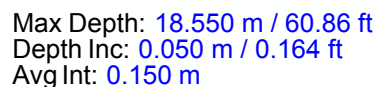
Cone: 155:T1500F15U500



Max Depth: 21.350 m / 70.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP07.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647600 Long: -108.501200
● Equilibrium Pore Pressure from Dissipation



File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
 Coords: Lat: 35.647250 Long: -108.497250
 ● Equilibrium Pore Pressure from Dissipation



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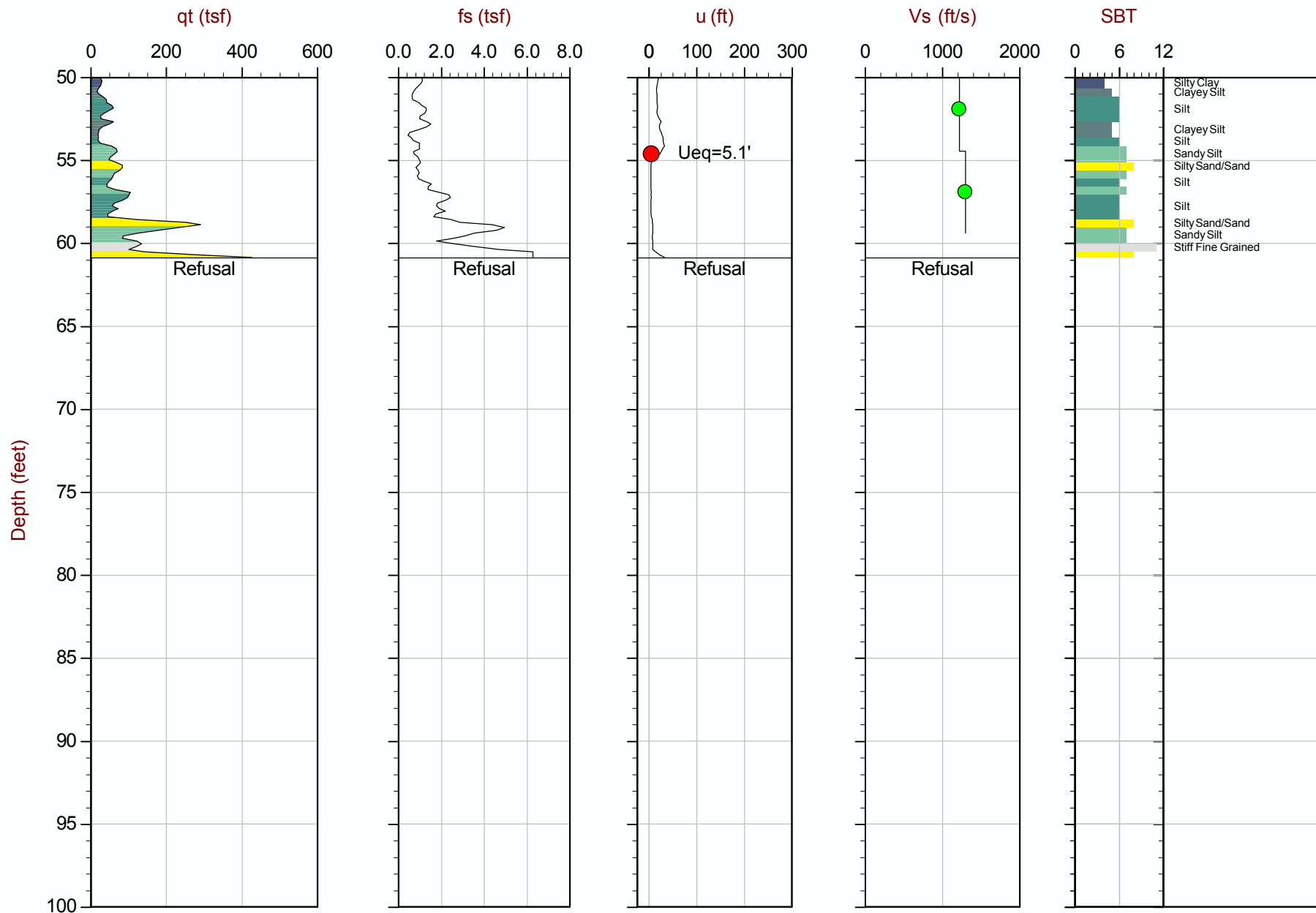
Job No: 13-52118

Date: 11:07:13 08:21

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-08

Cone: 155:T1500F15U500



Max Depth: 18.550 m / 60.86 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP08.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647250 Long: -108.497250
● Equilibrium Pore Pressure from Dissipation



MWH Americas

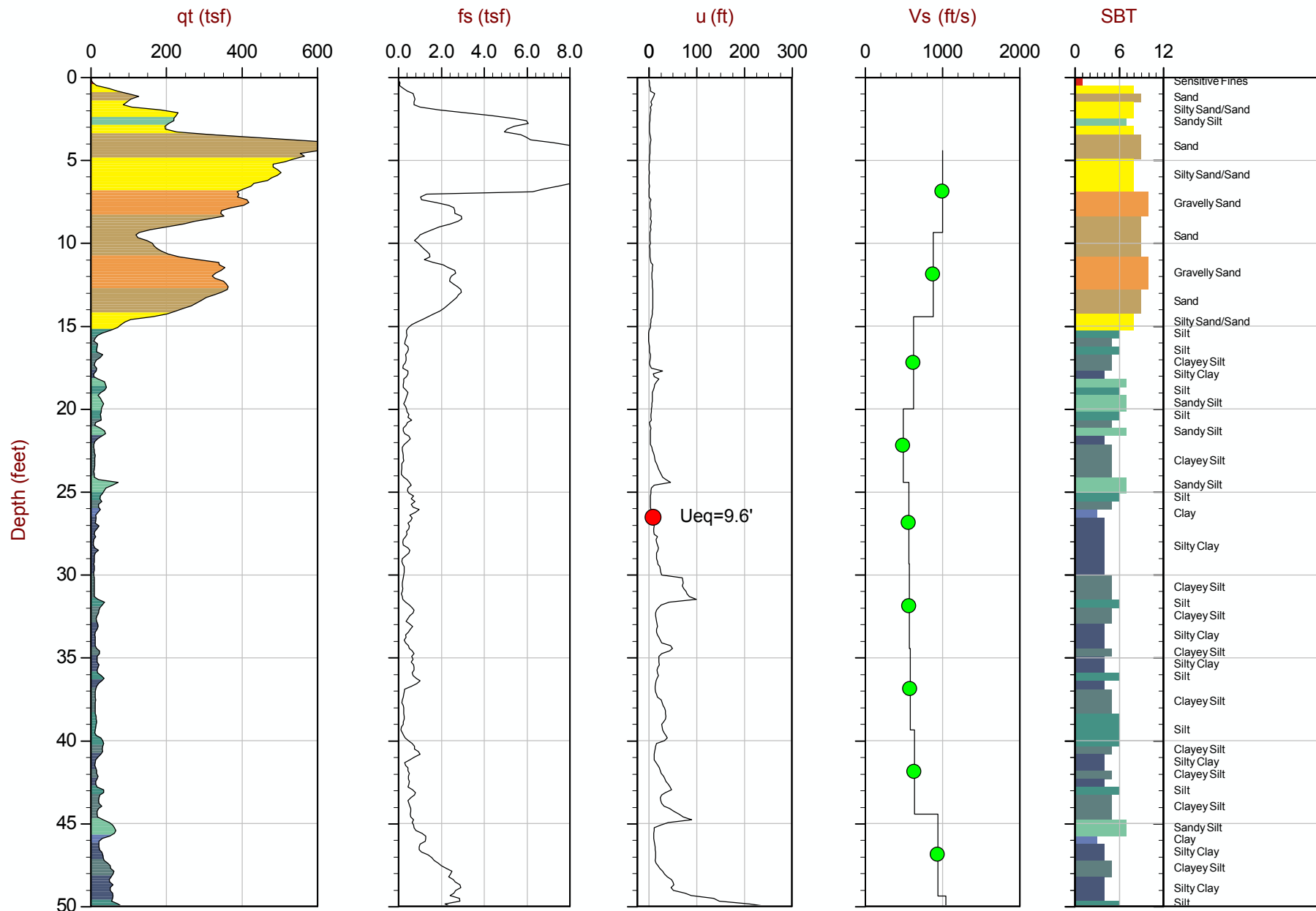
Job No: 13-52118

Date: 11:06:13 14:52

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-09

Cone: 155:T1500F15U500



Max Depth: 21.150 m / 69.39 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647750 Long: -108.498150
● Equilibrium Pore Pressure from Dissipation



MWH Americas

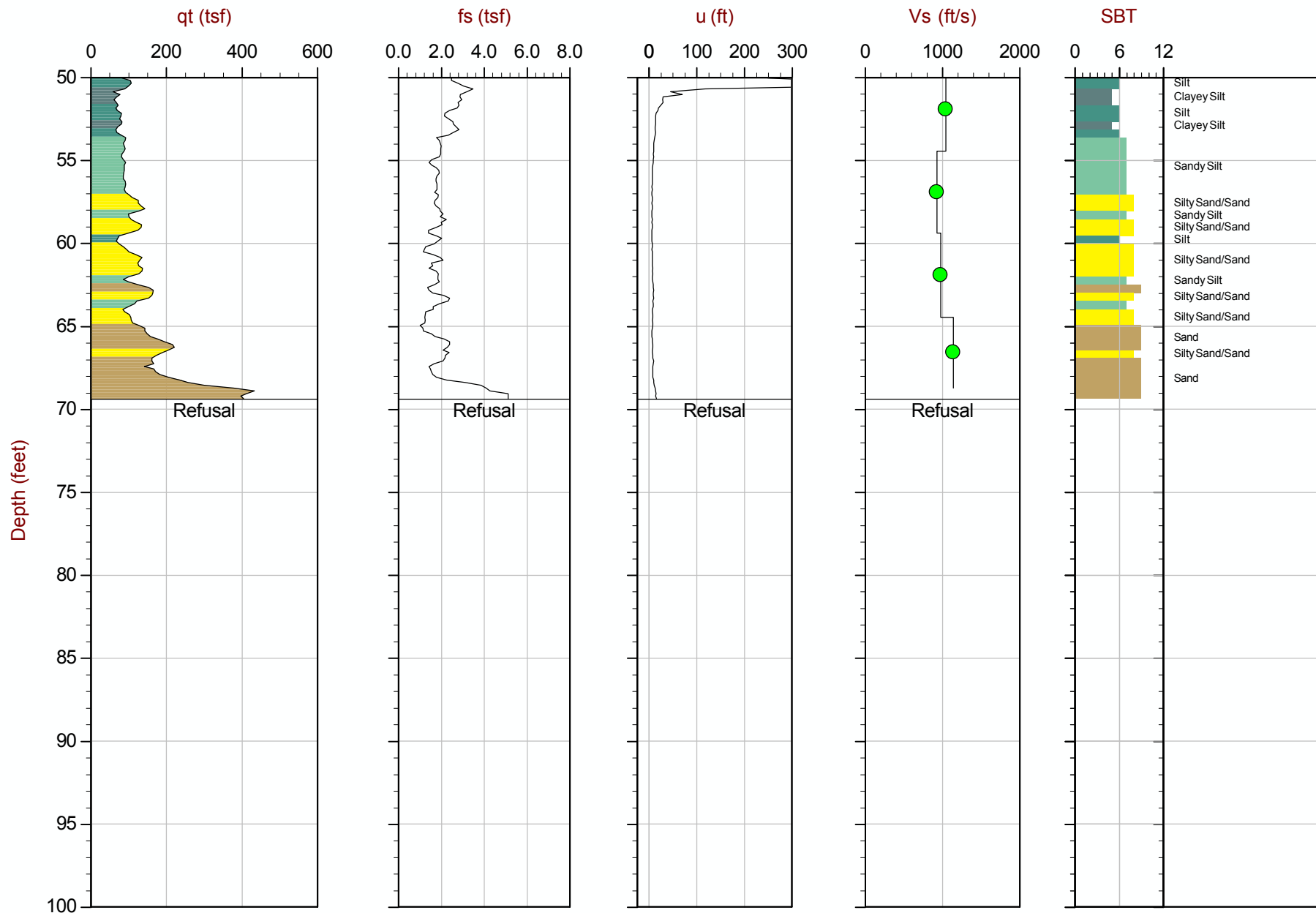
Job No: 13-52118

Date: 11:06:13 14:52

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-09

Cone: 155:T1500F15U500



Max Depth: 21.150 m / 69.39 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP09.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647750 Long: -108.498150
● Equilibrium Pore Pressure from Dissipation



MWH Americas

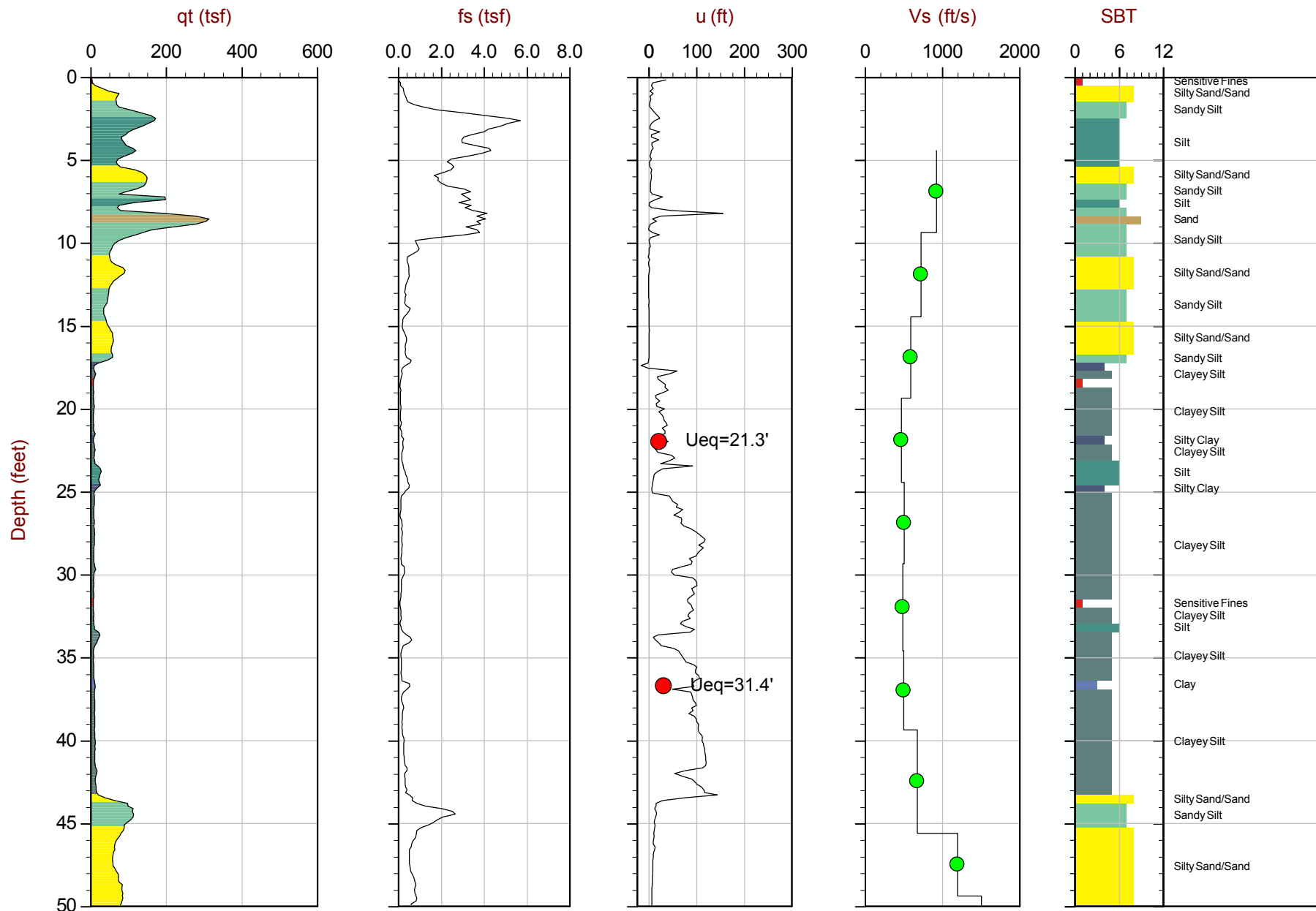
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

