APPENDIX A
FIELD SAMPLE DATA SHEETS

Files presented on CD only.

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 4-6-2014 Page 1 of 2 **Well ID :** MW-1-98
Field Personnel T. Koch Purging Start Time : 09:20
Well Depth as installed (ft.): 100 Measured Well Depth (ft.):
Screen Length in ft. 100-BG Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 13.64 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 98' From: Total Volume Purged, Including Drawdown (gallons): ≈7.5
Sample Designation Time at Purge Completion: 11:14
Sample Time 11:20 / Dup (D3) @ 13:45 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER
Multimeter model and serial number YSI 556 MPS Turbidity meter model and serial number HANNA
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 2.2 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0925	20/10	150	12.64			7.78	350	6.43	12.4	1.34	126	
0930		150	13.02			8.02	356	6.43	12.1	0.95	95.7	
0935		150	13.11			8.14	360	6.43	10.9	0.88	56.3	
0940		150	13.21			8.12	360	6.43	5.3	0.64	63.3	
0945		100	13.31			7.98	361	6.45	4.0	0.51	66.4	
0950		100	13.36			7.84	358	6.45	7.6	0.48	92.9	
0955		100	13.38			7.81	358	6.45	9.0	0.54	129	
10.00		100	13.39			7.81	358	6.45	10.0	0.54	94	
10:05		100	13.39			7.85	357	6.45	10.8	0.52	76	
10:10		100	13.39			7.95	356	6.45	11.6	0.49	51.5	
10:15		100	13.41			8.11	356	6.45	11.0	0.54	25.4	
10:20		100	13.42			8.00	355	6.46	7.0	0.47	15.9	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 4-6-2014 Page 2 of 2 **Well ID :** MW-1-98'
Field Personnel
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From: Probe 1
Pump/Tubing Intake set (ft.): From:
Sample Designation SW
Sample Time 11:20
Purging Start Time :
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
10:25		100	13.45			8.22	354	6.45	6.5	0.45	15.1	
10:30		100	13.46			8.30	354	6.45	6.9	0.44	22.5	
10:35		100	13.46			8.37	354	6.46	7.6	0.43	27.9	
10:40		100	13.46			8.38	352	6.46	6.3	0.43	22.8	
10:45		100	13.46			8.33	352	6.46	4.9	0.41	20.7	
10:50		100	13.46			8.07	352	6.46	5.7	0.39	17.7	
10:55		100	13.46			8.27	350	6.46	5.8	0.38	16.2	
11:00		100	13.46			8.52	350	6.46	3.5	0.39	15.5	
11:05		100	13.46			8.77	350	6.46	2.7	0.38	14.3	
11:10		100	13.46			8.80	349	6.46	2.7	0.51	15.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 4-8-2014 Page 1 of 2 **Well ID :** MW-1-60'
Field Personnel T. Koach Purging Start Time : 10:10
Well Depth as installed (ft.): 100' Measured Well Depth (ft.): 100.0
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 12.82' From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60' From: Total Volume Purged, Including Drawdown (gallons): ≈ 3.0
Sample Designation Time at Purge Completion: 11:35
Sample Time 11 45 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI Turbidity meter model and serial number HANNA
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
10:15		150	12.86			9.60	336	6.45	-6.2	1.95	60.4	
1020		150	12.88			9.62	354	6.46	-10.7	0.69	89.5	
1025		150	12.86			9.70	357	6.47	-11.5	0.37	63.5	
1050		150	12.86			9.48	362	6.47	-9.2	0.67	18.9	INTERRUPTED BY SALES PERSON
1055		150	12.85			9.40	362	6.47	-8.6	0.28	19.5	
1100		150	12.85			9.49	362	6.47	-12.4	0.23	22.1	
1105		150	12.85			9.52	360	6.47	-16.7	0.22	16.9	
1110		150	12.85			9.78	360	6.48	-10.4	0.26	18.6	
1115		150	13.12			9.86	360	6.43	-5.8	0.24	18.6	
1120		100	13.34			9.80	360	6.47	-7.4	0.46	15.8	
1125		100	13.51			9.84	359	6.48	-6.7	0.30	15.7	
1130		100	13.54			9.73	360	6.49	-6.5	0.28	14.8	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4-8-2014 Page 2 of 2 **Well ID :** MW-1-60
Field Personnel T. Kroch Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 11:45 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1135		100	13.55			9.63	.359	6.47	-8.2	0.27	13.8	
~~1140~~												

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 4-8-2014 Page 1 of 1 **Well ID :** MW-1-15
Field Personnel T. Foach Purging Start Time : 1530
Well Depth as installed (ft.): 100.0 Measured Well Depth (ft.): 100.0
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 13.0 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 15' From: Total Volume Purged, Including Drawdown (gallons): ≈2
Sample Designation Time at Purge Completion: 16:25
Sample Time 1630 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI Turbidity meter model and serial number HANNA
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1535		150	12.98			9.18	249	6.33	29.5	2.86	26.7	
1540		150	13.0			8.99	245	6.36	32.0	2.14	24.9	
1545		150	13.09			8.64	245	6.32	34.3	2.13	23.8	
1550		100	13.11			8.55	244	6.32	36.0	1.86	23.4	
1555		100	13.12			8.53	243	6.31	34.9	1.88	22.2	
1600		100	13.17			8.66	241	6.33	32.9	1.63	22.7	
1605		100	13.21			8.68	243	6.31	31.7	1.63	23.2	
1610		100	13.26			8.56	241	6.30	34.3	1.38	22.8	
1615		100	13.27			8.36	240	6.32	35.4	1.14	21.6	
1620		100	13.30			8.43	242	6.26	32.6	1.04	22.0	
1625		100	13.32			8.43	241	6.31	35.6	1.07	21.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date: 4/6/14 Page 1 of 2
Field Personnel A. ARSENAULT
Well Depth as installed (ft.): 100 ft
Screen Length in ft. OPEN Screen Depth in ft. —
Depth to GW (ft.): 16.64 From: TOC
Pump/Tubing Intake set (ft.): 98 ft From: TOC
Sample Designation
Sample Time 1110

Well ID: MW-2 98'
Purging Start Time: 0905
Measured Well Depth (ft.): 100 ft
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes No
Total Volume Purged, Including Drawdown (gallons): 3
Time at Purge Completion: 1310
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 0.0 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
910	10/20	165	16.68	—	—	—	—	—	—	—	—	Fill flow thru cell
915	10/20	165	16.70	0.02	0.02	9.80	148	6.21	185.4	4.66	383	
920	8/22	150	16.85	0.15	0.17	9.86	143	6.50	158.6	3.51	408	
925	8/22	150	16.85	0.00	0.17	9.76	144	6.68	153.6	3.41	340	
930	6/24	100	16.90	0.05	0.22	9.80	135	6.60	150.6	3.21	325	
935	6/24	100	16.90	0.00	0.22	9.79	139	6.66	146.2	3.02	324	
940	6/24	100	16.90	0.00	0.22	9.69	146	6.81	145.7	3.22	320	
945	6/24	100	16.90	0.00	0.22	9.74	140	6.80	144.3	3.20	325	
950	6/24	100	16.90	0.00	0.22	9.76	155	6.80	142.7	3.05	311	
955	6/24	100	16.90	0.00	0.22	9.87	154	6.69	143.0	2.96	304	
1000	6/24	100	16.90	0.00	0.22	9.89	149	6.75	141.7	3.10	295	
1005	6/24	100	16.90	0.00	0.22	9.93	147	6.81	138.8	3.15	299	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/6/14 Page 2 of 2
Field Personnel A. ARSENAULT
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation SEE PAGE 1
Sample Time 1110

Well ID : MW-2 98'
Purging Start Time :
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1010	6/24	100	16.90	0.00	0.22	9.98	128	6.81	139.4	2.87	282	
1015	6/24	100	16.90	0.00	0.22	10.04	154	6.72	138.1	2.82	267	
1020	6/24	100	16.90	0.00	0.22	10.09	131	6.85	137.1	2.83	251	
1025	6/24	100	16.90	0.00	0.22	10.10	142	6.82	137.0	3.02	254	
1030	6/24	100	16.90	0.00	0.22	10.10	133	6.83	137.3	2.85	243	
1035	6/24	100	16.90	0.00	0.22	10.12	132	6.82	137.1	2.92	242	
1040	6/24	100	16.90	0.00	0.22	10.16	137	6.89	137.6	2.86	226	
1045	6/24	100	16.90	0.00	0.22	10.23	158	6.85	137.2	3.07	230	
1050	6/24	100	16.90	0.00	0.22	10.19	142	6.92	138.7	2.96	226	
1055	6/24	100	16.90	0.00	0.22	10.17	151	6.90	139.8	3.01	270	
1100	6/24	100	16.90	0.00	0.22	10.20	147	6.89	139.8	2.86	210	
1105	6/24	100	16.90	0.00	0.22	10.24	154	6.84	140.1	2.77	224	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

1110 SAMPLE

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/7/14 Page 1 of 2 **Well ID :** MW-2 60'
Field Personnel A. ARSENAULT Purging Start Time : 1215
Well Depth as installed (ft.): 100 Measured Well Depth (ft.):
Screen Length in ft. OPEN Screen Depth in ft. — Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 16.81 From: TOC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60 From: TOC Total Volume Purged, Including Drawdown (gallons): 2.5
Sample Designation Time at Purge Completion: 1515
Sample Time 1325 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER
Multimeter model and serial number YSI 556 U49280X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1220	10/20	175	16.84	—	—	—	—	—	—	—	—	Fill Cell
1225	10/20	175	16.96	0.12	0.12	10.29	145	5.55	265.3	4.37	55.5	
1230	6/24	100	17.00	0.04	0.16	10.30	149	5.74	247.5	3.37	56.7	
1235	6/24	100	17.01	0.01	0.17	10.29	154	6.27	210.5	3.26	56.2	
1240	6/24	100	17.02	0.01	0.18	10.30	146	6.49	197.0	2.93	65.1	
1245	6/24	100	17.02	0.00	0.18	10.24	131	6.56	187.2	3.10	59.1	
1250	6/24	100	17.02	0.00	0.18	10.13	146	6.57	181.7	3.02	52.7	
1255	6/24	100	17.02	0.00	0.18	10.15	147	6.62	178.3	3.01	49.9	
1300	6/24	100	17.02	0.00	0.18	10.15	144	6.69	174.3	3.84	60.5	
1305	6/24	100	17.04	0.02	0.20	10.10	154	6.72	172.0	2.88	60.6	
1310	6/24	100	17.04	0.00	0.20	10.08	146	6.70	170.7	2.92	49.3	
1315	6/24	100	17.04	0.00	0.20	10.06	138	6.66	170.0	2.95	49.6	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 9/7/14 Page 2 of 2 **Well ID :** MW-2 60'
Field Personnel A. ARSENAULT Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. ~~1~~ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): SEE PAGE From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1325 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1320	64	100	17.04	~~0.20~~ 0.20	0.20	10.10	144	6.72	169.3	2.90	51.1	
1325												SAMPLE

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/7/14 Page 1 of 1
Field Personnel A. ARSENAULT
Well Depth as installed (ft.): 100
Screen Length in ft. OPEN Screen Depth in ft.
Depth to GW (ft.): 16.98 From: TOC
Pump/Tubing Intake set (ft.): 19 From: TOC
Sample Designation
Sample Time 1700

Well ID : MW-2 19'
Purging Start Time : 1600
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 2.5
Time at Purge Completion:
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1605	6 / 24	200	16.91	—								Fill flow thru cell
1610	4 / 26	100	17.01	0.10	0.10	9.77	73	8.46	185.9	1.95	165	
1615	4 / 26	100	17.02	0.01	0.11	9.43	81	8.43	174.7	1.25	164	
1620	4 / 26	100	17.02	0.00	0.11	9.18	81	8.37	177.8	1.06	164	
1625	4 / 26	100	17.02	0.00	0.11	8.90	84	8.42	175.8	1.00	162	
1630	4 / 26	100	17.05	0.03	0.14	8.81	80	8.39	172.8	0.90	155	
1635	4 / 26	100	17.05	0.00	0.14	8.78	83	8.42	168.8	0.91	132	
1640	4 / 26	100	17.05	0.00	0.14	8.75	84	8.55	161.9	0.79	152	
1645	4 / 26	100	17.05	0.00	0.14	8.69	82	8.50	164.1	0.78	143	
1650	4 / 26	100	17.05	0.00	0.14	8.64	86	8.55	160.8	0.79	132	
1655	4 / 26	100	17.05	0.00	0.14	8.67	84	8.55	158.9	0.79	139	
1700												SAMPLE

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date: 4/6/14 Page ____ of ____
Field Personnel A. ARSENAULT
Well Depth as installed (ft.): 100
Screen Length in ft. OPEN Screen Depth in ft. —
Depth to GW (ft.): 5.66 From: TOC
Pump/Tubing Intake set (ft.): 98' From: TOC
Sample Designation
Sample Time 1635

Well ID: MW-3 98'
Purging Start Time: 1450
Measured Well Depth (ft.): 100
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 7
Time at Purge Completion:
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID=0.0 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1455	10/20	200	5.80	—	—	—	—	—	—	—	—	Fill flow thru cell
1500	10/20	200	5.80	0.00	0.00	10.26	86	6.66	191.5	7.74	OOR	Purge water orange
1505	10/20	200	5.80	0.00	0.00	9.99	86	5.76	213.6	6.78	1000	
1510	10/20	200	5.80	0.00	0.00	9.97	86	6.10	181.0	6.68	1000	
1515	10/20	200	5.80	0.00	0.00	10.04	86	6.18	173.2	6.63	1000	
1520	10/20	200	5.80	0.00	0.00	10.02	86	6.20	169.6	6.65	852	
1525	10/20	200	5.80	0.00	0.00	9.97	85	6.18	171.5	6.58	919	
1530	10/20	200	5.80	0.00	0.00	9.94	85	6.16	173.8	6.57	655	
1535	10/20	200	5.80	0.00	0.00	10.01	85	6.18	173.2	6.55	551	
1540	10/20	200	5.80	0.00	0.00	10.05	84	6.16	174.9	6.45	455	
1545	10/20	200	5.80	0.00	0.00	10.02	84	6.16	175.3	6.56	400	
1550	10/20	200	5.80	0.00	0.00	10.03	84	6.17	176.4	6.61	327	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

OOR: out of range

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/6/14 Page 2 of _____ **Well ID :** MW-3 98'
Field Personnel _____ Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ ~~Screen Depth in ft.~~ 1 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): SEE From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time _____ Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1555	10/20	200	5.80	0.00	0.00	9.97	83	6.15	178.2	6.56	230	
1600	10/20	200	5.80	0.00	0.00	9.87	83	6.17	177.8	6.45	159	
1605	10/20	200	5.80	0.00	0.00	9.79	83	6.14	180.6	6.59	133	
1610	10/20	200	5.80	0.00	0.00	9.81	83	6.15	180.7	6.46	132	
1615	10/20	200	5.80	0.00	0.00	9.79	82	6.15	181.4	6.62	81.3	
1620	10/20	200	5.80	0.00	0.00	9.82	82	6.16	181.7	6.61	72.5	
1625	10/20	200	5.80	0.00	0.00	9.78	82	6.15	183.2	6.69	70.8	
1630	10/20	200	5.80	0.00	0.00	9.85	82	6.16	181.7	6.62	73.6	
1635												SAMPLE

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/8/14 Page 1 of 1
Field Personnel A. ARSENAULT
Well Depth as installed (ft.): 100
Screen Length in ft. OPEN Screen Depth in ft.
Depth to GW (ft.): 5.45 From: TOC
Pump/Tubing Intake set (ft.): 7.5 From: TOC
Sample Designation
Sample Time 1300

Well ID : MW-3 7.5'
Purging Start Time : 1155
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U61518K
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1200	7/23	200	5.44	—	—	—	—	—	—	—	—	Fill flow thru cell
1205	7/23	200	5.50	0.06	0.06	9.50	68	5.60	89.9	3.43	216	
1210	7/23	200	5.52	0.02	0.08	9.31	69	3.80	177.0	2.62	178	
1215	7/23	200	5.52	0.00	0.08	9.28	68	4.91	114.3	2.15	153	
1220	7/23	200	5.52	0.00	0.08	9.21	67	5.43	87.1	2.06	188	
1225	7/23	200	5.52	0.00	0.08	9.26	67	5.60	77.7	1.99	141	
1230	7/23	200	5.52	0.00	0.08	9.46	67	5.72	70.9	2.03	127	
1235	7/23	200	5.52	0.00	0.08	9.36	67	5.76	69.1	2.09	120	
1240	7/23	200	5.52	0.00	0.08	9.35	67	5.80	67.3	2.04	114	
1245	7/23	200	5.52	0.00	0.08	9.37	66	5.82	67.1	1.97	97.0	
1250	7/23	200	5.52	0.00	0.08	9.45	66	5.90	63.1	1.99	97.2	
1255	7/23	200	5.52	0.00	0.08	9.42	67	5.86	65.3	2.00	99.5	

Notes: All depths in feet below top of PVC unless specified.
1300 NR = No Reading SAMPLE
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010

Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/7/14 Page 1 of 1
Field Personnel A. ARSENAULT
Well Depth as installed (ft.): 100
Screen Length in ft. OPEN Screen Depth in ft. —
Depth to GW (ft.): 5.60 From: TOC
Pump/Tubing Intake set (ft.): 60' From: TOC
Sample Designation
Sample Time 1010

Well ID : MW-3 60'
Purging Start Time : 0905
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 3
Time at Purge Completion: 1110
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U615/8X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0910	6/24	150	5.56									Fill flow thru
0915	8/24	200	5.50	-0.06	-0.06	10.46	98	7.65	136.8	2.48	88.2	
0920	8/22	200	5.51	0.01	-0.05	10.31	102	6.63	150.8	4.13	71.7	
0925	8/22	200	5.51	0.00	-0.05	9.90	82	4.16	255.5	2.91	76.4	
0930	8/22	200	5.51	0.00	-0.05	9.86	75	4.90	213.8	2.69	80.6	
0935	8/22	200	5.53	0.02	-0.03	9.84	72	5.31	192.5	2.51	79.0	
0940	8/22	200	5.53	0.00	-0.03	9.87	70	5.45	186.9	2.61	68.7	
0945	8/22	200	5.53	0.00	-0.03	9.87	70	5.57	182.1	2.49	71.5	
0950	8/22	200	5.53	0.00	-0.03	9.84	69	5.61	182.9	2.40	59.5	
0955	8/22	200	5.53	0.00	-0.03	9.90	68	5.64	182.4	2.37	54.7	
1000	8/22	200	5.53	0.00	-0.03	10.04	68	5.70	181.1	2.23	49.4	
1005	8/22	200	5.53	0.00	-0.03	10.04	68	5.69	184.4	2.18	49.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

1010 SAMPLE

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: A. Arsenault
Reviewed by:

Date : 4/8/14 Page 1 of 2 **Well ID :** MW-4
Field Personnel A. Arsenault Purging Start Time : 1220
Well Depth as installed (ft.): 20 ft bgs Measured Well Depth (ft.): 20 ft bgs
Screen Length in ft. 10 ft Screen Depth in ft. 10 ft bgs (top) Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.88 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 17.5 From: Total Volume Purged, Including Drawdown (gallons): 4.5
Sample Designation Time at Purge Completion: 1445
Sample Time 1345 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 MPS 14926OX Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1225		150	6.97									Fill Flow through Cell
1230		150	7.02	0.05	0.05	10.50	183	6.48	31.7	3.84	69.1	
1235		175	7.01	-0.01	0.04	10.00	178	6.31	30.3	2.36	57.9	
1240		175	7.03	0.02	0.06	9.92	173	6.32	32.3	2.25	46.8	
1245		175	7.03	0.00	0.06	9.99	168	6.29	32.9	2.22	38.8	
1250		175	7.05	0.02	0.08	9.95	166	6.28	34.2	2.29	33.5	
1255		175	7.02	-0.03	0.05	10.03	164	6.27	35.1	2.40	29.0	
1300		175	7.02	0.00	0.05	10.04	163	6.26	35.7	2.49	27.6	
1305		175	7.02	0.00	0.05	9.97	162	6.27	36.7	2.59	24.4	
1310		175	7.03	0.01	0.06	9.97	161	6.27	38.8	2.69	23.0	
1315		175	7.02	-0.01	0.05	9.96	160	6.25	39.4	2.80	17.4	
1320		175	7.02	0.00	0.05	10.01	160	6.27	38.1	2.96	19.0	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: _____
Reviewed by: _____

Date : 4/3/14 Page 2 of 2 **Well ID :** MW-4
Field Personnel _____ Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): SEE PAGE 1 From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1345 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1325		175	7.02	0.00	0.05	10.03	160	6.27	37.7	3.15	15.5	
1330		175	7.03	0.01	0.06	10.06	160	6.26	37.1	3.11	18.8	
1335		175	7.02	-0.01	0.05	10.03	160	6.28	36.6	3.31	20.1	
1340		175	7.02	0.00	0.05	10.07	160	6.29	36.1	3.33	20.1	
1345		SAMPLE										

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A. ARSENAULT
Reviewed by:

Date : 4/5/14 Page 1 of 2 **Well ID :** MW-5
Field Personnel A. Arsenault Purging Start Time : 1252
Well Depth as installed (ft.): 10 bgs Measured Well Depth (ft.): ~~12.5~~ AM 10 bgs
Screen Length in ft. 5 Screen Depth in ft. 5 (top) bgs Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 2.99 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): AM ~~10~~ 7.5 From: ~~PVC~~ Ground Total Volume Purged, Including Drawdown (gallons): 4.5
Sample Designation Time at Purge Completion:
Sample Time 1440 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number U49260X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 2.2 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1255	~~5~~ 25	175	3.30									Fill flow thru cell
1300	5 25	175	3.30	0.00	0.00	7.61	204	6.36	-68.1	3.14	184	
1305		175	3.36	0.06	0.06	6.99	202	5.24	-62.0	1.77	147	
1310		175	3.34	-0.02	0.04	6.82	199	5.54	-114.7	1.19	112	
1315		175	3.34	0.00	0.04	6.59	198	5.79	-149.0	1.04	113	
1320		175	3.34	0.00	0.04	6.51	197	5.94	-177.1	0.91	72.4	
1325		175	3.30	-0.04	0.00	6.36	196	5.98	-209.4	0.90	58.0	
1330		175	3.30	0.00	0.00	6.36	195	6.02	-248.1	0.87	50.9	
1335		175	3.30	0.00	0.00	6.43	194	6.05	-300.9	0.82	41.5	
1340		175	3.30	0.00	0.00	6.66	194	6.08	-356.8	0.79	37.9	
1345		175	3.30	0.00	0.00	6.75	193	6.13	-364.5	0.82	30.8	
1350		175	3.30	0.00	0.00	6.70	193	6.17	-372.7	0.72	27.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4/5/14 Page 2 of 2 Well ID : MW-5
Field Personnel A. Arsenault Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. 2 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake ~~set (ft)~~: _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1440 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1355	5 / 25	175	3.30	0.00	0.00	6.75	192	6.15	-381.5	0.74	27.1	
1400		175	3.30	0.00	0.00	6.90	192	6.17	-380.7	0.76	29.5	
1405		175	3.30	0.00	0.00	6.67	192	6.15	-393.2	0.82	17.7	
1410		175	3.30	0.00	0.00	6.57	191	6.14	-399.8	0.78	16.7	
1415		175	3.30	0.00	0.00	6.65	191	6.14	-380.4	0.74	14.5	
1420		175	3.30	0.00	0.00	6.53	191	6.15	-375.3	0.72	15.7	
1425		175	3.30	0.00	0.00	6.51	190	6.14	-379.0	0.72	12.2	
1430		175	3.30	0.00	0.00	6.70	190	6.14	-384.3	0.70	12.2	
1435		175	3.30	0.00	0.00	6.63	190	6.14	-383.7	0.71	11.5	
1440												SAMPLE

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: A. Arsenault
Reviewed by:

Date : 4/4/14 Page 1 of 2 **Well ID :** MW-6
Field Personnel A. Arsenault Purging Start Time : 1225
Well Depth as installed (ft.): 20 ft Measured Well Depth (ft.):
Screen Length in ft. 10 ft Screen Depth in ft. 10 ft (top) Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 5.81 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 17.5 From: PVC Total Volume Purged, Including Drawdown (gallons): 6 gal
Sample Designation Time at Purge Completion: 1530
Sample Time 1430 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID - 0.0 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1230	~~6~~ 24	175	5.97									Fill flow through cell
1235	6 24	175	5.96	-0.01	-0.01	8.11	179	6.73	12.3	2.84	513	
1240	6 24	175	5.97	0.00	0.00	8.12	179	6.62	3.2	1.42	393	
1245	6 24	175	5.97	0.00	0.00	8.13	178	6.59	-2.2	1.13	320	
1250		175	5.97	0.00	0.00	8.16	177	6.57	-6.6	1.07	292	
1255		175	5.97	0.00	0.00	8.18	176	6.55	-7.7	0.95	156	
1300		175	5.97	0.00	0.00	8.20	174	6.54	-8.8	1.04	116	
1305		175	5.97	0.00	0.00	8.20	172	6.54	-9.1	1.09	89.5	
1310		175	5.97	0.00	0.00	8.24	171	6.53	-8.1	1.10	85.3	
1315		175	5.97	0.00	0.00	8.20	170	6.54	-7.7	1.17	96.8	
1320		175	5.97	0.00	0.00	8.13	169	6.52	-6.4	1.16	70.7	
1325		175	5.97	0.00	0.00	8.14	168	6.53	-6.0	1.19	90.8	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 4/4/14 Page 2 of 2 **Well ID :** MW-6
Field Personnel A. Aisenalt Purging Start Time :
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): SEE From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation Time at Purge Completion:
Sample Time 1430 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1330	6 24	175	5.97	0.00	0.00	8.19	167	6.52	-5.2	1.12	88.7	
1335	6 24	175	5.97	0.00	0.00	8.16	166	6.51	-3.5	1.17	58.6	
1340	6 24	175	5.97	0.00	0.00	8.17	165	6.51	-3.2	1.24	56.0	
1345		175	5.97	0.00	0.00	8.17	164	6.50	-2.3	1.18	42.8	
1350		175	5.97	0.00	0.00	8.20	164	6.51	-1.6	1.18	80.4	
1355		175	5.97	0.00	0.00	8.13	163	6.51	-1.3	1.24	97.0	
1405		175	5.97	0.00	0.00	8.12	162	6.50	0.7	1.25	47.8	
1410		175	5.97	0.00	0.00	8.18	162	6.49	1.7	1.26	36.8	
1415		175	5.97	0.00	0.00	8.27	161	6.49	1.9	1.22	31.7	
1420		175	5.97	0.00	0.00	8.24	161	6.49	2.7	1.23	29.6	
1425		175	5.97	0.00	0.00	8.30	160	6.48	2.7	1.20	26.4	
1430		175										SAMPLE

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2
Prepared by:
Reviewed by:

Date: Nov 3 2014 Page 1 of 1
Field Personnel A MLeonido
Well Depth as installed (ft.): 101.40
Screen Length in ft. open hole Screen Depth in ft.
Depth to GW (ft.): 32.98 From: top of pipe (pvc)
Pump/Tubing Intake set (ft.): 98 feet From: " "
Sample Designation MW1-98-1114
Sample Time 1545

Well ID: MW-1 (98 feet)
Purging Start Time: 1450
Measured Well Depth (ft.): 101.40
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 3 gallons
Time at Purge Completion: 1455
Signature: AMLeonido

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Compressor (80 psi)
Multimeter model and serial number 14F101494 Turbidity meter model and serial number H198703 083944/
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 2.8 PID (ppm) 6 inch diameter well
Pump set at 98 feet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1455	10 / 4	150 ml/m	33.10	0.12	0.12	11.59	566	6.58	-62.9	0.58	20.0	80 psi
1500	10 / 4	150 ml/m	33.10	0.00	0.12	10.71	413	6.59	-74.1	0.54	24.0	
1505	10 / 4	150 ml/m	33.10	0.00	0.12	10.65	418	6.61	-77.4	0.48	58.4	
1510	10 / 4	150 ml/m	33.10	0.00	0.12	10.63	420	6.62	-79.4	0.55	53.5	
1515	10 / 4	150 ml/m	33.10	0.00	0.12	10.61	421	6.63	-77.7	0.67	50.3	
1520	10 / 4	150 ml/m	33.10	0.00	0.12	10.47	416	6.65	-98.0	0.40	39.0	
1525	10 / 4	150 ml/m	33.12	0.02	0.14	10.40	385	6.65	-105.7	0.25	38.5	
1530	10 / 4	150 ml/m	33.12	0	0.14	10.38	355	6.64	-104.8	0.25	17.4	
1535	10 / 4	150 ml/m	33.12	0	0.14	10.38	353	6.64	-105.7	0.20	17.0	
1540	10 / 4	150 ml/m	33.12	0	0.14	10.38	351	6.63	-105.7	0.25	17.3	

Notes All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: AM Leonido
Reviewed by:

Date: 11/4/2014 Page 1 of 1
Field Personnel AM Leonido
Well Depth as installed (ft.): 101.4 ft
Screen Length in ft. open hole Screen Depth in ft.
Depth to GW (ft.): 32.98 From: Top of pipe (pvc)
Pump/Tubing Intake set (ft.): 35 ft From: "
Sample Designation MW1-35-1114 + MS MSD
Sample Time 1215

Well ID: MW-1 (35 Feet)
Purging Start Time: 1125
Measured Well Depth (ft.): 101.4
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 3 gallons
Time at Purge Completion: 12:20
Signature: AM Leonido

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Compressor (40 psi)
Multimeter model and serial number YSI 556 08E1002 Turbidity meter model and serial number 08393441 H198703
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 2.8 PID (ppm) 6 inch diameter well.
pump set at 35 feet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1130	5 / 4	150 ml/m	33.00	0.02	0.02	11.12	467	6.70	-62.6	1.13	0.63	40 psi
1135	5 / 4	150 ml/m	33.01	0.01	0.03	10.75	463	6.63	-69.8	0.80	0.65	
1140	5 / 4	150 ml/m	33.01	ø	0.03	10.70	463	6.62	-73.4	0.80	0.63	
1145	5 / 4	150 ml/m	33.00	-.01	0.02	10.68	463	6.61	-75.8	0.84	1.01	
1150	5 / 4	150 ml/m	3300	ø	0.02	10.83	462	6.61	-76.8	0.51	1.07	
1155	5 / 4	150 ml/m	33.00	ø	0.02	10.88	462	6.62	-80.6	0.39	1.16	
1200	5 / 4	150 ml/m	33.05	0.05	0.07	10.89	462	6.63	-85.6	0.30	1.22	
1205	5 / 4	150 ml/m	33.05	ø	0.07	10.90	462	6.63	-91.1	0.28	1.17	
1210	5 / 4	150 ml/m	33.05	ø	0.07	10.94	463	6.63	-91.6	0.27	1.16	

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: A M Leonido
Reviewed by:

Date: 11/4/2014 Page 1 of 1 Well ID: MW1 (60 feet)
Field Personnel A M Leonido Purging Start Time: 0920
Well Depth as installed (ft.): 101.4 ft Measured Well Depth (ft.): 101.4 feet
Screen Length in ft. open hole Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 32.98 From: Top of pipe (pvc) Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60 feet From: " " Total Volume Purged, Including Drawdown (gallons): 2.0 gallons
Sample Designation MW1-60-1114 Time at Purge Completion: 1015
Sample Time 1010 Signature: A M Leonido
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) compressor
Multimeter model and serial number Turbidity meter model and serial number HI98703 SN 08393441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
pump set at 60 feet 2.8 ppm PID 6 inch diameter well

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0925	5 / 4	150 ml/m	33.0	0.02	0.02	10.93	467	6.42	-36.5	1.46	1.0	40 psi
0930	5 / 4	150 ml/m	33.2	0.20	0.22	10.97	463	6.42	-65.9	0.57	1.04	
0935	5 / 4	150 ml/m	33.2	Ø	0.22	10.94	460	6.45	-76.4	0.42	1.22	
0940	5 / 4	150 ml/m	33.2	Ø	0.22	11.01	454	6.52	-90.6	0.39	0.63	
0945	5 / 4	150 ml/m	33.2	Ø	0.22	11.09	453	6.53	-93.2	0.36	0.65	
0950	5 / 4	150 ml/m	33.2	Ø	0.22	11.01	454	6.55	-99.1	0.29	0.63	
0955	5 / 4	150 ml/m	33.2	Ø	0.22	11.02	454	6.55	-99.1	0.30	0.64	
1000	5 / 4	150 ml/m	33.2	Ø	0.22	11.07	454	6.54	-100.2	0.29	0.64	
1005	5 / 4	150 ml/m	33.2	Ø	0.22	11.05	453	6.55	-100.1	0.30	0.63	

Notes All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
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Rev.: 2

Prepared by:
Reviewed by:

Date : 11/4/14 Page 1 of 1 **Well ID :** MW-2
Field Personnel Andy Robichaud Purging Start Time : 1005
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 33.39 From: Top of Casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60 From: Top of casing Total Volume Purged, Including Drawdown (gallons): 4
Sample Designation MW-2-60-1114 Time at Purge Completion: 1120
Sample Time 1100 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1023	10 / 5	200	33.62	0.23	0.23	11.19	140	6.94	-14.4	4.17	226	50psi
1027	10 / 5	200	33.65	~~0.26~~ 0.03	0.26	11.19	139	7.01	-18.2	4.62	218	
1033	10 / 5	200	33.71	0.06	0.32	11.13	139	7.03	-19.2	4.80	195	
1037	11 / 4	175	33.75	0.04	0.36	11.16	139	7.04	-20.2	4.76	150	
1043	11 / 4	175	33.79	0.04	0.40	11.23	138	7.05	-20.3	5.28	183	
1047	11 / 4	175	33.81	0.02	0.42	11.24	139	7.07	-21.6	4.94	97.6	
1053	11 / 4	175	33.83	0.02	0.44	11.23	141	7.07	-21.6	5.01	90.2	
1057	11 / 4	175	33.85	0.02	0.46	11.29	141	7.11	-23.6	5.32	91.2	

Notes: All depths in feet below top of PVC unless specified.
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/4/14 Page 1 of 1
Field Personnel Andy Robichaud
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 33.53 From: Top of casing
Pump/Tubing Intake set (ft.): 36' From:
Sample Designation MW-2-2-1114
Sample Time 1300

Well ID : MW-2
Purging Start Time : 1230
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 2.5
Time at Purge Completion: 1320
Signature: Andy Robichaud

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1241	10 / 5	200	33.66	0.13	0.13	11.27	138	7.13	-24.7	8.01	97.3	30psi
1246	10 / 5	200	33.72	0.06	0.19	11.15	137	7.09	-22.9	7.84	61.6	
1251	11 / 4	175	33.72	0.00	0.19	11.23	139	7.10	-23.3	7.77	60.1	
1256	11 / 4	175	33.73	0.01	0.20	11.20	137	7.12	-24.5	7.68	59.4	stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
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Rev.: 2

Prepared by:
Reviewed by:

Date : 11/3/14 Page ____ of ____ Well ID : MW-2
Field Personnel Andy Robichaud Purging Start Time : 1426
Well Depth as installed (ft.): ____ Measured Well Depth (ft.): 98.12
Screen Length in ft. ____ Screen Depth in ft. ____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 33.35 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 96 From: Top of casing Total Volume Purged, Including Drawdown (gallons): 1.5
Sample Designation MW-2-98-1014 Time at Purge Completion: 1605
Sample Time 1522 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1447	10 / 5	100	33.38	0.03	0.03	11.21	150	6.73	177.6	2.87	151	70 psi
1452	10 / 5	100	33.41	0.03	0.06	11.14	145	6.81	171.0	2.69	157	
1457	10 / 5	100	33.44	0.03	0.09	11.12	145	6.83	167.2	2.61	135	
1502	10 / 5	100	33.45	0.01	0.10	11.11	141	6.85	164.1	2.54	121	
1507	10 / 5	100	33.47	0.02	0.12	11.10	140	6.86	160.4	2.42	97.2	
1512	10 / 5	100	33.47	0.00	0.12	11.21	142	6.88	158.2	2.38	98.0	
1517	10 / 5	100	33.47	0.00	0.12	11.27	140	6.92	156.3	2.38	92.5	Stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
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Rev.: 2

Prepared by:
Reviewed by:

Date : 11-4-14 Page 1 of 2 **Well ID :** MW-3
Field Personnel Andy Robichaud Purging Start Time : 1530
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 19.13 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 98 From: Total Volume Purged, Including Drawdown (gallons): 3.0
Sample Designation MW-3-98-1114 Time at Purge Completion: 1735
Sample Time 1710 Signature: ~~Bladder~~ Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1556	20 / 10	100	19.12	-0.01	-0.01	12.66	188	6.00	37.7	5.26	652	120 psi
1601	20 / 10	100	19.13	+0.00	0.00	12.30	190	6.00	37.6	5.27	560	
1606	20 / 10	100	19.14	0.01	0.01	12.17	190	6.01	37.4	5.21	521	
1611	20 / 10	100	19.15	0.01	0.02	12.03	190	6.01	37.2	5.09	455	
1616	20 / 10	100	19.16	0.01	0.03	11.99	191	6.01	37.1	5.02	380	
1621	20 / 10	100	19.17	0.01	0.04	11.91	191	6.01	118.6	4.98	258	
1626	20 / 10	100	19.17	0.00	0.04	11.85	189	6.01	119.0	5.16	173	
1631	20 / 10	100	19.17	0.00	0.04	11.83	190	6.00	121.6	4.88	89.8	
1636	20 / 10	100	19.17	0.00	0.04	11.76	189	6.00	124.1	4.88	62.8	clean sediment from flow through
1644	20 / 10	100	19.18	0.01	0.05	11.67	188	6.04	125.2	5.11	50.8	
1649	20 / 10	100	19.20	0.02	0.07	11.68	189	6.01	128.3	4.89	41.1	
1654	20 / 10	100	19.21	0.01	0.08	11.65	189	6.01	130.7	4.84	37.9	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2
Prepared by:
Reviewed by:

Date : 11-4-14 Page 2 of 2 **Well ID :** MW-3
Field Personnel Andy Robichaud Purging Start Time : 1530
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 19.13 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 98 From: Total Volume Purged, Including Drawdown (gallons): 3.0
Sample Designation MW-3-98-1114 Time at Purge Completion: 1735
Sample Time 1710 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1659	20 / 10	100	19.23	0.02	0.10	11.65	189	6.01	132.7	4.79	34.6	
1704	20 / 10	100	19.24	0.01	0.11	11.65	189	6.01	134.7	4.90	33.5	
1709	20 / 10	100	19.24	0.00	0.11	11.66	188	6.01	135.7	4.81	32.6	stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/5/14 Page 1 of 1 **Well ID :** MW-3
Field Personnel Andy Robichaud Purging Start Time : 0812
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 19.01 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60' From: Total Volume Purged, Including Drawdown (gallons): 2.0
Sample Designation MW-3-60-1114 Time at Purge Completion: 0903
Sample Time 0845 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0824	10 / 5	225	19.12	0.11	0.11	11.52	141	5.90	137.6	5.85	16.5	50 psi
0829	10 / 5	225	19.16	0.04	0.15	11.39	140	5.89	134.6	5.69	16.1	
0834	10 / 5	225	19.19	0.03	0.18	11.35	140	5.92	133.7	5.62	17.9	
0839	10 / 5	225	19.22	0.03	0.21	11.35	139	5.95	134.7	5.59	17.3	
0844	10 / 5	225	19.23	0.01	0.22	11.36	139	5.95	136.6	5.56	17.6	stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/5/14 Page 1 of 1 **Well ID :** MW-3
Field Personnel Andy Robichaud Purging Start Time : 0945
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 19.10 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 22' From: Total Volume Purged, Including Drawdown (gallons): 2.0
Sample Designation MW-3-22-1114 Time at Purge Completion: 1039
Sample Time 1020 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-45 Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0958	10 / 5	150	19.18	0.08	0.08	12.77	127	5.99	122.7	5.63	21.2	25 psi
1003	10 / 5	150	19.21	0.03	0.11	12.72	126	5.97	118.7	5.51	21.3	
1008	10 / 5	150	19.22	0.01	0.12	12.74	126	5.97	116.2	5.56	19.0	
1013	10 / 5	150	19.23	0.01	0.13	12.77	126	5.97	113.5	5.48	19.3	
1018	10 / 5	150	19.25	0.02	0.15	12.81	126	5.97	14.2	5.50	18.2	stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/5/14 Page 1 of 1
Field Personnel Andy Robichaud
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 21.28 From: Top of Casing
Pump/Tubing Intake set (ft.): 22' From:
Sample Designation MW-6-1114
Sample Time 1330

Well ID : MW-6
Purging Start Time : 1238
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 0.5
Time at Purge Completion: 1525
Signature: Andy Robichaud

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Duplicate collected : MW-6-1114D Time 1430

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1253	13 / 2	25	21.38	0.10	0.10	13.47	299	6.32	51.8	1.49	22.6	20 psi
1258	13 / 2	25	21.38	0.00	0.10	13.30	303	6.36	38.6	1.02	15.6	
1303	12.5 / 2.5	50	21.39	0.01	0.11	13.11	310	6.38	27.5	0.86	11.2	
1308	12.5 / 2.5	50	21.40	0.01	0.12	12.90	317	6.40	15.8	0.63	8.17	
1313	12.5 / 2.5	50	21.40	0.00	0.12	12.83	322	6.41	8.5	0.54	6.07	
1318	12.5 / 2.5	50	21.43	0.03	0.15	12.77	325	6.42	-1.7	0.49	4.55	
1323	12.5 / 2.5	50	21.42	-0.01	0.14	12.77	326	6.42	-4.2	0.44	3.79	
1328	12.5 / 2.5	50	21.42	0.00	0.14	12.75	327	6.41	-8.0	0.39	3.55	stable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4/9/14 Page 1 of 1 **Well ID :** MLS-1 Ports 1, 2, 3
Field Personnel A. ARSENAULT Purging Start Time : ① 810 ② 815 ③ 820
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): ① 3.28 ② 2.99 ③ 3.29 From: Top of Port Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation FP04 DUP 05 Time at Purge Completion: _____
Sample Time ① 925 ② 0930 ③ 0935 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA 116518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
① 815						9.66	151	6.52	211.6	5.54	11.0	
① 827						9.79	145	6.70	208.8	5.08	6.34	
① 859						9.90	132	6.83	160.0	3.31	2.51	
② 818						9.68	146	6.65	205.9	4.54	2.84	
② 833						9.78	133	6.74	189.0	4.86	0.83	
② 902						10.07	130	6.93	159.0	4.48	1.10	
③ 822						9.65	152	6.74	204.4	3.93	1.07	
③ 838						9.75	138	6.78	188.4	3.65	0.74	
③ 0906						9.77	129	7.02	157.0	3.24	1.18	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: A. Arsenault
Reviewed by:

Date : 4/9/14 Page 1 of 1 **Well ID :** MLS1 Ports 4, 5, 6
Field Personnel A Arsenault Purging Start Time : (4) 843 (5) 847 (6) 853
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): (4) 7.82 (5) 8.47 (6) 11.74 From: Top of Port Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation Time at Purge Completion:
Sample Time (4) 1010 (5) 1015 (6) 1020 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI 556 MPS U49260X Turbidity meter model and serial number HANNA U61518X
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
(4) 844						9.89	197	6.62	190.3	2.85	1.77	
(4) 0910						10.02	165	6.94	155.5	2.32	0.85	
(4) 0942						9.85	173	6.96	114.7	1.36	0.63	
(5) 849						9.91	216	6.55	184.2	2.30	2.71	
(5) 0914						9.86	155	6.96	144.6	1.81	0.25	
(5) 0947						9.94	145	6.98	109.4	2.02	0.91	
(6) 854						9.06	249	6.64	174.7	1.90	4.85	
(6) 918						9.81	178	6.99	126.5	1.09	2.13	
(6) 950						9.93	174	6.98	107.3	1.13	1.00	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010

Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 4-1-14 Page 1 of

Field Personnel

Well Depth as installed (ft.): FLUTe - ~~Port~~ 1 MLS-3

Screen Length in ft. Screen Depth in ft.

Depth to GW (ft.): Tag ≈24 Port 1 30 From:

Pump/Tubing Intake set (ft.): Port 2 - 65' From:

Sample Designation

Sample Time ① 1810 / ② 1840

Well ID : MLS-3 Port 1 + 2

Purging Start Time :

Measured Well Depth (ft.):

Parameter Stabilization: (Circle) Yes / No

Two Hour Time Limit Reached ? (Circle) Yes / No

Total Volume Purged, Including Drawdown (gallons):

Time at Purge Completion:

Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)

Multimeter model and serial number YSI 600XL Turbidity meter model and serial number Lamotte 2020we

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Flute Well Sample Port Sampled Following SOP

Purge 3 times Collect Sample

	Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
	HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
Port 1	14:35						9.70	252	7.26	153.4	10.1	0.56	
Port 2	14:50						9.50	167	6.22	199.0	11.44	0.24	
Port 1	1525						9.49	146	6.41	175.8	6.86	0.12	
Port 2	1535						8.98	148	6.29	176.25	6.03	1.70	
1729 Port 1	[illegible]						8.46	163	6.40	165.7	1.29	0.75	
Port 2	1736						9.26	155	6.29	167.8	1.75	1.33	

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Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4-7-14 - 4-8-14 Page 2 of _____
Field Personnel _____
Well Depth as installed (ft.): MLS-3
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): Port 3 = 64.2 From: _____
Pump/Tubing Intake set (ft.): Port 4 = 63.4 From: _____
Sample Designation _____
Sample Time (4-8-14) 1105 P3 / 1115 P4

Well ID : MLS-3 Port 3 + 4
Purging Start Time : _____
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion: _____
Signature: _____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number La Motte 2020
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) FLUTE WELL SAMPLE PORTS; Sampled following SOP - Purge 3 times & Collect Sample

	Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
	HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
Port 3	1503						8.15	165	6.64	188.5	7.13	0.94	
Port 4	1514						8.80	189	6.80	176.0	5.84	0.64	
	1540						8.87	189	6.59	173.3	4.31	0.29	
	1550						8.84	209	6.91	167.2	3.61	0.25	
	1744						9.33	191	6.67	162.3	1.35	0.65	
	1751						9.27	239	6.93	160.0	1.38	0.66	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 4-8-14 Page _____ of _____
Field Personnel J. Stewart
Well Depth as installed (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): _____ From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time (5) 1420 (6) 1440 (7) 1540

Well ID : MLS 3 Port 5+6+7
Purging Start Time: (5) 1250 (6) 1300 (7) 1310
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion:
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Flush well Sample Ports, Sampled Following SOP purge 3 Times then collect Sample

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1255						12.12	357	7.43	142.3	0.40	0.83	Port 5
1325						10.74	245	7.37	147.2	0.89	0.22	Port 5
1355						11.38	223	7.92	129.1	0.91	0.23	Port 5
1305						11.56	260	6.92	153.7	0.68	0.72	Port 6
1335						10.93	236	7.43	146.7	0.50	0.39	Port 6
1405						10.98	218	7.93	126.6	0.73	0.33	Port 6
1315						10.76	244	7.04	150.2	1.14	2.28	Port 7
1345						10.96	285	7.53	141.2	0.47	0.79	Port 7
1415						10.79	234	7.81	130.3	0.46	0.30	Port 7

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Flute Liner Water level * Unable to measure 11/5/14

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev. 2

Prepared by: AMLeonido
Reviewed by:

Date: 11/5/2014 Page 1 of 1
Field Personnel AMLeonido
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 45 ft From:
Sample Designation MLS1-1-1114
Sample Time 1205

Well ID: MLS-1-1
Purging Start Time: 0855
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / (No)
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Total Volume Purged, Including Drawdown (gallons): 1 1/2 gallons
Time at Purge Completion: 1215
Signature: AM Leonido

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) ~~08393441~~ Flute (60psi)
Multimeter model and serial number 08E100203 Turbidity meter model and serial number 08393441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Flute well sampling system
* unable to probe water levels probe will not fit into pipe

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
855						11.23	130.0	6.79	-72.8	1.65	1.17	Nitrogen Control Valve
857						10.93	124.0	6.80	-84.9	0.85	0.55	set to 60 psi.
												1/2 gallon purge Volume
958						11.02	144	7.38	-118.0	1.16	0.48	
1001						11.03	130	7.13	-137.8	0.94	0.47	1/2 gallon purge volume
1103						11.40	131	7.28	-84.8	0.99	0.40	
1109						10.99	142	7.30	-83.7	0.98	2.15	1/2 gallon purge volume

Notes: All depths in feet below top of PVC unless specified
NR - No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No. SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev : 2

Prepared by: AMLEONIDO
Reviewed by:

Date : 11/5/2014 Page 1 of 1
Field Personnel AMLEONIDO
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 95 feet From:
Sample Designation MLS1 - 2 - 1114
Sample Time 12:19

Well ID : MLS1 - 2
Purging Start Time : 0845
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / (No)
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Total Volume Purged, Including Drawdown (gallons): 1 1/2 gallons
Time at Purge Completion: 12:29
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTE 60 psi
Multimeter model and serial number O&E 100203 Turbidity meter model and serial number 08393441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
* Unable to measure DW level probe would not fit in pipe Nitrogen Pressure set at 60psi

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0845						11.30	138	6.16	-24.5	2.17	1.22	
0850						10.99	122	6.63	-61.0	0.80	0.44	1/2 gallon purge volume
1005						11.13	124	7.27	-139.5	3.25	0.63	
1008						11.38	119	7.24	-138.9	0.93	0.58	1/2 gallon purge volume
1110						11.01	125	7.41	-96.9	5.25	2.46	
1113						10.91	125	7.44	-81.1	5.20	2.46	1/2 gallon purge volume

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: A M Leonido
Reviewed by:

Date: 11/5/2014 Page 1 of 1
Field Personnel: A M Leonido
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 122 From:
Sample Designation: MLS1-3-1114
Sample Time: 1235

Well ID: MLS 1-3
Purging Start Time: 0913
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / (No)
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Total Volume Purged, Including Drawdown (gallons): 4 gallons
Time at Purge Completion: 1245
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute (60psi)
Multimeter model and serial number: 08E100203 Turbidity meter model and serial number: 08393441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
* Unable to measure GW level. Probe would not fit into pipe. Nitrogen Pressure 60 psi

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
913						11.37	128	6.80	-93.8	1.36	0.42	
915						11.02	128	6.84	-99.0	0.95	0.48	1 1/2 gallons purge volume
1010						11.66	131	7.44	-119.7	1.25	0.51	
1014						11.03	127	7.26	-116.9	1.30	0.37	1 1/2 gallons purge Volume
1119						11.09	133	7.51	-72.7	3.04	0.30	
1124						10.97	132	7.49	-70.9	2.62	0.30	1 gallon purge volume

Notes: All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: AMLeonido
Reviewed by:

Date: 11/5/14 Page 1 of 1
Field Personnel AMLeonido
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 244 ft From:
Sample Designation MLS1-4-1114
Sample Time 12:53
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Filter Nitrogen pressure 60psi
Multimeter model and serial number 08E100203 Turbidity meter model and serial number 08393441

Well ID: MLS1-4
Purging Start Time: 0930
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 1½ gallons
Time at Purge Completion: 1310
Signature: AMLeonido

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
* Unable to measure water level probe would not fit in pipe

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0930						10.85	172	7.16	-138.5	3.54	0.47	
0936						10.99	161	7.08	-145.6	0.56	0.32	½ gallon purge volume
1020						10.92	174	7.29	-175.3	0.98	0.44	
1025						11.10	171	7.34	-166.9	0.89	0.23	½ gallon purge volume
1129						11.05	160	7.49	-70.1	1.85	0.51	
1134						10.93	162	7.62	-87.1	0.82	0.21	½ gallon purge volume

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No. SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: AMLeonido
Reviewed by:

Date: 11/5/2014 Page 1 of 1
Field Personnel AmLeonido
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 300 ft From:
Sample Designation MLS1-5-1114
Sample Time 1314

Well ID: MLS1-5
Purging Start Time: 0939
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / (No)
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Total Volume Purged, Including Drawdown (gallons): 4 gallons
Time at Purge Completion: 1345
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Flute Nitrogen pressure (60 psi)
Multimeter model and serial number 08E100203 Turbidity meter model and serial number 08393441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
* Unable to measure GW level probe would not fit into pipe

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0939						10.89	150	7.21	-149.0	0.97	0.38	
0944						10.98	146	7.16	-138.7	0.92	0.36	1½ gallons purge volume
1027						11.37	152	7.40	-173.5	1.08	1.13	
1030						11.21	153	7.40	-170.9	1.10	0.72	1½ gallon purge volume
1135						11.19	139	7.46	-87.5	1.07	0.97	1.0 gallon purge volume
1140						11.09	138	7.49	-81.9	1.15	0.25	

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev : 2

Prepared by: AM Leonido
Reviewed by:

Date : 11/5/14 Page 1 of 1
Field Personnel AM Leonido
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): * From:
Pump/Tubing Intake set (ft.): 357 feet From:
Sample Designation MLS1-6-1114 And duplicate
Sample Time 1349 13:54-duplicate
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Flute Nitrogen pressure (60psi)
Multimeter model and serial number 08E100203 Turbidity meter model and serial number 08393441

Well ID : MLS1-6
Purging Start Time : 0948
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / (No)
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Total Volume Purged, Including Drawdown (gallons): 2½ gallons
Time at Purge Completion: 1550
Signature: AM Leonido

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
* Unable to measure Gas level probe would not fit in pipe

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0948						10.98	143	7.23	-153.6	0.64	0.36	
0953						11.44	141	7.34	-183.4	0.43	0.36	1 gallon purge Volume
1034						10.96	141	7.34	-146.9	0.77	0.28	
1039						11.42	137	7.32	-196.2	1.02	0.35	1 gallon purge volume
1145						11.20	143	7.01	-110.8	0.61	0.25	
1157						11.51	144	7.09	-168.7	0.96	0.27	½ gallon purge volume

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: AML ALR

FOL signature:

Date: 11/10/2014 Page 1 of 1

Well ID: MLS-2-50 (Port 1)

field personnel: ALR AML

purging start time: 910

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 49.59 ref. point: PVC

pump/tubing intake set in ft. bgs: ref. point:

sample time 1030

sample designation: ① MLS-2-50-1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 1 1/2 gallons

time at purge completion: No gw to sample

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTE (60 PSI)

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID 5.9

0842 TAG 29.62 PID 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
915						10.98	378	6.50	50	2.67	1.54	
920						10.89	378	6.55	18.2	2.63	1.09	1/2 gallon of water purged
930						10.87	738	6.62	8.0	1.87	1.08	
935						10.79	738	6.65	8.5	1.89	1.07	1/2 gallon purge volume
950						10.75	738	6.50	8.9	1.84	0.53	
953			100'+			10.70	739	6.50	8.5	1.89	0.50	1/2 gallon purge volume
			No GW present at 1300!								1030	No GW well volume to sample
											1118	No GW recovery

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

Port	DTGW	PID	Time	11/10/2014
TAG	29.62	0.0	0842	
1	49.59	5.9		
2	48.64	3.8		
3	43.40	5.1		
4	43.41	7.9		
5	43.91	8.8		
6	[illegible]	[illegible]		

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

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Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-2-70 (port 2)

field personnel: AMLeonida purging start time: 0935

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 48.64 ref. point: PVC

pump/tubing intake set in ft. bgs: ref. point:

sample time 1130

sample designation: (2) MLS-2-70-1114

parameter stabilization: (circle) Yes / (No)

two hour time limit reached: (circle) Yes / (No)

total volume purged, including drawdown (gallons): 1½ gallons

time at purge completion: 1340

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute (60 psi)

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID = 3.8

8.42 TAG 29.62 PID 0.0 PVC

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
935						11.03	381	6.81	-20.1	2.20	4.37	
940						10.74	380	6.83	-24.9	0.99	1.67	½ gallon purge volume
1000						10.88	353	6.98	-10.5	3.48	2.92	
1005						10.77	364	6.85	-18.9	1.75	1.50	½ gallon purge volume
1015						11.01	247	6.84	-32.9	1.69	0.82	
1020						10.94	247	6.87	-29.9	1.69	0.95	½ gallon purge volume
			52.1									

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-2-165/115 (Port 3)

field personnel: AMLeonido purging start time: 0945

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / (No)

depth to GW ft. bgs: 43.40 ref. point: PVC two hour time limit reached: (circle) Yes / (No)

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 11:53 time at purge completion: 1330

sample designation: (3) MLS-2-165-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Fluid (60 psi)

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 5.1

GW level 49.89 following GW sampling

8.42 TAG 29.62 (PVC) PID 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0945						10.94	363	6.72	-15.2	0.55	4.05	
0950						10.82	368	6.74	-11.1	0.34	0.53	½ gallon purge volume
10:07						11.13	293	6.94	-30.4	5.50	1.08	
1010						10.94	313	6.79	-24.7	0.67	1.08	½ gallon purge volume
1020						11.17	208	7.05	-51.0	5.50	2.23	
1025						10.98	205	6.94	-46.8	0.88	2.40	½ gallon purge volume
		49.89										

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Attachment A, Page 1 of 1
Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-~~7~~2-134 (Port 4)

field personnel: ALR AML purging start time: 0932

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 43.41 ref. point:

pump/tubing intake set in ft. bgs: 134 ref. point:

sample time 1126

sample designation: MLS-2-~~[illegible]~~ 134-1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 2.0

time at purge completion: 1320

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FE UTe 60psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 7.9

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0934						11.29	362	6.89	8.1	1.54	0.24	60 psi
0937						11.26	365	6.95	10.8	0.54	0.27	1 gal purge volume
0953						11.39	335	6.94	-55.7	1.72	0.32	
0956						11.37	338	6.85	-48.2	0.08	0.39	0.5 gal purge volume
1011						11.33	244	7.17	-81.7	0.41	0.23	
						11.24	267	7.11	-85.7	0.05	0.32	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Rohrbaugh

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-2-~~391~~ 180 (Port 5)

field personnel: AMC ALR purging start time: 0923

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 43.91 ref. point:

pump/tubing intake set in ft. bgs: 180 ref. point:

sample time 1118

sample designation: MLS-2-~~391~~ 180 - 1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 2.0

time at purge completion: 1326

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi

multimeter model and serial number: YSI 556 600336-441 turbidity meter model and serial number: Hanna HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 8.8

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0927						11.23	372	7.00	10.8	0.30	0.56	60 psi
0930						11.15	369	7.06	10.3	0.33	0.43	1 gal purge volume
0947						11.37	361	7.03	-48.6	0.34	0.48	0.5 gal purge, no second reading
1007						11.40	310	7.26	-100.5	0.80	0.42	0.5 gal purge, no second reading

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Rohrbaugh

FOL signature:

Date: 11/10/14 Page 1 of 1 **Well ID:** MLS-2-355 (Port 6)

field personnel:

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 41.29 ref. point:

pump/tubing intake set in ft. bgs: 355 ref. point:

sample time 1103

sample designation: MLS-2-355-1114

purging start time: 0914

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 3.0

time at purge completion:

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 24.4

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0916						11.09	384	7.03	22.4	0.23	0.83	no second reading, 60 psi
												1 gal purge volume
0939						11.20	239	7.43	-55.9	1.59	0.20	
0943						10.97	261	7.28	-63.2	0.30	0.69	1 gal purge volume
0959						11.57	260	7.29	-67.9	1.01	1.10	
1002						11.25	231	7.49	-91.0	0.10	0.24	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: Nov 11/14 2014 Page 1 of 1 Well ID: MLS 3-80 (Port 1)

field personnel: AML purging start time: 0853

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 52.16 / 52.08 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 80 ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 1136 1137 D time at purge completion: 1244

sample designation: MLS-3-80-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: YSI 556 08E1002 turbidity meter model and serial number: HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

11/11 PID 1.6 ppm

11/14 PID 0.9

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0855						9.12	155	6.37	43.4	0.10	0.30	
0900						8.54	154	6.37	25.1	0.11	0.35	½ gallon purge volume
0915						8.55	153	6.44	-55.3	1.83	0.26	
0918						8.59	152	6.51	-59.3	1.89	0.24	½ gallon purge volume
0939						7.61	83	6.64	-70.9	6.52	0.21	
943						7.59	100	6.70	-71.5	5.90	0.29	½ gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descrip...

TAG	11/11 DTW	PID	TAG	11/14 DTW	PID	Time
	25.76'	Ø	TAG	25.79	0.9	0752

Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev. 3

Sampler signature: [illegible]

FOL signature:

Date: 11/11/14 Page 1 of 1 Well ID: MLS-3-125 (Port 2)

field personnel:

purging start time: 0904

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 75.74/75.74 ref. point:

two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 125 ref. point:

total volume purged, including drawdown (gallons): 1 1/2 gallons

sample time ~~MLS~~ 1152

time at purge completion: 1230

sample designation: MLS-3-125-1114

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):

multimeter model and serial number: YSI 556 08E1002 turbidity meter model and serial number: HI 98703 08393441

Notes. (initial wellhead PID/FID reading, deviations from SOP, etc.)

11/11 PID 105.0 ppm

11/14 PID 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0905						8.77	173	6.26	10.3	4.98	0.20	
0908						8.78	175	6.30	-10.5	0.64	0.60	1/2 gallon purge volume
0921						7.55	96	6.49	-30.2	1.33	0.52	
0925						8.73	96	6.52	-27.1	1.50	0.49	1/2 gallon purge volume
0944						8.53	159	6.34	-50.2	1.71	0.25	
0948						8.70	162	6.33	-44.4	1.70	0.48	1/2 gallon purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: AMLyndo

FOL signature:

Date: 11/14/14 Page 1 of 1 Well ID: MLS-3-189 (Port 3)

field personnel: AML purging start time: 910

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / (No)

depth to GW ft. bgs: 75.51 / 75.47 ref. point: two hour time limit reached: (circle) Yes / (No)

pump/tubing intake set in ft. bgs: 189 ref. point: total volume purged, including drawdown (gallons): 1 1/2 gallons

sample time 1159 time at purge completion: 1233

sample designation: MLS-3-189-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Fluts 60 psi

multimeter model and serial number: YSI 556 08E1002 turbidity meter model and serial number: HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

11/11 PID 2.6 ppm

11/14 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0910						8.63	190	6.49	-7.1	7.35	0.16	
0913						8.96	192	6.62	-27.9	2.37	0.26	1/2 gallon purge volume
0927						8.56	191	6.69	-69.8	1.95	0.20	
0930						8.59	191	6.68	-73.1	0.83	0.29	1/2 gallon purge volume
0950						8.81	186	6.31	-37.5	1.48	0.35	
0953						8.90	190	6.35	-38.0	1.52	0.29	1/2 gallon purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [illegible]

FOL signature:

Date: 11/14/14 Page 1 of 1 Well ID: MLS-3-230 (port 4)

field personnel: AML purging start time: 0914

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 77.61 / 77.73 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 230 ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 1207 time at purge completion: 1236

sample designation: MLS-3-230-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTE 60 psi

multimeter model and serial number: YSI 556 08E1002 turbidity meter model and serial number: HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

11/11 PID 6.4 ppm

11/14 3.4

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0915						8.98	222	6.61	-32.1	7.30	0.27	
0918						9.10	223	6.71	-31.6	2.02	0.22	½ gallon purge volume
9133						8.89	222	6.86	-86.1	1.27	0.32	
9360						9.01	222	6.89	-79.5	1.05	0.29	½ gallon purge volume
0955						8.72	172	6.48	-46.8	0.84	0.35	
1001						8.75	175	6.50	-50.1	0.79	0.50	½ gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/14/14 Page 1 of 1 Well-ID : MLS-3-255 (port 5)
Field Personnel Andy Robichaud Purging Start Time : 0853
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 60.62 / 60.69 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 255 From: Total Volume Purged, Including Drawdown (gallons): ~~3.0~~ 2.5
Sample Designation MLS-3-255-1114 Time at Purge Completion: 1236
Sample Time 1145 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTe
Multimeter model and serial number YSI 556 14H07 Turbidity meter model and serial number ~~Hanna~~ HI98703
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc) ~~MS/MSD~~ collected ~~Duplicate~~ MS/MSD 11/11 PID 7.2 ppm 11/14 1.1

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/-3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0856						8.41	179	6.78	-16.5	1.22	1.59	70 psi
0859						8.92	177	6.82	-38.5	0.69	0.23	0.5 gal purge volume
0920						8.95	178	6.87	-75.9	0.69	1.06	
0923						9.25	190	6.95	-77.0	0.51	0.24	1 gal purge volume
0944						8.98	185	6.85	-43.9	2.18	0.58	
0947						9.38	199	7.05	-56.2	0.94	0.20	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/14/14 Page 1 of 1 Well ID: MLS-3-310 (port 6)

field personnel: Andy Robichaud purging start time: 0903

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 71.01 / 71.04 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 310 ref. point: total volume purged, including drawdown (gallons): 3.0

sample time 1158 time at purge completion: 1243

sample designation: MLS-3-310-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: Hanna HI 98703

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Duplicate - MLS-3-310-1114D 11/11 PID 350.0 ppm

11/14 PID 4.4

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0905						8.87	175	6.67	-48.9	0.57	1.14	70 psi
0908						9.04	174	6.85	-55.7	0.39	0.30	1 gal purge volume
0927						9.03	186	6.85	-66.7	0.71	0.49	
0930						9.23	192	7.00	-72.3	0.49	0.31	1 gal purge volume
0951						0941	202	7.30	-72.0	1.31	0.13	
0954						0946	202	7.42	-85.2	0.62	0.12	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/14/14 Page 1 of 1 Well ID: MLS-3-340 (PORT 7)

field personnel: Andy Robichaud purging start time: 0910

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 75.56 / 77.01 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 340 ref. point: total volume purged, including drawdown (gallons): 3.0

sample time 1208 time at purge completion: 1253

sample designation: MLS-3-340-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: Hanna HI 98703

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Duplicate - MLS-3-340-1114D

11/11 PID 350 ppm

11/14 PID 0.7

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0913						9.10	172	6.80	-61.6	0.68	0.67	70 psi
0916						9.19	172	6.88	-70.9	0.32	1.38	1 gal purge volume
0935						8.63	187	6.88	-58.8	1.89	0.42	
0938						9.09	198	7.00	-63.2	1.37	0.65	1 gal purge volume
0956						9.37	202	7.56	-90.5	0.58	0.25	
0959						9.52	203	7.62	-93.0	0.42	0.21	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Attachment A, Page 1 of 1
Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: Nov 11 2014 Page 1 of 1 Well ID: MLS 4-88 (Part 1)

field personnel: AmLeard purging start time: 912

well depth as installed (ft.): 88 measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 59.61 ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time 1125 time at purge completion: _____

sample designation: MLS 4-88-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 05093441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 18.1 MSMSD

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
913						11.07	162	6.43	137.6	4.25	0.37	
916						10.50	150	6.28	137.2	5.48	0.33	½ gallon purge volume
922						10.78	136	6.32	121.2	5.08	0.38	
948						11.12	134	6.44	120.7	6.54	0.57	
952						10.63	135	6.27	126.2	6.25	0.19	½ gallon purge volume
1019						11.10	140	6.36	125.1	6.35	0.25	¼ gallon purge volume
1022						10.79	135	6.26	128.7	6.23	0.21	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: Nov 11 2014 Page 1 of 1 Well ID: MLS 4 - 125 (port 2)
field personnel: AmLeonda purging start time: 0927
well depth as installed (ft.): -125 measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: 63.44 ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 1140 time at purge completion: _____
sample designation: MLS-4-125-1114 QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flux 60psi
multimeter model and serial number: 08E100203 turbidity meter model and serial number: 089344/
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID ~~0.7~~ 13.5

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0927						11.04	147	6.26	124.6	4.23	0.56	
0930						10.69	145	6.18	132.1	4.46	0.24	
0934						10.71	140	6.21	130.6	4.01	0.35	1/2 gallon purge volume
958						11.11	136	6.33	126.4	4.86	0.60	
1003						10.73	140	6.24	127.4	6.01	0.12	1/2 gallon purge volume
1030						11.09	142	6.23	130.9	5.17	0.16	
1035						11.04	140	6.48	129.5	7.01	0.17	1/4 gallon purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: Nov 11 2014 Page 1 of 1 Well ID: MLS-4-215 (port 3)
field personnel: AMLeonido purging start time: 938
well depth as installed (ft.): 215 measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: 84.74 ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 1152 time at purge completion: _____
sample designation: MLS-4-215 QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flux 60 psi
multimeter model and serial number: 08E100203 turbidity meter model and serial number: 0893441
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 14.6

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
938						10.87	152	6.34	128.7	5.01	5.38	
941						10.74	71	6.41	127.8	10.07	0.37	
945						10.70	154	6.30	127.9	4.98	0.41	1/2 gallon purge volume
1007						11.16	149	6.33	122.5	4.61	0.49	
1015						10.90	151	6.47	123.1	5.85	0.30	1/2 gallon purge volume
~~1044~~						11.12	150	6.35	124.3	5.39	0.20	
1047						10.98	166	6.39	124.3	3.16	0.30	1/2 gallon purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/11/14 Page 1 of 1 Well ID: MLS-4-325 (Port 4)
field personnel: Andy Robichaud purging start time: 0938
well depth as installed (ft.): measured well depth in ft.
top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: 84.09 ref. point: two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: 325 ref. point: total volume purged, including drawdown (gallons): 1.5
sample time 1143 time at purge completion: 1532
sample designation: MLS-4-325-1114 QA samples: Dup MS/MSD Equipment Other
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute
multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Dup: MLS-4-325-1114D, PID: 9.9

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0941						10.98	203	6.83	57.8	1.47	0.41	60 psi
0944						10.97	191	6.80	51.2	1.31	0.55	0.5 gal purge volume
1007						11.10	196	6.84	41.8	1.60	0.22	
1010						11.08	190	6.80	40.6	1.64	0.16	0.5 gal purge volume
1032						11.12	193	6.84	41.5	1.86	0.20	
1036						11.19	199	6.81	38.4	0.98	0.15	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/11/14 Page 1 of 1 Well ID: MLS-4-376 (Port 5)

field personnel: Andy Robichaud purging start time: 0926

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 84.24 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 376 ref. point: total volume purged, including drawdown (gallons): 1.25

sample time 1132 time at purge completion: 1420

sample designation: MLS-4-376-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 15.2

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0931						10.90	195	6.96	56.5	1.12	0.92	60 psi
0934						10.97	195	6.96	54.4	0.98	0.91	0.25 gal purge volume
0958						10.97	204	7.00	47.4	1.10	1.17	
1002						10.97	202	6.98	47.1	0.84	0.34	0.5 gal purge volume
1024						11.28	203	7.00	42.9	2.73	0.58	
1027						11.10	207	6.98	43.6	1.80	0.61	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/11/14 Page 1 of 1 Well ID: MLS-4-475 (Part 6)
field personnel: Andy Robichaud purging start time: 0909
well depth as installed (ft.): measured well depth in ft.
top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: 85.39 ref. point: two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: 475 ref. point: total volume purged, including drawdown (gallons): 0.75
sample time 1118 time at purge completion: 1348
sample designation: MLS-4-475-1114 QA samples: Dup MS/MSD Equipment Other
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe
multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 19.1

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0913						11.18	262	6.94	99.2	0.57	2.05	70 psi
0916						11.06	226	6.99	84.4	0.41	2.29	0.25 gal purge volume
0949						11.10	200	7.06	50.9	0.92	2.25	
0954						11.85	228	7.18	51.1	0.71	0.45	0.25 gal purge volume
1015											0.40	
~~0958~~						11.03	216	7.15	45.6	0.96	~~1.17~~	
1018						10.99	231	7.24	45.3	0.66	0.36	0.25 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: Nov 13 2014 Page 1 of 1 Well ID: MLS-S-49 (Port 1)

field personnel: AMLeonido purging start time: 1243

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 37.16 ref. point:

pump/tubing intake set in ft. bgs: 49 ref. point:

sample time 1343

sample designation: MLS-S-49-1114

parameter stabilization: (circle) Yes / (No)

two hour time limit reached: (circle) Yes / (No)

total volume purged, including drawdown (gallons): 1 1/2 gallons

time at purge completion: 1445

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08093441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID = 2.6 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1245						10.26	NR	6.53	152.4	2.38	6.84	
1250						10.29	NR	6.39	153.6	0.54	0.49	1/2 gallon purge volume
1312						10.18	NR	6.37	147.7	1.50	0.20	
1315						10.21	NR	6.34	147.9	0.80	0.17	1/2 gallon purge volume
1325						10.20	NR	6.48	139.5	7.73	0.34	
1327						10.22	NR	6.30	141.4	2.95	0.27	
												1/2 gallon purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions.

NR = Not Read
50 KΩ

TAG	
	26.46
1	37.16
2	40.85
3	42.84
4	36.59
5	35.17

pid 0.0 12:09 No Cap

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: Nov 13 2014 Page 1 of 1 Well ID: MLS-5-90 (Port 2)

field personnel: AMZ zmdo purging start time: 1300

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 40.85 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 90 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1352 total volume purged, including drawdown (gallons): 1½ gallons

sample designation: MLS-5-90-1114 time at purge completion: 1452

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08093441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID 1.4 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1301						10.26	NR	6.62	154.0	2.30	0.44	
1304						10.33	NR	6.57	152.5	0.58	0.22	½ gallon purge volume
1317						10.07	NR	6.52	147.0	2.76	0.34	
1320						10.22	NR	6.53	145.7	0.77	0.20	½ gallon purge volume
1328						9.62	NR	6.79	146.0	10.47	0.27	
1331						10.22	NR	6.55	139.8	1.11	0.12	½ gallon purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 11/13/2014 Page 1 of 1 Well ID: MLS 5 117 (Port 3)

field personnel: AmLourido purging start time: 1305

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 42.84 ref. point:

pump/tubing intake set in ft. bgs: 117 ref. point:

sample time 1358

sample designation: MLS-5-117-1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 1 1/2 gallons

time at purge completion: 1502

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08093441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID= 3.4 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1307						10.32	NR	6.77	148.5	2.06	0.22	
1310						10.29	NR	6.80	145.0	0.28	0.25	1/2 gallon purge volume
1322						10.24	NR	6.73	136.4	4.15	0.27	
1324						10.26	NR	6.69	136.2	1.26	0.18	1/2 gallon purge volume
1329						10.21	NR	6.45	139.7	0.47	0.17	1/2 gallon purge volume
1332						10.22	NR	6.50	139.9	0.47	0.12	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

NR = Not Read.
54 K Ω

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: Nov 13 2014 Page 1 of 1 Well ID: MLS-5-209 (port 4)

field personnel: Andy Robichaud purging start time: 1241

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / (No)

depth to GW ft. bgs: 36.59 ref. point: _____ two hour time limit reached: (circle) Yes / (No)

pump/tubing intake set in ft. bgs: 209 ref. point: _____ total volume purged, including drawdown (gallons): 2.0

sample time 1332 time at purge completion: ~~1337~~ 1430

sample designation: MLS-5-209-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 14407 turbidity meter model and serial number: Hanna HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 0.4, Spec Cond not working

PID 0.4 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1243						10.39	NR	7.43	132.1	0.01	0.28	60 psi
1246						10.46	NR	7.27	98.4	0.02	0.46	1 gal purge volume
1259						10.37	NR	7.49	-2.6	0.09	0.24	
1302						10.41	NR	7.36	-6.9	0.06	0.51	0.5 gal purge volume
1309						10.32	NR	7.47	-38.5	0.08	0.25	
1311						10.27	NR	7.52	-67.2	0.07	0.23	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: Nov 13 2014 Page 1 of 1 Well ID: MLS-5-328 port 5

field personnel: Andy Robichaud purging start time: 1247

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____

depth to GW ft. bgs: 35.17 ref. point: _____

pump/tubing intake set in ft. bgs: 328 ref. point: _____

sample time 1341

sample designation: MLS-5-328-1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 2.0

time at purge completion: 1341

QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTE

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: Hanna HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 2.2, Duplicate MLS-5-328-1114D at 1436 PID 2.2 ppm

Spec Cond not working

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1249						10.46	NR	7.23	75.1	0.17	0.86	60 psi
1252						10.40	NR	7.39	57.4	0.07	0.56	1 gal purge volume
1304						10.43	NR	7.32	-11.3	0.02	0.59	
1307						10.41	NR	7.34	-10.6	0.02	0.45	0.5 gal purge volume
1313						10.16	NR	7.67	-85.4	0.09	0.12	
1316						10.31	NR	7.72	-87.5	0.07	0.11	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: 11/6/2014 Page 1 of 1 Well ID: MLS-6-1
field personnel: ALR, AML purging start time: _____
well depth as installed (ft.): _____ measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft bgs: 45 feet ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 1450 time at purge completion: _____
sample designation: MLS-6-1-1114 QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi
multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1223						10.17	291	6.17	98.4	1.16	0.25	60 psi
1230			100.73			10.23	291	6.16	63.9	0.61	0.76	1 gal purge volume
1345						10.38	295	6.19	32.8	0.72	0.41	
1350						10.32	292	6.30	36.2	1.00	0.25	1 gal purge volume
1414						10.41	291	6.30	24.7	1.54	1.05	
1419						10.36	291	6.21	38.4	1.23	0.98	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: 11/6/2014 Page 1 of 1 Well ID: MLS6-2-1114
field personnel: ALR, AML purging start time: _____
well depth as installed (ft.): _____ measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: 65 feet ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 1430 time at purge completion: _____
sample designation: MLS6-2-1114 QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi
multimeter model and serial number: 08E100203 turbidity meter model and serial number: 0835706
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1239						10.36	287	6.43	47.1	1.52	0.26	60 psi
1244			106.38			10.23	283	6.37	37.7	0.63	0.29	1 gal purge volume
1354						10.37	290	6.28	38.1	1.37	0.86	
1359						10.32	292	6.39	27.9	1.03	0.44	1 gal purge volume
1423						10.42	296	6.29	36.7	1.31	1.04	
1428						10.39	300	6.21	37.5	1.26	0.35	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: 11/6/2014 Page 1 of 1 **Well ID:** MLS6-3-1114
field personnel: ALR, AML purging start time: _____
well depth as installed (ft.): _____ measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: 125 ft ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 1450 time at purge completion: _____
sample designation: MLS6-3-1114 QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi
multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1251						10.27	253	6.85	25.5	1.01	0.11	60 psi
1256			108.41			10.29	253	6.85	15.8	0.85	0.10	1 gal purge volume
1405						10.38	255	6.80	15.1	1.51	0.19	
1410						10.31	258	6.85	15.9	1.80	0.32	
1429						10.39	256	6.80	24.5	1.91	0.95	
1434						10.36	259	6.80	7.6	1.07	0.18	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date: 11/7/14 Page ___ of ___ Well ID: MLS-6-4
Field Personnel Andy Robichaud / Tony Leonido Purging Start Time: 0844
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 32.86 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2.5g
Sample Designation MLS-6-4-1114 Time at Purge Completion: 1113
Sample Time 0930 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTe 60psi
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0848						10.24	548	6.39	24.7	1.56	0.11	60psi
0853						10.45	540	6.51	18.3	1.68	0.44	1 gal purge volume
0859						10.52	494	6.58	-3.3	0.80	0.16	H_2S odor
0904						NR	NR	NR	NR	NR	0.18	0.5gal purge, not enough for 2nd YSI reading
0911						10.53	556	6.64	-10.3	0.78	0.08	
0916						10.38	509	6.65	-24.5	1.95	0.12	0.5gal purge volume

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/7/14 Page 1 of 1 Well ID : MLS-6-5
Field Personnel Andy Robichaud Purging Start Time : 1155
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 33.37 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2.5
Sample Designation MLS-6-5-1114 Time at Purge Completion: 1330
Sample Time ~~1230~~ 1235 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTE 60psi
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hama HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1158						10.44	329	6.84	40.0	0.92	0.12	60 psi
1203						10.41	403	6.72	5.4	0.36	0.19	1 gal purge volume
1210						10.12	411	6.67	-14.5	0.79	0.39	
1215						10.21	436	6.68	-23.1	0.50	0.13	1 gal purge volume
1223						10.13	338	6.75	-33.1	1.43	0.07	
1228						10.22	333	6.75	-31.9	0.96	0.10	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 11/7/14 Page 1 of 1 **Well ID :** MLS-6-6
Field Personnel Andy Robichaud Purging Start Time : 1335
Well Depth as installed (ft.): Measured Well Depth (ft.): ~~1500~~
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 33.22 From: Two Hour Time Limit Reached ? (Circle) Yes / (No)
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2.5
Sample Designation MLS-6-6-1114 Time at Purge Completion: 1500
Sample Time 1420 Signature: Andy Robichaud
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTe 60 psi
Multimeter model and serial number YSI 556 600336-4M Turbidity meter model and serial number Hanna HI 98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1339						10.22	150	6.81	-8.7	0.91	0.20	60 psi
1344						10.33	148	6.81	-15.5	0.70	0.22	1 gal purge volume
1352						9.97	146	6.84	-24.3	1.16	0.21	
1357						10.27	138	6.93	-33.9	0.44	0.14	1 gal purge volume
1405						9.83	135	6.88	-37.9	0.71	0.19	
1410						10.27	133	6.94	-42.2	0.47	0.31	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2
Prepared by:
Reviewed by:

Date : 11/7/14 Page 1 of 1
Field Personnel Andy Robichaud
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 34.18 From:
Pump/Tubing Intake set (ft.): From:
Sample Designation MLS-6-7-1114
Sample Time 1430

Well ID : MLS-6-7
Purging Start Time : 1345
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 2.5
Time at Purge Completion: 1510
Signature: Andy Robichaud

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) FLUTe 60psi
Multimeter model and serial number YSI 556 600336-411 Turbidity meter model and serial number Hanna HI98703 08357016
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Duplicate - MLS-6-6-1114D @ 1505

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1346						10.46	148	6.84	-19.0	0.46	0.14	60 psi
1351						10.36	147	6.84	-25.9	0.17	0.85	1 gal purge volume
1400						10.09	147	6.82	-25.5	1.10	0.98	
1405						10.26	144	6.88	-36.1	0.95	0.16	1 gal purge volume
1410						10.16	141	6.84	-41.6	0.98	0.31	
1415						10.35	140	6.92	-52.4	0.23	0.80	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: 11/6/2014 Page 1 of 1 **Well ID:** MLS-6-6

field personnel: _____ purging start time: _____

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 250 ft ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: _____

sample designation: MLS6-6-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: _____ turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1325						10.32	162	6.88	15.2	~~1.75~~ 1.05	0.12	
1329			110.75			10.27	167	6.94	11.0	~~1.0~~ 1.22	0.13	1 gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: 11/6/2014 Page 1 of 1 **Well ID:** MLS6-7-

field personnel: _____ purging start time: _____

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 336 ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: _____

sample designation: MLS6-7-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60psi

multimeter model and serial number: _____ turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1334						10.32	152	6.89	11.7	0.74	0.24	
1338			105.64			10.32	162	6.92	10.9	1.04	0.29	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: _____ Page _____ of _____ **Well ID:** MLS 6 -5

field personnel: _____ purging start time: _____

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 215 ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: _____

sample designation: MLS 6 -5- 1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLuTe 60psi

multimeter model and serial number: _____ turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1315						10.29	298	6.82	16.8	1.34	0.24	60 psi
1320			109.42			10.31	292	6.83	14.9	0.99	0.12	1 gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

Discontinued to sample ports (1-3)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: _____ Page _____ of _____ **Well ID:** MLS6-4

field personnel: _____ purging start time: _____

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 175 ft ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: _____

sample designation: MLS6-4-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60psi

multimeter model and serial number: _____ turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1302						10.27	588	6.69	29.1	1.63	2.60	60 psi
1307			108.39			10.28	578	6.70	18.4	1.06	0.16	1 gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

To conserve gas.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/10/14 Page 1 of 1 Well ID: MLS-7-50 Post 1

field personnel: Andy Robichaud

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 47.41 ref. point:

pump/tubing intake set in ft. bgs: 50 ref. point:

sample time 1545

sample designation: MLS-7-50-1114

purging start time: 1425

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 3.0

time at purge completion: 1716

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08393441

Notes (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1426						11.50	254	7.50	36.7	1.19	2.27	60 psi
1429						11.09	252	7.34	19.1	0.35	0.85	0.5 gal purge volume
1447						11.20	248	7.15	7.7	1.20	0.70	
1450						10.94	246	7.01	7.9	0.53	0.36	0.5 gal purge volume
1510						10.89	200	6.09	32.7	2.34	0.52	
1513						10.79	194	5.99	39.4	2.65	0.68	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/10/14 Page 1 of 1 **Well ID:** MLS-7-82 (Part 2)

field personnel: Andy Robichaud purging start time: 1433

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 47.78 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 82 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1552 total volume purged, including drawdown (gallons): 3.0

sample designation: MLS-7-82-1114 time at purge completion: 1718

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1435						10.81	239	7.39	13.0	0.64	0.83	60 psi
1438						10.84	240	7.43	8.3	0.17	0.36	1 gal purge volume
1452						10.91	244	7.01	7.0	3.05	0.26	
1455						10.85	242	7.02	6.3	0.89	0.27	0.5 gal purge volume
1515						10.95	325	6.58	35.3	2.46	0.15	
1518						10.80	326	6.61	31.2	0.45	0.20	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/10/14 Page 1 of 1 **Well ID:** MLS-7-134 (Port 3)

field personnel: Andy Robichaud purging start time: 1440

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 49.08 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 134 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1600 total volume purged, including drawdown (gallons): 3.0

sample designation: MLS-7-134-1114 time at purge completion: 1725

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1442						10.76	238	7.44	6.7	0.71	0.32	60 psi
1445						10.78	237	7.49	4.8	0.33	0.23	1 gal purge volume
1456						11.20	239	7.37	5.4	3.45	0.34	
1459						10.94	240	7.32	3.2	0.70	0.11	1 gal purge volume
1518						11.06	274	7.05	23.6	1.12	0.08	
1521						11.90	288	7.06	19.6	0.53	0.10	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: AMLeonido

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-7-285 port (4)

field personnel: AMLeonido purging start time: 1425

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 27.98 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 1530 time at purge completion: 1620

sample designation: MLS-7-285-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 4.8

GW level following sampling @ 16:20 54.40 ft bgs (pvc)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1430						11.60	239	7.79	41.1	3.51	0.16	
1435						11.60	239	7.67	37.6	1.80	0.14	½ gallon purge volume
1450						11.10	245	7.45	-36.1	2.86	0.15	
1455						10.97	244	7.41	-34.5	0.60	0.16	½ gallon purge volume
1515						11.02	250	7.45	-45.07	1.77	0.12	
1520						10.91	251	7.47	-37.7	0.80	0.10	½ gallon purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: A M Leonido

FOL signature:

Date: 11/10/2014 Page 1 of 1 Well ID: MLS-7-391 (5)

field personnel: AMLeonido purging start time: 1435

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 18.60 ref. point: pvc parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: two hour time limit reached: (circle) Yes / No

sample time 1545 total volume purged, including drawdown (gallons): 1½ gallons

sample designation: MLS-7-391-1114 time at purge completion: 1625

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60psi

multimeter model and serial number: 08E100203 turbidity meter model and serial number: 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 10.5

GW level at 1625 following sampling 33.40 ft bgs (pvc)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1440						10.83	234	7.44	-26.1	4.09	0.14	
1445						10.79	233	7.40	-25.6	1.07	0.30	½ gallon purge volume
1500						11.07	239	7.42	-21.9	1.10	0.36	
1505						10.84	239	7.48	-38.3	1.13	0.14	½ gallon purge volume
1525						10.95	245	7.63	-100.1	2.30	0.16	
1530						10.84	245	7.68	-107.5	0.67	0.06	½ gallon purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions

MLS-7

PORT	DTW	PID	Time
TAG	10.01	0.0	1319
1	47.41	7.6	
2	47.78	18.0	
3	49.08	6.0	
4	27.98	4.8	

	DTW	
TAG	10.01	1620
1	104.77	
2	70.88	
3	41.20	
4	54.40	

MLS8-70 Port (1)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: Nov 13 2014 Page 1 of 1 Well ID: MLS-B-70

field personnel: AML, ALR purging start time: 820

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 20.64 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 70 ref. point: two hour time limit reached: (circle) Yes / No

sample time 959 total volume purged, including drawdown (gallons): 2 gallons

time at purge completion: 1100

sample designation: MLS-B-70-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTE 60 psi

multimeter model and serial number: YSI 556 turbidity meter model and serial number: HACH HI 98703

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID: 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
820						10.37	60 K-	6.52	143.9	0.32	0.32	
825						10.39	60 K	6.46	137.8	0.31	0.78	1/2 gallon purge volume
0910						10.51	NR	6.30	135.9	2.43	0.34	
0913						10.49	NR	6.28	136.4	3.12	0.28	1/2 gallon purge volume
0925						10.45	NR	6.45	135.1	3.13	0.56	1 gallon purge volume
0928						10.31	NR	6.30	136.7	4.14	0.39	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

NR 84 K

W

MLS8 85 Part(2)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 11/13/14 Page 1 of 1 Well ID: MLS 8 - 85

field personnel: AML purging start time: 845

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 21.25 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 83 ref. point: two hour time limit reached: (circle) Yes / No

sample time 10:07 total volume purged, including drawdown (gallons): 2 gallons

sample designation: MLS-8-85 time at purge completion: 1115

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):

multimeter model and serial number: turbidity meter model and serial number: HI 98703

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 0.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
847						10.44	NR	6.52	134.3	0.25	0.84	
855						10.37	NR	6.50	128.3	0.11	0.20	½ gallon purge volume
915						10.33	NR	6.43	128.5	3.12	0.18	
919						10.29	NR	6.39	129.7	3.04	0.27	½ gallon purge volume
929						10.30	NR	6.36	136.5	3.44	0.52	
935						10.32	NR	6.31	137.6	3.83	0.24	1 gallon purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

NR = No Reading 92K

MLS-8-123 Port(3)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 11/13/14 Page 1 of 1 Well ID: MLS-8-123

field personnel: AML purging start time: 857

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 21.32 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 123 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1019 total volume purged, including drawdown (gallons): 2 gallons

sample designation: MLS-8-123 1114 time at purge completion: 1130

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi

multimeter model and serial number: turbidity meter model and serial number: HI 98703

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 8.5

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
857						10.36	NR	6.59	128.0	1.71	0.70	
0900						10.40	NR	6.57	130.5	0.14	0.82	½ gallon purge volume
920						10.25	NR	6.65	126.1	1.50	0.22	
923						10.23	NR	6.77	124.1	2.04	0.51	½ gallon purge volume
0936						10.36	NR	6.66	125.6	2.30	0.33	1 gallon purge volume
0940						10.26	NR	6.86	124.0	2.06	0.15	

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

NR = Not Reading! GS+K

220 Port(4)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

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Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/13/14 Page 1 of 1 Well ID: MLS-8-220

field personnel: Andy Robichaud purging start time: 0834

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 52.47 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 220 ref. point: two hour time limit reached: (circle) Yes / No

sample time 0956 total volume purged, including drawdown (gallons): 1.5

sample designation: MLS-8-220-1114 time at purge completion: 1117

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: Hanna HI ~~08393~~ 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 1.0, Spec. Cond. not working

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0836						10.07	NR	6.94	-3.6	0.07	0.45	60psi
0839						10.33	NR	6.88	-0.4	0.03	0.41	0.5 gal purge volume
0900						10.53	NR	6.77	200.1	0.07	0.24	
0903						10.48	NR	6.79	198.4	0.10	0.39	0.5 gal purge volume
0918						10.24	NR	7.10	180.7	0.01	0.30	
0921						10.31	NR	7.05	175.2	0.04	0.22	0.5 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

250 Port(5)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/13/14 Page 1 of 1 Well ID: MLS-8-250

field personnel: Andy Robichaud purging start time: 0842

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 65.95 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 250 ref. point: total volume purged, including drawdown (gallons): 1.5

sample time 1004 time at purge completion: 1128

sample designation: MLS-8-250-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: HI98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 4.6, Spec Cond not working

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0846						10.51	NR	6.81	214.6	0.06	0.60	60 psi
0849						10.48	NR	6.81	211.9	0.03	0.63	0.5 gal purge volume
0906						10.55	NR	6.82	195.2	0.05	0.94	
0909						10.45	NR	6.89	191.8	0.03	1.04	0.5 gal purge volume
0927						10.31	NR	6.99	172.0	0.05	0.64	
0930						10.35	NR	7.03	171.5	0.01	0.69	0.5 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

296 Port (6)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

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Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/13/14 Page 1 of 1 Well ID: MLS-8-296

field personnel: Andy Robichaud purging start time: 0851

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 65.95 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 296 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1011 total volume purged, including drawdown (gallons): 3.0

time at purge completion: 1133

sample designation: MLS-8-296-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 14H07 turbidity meter model and serial number: Hanna HI 98703 08393441

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 8.1, Spec Cond - not working

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0853						10.38	NR	6.76	204.5	0.05	0.44	60 psi
0856						10.40	NR	6.71	202.9	0.03	0.54	1 gal purge volume
0912						10.41	NR	6.89	190.1	0.03	0.39	
0915						10.33	NR	7.05	185.7	0.01	0.75	1 gal purge volume
0933						10.25	NR	7.07	169.2	0.01	0.62	
0936						10.34	NR	7.07	167.9	0.01	0.22	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/12/14 Page 1 of 1 **Well ID:** MLS-9-69 (Port 1)

field personnel: Andy Robichaud purging start time: 1404

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 32.36 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 69 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1600 total volume purged, including drawdown (gallons): 3.0

time at purge completion: 1655

sample designation: MLS-9-69-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 600336-411 turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 4.5

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1406						11.95	723	6.49	20.5	4.96	0.39	60 psi
1409						12.11	714	6.26	122.7	4.31	0.49	1 gal purge volume
1455						11.75	580	6.29	90.3	3.27	0.68	1
1458						11.67	646	6.24	88.0	3.92	0.18	1 gal purge volume
1520						11.72	521	6.40	55.7	2.53	0.31	
1523						11.62	611	6.26	59.4	4.36	0.80	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-9-97 (Part 2)

field personnel: Andy Robichaud purging start time: 1425

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 32.36 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 97 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1607 total volume purged, including drawdown (gallons): 3.0

sample designation: MLS-9-97-1114 time at purge completion: 1701

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016

Notes (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 4.6

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1427						12.55	685	6.32	30.0	4.32	0.25	60 psi
1430						12.49	682	6.32	29.9	4.15	1.34	1 gal purge volume
1459						11.94	655	6.24	74.3	4.61	0.35	
1502						11.74	622	6.27	70.8	4.41	0.18	1 gal purge volume
1526						11.59	570	6.29	52.4	5.00	0.33	
1529						11.54	540	6.28	55.2	4.95	0.32	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: Andy Robichaud

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-9-115 (Port 3)

field personnel: Andy Robichaud purging start time: 1430

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 32.34 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 115 ref. point: total volume purged, including drawdown (gallons): 3.0

sample time 1615 time at purge completion: 1706

sample designation: MLS-9-115-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 600336-41 turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 28.0

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1435						12.38	664	6.32	84.4	4.17	0.22	60 psi
1438						11.71	624	6.26	33.3	4.17	0.55	1 gal purge volume
1504						12.17	599	6.41	76.8	4.33	1.17	
1507						11.67	544	6.37	76.2	3.16	0.20	1 gal purge volume
1533						11.77	534	6.34	59.0	4.15	0.08	
1536						11.86	502	6.34	62.4	4.14	0.14	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-9-140 (P4

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

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Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11/12/24 Page 1 of 1

Well ID: MLS-9-140 (Port 4)

field personnel: AM Leonido

purging start time: 1440

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____

depth to GW ft. bgs: 32.38 ref. point: _____

pump/tubing intake set in ft. bgs: 140 ref. point: _____

sample time 1554

sample designation: MLS-9-140-1114

parameter stabilization: (circle) Yes / No

two hour time limit reached: (circle) Yes / No

total volume purged, including drawdown (gallons): 3 gallons

time at purge completion: 1715

QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe Co Pro.