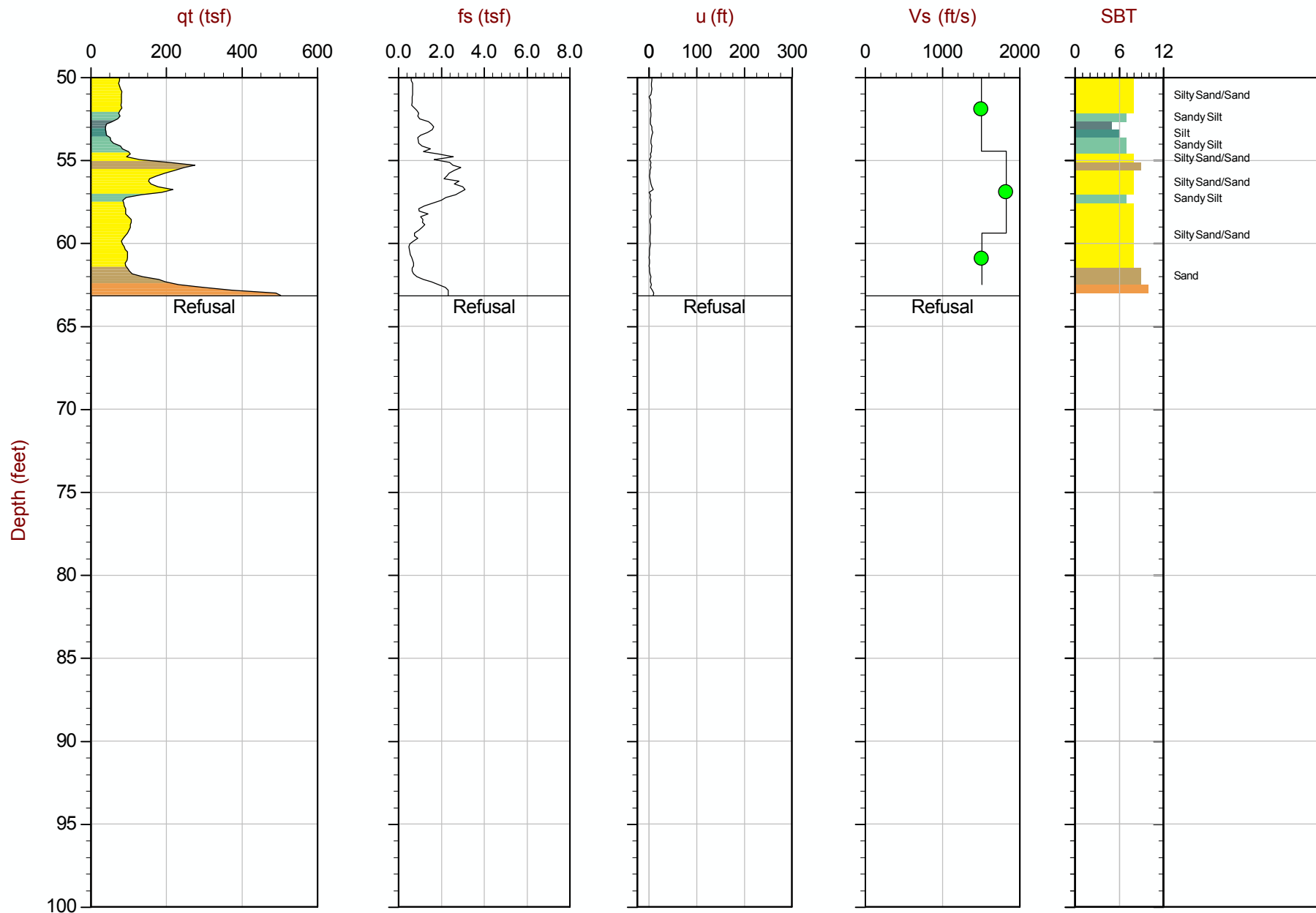
Job No: 13-52118

Date: 11:06:13 10:23

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-10

Cone: 155:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP10.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647833 Long: -108.497217
● Equilibrium Pore Pressure from Dissipation



MWH Americas

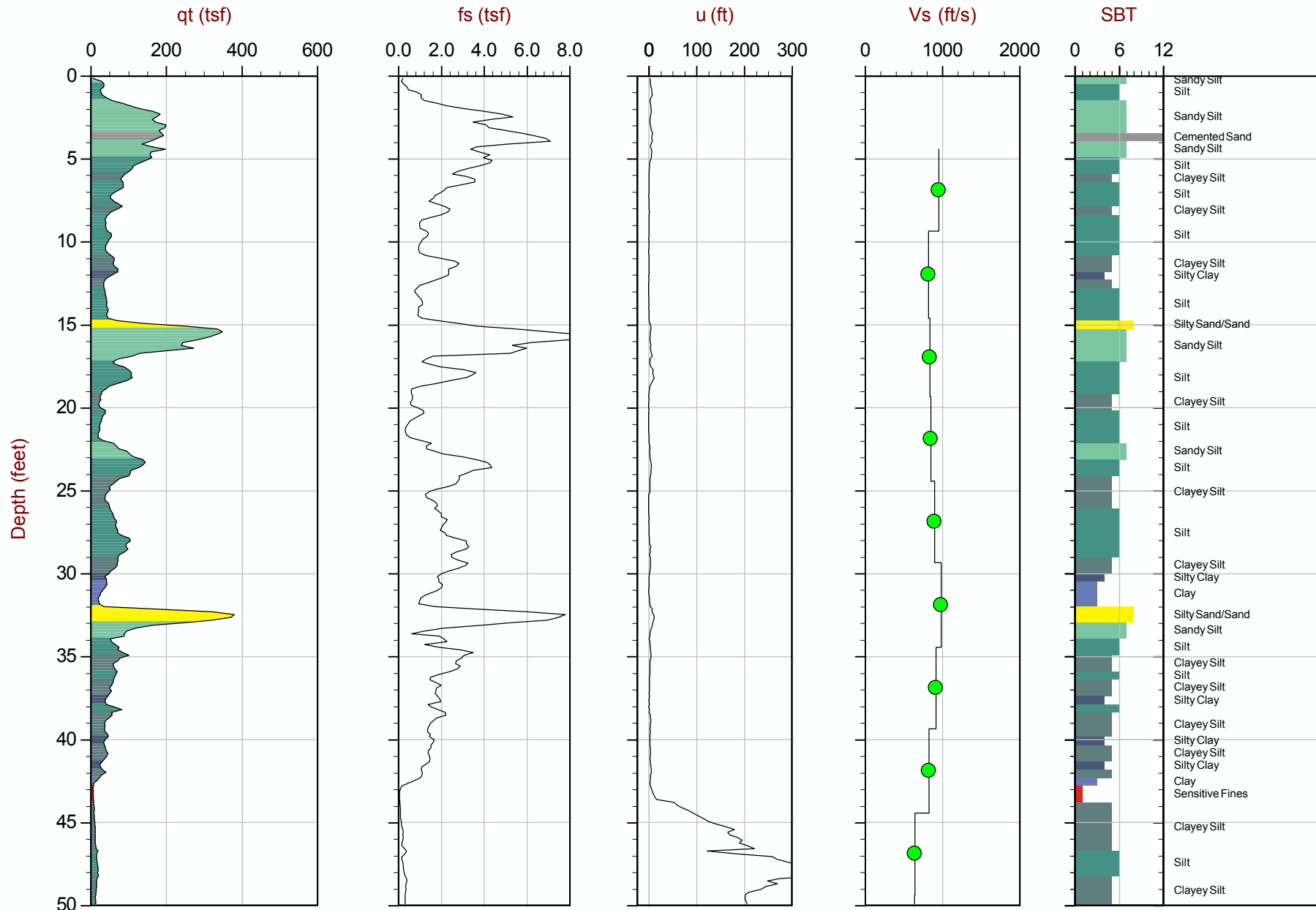
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Sounding: RCPT-11

Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

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Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647650 Long: -108.495850
● Equilibrium Pore Pressure from Dissipation



MWH Americas

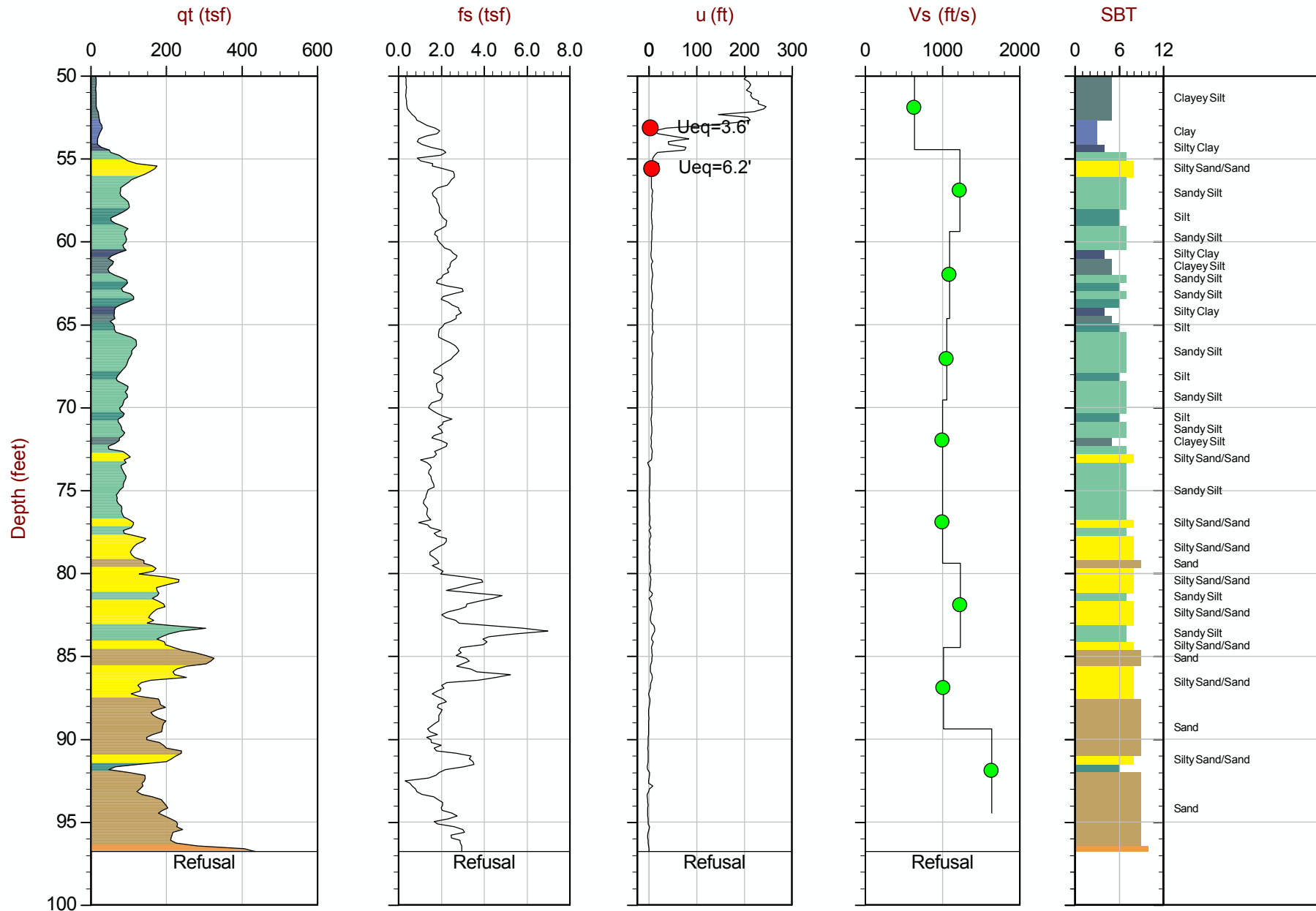
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-11

Cone: 155:T1500F15U500



Max Depth: 29.500 m / 96.78 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP11.COR
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SBT: Lunne, Robertson and Powell, 1997
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● Equilibrium Pore Pressure from Dissipation



MWH Americas

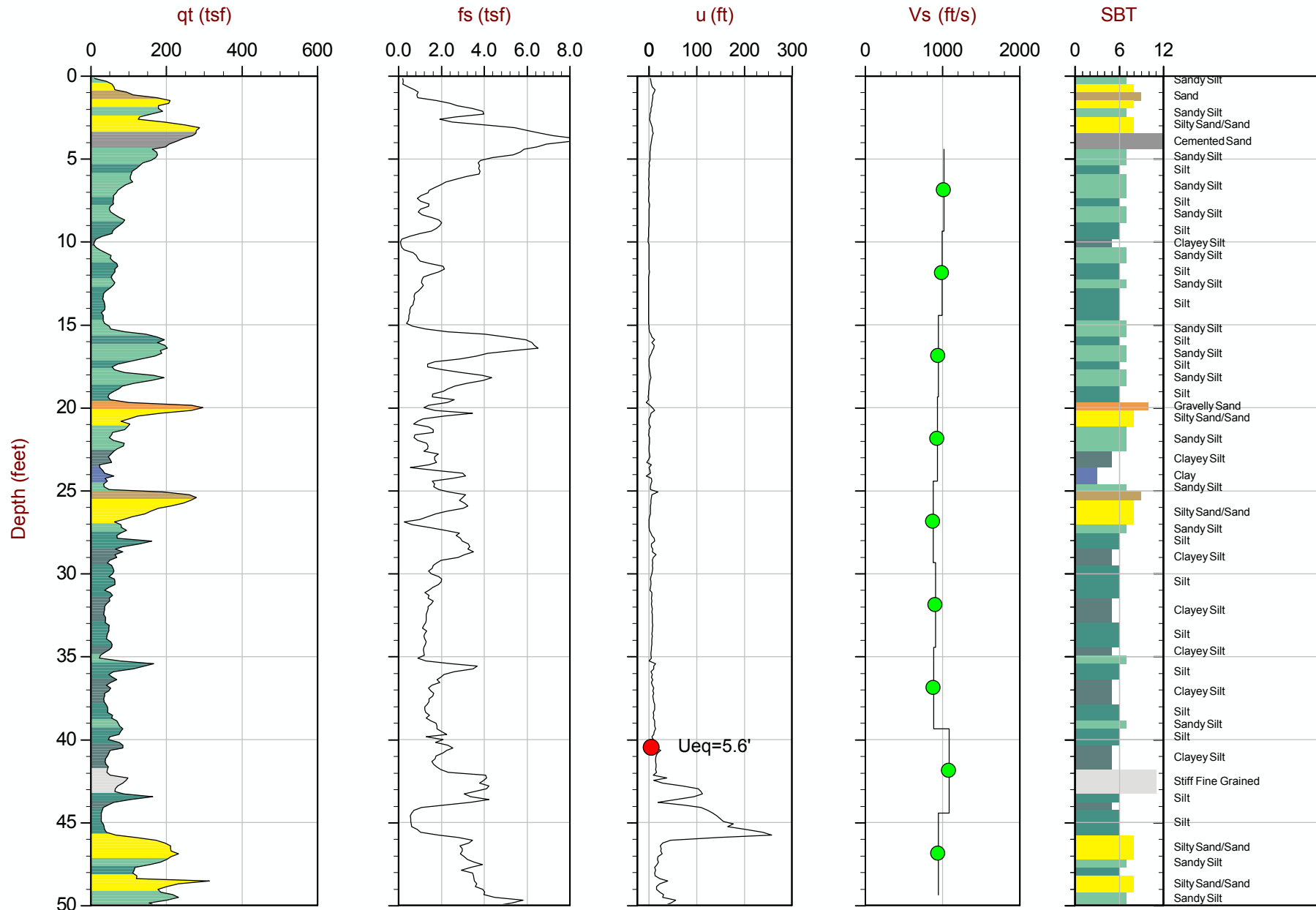
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Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155:T1500F15U500



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
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SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647150 Long: -108.496000
● Equilibrium Pore Pressure from Dissipation