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 31.8

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1442						11.93	592	6.22	93.9	3.55	0.55	60 psi
1445						11.72	562	6.27	90.7	3.71	0.13	1 gal purge volume
1508						11.87	548	6.35	71.4	2.97	0.19	
1511						11.67	525	6.38	63.2	3.04	0.27	1 gal purge
1538						11.92	481	6.36	63.4	3.77	0.13	
1541						11.72	475	6.40	60.5	3.71	0.18	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-9-190 (PS)

Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: AM Leonido

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-9-190 (Port 5)

field personnel: A M Leonido purging start time: 1425

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 34.68 ref. point: parameter stabilization: (circle) Yes / No

pump/tubing intake set in ft. bgs: 190 ref. point: two hour time limit reached: (circle) Yes / No

sample time 1604 total volume purged, including drawdown (gallons): 3 gallons

sample designation: MLS-9-190-1114 time at purge completion: 1700

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60psi

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 6.2

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1425						12.48	512	6.63	141.9	2.25	2.64	fitting leaking air / repaired
1447						12.00	538	6.26	92.9	3.53	0.29	60 psi
1450						11.79	528	6.31	92.2	3.50	0.20	1 gal purge volume
1512						11.85	525	6.40	43.8	2.71	0.21	
1515						11.67	491	6.43	44.1	3.31	0.32	1 gal purge volume
1544						11.75	473	6.45	57.5	3.63	0.30	
1547						11.58	469	6.46	59.2	3.58	0.16	1 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions

MLS-9-286

P6

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

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Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-9-286 (Port 6)

field personnel: AMLeonardo purging start time: 1405

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs:

depth to GW ft. bgs: 35.46 ref. point:

pump/tubing intake set in ft. bgs: 286 ref. point:

sample time 1615

sample designation: MLS-9-286-1114

parameter stabilization: (circle) Yes (No)

two hour time limit reached: (circle) Yes (No)

total volume purged, including drawdown (gallons): 3 gallons

time at purge completion: ~~B~~ 1730

QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60 psi

multimeter model and serial number: YSI 556 600336-4A turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID 20.6

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1406						11.81	499	6.75	155.6	0.85	10.4	60 psi
1409						12.23	498	6.67	151	0.10	1.00	1 gal purge volume
1516						11.71	419	6.53	47.3	2.39	0.32	
1519						11.56	399	6.59	49.0	1.79	0.36	1 gal purge volume
1549						11.59	416	6.51	60.2	3.14	0.50	
1552						11.47	375	6.65	56.4	2.53	0.43	1 gal purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-11-74 (Port 1)

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: Nov 12 2014 Page _____ of _____ Well ID: MLS-11-74 (Port 1)

field personnel: Andy Robichaud purging start time: 0842

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 2.67 ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 74 ref. point: _____ total volume purged, including drawdown (gallons): 1½ gallons

sample time 1032 time at purge completion: 1145

sample designation: MLS-11-74-1114 QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe

multimeter model and serial number: YSI 556 600336-4M turbidity meter model and serial number: Hanna HI 98703 08357016

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID Not read too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0845						11.99	407	6.27	113.6	1.73	0.23	40 psi
0848						12.45	404	6.29	105.2	0.79	0.43	0.5 gal purge volume
0908						11.89	406	6.35	95.0	1.50	0.11	
0911						12.12	404	6.35	95.0	1.16	0.17	0.5 gal purge volume
0934						12.35	412	6.48	89.6	1.23	0.14	
0939						12.02	409	6.32	92.3	2.32	0.28	0.5 gal purge volume

Notes All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-11-115 (Port 2)

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: _____

FOL signature: _____

Date: Nov 12 2014 Page ____ of ____ Well ID: MLS-11-115 (Port 2)

field personnel: Andy Robichaud purging start time: 0851

well depth as installed (ft.): ____ measured well depth in ft. ____

top of screen in ft. bgs: ____ bottom of screen in ft. bgs: ____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 2.99 ref. point: ____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 115 ref. point: ____ total volume purged, including drawdown (gallons): 2 gallons

sample time 1044 time at purge completion: 1159

sample designation: MLS-11-115-1114 QA samples: Dup MS/MSD Equipment Other ____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe 60-40 psi

multimeter model and serial number: ____ turbidity meter model and serial number: ____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID Not read. too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0853						11.94	415	6.30	97.9	2.72	0.22	40 psi
0856						12.30	415	6.30	95.2	1.79	0.26	0.5 gal purge volume
0916						12.28	419	6.33	95.0	2.05	0.18	
0919						12.12	418	6.34	94.4	1.60	0.14	0.5 gal purge volume
0944						12.06	413	6.27	94.8	2.31	0.17	
0947						11.95	415	6.26	94.7	1.35	0.12	1.0 gal purge volume

Notes
All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-11-190 (Port 3)

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: _____

FOL signature: _____

Date: 11-12-14 Page ____ of ____ Well ID: MLS-11-190 (Port 3)

field personnel: Andy Robichaud purging start time: 0859

well depth as installed (ft.): ____ measured well depth in ft. ____

top of screen in ft. bgs: ____ bottom of screen in ft. bgs: ____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 2.85 ref. point: ____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 190 ref. point: ____ total volume purged, including drawdown (gallons): 2.5 gallons

sample time 1053 time at purge completion: 1155

sample designation: MLS-11-190-1114 QA samples: Dup MS/MSD Equipment Other ____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): FLUTe Go → 40 psi

multimeter model and serial number: ____ turbidity meter model and serial number: ____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID Not read too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0901						11.94	418	6.45	91.9	3.12	0.21	40 psi
0904						12.13	418	6.43	91.2	2.27	1.82	0.5 gal purge volume
0922						12.26	417	6.40	92.1	1.62	0.28	
0925						11.98	412	6.48	90.5	1.34	0.14	1.0 gal purge volume
0952						12.17	398	6.67	87.0	1.45	0.14	
0955						12.13	389	6.69	87.4	1.35	0.14	1.0 gal purge volume

Notes All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-11-215 (Port 4)

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: AMLeonido

FOL signature:

Date: Nov 12 2014 Page 1 of 1 Well ID: MLS-11-215 (Port 4)

field personnel: AMLeonido purging start time: 847

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 2.77 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 215 ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 1040 time at purge completion: 1150

sample designation: MLS-11-215-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi → 40 psi

multimeter model and serial number: 08E100203 YSI 556 turbidity meter model and serial number: 478143 Hach

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID Not used too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
850						11.90	453	6.23	153.9	1.78	0.25	60 psi
853						12.07	452	6.18	152.7	1.35	0.43	½ gallon purge time
919						11.97	472	6.86	110.9	4.35	0.26	60 psi
923						11.85	472	6.83	111.8	2.59	0.27	½ gallon purge volume
925						11.70	470	6.75	113.9	2.07	0.25	
0940						12.40	463	6.89	53.4	5.70	10.4	40 psi
0945						12.27	468	6.82	55.8	2.64	0.30	½ gallon purge volume

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

Ground * vault full of water. Tight bag full of water.
Bailed vault out approx (3 gallons of water) to 5 gallon bucket → frack tank.
Interior dry bag full of water.

MLS-11-292 (Port 5)

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: AMLeonido

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-11-292 (Port 5)

field personnel: AMLeonido purging start time: 0855

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 3.67 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons): 1½ gallons

sample time 1040 time at purge completion: 1200

sample designation: MLS-11-292-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute 60 psi → 40 psi

multimeter model and serial number: YSI 256 08E100203 turbidity meter model and serial number: Hach HI 93703 478143

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID not and too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0855						11.79	466	6.36	136.0	0.66	0.66	60 psi
0857						11.85	464	6.35	134.7	0.17	0.36	½ gallon purge volume
0900						11.97	464	6.36	133.1	0.15	0.31	
0926						11.98	434	6.69	113.1	3.50	0.76	60 psi
0930						11.77	432	6.68	113.7	2.21	0.71	½ gallon purge volume
0933						11.72	433	6.67	112.0	1.90	0.42	
0947						12.70	447	6.90	64.9	6.90	0.37	40 psi
0950						12.14	441	6.78	64.9	1.75	0.32	½ gallon

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

MLS-11-367 (Port 6)

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11/12/14 Page 1 of 1 Well ID: MLS-11-367 (Port 6)

field personnel: AMLebrido purging start time: 0903

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: 3.74 ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: 367 ref. point: total volume purged, including drawdown (gallons): 1 1/2 gallons

sample time: 1035 time at purge completion: 1205

sample designation: MLS-11-367-1114 QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): Flute (60 psi and as noted)

multimeter model and serial number: YSI 256 08E100203 turbidity meter model and serial number: Hach HF 98703 Q78143

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

PID Not and too wet

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / soc. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0903						12.27	461	6.47	126.3	0.18	0.32	Port 6 flowing w/o Nitrogen pressure
0909						11.66	462	6.49	124.3	0.10	1.21	60 psi
0911						11.83	463	6.48	124.4	0.31	1.82	1/2 gallon purge volume
0935						11.17	443	6.69	99.5	0.63	3.04	40 psi
0937						11.72	435	6.74	83.0	0.30	0.87	1/2 gallon purge volume
0939						11.78	433	6.75	75.6	0.23		
954						12.07	432	6.67	68.7	1.60	0.94	40 psi
957						11.89	433	6.73	64.2	0.95	1.04	1/2 gallon purge volume

Notes
All depths in feet below top of PVC unless specified
NR = No Reading
Use the back of the log to record additional observations and descriptions.

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:

Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	
ACTIVITY	START 1628 END	SUB REP		GEOLOGIST	J. Lambert

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL ___
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING 23'

TOP OF BEDROCK 14'
BOTTOM OF BORING 401'
INITIAL WATER LEVEL (W.L.) ___
INITIAL W. L. IN ANNULUS ___

TOP OF LOWER PACKER 45'
BOTTOM OF UPPER PACKER 30'
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) See Comments

COMMENTS ___

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1628											
1632	19.62	23.10	41.63			Begin inflating packers				packers pressure =	
1637	19.49	23.11	42.37			packers inflated					150 psi
1642	19.22	23.11	42.24								
1645	19.21	23.14	36.16	Begin pumping						5 gal @ 1659	
1655	19.09	23.15	23.59							10 gal @ 1710	
1705	19.05	23.20	11.20	Apparent recovery						15 gal @ 1721	
1715			9.02							20 gal @ 1727	
1725			4.42								
1732			0.00	Purged dry				Total		25 gal	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER ___

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER ___

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ___

ANALYTICAL PARAMETERS

		PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	Sample @ 1810	HCl	3 x 40 mL vials	[ ]

NOTES: 22 gal in packer
~5 gal in riser

SIGNATURE: ___

LOCATION SKETCH

Nobis
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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	2-4-14
ACTIVITY	START 1425 END	SUB REP		GEOLOGIST	J. Lambert

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL _____
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) _____
BOTTOM OF CASING 23'

TOP OF BEDROCK 14'
BOTTOM OF BORING 401'
INITIAL WATER LEVEL (W.L.) _____
INITIAL W. L. IN ANNULUS _____

TOP OF LOWER PACKER 68'
BOTTOM OF UPPER PACKER ~~68~~ 53'
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) See Comments

COMMENTS M = with pump
B = Below the bottom packer
T = 4' above top packer

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1425			Begin		inflating					Packer pressure	
1432			Packers		Inflated					=	180 psi
1440	41.81	46.01	64.40								
1445	41.67	46.03	64.49								
1450	41.55	46.02	64.51		Start pump @ 1454					5 gal @ 1509	
1455	41.53	46.05	59.64							10 gal @ 1519*	
1500	41.47	46.08	38.88							15 gal @ 1521	
1510			31.32		No recovery apparent					20 gal @ 1525	
1525			5.48							25 gal @ 1528	
1531			0.00		Stop pumping; purged						
						dry				29 gal total	
1553	water recovered		1.11								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[X] ~~WATERRA / FOOTVALVE~~ bladder	[ ] OTHER _____	[ ] OTHER _____	[ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

Bailer 1605

NOTES: Totalizer =
22 gal in packers
8.5 gal in riser

SIGNATURE: _____

LOCATION SKETCH

* increased pump flow after realizing no recovery

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:

Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	2-4-14
ACTIVITY	START 1010 END	SUB REP		GEOLOGIST	J. Lambert

TARGET TEST INTERVAL

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface)

BOTTOM OF CASING 23'

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK 14'

BOTTOM OF BORING 401'

INITIAL WATER LEVEL (W.L.)

INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER ~~70~~ 85'

BOTTOM OF UPPER PACKER ~~55~~ 70'

LENGTH OF PACKERS (sealed test zone) 15'

REFERENCE DATUM (for water levels) See comments

COMMENTS B: Below the bottom packer
M = WITH Pumps
T = 4' above top packer

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER Packer Pressure
1010		BEGIN	INFLATING								
1015		Packers	inflated								200 psi
1017	58.72	62.60	82.43								
1022	58.56	62.55	82.44								
1027	58.34	62.58	82.42	Begin	pumping						
1030	58.22	62.58	65.53								
1040	58.13	62.62	60.01								
1050	58.05	62.57	47.16						5 gal @ 1048		
1100	57.99	62.60	35.29						10 gal @ 1109		
1110	57.96	62.60	22.17						15 gal @ 1130		
1120			11.57	No	recharge	apparent			20 gal @ 1145		
1130			10.90						25 gal @ 1200		
1140			8.82						30 gal @ 1213		
1150			6.12						31.5 gal total		
1200			4.14								
1210			1.28								
1217			0.00	pumped dry							
1348		water recovery	1.09								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [x] ~~WATERRA / FOOTVALVE~~ Bladder

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

- [x] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[ ]

Sample collected @ 14:00 - bail

NOTES: Total = 19310
22 gal in packer
≈ 11.34 gal in riser

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:

Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	2-3-14
ACTIVITY	START END	SUB REP		GEOLOGIST	J. Lambert

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL ___
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___

TOP OF BEDROCK H
BOTTOM OF BORING 401
INITIAL WATER LEVEL (W.L.) ___
INITIAL W. L. IN ANNULUS ___

TOP OF LOWER PACKER 100'
BOTTOM OF UPPER PACKER 85'
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1435	transducers started: START INFLATING PACKERS - 1438 - packers inflated										
1445	72.60	77.67	97.52							200 PSI	
1455	72.40	78.04	97.15								
1505	72.22	78.11	96.93		Start PURGING						
1515	72.11	78.10	74.27								
1525	72.09	78.14	74.19			No apparent			5 gal purged		
1535			47.13			reding			10 gal "		
1545			11.49						15 gal "		
1555	71.98	78.14	6.75						20 gal "		
1605			0.00		Purged dry				25 gal "		
					Stop pumping				40 gal at 1585		
									45 gal at 1558		
									50 gal @ 1603		
									53.25 gal @ 1605		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☐ GRUNFOS 2-INCH
- ☐ WATERRA / FOOTVALVE

TYPE OF TUBING
- ☐ HIGH DENSITY POLY
- ☐ OTHER ___

TYPE OF PUMP MATERIAL
- ☐ STAINLESS STEEL
- ☐ OTHER ___

TYPE OF BLADDER MATERIAL
- ☐ TEFLON
- ☐ OTHER ___

ANALYTICAL PARAMETERS

☐ CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	☐

NOTES: 19279 - TOTALIZER READING
22 gal in packers
13.77 gal in riser

SIGNATURE: ___

LOCATION SKETCH

85-100'

Time	Temp	pH	ORP	Cond ~~DO~~	DO ~~Cond~~	Turbidity	Total
9:03	7.95	5.97	175	0.179	6.50	10.94	—
0908	7.17	6.35	174	0.165	6.19	10.29	6 ml
0913	6.92	6.56	173	0.159	6.05	9.53	6.5
0918	6.48	6.60	172	0.155	5.98	10.65	

0925

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-	SUBCONT'R	Summit	DATE	2/3/14
ACTIVITY	START END	SUB REP		GEOLOGIST	J. Lambert

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL ___
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING 13'

TOP OF BEDROCK 19'
BOTTOM OF BORING 401'
INITIAL WATER LEVEL (W.L.) ___
INITIAL W. L. IN ANNULUS ___

TOP OF LOWER PACKER 120'
BOTTOM OF UPPER PACKER 105
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) see comments

COMMENTS B = below bottom packer
T = 4' above top packer
M = 1' above pump intake (riser)

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1010	- transducer logs		started;	start inflating packers -							
1020	93.25	97.95	118.27								
1030	92.71	98.04	118.19								
1040	92.40	98.11	118.20	- start pumping							
1050	92.25	98.13	75.88								
1100	92.17	98.17	58.58								Pressure:
1110	92.11	98.13	40.14						30 gal 10 gal		210 PS
1120	92.05	98.21	30.66								
1130	92.07	98.20	15.92							15 gal	
1140	92.06	98.23	9.58								
1150	91.99	98.18	5.91							20 gal	
1200	91.96	98.22	3.56							25 gal	
1210	91.93	98.24	0.16							30 gal	
1215			0.01	pump off - let recover						35 gal	
1330			1.10							36.5 gal	
1350			1.35								
1400	sample collected.										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER ___

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER ___

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: 19265 - totalizer reading
22.5 gal in packers
[illegible]

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-	SUBCONT'R	Summit	DATE	1-31-14
ACTIVITY	START 1434 END	SUB REP	J. Silva	GEOLOGIST	J. Lambert

TARGET TEST INTERVAL 120'-135'

DEPTHS (All measurements to ground surface in feet)

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface)

BOTTOM OF CASING 23'

TOP OF BEDROCK 14'

BOTTOM OF BORING 401'

INITIAL WATER LEVEL (W.L.)

INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 135

BOTTOM OF UPPER PACKER 120

LENGTH OF PACKERS (sealed test zone) 15'

REFERENCE DATUM (for water levels) See comments

COMMENTS B= Below the bottom packer
T= 4' above top packer
M = WITH PUMP

TIME	PACKER PRESSURE (PSI) B	WATER LEVEL IN ANNULUS (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER packer pressure
1434			Begin inflating packers								
1438			Packers inflated								
1440	108.69	113.10	132.78								
1450	108.21	113.15	132.76								
1500	108.05	113.18	132.72	Begin purge							
1510	107.85	113.18	121.14								
1520	107.80	~~10~~ 113.22	~~107~~ 99.64								215 psi
1530	107.73	113.23	88.47								5 gal purged
1540	107.66	113.23	75.99								
1550	107.65	113.26	57.27								-10 gal
1600	107.63	113.23	50.31								purged 1545
1610	107.60	113.24	36.81								15 gal purged
1620	107.61	113.27	22.44								
1630	107.57	113.29	10.67								20 gal purged
1640	107.58	113.25	4.31								~~25 gal~~ 30 gal purged *
1650	stop pump		0.00					33 gal purged			~~35 gal~~ purged
1/31 0850	106.95'	113.28	130.5' bgs								
2/3 0935	- collect sample - made to get water all the way up tubing, so brought up tubing - filled from flex.										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH Bladder
- [ ] ~~WATERRA / FOOTVALVE~~

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[ ]

* faster flow rate to overcome head issues with pump

NOTES: Total = 19.231
22 gal in packer
21 gal in riser
0935 - sample

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:

Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	8/31/14
ACTIVITY	START END	SUB REP	J. Silva	GEOLOGIST	J. Lambert

TARGET TEST INTERVAL 6

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface)

BOTTOM OF CASING 23'

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK 14'

BOTTOM OF BORING 401'

INITIAL WATER LEVEL (W.L.) 1.35'

INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 142

BOTTOM OF UPPER PACKER 177

LENGTH OF PACKERS (sealed test zone) 15'

REFERENCE DATUM (for water levels) See comments

COMMENTS B → below bottom packer
T → 4' above top packer
M → with pump

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS B (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0840	- ~~Packers~~ logset up, begin packer inflation.										
0845		packers inflated.									
0850		166.43 170.23	190.03								
0900		165.87 170.17	190.00								
0910		165.46 170.20	189.93	Begin purge							
0915		165.36 170.21	176.64								
0925		165.17 170.20	152.43								
0935		165.02 170.20	~~145~~ 133.79	0.29 gpm							
0945		164.97 170.22	118.67	—							
0955		164.83 170.23	96.75								
1005		164.75 170.19	80.69								15 gal.
1020		164.67 170.21	37.09								purged
1035		170.24	18.984								
1045			11.495								25 gal
1055			5.280								purged
1100			2.584								30 gal.
1101			0.001	Stop pumping (48.5 gal total)							purged 10:42
1117			0.474								35 gal 10:49
1127			0.558								purged
1145		164.40 170.25	0.68								45 gal 1102
1240			1.10								purged
1305			1.27								
1335		164.27 170.24	1.50								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [ ] ~~WATERRA / FOOTVALVE~~ bladder

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

[X] CLP VOCs

1350 - Sample time

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[X]

NOTES: total = 19230.5
22 gal in packers
30 gal in riser

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 21
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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	1/30/14
ACTIVITY	START 1/30 END	SUB REP	J Silva	GEOLOGIST	J. Lambert /TK

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL _____
TOP OF BEDROCK 14'
TOP OF LOWER PACKER 240
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 401'
BOTTOM OF UPPER PACKER 225
CASING STICKUP (above ground surface) _____
INITIAL WATER LEVEL (W.L.) 1.35'
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 23'
INITIAL W. L. IN ANNULUS _____
REFERENCE DATUM (for water levels) See notes

COMMENTS B → below bottom packer → 21015
T ~~M~~ → 4' above top packer → 22769
M → with pump

B

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS B (ft TOR) T	WATER LEVEL IN RISER (ft TOR) M	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1200	~~Begin inflation~~		equip in place -								
1205		218.92 217.75	236.14	- begin inflation							
1210	packers inflated										
1215		213.67 217.98	~~218.98~~ 235.03								
1220		213.63 218.02	234.56								
1230		213.20 218.01	233.03								
1240		213.10 218.03	232.13								
1245			231.81	← begin pumping							
1250		212.80 218.02	215.61	0.7 gpm							
1300		212.49 218.05	199.09								
1310		212.3 218.01	196.24								
1320		211.9 218.6	195.56								
1330		211.59 218.1	195.04								
1340		211.75 218.05	194.87								
1350		211.64 218.11	194.74								
1400		211.56 218.13	194.55								
1410		211.54 218.15	194.31	0.17 gpm							
1420		2 — 218.13	194.20								
1435		211.39 218.07	194.05								
1625	begin low-flow purge - bladder pump did not work										
1650	begin low-flow										
1655				200 ml/min	6.72	0.206	7.94	2.62	39	12.82	
1700					~~7.48~~ 6.83	0.206	7.72	2.72	33	9.67	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [ ] ~~WATERRA / FOOTVALVE~~ bladder

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER _____

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER _____

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: initial totalizer = 19220 gal
vol. in ~~zone~~ packers = 22 gal
vol in riser = 35 gal

SIGNATURE: _____

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025
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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-1	SUBCONT'R	Summit	DATE	1/30/14
ACTIVITY	START END	SUB REP	J. Silva	GEOLOGIST	J. Lambert/JL

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL _____
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) _____
BOTTOM OF CASING _____

TOP OF BEDROCK _____
BOTTOM OF BORING _____
INITIAL WATER LEVEL (W.L.) _____
INITIAL W. L. IN ANNULUS _____

TOP OF LOWER PACKER 240
BOTTOM OF UPPER PACKER 225
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) see notes

COMMENTS See page 1

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1705					6.91	0.246	11.39	2.53	27	10.24	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER _____

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER _____

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

1710

NOTES:

SIGNATURE: _____

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 1	SUBCONT'R	Summit	DATE	1-29-14 - 1-30/14
ACTIVITY	START 1510 END 1045	SUB REP	Joe Silva	GEOLOGIST	J. Lambert / [illegible]

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL _____
TOP OF BEDROCK 14'
TOP OF LOWER PACKER 0300
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 401'
BOTTOM OF UPPER PACKER 285
CASING STICKUP (above ground surface) ≈2.0
INITIAL WATER LEVEL (W.L.) ~~X~~ 1.35 (3.35)
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 23'
INITIAL W. L. IN ANNULUS _____
REFERENCE DATUM (for water levels) - TOC manual

COMMENTS: transducer 1 - below bottom packer → B; transducer 2 - 4' above top - MT; in riser - M } see logs for complete WL data.

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR) M	WATER LEVEL IN RISER (ft TOR) T	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1510		296.44	275.11	- begin packer inflation							
1520		294.04	278.15								
1530		292.31	278.18								
1540		291.95	278.16								
		278.23	~~278.2~~								
	start pumping										
1550	280	259.26	278.15								
1600		235.63	278.19	20 gal							
1620		228.55	278.18								
1630		226.37	278.17	37 gal	~0.9 gpm						
1640	280	224.68		47 gal							
1650		223.67	278.18	54.5 gal							
1655		223.27	— stable; will stop + pull grunfos pump. 602 [illegible]								
1755	begin low-flow purge → pump issues										
0940	Begin purge for sampling.										
0950				400 mL/min	6.13	0.261	4.67	6.16	-29	20.[illegible]	
0955					~~5.25~~ 6.14	0.2[illegible]	5.24	3.95	12	28.8	
1000					6.08	0.242	5.85	3.29	20	27.7	
1005				400 mL/min	6.15	0.239	6.02	2.99	19	24.7	
1010	- pump turned off - lost flow				6.25	0.237	6.09	2.69	18	25.7	
1025					5.57	0.239	~~5.87~~ 7.25	4.16	13	24.7	
1035					6.14	0.227	8.24	2.79	-2	24.3	
1040					6.31	0.228	8.11	1.98	-4	22.8	

B
279.16
279.17
259.71
259.66
259.18
258.93
258.84
258.76
258.68
1/30/14

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[X] STAINLESS STEEL	[X] TEFLON
[ ] WATERRA / FOOTVALVE	[ ] OTHER _____	[ ] OTHER _____	[ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[✓] CLP VOCs → 1045 sample collected - 9 gal during sampling purge.	HCl	3 x 40 mL vials	[X]

NOTES: 19160 - init. totalizer. 21415

SIGNATURE: _____

LOCATION SKETCH

225: packer interval; 45 gal for riser.

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-2	SUBCONT'R	Summit	DATE	8-26-14
ACTIVITY	START 1300 END 1440	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 340 - 355
TOP OF BEDROCK
TOP OF LOWER PACKER 355
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING ___
BOTTOM OF UPPER PACKER 341
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 39.75
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 41.30
REFERENCE DATUM (for water levels) TOC

COMMENTS: Riser Stick up = 2.89

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (mL/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1322	310	310	39.27	39.76		Prior to purge In Plated					
1326	310	41.05	79.90	714	7.16	0.413	18.77	7.32	-16	35.6	
1330	310	41.12	109.10	714	7.09	0.385	15.94	7.23	-3	41.9	
1334	310	41.22	137.70	714	7.35	0.380	14.64	6.66	34	32.9	
1337		Pump Stopped pumping					1339 Resume Pumping				
1341	310	41.35	153.90	71	7.04	0.342	14.49	5.62	50	29.3	
1345	310	41.40	179.40	714	6.93	0.325	13.98	6.37	54	24.2	
1351	310	41.50	199.20	716	6.84	0.361	13.93	6.24	59	21.5	
1358	310	41.60	215.80	712	6.79	0.332	14.35	5.40	57	18.9	
1404	310	41.65	234.20	716	6.79	0.311	14.08	5.67	55	11.3	
1411	310	41.75	243.85	717	6.80	0.308	14.72	4.74	49	12.4	
1420	310	41.82	248.10	719	6.86	0.288	14.92	4.51	43	6.9	
1425	310	41.84	249.20	35/5	6.92	0.278	14.98	6.30	43	5.2	
1435		Collect		Sample		with	Grunfos				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs / SVOC	HCl	3 x 40 mL vials	[X]
		2x 1L Ambers	[X]

NOTES: ~ 72 gal Purge

SIGNATURE: Josh S

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-2	SUBCONT'R	Summit	DATE	8-26-14
ACTIVITY	START 1440 END	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 295-310
TOP OF BEDROCK
TOP OF LOWER PACKER 310
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING ___
BOTTOM OF UPPER PACKER 295
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 53.30
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 52.25
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick Up = 2.88

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1540	290	38.42	36.95		Prior to Purge					Inflated	
1543	290	47.78	60.54	3.5/3	7.69	0.415	19.00	6.97	33	238	Slight Orange
1546	290	47.60	77.28	3.5/3	7.61	0.416	15.97	6.15	1	234	
1549	290	47.45	92.30	3.5/3	7.37	0.407	14.83	5.65	24	255	
1552	290	47.31	104.95	3.5/3	7.02	0.400	14.17	5.42	45	219	
1555	290	47.13	115.75	3.5/3	6.95	0.396	13.69	5.41	50	164	
1559	290	47.01	126.55	3.5/4	6.93	0.390	13.77	4.09	47	137	
1602	290	46.88	136.57	3.5/3	6.91	0.366	13.69	4.24	47	90.1	
1605	290	46.78	146.40	3.5/3	6.89	0.358	13.53	4.35	48	69.9	
1609	290	46.63	154.71	3.5/4	6.91	0.340	13.84	4.91	51	46.0	
1612	290	46.58	162.76	3.5/3	6.83	0.329	13.73	5.67	45	37.2	
1616	290	46.42	169.65	3.5/4	6.91	0.321	13.64	3.88	50	31.7	
1620	290	46.31	175.95	3.5/4	6.94	0.314	13.81	3.22	50	24.2	
1623	290	46.21	180.97	3.5/3	6.96	0.309	13.71	3.35	53	19.4	
1627	290	46.07	186.82	3.5/4	6.99	0.307	13.69	3.49	51	20.1	
1631	290	45.93	191.64	3.5/4	7.03	0.305	13.81	2.84	49	49	
1636	290	45.90	195.34	3.5/5	7.06	0.306	13.91	2.98	48	14.7	
1639	290	45.62	197.62	3.5/3	7.09	0.299	13.94	2.87	44	8.8	
1644	290	45.70	199.02	3.5/5	7.14	0.293	14.04	2.56	38	6.0	
1655		Collect		Sample			With	Grundfos			

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [ ] OTHER ___

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER ___

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs/SVOC	HCl	3 x 40 mL vials	[x]
		2x1L Amber	[x]

NOTES: — 65 gal to purge

SIGNATURE: Josh S

LOCATION SKETCH

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	8-27-14
ACTIVITY	START 0900 END	SUB REP	J. Silva	GEOLOGIST	J. Stalker

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 230-245
TOP OF BEDROCK
TOP OF LOWER PACKER 245
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING
BOTTOM OF UPPER PACKER 230
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 44.40
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS 41.22
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick UP = 4.58

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0943	250	40.25	42.34		Prior to Purge					Inflated	
0947	250	40.65	66.95	3.5/4	7.92	0.388	17.71	7.11	114	50.2	
0951	250	40.90	88.71	3.5/4	7.85	0.396	15.20	7.47	119	39.5	
0955	250	41.05	109.80	3.5/4	7.66	0.386	14.47	7.42	128	47.5	
1000	250	41.25	132.18	3.5/5	7.48	0.379	14.47	6.15	131	51.4	
1006	250	41.45	162.47	3.5/6	7.32	0.385	14.74	5.66	123	51.7	
1010	250	41.60	174.55	3.5/4	7.28	0.383	14.34	5.98	118	47.2	
1017	250	41.82	193.25	3.5/7	7.20	0.383	15.02	6.99	118	45.6	
1023	250	41.97	213.67	3.5/6	7.14	0.385	15.22	5.81	110	46.4	
1029	250	42.10	233.98	3.5/6	7.12	0.387	15.40	5.07	111	42.7	
1032	250	42.17	243.75	3.5/3	7.09	0.394	15.14	5.31	100	68.7	
1036	250	42.25	243.75	3.5/4	7.12	0.389	15.33	6.11	102	48.9	
1041	250	42.43	243.79	3.5/5	7.10	0.394	15.23	5.55	112	42.8	
1044	250	42.50	244.70	3.5/3	7.08	0.391	15.04	5.24	115	53.0	
1048	250	42.50	247.15	3.5/4	7.01	0.382	14.95	5.86	121	53.7	
1051		42.55	244.55	Zone Dry	Will Sample with bailer						
1115			Collected		Sample with bailer						

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [X] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [X] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

- [X] CLP VOCs / SVOCS

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[X]
	2x1L Amber	[X]

NOTES: ~ 53 gal to purge

SIGNATURE: Josh [signature]

LOCATION SKETCH

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	8-27-14
ACTIVITY	START 1230 END 1420	SUB REP	J. Sivia	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 165-180
TOP OF BEDROCK
TOP OF LOWER PACKER 180
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING ___
BOTTOM OF UPPER PACKER 165
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 48.81
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 46.31
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick up = 4.25

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gpm	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1256	230	44.50	45.46		Prior to		Purge		Inflated		
1259	230	44.57	69.15	3.5/3	7.90	0.433	20.20	6.47	158	25.3	
1303	230	44.61	88.30	3.5/4	7.66	0.448	17.21	7.97	163	21.9	
1308	230	44.61	106.41	3.5/5	7.53	0.450	17.20	7.06	170	22.1	
1315	230	44.70	126.16	3.5/7	7.06	0.462	16.74	8.60	192	23.3	
1321	230	44.73	156.10	3.5/6	7.00	0.462	16.67	9.70	193	24.1	
1328	230	44.73	171.41	3.5/7	6.87	0.466	16.59	8.18	200	27.2	
1332	230	44.73	178.20	3.5/4	6.83	0.461	15.83	8.13	202	55.2	
1335	230	44.75	178.30	3.5/3	6.83	0.461	15.07	8.12	203	64.6	
1337	230	44.75	178.30	3.5/2	6.81	0.468	14.78	8.49	203	51.6	
1339	230	44.75	180.78	3.5/2	6.80	0.469	14.64	7.52	204	51.8	
1341	-	44.75	182.78	Zone		Pumped		dry			
1410		Collect	Sample	with		bailer					

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs / SVOCS	HCl	3 x 40 mL vials	[ ]
		2 x 1L Amber	[x]

NOTES: ~ 43 gal to purge

SIGNATURE: [signature]

LOCATION SKETCH

Nobis
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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	9-22-14
ACTIVITY	START 1420 END	SUB REP	J. Silva	GEOLOGIST	J. Schaefer

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 119-134
TOP OF BEDROCK
TOP OF LOWER PACKER 134
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING
BOTTOM OF UPPER PACKER 119
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 50.94
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS 49.70
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick Up = 2.95

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1506	210	47.39	47.00		Prior to purge					Implated	
1511	210	42.25	69.80	3.5/5	7.13	0.441	20.31	7.17	174	15.1	
1519	210	42.10	96.61	3.5/8	7.29	0.426	19.31	8.59	181	17.9	
1527	210	46.92	113.00	3.5/8	7.22	0.445	17.36	8.62	197	17.3	
1534	210	46.80	130.95	3.5/7	7.00	0.462	16.17	7.71	208	32.7	
1539	210	46.80	130.95	3.5/4	6.90	0.465	15.80	7.75	212	35.7	
1542	210	46.68	130.95	3.5/4	6.86	0.466	15.36	8.00	213	32.0	
1547	210	46.58	132.19	3.5/5	6.81	0.464	15.26	7.20	215	30.1	
1551	210	46.50	134.94	3.5/4	6.79	0.466	15.09	7.81	216	35.0	
1554				Zone Pumped Dry							
1610				Collect Sample with Bailer							

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs / SVOCs	HCl	3 x 40 mL vials	[ ]
		2x1L Amber	[ ]

NOTES: ~ 34 gal to purge

SIGNATURE: [signature]

LOCATION SKETCH

Nobis
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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	8-28-14
ACTIVITY	START 0830 END 0955	SUB REP	J. Silva	GEOLOGIST	J. Stevens

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 100 - 115
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 1.5
BOTTOM OF CASING ___
TOP OF BEDROCK
BOTTOM OF BORING ___
INITIAL WATER LEVEL (W.L.) 42.75
INITIAL W. L. IN ANNULUS 41.00
TOP OF LOWER PACKER 115
BOTTOM OF UPPER PACKER 100
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) T.o.c

COMMENTS Riser Stick up: ~~1.92~~ 3.25

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
857	190	40.00	40.83		Prior to Purge					Inflated	
0900	190	40.25	67.60	3.5/3	7.99	0.433	16.01	10.72	114	44.9	
0903	190	40.45	87.20	3.5/3	7.62	0.436	14.88	7.61	139	25.8	
0908	190	40.67	105.42	3.5/5	7.32	0.434	14.46	6.67	152	20.4	
0913	190	40.82	111.95	3.5/5	7.18	0.414	14.18	6.90	155	19.1	
0916	190	40.95	111.98	3.5/3	7.12	0.400	13.76	6.32	154	19.7	
0919	190	41.03	112.02	3.5/3	7.02	0.412	13.55	6.86	154	20.7	
0922	190	41.15	112.59	3.5/3	7.02	0.413	13.27	6.75	157	21.4	
0926	190	41.40	115.40	3.5/4	6.95	0.410	13.40	6.34	162	20.7	
0929	190		116.10	Zone	Pumped		dry				
0945				Collect	Sample		with		Bailer		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs/SVOCs	HCl	3 x 40 mL vials 1x 1L Amber	[X]

NOTES: ~ 33 gal Purge

SIGNATURE: [signature]

LOCATION SKETCH

Nobis
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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	8-28-14
ACTIVITY	START 1000 END	SUB REP	J. Silva	GEOLOGIST	S. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 75-90
TOP OF BEDROCK
TOP OF LOWER PACKER 90
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING ___
BOTTOM OF UPPER PACKER 75
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 46.65
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 45.65
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser stick up = 2.10

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1031	180	44.42	43.60		Prior to Purge				Inflated		
1036	180	44.52	67.48	3.5/5	7.63	0.421	15.93	9.83	161	22.5	
1041	180	44.61	85.80	3.5/5	7.41	0.426	14.50	9.87	169	43.6	
1047	180	44.72	85.81	3.5/5	7.42	0.442	14.29	9.65	174	36.2	
1052	180	44.80	85.81	3.5/5	7.22	0.449	13.98	9.11	181	31.5	
1058	180	44.92	85.91	3.5/5	7.17	0.449	13.83	9.00	186	31.7	
1104	180	44.95	88.35	3.5/5	7.11	0.449	14.06	10.17	187	28.5	
1110	180	45.00	90.66	3.5/5	7.06	0.448	13.98	9.26	192	22.9	
1112			90.65	Zone	pumped	dry					
1125				Collect	Sample	with	bailer				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs / SVOCs	HCl	3 x 40 mL vials	[X]
		2 x 1 L Amber	[X]

NOTES: ~ 28 gal to purge

LOCATION SKETCH

SIGNATURE: [signature]

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-28-14
ACTIVITY	START 1200 END 1330	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 55-70
TOP OF BEDROCK
TOP OF LOWER PACKER 70
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING ___
BOTTOM OF UPPER PACKER 55
CASING STICKUP (above ground surface) 1.5
INITIAL WATER LEVEL (W.L.) 48.50
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 46.12
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick Up = 3.80

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1233	180	44.75	48.46			Pump to Purge				Inflated	
1238	180	44.82	67.62	3.5/5	7.55	0.431	17.25	9.56	182	31.1	Generator out of gas
1245	180	44.82	67.64	3.51	7.49	0.428	15.31	9.74	187	40.1	
1247	180	44.83	67.82	3.5/2	7.50	0.435	14.27	9.39	187	39.0	
1250	180	44.85	67.84	3.5/3	7.48	0.438	13.63	8.83	187	49.1	
1252	180	44.90	68.69	3.5/2	7.46	0.440	13.17	8.87	188	49.6	
1254	180	44.92	70.98	3.5/2	7.42	0.442	13.18	8.41	190	49.2	
1256	180	44.92	71.72	3.5/2	7.34	0.446	13.11	8.49	193	47.0	
1257		44.92	72.56	Zone	Pumped		Dry				
1320				Center	Sample	with	bailer				
1325							Packed				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER ___	☐ OTHER ___	☐ OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs/SVOC	HCl	3 x 40 mL vials	☑
		2X1L Amber	☑

NOTES: ~ 24 gal to purge

SIGNATURE: JSR

LOCATION SKETCH

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 2	SUBCONT'R	Summit	DATE	8-28-18
ACTIVITY	START 1336 END	SUB REP	J. Silva	GEOLOGIST	J. Stakem

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 35 - 50
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 1.5
BOTTOM OF CASING ___

TOP OF BEDROCK ___
BOTTOM OF BORING ___
INITIAL WATER LEVEL (W.L.) 49.85
INITIAL W. L. IN ANNULUS NA

TOP OF LOWER PACKER 50
BOTTOM OF UPPER PACKER 35
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick Up = 2.75

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1404	160	NA	45.95		Prior	to	Purge			Inflated	
1407	160	NA	49.71	3.513	7.59	0.426	15.85	9.95	183	82.5	
1410	160	NA	51.22	3.513	7.55	0.433	14.48	9.13	180	81.3	
1411	160	NA	51.35	Zone		Purged		Dry			
1430				Collect		Sample		with	Bailer		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GRUNFOS 2-INCH; [ ] BLADDER
TYPE OF TUBING: [X] HIGH DENSITY POLY; [ ] OTHER ___
TYPE OF PUMP MATERIAL: [X] STAINLESS STEEL; [ ] OTHER ___
TYPE OF BLADDER MATERIAL: [ ] TEFLON; [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs / SVOCS	HCl	3 x 40 mL vials	[X]
		2X1L Amber	[X]

NOTES: ~ 9 gal to Purge

SIGNATURE: [signature]

LOCATION SKETCH

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	9/19/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ AA/SS

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 65-80
TOP OF BEDROCK ___
TOP OF LOWER PACKER 80
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 397'
BOTTOM OF UPPER PACKER 65
CASING STICKUP (above ground surface) ___
INITIAL WATER LEVEL (W.L.) ___
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS ___
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
925	0.02	11.50	-4.39								
930	Inflate	Packers	→ 150psi								
935	0.02	15.07	-4.68								
940	0.03	19.42	-4.72								
945	0.02	21.99	-4.78								
946	Begin Pumping										
950	0.53	19.87	-4.85								
955	1.72	15.18	-4.86								
1000	2.75	14.36	-4.92								
1005	3.84	14.11	-4.92								
1010	4.80	14.05	-4.95								
1011	Pull Grundfos / Set Bladder										
1015					8.18	0.165	9.27	11.49	185	5.34	
1020					8.27	0.158	9.15	9.66	180	3.41	
1025					8.42	0.159	8.83	9.12	177	2.93	
1030	SAMPLE (bladder)										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[x] ~~WATERRA~~ Bladder / FOOTVALVE	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: 22 gal in packer zone
Negligible water above zone
Rate = 0.33 gpm
Total Purge 6.5 gal

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/18/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J Lambert~~ AA/JS

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 95-110
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___
TOP OF BEDROCK ___
BOTTOM OF BORING 397'
INITIAL WATER LEVEL (W.L.) ___
INITIAL W. L. IN ANNULUS ___
TOP OF LOWER PACKER 110
BOTTOM OF UPPER PACKER 95
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1515	23.62	41.80	24.74								
~~1518~~	~~Inflate~~	~~Packers~~									
1520	23.58	41.75	24.71								
1521	Inflate	packers	→ 170 psi								
1525	24.72	42.33	24.53								
1530	26.35	42.32	24.43								
1535	Start pumping										
1535	28.00	31.19	24.31								
1540	29.54	25.64	24.24								
1545	30.97	16.77	24.20								
1550	32.34	11.46	24.17								
1555	33.73	10.66	24.15								
1605	36.03	5.49	24.11								
1615	38.23	1.18	24.07								
1620	Purged	dry									
1621		0.08									
1437		0.20									
1455		0.32									
	Left to	recharge	overnight								
2/19 850	50.27	5.87	23.38								
855	SAMPLE	(using bailer)									

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] WATERRA / FOOTVALVE	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: 22 gal in packer zone / 23.25 gal total purge
4.6 gal above zone

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/18/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 110-125
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___
TOP OF BEDROCK ___
BOTTOM OF BORING 397'
INITIAL WATER LEVEL (W.L.) 66.3'
INITIAL W. L. IN ANNULUS ___
TOP OF LOWER PACKER 125
BOTTOM OF UPPER PACKER 110
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI) T	WATER LEVEL IN ANNULUS (ft TOR) M	WATER LEVEL IN RISER (ft TOR) B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1240	38.70	56.85	39.77								
1245	Inflate	Packers	→ 180 psi								
1250	40.07	56.48	39.65								
1255	41.74	55.83	39.57								
1300	43.06	55.72	39.50								
1305	44.38	55.54	39.48								
1310	45.75	55.53	39.45								
1311	Turn on	pump									
1315	47.02	52.67	39.38								
1320	48.25	51.66	39.34								
1325	49.47	51.34	39.31								
1330	50.38	51.23	39.25								
1335	51.56	51.14	39.22								
1340	Pull Grundfos / Set Bladder										
1355	Start Bladder / Fill flow thru cell										
	Pump not producing. Pulled pump. Fixed. Reset										
1435	Re-start Bladder / Fill flow thru cell										
1440					10.11	0.258	8.03	7.20	2	11.26	
1445					8.93	0.184	8.25	7.16	60	5.31	
1450					8.68	0.177	8.14	7.16	76	3.08	
1455	Sample										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[X] ~~WATERRA/FOOTVALVE~~ Bladder	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: 22 gal in packer zone
7.1 gal above packer zone
Grundfos rate = 0.54 gpm
Total purge 10 gal

SIGNATURE: ___

LOCATION SKETCH

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Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/12/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 165-180
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___
TOP OF BEDROCK ___
BOTTOM OF BORING 397'
INITIAL WATER LEVEL (W.L.) ___
INITIAL W. L. IN ANNULUS ___
TOP OF LOWER PACKER 180
BOTTOM OF UPPER PACKER 165
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI) T	WATER LEVEL IN ANNULUS (ft TOR) M	WATER LEVEL IN RISER (ft TOR) B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1725	93.96	112.27	95.02								
172	Inflate packers → 200 psi										
1730	94.59	112.29	94.99								
1735	95.48	111.84	94.89								
1740	95.56	111.82	94.85								
1741	Turn pump on										
1745	96.52	103.58	94.50								
1750	96.74	102.77	94.34								
1755	96.81	102.41	94.23								
1800		102.29			7.71	0.187	11.00	5.95	218	1.27	
1805					7.88	0.172	9.70	6.70	205	1.01	
1810	SAMPLE										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] WATERRA / FOOTVALVE	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: 22 gal in packer zone
15.9 gal above zone
rate = 1.23 gpm

Total purge 22 gal

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/12/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 180-195
TOP OF BEDROCK ___
TOP OF LOWER PACKER 195
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 397'
BOTTOM OF UPPER PACKER 180
CASING STICKUP (above ground surface) ___
INITIAL WATER LEVEL (W.L.) ___
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS ___
REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI) T	WATER LEVEL IN ANNULUS (ft TOR) M	WATER LEVEL IN RISER (ft TOR) B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1545	108.46	126.43	109.49								
1550	Inflate Packers → 210 psi										
1555	109.25	126.03	109.45								
1600	109.43	126.10	109.44								
1602	Start Pump										
1605	109.10	120.72	109.33								
1610	108.62	120.27	109.32								
1615	108.23	120.00	109.26								
1620	107.94	119.82	109.21								
1625		119.73			7.42	0.182	9.67	5.33	220	1.50	
1630		119.71			7.64	0.181	8.81	6.44	201	1.37	
1635	SAMPLE	DUP									

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] WATERRA / FOOTVALVE	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X] DUP

NOTES: 22 gal in packer zone
18.3 gal above packer zone
rate = 1 gpm
Total Purge 26 gal

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/12/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

TARGET TEST INTERVAL 215-230

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface) ___

BOTTOM OF CASING ___

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK ___

BOTTOM OF BORING 397'

INITIAL WATER LEVEL (W.L.) ___

INITIAL W. L. IN ANNULUS ___

TOP OF LOWER PACKER 230

BOTTOM OF UPPER PACKER 215

LENGTH OF PACKERS (sealed test zone) 15

REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	~~PACKER PRESSURE (PSI)~~ T	~~WATER LEVEL IN ANNULUS (ft TOR)~~ M	~~WATER LEVEL IN RISER (ft TOR)~~ S	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1418	143.82	161.82	144.86								
1420	Inflate Packers → 225 psi										
1425	144.24	161.78	144.87								
1430	144.29	161.65	144.86								
1435	144.36	161.62	144.84								
1437	Start Pump										
1440	144.36	155.52	144.60								
1445	144.32	153.66	144.40								
1450	144.18	153.22	144.29								
1455	144.14	153.10	144.20								
1500		153.01			9.60	0.216	10.91	6.05	122	2.05	
1505		152.91			9.41	0.224	9.31	6.66	120	1.46	
1510	SAMPLE	MS/MSD									

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER ___

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER ___

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X] MS/MSD

NOTES: 22 gal in packer zone
24 gal above zone
Rate: 1.04 gpm

Total Purge 28 gal

SIGNATURE: ___

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-3	SUBCONT'R	Summit	DATE	2/12/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

TARGET TEST INTERVAL 240-255

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface)

BOTTOM OF CASING

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK

BOTTOM OF BORING

INITIAL WATER LEVEL (W.L.)

INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 255

BOTTOM OF UPPER PACKER 240

LENGTH OF PACKERS (sealed test zone) 15

REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI) T	WATER LEVEL IN ANNULUS (ft TOR) M	WATER LEVEL IN RISER (ft TOR) B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1240	168.48	186.48	169.47								
1242	Inflate	Packers	→ 230 psi								
1245	168.65	186.36	169.61								
1250	168.67	186.29	169.59								
1255	168.71	186.30	169.61								
1258	Turn Pump on										
1305	168.52	184.92	169.31								
1310	168.42	184.69	169.11								
1315	168.24	184.58	169.03								
1320	168.16	184.46	168.93								
1325		184.40			7.60	0.201	13.11	5.14	215	1.28	
1330		184.37			7.65	0.198	11.81	4.66	202	1.13	
1335	SAMPLE										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: 22 gal in packer zone
28.2 gal above packer zone
Rate = 1.25 gpm

Total purge 32 gal

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025
Rev. Date:
Page: ___ of ___
Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2/12/14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ AA/JS

TARGET TEST INTERVAL 295-310
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface)
BOTTOM OF CASING

DEPTHS (All measurements to ground surface in feet)
TOP OF BEDROCK
BOTTOM OF BORING 397'
INITIAL WATER LEVEL (W.L.)
INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 310
BOTTOM OF UPPER PACKER 295
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels)

COMMENTS

TIME	~~PACKER PRESSURE (PSI)~~ T	~~WATER LEVEL IN ANNULUS (ft TOR)~~ A	~~WATER LEVEL IN RISER (ft TOR)~~ B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
850	223.87	241.83	224.80								
855	Inflate	packers	260 psi								
905	223.80	241.99	224.92								
910	223.78	241.93	224.90								
915	223.75	241.95	224.89								
920	Start Pumping										
930		240.86		Pull pump up ~1 ft							
935	Pulled pump up out of well. Can't handle head.										
1015	Pump Re-set 242.04		Pump Started	(no totalizer - frozen)							
1025	223.69	241.72	224.77								
1035	223.67	241.77	224.76								
1040	—	—	—								
1045	223.70	241.74	224.77								
1050	—	Pull	Pump	(Flow Inter Mixer				PUMP NOT working)			
1120	Reset Pump / Start Pumping										
1120	223.61	241.00	224.34								
1125	223.44	240.64	224.02								
1130	223.24	240.40	223.88								
1135	223.18	240.31	223.71								
1140		240.21			10.48	0.174	11.58	3.81	28	1.64	
1145					10.22	0.171	10.68	3.29	60	1.22	
1150	SAMPLE										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

- [x] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[x]

NOTES: 22 gal in packer zone
37.1 gal above zone
Rate = 1.35 gal
total purge: 35 gal

LOCATION SKETCH

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

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Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 3	SUBCONT'R	Summit	DATE	2-11-14
ACTIVITY	START END	SUB REP		GEOLOGIST	~~J. Lambert~~ JS/AA

TARGET TEST INTERVAL 325-340

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface)

BOTTOM OF CASING

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK

BOTTOM OF BORING 397'

INITIAL WATER LEVEL (W.L.) 66' BGS

INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 340

BOTTOM OF UPPER PACKER 325

LENGTH OF PACKERS (sealed test zone) 15

REFERENCE DATUM (for water levels)

COMMENTS

TIME	~~PACKER PRESSURE (PSI)~~ T	~~WATER LEVEL IN ANNULUS (ft TOR)~~ M	~~WATER LEVEL IN RISER (ft TOR)~~ B	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1357	253.74		254.80								
1400	Installing Grundfos										
1410		271.99									
1415	253.73	271.62	254.89								
1420	Begin Inflating										
1425	253.78	271.96	294.68								
1430	253.73	272.03	282.36								
1435	253.77	271.97	267.25								
1440	Start Pumping										
1447	Pulled pump up ~15' too deep for pump to work at original depth										
1450		258.83		Start pump again							
1455		258.17			0.64 gpm						
1500	253.56	258.13	254.88								
1510	253.45	258.37	253.99							180	
1520	253.34	258.47	253.55								
1525	253.27	258.51	253.07		8.60	0.217	8.32	9.60	180	8.24	
1555					8.96	0.178	6.21	5.25	140	2.25	
1600	SAMPLE										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [ ] WATERRA / FOOTVALVE

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[✓]

NOTES: 22 gal in packer zone
42 gal above packer zone
packer pressure: 295 psi

26 gal. Purged

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Rev. Date: | Rev. #:
Log Sheet Prepared By: J Boldue
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	8/8/14
ACTIVITY	START 1390 END 1427	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 73-88ft
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2 ft
BOTTOM OF CASING 11.5ft

TOP OF BEDROCK
BOTTOM OF BORING 350.5
INITIAL WATER LEVEL (W.L.) 75.82
INITIAL W. L. IN ANNULUS 79.45

TOP OF LOWER PACKER 88ft
BOTTOM OF UPPER PACKER 73ft
LENGTH OF PACKERS (sealed test zone) 15ft
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SU = 4.10 ft

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1344	inflating packers to 160 psi										
1353		dry	72.85	prior to purging							
1358	start purging using Redi Flo submersible.										
1400	160	dry	85.95	3.5 gal/min	7.27	0.214	17.95	9.80	194	8.0	
1404	160	dry	85.92	7 gal/min	7.01	0.182	15.77	8.74	176	0.0	
1408	160	dry	85.91	10.5 gal/min	7.70	0.182	15.39	7.49	171	0.0	
1412	160	dry	85.90	14 gal/min	7.33	0.182	14.69	6.46	176	0.0	
1415	160	dry	87.28	17.5 gal/min	7.58	0.181	14.15	7.66	179	0.0	
1418	160	69.65	88.73	21 gal/min	6.25	0.178	14.09	8.22	178	0.0	
1420	purged dry at ~3.5 gallons										
1420		68.98	90.35								
1427	collected sample										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

collected sample using Teflon bailer.

NOTES: pumping rate in gpm

SIGNATURE: Jason Boldue

LOCATION SKETCH
Bottom Diver 025240 R1364
Annular Diver 025241 R1362
Riser Diver 02264 N7125

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	8/11/14
ACTIVITY	START 0840 END 0944	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 94-109
TOP OF BEDROCK
TOP OF LOWER PACKER 109'
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 350.5'
BOTTOM OF UPPER PACKER 94'
CASING STICKUP (above ground surface) 2'
INITIAL WATER LEVEL (W.L.) 77.76'
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 11.5'
INITIAL W. L. IN ANNULUS 81.90'
REFERENCE DATUM (for water levels) TOC

COMMENTS riser SU = 4.23'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0850	180	79.90	74.75	N/A prior to purging						packer inflation	
0859				start purging using Rediflo							
0902	180	74.75	97.30	3.5g/3min	7.50	0.184	16.62	6.99	49	0.0	
0905	180	73.85	107.10	7.0g/6min	7.06	0.182	14.80	5.86	57	0.0	
0908	180	73.55	107.05	10.5g/9min	6.80	0.181	14.19	6.00	84	0.0	
0911	180	72.65	107.05	14g/12min	6.52	0.174	13.29	6.31	107	0.0	
0916	180	71.23	107.05	17.5g/17min	6.28	.170	13.94	4.16	130	0.0	
0918	180	70.45	108.00	21g/19min	6.27	.167	13.45	5.48	144	0.0	
0921	180	69.98	110.20	24.5g/22min	6.23	0.164	13.42	6.63	150	0.0	
0923	180	69.40	112.02	28g/24min	6.15	0.158	12.87	6.46	156	0.0	
0923	stop purging after 28 gallons removed.										
0934	collected sample using Teflon Bailer										
0944	pulled annular transducer										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: 26 gallon purge

SIGNATURE: TM Bu

LOCATION SKETCH
Bottom Diver 025240 R1364
Annular Diver 025241 R1362
Riser Diver 022644 N7125

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	8/11/14
ACTIVITY	START 1000 END 1103	SUB REP	J Sitva	GEOLOGIST	J Baldwin

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 110-125'
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2'
BOTTOM OF CASING 11.5'
TOP OF BEDROCK
BOTTOM OF BORING 350.5'
INITIAL WATER LEVEL (W.L.) 79.07'
INITIAL W. L. IN ANNULUS 82.10'
TOP OF LOWER PACKER 125'
BOTTOM OF UPPER PACKER 110'
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SU = 5.20'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1023	190	79.70	76.85	N/A	packer inflation prior to purging						
1027	start purging using Geotech										
1031	190	79.35	102.70	3.59/1min	6.81	0.242	19.90	9.91	111	0.0	
1033	190	80.90	117.10	7.09/6min	6.75	0.175	15.63	10.05	110	0.0	
1035	190	80.25	117.03	10.59/8min	6.71	0.173	14.83	9.12	122	0.0	
1037	190	79.25	117.04	14.0/10min	6.47	0.174	13.66	8.13	138	0.0	
1039	190	80.30	117.85	17.59/12min	6.15	0.175	13.90	8.80	162	0.0	
1041	190	77.95	120.50	21.19/14min	5.89	0.177	13.15	8.61	177	0.0	
1043	190	N/A	123.00	24.59/16min	5.93	0.177	13.36	7.94	184	0.0	
1043	purged dry at 24.5 gallons.										
1045	190	76.100	124.40								
1055	pulled pump and riser diver										
1103	collected sample using Teflon bailer										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ ~~CLP~~ VOCs	HCl	3 x 40 mL vials	☑

NOTES: 29 gallon purged.

LOCATION SKETCH
Bottom Diver 025240 R1364
Annular Diver 025241 R1362
Riser Diver 022644 N7125

SIGNATURE: Jean Bal

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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Log Sheet Prepared By:
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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	8/11/14
ACTIVITY	START 1130 END 1223	SUB REP	J. Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 125-140'
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2'
BOTTOM OF CASING 11.5'
TOP OF BEDROCK
BOTTOM OF BORING 350.5'
INITIAL WATER LEVEL (W.L.) 78.90'
INITIAL W. L. IN ANNULUS 82.65'
TOP OF LOWER PACKER 140'
BOTTOM OF UPPER PACKER 125'
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) TOC

COMMENTS riser SU = 4.52'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1141	195	80.27	76.68	prior to purging						packer inflation	
1144	start pumping using Redi Flo										
1147	195	80.30	102.99	2.0/3min	7.02	0.164	18.33	8.18	136	0.0	
1150	195	79.95	125.20	2.0/6min	6.88	0.168	14.93	9.24	119	0.0	
1150	195	78.95	138.28	10.5/7min	6.86	0.174	13.66	9.67	120	0.0	
1152	195	78.60	138.28	14/9min	6.68	0.177	13.56	9.30	130	0.0	
1153	195	78.10	138.21	17.5/10min	6.55	0.177	13.09	9.34	139	0.0	
1154	195	NA	NA	21/11min	6.32	0.175	12.88	9.16	152	0.0	
1155	195	77.10	138.97	24.5/12min	6.18	0.175	12.89	8.86	165	0.0	
1157	195	N/A	N/A	28/14min	6.16	0.174	12.61	8.76	168	0.0	
1157	purged dry at 28 gallons.										
1238	collected sample using Teflon bailer.										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: purge vol = 31 gallons

SIGNATURE: Tm Bard

LOCATION SKETCH
Bottom Diver 025240 R1364
Annular Diver 025241 R1362
Riser Diver 022644 N7125

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	8/11/14
ACTIVITY	START 1300 END 1411	SUB REP	J Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 165-180
TOP OF BEDROCK
TOP OF LOWER PACKER 180'
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 350.5'
BOTTOM OF UPPER PACKER 165'
CASING STICKUP (above ground surface) 2'
INITIAL WATER LEVEL (W.L.) 81.90'
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 11.5'
INITIAL W. L. IN ANNULUS 80.84'
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SU = 6.51'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1322	210	79.52	78.88	prior to purging				packer inflation			
1328	start purging using Redi flo										
1331	210	77.11	106.80	3.5/3min	7.09	0.171	17.45	7.24	165	0.0	
1334	210	76.05	130.40	7/6min	6.82	0.174	14.78	7.50	167	0.0	
1337	210	74.72	150.82	10.5g/9min	6.58	0.179	14.18	8.09	167	0.0	
1339	210	74.05	171.81	14g/12min	6.26	0.181	13.92	9.14	179	0.0	
1342	210	73.03	180.35	17.5g/14min	5.98	0.185	14.09	9.57	192	0.0	
1344	210	72.35	180.32	21g/16min	5.88	0.185	13.78	9.96	196	0.0	
1346	210	71.76	180.31	24.5/18min	5.83	0.181	13.50	8.46	198	0.0	
1348	210	71.05	181.61	28/20min	5.81	0.180	13.38	7.83	200	0.0	
1350	210	70.41	183.96	31.5/22min	5.81	0.180	13.39	7.95	200	0.0	
1352	purged dry @ 34 gallons.										
1353	210	69.70	189.15								
1407	pulled pump + riser transducer										
1411	collected sample using Teflon bailer										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[x] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: purge volume = 38 gallons

SIGNATURE: Jn Bc

LOCATION SKETCH
Bottom Diver 025240 R1364
Annular Diver 025241 R1362
Riser Diver 022644 N7125

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	8/11/14
ACTIVITY	START 1454 END 1539	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 200-215'
TOP OF BEDROCK
TOP OF LOWER PACKER 215'
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 350.5'
BOTTOM OF UPPER PACKER 200'
CASING STICKUP (above ground surface) 2'
INITIAL WATER LEVEL (W.L.) 78.22'
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 11.5'
INITIAL W. L. IN ANNULUS 82.05'
REFERENCE DATUM (for water levels) TOC

COMMENTS Su riser = 3.75'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (g/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1454	220	80.95	77.05								
1500	start purging										
1503	220	78.94	95.10	3.5/3min	6.91	0.170	16.94	8.80	216	0.0	
1506	220	78.20	109.90	7/6min	6.69	0.173	14.42	6.83	186	0.0	
1509	220	77.68	116.98	10.5/9min	6.67	0.177	13.65	6.76	170	0.0	
1512	220	77.25	120.57	19/12min	6.45	0.177	13.57	6.53	174	0.0	
1516	220	76.80	122.60	17.5-16min	6.17	0.183	13.78	5.62	191	0.0	
1519	220	75.55	125.70	21/19min	6.05	0.189	13.50	6.75	197	0.0	
1521	220	75.22	132.91	24.5/21min	5.94	0.197	13.11	6.94	201	0.0	
1523	220	75.15	136.75	28/23min	5.92	0.209	12.60	7.28	201	0.0	
1525	220	74.83	142.02	31.5/25min	5.96	0.212	12.49	7.35	200	0.0	
1528	220	74.60	144.60	35/28min	5.94	0.216	12.79	7.89	201	0.0	
1530	220	74.30	146.20	38.5/30min	5.96	0.223	12.94	8.95	201	0.0	
1533	220	74.13	146.97	42/33min	5.95	0.231	12.85	8.60	202	0.0	
1535	220	73.97	147.98	44.5/35min	5.96	0.234	12.82	7.00	200	0.0	
1539	collected sample from Rediflo and MS/MSD										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: Purge volume = 43 gallons

SIGNATURE: Jon Bd

LOCATION SKETCH
Bottom Diver 025240 N1364
Annular Diver 025241 N1362
Riser Diver 022644 N7125

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BEDROCK BOREHOLE PACKER SAMPLING

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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	8-12-14
ACTIVITY	START 0940 END 1155	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 240 - 255
TOP OF BEDROCK
TOP OF LOWER PACKER 255
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 350.5
BOTTOM OF UPPER PACKER 240
CASING STICKUP (above ground surface) 2
INITIAL WATER LEVEL (W.L.) 76.90
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 11.5
INITIAL W. L. IN ANNULUS 81.59
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser = 2.8

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal ~~(L/min)~~	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1020	240	80.05	75.05			Prior	to Purge			Inflated	
1027	240	79.00	100.51	3.5/7	7.02	0.177	15.30	6.12	161	0.0	
1030	240	78.11	122.90	3.5/3	6.78	0.180	14.18	5.69	146	0.0	
1035	240	77.37	143.70	3.5/5	6.63	0.189	13.63	5.90	162	0.0	
1040	240	76.55	168.61	3.5/5	6.47	0.198	13.48	4.98	163	0.0	
1044	240	76.02	194.00	3.5/4	6.43	0.206	13.69	4.97	156	0.0	
1048	240	75.60	209.25	3.5/4	6.37	0.211	13.86	5.97	155	0.0	
1053	240	75.01	239.95	3.5/5	6.29	0.214	14.67	6.21	151	0.0	
1057	240	74.85	251.98	3.5/4	6.26	0.218	14.46	6.84	153	0.1	
1100	240	74.51	253.70	3.5/3	6.24	0.225	14.64	7.08	153	7.3	
1103	240	74.18	253.80	3.5/3	6.25	0.217	14.73	7.37	155	9.4	
1109	240	NR	NR	3.5/6	6.19	0.202	15.08	6.56	163	8.4	
1113	240	NR	NR	3.5/4	6.15	0.199	15.68	6.99	172	21.9	
1117	240	NR	NR	2.5/4		NR	Zone	Dry			
1131	240		255.00		After	Pulling		Pump			
1140		Collect	Sample		Using	Bailer					
1145								Deflate		Packers	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 50 gal To Purge
~ Purges 44.5 gal 14.5 Buckets

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	8-12-14
ACTIVITY	START 1155 END 1355	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 295 - 300
TOP OF BEDROCK
TOP OF LOWER PACKER 300
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING 350.5
BOTTOM OF UPPER PACKER 285
CASING STICKUP (above ground surface) 2
INITIAL WATER LEVEL (W.L.) 78.25
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 11.5
INITIAL W. L. IN ANNULUS 82.40
REFERENCE DATUM (for water levels) TOC

COMMENTS S/N Risers 3.35

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (mL/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1252	255	80.80	79.80			Prior to purge				In Flated	
1254	255	79.90	100.02	3.5/2	6.96	0.177	16.14	9.50	134	5.1	
1256	255	79.76	112.78	3.5/2	6.82	0.177	14.17	6.13	137	0.0	
1258	255	79.65	120.65	3.5/2	6.77	0.181	13.28	7.00	141	0.0	
1300	255	79.65	126.73	3.5/2	6.68	0.182	12.99	6.70	150	0.0	
1302	255	79.55	130.35	3.5/2	6.54	0.182	12.97	6.04	160	0.0	
1305	255	79.45	132.90	3.5/3	6.38	0.183	12.92	6.46	170	0.0	
1308	255	79.40	134.23	3.5/3	6.31	0.181	13.06	7.57	176	0.0	
1311	255	79.34	135.08	3.5/3	6.20	0.182	12.89	7.15	180	0.0	
1315	255	79.30	135.53	3.5/4	6.11	0.181	12.97	5.80	183	0.0	
1318	255	79.30	135.71	3.5/3	6.07	0.183	12.96	6.71	186	0.0	
1320	255	79.22	135.87	3.5/2	6.00	0.183	12.96	6.46	189	0.0	
1323	255	79.20	136.12	3.5/3	5.93	0.181	13.12	6.44	191	0.0	
1326	255	79.13	136.35	3.5/3	5.90	0.183	12.93	6.05	192	0.0	
1329	255	79.10	136.52	3.5/3	5.88	0.183	13.06	6.36	193	0.0	
1332	255	79.05	136.62	3.5/3	5.85	0.184	12.85	6.19	194	0.0	
1335	255	79.05	136.62	3.5/3	5.83	0.183	12.81	6.20	194	0.0	
1340		Collect	Sample		using		Grunfos				
1352								Deflate		Packers	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~56 gal to purge
~56 gal purged

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	8-12-14
ACTIVITY	START 1355 END 1530	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 310-325
TOP OF BEDROCK
TOP OF LOWER PACKER 325
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 350.5
BOTTOM OF UPPER PACKER 310
CASING STICKUP (above ground surface) 2
INITIAL WATER LEVEL (W.L.) 77.25
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 11.5
INITIAL W. L. IN ANNULUS 82.15
REFERENCE DATUM (for water levels) TOC

COMMENTS: SW to Riser = 2.63

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1440	275	81.20	76.95			Prior to	purge			Inflated	
1443	275	81.20	96.60	3.5/3	6.59	0.177	15.22	6.60	167	0.0	
1446	275	81.30	104.53	3.5/3	6.58	0.180	13.92	6.28	156	0.0	
1448	275	81.45	120.20	3.5/2	6.54	0.181	12.94	6.51	154	0.0	
1449	275	81.45	132.40	3.5/1	6.56	0.186	12.59	5.69	157	0.0	
1450	275	81.50	145.15	3.5/1	6.44	0.189	12.40	6.45	160	0.0	
1452	275	81.56	154.81	3.5/2	6.51	0.188	12.46	6.11	165	0.0	
1454	275	81.65	163.07	3.5/2	6.47	0.190	12.49	6.32	169	2.9	
1456	275	81.73	171.39	3.5/2	6.40	0.192	12.48	6.47	174	15.1	
1457	275	81.82	178.19	3.5/1	6.32	0.193	12.62	7.06	180	40.7	
1459	275	81.95	179.89	3.5/2	6.00	0.197	12.75	7.65	186	63.0	
1503	275	82.02	178.54	3.5/4	6.21	0.199	13.07	7.34	189	81.0	
1506	275	82.05	178.30	3.5/3	6.15	0.203	13.11	9.33	193	117	
1509	275	82.13	178.18	3.5/3	6.13	0.208	13.04	7.77	195	152	
1512	275	82.21	178.30	3.5/3	6.14	0.211	12.98	6.85	193	149	
1515	275	82.23	178.60	3.5/3	6.15	0.213	12.93	7.29	191	116	
1517	275	82.25	178.80	3.5/2	6.14	0.216	12.94	7.31	189	76.2	
1520	275	82.29	178.90	3.5/3	6.15	0.217	12.98	6.83	185	53.0	
1530		Collect	Sample		From		Grunfos				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: ~60 gal to Purge
~60 gal Purged

SIGNATURE: Jack Stewart

LOCATION SKETCH

33 gal

BEDROCK BOREHOLE PACKER SAMPLING

Nobis — Engineering a Sustainable Future

SOP No.: ENV-025 | Page: 1 of 11

Rev. Date: | Rev. #:

Log Sheet Prepared By: T. Kosch

LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONTR	Summit	DATE	9-26-2014
ACTIVITY	START 0830 END	SUB REP	Joe S + John	GEOLOGIST	

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 361-376'

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface) 18"

BOTTOM OF CASING 13'

TOP OF BEDROCK

BOTTOM OF BORING 500'

INITIAL WATER LEVEL (W.L.) ~~81.5~~

INITIAL W. L. IN ANNULUS 81.5'

TOP OF LOWER PACKER 376'

BOTTOM OF UPPER PACKER 361'

LENGTH OF PACKERS (sealed test zone) 15'

REFERENCE DATUM (for water levels)

COMMENTS Inflate Packer @ 0835 Deflate Packer @ 11:29

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min) gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER gal
10:05	310	81.90	(1)		7.86	0.228	25.71	4.21	-91	90.2	5
10:11					7.57	0.223	16.11	4.20	-32	62.2	10
10:19					7.47	0.202	14.59	3.45	63	55.1	15
10:27		81.96		0.7/min	7.20	0.186	13.90	3.36	85	29.9	20
10:35					7.01	0.174	15.69	41.0	109	22.4	25
10:42		81.99			6.78	0.185	13.73	48.4	114	31.6	30
10:49		82.0			6.58	0.194	13.32	50.0	120	25.2	35
11:00		82.02			6.20	0.179	14.75	40.8	135	17.3	40
11:06		82.04			6.40	0.197	13.36	44.4	110	12.9	45
11:14		82.06			6.25	0.197	13.66	4.10	127	9.7	50
11:21		82.08			6.23	0.191	13.65	1.25	131	9.1	55
											~~60~~
											~~65~~
											~~70~~

Purge Volume 33 g

2X

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ CLP VOCs	HCl	3 x 40 mL vials	☐

NOTES:

LOCATION SKETCH

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: T. Koach
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	9-26-14
ACTIVITY	START 11:40 END	SUB REP	Joe	GEOLOGIST	T. Koach

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 398' - 413'
TOP OF BEDROCK
TOP OF LOWER PACKER 413'
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 500'
BOTTOM OF UPPER PACKER 398'
CASING STICKUP (above ground surface) 18"
INITIAL WATER LEVEL (W.L.)
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING 13'
INITIAL W. L. IN ANNULUS 82.23
REFERENCE DATUM (for water levels) TOC

COMMENTS Inflate Packer @ 11:50 Deflate Packer @ 14:00

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER	PV =
	315	71.98										13
12:41					7.05	0.199	15.49	5.02	73	12.5	5	22
12:46		82.05		0.74/min	7.05	0.202	13.82	4.28	39	7.8	10	
12:50		82.03			7.07	0.199	13.15	4.28	63	13.0	15	35
12:55		82.06			7.06	0.193	12.81	4.84	83	60.1	20	
13:02		82.06			6.96	0.192	12.91	4.82	92	31.4	30	22
13:07		82.06			6.89	0.191	12.93	5.14	103	26.2	35	57
13:14		82.07			6.83	0.190	13.07	5.12	119	21.9	40	
13:21		82.08			6.77	0.189	13.67	5.04	127	22.0	45	
13:28		82.08			6.77	0.189	13.75	5.04	130	22.2	50	
13:35		82.09			6.76	0.191	13.72	5.10	131	21.6	55	
13:43		82.09			6.77	0.190	14.29	5.00	128	56.2	60	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP 220 5 gal/min
- [ ] GRUNFOS 2-INCH
- [ ] BLADDER ~~2~~ 3/4 hose

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER N/A

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x] 13:50

NOTES:

LOCATION SKETCH

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 4	SUBCONT'R	Summit	DATE	9-29-14
ACTIVITY	START 08:40 END	SUB REP	Jordan	GEOLOGIST	Roach

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 450 - 465'
TOP OF BEDROCK
TOP OF LOWER PACKER 465
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 500'
BOTTOM OF UPPER PACKER 450
CASING STICKUP (above ground surface) 1.6
INITIAL WATER LEVEL (W.L.) 64.0'
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS
REFERENCE DATUM (for water levels) grd

COMMENTS Inflate packers @ 09:26 deflate packer: 11:16
Pump start 09:46
pump stop 11:12

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/L/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
	341	82.5									
0950		82.1		1	7.58	0.283	15.00	5.19	-131	45.2	5
0955		82.1		0.75	7.46	0.252	13.76	3.54	-130	90.1	10
1003		82.1		0.75	7.27	0.229	13.45	3.17	-116	192	15
10:10		82.1		0.75	7.17	0.214	13.30	3.30	-82	81.5	20
10:17		82.1		0.75	6.85	0.213	13.44	3.21	-17	57.5	25
10:25		82.1		0.75	6.70	0.212	13.71	2.66	20	55.5	30
10:34		82.1		0.75	6.64	0.219	13.32	3.15	34	90.6	35
10:39		82.1		0.75	6.64	0.225	13.17	3.19	40	93.0	40
10:46		82.1		0.75	6.68	0.229	13.34	3.19	44	79.9	45
10:53		82.1		0.75	6.73	0.233	13.23	2.45	41	60.8	50
11:00		82.1		0.75	6.79	0.235	13.37	3.09	36	45.0	55
11:07		82.1		0.75	6.86	0.237	13.46	3.26	32	34.5	60

22/...
2 vol
60
15 in
pep

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [ ] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X] 11:10

NOTES: Water greenish initially, turns brown after 15 gallons purged

LOCATION SKETCH Good recharge

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-4	SUBCONT'R	Summit	DATE	9-29-14
ACTIVITY	START 1140 END	SUB REP	Jordan	GEOLOGIST	

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 481-496'
TOP OF BEDROCK
TOP OF LOWER PACKER 481'
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 500'
BOTTOM OF UPPER PACKER 496'
CASING STICKUP (above ground surface) 1.6'
INITIAL WATER LEVEL (W.L.)
LENGTH OF PACKERS (sealed test zone) 15'
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS
REFERENCE DATUM (for water levels) grd

COMMENTS Inflate packers @ 11:43 (358 psi) Deflate packers @
Start pump @ 11:58

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
	358	32.4	No data available due to minimal water								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ CLP VOCs	HCl	3 x 40 mL vials	☒

NOTES:

LOCATION SKETCH

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 5	SUBCONT'R	Summit	DATE	7/28/14
ACTIVITY	START 1304 END 1428	SUB REP	J Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 52-67.75
TOP OF BEDROCK
TOP OF LOWER PACKER JB ~~52~~ 67.75
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 398.5 feet
BOTTOM OF UPPER PACKER JB ~~67.75~~ 52
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 33.53
LENGTH OF PACKERS (sealed test zone) 15.75
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 30.45
REFERENCE DATUM (for water levels) toc

COMMENTS riser stickup = 4.90 feet
collected sample at 1428

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR) JB	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1340	180	35.[illegible]	33.53	NA	not pumping						
1344	180	35.00	36.75	2.4	6.25	0.234	15.33	32.06	125	0.0	
1347	180	35.[illegible]	38.07	2.4	6.29	0.235	13.93	3.64	129	0.0	
1355	180	35.60	38.48	2.4	6.17	0.240	13.65	3.37	131	0.0	
1400	180	35.84	40.70	2.9	6.18	0.240	13.59	2.03	127	0.0	
1404	180	36.03	41.14	2.9	6.17	0.242	13.57	1.82	126	0.0	
1408	180	36.22	42.95	2.9	6.16	0.244	13.03	2.52	125	0.0	
1411	180	36.40	44.20	4.4	6.14	0.244	13.19	2.14	127	0.0	
1414	180	36.57	44.63	4.4	6.10	0.241	12.79	2.92	129	0.0	
1416	180	36.67	44.92	4.4	6.11	0.245	12.68	2.24	129	0.0	
1428	180	36.25	34.80	NA	6.12	0.244	12.49	2.24	129	0.0	sample

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☑ TEFLON
☑ BLADDER	☑ OTHER teflon	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: Purged using Redi Flo
Sampled using well wizard

SIGNATURE: J M Bol

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-5	SUBCONT'R	Summit	DATE	7/28/14
ACTIVITY	START 1130 END 1304	SUB REP	J. Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 34-49.75
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 1.5 feet
BOTTOM OF CASING 23 feet
TOP OF BEDROCK
BOTTOM OF BORING 398.5 feet
INITIAL WATER LEVEL (W.L.) 42 feet
INITIAL W. L. IN ANNULUS dry
TOP OF LOWER PACKER JB ~~34~~ 49.75
BOTTOM OF UPPER PACKER JB ~~49.75~~ 34
LENGTH OF PACKERS (sealed test zone) 15.75
REFERENCE DATUM (for water levels) toc

COMMENTS riser casing height 2.16 feet
collected sample @ 1304

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1150	175	dry	29.77	N/A	not pumping yet						
1156	175	dry	32.52	JB ~~0.3~~ 1.3	8.81	0.263	15.85	9.45	136	8.6	
1204	175	dry	32.67	JB ~~0.3~~ 1.6	6.40	0.245	15.85	8.13	129	0.8	
1212	175	dry	32.72	1.4	5.97	0.245	15.03	16.43	134	0.0	
1217	175	dry	37.65	1.4	5.78	0.236	14.03	8.52	146	0.0	
1223	175	dry	37.77	3.3	5.62	0.240	13.64	5.61	156	0.0	
1229	175	dry	37.70	3.3	5.54	0.238	13.95	5.50	161	0.0	
1232	175	dry	37.66	3.8	5.46	0.239	13.46	4.42	170	0.0	
1237	175	dry	38.05	3.8	5.41	0.241	13.62	5.56	175	0.0	
1240	175	dry	38.85	3.8	5.38	0.238	13.59	4.56	177	0.0	
1304	175	dry	30.50	N/A	6.05	0.238	13.09	4.47	101	0.0	sample

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [x] BLADDER

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [x] OTHER Teflon

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [x] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

- [x] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[x]

NOTES: Purged using Redi-flo
sampled using well wizard

SIGNATURE: Tom Bond

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-5	SUBCONT'R	Summit	DATE	7/28/14
ACTIVITY	START 1430 END 1628	SUB REP	J SILVA	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	75-90.75	TOP OF BEDROCK		TOP OF LOWER PACKER	90.75
BOREHOLE DIAMETER	6 inches	BOTTOM OF BORING	398.5 feet	BOTTOM OF UPPER PACKER	75
CASING STICKUP (above ground surface)	1.5 feet	INITIAL WATER LEVEL (W.L.)	32.25	LENGTH OF PACKERS (sealed test zone)	15.75
BOTTOM OF CASING	23 feet	INITIAL W. L. IN ANNULUS	30.40	REFERENCE DATUM (for water levels)	TOC

COMMENTS: Riser pipe SU = 3.05 feet
collected sample at 1628

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1532	190	35.24	32.20	NA	Prior to pumping						packer inflation
1537	190	35.55	40.38	1.9	6.67	0.270	19.08	3.50	47	0.0	
1541	190	35.74	41.05	1.9	6.89	0.282	16.13	2.93	28	0.0	
1548	190	36.17	41.23	1.0	6.81	0.284	16.43	1.95	28	0.0	
1552	190	36.23	43.45	2.8	6.74	0.278	14.66	2.57	37	0.0	
1556	190	36.78	50.10	3.3	6.62	0.282	13.54	1.82	44	0.0	
1600	190	37.25	60.40	3.3	6.48	0.275	13.45	3.29	53	0.2	
1604	190	37.58	61.05	3.3	6.37	0.271	13.62	2.78	65	3.7	
1607	190	37.81	64.90	2.8	6.23	0.269	13.41	2.70	79	4.4	
1610	190	38.12	67.10	3.6	6.12	0.268	13.14	1.91	91	3.7	
1613	190	38.26	69.02	4.0	6.06	0.269	12.79	2.73	98	1.3	
1616	190	38.33	71.10	4.0	6.01	0.267	13.01	3.65	106	0.0	
1628		38.60	40.90	NA	6.12	0.260	16.39	5.19	126	0.0	sample

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☑ TEFLON
☑ BLADDER	☑ OTHER teflon	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: Purged using Redi Flo
Sampled using well wizard

SIGNATURE: [signature]

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 5	SUBCONT'R	Summit	DATE	7/29/14
ACTIVITY	START 0900 END 1010	SUB REP	J Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 102-117.75
TOP OF BEDROCK
TOP OF LOWER PACKER 117.75
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 398.5 feet
BOTTOM OF UPPER PACKER 102
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 31.21
LENGTH OF PACKERS (sealed test zone) 15.75
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 30.27
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SW = 2.10 feet
collected sample at 1010

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0900	200	35.60	32.60	N/A		not	purging				packer inflated
0911	200	35.80	45.60		7.28	0.255	14.48	5.96	105	0.0	
0913	200	35.85	54.45	3.5/3	7.25	0.257	12.83	5.53	8	0.0	
0916	200	36.15	64.80	7.0/6	7.08	0.263	12.81	4.13	1	0.0	
0921	200	36.35	70.35	10.5/11	6.95	0.259	12.88	4.22	12	0.0	
0924	200	36.41	78.00	14/14	6.87	0.264	12.72	5.67	16	0.0	
0928	200	36.60	85.02	17.5/18	6.79	0.264	12.63	7.08	26	0.0	
0932	200	36.67	87.62	21/22	6.72	0.264	12.61	6.71	10	0.0	
0936	200	36.77	89.28	24.5/26	6.70	0.258	12.53	2.01	11	0.0	
0940	200	36.79	92.10	28/30	6.69	0.252	12.34	6.02	29	0.0	
0944	200	36.80	95.11	31.5/34	6.66	0.258	12.32	2.84	25	0.0	
0948	200	36.93	96.28	35/38	6.62	0.257	12.40	1.49	23	0.0	
1010	200	36.78	45.32	N/A	6.56	0.257	14.73	11.36	42	0.0	Sample

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☑ TEFLON
☑ BLADDER	☑ OTHER Teflon	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: Purged using Redi Flo

SIGNATURE: Ta Bad

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-5	SUBCONT'R	Summit	DATE	7/29/14
ACTIVITY	START 1045 END 1235	SUB REP	J Bilud	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 142-157.75
TOP OF BEDROCK
TOP OF LOWER PACKER 157.75
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 398.5 feet
BOTTOM OF UPPER PACKER 142
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 33.78
LENGTH OF PACKERS (sealed test zone) 15.75
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 35.90
REFERENCE DATUM (for water levels) TOC

COMMENTS riser sub = 4.40 feet
collected sample at 1235

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (mL/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1100	210	35.68	31.95	N/A		prior	to	purging			inflation
1108	210	36.45	46.35		7.30	0.242	14.08	3.28	124	0.0	
1109	210	36.50	60.40	3.5/2	7.36	0.247	13.54	2.79	42	0.0	
1112	210	36.55	81.78	7.0/5	7.37	0.248	12.40	2.32	-2	0.0	
1115	210	36.58	96.80	10.5/8	7.26	0.255	12.57	3.24	5	0.0	
1121	210	36.82	121.30	14/14	7.09	0.263	13.33	2.96	23	0.0	
1132	210	36.92	143.40	17.5/25	7.09	0.267	14.24	2.75	21	0.0	
1138	210	37.02	149.00	21/31	7.15	0.261	14.39	2.29	14	0.0	
1144	210	37.05	151.45	24.5/37	7.21	0.262	14.41	5.24	38	0.0	
1149	210	37.12	154.15	28/42	7.25	0.257	14.13	5.18	37	0.0	
1154	210	37.12	156.60	31.5/47	7.26	0.258	14.20	6.21	47	0.0	
1200	210			35/53	7.27	0.260	14.96	9.48	35	2.5	
1203	210	37.18	159.68	purged dry @ 39 gallons							
1235	collected sample.										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [x] BLADDER JB

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [x] OTHER Teflon

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [x] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

- [x] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[x]

NOTES: Purged using RediFlo
Sampled using Teflon bailer

SIGNATURE: Tim Bolduc

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Boldue
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-5	SUBCONT'R	Summit	DATE	7/29/14
ACTIVITY	START 1332 END 1505	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 194-209.75
TOP OF BEDROCK
TOP OF LOWER PACKER 209-75
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 398.5 feet
BOTTOM OF UPPER PACKER 194
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 31.91
LENGTH OF PACKERS (sealed test zone) 15.75
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 36.50
REFERENCE DATUM (for water levels) TOC

COMMENTS riser pipe sty = 2.4 feet
collected sample at 1505

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1332	240	36.40	30.19	N/A		not pulsing					inflation
1339	240	36.40	41.30		7.50	0.233	16.78	3.85	105	0.0	
1346	240	36.42	53.40	3.5/4	7.51	0.234	14.41	4.03	72	0.0	
1349	240	36.47	71.47	7/6	7.51	0.235	14.16	3.27	29	0.0	
1352	240	36.50	90.85	10.5/11	7.16	0.245	13.44	3.58	44	0.0	
1358	240	36.48	109.00	14/17	6.99	0.239	14.28	4.39	75	0.0	
1400	240	36.48	125.98	17.5/23	6.93	0.243	14.33	4.90	88	0.0	
1410	240	36.22	139.62	21/29	6.91	0.241	15.38	6.29	99	0.0	
1415	240	36.42	159.33	24.5/34	7.06	0.245	14.59	5.89	97	1.8	JB
1420	240	36.46	177.05	28/39	7.04	0.251	14.65	5.97	100	7.1	
1425	240	36.46	193.70	31.5/44	7.04	0.251	15.10	6.64	105	5.1	
1430	240		198.30	35/49	7.01	0.255	15.14	5.90	107	4.9	
1433	240	36.50	200.05	38.5/52	7.03	0.252	15.44	5.16	106	4.6	
1436	240	36.50	202.75	42/55	7.04	0.248	14.70	4.52	106	0.9	
1438	240	36.50	204.75	45.5/57	7.01	0.248	14.13	4.38	106	0.0	
1441	240	36.52	206.80	49/60	6.99	0.249	14.25	6.15	110	0.0	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: collected MS/MSD and sample using Teflon bailer

SIGNATURE: Tu Bed

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Boldue
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-5	SUBCONT'R	Summit	DATE	7/30/19
ACTIVITY	START 1100 END 1253	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 222-237.75
TOP OF BEDROCK
TOP OF LOWER PACKER 237.75
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING 398.5
BOTTOM OF UPPER PACKER 222
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 32.10
LENGTH OF PACKERS (sealed test zone) 15.75
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 30.56
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick-up = 2.75 feet
Collected sample at 1253

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1100	250	36.25	30.79	NA		prior to purging					inflation
1110	250	36.70	54.50	3/4	7.72	0.235	14.08	4.85	144	0.0	
1114	250	36.85	75.70	7/8	7.63	0.234	13.15	2.31	96	0.0	
1118	250	36.98	96.10	10.5/12	7.56	0.234	13.01	2.56	57	0.0	
1122	250	37.08	117.80	14/16	7.51	0.236	12.83	3.95	45	0.0	
1127	250	37.15	138.20	17.5/21	7.44	0.234	13.08	3.04	43	0.0	
1134	250	37.25	160.60	21/28	7.36	0.235	13.37	2.93	55	0.0	
1141	250	37.27	183.00	24.5/35	7.34	0.236	13.75	1.49	52	0.0	
1146	250	37.29	204.90	28/40	7.22	0.240	13.93	1.50	62	0.0	
1152	250	37.36	226.12	31.5/46	7.06	0.246	14.71	1.74	96	0.0	
1158	250	37.14	227.61	35/52	6.93	.249	14.99	2.04	100	0.0	
1205	250	37.27	230.08	38.5/59	6.82	0.253	14.93	6.83	109	0.0	
1210	250	37.32	232.85	42/64	6.73	0.254	15.29	6.74	112	0.0	
1214	250	37.43	235.45	45.5/68	6.70	0.259	14.82	3.44	114	0.0	
1217	250	37.45	237.90	49/71	6.70	0.264	14.43	3.28	115	0.0	
1221		purged	52 gallons		- dry						

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES:

SIGNATURE: J Bo

LOCATION SKETCH
Bottom Diver = 025240
Annular Diver = 025241
Riser Diver = 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 5	SUBCONT'R	Summit	DATE	7/30/14
ACTIVITY	START 1334 END 0900 7/31/14	SUB REP	J Sitz	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 258-273.75
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface) 1.5 feet
BOTTOM OF CASING 23 feet

TOP OF BEDROCK
BOTTOM OF BORING 398.5 ft
INITIAL WATER LEVEL (W.L.) 33.00
INITIAL W. L. IN ANNULUS 31.60

TOP OF LOWER PACKER 273.75 ft
BOTTOM OF UPPER PACKER 258 ft
LENGTH OF PACKERS (sealed test zone) 15.75 ft
REFERENCE DATUM (for water levels) TOC

COMMENTS
Riser SW = 2.59 feet
could not collect a sample - bailer hitting obstruction