MWH Americas

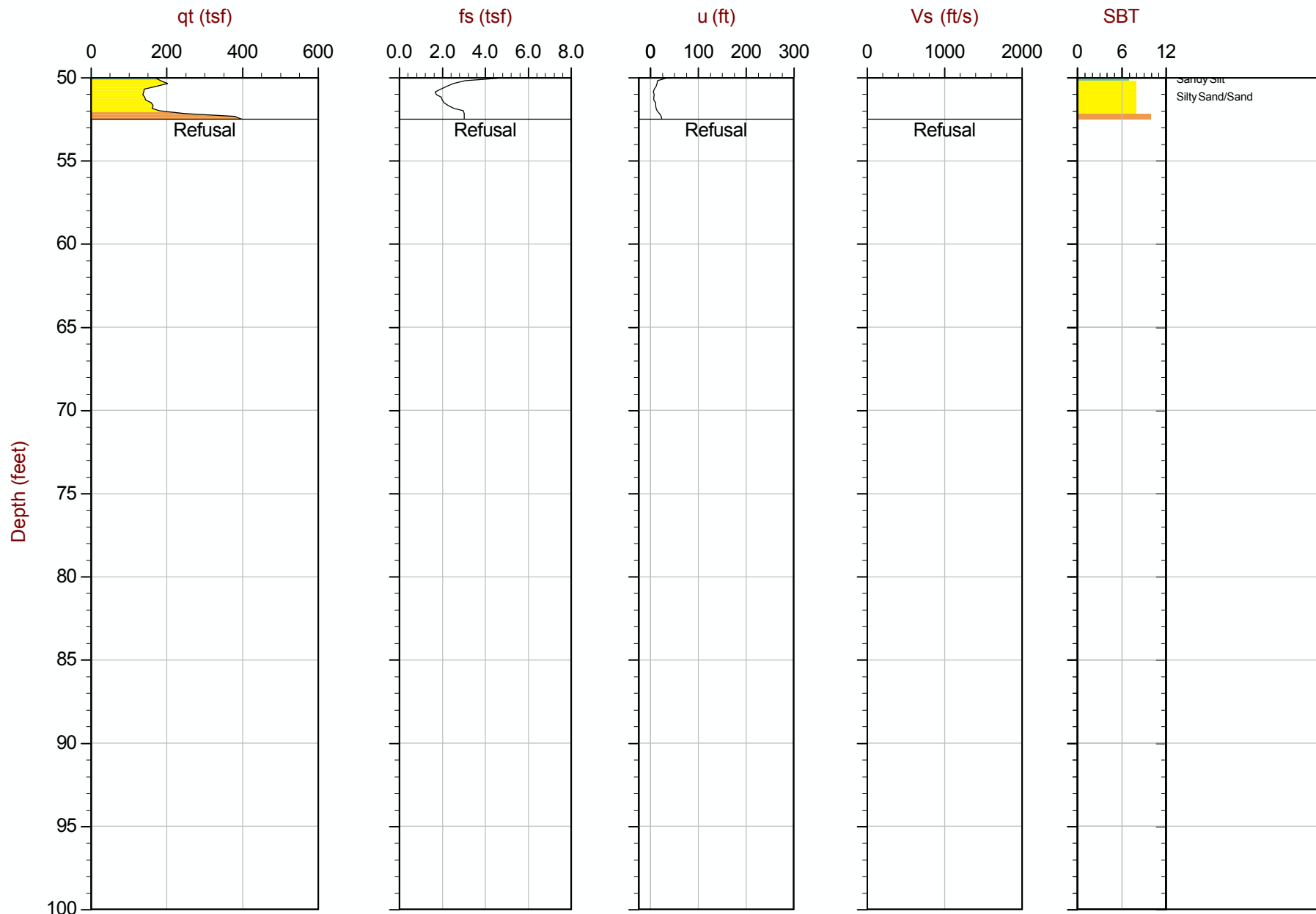
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Date: 11:07:13 10:22

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-12

Cone: 155:T1500F15U500



Max Depth: 16.000 m / 52.49 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP12.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
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● Equilibrium Pore Pressure from Dissipation



MWH Americas

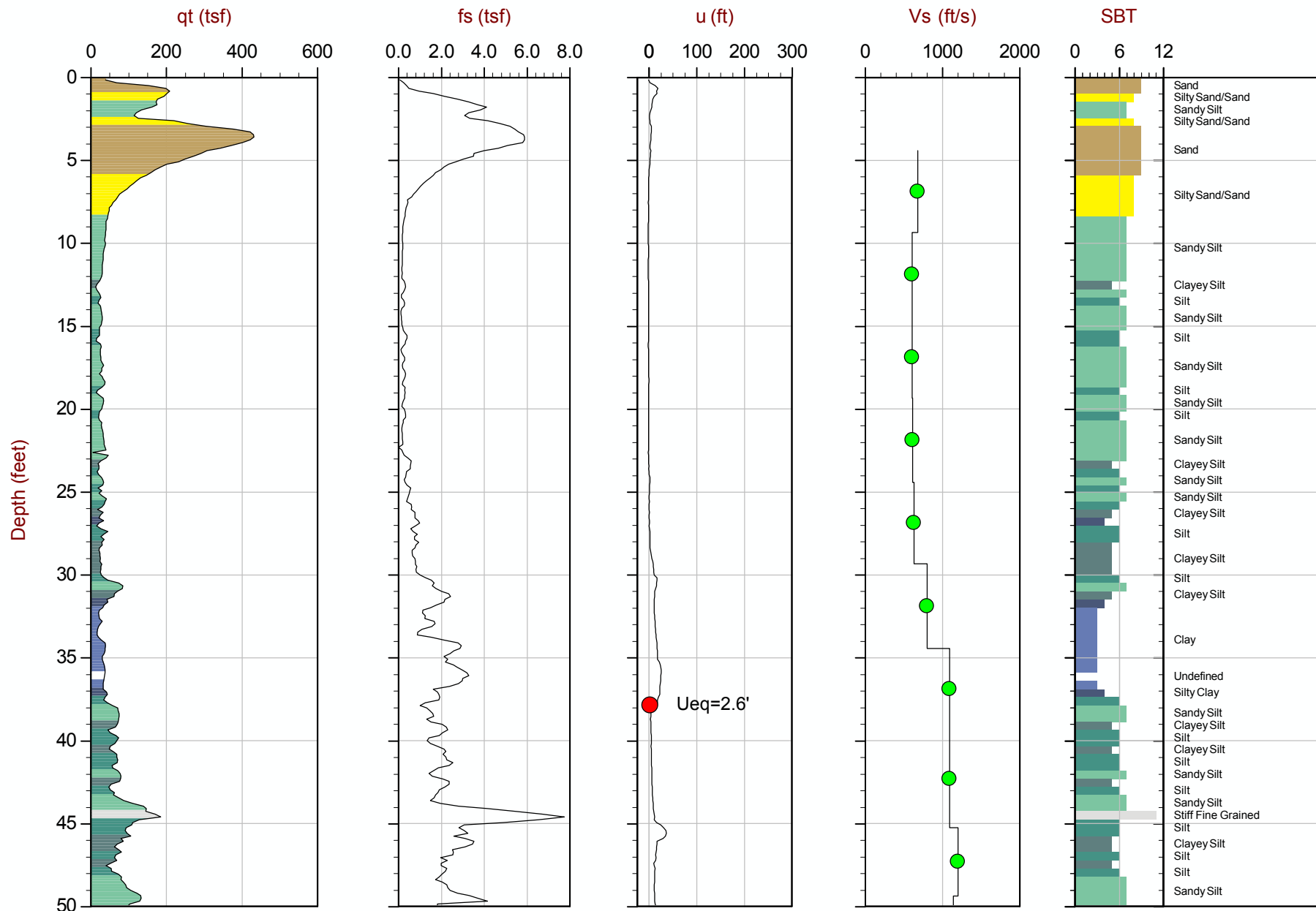
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation



MWH Americas

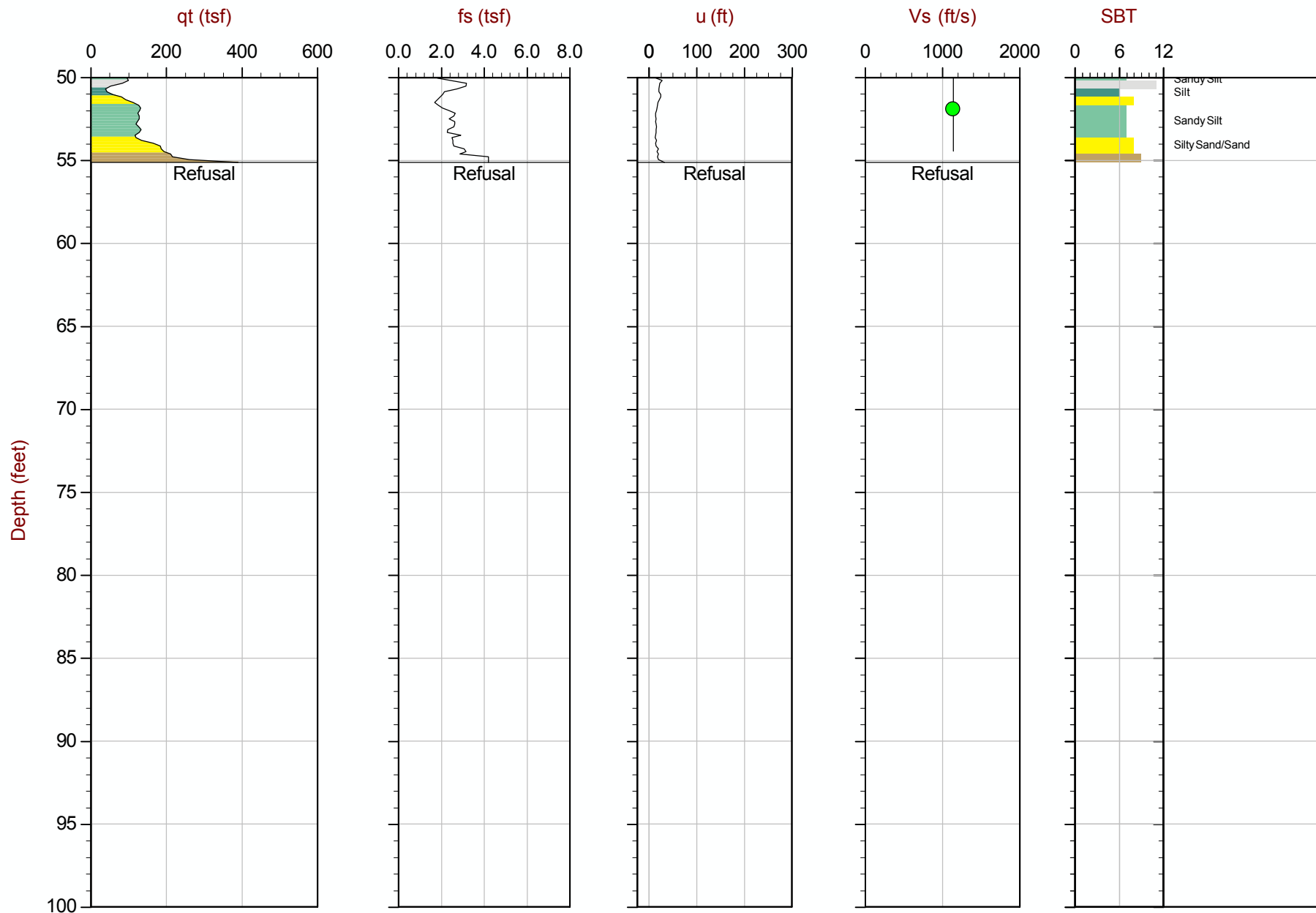
Job No: 13-52118

Date: 11:06:13 16:32

Site: CHURCH ROCK MILL SITE TSF

Sounding: RCPT-15

Cone: 155:T1500F15U500



Max Depth: 16.800 m / 55.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.150 m

File: 13-52118_RP15.COR
Unit Wt: SBT Chart Soil Zones

SBT: Lunne, Robertson and Powell, 1997
Coords: Lat: 35.647583 Long: -108.499800
● Equilibrium Pore Pressure from Dissipation

References

CONETEC INTERPRETATION METHODS

A Detailed Description of the Methods Used in ConeTec's CPT Interpretation and Plotting Software



Revision SZW-Rev 05A
April 8, 2011

Prepared by Jim Greig





ConeTec Interpretations as of April 8, 2011

ConeTec's interpretation routine provides a tabular output of geotechnical parameters based on current published CPT correlations and is subject to change to reflect the current state of practice. The interpreted values are not considered valid for all soil types. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Reference to current literature is strongly recommended. ConeTec does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the program and does not assume liability for any use of the results in any design or review. Representative hand calculations should be made for any parameter that is critical for design purposes. The end user of the interpreted output should also be fully aware of the techniques and the limitations of any method used in this program. The purpose of this document is to inform the user as to which methods were used and what the appropriate papers and/or publications are for further reference.

The CPT interpretations are based on values of tip, sleeve friction and pore pressure averaged over a user specified interval (e.g. 0.20m). Note that q_t is the tip resistance corrected for pore pressure effects and q_c is the recorded tip resistance. Since all ConeTec cones have equal end area friction sleeves, pore pressure corrections to sleeve friction, f_s , are not required.

The tip correction is: $q_t = q_c + (1-a) \cdot u_2$

where: q_t is the corrected tip resistance

q_c is the recorded tip resistance

u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)

a is the Net Area Ratio for the cone (typically 0.80 for ConeTec cones)

The total stress calculations are based on soil unit weights that have been assigned to the Soil Behavior Type zones, from a user defined unit weight profile or by using a single value throughout the profile.

Effective vertical overburden stresses are calculated based on a hydrostatic distribution of equilibrium pore pressures below the water table or from a user defined equilibrium pore pressure profile (this can be obtained from CPT dissipation tests). For over water projects the effects of the column of water have been taken into account as has the appropriate unit weight of water. How this is done depends on where the instruments were zeroed (i.e. on deck or at mud line).

Details regarding the interpretation methods for all of the interpreted parameters are provided in Table 1. The appropriate references cited in Table 1 are listed in Table 2. Where methods are based on charts or techniques that are too complex to describe in this summary the user should refer to the cited material.

The Soil Behavior Type classification charts (normalized and non-normalized) shown in Figures 1 and 2 are based on the charts developed by Dr. Robertson and Dr. Campanella at the University of British Columbia. These charts appear in many publications, most notably: Robertson, Campanella, Gillespie and Greig (1986); Robertson (1990) and Lunne, Robertson and Powell (1997). The Bq classification charts shown in Figures 3a and 3b are based on those described in Robertson (1990) and Lunne, Robertson and Powell (1997). The Jefferies and Davies SBT chart shown in Figure 3c is based on that discussed in Jefferies and Davies, 1993.

Where the results of a calculation/interpretation are declared 'invalid' the value will be represented by the text strings "-9999" or "-9999.0". In some cases the value 0 will be used. Invalid results will occur because of (and not limited to) one or a combination of:

1. Invalid or undefined CPT data (e.g. drilled out section or data gap).
2. Where the interpretation method is inappropriate, for example, drained parameters in an undrained material (and vice versa).

3. Where interpretation input values are beyond the range of the referenced charts or specified limitations of the interpretation method.
4. Where pre-requisite or intermediate interpretation calculations are invalid.

The parameters selected for output from the program are often specific to a particular project. As such, not all of the interpreted parameters listed in Table 1 may be included in the output files delivered with this report.

The output files are provided in Microsoft Excel XLS format. The ConeTec software has several options for output depending on the number or types of interpreted parameters desired. Each output file will be named using the original COR file basename followed by a three or four letter indicator of the interpretation set selected (e.g. BSC, TBL, NLI or IFI) and possibly followed by an operator selected suffix identifying the characteristics of the particular interpretation run.

Table 1
CPT Interpretation Methods

Interpreted Parameter	Description	Equation	Ref
Depth	Mid Layer Depth (where interpretations are done at each point then Mid Layer Depth = Recorded Depth)	$Depth (Layer Top) + Depth (Layer Bottom) / 2.0$	
Elevation	Elevation of Mid Layer based on sounding collar elevation supplied by client	$Elevation = Collar Elevation - Depth$	
Avgqc	Averaged recorded tip value (q_c)	$Avgqc = \frac{1}{n} \sum_{i=1}^n q_c$ $n=1$ when interpretations are done at each point	
Avgqt	Averaged corrected tip (q_t) where: $q_t = q_c + (1 - a) \bullet u$	$Avgqt = \frac{1}{n} \sum_{i=1}^n q_t$ $n=1$ when interpretations are done at each point	
Avgfs	Averaged sleeve friction (f_s)	$Avgfs = \frac{1}{n} \sum_{i=1}^n f_s$ $n=1$ when interpretations are done at each point	
AvgRf	Averaged friction ratio (Rf) where friction ratio is defined as: $Rf = 100\% \bullet \frac{f_s}{qt}$	$AvgRf = 100\% \bullet \frac{Avgfs}{Avgqt}$ $n=1$ when interpretations are done at each point	
Avgu	Averaged dynamic pore pressure (u)	$Avgu = \frac{1}{n} \sum_{i=1}^n u_i$ $n=1$ when interpretations are done at each point	
AvgRes	Averaged Resistivity (this data is not always available since it is a specialized test requiring an additional module)	$Avgu = \frac{1}{n} \sum_{i=1}^n RESISTIVITY_i$ $n=1$ when interpretations are done at each point	
AvgUVIF	Averaged UVIF ultra-violet induced fluorescence (this data is not always available since it is a specialized test requiring an additional module)	$Avgu = \frac{1}{n} \sum_{i=1}^n UVIF_i$ $n=1$ when interpretations are done at each point	
AvgTemp	Averaged Temperature (this data is not always available since it is a specialized test)	$Avgu = \frac{1}{n} \sum_{i=1}^n TEMPERATURE_i$ $n=1$ when interpretations are done at each point	

Interpreted Parameter	Description	Equation	Ref
AvgGamma	Averaged Gamma Counts (this data is not always available since it is a specialized test requiring an additional module)	$Avg\gamma = \frac{1}{n} \sum_{i=1}^n GAMMA_i$ <i>n=1 when interpretations are done at each point</i>	
SBT	Soil Behavior Type as defined by Robertson and Campanella	See Figure 1	2, 5
U.Wt.	Unit Weight of soil determined from one of the following user selectable options: 1) uniform value 2) value assigned to each SBT zone 3) user supplied unit weight profile	See references	5
T. Stress σ_v	Total vertical overburden stress at Mid Layer Depth. <i>A layer is defined as the averaging interval specified by the user. For data interpreted at each point the Mid Layer Depth is the same as the recorded depth.</i>	$TStress = \sum_{i=1}^n \gamma_i h_i$ where γ_i is layer unit weight h_i is layer thickness	
E. Stress σ_v'	Effective vertical overburden stress at Mid Layer Depth	$Estress = Tstress - u_{eq}$	
Ueq	Equilibrium pore pressure determined from one of the following user selectable options: 1) hydrostatic from water table depth 2) user supplied profile	For hydrostatic option: $u_{eq} = \gamma_w \cdot (D - D_{wt})$ where u_{eq} is equilibrium pore pressure γ_w is unit weight of water D is the current depth D_{wt} is the depth to the water table	
Cn	SPT N_{60} overburden correction factor	$Cn = (\sigma_v')^{-0.5}$ where σ_v' is in tsf $0.5 < Cn < 2.0$	
N_{60}	SPT N value at 60% energy calculated from qt/N ratios assigned to each SBT zone. This method has abrupt N value changes at zone boundaries.	See Figure 1	4, 5
$(N_1)_{60}$	SPT N_{60} value corrected for overburden pressure	$(N_1)_{60} = Cn \cdot N_{60}$	4
$N_{60}lc$	SPT N_{60} values based on the lc parameter	$(qt/pt) / N_{60} = 8.5 (1 - lc/4.6)$	5
$(N_1)_{60}lc$	SPT N_{60} value corrected for overburden pressure (using $N_{60}lc$). User has 2 options.	1) $(N_1)_{60}lc = Cn \cdot (N_{60}lc)$ 2) $q_{c1n} / (N_1)_{60}lc = 8.5 (1 - lc/4.6)$	4 5
$(N_1)_{60cs}lc$	Clean sand equivalent SPT $(N_1)_{60}lc$. User has 3 options.	1) $(N_1)_{60cs}lc = \alpha + \beta((N_1)_{60}lc)$ 2) $(N_1)_{60cs}lc = K_{SPT} * ((N_1)_{60}lc)$ 3) $q_{c1ncs} / (N_1)_{60cs}lc = 8.5 (1 - lc/4.6)$ FC ≤ 5%: $\alpha = 0, \beta = 1.0$ FC ≥ 35%: $\alpha = 5.0, \beta = 1.2$ 5% < FC < 35%: $\alpha = \exp[1.76 - (190/FC^2)]$ $\beta = [0.99 + (FC^{1.5}/1000)]$	10 10 5
Su	Undrained shear strength based on q_t Su factor N_{kt} is user selectable	$Su = \frac{qt - \sigma_v}{N_{kt}}$	1, 5
Su	Undrained shear strength based on pore pressure Su factor $N_{\Delta u}$ is user selectable	$Su = \frac{u_2 - u_{eq}}{N_{\Delta u}}$	1, 5
k	Coefficient of permeability (assigned to each SBT zone)		5

Interpreted Parameter	Description	Equation	Ref												
Bq	Pore pressure parameter	$Bq = \frac{\Delta u}{qt - \sigma_v}$ <i>where: $\Delta u = u - u_{eq}$ and u = dynamic pore pressure u_{eq} = equilibrium pore pressure</i>	1, 5												
Qt	Normalized qt for Soil Behavior Type classification as defined by Robertson, 1990	$Qt = \frac{qt - \sigma_v}{\sigma_v}$	2, 5												
Fr	Normalized Friction Ratio for Soil Behavior Type classification as defined by Robertson, 1990	$Fr = 100\% \cdot \frac{fs}{qt - \sigma_v}$	2, 5												
Net qt	Net tip resistance	$qt - \sigma_v$													
qe	Effective tip resistance	$qt - u_2$													
qeNorm	Normalized effective tip resistance	$\frac{qt - u_2}{\sigma_v}$													
SBTn	Normalized Soil Behavior Type as defined by Robertson and Campanella	See Figure 2	2, 5												
SBT-BQ	Non-normalized Soil Behavior type based on the Bq parameter	See Figure 3	2, 5												
SBT-BQn	Normalized Soil Behavior based on the Bq parameter	See Figure 3	2, 5												
SBT-JandD	Soil Behaviour Type as defined by Jeffries and Davies	See Figure 3	7												
SBT-BQn	Normalized Soil Behavior base on the Bq parameter	See Figure 3	2, 5												
Ic	Soil index for estimating grain characteristics	$Ic = [(3.47 - \log_{10}Q)^2 + (\log_{10} Fr + 1.22)^2]^{0.5}$ <i>Where: $Q = \left(\frac{qt - \sigma_v}{P_{a2}} \right) \left(\frac{P_a}{\sigma_v} \right)^n$ And Fr is in percent P_a = atmospheric pressure P_{a2} = atmospheric pressure n varies from 0.5 to 1.0 and is selected in an iterative manner based on the resulting Ic</i>	3, 8												
FC	Apparent fines content (%)	$FC = 1.75(Ic^{3.25}) - 3.7$ $FC = 100 \text{ for } Ic > 3.5$ $FC = 0 \text{ for } Ic < 1.26$ $FC = 5\% \text{ if } 1.64 < Ic < 2.6 \text{ AND } Fr < 0.5$	3												
Ic Zone	This parameter is the Soil Behavior Type zone based on the Ic parameter (valid for zones 2 through 7 on SBTn chart)	<table><tr><td>Ic < 1.31</td><td>Zone = 7</td></tr><tr><td>1.31 < Ic < 2.05</td><td>Zone = 6</td></tr><tr><td>2.05 < Ic < 2.60</td><td>Zone = 5</td></tr><tr><td>2.60 < Ic < 2.95</td><td>Zone = 4</td></tr><tr><td>2.95 < Ic < 3.60</td><td>Zone = 3</td></tr><tr><td>Ic > 3.60</td><td>Zone = 2</td></tr></table>	Ic < 1.31	Zone = 7	1.31 < Ic < 2.05	Zone = 6	2.05 < Ic < 2.60	Zone = 5	2.60 < Ic < 2.95	Zone = 4	2.95 < Ic < 3.60	Zone = 3	Ic > 3.60	Zone = 2	3
Ic < 1.31	Zone = 7														
1.31 < Ic < 2.05	Zone = 6														
2.05 < Ic < 2.60	Zone = 5														
2.60 < Ic < 2.95	Zone = 4														
2.95 < Ic < 3.60	Zone = 3														
Ic > 3.60	Zone = 2														
PHI φ	Friction Angle determined from one of the following user selectable options: a) Campanella and Robertson b) Durgunoglu and Mitchel c) Janbu d) Kulhawy and Mayne	See reference	5 5 5 11												

Interpreted Parameter	Description	Equation	Ref
Dr	Relative Density determined from one of the following user selectable options: a) Ticino Sand b) Hokksund Sand c) Schmertmann 1976 d) Jamiolkowski - All Sands	See reference	5
OCR	Over Consolidation Ratio	a) Based on Schmertmann's method involving a plot of S_u/σ_v' / $(S_u/\sigma_v')_{NC}$ and OCR where the S_u/p' ratio for NC clay is user selectable	9
State Parameter	The state parameter is used to describe whether a soil is contractive (SP is positive) or dilative (SP is negative) at large strains based on the work by Been and Jefferies	See reference	8, 6, 5
Es/qt	Intermediate parameter for calculating Young's Modulus, E, in sands. It is the Y axis of the reference chart.	Based on Figure 5.59 in the reference	5
Young's Modulus E	Young's Modulus based on the work done in Italy. There are three types of sands considered in this technique. The user selects the appropriate type for the site from: a) OC Sands b) Aged NC Sands c) Recent NC Sands Each sand type has a family of curves that depend on mean normal stress. The program calculates mean normal stress and linearly interpolates between the two extremes provided in the Es/qt chart.	Mean normal stress is evaluated from: $\sigma'_m = \frac{1}{3} (\sigma'_v + \sigma'_h + \sigma'_{h'})$ where σ'_v = vertical effective stress σ'_h = horizontal effective stress and $\sigma'_h = K_0 \cdot \sigma'_v$ with K_0 assumed to be 0.5	5
q_{c1}	q_t normalized for overburden stress used for seismic analysis	$q_{c1} = q_t \cdot (Pa/\sigma_v')^{0.5}$ where: Pa = atm. Pressure q_t is in MPa	3
q_{c1n}	q_{c1} in dimensionless form used for seismic analysis	$q_{c1n} = (q_{c1} / Pa)(Pa/\sigma_v')^n$ where: Pa = atm. Pressure and n ranges from 0.5 to 0.75 based on I_c .	3
K_{SPT}	Equivalent clean sand factor for $(N_1)_{60}$	$K_{SPT} = 1 + ((0.75/30) \cdot (FC - 5))$	10
K_{CPT}	Equivalent clean sand correction for q_{c1n}	$K_{cpt} = 1.0$ for $I_c \leq 1.64$ $K_{cpt} = f(I_c)$ for $I_c > 1.64$ (see reference)	10
q_{c1ncs}	Clean sand equivalent q_{c1n}	$q_{c1ncs} = q_{c1n} \cdot K_{cpt}$	3
CRR	Cyclic Resistance Ratio (for Magnitude 7.5)	$q_{c1ncs} < 50$: $CRR_{7.5} = 0.833 [(q_{c1ncs}/1000) + 0.05]$ $50 \leq q_{c1ncs} < 160$: $CRR_{7.5} = 93 [(q_{c1ncs}/1000)^3 + 0.08]$	10

Interpreted Parameter	Description	Equation	Ref
CSR	Cyclic Stress Ratio	$CSR = (\tau_{av}/\sigma_v') = 0.65 (a_{max} / g) (\sigma_v / \sigma_v') r_d$ $r_d = 1.0 - 0.00765 z \quad z \leq 9.15m$ $r_d = 1.174 - 0.0267 z \quad 9.15 < z \leq 23m$ $r_d = 0.744 - 0.008 z \quad 23 < z \leq 30m$ $r_d = 0.50 \quad z > 30m$	10
MSF	Magnitude Scaling Factor	See Reference	10
FofS	Factor of Safety against Liquefaction	$FS = (CRR_{7.5} / CSR) MSF$	10
Liquefaction Status	Statement indicating possible liquefaction	Takes into account FofS and limitations based on I_c and q_{c1ncs} .	10
Cont/Dilat Tip	Contractive / Dilative q_{c1} Boundary based on $(N_1)_{60}$	$(\sigma_v')_{boundary} = 9.58 \times 10^{-4} [(N_1)_{60}]^{4.79}$ q_{c1} is calculated from specified q_t (MPa)/N ratio	13
Cq	Normalizing Factor	$Cq = 1.8 / (0.8 + ((\sigma_v'/Pa)))$	12
q_{c1} (Cq)	Normalized tip resistance based on Cq	$q_{c1} = Cq * q_t$ (some papers use q_c)	12
Su(Liq)/s'v	Liquefied Shear Strength Ratio	$\frac{Su(Liq)}{\sigma_v'} = 0.03 + 0.0143(q_{c1})$	13