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1334	260	37.36	31.04	N/A		PRIOR TO PURGING					inflation
1350	260	37.58	55.80		7.07	0.22	18.88	3.45	170	0.0	
1354	260	37.63	78.22		7.34	0.225	16.21	3.09	105	0.0	
1358	260	37.69	97.65		7.37	0.224	14.75	2.58	67	0.0	
1400	260	37.80	120.40		7.10	0.218	16.12	2.01	93	0.0	
1424	260	37.76	148.80		7.02	0.226	14.79	3.14	78	0.0	
1429	260	37.77	169.11		6.88	0.229	14.33	3.43	93	0.0	
1434	260	37.76	187.68		6.82	0.230	14.81	3.93	106	0.0	
1439	260	37.76	207.10		6.80	0.230	15.25	3.65	114	0.0	
1444	260	37.55	234.90		6.80	0.232	15.05	4.76	120	0.0	
1449	260	37.55	252.70		6.79	0.232	15.47	4.90	124	0.0	
			262.60								
1453	260	37.40	[illegible] SB		6.79	0.232	16.10	5.55	127	0.0	
1458	260	37.35	265.30		6.79	0.233	16.63	5.72	128	0.0	
1503	260	37.35	268.14		6.82	0.232	16.85	6.53	132	0.0	
1507	260	37.35	270.53		6.85	0.234	16.34	6.70	129	0.0	
1511	260	37.37	273.00		6.89	0.236	16.05	6.89	127	0.0	
1514	260	37.37	274.50		6.93	0.237	15.48	7.02	125	0.0	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
✓ GRUNFOS 2-INCH	✓ HIGH DENSITY POLY	✓ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

No recovery overnight
Could not collect a sample - bailer hitting obstruction

NOTES: 7/31/14 @ 0834 depth to water in riser = 274.14'

SIGNATURE: Jim Bol

LOCATION SKETCH
Bottom Diver 025240
Annulus Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 5	SUBCONT'R	Summit	DATE	7/31/14
ACTIVITY	START 1159 END 1320	SUB REP	J Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 313-328.75
TOP OF BEDROCK
TOP OF LOWER PACKER 328.75 ft
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 398.5 ft
BOTTOM OF UPPER PACKER 313 ft
CASING STICKUP (above ground surface) 1.5 feet
INITIAL WATER LEVEL (W.L.) 35.11
LENGTH OF PACKERS (sealed test zone) 15.75 ft
BOTTOM OF CASING 23 feet
INITIAL W. L. IN ANNULUS 37.95
REFERENCE DATUM (for water levels) TOC

COMMENTS: riser SU = 4.0 feet
collected sample @ 1320 using bailer

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1159	280	37.55	34.34								
1206	280	38.91	47.00	3.5/4	7.84	0.225	14.98	5.70	155	0.0	
1209	280	39.02	50.70	7/7	7.78	0.228	13.64	3.13	84	0.0	
1212	280	41.75	56.15	10.5/10	7.74	0.230	13.28	3.26	63	0.0	
1214	280	38.55	60.31	14/12	7.67	0.232	13.29	2.73	43	[illegible]	0.0
1217	280	38.60	63.59	17.5/15	7.61	0.234	12.97	3.30	35	[illegible]	0.0
1219	280	39.65	65.48	21/17	7.55	0.236	12.88	2.91	31	0.0	
1222	280	38.67	66.80	24.5/19	7.50	0.237	13.01	3.32	32	0.0	
1224	280	39.50	67.95	28/21	7.44	0.244	12.99	2.87	27	0.0	
1227	280	39.55	68.69	31.5/24	7.34	0.251	13.01	2.32	21	0.0	
1230	280	39.55	69.27	35/27	7.33	0.259	13.09	2.02	21	0.0	
1232	280	39.58	69.73	38.5/29	7.28	0.265	13.07	2.08	20	0.0	
1235	280	39.60	70.04	42/32	7.24	0.270	12.99	2.44	18	0.0	
1237	280	39.63	70.25	45.5/34	7.20	0.272	12.95	2.28	17	0.0 VB	
1240	280	39.65	70.34	49/37	7.18	0.276	12.96	2.28	11	~~0.0~~ 0.0 VB	
1246	280	39.73	59.89	[illegible]/43	7.14	0.279	13.50	2.27	12	0.0	
1248	280	39.72	64.95	[illegible]/45	7.15	0.281	13.03	2.25	12	0.0	
1251	280	39.72	67.65	[illegible]/48	7.16	0.281	12.98	2.52	11	0.0	
1259	280	39.75	52.78	[illegible]/56	7.20	0.280	13.90	2.72	3	0.0	
1302	280	39.75	57.67	60.5/59	7.42	0.278	13.31	2.57	-8	0.0	
1305	280	39.75	59.99	70/62	7.49	0.276	13.42	7.34	-22	0.0	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: sample had strong H_2S odor

SIGNATURE: Jim Bold

LOCATION SKETCH
Bottom Diver 025240
Annular Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Boldue
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8/1/14
ACTIVITY	START 1357 END 1442	SUB REP	J. Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 30 - 45.00 JB
TOP OF BEDROCK
TOP OF LOWER PACKER 45.00 JB ft
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 ft
BOTTOM OF UPPER PACKER 30 ft
CASING STICKUP (above ground surface) 2.3 ft
INITIAL WATER LEVEL (W.L.) 33.09 ft
LENGTH OF PACKERS (sealed test zone) 15.00 JB
BOTTOM OF CASING 11 feet
INITIAL W. L. IN ANNULUS 30.20 ft
REFERENCE DATUM (for water levels) TOC

COMMENTS riser stickup = 5.12 feet
Collected Sample at 1442

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1357	160	dry.	30.70	N/A		prior	to purging		VD		inflation
1420	160	dry	44.02	3.5/4	7.66	0.281	16.57	7.15	74	0.0	
1423	160	dry	44.02	7/7	6.93	0.270	15.63	6.17	81	0.0	
1426	160	dry	44.02	10.5/10	6.71	0.272	14.25	6.59	90	0.0	
1429	160	dry	44.02	14/13	6.57	0.268	13.49	6.41	97	20.6	
1432	160	dry	44.02	17.5/16	6.47	0.273	13.08	6.98	100	38.5	
1434	160	dry	45.65	21/18	6.39	0.276	12.75	7.09	101	51.1	
1436	160	dry	47.01	24.5/20	6.36	0.273	12.83	6.89	96	60.4	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES:

SIGNATURE: Jim Boe

LOCATION SKETCH
Bottom Diver 025240 #1364
Annular Diver 025241 #1362
Riser Diver 022644 #7125

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolduc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8/1/14
ACTIVITY	START 1522 END 1611	SUB REP	J Silva	GEOLOGIST	J Bolduc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 50-65
TOP OF BEDROCK
TOP OF LOWER PACKER 65 ft
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 ft
BOTTOM OF UPPER PACKER 50 ft
CASING STICKUP (above ground surface) 2.3 ft
INITIAL WATER LEVEL (W.L.) 30.58
LENGTH OF PACKERS (sealed test zone) 15 ft
BOTTOM OF CASING 4 feet
INITIAL W. L. IN ANNULUS 38.83
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SU = 2.74'
Collected sample at 1611

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR) JB	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1522	180	37.15	30.08	N/A		prior to purging					inflation
1528	180	35.80	50.25	3.5/3	6.71	0.276	14.33	8.63	66	19.9	
1532	180	32.10	61.85	7/7	6.49	0.282	13.55	6.78	98	21.8	
1535	180	31.35	61.65	10.5/10	6.41	0.280	13.07	6.61	117	23.3	
1539	180	29.45	61.70	14/14	6.28	0.279	13.14	6.45	114	22.8	
1543	180	29.58	61.70	17.5/18	6.21	0.279	12.92	6.91	115	22.0	
1547	180	28.65	63.07	21/22	6.18	0.282	12.83	7.41	114	16.5	
1551	180	27.72	65.20	24.5/26	6.17	0.284	13.02	7.09	111	15.4	
1557	180	26.58	66.56	28/32	6.23	0.272	14.69	8.11	90	10.6	
1611	collected sample using bailer										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES:

SIGNATURE: [signature]

LOCATION SKETCH
Bottom Diver 025240
Annular Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bokluc
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8/4/14
ACTIVITY	START 0910 END 1025	SUB REP	J Silva	GEOLOGIST	J Bokluc

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 80-95
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2.3 ft
BOTTOM OF CASING 11 ft
TOP OF BEDROCK
BOTTOM OF BORING 334 ft
INITIAL WATER LEVEL (W.L.) 30.02 ft
INITIAL W. L. IN ANNULUS 29.81 ft
TOP OF LOWER PACKER 95
BOTTOM OF UPPER PACKER 80
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) TOC

COMMENTS riser SU = 2.75 ft

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0925	180	34.26	29.15	JB							
0934	180	32.75	50.20	3.5/4	6.91	0.282	13.56	3.58	18	0.0	
0938	180	32.23	73.40	7/8	6.58	0.314	13.61	2.52	9	0.0	
0943	180	31.45	86.30	10.5/13	6.38	0.366	13.80	2.23	-19	0.0	
0947	180	30.93	91.95	14/17	6.41	0.308	13.11	2.53	-22	0.0	
0950	180	30.70	91.95	17.5/20	6.33	0.290	13.86	2.48	8	0.0	
0955	180	30.25	91.95	21.5/25	6.22	0.288	12.66	4.49	37	0.0	
1000	180	28.83	91.91	24.5/30	6.09	0.284	13.28	6.50	37	0.0	
1013	180	28.30	94.35	28/35	6.19	0.242	12.60	6.24	76	0.0	
1016	180	28.08	96.25	31.5/49	6.09	0.295	12.52	8.69	89	0.0	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

collected sample using bailer at 1025
Purged 31.5 gallons

NOTES:

SIGNATURE: JaBu

LOCATION SKETCH
Bottom Diver 025240
Annular Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	
ACTIVITY	START 1103 END 1142	SUB REP	J Sylva	GEOLOGIST	

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	95-110	TOP OF BEDROCK		TOP OF LOWER PACKER	110
BOREHOLE DIAMETER	6 inches	BOTTOM OF BORING	334 ft	BOTTOM OF UPPER PACKER	95
CASING STICKUP (above ground surface)	2.3ft	INITIAL WATER LEVEL (W.L.)	30.98	LENGTH OF PACKERS (sealed test zone)	15ft
BOTTOM OF CASING	11ft	INITIAL W. L. IN ANNULUS	34.75	REFERENCE DATUM (for water levels)	TOC

COMMENTS: Riser s/u 3.52
collected sample at 1150 using bailer

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
11:03	200	34.98	31.01	N/A		NC101	FO	PUCOB		INFLATION	
11:11	200	32.95	52.01	3.5/2	6.54	.276	14.74	3.78	57	0.0	
11:14	200	33.30	61.69	7/8	6.45	.282	13.23	4.47	74	0.0	
11:17	200	33.00	66.92	10.5/9	6.40	.283	12.81	4.65	82	0.0	
11:20	200	32.50	69.87	14/11	6.30	.281	12.55	3.77	88	0.0	
11:24	200	31.80	71.38	17.5/15	6.21	.282	12.54	3.83	89	0.0	
11:28	200	31.60	72.09	21/19	6.14	.283	12.68	3.00	93	0.0	
11:31	200	31.35	78.05	24.5/22	6.11	.283	12.43	3.28	96	11.5	
11:34	200	31.11	84.09	28/25	6.09	.286	12.37	3.24	104	7.5	
11:36	200	30.10	90.11	31.5/29	6.07	.290	12.32	4.31	106	5.0	
11:42	200	30.25	94.19	35/33	6.08	.288	12.79	3.17	106	10.1	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER ___	☐ OTHER ___	☐ OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES:

SIGNATURE: Tm Bo

LOCATION SKETCH
Bottom Diver 025240
Annular Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Boldue
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8/4/14
ACTIVITY	START 1210 END 1435	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 110-125
TOP OF BEDROCK
TOP OF LOWER PACKER 125
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 ft
BOTTOM OF UPPER PACKER 110
CASING STICKUP (above ground surface) 2.3 ft
INITIAL WATER LEVEL (W.L.) 30.92
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 11 ft
INITIAL W. L. IN ANNULUS 34.98
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/V = 3.71

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
12:26	205	34.40	30.21	N/A		Prior to Purge					INFLATION
[illegible]	205	[illegible]	[illegible]	3.5/3	6.72	.290	15.56	2.80	38	0.0	
12:48	205	32.98	49.30	7/7	6.61	.283	13.69	2.56	48	0.0	
12:52	205	32.90	53.55	10.5/10	6.53	.283	13.10	2.57	51	0.0	
12:55	205	32.85	58.01	14/14	6.45	.283	12.87	2.49	54	0.0	
12:58	205	32.80	60.35	17.5/17	6.39	.285	12.76	2.69	55	0.0	
13:01	205	32.80	65.60	21/20	6.36	.282	12.58	2.37	55	0.0	
13:04	205	33.50	68.81	24.5/23	6.33	.282	12.75	1.73	56	1.4	
1307	205	33.50	71.09	28/26	6.29	.282	12.56	1.88	57	1.4	
1310	205	33.50	72.40	31.5/29	6.29	.283	12.56	1.66	55	1.8	
1313	205	33.50	73.30	35/32	6.28	.282	12.69	1.85	51	0.0	
13:16		33.50	73.90	38.5/35	6.28	.282	12.52	1.96	49	0.0	
1425			Collect			Sample		From Bladder		Pump	
1431										Deflate Packers	
1435		Pull	Diver			From	Well				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [x] BLADDER

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES:

SIGNATURE: [signature]

LOCATION SKETCH

Bottom Diver 025240
Annular 025241
Riser 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By: J Bolde
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-6	SUBCONT'R	Summit	DATE	8-4-14
ACTIVITY	START 1435 END 1630	SUB REP	J Sitler	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 140- 155
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2.3FT
BOTTOM OF CASING 11 Ft
TOP OF BEDROCK
BOTTOM OF BORING 334 ft
INITIAL WATER LEVEL (W.L.) 30.85
INITIAL W. L. IN ANNULUS 34.93
TOP OF LOWER PACKER 155
BOTTOM OF UPPER PACKER 140
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SU = 3.78'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1442				Put Diver in hole							
1455				Install Grp purge pump on riser							
1504	210	34.22	30.05	inflate packers							
1511	210	33.85	50.11	3.5/3min	6.84	0.266	20.26	4.11	334	0.0	
1517	210	33.60	64.20	7.0/9min	6.51	0.276	15.59	2.96	215	0.0	
1521	210	34.20	81.91	10.5/12min	6.34	0.276	14.15	3.47	50	0.0	
1528	210	34.05	95.61	14.0/18min	6.19	0.292	14.45	2.56	50	0.0	
1531	210	34.00	117.95	17.5/21min	6.11	0.302	13.51	1.86	54	8.9	
1534	210	33.96	131.87	21.0/24min	6.04	0.319	13.31	3.03	67	12.8	
1539	210	33.86	152.63	24.5/27min	5.98	0.335	14.05	3.30	85	14.4	
1545	210	33.80	N/A 152.63	28.0/30min	5.97	0.315	14.70	3.98	86	9.8	@pump in hole
1551	210	33.77	152.48	3.5/41min	5.99	0.296	14.88	2.40	75	7.3	
1557	210	33.72	152.49	35.0/47min	5.99	0.286	14.91	3.35	73	1.4	
1603	210	33.70	152.49	38.5/53min	6.01	0.283	14.75	3.74	73	0.5	
1609	210	33.65	152.33	42.0/59min	6.06	0.283	14.70	3.94	74	0.0	
1613		pull pump + Diver from riser									
1625	collected sample using bailer										
1630	pulled diver from annulus										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES:

SIGNATURE: Tim Breed

LOCATION SKETCH

Bottom Diver 025240
Annulus Diver 025241
Riser Diver 022644

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: J. Stalnaker
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-6	SUBCONT'R	Summit	DATE	8-5-14
ACTIVITY	START 0840 END 1010	SUB REP	J. Silva	GEOLOGIST	J. Stalnaker

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 160-175
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2.3 FT
BOTTOM OF CASING 11 FT
TOP OF BEDROCK
BOTTOM OF BORING 334 FT
INITIAL WATER LEVEL (W.L.) 35.07
INITIAL W. L. IN ANNULUS 35.15
TOP OF LOWER PACKER 175
BOTTOM OF UPPER PACKER 160
LENGTH OF PACKERS (sealed test zone) 15 FT
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/V = 5.0 FT

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE ~~(L/min)~~	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0855	220	35.07	33.35	gal/min		Prior	to	Purge		Inflate	
0900	220	35.15	31.80	Start	Purge	Prior	to	Purge		After Inflate	
0904	220	34.72	39.29	3.5/4min	6.46	0.391	16.25	3.78	24	0.0	
0907	220	34.61	39.93	3.5/4min	6.50	.529	14.00	0.338	34	0.0	
0910	220	34.57	44.31	3.5/3min	6.46	.702	13.12	2.20	32	0.0	
0912	220	34.60	45.30	3.5/2min	6.42	.727	12.76	2.40	31	0.0	
0914	220	34.57	45.83	3.5/2min	6.39	.786	12.51	2.48	29	0.0	
0916	220	34.56	46.03	3.5/2min	6.38	.843	12.39	2.48	26	0.0	
0919	220	34.56	46.15	3.5/2.5min	6.38	0.879	12.37	2.00	23	0.0	
0921	220	34.57	46.23	3.5/2min	6.38	0.904	12.23	2.31	22	0.0	
0923	220	34.57	46.30	3.5/2min	6.38	0.919	12.19	2.71	20	0.0	
0925	220	34.57	46.32	3.5/2min	6.38	0.927	12.17	2.14	20	0.0	
0928	220	34.60	46.35	3.5/2.5min	6.35	0.934	12.22	2.37	18	0.0	
0930	220	34.60	46.39	3.5/2min	6.37	0.946	11.96	2.40	19	0.0	
0933	220	34.60	46.42	3.5/2.5min	6.37	0.947	12.11	2.07	18	0.0	
0934						Stop	Purge	with	Grunfos		
0939					Pull	Diver	Riser				
0955			Collect		Sample	using	bladder		Pump		
1000				Pull	Annular	Diver				Deflate	Packers

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[X] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: Purged ~ 44 gal

SIGNATURE: [signature]

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: J. Stewart
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-6	SUBCONT'R	Summit	DATE	8-5-14
ACTIVITY	START 1010 END 1200	SUB REP	J. Sing	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 180 - 195
TOP OF BEDROCK
TOP OF LOWER PACKER 195
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 ft
BOTTOM OF UPPER PACKER 180
CASING STICKUP (above ground surface) 2.3 ft
INITIAL WATER LEVEL (W.L.) 30.49
LENGTH OF PACKERS (sealed test zone) 15 ft
BOTTOM OF CASING 11 ft
INITIAL W. L. IN ANNULUS 35.09
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/V = 3.0

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1023			In Stall		Pump and		Diver				
1029	225		In Stall		Annular		Diver			Inflate	
1035	225	35.18	29.81	—	Prior to		Purge				
1039	225	36.30	42.32	3.5/3min	6.66	0.423	14.91	2.95	23	0.0	
1043	225	35.60	48.30	3.5/4min	6.65	0.548	13.22	3.65	25	0.0	
1047	225	35.65	53.69	3.5/4min	6.39	0.638	13.28	2.71	49	0.0	
1051	225	35.78	57.48	3.5/4min	6.32	0.757	12.79	2.84	48	0.0	
1054	225	35.82	66.20	3.5/3min	6.30	0.874	12.57	2.92	45	0.0	
1057	225	35.92	73.05	3.5/3min	6.30	0.900	12.57	3.62	43	0.0	
1100	225	35.92	79.90	3.5/3min	6.40	0.910	13.02	2.54	31	0.0	
1103	225	35.92	84.48	3.5/3min	6.37	0.928	12.78	2.79	32	0.0	
1107	225	35.95	88.50	3.5/4min	6.37	0.961	12.66	2.79	30	0.0	
1111	225	35.96	90.92	3.5/4min	6.40	0.989	12.83	2.84	25	0.0	
1114	225	35.99	93.15	3.5/3min	6.54	1.03	13.19	3.06	5	0.0	
1117	225	35.99	94.26	3.5/3min	6.48	1.06	12.91	2.55	16	0.0	
1123	225	35.94	95.99	3.5/6min	6.51	1.09	12.88	2.28	16	0.0	
1129	225	35.90	97.02	3.5/5min	6.55	1.16	12.96	3.41	14	0.0	
1130		Pull	Diver	From	Riser						
1150			Collect	Sample						Deflate	
1157		Pull	Annular		Diver						

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: ~ 47 gal to be Purged

SIGNATURE: Josh

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8-5-14
ACTIVITY	START 1240 END 1420	SUB REP	J. Silva	GEOLOGIST	J. Shaw

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 200-215
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 2.3 Ft
BOTTOM OF CASING 11 Ft
TOP OF BEDROCK
BOTTOM OF BORING 334 Ft
INITIAL WATER LEVEL (W.L.) 31.38
INITIAL W. L. IN ANNULUS 35.05
TOP OF LOWER PACKER 215
BOTTOM OF UPPER PACKER 200
LENGTH OF PACKERS (sealed test zone) 15 Ft
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/N- 4.15

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min/N/A	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1210	Drop in Diver in Riser										
1217	Drop in Diver in ANNULUS										
1253	230	34.37	31.36			Pliver to purge				Inflated	
1257	230	34.30	32.18	3.5/2Min	6.90	0.521	16.52	3.42	7	2.5	
1259	230	35.05	32.91	3.5/2Min	6.92	0.420	15.33	2.69	28	0.0	
1301	230	35.05	32.97	3.5/2Min	6.93	0.406	14.03	2.84	33	0.0	
1302	230	35.06	32.98	3.5/1Min	6.91	0.400	13.45	2.92	38	0.0	
1304	230	35.08	33.02	3.5/2Min	6.76	0.396	13.26	4.53	46	0.0	
1306	230	35.12	33.03	3.5/2Min	6.58	0.393	13.13	3.20	58	0.0	
1308	230	35.12	33.04	3.5/2Min	6.53	0.387	13.20	3.19	63	0.0	
1309	230	35.16	33.05	3.5/1Min	6.44	0.375	12.80	3.52	69	0.0	
1311	230	35.17	33.06	3.5/2Min	6.38	0.358	13.09	2.64	73	0.0	
1312	230	35.19	33.06	3.5/1Min	6.32	0.364	12.93	3.72	74	0.0	
1314	230	35.20	33.07	3.5/2Min	6.34	0.363	12.95	3.39	76	0.0	
1315	230	35.21	33.07	3.5/1Min	6.30	0.351	12.88	2.59	77	0.0	
1317	230	35.22	33.07	3.5/2Min	6.27	0.344	12.78	2.95	79	0.0	
1319	230	35.22	33.08	3.5/2Min	6.24	0.350	12.76	3.19	81	0.0	
1320	230	35.22	33.08	3.5/1Min	6.22	0.356	12.74	3.71	81	0.0	
1330		Pull Diver in Riser									
1355		Collect Sample using bladder									
1407		Pull Annuller Diver									

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [X] BLADDER

TYPE OF TUBING
- [X] HIGH DENSITY POLY
- [ ] OTHER ___

TYPE OF PUMP MATERIAL
- [X] STAINLESS STEEL
- [ ] OTHER ___

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ✓ 50 gal to purg

SIGNATURE: JOR

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: J. Stewart
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-6	SUBCONT'R	Summit	DATE	8-5-14
ACTIVITY	START 1420 END 1715	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 220 - 235
TOP OF BEDROCK
TOP OF LOWER PACKER 235
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 Ft
BOTTOM OF UPPER PACKER 220
CASING STICKUP (above ground surface) 2.3 Ft
INITIAL WATER LEVEL (W.L.) 32.35
LENGTH OF PACKERS (sealed test zone) 15 Ft
BOTTOM OF CASING 11 Ft
INITIAL W. L. IN ANNULUS 34.95
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/V = 5.20

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1435		in Stall	Divers			Prior to		Purge			
1443	240	35.56	32.22			Prior to		Purge		Inflated	
1447	240	35.85	32.55	3.5/3min	7.00	0.239	19.92	2.16	30	0.0	
1450	240	36.01	32.78	3.5/3min	7.03	0.266	16.92	1.85	21	0.0	
1452	240	36.01	32.80	3.5/2min	7.07	0.181	14.95	2.83	19	0.0	
1454	240	36.15	32.91	3.5/2min	7.01	0.177	14.49	3.30	24	0.0	
1456	240	36.09	32.83	3.5/2min	6.85	0.178	14.13	2.04	32	0.0	
1458	240	36.09	32.83	3.5/2min	6.71	0.178	13.93	1.80	39	0.0	
1501	240	36.09	32.84	3.5/3min	6.54	0.176	14.16	1.90	54	0.0	
1503	240	36.09	32.84	3.5/2min	6.47	0.176	13.32	2.33	50	0.0	
1505	240	36.09	32.84	3.5/2min	6.45	0.171	13.83	1.33	54	0.0	
1507	240	36.09	32.84	3.5/2min	6.36	0.180	13.39	1.86	57	0.0	
1509	240	36.09	32.84	3.5/2min	6.27	0.175	12.84	3.01	61	0.0	
1511	240	36.11	32.84	3.5/2min	6.29	0.177	12.99	2.48	61	0.0	
1513	240	36.11	32.84	3.5/2min	6.29	0.171	13.28	7.79	60	0.0	
1515	240	36.11	32.84	3.5/2min	6.29	0.171	12.95	2.02	60	0.0	
1517	240	36.11	32.84	3.5/2min	6.24	0.171	12.69	3.09	62	0.0	
1540		Pull	Diver	From	Riser						
1710		Collect		Sample		From	Bladder				
1715		Collect		DUP 01							

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GRUNFOS 2-INCH; [X] BLADDER
TYPE OF TUBING: [X] HIGH DENSITY POLY; [ ] OTHER ___
TYPE OF PUMP MATERIAL: [X] STAINLESS STEEL; [ ] OTHER ___
TYPE OF BLADDER MATERIAL: [ ] TEFLON; [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 58 gal to Purge

LOCATION SKETCH

SIGNATURE: [signature]

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: J. Stewart
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8-6-14
ACTIVITY	START 0920 END 1025	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 235 - 250
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface) 2.3 Ft
BOTTOM OF CASING 11 Ft

TOP OF BEDROCK
BOTTOM OF BORING 334 Ft
INITIAL WATER LEVEL (W.L.) 30.20
INITIAL W. L. IN ANNULUS 35.12

TOP OF LOWER PACKER 250
BOTTOM OF UPPER PACKER 235
LENGTH OF PACKERS (sealed test zone) 15 Ft
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SIVE 2.8

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0906				In Stall		Transducers			Prior	to Purge	
0913	245	34.62	29.71			Prior to	Purge			Inflated	
0917	245	35.63	30.11	3.5/4Min	7.31	0.219	15.74	1.59	-10	0.0	
0922	245	35.75	30.20	3.5/5Min	7.19	0.223	13.51	2.09	-2	0.0	
0924	245	36.00	30.55	3.5/2Min	7.09	0.226	12.88	2.25	7	0.0	
0927	245	36.04	30.55	3.5/3Min	7.02	0.204	12.63	1.87	7	0.0	
0929	245	36.38	30.59	3.5/2Min	7.01	0.174	12.35	2.21	5	0.0	
0932	245	36.20	30.70	3.5/3Min	6.97	0.163	12.35	2.10	2	0.0	
0934	245	36.20	30.73	3.5/2Min	6.93	0.161	12.25	2.11	4	0.0	
0937	245	36.25	30.77	3.5/3Min	6.88	0.156	12.12	8.93	7	0.0	
0940	245	36.25	30.80	3.5/3Min	6.81	0.156	12.30	2.73	8	0.0	
0942	245	36.27	30.81	3.5/2Min	6.78	0.154	12.25	2.37	8	0.0	
0945	245	36.26	30.83	3.5/3Min	6.76	0.153	12.21	2.67	10	0.0	
0948	245	36.30	30.80	3.5/3Min	6.74	0.153	12.19	2.74	13	0.0	
0950	245	36.32	30.83	3.5/2Min	6.72	0.153	12.09	2.40	13	0.0	
0953	245	36.33	30.83	3.5/3Min	6.69	0.152	12.22	1.33	14	0.0	
0955	245	36.35	30.83	3.5/2Min	6.68	0.153	12.08	3.00	19	0.0	
0958	245	36.35	30.86	3.5/3Min	6.66	0.153	12.20	1.67	17	0.0	
1000	245	36.35	30.86	3.5/2Min	6.65	0.154	11.96	2.92	21	0.0	
1005			Collect	Sample		Using		Grunfos			
1010			Pull	Diver		From	well				
1020										Deflate	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 56 gal to purge

SIGNATURE: Jack Stewart

LOCATION SKETCH

41 Annulus
44 Riser

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8-6-14
ACTIVITY	START 1025 END 1235	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 295 - 310
TOP OF BEDROCK
TOP OF LOWER PACKER 310
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 334 FT
BOTTOM OF UPPER PACKER 295
CASING STICKUP (above ground surface) 2.3
INITIAL WATER LEVEL (W.L.) 30.40
LENGTH OF PACKERS (sealed test zone) 15 FT
BOTTOM OF CASING 11 FT
INITIAL W. L. IN ANNULUS 35.15
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser SV = 2.95

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1117	270	34.55	30.25			Prior to		Purge		Inflated	
1120	270	35.10	49.85	3.5/3	7.11	0.222	14.19	4.22	6	0.0	
1122	270	37.70	59.00	3.5/2	7.09	0.219	12.96	2.47	5	0.0	
1125	270	37.70	65.12	3.5/3	7.07	0.219	12.56	3.25	5	0.0	
1127	270	37.68	69.20	3.5/2	7.03	0.217	12.55	3.63	2	0.0	
1130	270	37.60	71.85	3.5/3	6.98	0.212	12.35	3.15	2	0.0	
1133	270	37.55	73.67	3.5/3	6.97	0.206	12.44	1.73	-1	0.0	
1136	270	37.55	74.43	3.5/3	6.98	0.195	12.38	2.24	-3	0.0	
1139	270	37.50	74.92	3.5/3	7.00	0.186	12.52	1.30	-10	0.0	
1142	270	37.50	75.40	3.5/3	7.02	0.182	12.40	1.56	-13	0.0	
1146	270	37.50	75.69	3.5/4	7.04	0.179	12.42	1.86	-16	0.0	
1149	270	37.48	75.92	3.5/3	7.05	0.178	12.44	1.98	-20	0.0	
1152	270	37.45	76.00	3.5/3	7.04	0.175	12.54	2.13	-24	0.0	
1155	270	37.45	76.14	3.5/3	7.11	0.175	12.49	1.76	-25	0.0	
1158	270	37.45	76.21	3.5/3	7.15	0.173	12.62	0.96	-33	0.0	
1201	270	37.45	76.31	3.5/3	7.15	0.176	12.37	1.96	-32	0.0	
1204	270	37.45	76.35	3.5/3	7.17	0.175	12.46	1.95	-34	0.0	
1207	270	37.43	76.36	3.5/3	7.18	0.175	12.56	1.38	-37	0.0	
1211	270	37.43	76.55	3.5/3	7.19	0.176	12.48	2.16	-38	0.0	
1215			Collected			Sample		From	Grunfos		
1228			Pull	Diver		Promwell					

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [X] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [X] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~66 gal to purge

SIGNATURE: Josh Stewart

LOCATION SKETCH Annular Diver was Not installed

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 6	SUBCONT'R	Summit	DATE	8-6-14
ACTIVITY	START 1400 END 1606	SUB REP	J. Silva	GEOLOGIST	J. Silva

TARGET TEST INTERVAL 321 - 336

DEPTHS (All measurements to ground surface in feet)

BOREHOLE DIAMETER 6 Inches

CASING STICKUP (above ground surface) 2.3

BOTTOM OF CASING 11 Ft

TOP OF BEDROCK

BOTTOM OF BORING 334 Ft

INITIAL WATER LEVEL (W.L.) 30.34

INITIAL W. L. IN ANNULUS 35.80

TOP OF LOWER PACKER 321

BOTTOM OF UPPER PACKER —

LENGTH OF PACKERS (sealed test zone) 15 Ft

REFERENCE DATUM (for water levels) TOC

COMMENTS Riser S/V = 3.1

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1532	285	35.34	30.60			Prior	to	purge		Inflated	
1534	285	35.20	31.20	3.5/2	7.48	0.189	17.89	2.18	13	0.0	
1536	285	35.20	31.20	3.5/2	7.30	0.198	14.84	2.51	9	0.0	
1539	285	35.20	31.65	7/3	7.32	0.203	13.89	3.76	14	0.0	
1541	285	35.20	31.70	7/2	7.12	0.212	13.16	2.30	24	0.0	
1543	285	35.15	31.70	7/2	7.02	0.215	13.16	3.71	31	0.0	
1545	285	35.15	31.71	7/2	6.90	0.218	13.04	3.51	39	0.0	
1547	285	35.08	31.71	7/2	6.75	0.219	12.90	2.79	48	0.0	
1550	285	35.00	31.72	7/3	6.68	0.223	12.78	3.61	54	0.0	
1552	285	34.98	31.73	7/2	6.72	0.223	12.91	4.00	56	0.0	
1554	285	34.95	31.73	7/2	6.57	0.225	12.83	4.20	59	0.0	
1556	285	34.93	31.74	7/2	6.49	0.226	12.54	2.28	64	0.0	
1600		Collect	Sample	from	Grunfos					~~Defl~~	
1606										Deflate	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: in 70 gal to purge

LOCATION SKETCH 1515 Riser Diver in
1523 Annular Diver in

SIGNATURE: [signature]

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-14-14
ACTIVITY	START 1350 END 1555	SUB REP	J. Silva	GEOLOGIST	J. Stevens

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 35-50
TOP OF BEDROCK
TOP OF LOWER PACKER 50
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 35
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 35.06
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17 ft
INITIAL W. L. IN ANNULUS dry
REFERENCE DATUM (for water levels) TOC

COMMENTS Depth to water ~ 38 ft bgs SU Riser = 3.30
Riser WL drops with No Purge

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1500	160	NA (dry)	41.00			Prior to	Purge		Inflated		
1508	160	NA	42.49			Prior to	Purge				
1512	160	NA	46.65	3.5/4	7.33	0.305	15.21	4.40	108	7.7	
1517	160	NA	46.95	3.5/5	7.40	0.249	14.27	2.41	36	2.7	
1521	160	NA	46.95	3.5/4	7.26	0.247	13.17	4.03	37	1.3	
1526	160	NA	46.95	3.5/5	7.13	0.246	13.06	3.12	56	2.5	
1530	160	NA	46.95	3.5/4	6.98	0.256	12.69	4.89	69	3.1	
1534	160	NA	46.95	3.5/4	6.88	0.248	12.68	5.50	77	1.7	
1540	Collect	Sample		using		Grunfos		Pump			
1555										Deflated	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 22 gal purged
no bottom diver

SIGNATURE: Josh

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-15-14
ACTIVITY	START 0835 END 0925	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 67-82
TOP OF BEDROCK
TOP OF LOWER PACKER 82
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 67
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 31.87
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17 ft
INITIAL W. L. IN ANNULUS 36.70
REFERENCE DATUM (for water levels) TOC

COMMENTS SU Riser = 1.90

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0850	180	36.85	34.11			Prior to		Purge		Inflated	
0852	180	38.01	38.73	3.5/2	7.42	0.234	13.07	4.21	20	0.0	
0855	180	38.55	39.60	3.5/3	7.65	0.239	12.47	4.02	-24	0.0	
0858	180	39.05	40.02	3.5/3	7.72	0.239	12.27	2.72	-70	0.0	
0901	180	39.47	40.23	3.5/3	7.75	0.239	12.17	2.85	-73	0.0	
0904	180	39.85	40.48	3.5/3	7.73	0.239	11.92	2.32	-68	0.0	
0907	180	40.22	40.71	3.5/3	7.76	0.240	11.93	2.57	-53	0.0	
0910	180	40.60	40.81	3.5/3	7.64	0.242	11.84	3.57	-33	0.0	
0913	180	40.92	40.98	3.5/3	7.54	0.245	11.80	2.84	-30	0.0	
0915			Collect Sample with GRunFos								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~28 gal to purge No Bottom Diver
~28 gal purged

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-15-14
ACTIVITY	START 0925 END 1046	SUB REP	J. Silva	GEOLOGIST	J. Stevens

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 101 - 116
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface) 1.20
BOTTOM OF CASING 17 ft
TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 32.96
INITIAL W. L. IN ANNULUS 36.81
TOP OF LOWER PACKER 116
BOTTOM OF UPPER PACKER 101
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) TOC

COMMENTS SU Riser = 2.75
WL Dropped after Inflation

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1011	200	39.50	38.39		Prior to Purge				Inflated		
1013	200	40.31	35.26	3.5/2	7.78	0.230	14.36	4.11	43	0.0	
1015	200	40.55	35.49	3.5/2	7.84	0.237	12.98	3.17	20	0.0	
1017	200	40.61	35.81	3.5/2	7.83	0.239	12.36	3.10	5	0.0	
1019	200	40.73	35.72	3.5/2	7.84	0.240	12.21	2.81	-5	0.0	
1021	200	40.83	35.78	3.5/2	7.84	0.240	12.14	2.65	-10	0.0	
1023	200	40.92	35.88	3.5/2	7.82	0.241	12.10	2.02	-11	0.0	
1025	200	41.02	35.92	3.5/2	7.80	0.240	12.01	2.22	-10	0.0	
1027	200	41.11	35.96	3.5/2	7.76	0.241	11.94	2.91	-8	0.0	
1029	200	41.18	36.02	3.5/2	7.75	0.241	12.01	2.50	-7	0.0	
1031	200	41.22	36.04	3.5/2	7.72	0.240	12.05	4.41	5	0.0	
1035		Collect Sample With Grunfos									

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 33 gal to Purge No Bottom Drop

LOCATION SKETCH

SIGNATURE: Josh Stevens

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-15-14
ACTIVITY	START 1046 END 1230	SUB REP	J. Silva	GEOLOGIST	J. Stewart J. Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 119 134
TOP OF BEDROCK
TOP OF LOWER PACKER 134
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 119
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 34.04
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17 ft
INITIAL W. L. IN ANNULUS 37.01
REFERENCE DATUM (for water levels) Toc

COMMENTS SU Riser = 367 ft
WL DROPS in riser and ANNULUS prior to purging

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/(L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1130	210	42.93	39.85			Prior	to	Purge	Inflated		
1132	210	44.39	42.40	3.5/2	7.96	0.238	13.65	6.09	49	0.0	
1134	210	44.86	42.84	7.0/4	8.01	0.238	12.65	3.37	-20	0.0	
1136	210	45.22	43.15	10.5/6	7.96	0.238	12.35	2.80	-59	0.0	
1138	210	46.47	43.49	14/8	8.06	0.238	12.12	3.96	-66	0.0	
1140	210	45.68	43.72	17.5/10	7.72	0.237	12.13	3.01	-67	0.0	
1142	210	45.91	44.02	21/12	7.96	0.239	12.10	2.55	-68	0.0	
1144	210	46.11	44.23	24.5/14	8.05	0.238	12.03	5.28	-54	0.0	
1146	210	46.32	44.46	28/16	8.01	0.239	12.13	3.36	-52	0.0	
1147	210	46.46	44.0	31.5/17	7.99	0.239	11.83	3.52	-48	0.0	
1148	210	46.65	44.69	35/18	7.91	0.239	12.05	3.98	-33	0.0	
1150	210	46.79	44.83	38.5/20	7.89	0.239	11.90	6.50	-20	0.0	
1150	purged 38.5 gallons and stopped pumping										
1230	collected sample + MS/MSD using bladder pump										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GRUNFOS 2-INCH
- [✓] BLADDER

TYPE OF TUBING
- [X] HIGH DENSITY POLY
- [✓] OTHER teflon

TYPE OF PUMP MATERIAL
- [X] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [✓] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

MS/MSD

NOTES: ~ 36 gal to purge
No bottom Diver

SIGNATURE: [signature]

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-7	SUBCONT'R	Summit	DATE	8/15/14
ACTIVITY	START 1255 END	SUB REP	J Silva	GEOLOGIST	J Boldue

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 148-163'
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface) 1.20'
BOTTOM OF CASING 17'
TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 33.68
INITIAL W. L. IN ANNULUS 37.81
TOP OF LOWER PACKER 163'
BOTTOM OF UPPER PACKER 148'
LENGTH OF PACKERS (sealed test zone) 15'
REFERENCE DATUM (for water levels) TOC

COMMENTS: riser SU = 2.55'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1255	lowering Redi-flo pump down riser pipe										
1304	220	43.10	28.19						inflating packers		
1308	Start purging using Redi-flo										
1315	220	43.85	53.30	9.5/2	8.03	0.237	14.14	5.61	N/A	0.0	
1317	220	44.08	75.40	7.0/4	8.03	0.236	14.98	9.46	34	0.0	
1321	220	44.43	96.23	10.5/8	9.02	0.215	14.22	8.64	-14	0.0	
1326	resumed purging										
1331	220	45.22	118.61	14/13	8.07	0.239	13.89	8.87	-3	0.0	
1336	220	45.48	138.25	17.5/18	7.76	0.242	14.11	6.38	-4	0.0	
1342	220	45.82	159.30	21/24	7.94	0.243	14.51	7.55	24	0.0	
1347	220	45.97	159.30	24.5/29	7.91	0.245	14.89	7.57	19	0.0	
1351	220	46.15	159.30	28/31	7.76	0.245	15.05	4.97	17	0.0	
1355	220	46.49	159.40	31.5/35	7.99	0.243	14.99	4.75	19	0.0	
1400	220	46.42	162.00	35/40	8.01	0.243	15.03	5.13	37	0.0	
1405	220	46.62	166.99	35.5/45	8.06	0.243	15.33	5.33	54	0.0	
1406	purged dry at 39 gallons										
1412	pulling pump										
1420	collected sample using bailer										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ CLP VOCs	HCl	3 x 40 mL vials	☑

NOTES: no bottom diver
Purge vol = 42 gallons

SIGNATURE: Tim Bc

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-7	SUBCONT'R	Summit	DATE	8/18/14 - 8-19-
ACTIVITY	START 0925 END 8-20-14	SUB REP	J. Silva	GEOLOGIST	J Boldue 8-20-

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	170-185	TOP OF BEDROCK		TOP OF LOWER PACKER	185'
BOREHOLE DIAMETER	6 inches	BOTTOM OF BORING	400'	BOTTOM OF UPPER PACKER	170'
CASING STICKUP (above ground surface)	1.20'	INITIAL WATER LEVEL (W.L.)	33.38'	LENGTH OF PACKERS (sealed test zone)	15'
BOTTOM OF CASING	17'	INITIAL W. L. IN ANNULUS	38.25	REFERENCE DATUM (for water levels)	TOC

COMMENTS: Riser stick up = 1.87'

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0928	215	41.10	39.79			inflating packers.					
0930	215										Start purging
0933	215	44.05	56.31	3.5/3	8.12	0.230	15.36	5.37	74	0.0	
0936	215	44.25	89.25	7.0/6	8.07	0.222	13.98	6.74	42	0.6	
1000	215	44.49	105.10	10.5/10	8.10	0.234	13.43	6.42	55	5.9	
1003	215	44.65	124.30	14/13	7.95	0.236	13.71	6.05	43	5.3	
1007	215	44.84	144.60	17.5/17	7.81	0.236	14.00	6.72	38	5.3	
1015	215	45.19	166.59	21/25	7.39	0.232	14.88	8.92	80	3.1	
1025	215	N/A	180.29	24.5/35	7.53	0.231	14.43	8.20	46	1.2	
1026	Pump	stopped	working								
Check WL 0840	215	"	169.48			Prior to	Purge				
8-19-14 8-20-14 0920	280	51.55	167.32		Can't	pump	water		To Surface		
0						Deflate	Packers	and	Begin		
			Purge from			Start	again		See	Pg 2	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[ ]

NOTES: purge volume = 45 gallons
annulus reading = 42.85' prior to purging

SIGNATURE: Jan Bo

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-20-19
ACTIVITY	START END	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 170-185
TOP OF BEDROCK
TOP OF LOWER PACKER 185
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 170
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 40.31
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17'
INITIAL W. L. IN ANNULUS 45.80
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick up = 1.87

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1021	220	49.49	31.20			Prior to		purge		Inflated	
1023	220	50.60	58.10	3.5/2	8.23	0.229	15.58	4.25	90	0.0	
1026	220	51.60	81.10	3.5/3	8.18	0.250	14.27	5.81	52	0.0	
1029	220	51.70	102.48	3.5/3	8.10	0.249	14.32	3.25	34	1.8	
1032	220	51.81	122.18	3.5/3	7.93	0.246	13.99	3.25	32	2.2	
1036	220	51.90	143.75	3.5/4	7.76	0.241	13.98	3.31	29	3.4	
1040	220	51.95	163.77	3.5/4	7.70	0.246	14.43	3.25	18	9.0	
1051			Pump	Stopped		Pumping					
1055			Resume		Pumping		Switched		out	Control box	
1056	220	52.07	180.60	3.5							
1057	220	52.09	180.62	3.5/1	7.65	0.237	14.15	3.47	12	16.1	
1058	220	52.10	180.62	3.5/1	7.66	0.236	13.93	3.62	16	9.3	
1059	220	52.12	182.30	3.5/1	7.67	0.236	13.65	4.22	35	3.7	
1100	220	52.12	184.87	3.5/1	7.66	0.236	13.38	5.69	48	3.1	
1101	220	Zone	Purged		dry						
1120		Collect	Sample	with	bailer						

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: Purge ~ 45 gal

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-7	SUBCONT'R	Summit	DATE	8-20-14
ACTIVITY	START 1135 END 1350	SUB REP	J. Silva	GEOLOGIST	J. Stalker

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 237-252
TOP OF BEDROCK
TOP OF LOWER PACKER 252
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 237
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 37.05
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17
INITIAL W. L. IN ANNULUS 40.92
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick up = 2.90

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1217	250	45.40	29.80			Prior	to Purge		Inflate		
1219	250	47.10	54.20	3.5/2	8.30	0.228	16.17	4.16	30	0.0	
1221	250	47.50	78.42	3.5/2	8.31	0.232	14.28	3.16	-38	0.0	
1222	250	47.81	99.00	3.5/1	8.28	0.236	13.42	2.57	-67	0.0	
1224	250	48.17	122.40	3.5/2	8.32	0.235	13.33	2.51	-75	0.0	
1227	250	48.60	145.30	3.5/3	8.31	0.236	13.32	4.98	-28	0.0	
1230	250	48.82	163.70	3.5/3	8.18	0.235	13.41	6.25	15	0.0	
1233	250	49.02	187.80	3.5/3	7.99	0.236	13.39	8.22	49	0.0	
1236	250	49.18	206.16	3.5/3	7.86	0.237	13.56	9.61	69	0.0	
1239	250	49.38	227.10	3.5/3	7.75	0.237	13.95	10.87	89	0.0	
1243	250	49.50	248.72	3.5/4	7.64	0.238	14.24	9.02	101	0.9	
1247	250	49.68	248.70	3.5/4							
1250	250	49.75	249.75	3.5/3	7.58	0.239	14.50	9.27	116	1.5	
1253	250	49.85	249.82	3.5/3	7.57	0.237	14.49	6.77	111	0.0	
1256	250	49.95	251.90	3.5/3	7.58	0.237	14.60	6.02	111	0.0	
1300		pumped		zone	DRY						
1325			Collect		Sample		with	bailer			

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: ~ 56 gal to purge

LOCATION SKETCH

SIGNATURE: Josh

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BEDROCK BOREHOLE PACKER SAMPLING