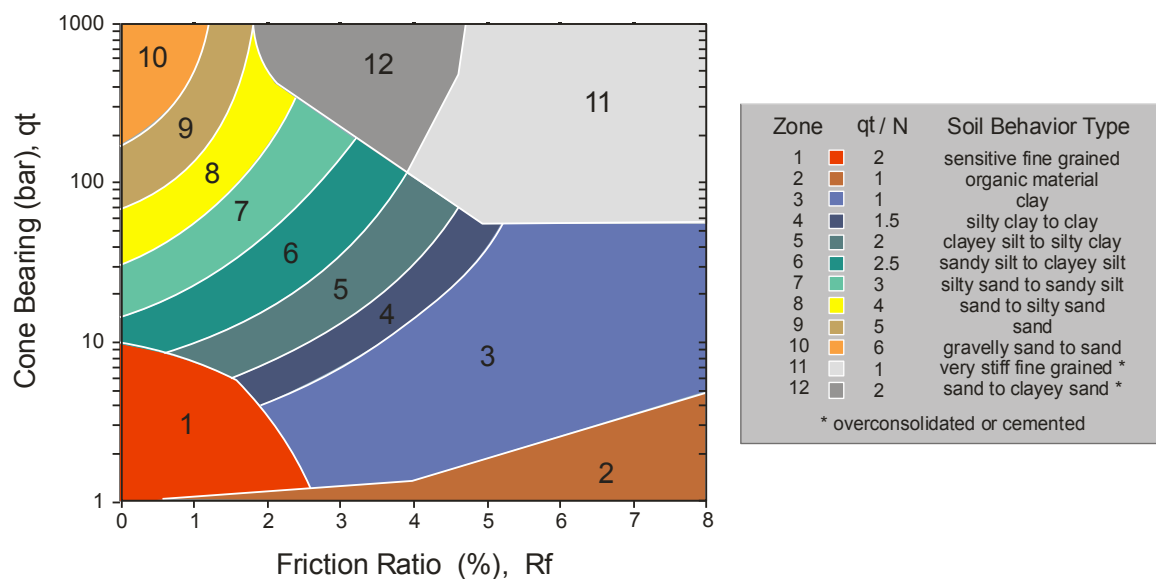


Figure 1 Non-Normalized Behavior Type Classification Chart

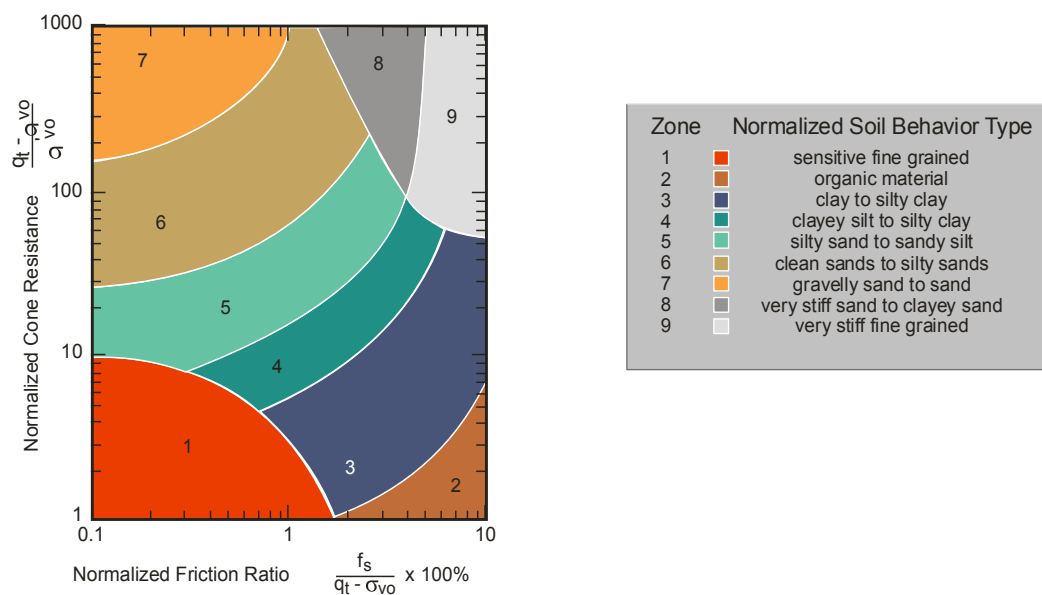


Figure 2 Normalized Behavior Type Classification Chart

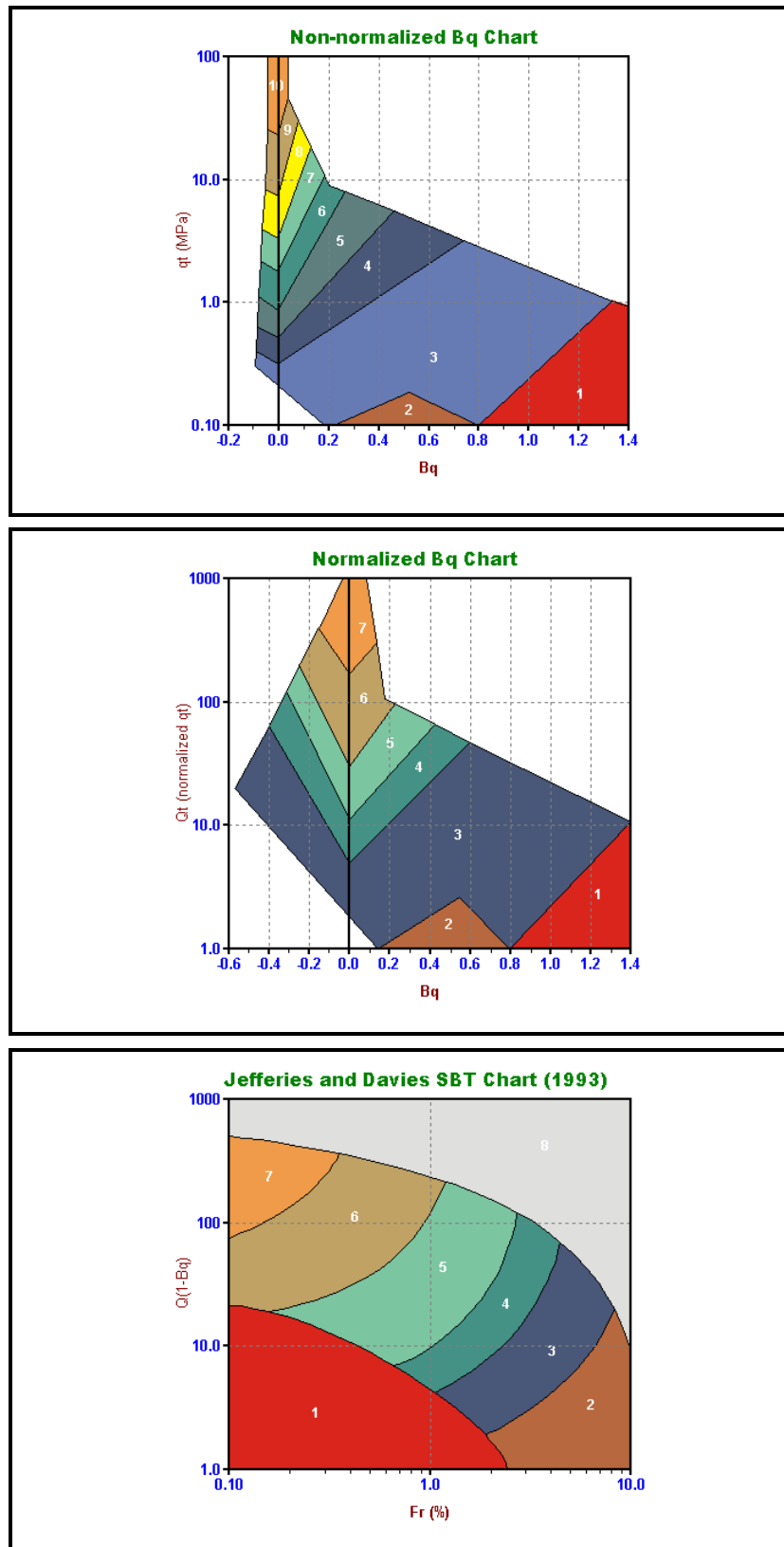


Figure 3 – Alternate Soil Behaviour Type Charts

Table 2 References

No.	References
1	Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.
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10	Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils, Salt Lake City, 1996. Chaired by Leslie Youd. 11
11	Kulhawy, F.H. and Mayne, P.W., 1990, "Manual on Estimating Soil Properties for Foundation Design, Report No. EL-6800", Electric Power Research Institute, Palo Alto, CA, August 1990, 306 p.
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13	Olson, Scott M. and Stark, Timothy D., 2003, "Yield Strength Ratio and Liquefaction Analysis of Slopes and Embankments", Journal of Geotechnical and Geoenvironmental Engineering, ASCE, August 2003.

APPENDIX B2.5

TAILINGS IMPOUNDMENT DRILLING PHOTOGRAPHS

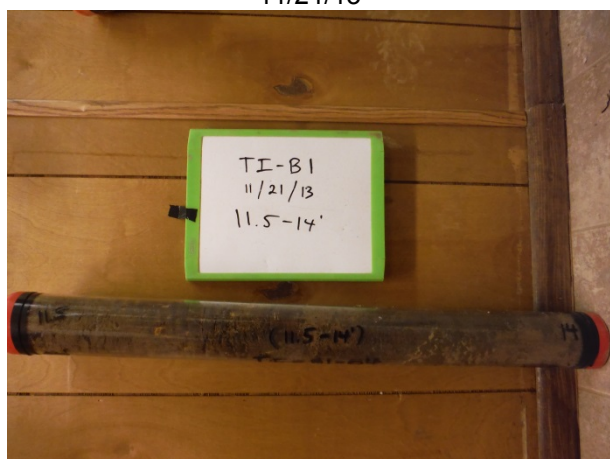
Tailings Impoundment Boring Photos
Northeast Church Rock Mill Site



TI-B1 Before Drilling
11/21/13



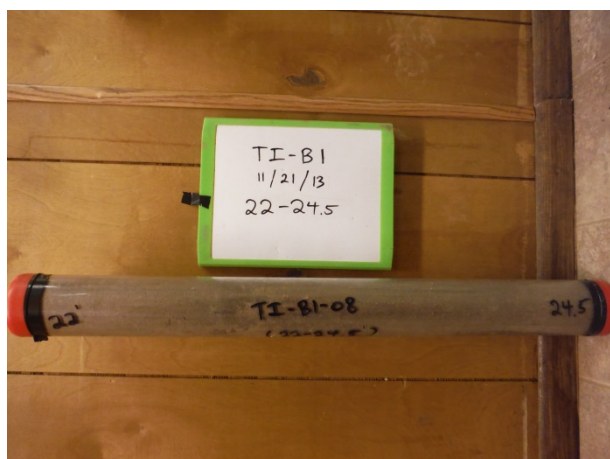
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11/21/13



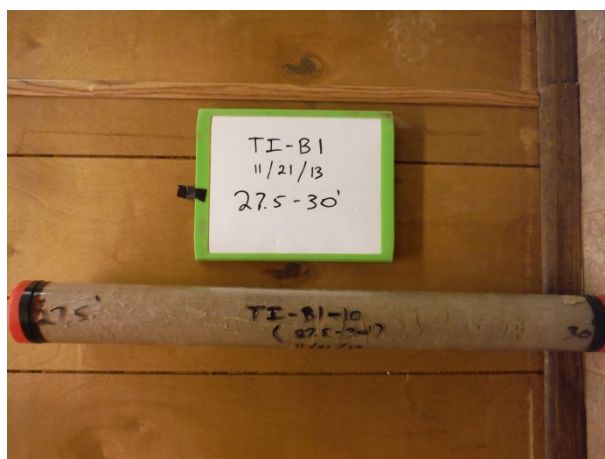
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11/21/13



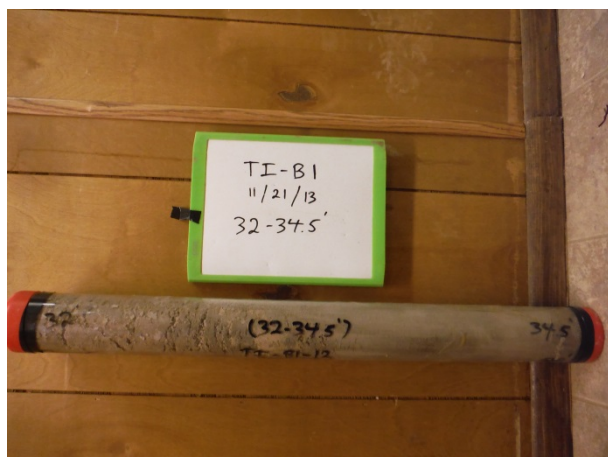
TI-B1 Acrylic Core Liner (16.5' – 19' interval)
11/21/13



TI-B1 Acrylic Core Liner (22' – 24.5' interval)
11/21/13



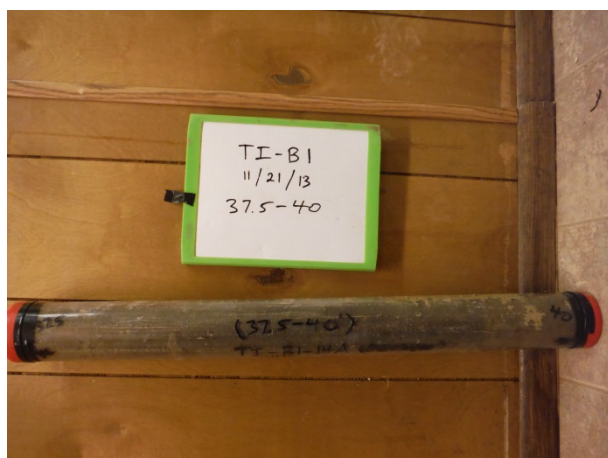
TI-B1 Acrylic Core Liner (27.5' – 30' interval)
11/21/13



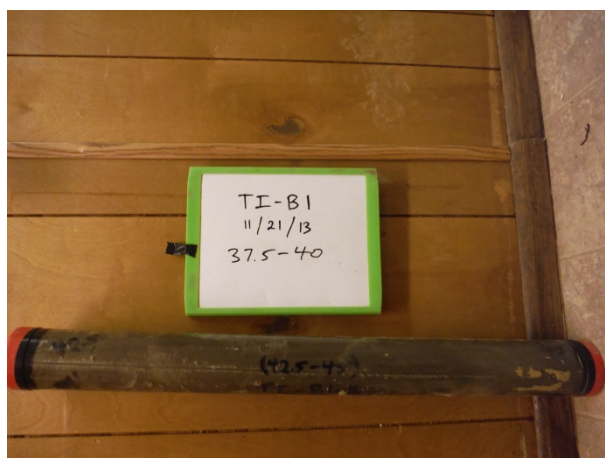
TI-B1 Acrylic Core Liner (32' – 34.5' interval)
11/21/13



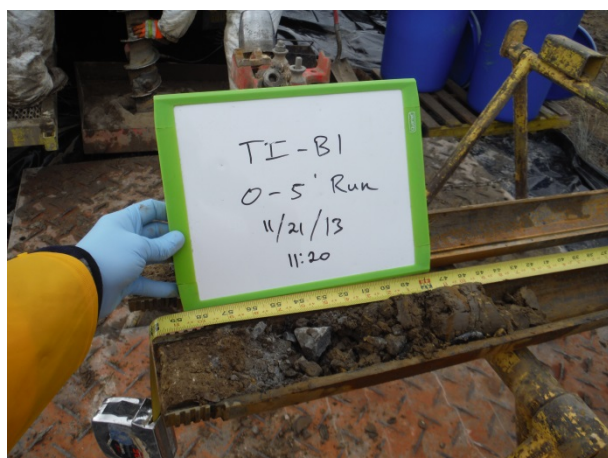
TI-B1 Acrylic Core Liner (36.5' – 37.5' interval)
11/21/13



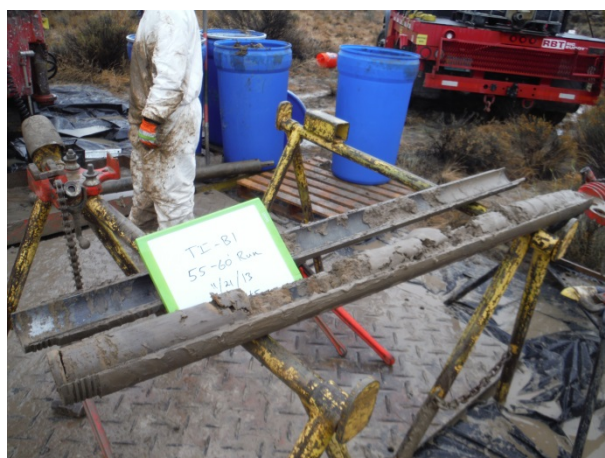
TI-B1 Acrylic Core Liner (37.5' – 40' interval)
11/21/13



TI-B1 Acrylic Core Liner (37.5' – 40' interval)
11/21/13



TI-B1 Core (0' – 5' interval)
11/21/13

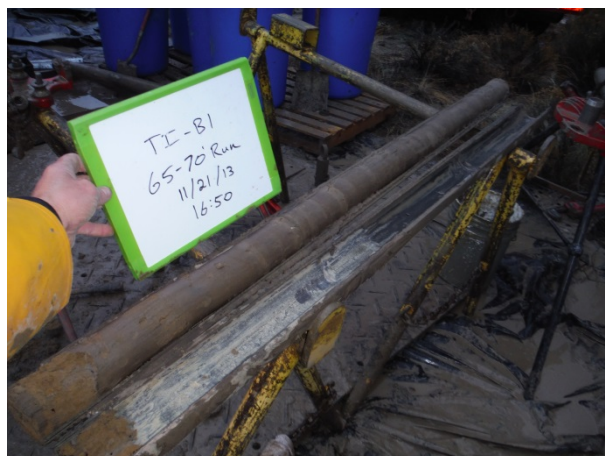


TI-B1 Core (55' – 60' interval)
11/21/13

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TI-B1 Core (60' – 65' interval)
11/21/13



TI-B1 Core (65' – 70' interval)
11/21/13



TI-B1 Core Box #1 (45' – 52' interval)
11/21/13



TI-B1 Core Box #2 (52' – 57.5' interval)
11/21/13



TI-B1 Core Box #3 (57.5' – 62.5' interval)
11/21/13



TI-B1 Core Box #4 (62.5' – 67.5' interval)
11/21/13

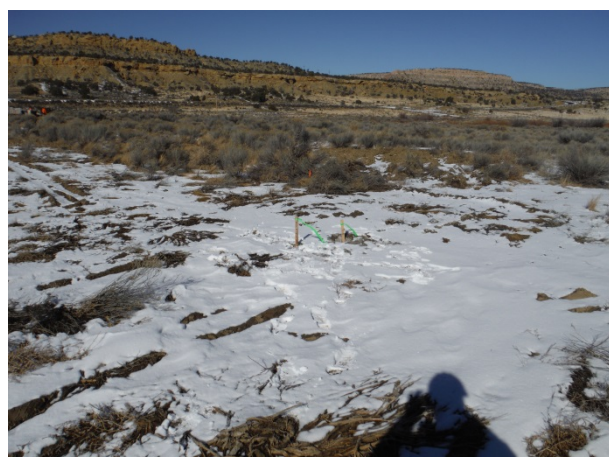
Tailings Impoundment Boring Photos
Northeast Church Rock Mill Site



TI-B1 Core Box #5 (67.5' – 70' interval)
11/21/13



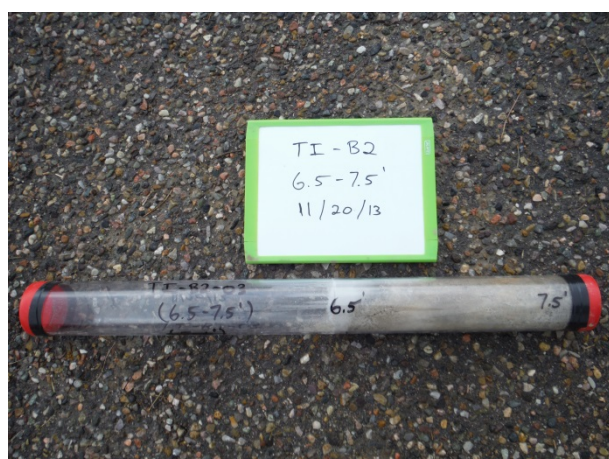
TI-B1 After Grouting
12/13/13



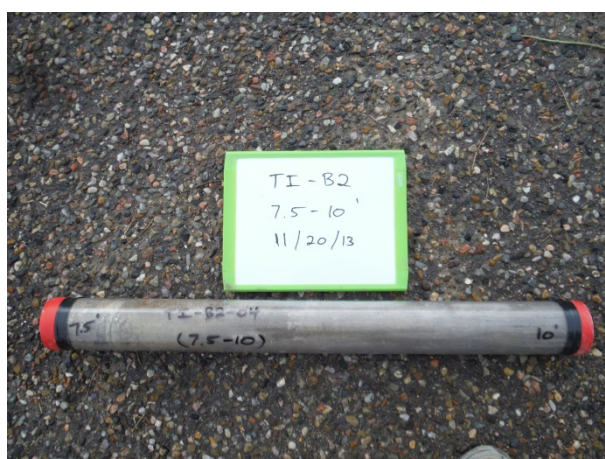
TI-B1 After Drilling and Grouting
12/31/13



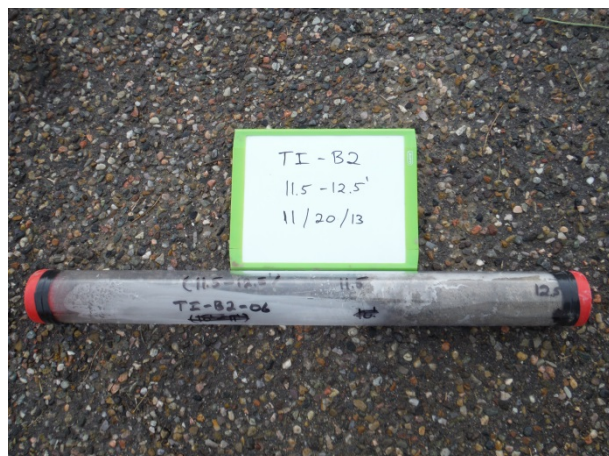
TI-B2 Before Drilling
11/20/13



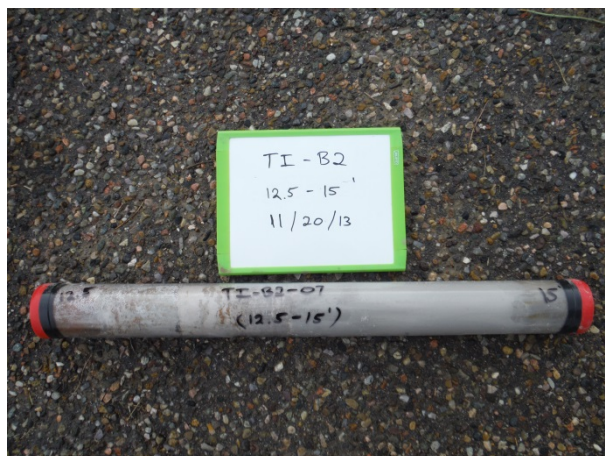
TI-B2 Acrylic Core Liner (6.5' – 7' interval)
11/20/13



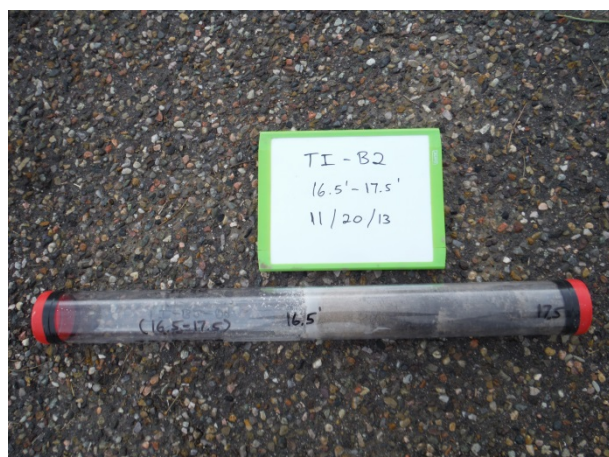
TI-B2 Acrylic Core Liner (7.5' – 10' interval)
11/20/13



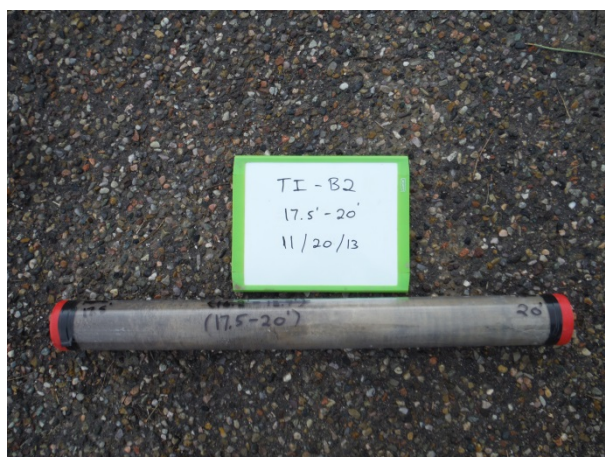
TI-B2 Acrylic Core Liner (11.5' - 12.5' interval)
11/20/13



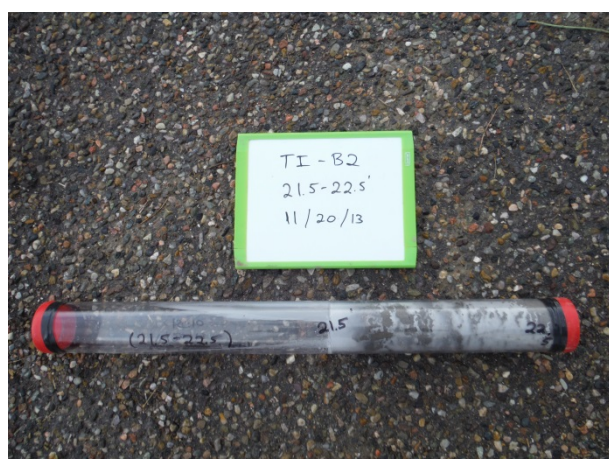
TI-B2 Acrylic Core Liner (12.5' - 15' interval)
11/20/13



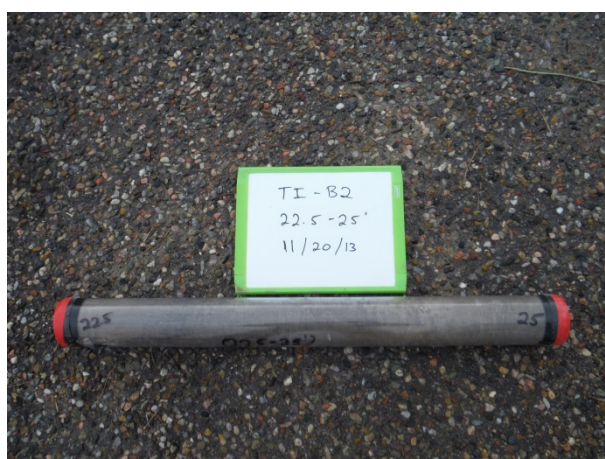
TI-B2 Acrylic Core Liner (16.5' - 17.5' interval)
11/20/13



TI-B2 Acrylic Core Liner (17.5' - 20' interval)
11/20/13



TI-B2 Acrylic Core Liner (21.5' - 22.5' interval)
11/20/13



TI-B2 Acrylic Core Liner (22.5' - 25' interval)
11/20/13

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TI-B2 Core (25' – 30' interval)
11/20/13



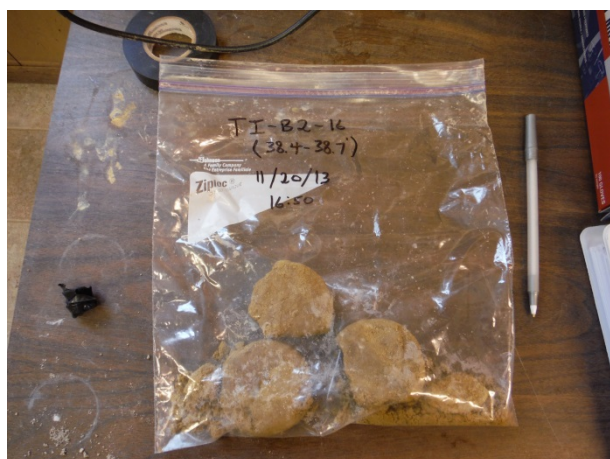
TI-B2 Core Box #1 (25' – 30' interval)
11/20/13



TI-B2 Core Box #2 (30' – 35' interval)
11/20/13



TI-B2 Core Box #3 (35' – 38.7' interval)
11/20/13



TI-B2 Bagged Core Sample (38.4' – 38.7' interval)
11/20/13



TI-B2 After Grouting
12/13/13

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TI-B2 After Drilling and Grouting
12/13/13



TI-B3 Before Drilling
11/19/13



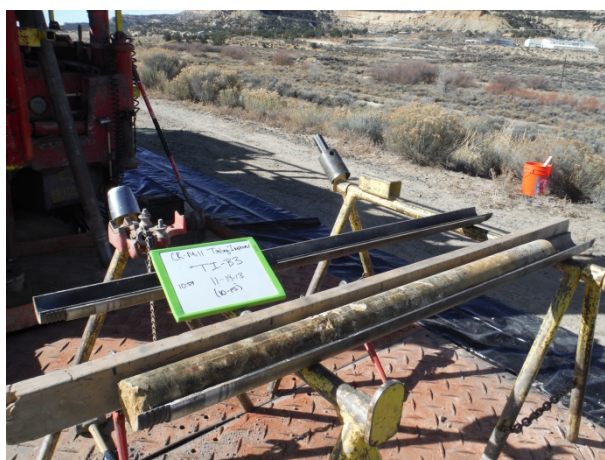
TI-B3 Rig Setup
11/19/13



TI-B3 Core (0' – 5' interval)
11/19/13



TI-B3 Core (5' – 10' interval)
11/19/13



TI-B3 Core (10' – 15' interval)
11/19/13

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TI-B3 Core (15' – 20' interval)
11/19/13



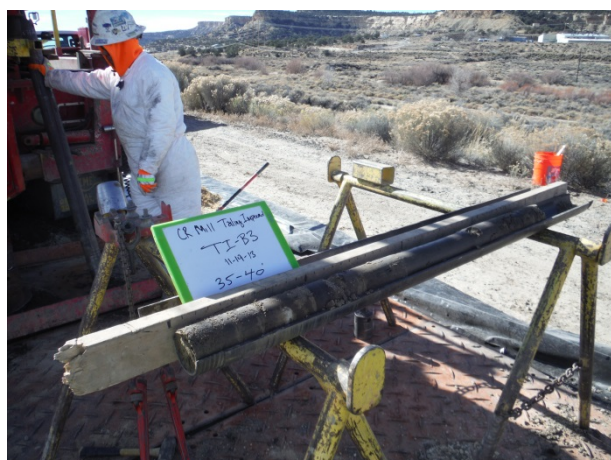
TI-B3 Core (20' – 25' interval)
11/19/13



TI-B3 Core (25' – 30' interval)
11/19/13



TI-B3 Core (30' – 35' interval)
11/19/13

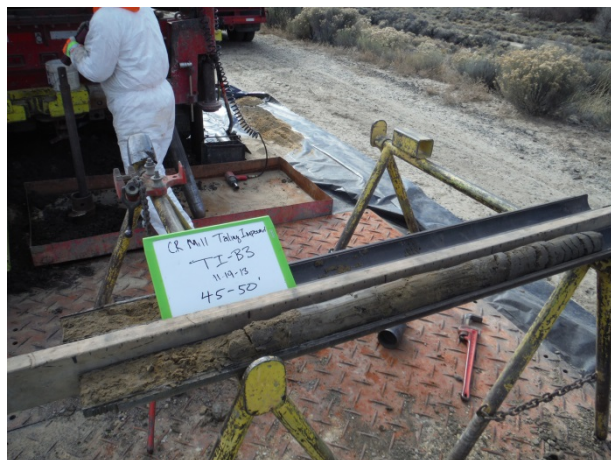


TI-B3 Core (35' – 40' interval)
11/19/13



TI-B3 Core (40' – 45' interval)
11/19/13

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TI-B3 Core (45' – 50' interval)
11/19/13



TI-B3 Core (50' – 55' interval)
11/19/13



TI-B3 Core (55' – 60' interval)
11/19/13



TI-B3 Core (60' – 65' interval)
11/19/13



TI-B3 Core (65' – 70' interval)
11/19/13



TI-B3 Core Box #1 (0' – 10' interval)
11/19/13

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TI-B3 Core Box #2 (10' – 15' interval)
11/19/13



TI-B3 Core Box #3 (15' – 21.5' interval)
11/19/13



TI-B3 Core Box #4 (21.5' – 27' interval)
11/19/13



TI-B3 Core Box #5 (27' – 32.5' interval)
11/19/13



TI-B3 Core Box #6 (32.5' – 37.5' interval)
11/19/13



TI-B3 Core Box #7 (37.5' – 44' interval)
11/19/13

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TI-B3 Core Box #8 (44' – 50' interval)
11/19/13



TI-B3 Core Box #9 (50' – 60' interval)
11/19/13



TI-B3 Core Box #10 (60' – 70' interval)
11/19/13



TI-B3 Waxing Shelby Tube Sample
11/19/13



TI-B3 Grouting the Hole
11/20/13



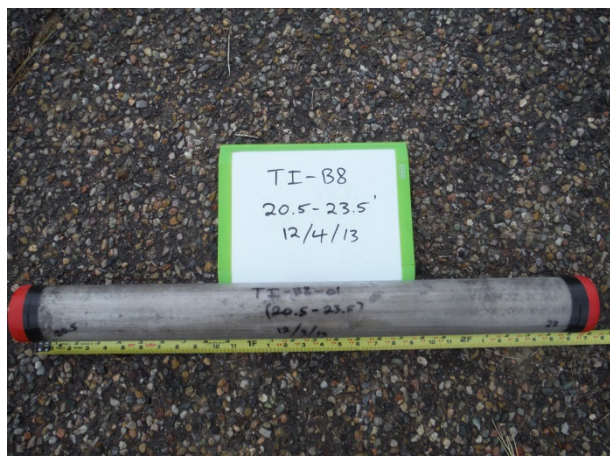
TI-B3 After Grouting
12/13/13



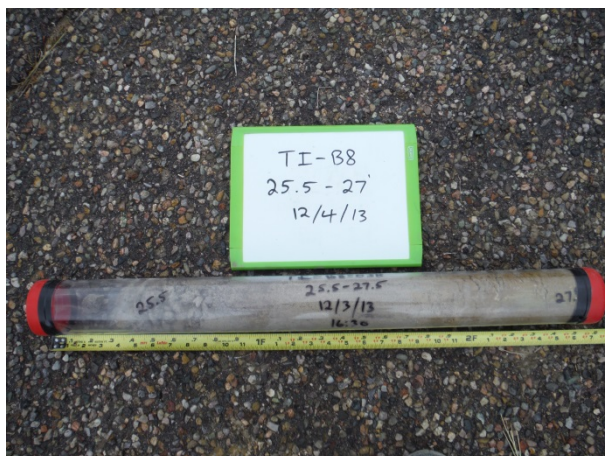
TI-B3 After Drilling and Grouting
12/13/13



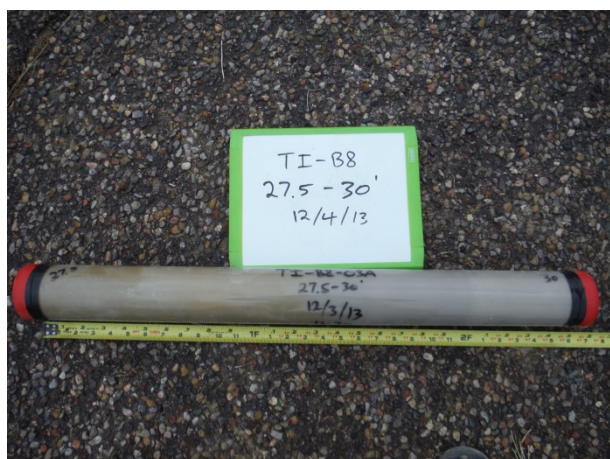
TI-B8 Before Drilling
12/3/13



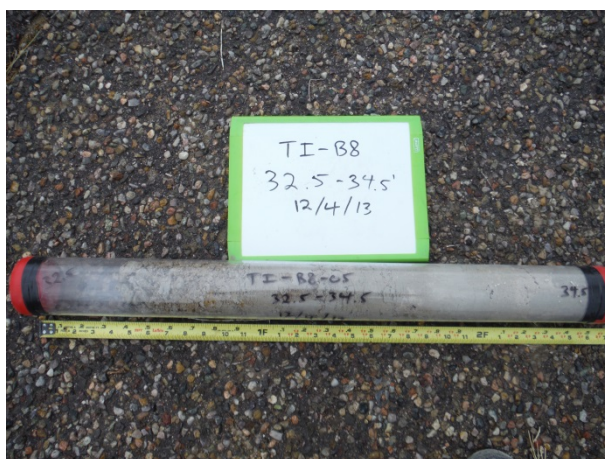
TI-B8 Acrylic Core Liner (20.5' – 23' interval)
12/4/13