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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-20-14
ACTIVITY	START 1350 END 1620	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 270-285
TOP OF BEDROCK
TOP OF LOWER PACKER 285
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 270
CASING STICKUP (above ground surface) 1.20
INITIAL WATER LEVEL (W.L.) 36.41
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 17
INITIAL W. L. IN ANNULUS WL water broke
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick UP = 2.60

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1457	275	See Diver	28.45			Prior	to	Purge		Inflated	
1458	275	Diver	~~6~~	3.5/1	8.31	0.230	17.25	3.20	60	0.0	
1500	275	Diver	61.40	3.5/2	8.37	0.230	14.86	2.42	-26	0.0	
1501	275	Diver	69.80	3.5/1	8.35	0.232	14.02	2.70	-61	0.0	
1503	275	Diver	74.95	3.5/2	8.33	0.232	13.30	2.61	-74	0.0	
1504	275	Diver	78.95	3.5/1	8.27	0.236	12.86	2.88	-74	0.0	
1506	275	Diver	82.40	3.5/2	8.15	0.233	13.04	2.02	-62	0.0	
1507	275	42.35	83.60	3.5/1	8.00	0.235	12.71	2.90	-53	0.0	
1509	275	Diver	84.71	3.5/2	7.88	0.236	12.76	2.88	-44	0.0	
1511	275	Diver	85.51	3.5/2	7.80	0.234	12.74	2.44	-39	0.0	
1512	275	Diver	85.97	3.5/1	7.71	0.237	12.66	2.88	-33	0.0	
1514	275	Diver	86.49	3.5/2	7.66	0.237	12.48	2.50	-28	0.0	
1515	275	Diver	86.70	3.5/1	7.61	0.236	12.48	2.12	-27	0.0	
1517	275	Diver	87.05	3.5/2	7.59	0.235	12.57	1.89	-28	0.0	
1519	275	Diver	87.81	3.5/2	7.55	0.236	12.44	2.17	-28	0.0	
1520	275	Diver	87.46	3.5/1	7.53	0.235	12.46	2.28	-28	0.0	
1522	275	Diver	87.53	3.5/2	7.51	0.234	12.64	2.50	-16	0.0	
1524	275	Diver	87.72	3.5/2	7.50	0.234	12.62	2.44	-20	0.0	
1526	275	Diver	87.91	3.5/2	7.49	0.234	12.65	2.32	-23	0.0	
1530		43.65	Collect		Sample		with	Grun	Fos		
1545									Deflate	Packers	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [ ] OTHER

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

NOTES: ~ 63 gal to purge

SIGNATURE: [signature]

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-21-14
ACTIVITY	START 0800 END 1100	SUB REP	J. Silva	GEOLOGIST	J. Stewart

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 295-310
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) 1.20
BOTTOM OF CASING 17
TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 33.76
INITIAL W. L. IN ANNULUS 33.12
TOP OF LOWER PACKER 310
BOTTOM OF UPPER PACKER 295
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick Up = 1.95

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE gal/min	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0905	300	35.85	30.15			Prior	to	purge		Inflated	
0906	300	36.76	55.01	3.5/1	8.33	0.229	15.10	12.20	24	0.0	
0908	300	36.88	81.85	3.5/2	8.34	0.232	13.33	5.20	-27	0.0	
0909	300	37.03	107.20	3.5/1	8.30	0.235	12.81	3.55	-34	0.0	
0911	300	37.25	131.30	3.5/2	8.24	0.235	12.69	4.85	-3	0.0	
0912	300	37.42	154.10	3.5/1	8.16	0.238	12.50	7.08	22	0.0	
0914	300	37.68	180.55	3.5/2	8.10	0.237	12.60	8.80	26	0.0	
0918	300	37.92	201.94	3.5/4	8.01	0.237	12.72	9.28	36	0.0	
0921	300	38.20	227.03	3.5/3	7.95	0.239	12.89	8.95	50	0.0	
0925	300	38.42	247.20	3.5/4	7.87	0.238	13.11	9.63	56	1.0	
0930	300	38.62	274.41	3.5/5	7.79	0.238	13.51	8.89	67	1.2	
0935	300	38.88	295.60	3.5/5	7.74	0.237	13.88	9.21	71	2.9	
0940	300	39.08	305.20	3.5/5	7.65	0.237	14.40	8.45	70	3.2	
0945	300	39.23	305.25	3.5/5	7.73	0.238	14.51	8.42	82	1.5	
0950	300	39.40	305.26	3.5/5	7.76	0.238	14.59	7.04	77	0.0	
0955	300	39.55	305.60	3.5/5	7.83	0.237	14.59	5.60	71	0.0	
1000	300	39.69	310.39	3.5/5	7.87	0.237	14.79	6.23	72	0.0	
1001		Zone	pumped		Dry						
1030		Collect	Sample		with	bailer					
1.32						Deflate	Packers				

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GRUNFOS 2-INCH [ ] BLADDER
TYPE OF TUBING: [X] HIGH DENSITY POLY [ ] OTHER
TYPE OF PUMP MATERIAL: [X] STAINLESS STEEL [ ] OTHER
TYPE OF BLADDER MATERIAL: [ ] TEFLON [ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~66 gal to purge
19 Buckets

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 7	SUBCONT'R	Summit	DATE	8-21-14
ACTIVITY	START 1135 END	SUB REP	J. Silva	GEOLOGIST	J. Stewart

TARGET TEST INTERVAL 376 - 391

BOREHOLE DIAMETER 6 Inches

CASING STICKUP (above ground surface) 1.20

BOTTOM OF CASING N

DEPTHS (All measurements to ground surface in feet)

TOP OF BEDROCK

BOTTOM OF BORING 400 / 33.96

INITIAL WATER LEVEL (W.L.) ~~33.76~~

INITIAL W. L. IN ANNULUS 33.32

TOP OF LOWER PACKER 391

BOTTOM OF UPPER PACKER 376

LENGTH OF PACKERS (sealed test zone) 15

REFERENCE DATUM (for water levels) TOC

COMMENTS Riser Stick UP = 1.95

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gal/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1223	320	36.50	25.49			Prior	to purge			Inflated	
1226	320	37.30	28.52	7/3	8.23	0.228	17.47	2.98	55	0.0	
1228	320	37.80	28.65	7/2	8.24	0.232	14.65	2.52	6	0.0	
1231	320	38.05	28.65	7/3	8.25	0.231	13.75	2.00	-38	0.0	
1234	320	38.26	28.65	7/3	8.11	0.234	13.19	2.36	-51	0.0	
1236	320	38.48	28.60	7/2	7.91	0.233	13.05	2.24	-52	0.0	
1239	320	38.65	28.55	7/3	7.79	0.233	13.01	2.46	-52	0.0	
1242	320	38.81	28.50	7/3	7.76	0.233	13.02	1.63	-60	0.0	
1245	320	38.95	28.50	7/3	7.73	0.234	12.81	2.26	-63	0.0	
1248	320	39.07	28.45	7/3	7.69	0.235	12.80	1.70	-63	0.0	
1250	320	39.18	28.40	7/2	7.68	0.233	12.81	2.49	-61	0.0	
1253	320	39.30	28.46	7/3	7.66	0.233	12.78	2.06	-63	0.0	
1256	320	39.40	28.46	7/3	7.63	0.232	12.70	2.50	-59	0.0	
1305		Collect	Sample	with	GRUNFOS					Deflate	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: ~ 79 gal to purge

SIGNATURE: Josh Stewart

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-18-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL | TOP OF BEDROCK | TOP OF LOWER PACKER 281-296'

BOREHOLE DIAMETER 6 Inches | BOTTOM OF BORING | BOTTOM OF UPPER PACKER

CASING STICKUP (above ground surface) | INITIAL WATER LEVEL (W.L.) | LENGTH OF PACKERS (sealed test zone)

BOTTOM OF CASING | INITIAL W. L. IN ANNULUS | REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1410		60.06	60.02								
	285	58.13	62.70								
1422	↓ START PUMPING										
1424		58.30	75.72	2.0+	7.73	0.250	13.73	9.83	45	21.2	5.0
1426		58.60	77.35		7.61	0.268	13.72	8.73	45	43.60	10.0
1428		58.91	77.60		7.58	0.269	12.38	7.76	50	15.1	15.0
1430		59.15	77.75		7.58	0.271	12.37	5.80	56	13.2	20.0
1432		59.40	77.81		7.56	0.278	12.10	5.87	60	15.4	25.0
1434		58.58	77.98	↓	7.55	0.282	12.01	6.13	65	10.5	30.0
1439		58.92	78.25	2.25**	7.54	0.290	12.03	5.35	69	2.9	40.0
1443		60.15	78.45	↓	7.55	0.293	11.99	9.40	70	0.0	50.0
1448		60.30	78.70		7.57	0.299	11.81	7.70	72	0.0	60.0
1452		60.46	78.90		7.58	0.300	11.78	8.01	74	0.0	70.0
1457		60.63	79.00		7.55	0.302	12.06	6.80	76	0.0	80.0
1501		60.71	79.15		7.57	0.304	11.84	5.99	77	0.0	90.0
1506		60.88	79.30		7.58	0.306	11.73	5.70	79	0.0	100.0
		decrease flow for sample									
1510	Collect MLS-8 GW (281-296')							Total volume removed			

35 ✓
45 ✓
55 ✓
65 ✓
75 ✓
~~75~~

103

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

☐ CLP VOCs

Stickup (TOR) = 0.92

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	☐

22 gal + 36 gal in pipe = 58 gal purge

NOTES: * 1 gal ≈ 26 sec

SIGNATURE: TM

LOCATION SKETCH

rising head } 79' → 66' rise in 2 min very fast / great recharge

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
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Log Sheet Prepared By:
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PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-17-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL | TOP OF BEDROCK | TOP OF LOWER PACKER 265-280
BOREHOLE DIAMETER 6 Inches | BOTTOM OF BORING | BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) | INITIAL WATER LEVEL (W.L.) | LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING | INITIAL W. L. IN ANNULUS | REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
12:00		60.41	60.35								
12:10	280	60.70	62.90								
12:17		start pumping									
12:19	55.75	~~94.90~~	94.90	2.0	7.26	0.232	13:45	9.85	32	10.1	5.0
12:23		55.75	106.20	1.7	7.20	0.235	13.01	8.88	44	14	10.0
		55.75	114.0	1.7	7.15	0.240	12.33	7.36	68	21.3	15.0
12:27		55.75	119.85	1.3	7.12	0.269	12.10	6.08	72	74.0	20.0
12:30		55.80	123.35	1.5	7.21	0.279	12.10	7.09	74	62.1	25.0
12:33		55.85	124.90	1.7	7.25	0.286	12.02	7.00	76	43.1	30.0
12:35			125.22	2.0	7.35	0.291	12.08	7.36	76	28.7	35.0
12:36	stop momentarily				~~7.36~~	~~0.20~~					
12:40	restart		97.0								
12:42		55.95	110.80	2.0+	7.40	0.295	11.87	7.22	75	55.5	40.0
12:44		55.96	117.65	2.0+	7.39	0.288	11.70	8.42	70	32.8	45.0
12:47		56.00	121.20	2.0+	7.42	0.299	11.72	7.24	68	11.6	50.0
12:50		56.00	122.85	2.0+	7.44	0.300	11.75	8.32	65	5.6	55.0
12:53		56.03	123.46	2.0+	7.54	0.302	11.70	6.44	64	3.3	60.0
12:56		56.08	123.75	2.0+	7.60	0.300	11.78	10.14	63	1.2	65.0
1300		56.11	123.81	2.0+	7.62	0.302	11.75	7.25	64	0.0	70.0
1303		56.15	123.92	"	7.63	0.302	11.79	6.91	66	0.3	75.0
1306		56.18	123.98	1.57	7.65	0.302	11.74	6.79	66	0.0	80.0
1309		56.15	124.05	"	7.69	0.299	11.92	5.71	67	0.0	85.0
1312		56.18	124.20		7.70	0.301	11.81	6.14	67	0.0	90.0

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

TOR = 0.90

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

22 gal + 33 gal in pipe = 55 gal purge

NOTES: 1 gal - 38 sec = 1.57 gpm
1 gal

SIGNATURE:

LOCATION SKETCH
rising head ① 1 min 53 sec = 10'
② 2 min 45 = 10'
③ 2 min 15 ±5

lower pumprate < 1.0 gpm
13:15 sample.

8

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Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-18-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface)
BOTTOM OF CASING
TOP OF BEDROCK
BOTTOM OF BORING
INITIAL WATER LEVEL (W.L.)
INITIAL W. L. IN ANNULUS
TOP OF LOWER PACKER 235-250
BOTTOM OF UPPER PACKER
LENGTH OF PACKERS (sealed test zone)
REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
0908	—	63.72	63.75								
0915	240	61.40	61.98								
0920		START PUMPING									
0923		60.35	96.15	~1.7	7.20	0.258	10.45	8.40	-8	67.5	5.0
0927		59.85	131.80	~1.2	7.11	0.247	10.87	7.80	10	22.2	10.0
0931		59.65	157.20	↓	7.05	0.248	11.31	9.05	32	20.3	15.0
0936		59.35	186.85	1.0	7.02	0.250	11.47	10.67	42	21.7	20.0
0942		59.15	216.10	1.0	7.00	0.255	11.49	10.90	47	22.0	25.0
0947		59.02	248.60	1.0	7.00	0.258	12.30	9.52	48	26.0	30.0
0951		58.90	248.60	1.1	7.00	0.257	12.94	9.93	49	31.3	35.0
0956		58.85	248.60	1.0	7.00	0.244	12.91	7.86	61	18.4	40.0
1000		58.74	251.23	1.0	7.00	0.243	12.93	7.51	72	19.0	45.0
1001				* slow down rate hopefully to keep with any recharge							
1009		pump	stopped 251.95	<1.0	7.04	0.244	12.95	6.72	91	20	49.0
1100	SAMPLE	+1.5	gal		7.21	0.247	13.40	10.29	25	16.7	50.5
											1.5
1120	deflate packers.										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

Stickup (TOR) = 4.70

22 gal + 29 gal in pipe = 51 purge vol.

NOTES: rising head 0.5' ~ 16:30 min
0.5' ~ 20:00 min
0.1' ~ 3:00 min

SIGNATURE: TM

LOCATION SKETCH

TM

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-17-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL | TOP OF BEDROCK | TOP OF LOWER PACKER 205-220
BOREHOLE DIAMETER 6 inches | BOTTOM OF BORING | BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) | INITIAL WATER LEVEL (W.L.) | LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING | INITIAL W. L. IN ANNULUS | REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1438	—	60.54	60.54								
1444	230	57.15	60.30								
1447	↓ START PUMPING										
1450		52.80	94.65	2.0	7.05	0.225	13.20	10.38	108	4.7	5.0
1455		49.40	122.95	1.0	7.03	0.229	12.55	9.40	123	0.8	10.0
1500		46.11	149.45	1.0	7.01	0.225	13.13	9.78	128	6.0	15.0
1505		43.37	171.0	1.0	6.99	0.233	12.80	11.34	132	11.7	20.0
1510		41.02	195.15	1.0	7.00	0.235	12.62	13.05	130	11.6	25.0
1516		39.02	215.85	0.9	6.99	0.240	13.01	11.64	122	20.4	30.0
1520		37.25	215.85	1.0	7.00	0.248	13.25	10.40	105	29.0	35.0
1524		36.04	215.85	1.1	7.02	0.244	13.13	9.54	101	24.0	40.0
1528		35.5	218.0	1.1	7.01	0.244	13.11	8.29	114	19.0	45.0
1531		34.70	218.70	0.7*							47.5
			~~SAMPLE~~		7.02	0.247	13.14	9.91	123	18.3	↓
1535		33.10	220.05	0.6	7.05	0.246	13.31	10.43	133	15.8	50.0
↳ SAMPLE											
				* throttle down to sample							

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☑ GRUNFOS 2-INCH	☑ HIGH DENSITY POLY	☑ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

TOR = 1.90

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

22 gal + 24 gal (in pipe) = 46 gal purge

NOTES:

LOCATION SKETCH

rising head
0.1 ~ 36 sec
1.0 ~ 6:14 min
1.0 ~ 6:20 min

SIGNATURE:

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BEDROCK BOREHOLE PACKER SAMPLING

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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-17-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL | TOP OF BEDROCK | TOP OF LOWER PACKER 181-196 bgs
BOREHOLE DIAMETER 6 Inches | BOTTOM OF BORING | BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) | INITIAL WATER LEVEL (W.L.) | LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING | INITIAL W. L. IN ANNULUS | REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER VOL
12:03	—	59.61	59.70								
12:10	220	55.70	57.82								
12:14	START pumping										—
12:16	220	51.90	92.50	2.0+	7.45	0.230	12.37	6.65	44	18.3	5.0
1220	↓	49.10	122.69	1.2	7.26	0.243	12.09	5.89	2	11.1	10.0
1226		45.75	153.45	1.0	7.19	0.245	12.20	8.30	3	11.5	15.0
1232				<1.0	7.17	0.249	12.44	5.47	-3	23.2	20.0
1232 pump stop. — pump not at bottom retro fit to lower in screen											
1302		32.25	166.75		restart pump						
1307		31.20	191.05		7.13	0.232	13.06	5.55	2	16.6	25.0
1314		30.25	192.02		7.02	0.233	12.04	6.51	54	3.3	30.0
1320		29.95	195.97		6.99	0.233	12.81	5.07	77	3.4	35.0
1321	pumped dry.									+ ~~1.0~~ 0.5 gal	
			allow wl to equilibrate very slow recharge (if any)								
1400			Sample anyway w/ bailer volume in bailer							Note: insufficient for water quality parameters.	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[x] HIGH DENSITY POLY	[x] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs	HCl	3 x 40 mL vials	[x]

TOR = 1.18'

22 gal + 20 gal = 42 purge

rising head 0.05 2:40 min
0.10 8:24 min
0.10 8:23 min

NOTES:

LOCATION SKETCH

SIGNATURE: TM

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BEDROCK BOREHOLE PACKER SAMPLING

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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-16-14
ACTIVITY	START END	SUB REP		GEOLOGIST	[illegible]

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface)
BOTTOM OF CASING

TOP OF BEDROCK
BOTTOM OF BORING
INITIAL WATER LEVEL (W.L.)
INITIAL W. L. IN ANNULUS

TOP OF LOWER PACKER 156-171
BOTTOM OF UPPER PACKER
LENGTH OF PACKERS (sealed test zone)
REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
16:16		62.15	62.15								
	205	58.80	58.45								
1630	↓										
1632		53.55	87.20	2+	6.88	0.225	13.26	10.28	88	2.4	5.0
1635		52.65	105.90	" "	6.90	0.225	12.38	10.78	95	1.3	10.0
1638		50.80	122.70		6.87	0.225	12.76	9.90	105	0.3	15.0
1640		48.50	131.00	>1.0	6.84	0.225	12.71	10.11	113	0.0	20.0
1645		47.00	140.60	>1.0	6.8	0.226	12.77	8.89	120	0.0	25.0
1650		44.85	140.4	>1.0	6.82	0.228	12.89	8.06	120	0.0	30.0
1710		42.24	149.30	>1.0	6.87	0.223	12.80	7.01	121	0.0	35.0
1725		39.70	164.55	>1.0	6.91	0.235	12.86	7.09	118	0.0	40.0
↳			Sample off pump								*

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

TOR = 3.70 ags

* similar recharge as 108-123' "producer"

22 gal + 16 = 38 gal purge

1-86
58
123
48

NOTES:

LOCATION SKETCH

SIGNATURE: [illegible]

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-16-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL — TOP OF BEDROCK — TOP OF LOWER PACKER 128-143
BOREHOLE DIAMETER 6 Inches — BOTTOM OF BORING — BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) — INITIAL WATER LEVEL (W.L.) — LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING — INITIAL W. L. IN ANNULUS — REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1420		59.40	59.40								
1427	200	56.38	57.40								
1430		Start pump									5.0
1437		—	89.15	0.7	6.85	0.222	13.73	8.36	113	0.0	5
1444		46.49	127.25	0.6	6.82	0.223	13.67	7.72	110	0.0	10.0
1446		44.09	138.05	1.0	6.83	0.228	13.19	9.40	98	0.0	15.0
1453		42.59	137.95	1.1	6.83	0.229	12.83	9.48	96	0.0	20.0
1457		40.95	139.25	1.1	6.82	0.229	12.67	9.04	109	0.0	25.0
1500		37.00	146.25	1.2	6.82	0.231	12.78	7.20	127	0.0	30.0
1501		pump stopped *		rising head test							+ 0.5 gal
1540	sample			— using bailer	6.84	0.232	13.66	11.35	120	6.8	30.5 gal

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

TOR = 1.05

slow recharge

22 gal + 12 gal = 34 purge vol.

NOTES: * 0.1' ≈ 8:0 min
0.1 ≈ 8:30 min
1.0

SIGNATURE: TM

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-16-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL | TOP OF BEDROCK | TOP OF LOWER PACKER 108-123'
BOREHOLE DIAMETER 6 inches | BOTTOM OF BORING | BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) | INITIAL WATER LEVEL (W.L.) | LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING | INITIAL W. L. IN ANNULUS | REFERENCE DATUM (for water levels)

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER VOL.
1230		58.70	58.80								
1237	180	56.50	52.88								
1240	↓	start pumping		1.5→							~~5.0~~
				1.0							
1244		53.75	71.90	1.0	6.73	0.208	13.60	7.93	86	0.0	5.0
1250		51.48	83.75	1.0	6.70	0.210	12.83	9.11	99	0.0	10.0
1255		49.50	96.90	1.0	6.69	0.211	12.70	8.26	113	0.0	15.0
1301		47.65	103.40	0.9	6.69	0.212	12.77	8.31	116	0.0	20.0
1306		46.23	106.70	0.9	6.70	0.216	12.66	7.80	117	0.0	25.0
1312		44.43	108.90	0.9	6.72	0.218	12.80	7.75	119	0.0	30.0
1317		43.11	116.30	0.9	6.75	0.218	12.69	6.75	118	0.0	35.0
1319			111.80	0.5							~~40.0~~ 37.5
1324		41.25	109.00	0.5	6.76	0.220	12.90	~~7.0~~ 6.40	121	0.0	40.0
1325		SAMPLE OFF of pump -									
1326	STOP *										

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER	☐ OTHER	☐ OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

TOR = 0.82

~~[illegible]~~ good recharge

22 gal in pack interval * 9 = 31 gal volume

NOTES:

* risy 2.0'
1.0'

LOCATION SKETCH

28 sec
15 sec

"producer.

SIGNATURE:

∴ 4.0' rise/min

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BEDROCK BOREHOLE PACKER SAMPLING

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LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONTR	Summit	DATE	~~9-15-14~~ 9/16/14 TM
ACTIVITY	START END	SUB REP	J. Silva	GEOLOGIST	J. Stewart

TARGET TEST INTERVAL 88 - 103

DEPTHS (All measurements to ground surface in feet)

BOREHOLE DIAMETER 6 inches

CASING STICKUP (above ground surface) _____

BOTTOM OF CASING _____

TOP OF BEDROCK

BOTTOM OF BORING _____

INITIAL WATER LEVEL (W.L.) _____

INITIAL W. L. IN ANNULUS _____

TOP OF LOWER PACKER 103

BOTTOM OF UPPER PACKER 88

LENGTH OF PACKERS (sealed test zone) 15

REFERENCE DATUM (for water levels) _____

COMMENTS

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER VOL
0940	—	61.15	61.24								
0950	175	59.26	59.62	0.4 gpm							
0956	↓ start			0.8							
1000	↓				6.90	0.226	12.49	6.08	2	6.8	4.0
1003		54.32	95.20	0.7							5.0
1008		52.80	100.30	0.9	6.70	0.225	12.44	6.00	36	8.2	10.0
1012		51.61	100.02	1.0	6.61	0.218	12.35	6.14	66	0.0	15.0
1016		50.50	102.20	1.1	6.59	0.218	12.25	7.10	92	0.0	20.0
1020		stop	pumping	/ drawn down							24.5
1021		49.10	104.40								
1140		32.75	103.83	rising head ~0.5'							
1150	collect	sample	using	bailer							
				—	6.69	0.218	13.26	9.31	65	3.1	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[x] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER _____	[ ] OTHER _____	[ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] CLP VOCs TOR = 3.14 ags	HCl	3 x 40 mL vials	[ ]

V. slow recharge

rising head 0.1' ≈ 11:40 min
@ 0.1' ≈ 12:30
0.1 ≈ ?
0.1 ≈ 14:16
0.1 ≈ 12:30
0.1 ≈

NOTES:

LOCATION SKETCH

SIGNATURE: _____

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BEDROCK BOREHOLE PACKER SAMPLING

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Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 8	SUBCONT'R	Summit	DATE	9-15-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL — TOP OF BEDROCK — TOP OF LOWER PACKER 70-85'

BOREHOLE DIAMETER 6 Inches — BOTTOM OF BORING ___ — BOTTOM OF UPPER PACKER ___

CASING STICKUP (above ground surface) ___ — INITIAL WATER LEVEL (W.L.) ___ — LENGTH OF PACKERS (sealed test zone) ___

BOTTOM OF CASING ___ — INITIAL W. L. IN ANNULUS ___ — REFERENCE DATUM (for water levels) ___

COMMENTS ___

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
14:00	170	59.10	59.15								
1405	170	56.55	55.25								
1440	↓	start	pumping								
1440		47.50	62.20	2.2 gpm	6.09	0.209	13.66	7.89	205	0.0	3.5
1444		46.68	80.45	↓	6.25	0.220	12.94	6.89	164	7.0	+
1447		46.07	80.40		6.38	0.220	12.57	7.86	144	5.2	+
1450		45.35	80.40		6.44	0.210	12.55	6.80	142	1.5	+
1452		44.75	80.40		6.46	0.207	12.52	6.48	146	3.3	+
1455		43.45	83.90		6.51	0.202	12.53	6.52	146	5.3	+
1460		43.40	85.35		6.53	0.201	12.65	6.53	149	4.5	+
1500			SAMPLE	using	pump						

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ GRUNFOS 2-INCH	☐ HIGH DENSITY POLY	☐ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER ___	☐ OTHER ___	☐ OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	☐

stickup 1.55' ags

25 gal purge volume

NOTES: rising head 0.1' ~ 1:00 min

LOCATION SKETCH: med. recharge

SIGNATURE: TM

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of 1
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS-8	SUBCONT'R	Summit	DATE	9-15-14
ACTIVITY	START END	SUB REP		GEOLOGIST	TM

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL
TOP OF BEDROCK
TOP OF LOWER PACKER 55-70' bgs
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING
BOTTOM OF UPPER PACKER
CASING STICKUP (above ground surface) surface
INITIAL WATER LEVEL (W.L.) 57.5' bgs
LENGTH OF PACKERS (sealed test zone)
BOTTOM OF CASING 20'
INITIAL W. L. IN ANNULUS
REFERENCE DATUM (for water levels)

COMMENTS start pump 1215

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER Volume pu
			58.4								
1215	165	53.71	55.31								
		52.70	64.35	*	7.36	0.218	14.23	10.79	175	0	3.5 gals
		52.45	64.35		7.25	0.230	12.71	8.68	166	0	+ 3.5
		52.20	64.35		7.11	0.248	12.58	8.01	159	0	+
		51.95	66.45		7.05	0.252	12.48	7.84	155	0	+
1230		51.60	68.75		6.82	0.237	12.45	7.55	151	0	+
1233			68.72		Let recharge						+2.0
1300			64.75		re-start						
1305		47.52	66.25		6.77	0.446	12.22	8.10	450	0.2	+3.5 SAMPLED

pump down 19.5

collect w/ Grunfos pump slowed down < 1.0 gpm

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] CLP VOCs	HCl	3 x 40 mL vials	[ ]

rising head
0.1' ~ 50 sec → 0.1' ~ 40 sec → 0.1' → 35 sec ~
0.2' → 1 min 10 se

NOTES:
* ~ 2 gpm – 2.2 gpm

SIGNATURE: TM

LOCATION SKETCH
1
1.0' → 6 min 15 sec
1.0 → 6 min 0 sec
slow-med. recharge

7.2 riser

22 gallons total removed

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	9/19/2014
ACTIVITY	START 1230 END 1340	SUB REP	Jordan	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	54-69	TOP OF BEDROCK		TOP OF LOWER PACKER	69
BOREHOLE DIAMETER	6 inches	BOTTOM OF BORING	300	BOTTOM OF UPPER PACKER	54
CASING STICKUP (above ground surface)		INITIAL WATER LEVEL (W.L.)	31.68	LENGTH OF PACKERS (sealed test zone)	15
BOTTOM OF CASING		INITIAL W. L. IN ANNULUS	31.80	REFERENCE DATUM (for water levels)	Ground

COMMENTS InFlate Packer (1230) DeFlate Packer (1314)
Pump In (1232) to (1234) Pump out (1311) to (1313)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1230	170	31.65	31.68								
1237	170	31.65	31.83		6.60	0.737	16.05	4.80	19	24.9	✓
1242	170	31.65	31.94		6.48	0.748	15.96	4.64	46	25.0	✓
1245	170	31.65	31.93		6.48	0.757	15.32	8.70	55	23.0	✓
1248	170	31.65	31.95		6.46	0.758	15.49	6.80	66	22.1	✓
1250	170	31.66	31.97		6.43	0.756	15.76	6.06	74	21.4	✓
1252	170	31.66	32.00		6.43	0.755	14.26	5.91	81	21.7	✓
1254	170	31.66	32.02		6.43	0.753	14.81	6.44	85	21.3	✓
1256	170	31.66	32.02		6.45	0.725	14.97	6.90	85	22.3	✓
1258	170	31.69	32.03		6.50	0.781	14.91	6.85	90	25.0	✓
1300	170	31.70	32.04		6.50	0.740	14.93	10.57	96	25.0	✓
1303	170	31.70	32.04		6.50	0.751	15.01	10.67	95	24.8	✓

Pump Volu 26 (48 2x V

Instant recovery at pump shut down

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

[ ] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[✓]

9/19/2014
MSMSD 9X VOAS (1309)

NOTES:

SIGNATURE: AM Leonido

LOCATION SKETCH

Diver S1056

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	9/19/2014
ACTIVITY	START 1045 END 1230	SUB REP	Jordan	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 82-97'
TOP OF BEDROCK
TOP OF LOWER PACKER 97
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 300
BOTTOM OF UPPER PACKER 82
TOP CASING STICKUP (above ground surface) ____
→ INITIAL WATER LEVEL (W.L.) 31.73
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ____
INITIAL W. L. IN ANNULUS 31.70
REFERENCE DATUM (for water levels) Ground

COMMENTS Pump In (11:14) to (11:16) Pump Out of Hole (1200) to (1205)
pump off 1159
Inflate Packer at 11:11 Deflate Packer at 1207

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)		OTHER
11:18	185	31.70	31.73									
11:23	185	31.74	31.97		6.53	0.705	17.19	7.88	75	22.7	✓	
11:27	185	31.75	32.10		6.53	0.734	15.08	8.21	85	21.2	✓	
11:29	185	31.78	32.10		6.51	0.725	14.91	7.37	98	22.2	✓	
11:32	185	31.80	32.50		6.51	0.725	14.44	6.21	104	22.6	✓	
11:35	185	31.81	32.10		6.50	0.716	14.58	4.68	112	22.6	✓	
11:37	185	31.81	32.08		6.50	0.706	14.58	5.29	113	22.8	✓	
11:40	185	31.84	32.07		6.50	0.700	14.16	5.41	116	22.8	✓	
1143	185	31.84	32.08		6.48	0.697	14.10	6.34	119	25.1	✓	
1146	185	31.84	32.05		6.51	0.686	14.18	5.98	121	23.0	✓	
1149	185	31.85	32.06		6.51	0.672	14.20	7.25	121	23.2	✓	
1151	185	31.83	31.06		6.51	0.672	14.27	7.05	121	23.0	—	

Pump 30g

(2x 52g

1159 Pump off Instant Recovery —

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
✓ GRUNFOS 2-INCH	✓ HIGH DENSITY POLY	✓ STAINLESS STEEL	☐ TEFLON
☐ BLADDER	☐ OTHER ____	☐ OTHER ____	☐ OTHER ____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ CLP VOCs	HCl	3 x 40 mL vials	✓ 11:55

NOTES:

SIGNATURE: AMLeonido

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	9/19/2014
ACTIVITY	START 0830 END 1027	SUB REP	Jordan Tim	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 100-115
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) _____
BOTTOM OF CASING _____
TOP OF BEDROCK
BOTTOM OF BORING 300
INITIAL WATER LEVEL (W.L.) 31.75
INITIAL W. L. IN ANNULUS 31.51
TOP OF LOWER PACKER 115
BOTTOM OF UPPER PACKER 100
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) _____

COMMENTS Inflate Packer at 933 Deflate at 1039
Pump in hole 943 to 946 Pump Removed from hole 1033 to 1037

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
950	192	31.51	31.75								
954	192	31.51	32.05	2 GPM	6.68	0.715	12.79	7.48	173	23.1 ✓	
959	192	31.68	32.09	2	6.60	0.725	12.87	12.06	173	24.1 ✓	
1004	192	31.69	32.09		6.56	0.721	13.04	11.96	166	22.1 ✓	
1006	192	31.75	32.21		6.55	0.710	13.46	5.72	157	21.6 ✓	
1008	192	31.78	32.22		6.55	0.698	13.56	11.49	153	21.5 ✓	
1010	192	31.79	32.24		6.55	0.682	13.60	9.99	152	21.9 ✓	
1013	192	31.80	32.24		6.56	0.659	13.81	5.82	147	20.5 ✓	
1015	192	31.82	32.29		6.61	0.606	13.9	9.19	142	19.5 ✓	
1017	192	31.82	32.30		6.65	0.560	14.00	11.36	134	18.6 ✓	
1020	192	31.84	32.30		6.67	0.523	14.05	11.37	123	18.2 ✓	
1022	192	31.84	32.31		6.70	0.485	13.83	11.50	116	17.5 ✓	

Water Level in 2nd Pump Recovery.
shutting down pump

Purge Volume 33 (2x) 55

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER _____	[ ] OTHER _____	[ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES:

LOCATION SKETCH

SIGNATURE: AMLeonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	9/18/2014
ACTIVITY	START 1630 END 1800	SUB REP	Jordan Tim	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 125-140
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ____
BOTTOM OF CASING ____

TOP OF BEDROCK
BOTTOM OF BORING 300
INITIAL WATER LEVEL (W.L.) 31.62
INITIAL W. L. IN ANNULUS 31.55

TOP OF LOWER PACKER 140
BOTTOM OF UPPER PACKER 125
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) Ground

COMMENTS 1653 Pump at Bottom of Borehole 1658 Inflate packer at 16:46 Deflating packer @ 1756 Transducer
Pull Pump 1750 to 1754 out

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1658	205	31.55	31.62								
1705	205	31.55	31.95		6.58	0.600	15.6	11.00	158	18.0 ✓	
1708	205	31.55	32.02		6.58	0.592	15.61	11.07	160	18.2 ✓	
1711	205	31.55	32.05		6.60	0.562	14.89	7.45	152	17.7 ✓	
1714	205	31.55	32.08		6.63	0.544	14.42	5.41	147	17.9 ✓	
1717	205	31.55	32.09		6.63	0.539	13.90	5.44	142	18.3 ✓	
1720	205	31.70	32.10		6.64	0.531	13.95	5.35	138	19.4 ✓	
1723	205	31.70	32.16		6.64	0.521	14.14	5.96	136	19.4 ✓	
1726	205	31.70	32.19		6.66	0.551	14.11	5.27	135	20.0 ✓	
1729	205	31.70	32.20		6.67	0.515	13.85	5.96	135	20.9 ✓	
1735	205	31.70	32.20		6.67	0.509	13.62	5.49	135	20.8 ✓	
1739	205	31.70	32.22		6.67	0.507	13.74	5.31	133	20.1 ✓	
1742	205	31.70	32.25		6.67	0.505	13.46	7.48	133	20.6 ✓	

Purge Vol 36g
← 58g

Unable to conduct rising head instantaneous recovery –

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GRUNFOS 2-INCH
- [ ] BLADDER

TYPE OF TUBING
- [x] HIGH DENSITY POLY
- [ ] OTHER ____

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER ____

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER ____

ANALYTICAL PARAMETERS

- [ ] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	✓

9/18/2014
Time 1746

NOTES:

LOCATION SKETCH

SIGNATURE: AM Leonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	09/18/2014
ACTIVITY	START 1410 END	SUB REP	JORDAN	GEOLOGIST	AM LEONIDO

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 160 - 175
TOP OF BEDROCK
TOP OF LOWER PACKER 175
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 300
BOTTOM OF UPPER PACKER 160
CASING STICKUP (above ground surface) ___
INITIAL WATER LEVEL (W.L.) 33.05
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING ___
INITIAL W. L. IN ANNULUS 31.45
REFERENCE DATUM (for water levels) GL

COMMENTS Inflate Packer at 1439 Deflate packer at 1615
Pull pump 1602 - 1610

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1429	223	31.45	33.05								
1503	223	31.45	35.54	4 L/m	6.58	0.667	15.52	6.12	182	24.3 ✓	
1510	223	31.45	36.45	4 L/m	6.60	0.670	15.23	8.50	182	24.0 ✓	
1513	223	31.45	35.73	4 L/m	6.55	0.667	15.24	10.72	183	24.0 ✓	
1515	223	31.45	35.63	4 L/m	6.56	0.664	15.04	8.26	183	24.0 ✓	
1517	223	31.45	35.92	4+L/m	6.56	0.660	14.51	10.66	182	24.2 ✓	
1520	223	31.45	36.00	4+L/m	6.55	0.661	14.56	5.46	181	24.2 ✓	
1520	223	31.45	35.77	4+L/m	6.55	0.653	14.57	5.15	180	24.5 ✓	
1523	223	31.45	35.89		6.56	0.640	14.35	10.50	182	24.5 ✓	
1527	223	31.45	36.2		6.56	0.642	14.34	10.83	182	25.3 ✓	
1529	223	31.49	36.05		6.55	0.650	14.27	8.01	182	25.6 ✓	
1533	223	31.49	36.11		6.55	0.644	14.10	10.20	169	25.5 ✓	
1537	223	31.49	36.33		6.56	0.644	14.35	9.93	170	25.2 ✓	
1540	223	31.49	36.33		6.56	0.645	13.99	7.35	168	26.5 ✓	

43gal pump

Total p 75 gal

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] 1540

NOTES:

LOCATION SKETCH

SIGNATURE: AMLeonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	Sept 18 2014
ACTIVITY	START 1300 END	SUB REP	Jordan	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 175-190
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___
TOP OF BEDROCK
BOTTOM OF BORING 300
INITIAL WATER LEVEL (W.L.) 33.50
INITIAL W. L. IN ANNULUS 31.40
TOP OF LOWER PACKER 190
BOTTOM OF UPPER PACKER 175
LENGTH OF PACKERS (sealed test zone) 15 ft
REFERENCE DATUM (for water levels) gL

COMMENTS: Install Pump 1318- done @ 8:24 Remove Pump 1410-1417

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1330	230	31.40	33.50							✓	
1332	230	31.40	36.61	1.5 gpm	6.80	0.658	20.97	5.78	182	34.3 ✓	
1337	230	31.40	36.80	1.5	6.62	0.679	15.94	6.41	186	29.6 ✓	
1339	230	31.40	36.85	1.5	6.59	0.683	15.09	5.85	187	30.5 ✓	
1343	230	31.40	36.96	"	6.61	0.689	14.88	5.65	188	34.1 ✓	
1346	230	31.40	36.96	"	6.56	0.692	14.49	10.50	186	54.0 ✓	
1349	230	31.40	36.96	"	6.54	0.692	14.98	5.26	186	53.3 ✓	
1352	230	31.40	36.98	"	6.53	0.686	14.53	6.92	180	50.8 ✓	
1355	230	31.40	36.98	"	6.54	0.691	14.23	5.45	177	45.7 ✓	
1400	230	31.40	36.95		6.52	0.686	14.47	5.42	174	41.5 ✓	
1419	ø										

Purge Volume 45 gallons

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GRUNFOS 2-INCH [ ] BLADDER
TYPE OF TUBING: [X] HIGH DENSITY POLY [ ] OTHER ___
TYPE OF PUMP MATERIAL: [X] STAINLESS STEEL [ ] OTHER ___
TYPE OF BLADDER MATERIAL: [ ] TEFLON [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: Remove Pump @ 1410-1417

SIGNATURE: AMLeonido

LOCATION SKETCH

Nobis
Engineering a Sustainable Future

BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By:
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	SEPT 18 2014
ACTIVITY	START 0800 END 1200	SUB REP	Jordan	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 242-257
TOP OF BEDROCK
TOP OF LOWER PACKER 257
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING 300 Ft
BOTTOM OF UPPER PACKER 242
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 32.42
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS 31.56
REFERENCE DATUM (for water levels) Ground

COMMENTS Pump at Bottom of hole at 943 AM Since Transducer placement
Water level dropping w/in packer zone w/o pumping. 9/17/2014

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
915	264	31.56	29.75								
956	264	31.56	46.54	4L/m	7.05	0.792	12.42	4.11	162	28.2 ✓	
1001	264	31.56	55.13	"	6.79	0.742	12.19	4.12	164	39.2 ✓	
1005	264	31.56	67.95	"	6.75	0.738	12.52	5.29	171	34.5 ✓	
1012	264	31.56	78.03	0.5	6.71	0.720	13.53	4.63	175	37.7 ✓	
10:30	264	31.56	82.71	0.5	6.53	0.705	15.12	5.28	178	37.1 ✓	
10:31	264	31.56	84.42	0.5	6.67	0.686	15.02	4.68	183	35.3 ✓	
10:42	264	31.56	85.07	0.4	6.68	0.675	15.83	4.01	185	32.8 ✓	
10:52	264	31.56	85.51	0.4	6.79	0.665	15.49	4.84	186	31.4 ✓	
11:03	264	31.56	85.21	0.4	6.68	0.667	15.50	4.49	188	32.2 ✓	
11:13	264	31.56	85.13	0.4	6.67	0.663	16.16	4.98	188	29.5 ✓	
11:25	264	31.56	85.28	0.4	6.66	0.657	16.57	4.04	189	28.6 ✓	
1130	264	31.56	97.64	"	6.67	0.667	15.58	6.98	189	28.9 ✓	
11:34	264	31.56	110.44		6.66	0.673	15.51	4.61	190	31.6	* Strong septic odor
			Recovery								
			103	0							
			102	22s							
			101	50s							
			100	1m. 16sec							
			99	1 44s							
			94	4 6sec							

Purge Volume 578

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X]

NOTES: standard pulling pump 1152-1200

LOCATION SKETCH

SIGNATURE: AM Leonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: A M Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 9	SUBCONT'R	Summit	DATE	Sept 17 2014
ACTIVITY	START 1230 END 445	SUB REP	Jordan	GEOLOGIST	AnLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 271 – 286
TOP OF BEDROCK
TOP OF LOWER PACKER 286
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING 300
BOTTOM OF UPPER PACKER 271
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 31.29
LENGTH OF PACKERS (sealed test zone) 15 ft
BOTTOM OF CASING 300 ft
INITIAL W. L. IN ANNULUS 32.67
REFERENCE DATUM (for water levels) G.L.

COMMENTS Transducer Annulus R1-357
Transducer Bottom of Packer Assembly (Beneath) 15821 D8192
Transducer on Pump Assembly S1-056

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (gpm)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU) (B)	OTHER
147	280	31.29	32.67	-0-							-0-
230	280	31.29	32.67	6 -	6.98	.0912	19.70	4.99	29	38.5 ✓	-0-
236	280	31.29	~~32.67~~	6 gpm	6.59	0.701	15.47	8.30	33	35.4 ✓	
244	280	31.30	53.12	6 gpm	6.60	0.771	13.26	9.95	63	32.3 ✓	
249	280	31.30	74.59	6 gpm	6.58	0.722	14.85	5.73	85	32.4 ✓	
252	280	31.30	89.56	3 Lpm	6.59	0.720	14.05	5.70	80	35.0 ✓	
255	280	31.3	100.56	2 Lpm	6.53	0.726	15.10	6.34	121	49.7 ✓	
300	280	31.3	108.12	2 Lpm	6.33	0.714	16.02	5.84	125	53.8 ✓	
308	280	31.3	120.27	1 Lpm	6.51	0.721	16.03	5.27	135	43.5 ✓	
314	280	31.3	132.40	1 Lpm	6.52	0.718	15.48	6.63	139	43.9 ✓	
320	280	31.3	139.65	1 Lpm	6.54	0.717	15.32	8.84	142	44.5 ✓	
330	280	31.3	147.13	3.4 gpm	6.54	0.716	15.81	5.56	143	37.9 ✓	
335	280	31.3	153.33	4 Lpm	6.54	0.703	16.72	5.66	144	35.2 ✓	
345	280	31.3	156.71	4 Lpm	6.56	0.688	16.80	7.64	145	32.1 ✓	
400	280	31.3	153.94	4 Lpm	6.59	0.670	16.10	6.14	147	29.5 ✓	
405	280	31.3	153.90	4 Lpm	6.65	0.652	16.71	6.79	147	26.5 ✓	

Purge Volu
Start p 6 l gal
4 gal Bucke (VS
+ Losing
Throw pump (mo

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
✓ GRUNFOS 2-INCH	✓ HIGH DENSITY POLY	✓ STAINLESS STEEL	TEFLON
BLADDER	OTHER	OTHER	OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
CLP VOCs	HCl	3 x 40 mL vials	✓ 409 pm

NOTES:

LOCATION SKETCH

SIGNATURE: Am

All measurements to Ground Surface

271 - 286

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	Sept 23 2014
ACTIVITY	START 0900 END 1503	SUB REP	Jordan/Mike	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) _____
BOTTOM OF CASING 60ft

TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 4.25
INITIAL W. L. IN ANNULUS 4.70

TOP OF LOWER PACKER 387
BOTTOM OF UPPER PACKER 372
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) Ground Level

COMMENTS Inflate packer @ 11:23 Am. Pump at Bottom (12:45 to 1300)
Pump ON 1305 Pump out of hole (1447 to 1500)
Transducer placement same locations and serial #s as MLS-9

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1305	341	4.70	4.25								5 gal Buckets
1306	341	4.70	4.25	2 GPM	4.84	0.582	17.04	3.90	122	42.3	
1309	341	4.66	31.43		5.24	0.471	14.60	12.02	89	73.5	✓
1313	341	4.66	44.00		6.68	0.456	14.25	11.32	84	66.5	✓
1319	341	4.66	49.37		6.70	0.452	14.35	11.18	104	61.9	✓
1324	341	4.66	51.46		6.74	0.451	14.26	5.95	118	51.0	✓
1330	341	4.66	52.00		6.76	0.460	14.24	9.71	122	41.0	✓
1334	341	4.67	62.25		6.82	0.461	13.71	11.60	119	33.0	✓
1338	341	4.67	72.33		6.80	0.463	13.64	5.20	118	39.0	✓
1342	341	4.67	76.34		6.83	0.466	13.60	11.20	121	48.9	✓
1345	341	4.68	78.92		6.86	0.463	13.86	6.06	120	46.2	✓
1349	341	4.68	80.25		6.90	0.469	13.63	5.80	119	38.3	✓
1352	341	4.68	81.04		6.94	0.471	13.64	6.44	118	34.2	✓
1356	341	4.69	81.42		6.99	0.467	13.79	11.32	114	28.2	✓
1400	341	4.69	81.53		7.08	0.469	14.04	4.80	107	26.5	✓
1405	341	4.69	81.38		7.07	0.465	13.81	10.04	105	24.1	✓
1409	341	4.69	81.33		7.07	0.463	13.60	10.04	101	22.3	✓
1413	341	4.69	81.23		7.11	0.465	13.67	11.32	100	21.2	✓
1417	341	4.70	81.12		7.13	0.464	13.41	11.41	97	20.7	✓
1421	341	4.69	81.13		7.13	0.460	13.45	6.85	96	20.3	✓
1424	341	4.69	81.50		7.16	0.458	13.79	6.80	96	19.2	✓
1428	341	4.69	81.33		7.16	0.	13.79	6.80	96	20.1	✓
1432	341	4.69	81.39		7.16	0.	13.80	6.80	96	19.8	✓

Deflate Packer at 1503.

pump Volume 82 gal

2x vol 10 gal

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER _____	[ ] OTHER _____	[ ] OTHER _____

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X]

Time (14.35)

NOTES:

LOCATION SKETCH

SIGNATURE: AM Leonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/23/2014
ACTIVITY	START 1503 END	SUB REP	Jordan	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL
TOP OF BEDROCK
TOP OF LOWER PACKER 367
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING
BOTTOM OF UPPER PACKER 352
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 3.65
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 60 ft
INITIAL W. L. IN ANNULUS 4.65
REFERENCE DATUM (for water levels) Ground Level

COMMENTS Inflate Packer 1533 Pump on Bottom 1558 Pump Removed (1735 to 1745)
Deflate Packer Pump Run 1605 to 1730

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	5 gal OTHER Bucket	Purge Volume 79 gal
	332	4.65	3.65									
1605 1605	332	4.66	28.15		6.81	0.428	20.51	5.39	168	74.9	74.9 ✓	5
1609	332	4.67	31.82		6.79	0.441	15.01	11.50	171	92.0	✓	10
1613	332	4.68	48.59		6.87	0.446	14.45	5.17	174	99.0	✓	15
1618	332	4.69	52.08		6.87	0.449	14.05	6.03	177	102	✓	20
1624	332	4.69	53.25		6.82	0.453	13.50	11.57	179	105	✓	25
1628	332	4.69	63.08		6.81	0.457	12.90	11.58	182	124	✓	30
1633	332	4.69	74.89		6.79	0.463	13.05	5.91	184	104	✓	35
1636	332	4.69	83.42		6.83	0.465	12.91	11.37	184	93	✓	40
1639	332	4.70	88.80		6.83	0.468	13.03	11.44	185	74.9	✓	45
1644	332	4.70	93.00		6.86	0.471	13.04	11.41	186	62.5	✓	50
												55
1647	332	4.70	95.61		6.88	0.473	12.97	5.47	185	59.1	✓	
1650	332	4.70	103.00		6.89	0.472	12.92	10.18	185	59.8	✓	60
1653	332	4.70	108.83		6.25	0.474	12.98	11.42	184	56.8	✓	65
1657	332	4.71	112.22		6.92	0.476	12.86	7.45	184	53.3	✓	70
1700	332	4.71	115.29		6.95	0.474	13.01	11.42	184	48.9	✓	75
1703	332	4.71	117.03		6.96	0.476	13.07	11.54	184	45.4	✓	80
1707	332	4.71	117.64		6.08	0.477	13.05	5.48	182	42.5	✓	
NB * 1716	332	4.71	86.79		7.00	0.474	12.70	11.60	182	37.8	✓	
1720	332	4.71	90.95		7.07	0.476	12.67	8.37	179	31.7	✓	
1729	332	4.71	93.47		7.07	0.473	12.70	11.49	176	29.7	✓	10

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] Time 1717:23

NOTES:

LOCATION SKETCH

SIGNATURE: AMLeonido

NB * Honda generator stopped working 1700 to 1714
1714 Restart pump.