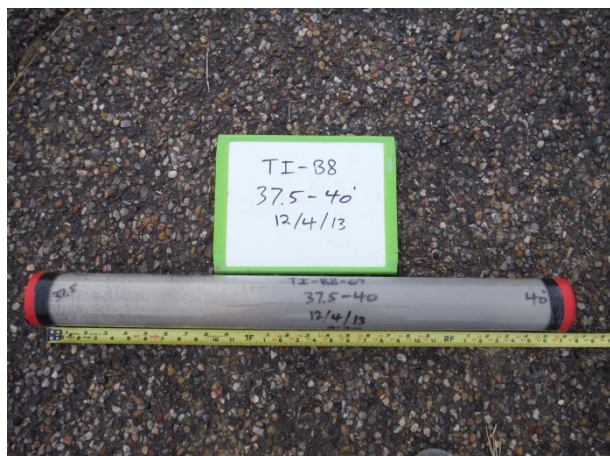
TI-B8 Acrylic Core Liner (25.5' – 27.5' interval)
12/4/13



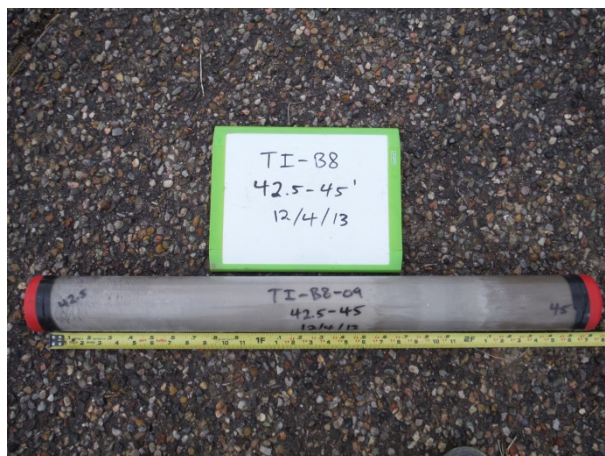
TI-B8 Acrylic Core Liner (27.5' – 30' interval)
12/4/13



TI-B8 Acrylic Core Liner (32.5' – 34.5' interval)
12/4/13



TI-B8 Acrylic Core Liner (37.5' – 40' interval)
12/4/13



TI-B8 Acrylic Core Liner (42.5' – 45' interval)
12/4/13



TI-B8 Core (45' – 50' interval)
12/4/13



TI-B8 Core (55' – 60' interval)
12/4/13



TI-B8 Core (60' – 64' interval)
12/4/13



TI-B8 Core (64' – 65' interval)
12/4/13

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TI-B8 Core Box #1 (45' – 52.5' interval)
12/4/13



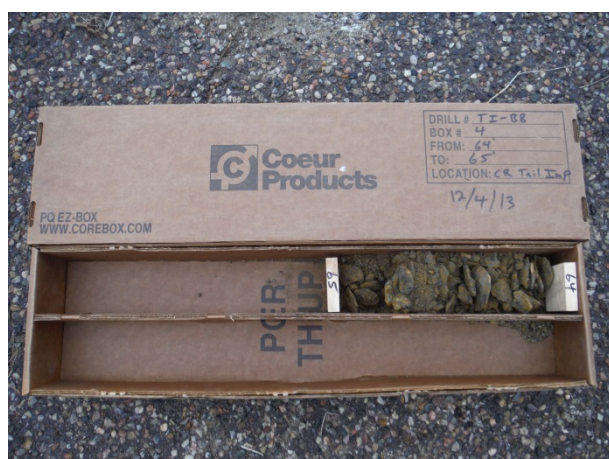
TI-B8 Core Box #2 (52.5' – 59' interval)
12/4/13



TI-B8 Core Box #3 (59' – 64' interval)
12/4/13



TI-B8 Bagged Core Sample (63.5' – 64' interval)
12/4/13



TI-B8 Core Box #4 (64' – 65' interval)
12/4/13



TI-B8 After Grouting
12/9/13

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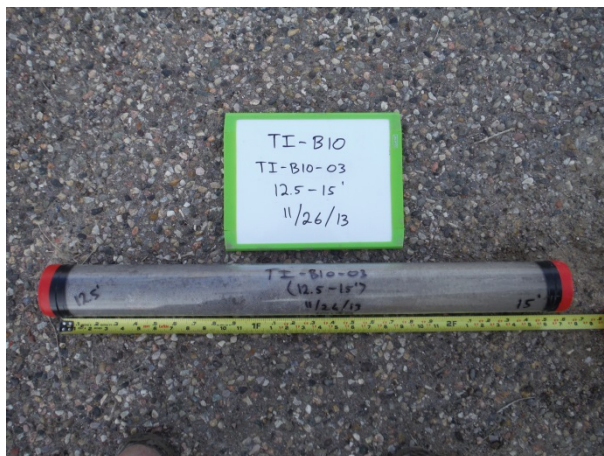
TI-B8 After Drilling and Grouting
12/13/13



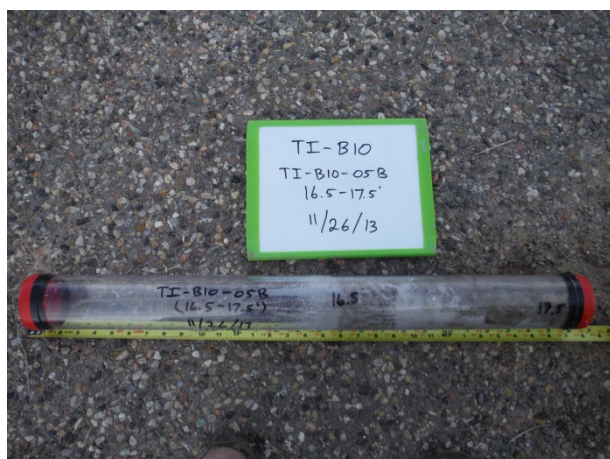
TI-B10 Before Drilling
11/26/13



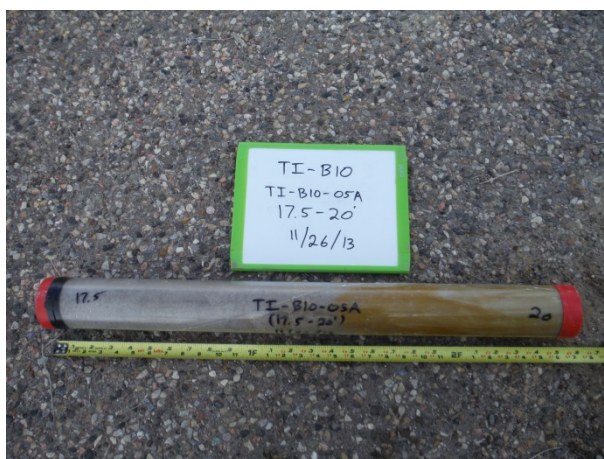
TI-B10 Rig and Plastic
11/26/13



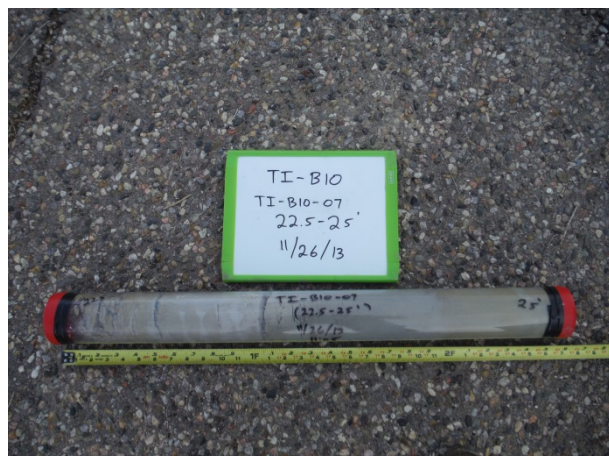
TI-B10 Acrylic Core Liner (12.5' – 15' interval)
11/26/13



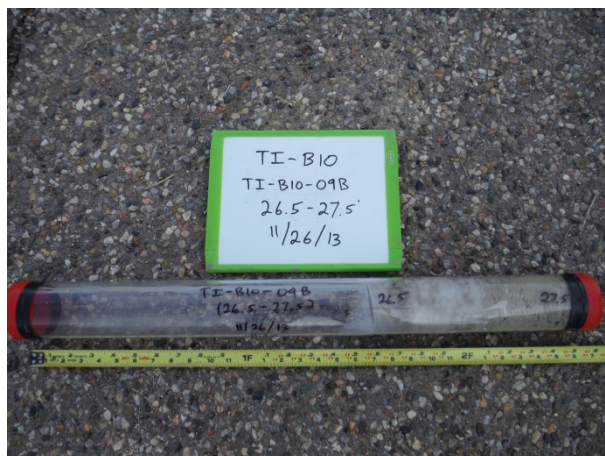
TI-B10 Acrylic Core Liner (16.5' – 17.5' interval)
11/26/13



TI-B10 Acrylic Core Liner (17.5' – 20' interval)
11/26/13



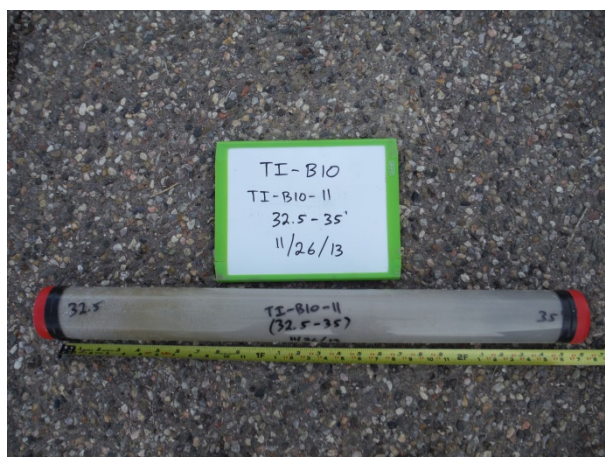
TI-B10 Acrylic Core Liner (22.5' – 25' interval)
11/26/13



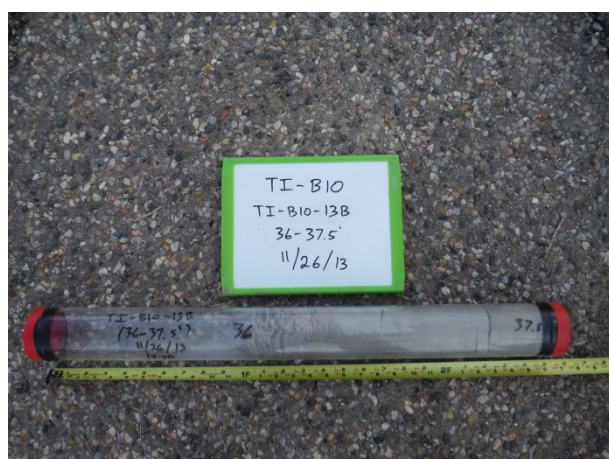
TI-B10 Acrylic Core Liner (26.5' – 27.5' interval)
11/26/13



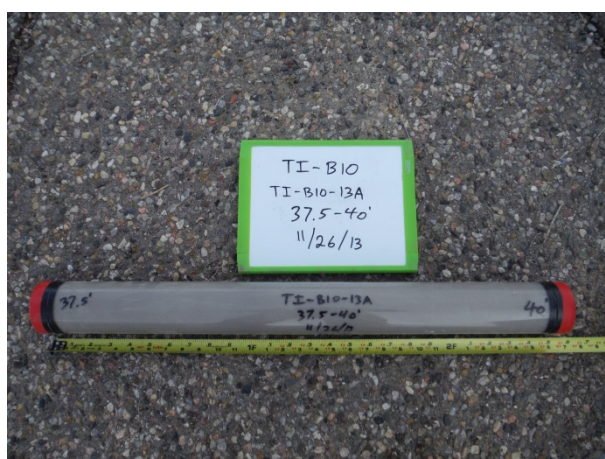
TI-B10 Acrylic Core Liner (27.5' – 30' interval)
11/26/13



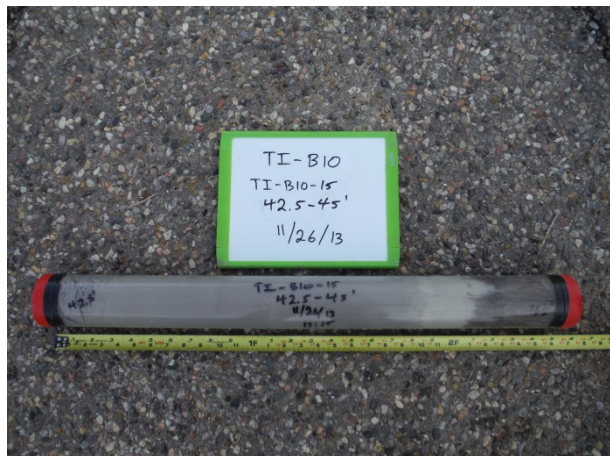
TI-B10 Acrylic Core Liner (32.5' – 35' interval)
11/26/13



TI-B10 Acrylic Core Liner (36' – 37.5' interval)
11/26/13



TI-B10 Acrylic Core Liner (37.5' – 40' interval)
11/26/13



TI-B10 Acrylic Core Liner (42.5' – 45' interval)
11/26/13



TI-B10 Core (0' – 5' interval)
11/26/13



TI-B10 Core (5' – 10' interval)
11/26/13



TI-B10 Core (40' depth)
11/26/13



TI-B10 Core (50' – 55' depth)
11/26/13



TI-B10 Core (55' – 60' interval)
11/26/13

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TI-B10 Core (60' – 65' interval)
11/26/13



TI-B10 Core (65' – 70' interval)
11/26/13



TI-B10 Core (75' – 80' interval)
11/26/13



TI-B10 Core (80' – 85' interval)
11/26/13



TI-B10 Core (85' – 90' interval)
11/26/13



TI-B10 Core (90' – 95' interval)
11/27/13

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TI-B10 Core (95' – 100' interval)
11/27/13



TI-B10 Core (100' – 105' interval)
11/27/13



TI-B10 Core (105' – 108' interval)
11/27/13



TI-B10 Bagged Core (106.9' – 107.3' interval)
11/27/13



TI-B10 Bagged Core (107.9' – 108' interval)
11/27/13



TI-B10 Core Box #1 (0' – 8' interval)
11/26/13

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TI-B10 Core Box #2 (8' – 8.8' interval)
11/26/13



TI-B10 Core Box #3 (45' – 51.5' interval)
11/26/13



TI-B10 Core Box #4 (51.5' – 57.5' interval)
11/26/13



TI-B10 Core Box #5 (57.5' – 65' interval)
11/26/13



TI-B10 Core Box #6 (65' – 71' interval)
11/26/13



TI-B10 Core Box #7 (71' – 78' interval)
11/26/2013

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TI-B10 Core Box #8 (78' – 85' interval)
11/26/13



TI-B10 Core Box #9 (85' – 90' interval)
11/26/13



TI-B10 Core Box #10 (90' – 96.6' interval)
11/27/13



TI-B10 Core Box #11 (96.6' – 103' interval)
11/27/13

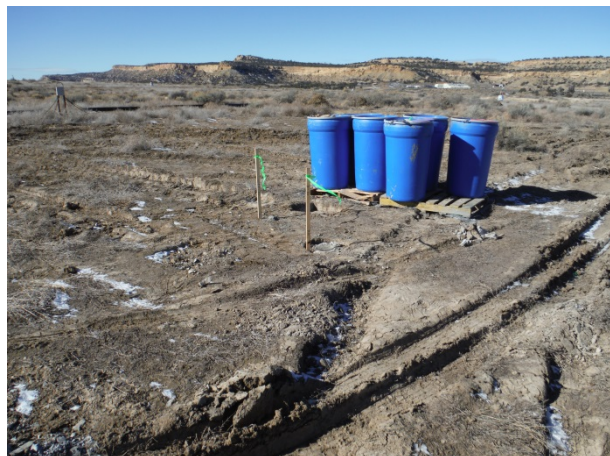


TI-B10 Core Box #12 (106' – 108' interval)
11/27/13



TI-B10 After Grouting
12/7/13

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TI-B10 After Drilling and Grouting
12/7/13