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	Sept 24 2014
ACTIVITY	START 0730 END 11:03	SUB REP	Jordan Bo	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL		TOP OF BEDROCK		TOP OF LOWER PACKER	335
BOREHOLE DIAMETER	6 Inches	BOTTOM OF BORING	404	BOTTOM OF UPPER PACKER	320
CASING STICKUP (above ground surface)		INITIAL WATER LEVEL (W.L.)	4.70	LENGTH OF PACKERS (sealed test zone)	15
BOTTOM OF CASING	60	INITIAL W. L. IN ANNULUS	4.70	REFERENCE DATUM (for water levels)	ground.

COMMENTS: Pump in well (926 to 946) Pull pump (10:40 to 11:01)
Inflate packer at 0916 Deflate Packer at (11:02)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
924	316	4.66	1.83								
949	316	4.66	32.61		7.25	0.497	13.03	4.37	184	35.9	✓
951	316	4.66	62.67		7.30	0.494	12.11	11.92	183	69.8	✓
954	316	4.66	89.57		7.26	0.496	11.91	11.82	181	66.8	✓
958	316	4.66	119.10		7.32	0.487	11.99	11.56	178	70.4	✓
10:05	316	4.66	142.99		7.37	0.500	12.18	3.63	179	69.9	✓
10:13	316	4.66	146.28		7.36	0.493	12.33	11.51	169	61.8	✓
10:28	316	4.66	147.42		7.47	0.505	12.63	7.17	171	57.5	½
10:34	316	4.66	147.66		7.36	0.502	13.43	2.74	167	53.3	

Purge Volume 74

96

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[ ] HIGH DENSITY POLY	[ ] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] 10:32 (x3)

NOTES:

SIGNATURE: AM Leonido

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/24/2014
ACTIVITY	START 11:03 END 1310	SUB REP	Jordan Bo	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 277-292
TOP OF BEDROCK
TOP OF LOWER PACKER 292
BOREHOLE DIAMETER 6 inches
BOTTOM OF BORING
BOTTOM OF UPPER PACKER 277
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 4.71
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING
INITIAL W. L. IN ANNULUS 4.71
REFERENCE DATUM (for water levels) ground

COMMENTS Inflate Packer at (1136) Deflate Packer at ( )
Pump in (1140 to 1157) Pump off 1309 out 13:25)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER (✓)
1146	295	4.67	4.80								5 gallon Bucket
1203	295	4.68	34.72	2 GPM	7.39	0.480	14.39	12.45	166	44.9	✓
1206	295	4.68	55.54	"	7.00	0.464	13.46	11.69	160	55.7	✓
1210	295	4.70	74.35	"	7.21	0.465	14.14	10.76	168	56.5	✓
1217	295	4.70	86.10	"	6.97	0.469	13.97	11.02	172	64.3	✓
1223	295	4.70	105.49	"	6.98	0.470	13.68	5.86	173	79.5	✓
1229	295	4.70	121.41	"	6.99	0.478	13.72	3.83	176	72.0	✓
1238	295	4.70	129.23	"	7.06	0.477	13.87	11.12	174	87.4	✓
1251	295	4.70	129.96		6.97	0.466	14.61	5.80	93.4	93.3	✓
1300	295	4.70	129.98		6.87	0.454	15.72	11.12	173	79.9	✓
1306	295	4.70	131.20		6.87	0.450	15.73	12.5	175	80.1	✓

Purge 66gal
Sample
6x V+ 88gall

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] (13:00)

NOTES:

SIGNATURE:

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: ___
LogSheet Approved By: ___

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	Sept 24 2013
ACTIVITY	START 1330 END 1522	SUB REP	Jackson Bo	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 244- 259
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING ___
TOP OF BEDROCK
BOTTOM OF BORING ___
INITIAL WATER LEVEL (W.L.) 4.92
INITIAL W. L. IN ANNULUS 4.62
TOP OF LOWER PACKER 259
BOTTOM OF UPPER PACKER 244
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) Ground level

COMMENTS Inflate packer at (1400) Deflate Packer at (1522)
Run Pump in (1400 to 1414) Pump out (1510 to 1522)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER B	
1355	280	4.62	4.92									61 Pump vol
1414	280	4.62	8.80	3 gpm	7.06	0.459	17.86	5.06	192	46.0	✓	
1420	280	4.62	8.86		7.00	0.441	15.39	6.40	176	172	✓	
1423	280	4.63	8.91		6.82	0.298	14.23	7.03	177	262	✓	
1425	280	4.63	8.97		6.79	0.445	13.63	11.57	177	282	✓	
1428	280	4.63	8.98		6.79	0.451	13.07	10.62	177	218	✓	
1431	280	4.63	9.50		6.77	0.452	12.94	6.08	177	142	✓	
1434	280	4.63	10.70		6.78	0.454	12.85	8.87	178	112	✓	
1436	280	4.63	10.70		6.75	0.451	13.12	5.22	171	94.5	✓	
1438	280	4.63	10.70		6.76	0.445	13.18	10.79	166	121	✓	
1440	280	4.63	9.36		6.72	0.451	13.21	10.64	162	100	✓	
1443	280	4.63	9.68		6.54	0.454	12.59	5.77	159	62.7	✓	
1445	280	4.63	9.69		6.63	0.454	12.63	6.63	155	44.1	✓	-12
1448	280	4.63	9.69		6.76	0.455	12.55	6.72	151	37.8	✓	
1451	280	4.63	9.69		6.74	0.454	12.60	4.82	150	37.9	✓	
1453	280	4.63	9.69		6.77	0.455	12.61	5.63	147	32.1	✓	
1456	280	4.63	9.69		6.77	0.315	13.07	6.30	145	29.1	✓	
1458	280	4.63	9.69		6.75	0.443	12.06	4.85	143	27.7	✓	
1500	280	4.63	9.69		6.75	0.451	12.10	11.25	142	27.9	✓	
1510		Pump										-20

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	4 x 40 mL vials	[ ]

MS. MSD
9 VOAs
(1500)

NOTES:

LOCATION SKETCH

SIGNATURE: AM Leonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/24/2014
ACTIVITY	START 1545 END 1830	SUB REP	Jordan BO	GEOLOGIST	AM Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	200-215	TOP OF BEDROCK		TOP OF LOWER PACKER	215
BOREHOLE DIAMETER	6 Inches	BOTTOM OF BORING		BOTTOM OF UPPER PACKER	200
CASING STICKUP (above ground surface)		INITIAL WATER LEVEL (W.L.)	4.61	LENGTH OF PACKERS (sealed test zone)	15
BOTTOM OF CASING		INITIAL W. L. IN ANNULUS	4.56	REFERENCE DATUM (for water levels)	Ground level

COMMENTS: Inflate Packer at (1554) Deflate Packer at 1718
Pump in Borehole (1600 to 1618) Pump Removed from Borehole (1700 to 11

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1600	256	4.56									
1621	256	4.56	4.61	3GMA	707	0.475	16.08	2.66	180	41.9	✓
1623	256	4.56	5.81		7.28	0.443	16.00	11.33	174	44.1	✓
1625	256	4.57	5.86		6.71	0.460	13.22	10.99	174	44.2	✓
1627	256	4.57	5.13		6.85	0.475	13.43	10.57	173	44.2	✓
1629	256	460	5.90		679	0.474	11.73	11.63	169	25.7	✓
1631	256	4.60	5.92		673	0.299	12.40	11.65	165	21.4	✓
1634	256	4.61	5.93		6.94	0.434	12.50	8.51	164	20.5	✓
1636	256	4.63	5.93		6.99	0.492	12.62	7.86	156	18.8	✓
1638	256	4.63	5.94		7.05	0.473	12.32	11.46	150	18.1	✓
1641	256	4.63	5.94		7.16	0.443	12.26	6.68	143	18.3	✓
1644	256	4.63	5.96		7.14	0.494	12.21	5.20	135	18.6	✓
16:47	256	4.64	5.96		7.31	0.500	12.22	11.53	127	17.7	✓
16:49	256	4.64	5.98		7.25	0.501	12.41	6.15	120	17.7	✓
16:51	256	4.65	5.90		7.13	0.504	12.13	11.56	113	17.8	✓
16:53	256	4.65	5.91		7.31	0.501	12.31	11.51	109	17.8	✓

Pump Vol 54g

2x 76g

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

[ ] CLP VOCs

PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
HCl	3 x 40 mL vials	[X]

Time (16.56)

NOTES: Recovery data on back of sheet.

SIGNATURE: AM Leonido

LOCATION SKETCH

Heavy Rain

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: AM Leonardo
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/25/2014
ACTIVITY	START 0800 END 1150	SUB REP	Jordan Bo	GEOLOGIST	A Leonardo

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 175-190
TOP OF BEDROCK
TOP OF LOWER PACKER 190
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 175
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 4.57
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 60
INITIAL W. L. IN ANNULUS 4.52
REFERENCE DATUM (for water levels) ground

COMMENTS Inflate packers @ 926 Deflate at 1116.
Pump up to Bore (940-9-50) Pump out 1110-1115
Pump off at 1054

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER 5gal
926	243	4.52	4.57	2GPM							
1008	243	4.66	5.41		6.94	0.451	13.06	14.32	145	35.4	✓ Purge 50g
1010	243	4.70	5.45		6.78	0.449	13.16	9.53	151	32.0	✓
1017	243	4.70	5.51		6.54	0.451	13.05	9.98	151	29.4	✓
1020	243	4.72	5.54		6.80	0.450	12.62	4.60	152	26.8	✓
1023	243	4.74	5.56		6.78	0.451	12.53	5.62	150	25.5	✓
1026	243	4.75	5.56		6.81	0.446	12.54	4.72	146	21.7	✓
1029	243	4.76	5.56		6.83	0.445	12.53	5.07	141	20.4	✓
1033	243	4.77	5.59		6.85	0.445	12.39	5.52	137	19.4	✓
1036	243	4.79	5.59		6.87	0.443	12.38	6.88	132	19.7	✓
1039	243	4.79	5.59		6.87	0.444	12.34	7.61	122	18.4	✓
1042	243	4.79	5.60		6.98	0.430	12.51	11.07	124	22.2	✓ 2x 72g
1045	243	4.80	5.59		7.04	0.386	12.86	11.63	139	16.8	✓
1048	243	4.80	5.61		6.93	0.436	11.99	12.47	118	17.2	✓
1051	243	4.80	5.61		6.98	0.445	12.07	12.98	120	18.5	✓
1053	243	4.81	5.61		6.96	0.435	12.34	4.50	111	16.5	✓
1106	243	4.64	4.67								

pump off

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] 10:54

Instantaneous Recovery.

NOTES: Recharge instantaneous.

SIGNATURE: AM Leonardo

LOCATION SKETCH

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/25/2014
ACTIVITY	START 1130 END 1247	SUB REP	Jordan Bo	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL	163-178	TOP OF BEDROCK		TOP OF LOWER PACKER	178
BOREHOLE DIAMETER	6 inches	BOTTOM OF BORING	400	BOTTOM OF UPPER PACKER	163
CASING STICKUP (above ground surface)		INITIAL WATER LEVEL (W.L.)	4.63	LENGTH OF PACKERS (sealed test zone)	15
BOTTOM OF CASING	60	INITIAL W. L. IN ANNULUS	4.58	REFERENCE DATUM (for water levels)	Ground

COMMENTS Inflate Packers @ 1135 Deflate Packers @ 1246
Pump On (1136 to 1149) Pump Out (1238 to 1246)
Pump Off at 1136 Pump OFF 1236

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1136	238	4.58	4.63								
1158	238	4.64	5.65		6.75	0.443	13.00	10.61	143	48.0	✓ Purge Volum 48 g
1200	238	4.65	5.67		6.85	0.432	12.53	6.87	136	38	✓
1203	238	4.65	5.75		6.57	0.377	12.33	7.30	135	46.4	✓
1206	238	4.65	5.75		6.94	0.416	12.33	11.75	130	28.7	✓
1210	238	4.66	5.76		6.97	0.413	12.35	9.95	129	25.8	✓
1213	238	4.68	5.78		6.77	0.434	12.48	11.75	126	30.00	✓
1216	238	4.68	5.80		6.78	0.406	12.19	11.96	123	24.7	✓
1220	238	4.70	5.80		6.79	0.407	12.28	11.99	120	25.2	✓
1223	238	4.71	5.82		697	0.405	12.14	8.35	118	23.7	✓
1226	238	4.72	6.02		697	0.409	12.15	9.75	124	25.7	✓
1228	238	4.73	6.05		707	0.404	12.18	7.41	109	18.6	✓
1230	238	4.74	6.07		7.10	0.402	12.20	11.84	108	22.7	✓
1232	238	4.74	6.08		711	0.395	12.01	12.0	115	24.3	✓
1234	238	4.74	6.08		7.12	0.405	13.01	12.07	120	29.0	✓ 208

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X] 12:38

NOTES:

LOCATION SKETCH

SIGNATURE: AMLeonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: 1 of
Rev. Date: | Rev. #:
Log Sheet Prepared By: A M Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONT'R	Summit	DATE	9/25/2014
ACTIVITY	START 1250 END 1430	SUB REP	Jordan 130	GEOLOGIST	A Leonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 153-168
TOP OF BEDROCK
TOP OF LOWER PACKER 168
BOREHOLE DIAMETER 6 Inches
BOTTOM OF BORING 400
BOTTOM OF UPPER PACKER 153
CASING STICKUP (above ground surface)
INITIAL WATER LEVEL (W.L.) 4.61
LENGTH OF PACKERS (sealed test zone) 15
BOTTOM OF CASING 60
INITIAL W. L. IN ANNULUS 4.53
REFERENCE DATUM (for water levels)

COMMENTS Pump off at 1206 Deflate at 1424 Drop Pump 1319-1322
Inflate (1104-1114) Pump Out 1220-1223

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1327	233	4.53	4.61								
1329	233	4.70	6.94		6.73	0.445	12.97	5.60	145	44.3	✓
1332	233	4.70	7.00		6.75	0.454	12.65	6.12	148	41.7	✓
1334	233	4.72	7.06		6.74	0.454	12.54	6.01	149	41.8	✓
1336	233	4.73	7.09		6.74	0.456	12.57	5.37	150	37.4	✓
1339	233	4.74	7.12		6.60	0.452	12.54	11.55	151	31.4	✓
1341	233	4.75	7.12		6.79	0.458	12.58	6.85	149	27.5	✓
1344	233	4.75	7.13		6.55	0.459	12.59	6.82	148	26.8	✓
1346	233	4.75	7.15		6.87	0.459	12.59	11.68	144	24.5	✓
1349	233	4.75	7.21		6.87	0.453	12.61	11.57	140	20.6	✓
1352	233	4.77	7.23		6.92	0.460	12.58	6.10	138	20.6	✓
1354	233	4.78	7.24		6.78	0.457	12.67	11.30	136	24.0	✓
1356	233	4.77	7.23		6.96	0.453	12.67	11.30	133	18.5	✓
1358	233	4.78	7.24		6.96	0.457	12.58	6.68	120	19.6	✓
1401	233	4.80	7.25		6.97	0.455	12.59	11.72	128	22.4	✓

Pump 48 g

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER	[ ] OTHER	[ ] OTHER

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[X]

(14:05)

NOTES:

LOCATION SKETCH

SIGNATURE: A M Leonido

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: AMLeonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONTR	Summit	DATE	9/25/201
ACTIVITY	START 1500 END 1638	SUB REP	AMLeonido	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 100-115
BOREHOLE DIAMETER 6 inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING 60 feet
TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 4.60
INITIAL W. L. IN ANNULUS 4.42
TOP OF LOWER PACKER 115
BOTTOM OF UPPER PACKER 100
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ___

COMMENTS Inflate Packer 1515 Deflate at 1616
Pump into BOH (1517 to 1527)
Pump OUT BOH (1610 to 1605)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	OTHER
1515	206	4.42	4.60								
1532	206	4.46	5.39		6.73	0.445	14.07	6.30	154	43.6	✓
1534	206	4.46	5.42		6.69	0.448	13.31	4.93	153	42.1	✓
1536	206	4.50	5.50		6.67	0.452	13.00	4.57	152	38.5	✓
1538	206	4.50	5.50		6.67	0.454	12.97	5.45	152	36.4	✓
1540	206	4.51	5.51		6.65	0.454	13.02	10.47	151	32.7	✓
1542	206	4.53	5.55		6.67	0.454	13.00	10.98	150	31.7	✓
1544	206	4.56	5.56		6.67	0.454	13.06	6.50	150	29.6	✓
1546	206	4.56	5.56		6.52	0.455	12.94	8.87	150	29.7	✓
1548	206	4.58	5.57		6.30	0.339	12.84	11.49	150	29.2	✓
1550	206	458	5.57		6.67	0.486	12.86	11.49	150	28.6	✓
1553	206	4.58	5.58		6.48	0.425	12.74	11.50	150	29.2	✓
1556	206	458	5.59		631	0.408	12.82	6.89	150	27.8	✓

Purge Volume 38

608

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GRUNFOS 2-INCH [ ] BLADDER
TYPE OF TUBING: [X] HIGH DENSITY POLY [ ] OTHER ___
TYPE OF PUMP MATERIAL: [X] STAINLESS STEEL [ ] OTHER ___
TYPE OF BLADDER MATERIAL: [ ] TEFLON [ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	[✓]

(16:08)

NOTES:

SIGNATURE: AM Leonido

LOCATION SKETCH

Instant recovery.

MLS-11

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BEDROCK BOREHOLE PACKER SAMPLING

SOP No.: ENV-025 | Page: ___ of ___
Rev. Date: | Rev. #:
Log Sheet Prepared By: A M Leonido
LogSheet Approved By:

PROJECT	Mansfield Trail Dump Site	CLIENT	USEPA	PRJ NUMBER	202.03
WELL ID	MLS- 11	SUBCONTR	Summit	DATE	Sept 26 2014
ACTIVITY	START 0800 END	SUB REP	Jordan Bo	GEOLOGIST	AMLeonido

DEPTHS (All measurements to ground surface in feet)

TARGET TEST INTERVAL 59-74
BOREHOLE DIAMETER 6 Inches
CASING STICKUP (above ground surface) ___
BOTTOM OF CASING 60
TOP OF BEDROCK
BOTTOM OF BORING 400
INITIAL WATER LEVEL (W.L.) 4.5
INITIAL W. L. IN ANNULUS 4.3
TOP OF LOWER PACKER 74
BOTTOM OF UPPER PACKER 59
LENGTH OF PACKERS (sealed test zone) 15
REFERENCE DATUM (for water levels) ground

COMMENTS Inflate Packer @ 919 Deflate Packer at
Pump in (937 to 940) Pump out (to)

TIME	PACKER PRESSURE (PSI)	WATER LEVEL IN ANNULUS (ft TOR)	WATER LEVEL IN RISER (ft TOR)	PUMPING RATE (L/min)	pH (units)	SPECIFIC COND. (mS/cm)	TEMP. (°C)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTU)	Syl OTHER Bailer	Purge Volume
930	185											
949	185	4.3	4.75		6.93	0.449	12.02	8.67	14	52.0	✓	31 gall
9:52	185	4.3	4.85		6.74	0.444	12.20	9.74	8	38.4	✓	
9:55	185	4.3	4.85		6.80	0.444	12.04	7.03	53	35.6	✓	
959	185	4.3	4.85		6.66	0.444	12.28	9.76	74	31.6	✓	
10:03	185	4.3	4.85		6.70	0.443	12.34	6.80	90	29.6	✓	
10:06	185	4.3	4.88		6.65	0.444	12.36	10.11	99	28.4	✓	
10:10	185	4.3	4.89		6.64	0.367	12.35	9.29	104	27.0	✓	35
10:13	185	4.3	4.89		6.68	0.444	12.39	11.60	12	24.9	✓	
1015	185	4.3	4.90		6.70	0.450	12.37	12.25	114	24.1	✓	
1018	185	4.3	4.91		6.67	0.283	12.41	9.04	117	23.4	✓	
1021	185	4.3	4.91		6.68	0.445	12.37	6.39	119	23.1	✓	
1024	185	4.3	4.91		6.67	0.446	12.40	7.13	121	22.9	✓	55 2x
~~[illegible]~~	~~[illegible]~~											

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
[X] GRUNFOS 2-INCH	[X] HIGH DENSITY POLY	[X] STAINLESS STEEL	[ ] TEFLON
[ ] BLADDER	[ ] OTHER ___	[ ] OTHER ___	[ ] OTHER ___

ANALYTICAL PARAMETERS

	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[ ] CLP VOCs	HCl	3 x 40 mL vials	☆

Sample Time (10 : 30)

NOTES:

SIGNATURE: A M Leonido

LOCATION SKETCH

Recharged instantaneous

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
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Prepared by: _____
Reviewed by: _____

Date : 4-1-14 Page 1 of 1
Field Personnel A. Arsenault J Stevens
Well Depth as installed (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): _____ From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time 0930

Well ID : 64 - Brookwood Rd
Purging Start Time : 0920
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion: 1000
Signature: Josh S

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) run cold water from bathroom sink untill pump kicks on

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						10.59	470	4.50	304.7	7.81	3.26	PH/orp Questionable

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____

Reviewed by: _____

Date : 4-1-14 Page 1 of 1

Field Personnel A. Arsenault J. Stewart

Well Depth as installed (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____

Depth to GW (ft.): _____ From: _____

Pump/Tubing Intake set (ft.): _____ From: _____

Sample Designation _____

Sample Time 1110

Well ID : 69 Brookwood Rd

Purging Start Time : 1100

Measured Well Depth (ft.): _____

Parameter Stabilization: (Circle) Yes / No

Two Hour Time Limit Reached ? (Circle) Yes / No

Total Volume Purged, Including Drawdown (gallons): _____

Time at Purge Completion: _____

Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Ran cold water at bathroom sink till well pump kicked on

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						9.18	622	5.76	202.2	6.53	3.07	

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-1-14 Page 1 of 1
Field Personnel A. Arsenault J. Stewart
Well Depth as installed (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): _____ From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time 1205

Well ID : 75 Brookwood Rd
Purging Start Time : ~~1150~~ (15) 1155
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion: _____
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						9.46	615	6.34	189.3	7.13	8.11	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____

Reviewed by: _____

Date : 4-1-14 Page 1 of 1 **Well ID :** 79 Brookwood

Field Personnel A. Arsenault J. Stewart Purging Start Time : 1415

Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time 1425 Signature: _____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) collected sample from out side faucet due to limited access at pressure tank confirmed water to outside is untreated

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						11.54	658	6.24	214.1	9.81	0.44	MS/MSD

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4/1/14 Page 1 of 1 **Well ID :** 71 Brookwood
Field Personnel A. Agnewit J. Stewart Purging Start Time : 1455
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1505 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						12.66	704	6.45	220.4	6.40	5.41	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-1-14 Page ____ of ____ **Well ID :** 4 Ross Rd
Field Personnel A. Arsenault J. Stewart Purging Start Time : 1650
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1700 Signature: Josh [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas;Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						12.09	595	7.08	185.9	8.96	6.38	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by:
Reviewed by:

Date : 4-1-14 Page 1 of 1
Field Personnel A. Arsenault J. Stewart
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation
Sample Time 1740

Well ID : 67 Brookwood
Purging Start Time : 1730
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature: Jack S

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						8.78	670	6.64	216.1	8.68	39.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-2-14 Page 1 of 1
Field Personnel A. Arsenault J. Stewart
Well Depth as installed (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): _____ From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time 0925

Well ID : 70 Brook Wood
Purging Start Time : 0915
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion: _____
Signature: _____

F DUP
0940

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						8.77	217	5.69	225.2	9.92	5.29	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-2-14 Page _____ of _____ **Well ID :** 62 Brookwood Rd
Field Personnel A. Arsenault J. Stewart Purging Start Time : 10 45
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1055 Signature: Josh Stewart
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						11.71	1133	6.03	146.7	6.00	21.3	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-2-14 Page 1 of 1 **Well ID :** 66 Brook Wood
Field Personnel J. Stewart A. Arsenault Purging Start Time : 1120
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1130 Signature: Josh
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						10.71	129	6.42	183.5	10.18	9.93	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-2-14 Page 1 of 1 **Well ID :** 3 ROSS Rd
Field Personnel A. Affenault S. Stewart Purging Start Time : 1155
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1205 Signature: Josh Sw
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						10.98	277	6.78	175.9	8.00	2.67	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: A. Arsenault
Reviewed by:

Date : 4/3/14 Page 1 of 1 **Well ID :** Ross 5
Field Personnel A. Arsenault Purging Start Time : 835
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 840 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						10.81	173	7.25	194.0	5.85	8.19	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-4-14 Page 1 of 1 **Well ID :** 77 brookwood
Field Personnel A. Aldrich J. Stewart Purging Start Time : 0740
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 0750 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						9.33	352	6.91	166.8	7.47	4.13	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Prepared by: _____
Reviewed by: _____

Date : 4-4-14 Page 1 of 1 **Well ID :** 73 brook wood
Field Personnel A. Arganavit J. Stewart Purging Start Time : 0820
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 0830 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						6.35	704	~~7.11~~	195.4	6.98	12.4	
								6.23				

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: T Koach
Reviewed by:

Date : 4-5-14 Page 1 of 1 **Well ID :** 65 BROOKLWOOD Rd
Field Personnel A. ARSENAULT, T. KOACH Purging Start Time : 0800
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 08:45 / 0852 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						9.05	689	6.33	125.3	6.22	4.93	DUP 2

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4-8-14 Page 1 of 1 **Well ID :** 74 Brook wood
Field Personnel A. ARSENAULT, J. STEWART
Purging Start Time : _____
Well Depth as installed (ft.): _____
Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____
Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____
Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____
Time at Purge Completion: _____
Sample Time 1730
Signature: Josh
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						10.44	235	7.94	136.3	0.80	0.59	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11-14-14 Page 1 of 1 Well ID: 4 Debbie Drive

field personnel: T. Keach & M. Higdon purging start time: 9:15-9:30

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons):

sample time 0930 time at purge completion:

sample designation: QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):

multimeter model and serial number: turbidity meter model and serial number:

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0930						7.5	not able to read	6.42	239.6	4.32	0.43	Sample collected @ outdoor spigot to right of front door
												owner stated that the water that spigot bypassed water softening unit.
						Sample collected @				0930		

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: RET
Reviewed by:

Date : 11/6/14 Page 1 of 1
Field Personnel Monica Higdon / Tracey Roach
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation Drinking water / pre poet
Sample Time

Well ID : 64 Brookwood Rd.
Purging Start Time : 10:30
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No N/A
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion: 10:45
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI EXO / 13K100498 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						11.92	514.1	6.22	281.7	8.09	1.12	
												- no radon
												- taken from spigot @ pressure tank
					purge 15 min							
					sampled @	10:45						

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature: _____

Date: 11-6-14 Page 1 of 1 Well ID: 73 Brookwood Rd.
field personnel: Rob Thompson and Monica Higdon purging start time: 12:30
well depth as installed (ft.): _____ measured well depth in ft. _____
top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____
sample time 12:45 time at purge completion: _____
sample designation: _____ QA samples: Dup MS/MSD Equipment Other _____
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): _____
multimeter model and serial number: YSI Exo/13K100498 turbidity meter model and serial number: _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	ml / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
~~1445~~	1245					12.24	403.9	6.80	259.6	7.36	0.64	

15 min purge

Sample time @ ~~1445~~ 1245 MOH 11-6-14

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Attachment A, Page 1 of 1
Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11-6-14 Page 1 of 1 **Well ID:** 4RossRd

field personnel: Robthompson and Monica Hydon purging start time:

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons):

sample time time at purge completion:

sample designation: QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):

multimeter model and serial number: YSI EXO/13K100498 turbidity meter model and serial number:

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1315						12.7	453.6	6.78	270.3	7.68	0.17	
						15 min purge						
						Sampled @		1315				

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date: 11-5-14 Page 1 of 1 **Well ID:** 10 Ross Rd
Field Personnel J. Stewart / T. Kouch Purging Start Time: 1135
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1145 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number VSE EXO/13K100498 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
Sampled From outside Spigot

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if >5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1150						13.19	281.7	6.72	139.7	8.40	-1.22	Error w/ Turbidity Reading
												- Radon System
												- Sampled from outdoor
												Spigot.
					purge	15 min						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: Rob Thompson
Reviewed by:

Date: 11-6-14 Page 1 of 1
Field Personnel TRACEY KOACH / MONICA HIGDON
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation
Sample Time

Well ID: 71 Brookwood Rd.
Purging Start Time: 0930
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI Eso/13K100798 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						12.70	819.2	6.43	265.7	6.98	0.32	
												- radon system
												- purge 15 min
					sample	collected	@	09:45				

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: monica tigdon
Reviewed by:

Date : November 6 2014 Page 1 of 1 Well ID : 77 Brookwood Road
Field Personnel Monica tigdon and Rob Thompson Purging Start Time : 8:40
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time _____ Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI Exo/13K100498 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
8:55						13.9	404.5	7.35	216.4	8.69	0.17	

Sample collected @ 0855 w/ duplicate

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: M. Higdon
Reviewed by:

Date : 11-4-14 Page 1 of 1 **Well ID :** 15 Ross Rd
Field Personnel Montra Higdon and Ro Thompson
Purging Start Time : 17:15
Well Depth as installed (ft.):
Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft.
Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From:
Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From:
Total Volume Purged, Including Drawdown (gallons):
Sample Designation
Time at Purge Completion: 17:30
Sample Time 17:30
Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI 600/13K108198 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
						12.56	110.6	6.32	158.1	8.04	1.07	outside spigot
												- no radon.
												- no water treatment system.
												- would like EPA to call about bacteriological testing.
				Sampling time 17:30								

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: Monica Tigdon
Reviewed by:

Date : 11-4-14 Page 1 of 1 **Well ID :** 74 Brookwood Rd.
Field Personnel Monica Tigdon and Rob Thompson Purging Start Time : 15 min 0710
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation Time at Purge Completion: 0725
Sample Time 0725 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI EXO1 / 13K100498 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0725						11.1	210	7.53	0.3	10	Ø - NR	Radon treatment system, ~~water softener~~ MDH 11-4-14
												Sample collected in garage, before treatment.
					Start sampling at 0725							

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: Monica Higdon
Reviewed by:

Date : 11-9-14 Page 1 of 1 **Well ID :** 2 Debbie Drive
Field Personnel Rob Thompson and Monica Higdon Purging Start Time : 15 minutes 0735
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: 0750
Sample Time 0750 Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI Exo1 / 13K100498 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0750						16.84	660.7	6.16	185.3	4.88	Ø	– Radon treatment system
												– Water softener system
												– Sample collected in garage
												spigot, before treatment
					Start sampling at			0750				

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: [signature]
Reviewed by:

Date : 11/9/14 Page 1 of 1 **Well ID :** 13 Ross Road
Field Personnel MONICA HIGDON / ROB THOMPSON Purging Start Time : 14:05
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: 14:20
Sample Time 1420 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI EXO1 / 13K100798 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
14:20						14.29	125.7	6.58	141.6	8.09	0	-owner was not home. was told no treatment system.
												-Sample collected from outdoor spigot (right side deck)
												-Radon system installed.
			15 min purge, sample start time 14:20									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: ROB THOMPSON
Reviewed by:

Date : 11/4/14 Page 1 of 1
Field Personnel MONICA HIGDON & ROB THOMPSON
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation
Sample Time 11:20

Well ID : 3 DEBBIE DRIVE
Purging Start Time : 15 min 1105
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion: 11:20
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number 13K100498/YSI EXO Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
11:20						15.37	594.5	6.39	153.1	6.83	0	- no radon System
												+ UV ? filtration System
												+ Sample collected in front yard spigot, before treatment.
				Start sampling @ 11:20								

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Attachment A, Page 1 of 1
Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11/6/14 Page 1 of 1 Well ID: 55 BROOKWOOD Rd.

field personnel: TRACEY ROACH / JOSH STEWENT purging start time: 14:30

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____ 45

sample time 1445 time at purge completion: 14:45

sample designation: _____ QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): _____

multimeter model and serial number: YSI Eco/13K100498 turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1445						12.73	805.8	6.78	288.4	8.83	0.6	
												- no filtration system.
												- no radon system
												- ~~X~~ has V/ sampling port
				Sample		collected @		14:45				- Sample taken from
												outside spigot.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: Monica Higdon
Reviewed by:

Date : 11-4-14 Page 1 of 1 **Well ID :** 54 Brookwood Rd
Field Personnel Monica Higdon and Rob Thompson Purging Start Time : 15 min 1800
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation Time at Purge Completion: 1815
Sample Time 1815 Signature: MA
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number 451EX01 / 13K100498 Turbidity meter model and serial number NA
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1815						12.6	110.9	5.91	201.2	6.59	4.84	softener withdrawn up
												sampled from outdoor spigot
												no radon treatment.
					Sampled at		1815					

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: Moni Cattigden
Reviewed by:

Date : 11-6-14 Page 1 of 1 **Well ID :** 66 Brookwood Rd.
Field Personnel Moni Cattigden Rob Thompson Tracey Koach
Purging Start Time : 1000
Well Depth as installed (ft.): _____
Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____
Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____
Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____
Time at Purge Completion: 1015
Sample Time 1015
Signature: MA
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI EXO/13K/00498 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1015						11.16	208.8	7.04	320.6	8.86	0.25	
				Sample time			1015					

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 15-6-14 Page 1 of 1 Well ID: 62 Brookwood Drive
field personnel: Monica Higdon, Rob Thompson purging start time: 15 min
well depth as installed (ft.): measured well depth in ft.
top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No
depth to GW ft. bgs: ref. point: two hour time limit reached: (circle) Yes / No
pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons):
sample time time at purge completion:
sample designation: QA samples: Dup MS/MSD Equipment Other
pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):
multimeter model and serial number: YSI EXO / 13K100495 turbidity meter model and serial number:
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0815						12.3	923.1	6.43	184.4	5.26	0.08	light-med precipitation
				Sample collected				@	0815			

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-093
Date: May 2011

Draft Rev.: 3

Sampler signature: [signature]

FOL signature: _____

Date: 11-6-14 Page 1 of 1 Well ID: 3 Ross Rd

field personnel: Monica Higden, Rob Thompson purging start time: 0715 (15 min)

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: _____

sample designation: _____ QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): _____

multimeter model and serial number: YSI EXO1 / 13K100493 turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0730						11.43	242.2	7.58	165.2	8.85	0	
					Purge 15 min							
					Sample collected @ 0730							

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Attachment A, Page 1 of 1
Draft Rev.: 3

Sampler signature: [signature]

FOL signature:

Date: 11-6-14 Page 1 of 1 **Well ID:** 79 Brookwood Road

field personnel: Monica Higdon and Rob Thompson purging start time: 1705

well depth as installed (ft.): _____ measured well depth in ft. _____

top of screen in ft. bgs: _____ bottom of screen in ft. bgs: _____ parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: _____ ref. point: _____ two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: _____ ref. point: _____ total volume purged, including drawdown (gallons): _____

sample time _____ time at purge completion: 1720

sample designation: _____ QA samples: Dup MS/MSD Equipment Other _____

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments): _____

multimeter model and serial number: YSI EXO /13K100498 turbidity meter model and serial number: _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1700						12.34	911.7	6.18	295.0	8.25	0.57	
												- Inside spigot at pressure tank was corroded. Sample was taken from front yard spigot. Verified spigot is not treated.
					Purge 15 min							
					Sample collected @ 1720							
												0 PPB

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Site Name: Mansfield Trail Dump Superfund Site

SOP No: SA-003
Date: May 2011

Sampler signature: [signature]

FOL signature:

Date: 11-6-14 Page 1 of 1 Well ID: 64 Brookwood Rd.

field personnel: Monica Higdon / Rob Thompson purging start time: 1530

well depth as installed (ft.): measured well depth in ft.

top of screen in ft. bgs: bottom of screen in ft. bgs: parameter stabilization: (circle) Yes / No

depth to GW ft. bgs: ref. point: two hour time limit reached: (circle) Yes / No

pump/tubing intake set in ft. bgs: ref. point: total volume purged, including drawdown (gallons):

sample time time at purge completion: 1545

sample designation: QA samples: Dup MS/MSD Equipment Other

pump type (include pressure, discharge, and recharge for bladder pump under pump setting and comments):

multimeter model and serial number: YSI EXO / 13K100408 turbidity meter model and serial number:

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft. bgs	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1545						13.65	728.2	6.48	283.4	6.51	1.55	
												-taken from spigot
												at pressure tank
				Purged	15 min							
				Sampled	@ 15:45							

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: [illegible]
Reviewed by:

Date : 1-6-14 Page 1 of 1 **Well ID :** 70 Brookwood Rd.
Field Personnel Rob Thompson and Monica Higdon
Purging Start Time : 14:20
Well Depth as installed (ft.):
Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft.
Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From:
Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From:
Total Volume Purged, Including Drawdown (gallons):
Sample Designation
Time at Purge Completion: 15 min
Sample Time 14:35
Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number YSI EXO 15K400198 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1435						11.48	2736	6.66	269.1	8.76	0	
												collected from
												Spigot right outside
												pressure tank, pre-quest.
					Sample time			14:35				

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: Monica Higgdon
Reviewed by:

Date : 11-6-14 Page 1 of 1
Field Personnel Monica Higgdon and Rob Thompson
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): From:
Pump/Tubing Intake set (ft.): From:
Sample Designation
Sample Time
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Rae YSI EXO/13K100498 Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Well ID : 75 Brookwood Road
Purging Start Time : 15 minutes
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons):
Time at Purge Completion:
Signature:

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1830						13.47	608.8	6.42	244.0	6.50	307	
					Samples collected @ 1830							

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: RT
Reviewed by:

Date : _____ Page 1 of 1
Field Personnel ROB THOMPSON / MONICA HIGDON
Well Depth as installed (ft.): 75 ft.
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): _____ From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time 13:20

Well ID : 59 BROOKWOOD Rd.
Purging Start Time : 15 min 13:05
Measured Well Depth (ft.): _____
Parameter Stabilization: (Circle) Yes / No N/A
Two Hour Time Limit Reached ? (Circle) Yes / No N/A
Total Volume Purged, Including Drawdown (gallons): _____
Time at Purge Completion: 13:20
Signature: RT

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number YSI EXO 13K100498 Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
13:20						14.11	966.7	5.69	235.4	6.83	0.65	
												- no PORTS.
												- Sample taken from spigot at Pressure tank (downstairs closet)
				Sampled @			13:20					
												- Home owner says well is at 75 ft.

Notes: All depths in feet below top of PVC unless specified
NR No Reading
Use the back of the log to record additional observations and descriptions.

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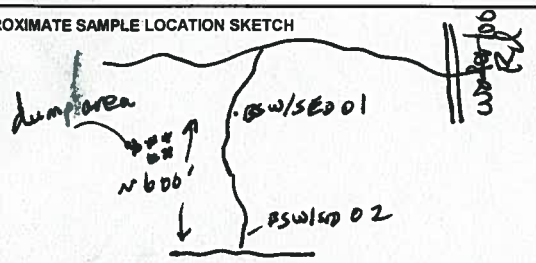
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	R202 - Mansfield	JOB NUMBER		DATE	11-12-13
STATION		ACTIVITY TIME	START 0950 END 1010		
FIELD SAMPLE ID	BSW01 - 1113 BSED01 - 1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1000	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5	FT
STREAM CHANNEL WIDTH	5-30	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1015	4.26	381	6.68	8.08	153.8	3.23		clear

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
X	VOCs					
X	SVOCs + PAHs					
X	TAL Metals (total)					
X	TAL Metals (dissolved)					
X	Pesticides					
X	PCBs					

NOTES/OBSERVATIONS:

Sediment: wet, Dark Brown Sandy Silt, organics

SAMPLER NAME AND SIGNATURE: TM

Checked By: RECEIVED BY:

SURFACE WATER SAMPLING FIELD DATA SHEET

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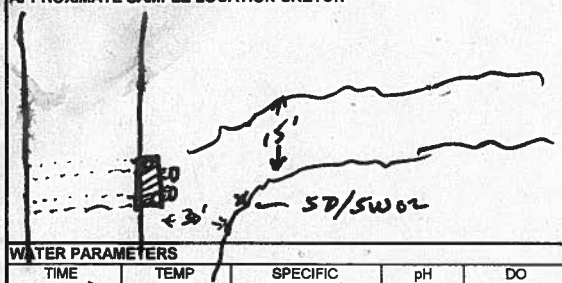
CONCORD, NH - LOWELL, MA

PAGE 1 OF 1

PROJECT	Mansfield RI	JOB NUMBER	R202	DATE	11-12-13
STATION	SW02-1113	ACTIVITY TIME	START 1055 END 1115		
FIELD SAMPLE ID	SD02-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1100	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

↑ N

APPROXIMATE SAMPLE LOCATION SKETCH



Jeff Lake

STREAM CHANNEL DEPTH		FT
STREAM CHANNEL WIDTH		FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1120	7.63	372	7.32	5.26	-36.2	11.1	low	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs + PAHs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Black, wet organic silt.

SAMPLER NAME AND SIGNATURE: TM

Checked By:

RECEIVED BY:

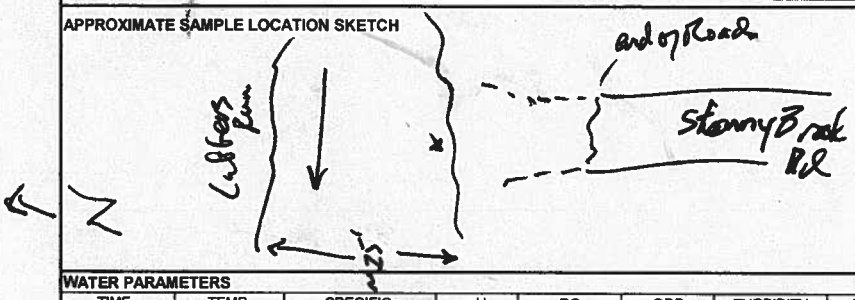
Nobis
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	Mansfield	JOB NUMBER	R202	DATE	11-12-13
STATION	SW SED 01 -1113	ACTIVITY TIME	START 1520 END 1550		
FIELD SAMPLE ID		GPS COORDINATE	E= N=		
QC SAMPLES	+ MS/MSD	SAMPLE TIME	1530	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.7	FT
STREAM CHANNEL WIDTH	25	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1540	3.35	436	7.59	11.66	35.9	2.01	med	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED - Loose Black & Dk brown gray f-crs. SAG, trace silt.

SAMPLER NAME AND SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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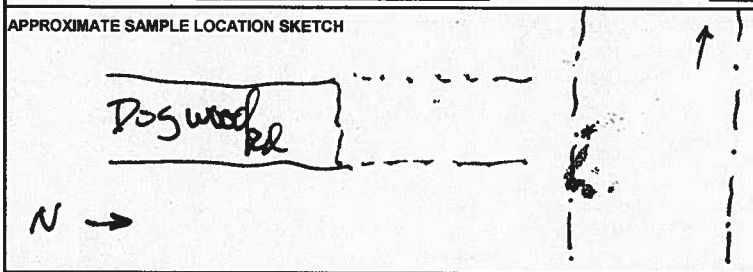
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PROJECT		JOB NUMBER		DATE	11-12-13
STATION		ACTIVITY TIME	START 1615 END 1645		
FIELD SAMPLE ID	SW SED 02 - 1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1630	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	1.0	FT
STREAM CHANNEL WIDTH	25	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1640	3.21	436	7.61	11.08	34.2	1.24	med	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	+ TOC/gr.size					

NOTES/OBSERVATIONS:

SED - Black & Dk Gray f-m S & G, Trace to some silt.