TI-B11 Before Drilling
12/2/13



TI-B11 Acrylic Core Liner (52.5' – 55' interval)
12/2/13



TI-B11 Acrylic Core Liner (56' – 57.5' interval)
12/2/13



TI-B11 Acrylic Core Liner (57.5' – 60' interval)
12/2/13



TI-B11 Core (0' – 5' interval)
12/2/13



TI-B11 Core (5' - 10' interval)
12/2/13



TI-B11 Core (10' - 15' interval)
12/2/13



TI-B11 Core (15' - 20' interval)
12/2/13



TI-B11 Core (20' - 25' interval)
12/2/13



TI-B11 Core (30' - 34' interval)
12/2/13



TI-B11 Metallic Debris (from 34' - 38' Cuttings)
12/2/13



TI-B11 Core (40' - 45' interval)
12/2/13



TI-B11 at 45.5' (Bottom of CA sample)
12/2/13



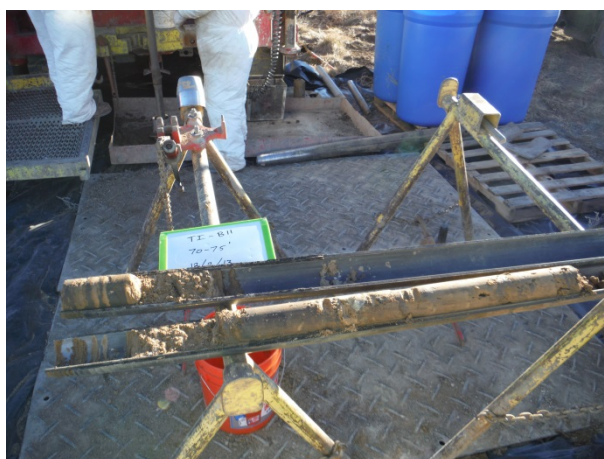
TI-B11 at 46.5' (Bottom of CA sample)
12/2/13



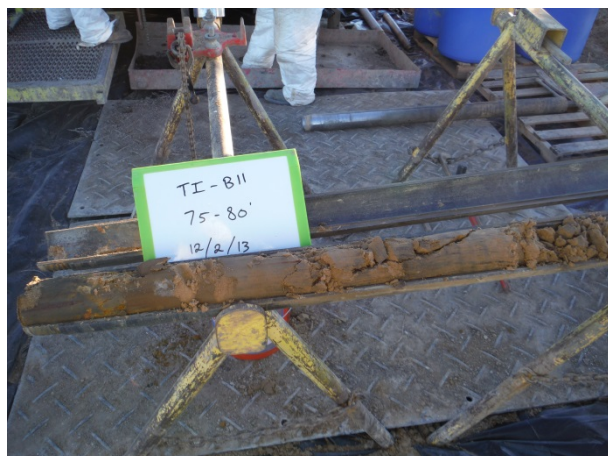
TI-B11 at 52.5' (Tip of Shelby tube)
12/2/13



TI-B11 Core (60' - 65' interval)
12/2/13



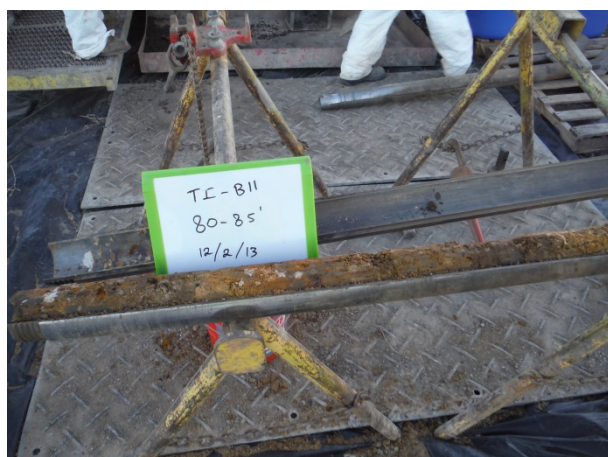
TI-B11 Core (70' - 75' interval)
12/2/13



TI-B11 Core (75' - 80' interval)
12/2/13



TI-B11 Bagged Core Sample (77.5' - 78' interval)
12/2/13



TI-B11 Core (80' - 85' interval)
12/2/13



TI-B11 Core (85' - 90' interval)
12/3/13

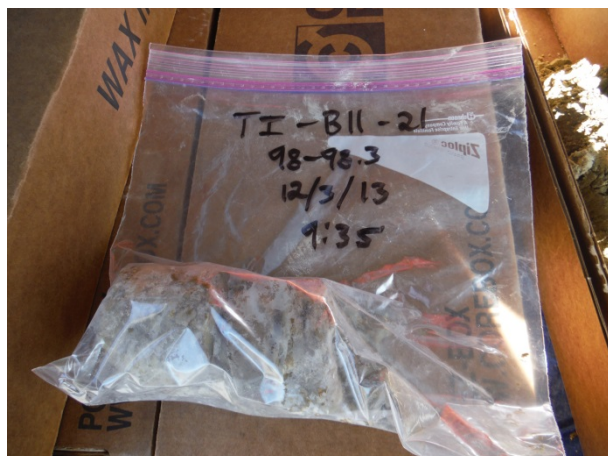


TI-B11 Core (90' - 95' interval)
12/3/13



TI-B11 Core (95' - 100' interval)
12/3/13

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TI-B11 Bagged Core Sample (98' – 98.3' interval)
12/3/13



TI-B11 Core (100' – 103' interval)
12/3/13



TI-B11 Core Box #1 (0' – 10' interval)
12/2/13



TI-B11 Core Box #2 (10' – 18' interval)
12/2/13



TI-B11 Core Box #3 (18' – 23.5' interval)
11/4/13



TI-B11 Core Box #4 (23.5' – 28.5' interval)
12/2/13

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TI-B11 Core Box #5 (28.5' – 34' interval)
12/2/13



TI-B100 Core Box #6 (40' – 45' interval)
12/2/13



TI-B11 Core Box #7 (45' – 50' interval)
12/2/13



TI-B11 Core Box #8 (60' – 66' interval)
12/2/13



TI-B11 Core Box #9 (66' – 71.5' interval)
12/2/13



TI-B11 Core Box #10 (71.5' – 78' interval)
12/2/13

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TI-B11 Core Box #11 (80' – 85' interval)
12/2/13



TI-B11 Core Box #12 (85' – 92' interval)
12/3/13



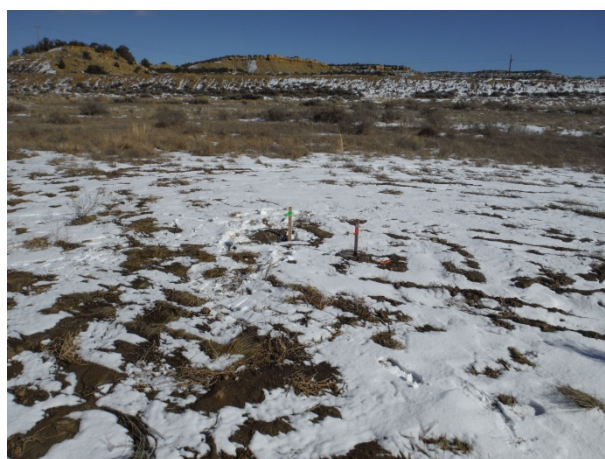
TI-B11 Core Box #13 (92' – 98' interval)
12/3/13



TI-B11 Core Box #14 (98' – 103' interval)
12/3/13



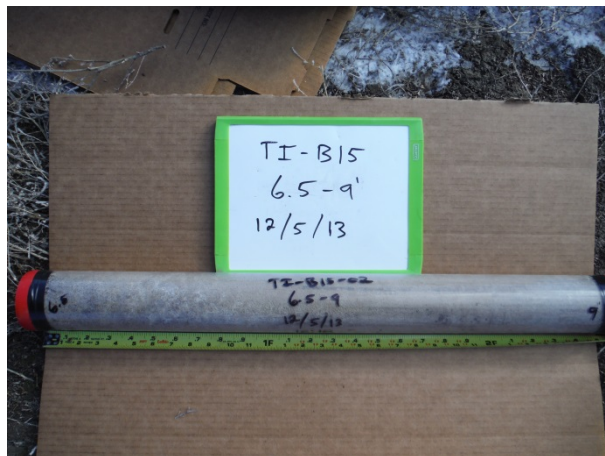
TI-B11 After Grouting
12/13/13



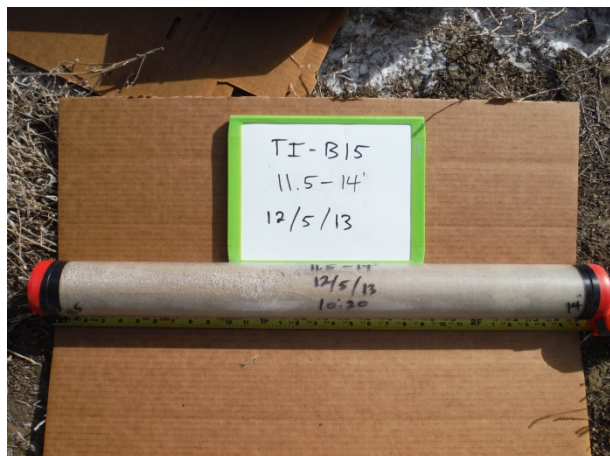
TI-B11 After Drilling and Grouting
12/13/13



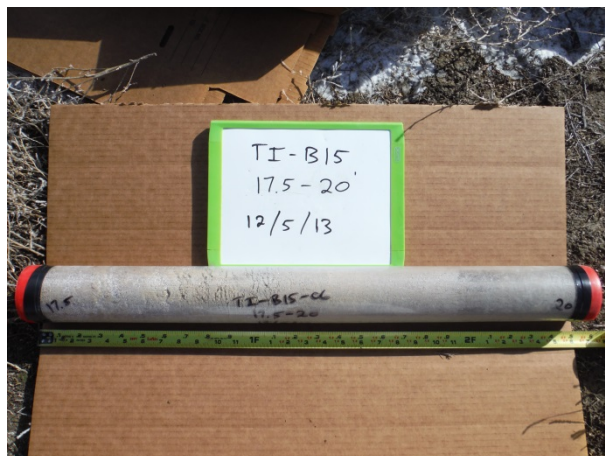
TI-B15 Before Drilling
12/3/13



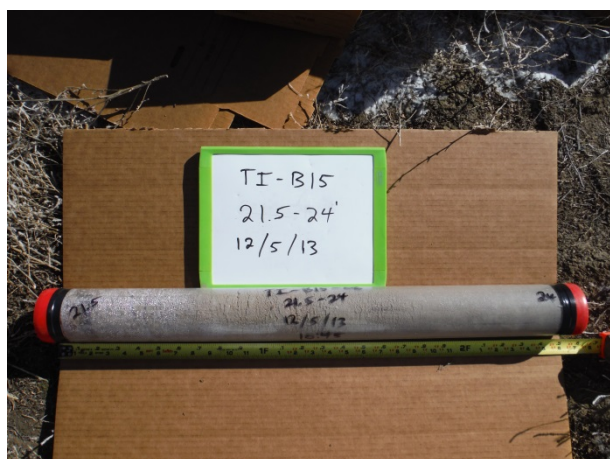
TI-B15 Acrylic Core Liner (6.5' – 9' interval)
12/5/13



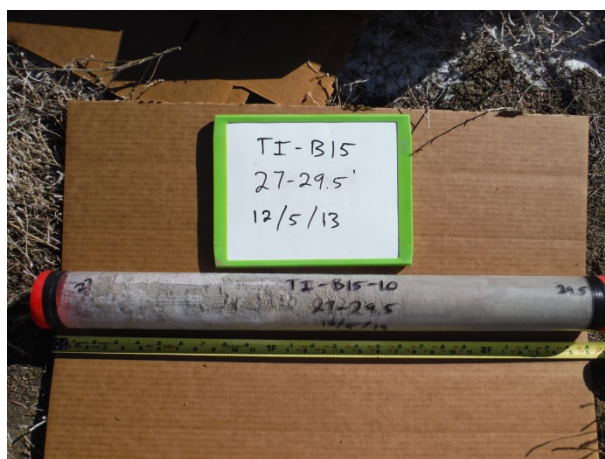
TI-B15 Acrylic Core Liner (11.5' – 14' interval)
12/5/13



TI-B15 Acrylic Core Liner (17.5' – 20' interval)
12/5/13



TI-B15 Acrylic Core Liner (21.5' – 24' interval)
12/5/13



TI-B15 Acrylic Core Liner (27.5' – 29' interval)
12/5/13



TI-B15 AcrylicCore Liner (32' – 34.5' interval)
12/5/13



TI-B15 Core (0' – 5' interval)
12/5/13



TI-B15 Core (40' – 45' interval)
12/5/13



TI-B15 Core (45' – 50' interval)
12/5/13



TI-B15 Core (50' – 55' interval)
12/5/13



TI-B15 Core (60' – 65' interval)
12/5/13

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Northeast Church Rock Mill Site



TI-B15 Core (65' – 70' interval)
12/5/13



TI-B15 Core Box #1 (0' - 15' and 35' – 38.5'
intervals)
12/5/13



TI-B15 Core Box #2 (40' – 47' interval)
12/5/13



TI-B15 Core Box #3 (47' – 58' interval)
12/5/13



TI-B15 Core Box #4 (60' – 65' interval)
12/5/13



TI-B15 Core Box #5 (65' – 70' interval)
12/5/13

Tailings Impoundment Boring Photos
Northeast Church Rock Mill Site



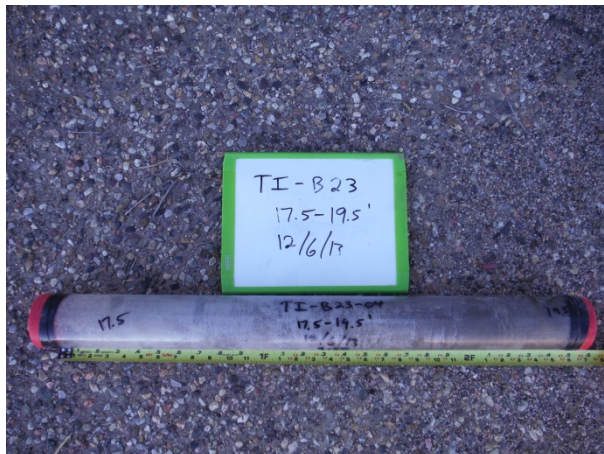
TI-B15 After Grouting
12/13/13



TI-B15 After Drilling and Grouting
12/13/13



TI-B23 Before Drilling
12/6/13



TI-B23 Acrylic Core Liner (17.5' – 19.5' interval)
12/6/13



TI-B23 Core (0' – 5' interval)
12/6/13



TI-B23 Core (5' – 10' interval)
12/6/13



TI-B23 Core (10' – 15' interval)
12/6/13



TI-B23 Core (25' – 30' interval)
12/6/13



TI-B23 Core (30' – 35' interval)
12/6/13



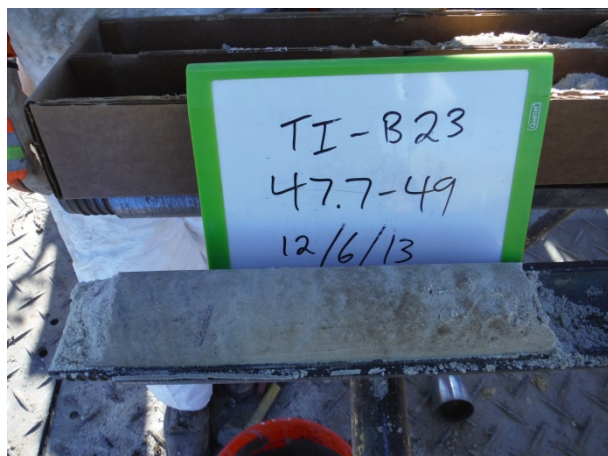
TI-B23 Core (35' – 40' interval)
12/6/13



TI-B23 Core (43' – 45' interval)
12/6/13



TI-B23 Core (45' – 47.7' interval)
12/6/13



TI-B23 Core (47.7' – 49' interval)
12/6/13



TI-B23 Core (50' – 55' interval)
12/6/13



TI-B23 Core (55' – 60' interval)
(50' in photo is incorrect)
12/6/13



TI-B23 Core (60' – 65' interval)
12/6/13



TI-B23 Core (65' – 70' interval)
12/6/13



TI-B23 Core Box #1 (0' – 8' interval)
12/6/13

Tailings Impoundment Boring Photos
Northeast Church Rock Mill Site



TI-B23 Core Box #2 (8' – 14' interval)
12/6/13



TI-B23 Core Box #3 (14' – 24.5' interval)
12/6/13



TI-B23 Core Box #4 (25' – 30' interval)
12/6/13



TI-B23 Core Box #5 (30' – 35' interval)
12/6/13



TI-B23 Core Box #6 (35' – 40' interval)
12/6/13



TI-B23 Core Box #7 (40' – 44' interval)
12/6/13

Tailings Impoundment Boring Photos
Northeast Church Rock Mill Site



TI-B23 Core Box #8 (45' – 49' interval)
12/6/13



TI-B23 Core Box #9 (50' – 60' interval)
12/6/13



TI-B23 Core Box #10 (60' – 70' interval)
12/6/13



TI-B23 After Grouting
12/10/13



TI-B23 After Drilling and Grouting
12/10/13