SAMPLER NAME AND SIGNATURE:

Checked By:

RECEIVED BY:

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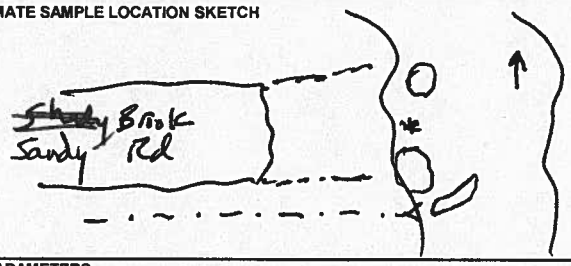
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	Mansfield	JOB NUMBER	R202 -035	DATE	11-13-13
STATION		ACTIVITY TIME	START 0830 END 0850		
FIELD SAMPLE ID	SW/SED 03	GPS COORDINATE	E= N=		
QC SAMPLES	Dup	SAMPLE TIME	0840	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH		FT
STREAM CHANNEL WIDTH		FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
0850	-0.23	436	6.91	11.61	163.2	2.05	med	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

Sed: DK brown med-crs S&G, trace silt.

SAMPLER NAME AND SIGNATURE:

Checked By:

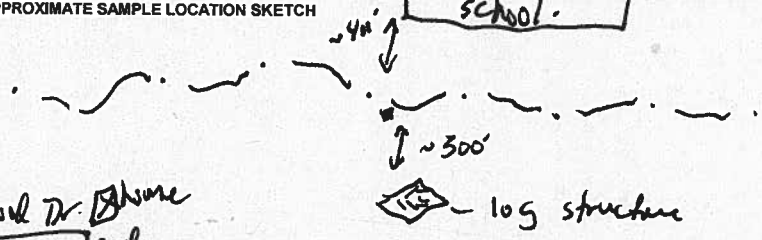
RECEIVED BY:

Nobis
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PROJECT	Mansfield	JOB NUMBER		DATE	11-13-13
STATION		ACTIVITY TIME	START 1120 END 1140		
FIELD SAMPLE ID	SW/SED 04 -1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1130	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.3	FT
STREAM CHANNEL WIDTH	7	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

Brook with Dr. Blume and

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
11:35	0.53	517	7.67	13.93	190.1	1.52	low	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Brown & Gray Silty f-m SAND, Trace clay & organics (leaves twigs black)

SAMPLER NAME AND SIGNATURE:

Checked By:

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SURFACE WATER SAMPLING FIELD DATA SHEET

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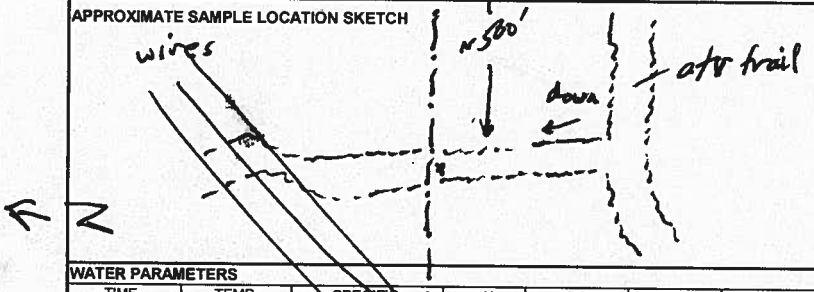
PROJECT	Mansfield	JOB NUMBER	R202-035	DATE	11-13-13
STATION		ACTIVITY TIME	START 1445 END 1510		
FIELD SAMPLE ID	BSW/BSED-03	GPS COORDINATE	E= N=		
QC SAMPLES	~~RT 305~~	SAMPLE TIME	1450	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5	FT
STREAM CHANNEL WIDTH	~7	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1500	1.35	522	7.76	13.32	182.0	0.49	low	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	+ TOC					
	Gr. Size					

NOTES/OBSERVATIONS:

SED - Brown m-crs S & G

SAMPLER NAME AND SIGNATURE:

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SURFACE WATER SAMPLING FIELD DATA SHEET

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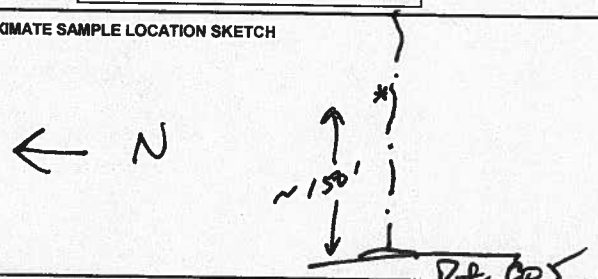
PROJECT	Mansfield	JOB NUMBER	R202-035	DATE	11-13-13
STATION		ACTIVITY TIME	START 1550 END 1610		
FIELD SAMPLE ID	BSW/BSED 04	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1600	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5	FT
STREAM CHANNEL WIDTH	3	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1610	1.39	404	7.21	6.75	34.6	5.10	V. low	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

Sed - Black organic SILT, Trace fine sand, trace to little clay, organics (leaves, decay, roots).

SAMPLER NAME AND SIGNATURE: [signature]

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SURFACE WATER SAMPLING FIELD DATA SHEET

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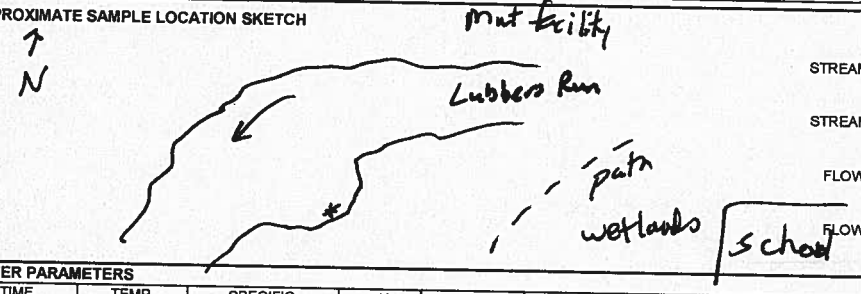
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 0930 END 0950		
FIELD SAMPLE ID	BSW/BSED 05	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	0940	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5+	FT
STREAM CHANNEL WIDTH	40+	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
0950	0.41	398	6.77	5.47	40.6	2.92	unk	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Black organic SILT, Trace fi sand
↳ (roots, leaves)

SAMPLER NAME AND SIGNATURE: TM

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SURFACE WATER SAMPLING FIELD DATA SHEET

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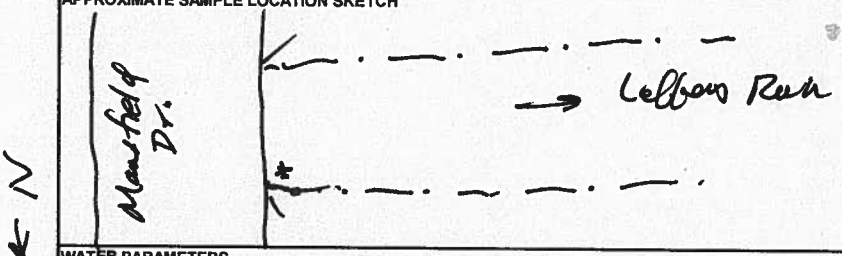
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 1010 END 1030		
FIELD SAMPLE ID	BSW/BSED 06 -113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1020	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5-2.0' (est)	
STREAM CHANNEL WIDTH	35	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1030	1.99	386	7.57	11.89	43.4	2.98	unk	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
	VOCs					
	SVOCs					
	TAL Metals (total)					
	TAL Metals (dissolved)					
	Pesticides					
	PCBs					
	+ TOC					
	Gr. Size					

NOTES/OBSERVATIONS:

SED - Dk Brown f-m SAND trace SILT trace to some crs sand & f-m gravel.

SAMPLER NAME AND SIGNATURE: [illegible]

Checked By:

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SURFACE WATER SAMPLING FIELD DATA SHEET

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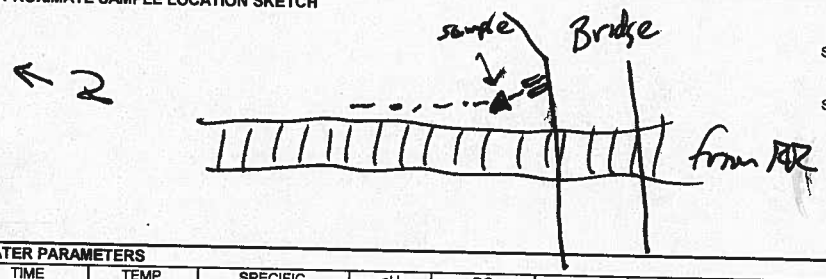
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 1315 END 1345		
FIELD SAMPLE ID	BSW/BSED 07-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	13:36	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.1	FT
STREAM CHANNEL WIDTH	1.5	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1340	5.75	612	7.24	9.33	130.7	21.3	trickle	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

Sed: Dk Brn f-crs SG. Trace silt.

SAMPLER NAME AND SIGNATURE:

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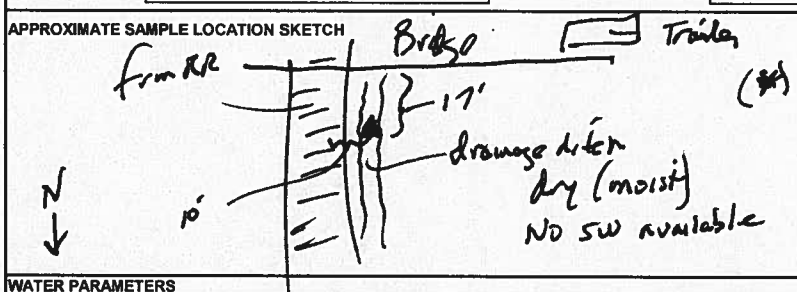
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 1405 END 1425		
FIELD SAMPLE ID	BSED08-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	14:15	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	~~2-3~~	FT na
STREAM CHANNEL WIDTH	2-3'	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
NA								

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
X	VOCs					
X	SVOCs					
X	TAL Metals (total)					
X	TAL Metals (dissolved)					
X	Pesticides					
X	PCBs					

SED only.
TOC
Gr. size

(*) - unable to collect GPS coordinants

NOTES/OBSERVATIONS:

SED - Black + Dk Gray/Dk Brn Silty S&G, Trace cobbles. (large broken rock). moist slight organic odor (natural) f-ers.

SAMPLER NAME AND SIGNATURE: TM

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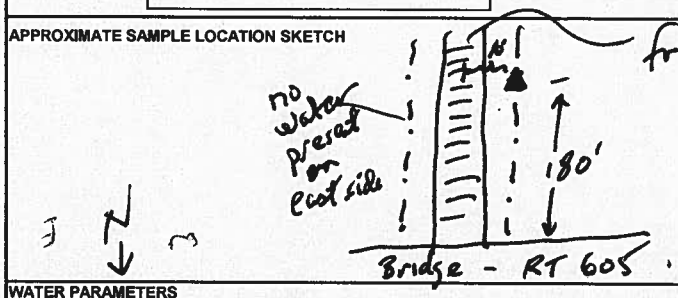
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 1450 END 1515		
FIELD SAMPLE ID	BSW09/BSED09-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1500	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.6	FT
STREAM CHANNEL WIDTH	6.0	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1510	3.40	463	6.86	4.57	578	3.86	None	(Stagnant intermittent standing water in drainage way

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Black organic silt & f-crs SAND, some gravel. (leaves & twigs)

SAMPLER NAME AND SIGNATURE: TM

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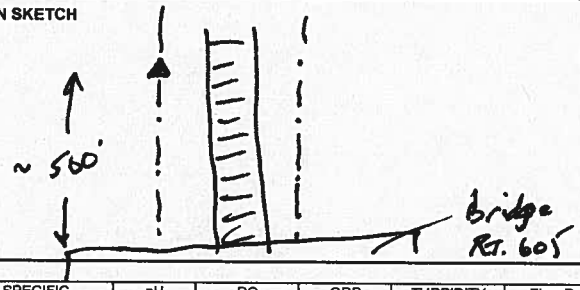
PROJECT	Mansfield	JOB NUMBER		DATE	11-14-13
STATION		ACTIVITY TIME	START 1515 END 1610		
FIELD SAMPLE ID	BSW10/BSED10 -1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1550	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.3	FT
STREAM CHANNEL WIDTH	3.0	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1600	6.06	380	7.08	7.17	141.2	2.52	trickle	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	plus					
	Dup					
	(D2)					
	+ TOC/Gr. Size					

NOTES/OBSERVATIONS:

SED: Black organic silt, tr. f. sand
(leaves/twigs/roots.

SAMPLER NAME AND SIGNATURE: TM

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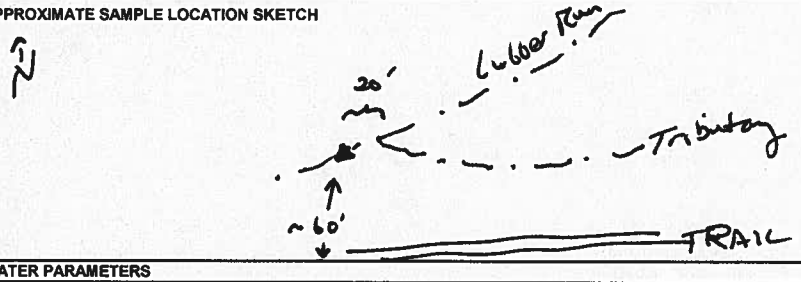
SURFACE WATER SAMPLING FIELD DATA SHEET

PROJECT	Mans field	JOB NUMBER		DATE	11-15-13
STATION		ACTIVITY TIME	START 0915 END 0945		
FIELD SAMPLE ID	SW/SED 05 - 1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	0930	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5-1.5	FT
STREAM CHANNEL WIDTH	5 / 10	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
0940	3.86	567	7.29	12.78	179.0	0.64	med	clear

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Brown well graded f-crs SAND trace to some f-crs gravel.

SAMPLER NAME AND SIGNATURE: JM

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SURFACE WATER SAMPLING FIELD DATA SHEET

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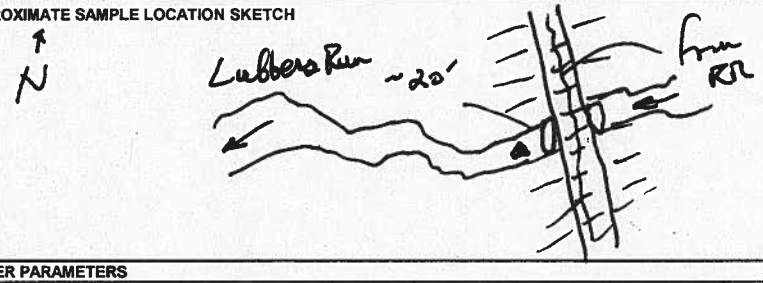
PROJECT	Mansfield	JOB NUMBER		DATE	11-15-13
STATION		ACTIVITY TIME	START 1010 END 1035		
FIELD SAMPLE ID	SW06/SED06 -1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1020	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5-1.0	FT
STREAM CHANNEL WIDTH	3-5	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1030	2.97	.543	7.83	13.30	124.8	2.04	med	clear.

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	~~TOC Grain Size~~ (Tm)					

NOTES/OBSERVATIONS:

SED: Well Graded Brn f-crs SAND, Trace to Some f-med gravel.

SAMPLER NAME AND SIGNATURE: TM

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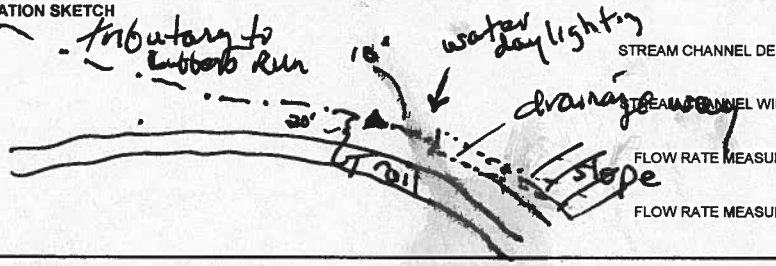
PROJECT	Mansfield	JOB NUMBER		DATE	11-15-13
STATION		ACTIVITY TIME	START 1100 END 1120		
FIELD SAMPLE ID	SW07/SED07-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1110	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.4	FT
STREAM CHANNEL WIDTH	3.0	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1120	7.73	601	7.96	11.61	138.2	9.13	low	clear

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	* TOC/Grain Size					

NOTES/OBSERVATIONS:

SED: Well Graded Brn f-crs SAND, trace f-crs Gravel.

SAMPLER NAME AND SIGNATURE: TM

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SURFACE WATER SAMPLING FIELD DATA SHEET

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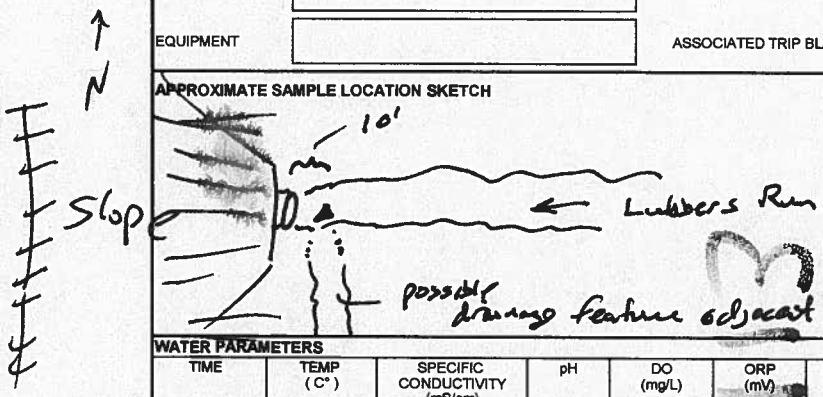
PROJECT	Mansfield	JOB NUMBER		DATE	11-15-13
STATION		ACTIVITY TIME	START 13:20 END 13:45		
FIELD SAMPLE ID	SW08/SED08 -1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	13:30	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.3	FT ± 0.2
STREAM CHANNEL WIDTH	4.0	FT ± 1
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1340	2.50	512	7.76	13.36	84.5	0.35		clear — possible flow (trickle) from that direction

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Brn f-crs S&G

SAMPLER NAME AND SIGNATURE: TM

Checked By:

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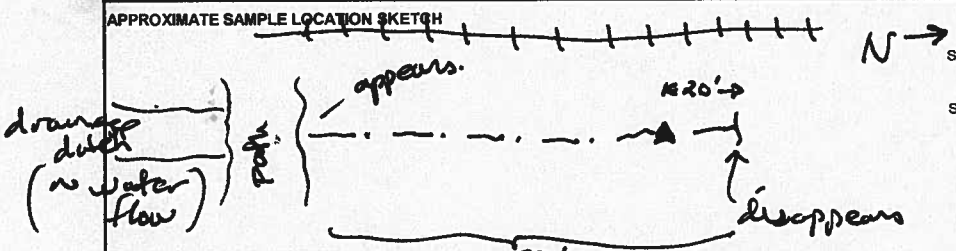
SURFACE WATER SAMPLING FIELD DATA SHEET

PROJECT	Mansfield	JOB NUMBER		DATE	11-15-13
STATION		ACTIVITY TIME	START 1410 END 1435		
FIELD SAMPLE ID	SW09/SED09-1113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1420	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5	FT
STREAM CHANNEL WIDTH	4.0	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1430	8.32	626	7.27	10.94	100.1	0.82	Med	clear.

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

NOTES/OBSERVATIONS:

SED: Brown/Dk Gray f-M SAND, trace to some org sand & f-m gravel.

SAMPLER NAME AND SIGNATURE: [signature]

Checked By:

RECEIVED BY:

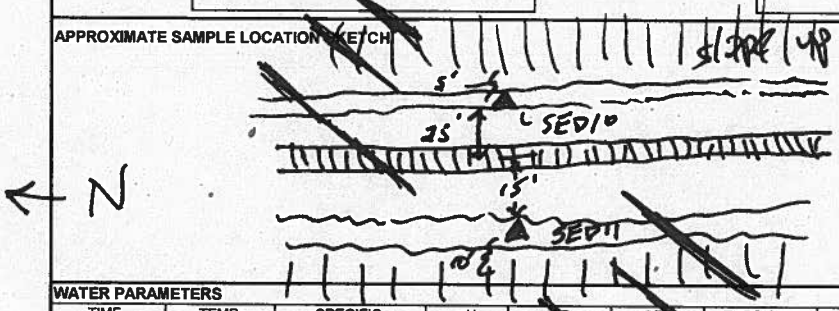
Nobis
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	Mansfield	JOB NUMBER		DATE	11-16-13
STATION		ACTIVITY TIME	START 0915 END 1010		
FIELD SAMPLE ID	SED10-1113 09:30	GPS COORDINATE	E= N=		
~~QC SAMPLES~~	SED11-1113 09:50	SAMPLE TIME		COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	NA	FT
STREAM CHANNEL WIDTH	5 / 10	FT SED 10 / SED 11
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
		Dump D (HT wires)						

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					

DUP at SED11 (D2)
TOC/Gr. size ~~at SED~~ 11

No SW in drainage ditches either side of from RR line adjacent (east) of Excavation D

NOTES/OBSERVATIONS:

SED 10 PH Dk Brn- Black organic Moist Silty SAND/sandy SILT
Trace cts gravel (broken rock)
Trace debris (wood, RR spike)
near disgarded RR ties.

SAMPLER NAME AND SIGNATURE: TWL

Checked By:

RECEIVED BY:

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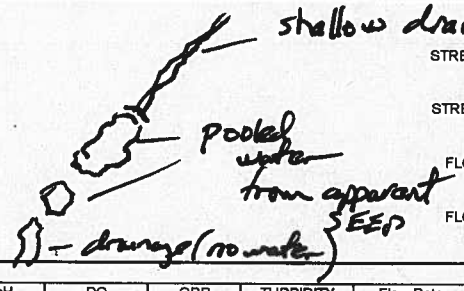
CONCORD, NH - LOWELL, MA

SURFACE WATER SAMPLING FIELD DATA SHEET

PROJECT	Mansfield	JOB NUMBER		DATE	11-16-13
STATION		ACTIVITY TIME	START 1100 END 1140		
FIELD SAMPLE ID	SEEP01	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1120	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH



STREAM CHANNEL DEPTH	0.5-1.0	FT
STREAM CHANNEL WIDTH	2.0	FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1130	6.80	357	6.56	4.82	118.6	1.24	no detected	clear (many leaves)

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	+					
	MS/MSD					

NOTES/OBSERVATIONS:

No sed - mostly rocky base below leaves

SAMPLER NAME AND SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	Mansfield	JOB NUMBER		DATE	11-16-13
STATION		ACTIVITY TIME	START 1400 END 1415		
FIELD SAMPLE ID	SED12-113	GPS COORDINATE	E= N=		
QC SAMPLES	+ MS/MSD	SAMPLE TIME	1410	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH

Apparent seep area deep in woods as identified during recon. No flow identified, but relevant that standing water in low lying areas ~40' downgrad of supposed seep. Not enough SW to collect.

STREAM CHANNEL DEPTH	0.1	FT
STREAM CHANNEL WIDTH	2.0'	FT max.
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
								decade SED only.

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
✓	VOCs					
✓	SVOCs					
✓	TAL Metals (total)					
✓	TAL Metals (dissolved)					
✓	Pesticides					
✓	PCBs					
	+ MS/MSD					

NOTES/OBSERVATIONS:

Black organic silt; trace f-m sand roots, twigs / leaves.

SAMPLER NAME AND SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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SURFACE WATER SAMPLING FIELD DATA SHEET

PAGE 1 OF 1

PROJECT	Mansfield	JOB NUMBER		DATE	11-16-13
STATION		ACTIVITY TIME	START END		
FIELD SAMPLE ID	FB01-113	GPS COORDINATE	E= N=		
QC SAMPLES		SAMPLE TIME	1530	COORDINATE SYSTEM	
EQUIPMENT		ASSOCIATED TRIP BLANK		PHOTO ID	

APPROXIMATE SAMPLE LOCATION SKETCH

STREAM CHANNEL DEPTH		FT
STREAM CHANNEL WIDTH		FT
FLOW RATE MEASURED		
FLOW RATE MEASURED		FT/S

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1540	13.49	19	8.13	10.23	113.5	0.63	—	

ANALYTICAL PARAMETERS

		SAMPLE COLLECTED	LP / DAS SAMPLE ID (as applicable)	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED
	VOCs					
	SVOCs					
	TAL Metals (total)			ultra-pure water		
	TAL Metals (dissolved)					
	Pesticides					
	PCBs					

NOTES/OBSERVATIONS:

SAMPLER NAME AND SIGNATURE: TM

Checked By:

RECEIVED BY:

(10 ml + 10 sed
H_2O)

paste pH 11/17/2013

Time	Temp	pH	ID
0905 ↓		7.30	SED 07
		7.05	BSED 10
		6.95	SED 08
		7.06	SED 05
		6.90	SED 12
		6.25	BSED 09
		6.59	SED 09
		6.86	SED 06
		6.65	BSED 05
		6.47	SED 10
		7.02	BSED 06
		7.06	BSED 03
		6.80	SED 02
		6.73	BSED 02
		7.04	SED 11
		6.90	BSED 04
		6.30	BSED 08
		6.96	~~SED 10~~ SED 01
		6.89	SED D2
		7.00	SED 03
		7.05	BSED 07 (BSED 07)
		7.09	SED D1
		6.81	SED 04
		7.20	BSED 01

Nobis
Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 4-8-14 Page 1 of 1 Well ID : SW-10
Field Personnel A. ARSENAULT, T. KOACH, J. STEWART Purging Start Time : _____
Well Depth as installed (ft.): — Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1845 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) SURFACE WATER SAMPLE -

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1840						11.61	80	7.23	145.9	2.92	1.75	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

APPENDIX C
DRILLING DOCUMENTATION

Files presented on CD only.

APPENDIX C

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-01**

Boring Location: 100' SW of C2000

Checked by: J. Lambert

Date Start: December 3, 2013

Date Finish: December 3, 2013

Contractor: Zebra

Driller: E. Maraitis

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		41	0-5			BSB-01 (0-1') 0925			TOPSOIL	Brown, well-graded SAND (SW), trace silt, (TOPSOIL).	
1									SILTY SAND	Dense, dk brown, silty SAND (SM), fine to medium sand, moist.	
2					0.0				BROKEN COBBLE	Poorly-graded GRAVEL (GP), rock (broken cobble).	
3									GRAVELLY SAND	Tan, poorly-graded SAND with gravel (SP), fine to medium sand, cobble fragments, dry.	
4						BSB-01 (3-5') 0930					
5										Boring terminated at 5 feet.	1
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 5'
2) Surface sample (0-1') at 0925, subsurface sample (3-5') at 0930

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-02**

Boring Location: Along side of road, 100' NW of C1800

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		24	0-5		0.1	BSB-02 (0-1') 1050			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, trace coarse sand, organics, moist, (TOPSOIL).	
1											
2									SILTY SAND	Brown, silty SAND (SM), fine sand, trace medium sand, moist.	
3											
4											
5									ROCK FRAGMENTS	Poorly-graded GRAVEL (GP), rock fragments.	
		22	5-7						SILTY SAND	Brown, silty SAND (SM), fine sand, some medium sand, moist.	
6						BSB-02 (5-7') 1100			SAND	Tan, poorly-graded SAND with gravel (SP), medium to coarse sand, some fine gravel, trace fine sand, dry.	
7										Boring terminated at 7 feet.	1
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7'
2) Surface sample (0-1') at 1050, subsurface sample (5-7') at 1100

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-03**

Boring Location: G2350, S of line between G2200 & I2400

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		29	0-4		0.0	BSB-03 (0-1') 1205			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, moist, (TOPSOIL).	
1									COBBLE	Poorly-graded GRAVEL (GP), cobble.	
2									SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, trace silt, moist.	
3						BSB-03 (2-4') 1210			SAND	Tan, poorly-graded SAND (SP), fine to medium sand, trace silt, dry.	
4										Boring terminated at 4 feet.	1
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusals at 3.5' and 3.5' prior to final refusal at 4'
2) Surface sample (0-1') at 1205, subsurface sample (2-4') at 1210

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-04**

Boring Location: 100' SSE from M2400

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		34	0-3		0.0	BSB-04 (0-1') 1255			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, roots, leaves, (TOPSOIL).	
1											
2						BSB-04 (1-3') 1300			SAND AND COBBLES	Poorly-graded SAND with gravel (SP), alternating cobbles and medium to coarse sand, dry.	
3										Boring terminated at 3 feet.	1
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Two refusals, then hammer broke.
2) Surface sample (0-1') at 1255, subsurface sample (1-3') at 1300

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-05**

Boring Location: 100' N of S0

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-5		0.0	BSB-05 (0-1') 0945			TOPSOIL	Dk brown, silty SAND (SM), fine sand, organics (roots), moist, (TOPSOIL).	
1									SILTY SAND	Brown, silty SAND (SM), fine to medium sand, moist.	
2										Tan, poorly-graded SAND with gravel (SP), fine to medium sand, some fine gravel, cobbles at 5', 6.5'.	
3									GRAVELLY SAND		
4											
5											
		42	5-8.5								
6											
7									GRAVELLY SAND		
8						BSB-05 (6.5-8.5') 1000					
9										Boring terminated at 8.5 feet.	1
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 8.5' on third attempt; previous attempts < 1'
2) Surface sample (0-1') and MS/MSD at 0945, subsurface sample (6.5-8.5') at 1000

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-06**

Boring Location: 37 Lake Drive

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		32	0-5			BSB-06 (0-1') 1045			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, moist, (TOPSOIL).	
1									SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace silt and fine gravel, moist.	
2									SILT AND SAND	Brown, SILT with sand (ML), fine sand, trace medium sand, wet.	
3											
4									SILTY SAND AND GRAVEL	Brown, poorly-graded SAND with silt and gravel (SP-SM), silty fine sand and coarse gravel, wet.	
5											
		54	5-10							Brown, well-graded SAND (SW), fine to coarse sand, trace gravel, wet.	
6					0.0						
7									SAND		
8											
9						BSB-06 (8-10') 1050					
10									SAND AND SILT	Brown, poorly-graded SAND with silt (SP-SM), fine sand, wet.	
										Boring terminated at 10 feet.	
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Surface sample (0-1') at 1045, subsurface sample (8-10') at 1050

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-07**

Boring Location: 23 Acorn Street

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		38	0-5		0.0	BSB-07 (0-1') 1120			TOPSOIL	Mulch / leaf litter, little soil, (TOPSOIL).	
2									SANDY ORGANIC SILT	Black, ORGANIC SOIL with sand (OL/OH), organic silt, some fine to medium sand, wet.	
3									ORGANIC SILT AND SAND	Dk brown, ORGANIC SOIL with sand (OL/OH), organic silt and fine sand, moist.	
4									SAND	Tan, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, cobble at 9', wet, iron staining.	
5											
6		43	5-10								
7											
8									SAND		
9						BSB-07 (8-10') 1130					
10										Boring terminated at 10 feet.	
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Surface sample (0-1') at 1120, subsurface sample (8-10') at 1130

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-08**

Boring Location: 1 Avon Street

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-5			BSB-08 (0-1') 1200			TOPSOIL	Dk brown, sandy SILT (ML), some fine sand and organics, moist, (TOPSOIL).	
1									SANDY SILT	Brown, sandy SILT (ML), some fine sand, trace coarse gravel, wet.	
2										Gray, poorly-graded SAND (SP), fine sand, trace silt, moist.	
3									SAND		
4											
5									COBBLE SAND AND GRAVEL	Poorly-graded GRAVEL (GP), cobble.	
		26	5-7.5							Tan, poorly-graded SAND with gravel (SP), fine to medium sand and fine gravel.	
6					0.0	BSB-08 (5.5-7.5') 1210			SAND	Tan, well-graded SAND (SW), fine to coarse sand, trace silt, wet.	
7											
8										Boring terminated at 7.5 feet.	1
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7.5' Will collect Dup. at 1205

2) Surface sample (0-1') at 1200, subsurface sample (5.5-7.5') at 1210

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 07:59 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\BACKGROUND SOIL BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-09**

Boring Location: 33 Beech Street

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		30	0-5			BSB-09 (0-1') 1230			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, organics, moist, (TOPSOIL).	
1									SILTY SAND	Brown, silty SAND (SM), fine sand, some silt, trace fine gravel, moist.	
2										Brown, well-graded SAND with gravel (SW), gravelly fine to coarse sand, cobble at 4', moist.	
3											
4									SAND AND GRAVEL		
5										Brown, poorly-graded SAND with silt and gravel (SP-SM), fine sand and gravel, moist.	
		37	5-10								
6					0.0					Very dense, orange brown, well-graded SAND (SW), fine to coarse sand, trace silt, moist, color change to brown at 9'.	
7											
8									SAND		
9						BSB-09 (8-10') 1240					
10										Boring terminated at 10 feet.	
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Surface sample (0-1') at 1230, subsurface sample (8-10') at 1240

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **BSB-10**

Boring Location: 1 Sandy Brook Road

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		41	0-5			BSB-10 (0-1') 1340			SAND	Brown, poorly-graded SAND (SP), fine to medium sand, silt lens from 0.6'-0.7', moist.	
1									SILT	Brown, SILT (ML), trace fine sand, moist.	
2									SILTY SAND	Soft, dk brown, silty SAND (SM), fine to medium sand, organics, moist.	
3											
4										Lt brown, silty SAND (SM), fine sand, cobble at 4.5'.	
5										Gray, well-graded SAND (SW), fine to coarse sand, wet.	
		58	5-10								
6					0.0						
7									SAND		
8										Gray, poorly-graded SAND (SP), fine sand, wet.	
9						BSB-10 (8-10') 1345					
10										Boring terminated at 10 feet.	
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Surface sample (0-1') at 1340, subsurface sample (8-10') at 1345

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-60**

Boring Location:

Checked by: J. Ricker

Date Start: August 12, 2015

Date Finish: August 12, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1							SAND	Dark brown-black, Silty SAND with coarse Gravel. Orange, fine to medium SAND with coarse Sand and fine Gravel.	
2									
3							ROCK	Pulverized, weathered rock, some friable.	
4									
5									
6								Light brown, pulverized rock, friable. White, pulverized rock, not friable.	
7									
8								White and light brown, pulverized rock. More competent to 9', friable below 9'.	
9									
10									
11									
12									
13									
14								Boring terminated at 13 feet.	
15									
16									
17									
18									
19									
20									

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-61**

Boring Location:

Checked by: J. Ricker

Date Start: August 11, 2015

Date Finish: August 11, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1									Black, Clayey SILT, little Sand, Roots.	
									Brown, Clayey SILT, little Sand.	
					2.7					
2								CLAYEY SILT		
3										
4								COBBLES	COBBLES with brown Clayey Silt and Sand.	
								CLAYEY SAND	Brown, Clayey, fine SAND with Silt and Gravel.	
5								BOULDER	BOULDER.	
								CLAYEY SILT	Gray-brown, Clayey SILT, little Sand.	
6					0.9			COBBLES	Two COBBLES. Wet below 6'.	
7								SAND	Grayish brown, coarse SAND with Gravel, some Silt & Clay.	
8									COBBLES with coarse Sand and Gravel.	
9								COBBLES		
10									COBBLES with coarse Sand and angular Gravel.	
11								CLAYEY SILT FILL	Dark gray, fine to coarse GRAVEL, with Clay & Silt. moist.	
12									Pulverized BOULDERS.	
13								BOULDER		
14										
15										
16					3.5 1.1 2.7			SILT	Dark gray, SILT and large pieces of black Rock, some Clay. wet.	
17										
18										
19									Boring terminated at 18 feet.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62A**

Boring Location:

Checked by: J. Ricker

Date Start: August 7, 2015

Date Finish: August 7, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1								LOAMY SOIL	Dark brown, loamy soil.	
					0.4			CLAYEY SILT	Brown, Clayey SILT, little Sand and Cobbles.	
2										
3								SILT	White to light brown, SILT, large Cobbles.	
					0.5				Dark gray, SILT with Sand and coarse Gravel.	
4					0.6				Light brown, fine SAND, with coarse Sand through Cobbles.	
5										
6								SAND		
7										
8										
9								CLAYEY SILT	Dark brown, Clayey SILT, some coarse Sand, Gravel, and Cobbles.	
10								BOULDER	White, granite BOULDER.	
									Boring terminated at 10 feet.	
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 10'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62B**

Boring Location:

Checked by: J. Ricker

Date Start: August 10, 2015

Date Finish: August 10, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1								LOAMY SOIL	Dark brown, loamy soil.	
2								CLAYEY SILT	Brown, Clayey SILT, little Sand and Cobbles.	
3					0.7			SILT	White to light brown, SILT, large Cobbles.	
4									Dark gray, SILT with Sand and coarse Gravel.	
5					0.9				Light brown, fine SAND, with coarse Sand through Cobbles.	
6					0.7			SAND		
7										
8										
9								CLAYEY SILT	Dark brown, Clayey SILT, some coarse Sand, Gravel, and Cobbles.	
10								BOULDER	White, granite BOULDER.	
11								SILT AND SAND	Brown and white, SILT and fine Sand. weathered rock.	
12								BOULDER	White, pulverized rock.	
13								SAND	White and brown, coarse SAND, weathered rock.	
14										
15								SILTY SAND	Dark gray, Silty SAND with rock pieces (weathered rock). Rock is dark gray to black with small white grains. Light gray, Silty, fine SAND, rock.	
16									Brown, Silty SAND with friable rock pieces.	
17										
18								ROCK	Dark gray ROCK with white veins. Boring terminated at 17.5 feet.	
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 17.5'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62C**

Boring Location:

Checked by: J. Ricker

Date Start: August 5, 2015

Date Finish: August 5, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
							LOAMY SILT	Dark brown, loamy SILT.	
1								Red-brown, Clayey SILT with coarse Sand and fine Gravel.	
2									
3									
4							CLAYEY SILT		
5								Light brown, Clayey SILT, little Sand, small Cobbles.	
6									
7							SILTY SAND	Dark brown, fine Silty SAND with Gravel and Cobbles.	
8									
9								Brown-gray, fine to coarse SAND, weathered rock.	
10							SAND		
11									
12							COBBLES AND GRAVEL	Light gray, COBBLES and GRAVEL with coarse Sand. Pulverized ROCK; white granite and at least two others.	
13									
14							ROCK		
15									
16							SAND	Brown and white, coarse SAND with Gravel.	
17								Brown and white, Clayey, coarse GRAVEL and coarse Sand, some Cobbles. saturated.	
18							CLAYEY GRAVEL AND SAND		
19									
20								Boring terminated at 19 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								TOPSOIL	Dark brown, SILT and fine Sand, little Clay. slightly moist. (TOPSOIL).	
1					2.2				Light brown, Clayey SILT with Gravel. angular.	
2										
3										
4								CLAYEY SILT	Brown, Clayey SILT, little coarse Sand. weathered rock, slightly moist.	
5										
6					0.4					
7									Dark and light brown, some mottled with orange, Clayey SILT, coarse Gravel.	
8					4.4			SILT	Orange and brown, SILT with coarse Sand and Gravel, Mottled.	
9								SILTY SAND	Dark brown, Silty SAND with Cobbles.	
10					0.7					
11									Gray, medium to coarse SAND. Damp above 12.5', moist below.	
12										
13								SAND		
14										
15										
16								CLAYEY SAND	Dark brown, Clayey, fine SAND, little Gravel. moist.	
17									Light brown and white, medium to coarse SAND. damp.	
18										
19								SAND		
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								SILTY SAND	Dark brown, Silty, fine SAND with Clay, little medium Sand. moist.	
21									Light brown, coarse SAND, some medium Sand. damp.	
									White, coarse SAND. dry.	
22										
									White and light brown, coarse SAND. Mottled. slightly moist.	
23										
24										
25										
									White and light brown, coarse SAND, with friable rock.	
26										
27								SAND		
									Brown, medium SAND, mottled with black Clay. saturated.	
28										
									White and light brown, medium to coarse SAND, with friable rock.	
29										
30										
31										
32										
33										
									White, pulverized rock, coarse Gravel pieces, not friable. dry.	
34									Light brown, friable rock.	
35								ROCK		
36										
									White and light brown, coarse to very coarse SAND; weathered rock. moist.	
37										
38								SAND		
									Grayish brown, medium SAND. moist.	
39									Dark brown, fine to medium SAND, with Silt & Clay, weathered rock. Mica apparent, moist.	
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
41								SAND	Same as above.	
42									White, pulverized rock, friable pieces. dry.	
43									Same as above, less friable.	
44										
45								ROCK		
46									Same as above.	
47										
48										
49									Boring terminated at 48 feet.	
50										
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-1	46	0-5					SILT	S-1A (6"): Organic-rich, SILT, some fine Sand, Roots. dry. (TOPSOIL).	
1									S-1B (24"): Brown, SILT and fine Sand. moist.	
2								SILT AND SAND		
3									S-1C (6"): Mottled gray-brown. Similar to above, but more dense.	
									S-1D (24"): Light brown, fine SAND, little Silt, some medium Sand.	
4										
5					20.4					
	S-2		5-10						S-2: Brown, medium SAND, some coarse Gravel, trace fine Sand, trace silt. subangular, wet. Possible petroleum odor at 9-10'.	
6										
7					1.5					
8										
9					6.2					
10										
	S-3	46	10-15						S-3A (48"): Brown, fine to medium SAND, trace coarse Gravel, cobble at 13.5'. wet.	
11										
12								SAND		
13					1.2					
14										
15					0.3				S-3B (12"): Brown, fine to coarse SAND, trace fine Gravel. wet.	
	S-4	36	15-20						S-4: Brown, medium SAND, some coarse Sand, little fine Sand. moist.	
16										
17										
18					0.3					
19										
20					0.0					

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-5	48	20-25						S-5A (24"): Tan, fine to medium SAND, trace Silt, trace Gravel. subrounded to rounded, wet.	
21					1.4			SAND		
22									S-5B (6"): Tan, fine SAND, some Silt, little Cobbles. subrounded to rounded, wet.	
23									S-5C (30"): Light tan, apparent saprolite. Matrix is SILT and fine to medium Sand. hard to break, intact cores at 24'-25'.	
24										
25					0.2					
	S-6	46	25-30						S-6A (18"): Light tan, cobble-sized saprolite pieces, some coarse sand to coarse gravel-sized fragments. Matrix is fine SAND, some Silt.	
26					0.2					
27									S-6B (42"): Tan, soft, pulverized saprolite. Fine SAND, trace Silt in matrix and pulverized material. dry.	
28										
29								SAPROLITE		
30										
	S-7	23	30-33		0.4				S-7: Tan, pulverized saprolite. Fine SAND and SILT in matrix. moist.	
31										
32										
33					1.2					
	S-8	0	33-35						S-8: Lost Sample.	
34										
35										
	S-9	24	35-37						S-9: Light tan, fine SAND, some Silt, some coarse Gravel. wet. Lost most of sample on first try; will retry.	
36										
37										
	S-10	24	37-40						S-10: Mottled tan/gray and red/brown, fine SAND, little Silt. Non-intact sample moist.	
38								SAND		
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-11	14	40-42		0.8			SAPROLITE	S-11: Light brown, pulverized saprolite. Matrix is fine to medium SAND, some Silt. moist. Lost part of sample.	
41										
42										
	S-12		42-45					SAND	S-12: Light brown, fine to medium SAND, some Silt, some cobble-sized saprolite fragments. Non-intact sample. Will try groundwater sample here.	
43										
					0.0					
44										
45										
	S-13	46	45-49		3.1			SAND AND SILT	S-13A (24"): Brown, fine to medium SAND and Silt. moist.	
46										
47										
48								SAPROLITE	S-13B (24"): Saprolite. Fine to medium SAND, little Silt. Matrix friable, pulverized. Some cobble-sized fragments. dry.	
49					1.9					
	S-14	48	49-54						S-14A (18"): Tan, pulverized saprolite. Matrix is fine SAND, trace Silt. Some natural, coarse subrounded gravel. dry.	
50										
51									S-14B (12"): Light brown, saprolite. Matrix is fine to coarse SAND, trace Silt. dry.	
52					1.3				S-14C (18"): Light tan, saprolite. Matrix is fine to coarse SAND, trace Silt. dry.	
53										
54					0.0				S-14D (12"): White, saprolite. Matrix is SILT and fine Sand. dry.	
55									Slough; lost sample. Will end here. Boring terminated at 54 feet.	
56										
57										
58					0.0					
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1	30	0-5		0.3			SILT	S-1A (24"): Dark brown, organic-rich, SILT, some fine to coarse Sand, cobble at 2'. moist.	
2										
3									S-1B (24"): Brown, fine to medium SAND, some Silt, cobble at 3.5'. moist.	
4										
5									S-1C (12"): Red-brown, fine to coarse SAND, trace Silt, some coarse Gravel. wet.	
6	S-2	54	5-10						S-2A (36"): Red-brown, medium to coarse SAND, trace fine Sand, trace Silt. wet.	
7										
8										
9					0.5			SAND	S-2B (6"): Red-brown, fine SAND, trace medium Sand, little Silt. wet. S-2C (18"): Brown, fine to medium SAND, some coarse Gravel. subrounded to subangular.	
10										
11	S-3	50	10-15						S-3A (30"): Brown, medium to coarse SAND, trace fine Sand. wet.	
12										
13									S-3B (8"): Olive, fine SAND, and rounded cobbles, little Silt. wet.	
14									S-3C (22"): Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand. moist.	
15										
16	S-4	48	15-20						S-4A (12"): Brown, fine to medium SAND and coarse Gravel, trace Silt. subrounded, wet.	
17					0.0			SAND AND GRAVEL	S-4B (24"): Similar to above, but with some coarse gravel.	
18										
19									S-4C (24"): Fine to medium SAND, trace coarse Sand, trace Silt. moist.	
20								SAND		
21	S-5	58	20-25						S-5A (6"): Tan, fine SAND, some Silt, some coarse Gravel. subangular to subrounded moist.	
22					0.0				S-5B (54"): Tan to light tan, apparent saprolite. SILT and fine to coarse SAND with some coarse gravel-sized saprolite pieces. Dry zones at 22'-22.8' and 23'-24' are more orange-colored.	
23								SAPROLITE		
24										
25					0.0					

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-6	54	25-30		0.1			SAND	S-6A (12"): Tan, fine SAND, some Silt, and coarse gravel-sized apparent saprolite, likely from above.	
26									S-6B (48"): Light tan, fine to coarse SAND, and coarse gravel-sized apparent pulverized saprolite, little silt. dry.	
27										
					0.3			SAND AND GRAVEL		
28										
29										
30										
	S-7	60	30-35		0.1				S-7A (12"): Light brown, fine SAND, some coarse Sand, some coarse gravel (saprolite). damp.	
31									S-7B (36"): Tan, similar to above; color change only.	
32								SAND		
33										
34										
35								SILT AND GRAVEL	S-7C (12"): Powdery, SILT and coarse Gravel. some cobbles; mostly pulverized saprolite. A few cobbles are competant rock. dry.	
	S-8	18	35-36		1.3				S-8A (6"): Similar to above.	
36								SAPROLITE	S-8B (6"): Olive, saprolite; silt matrix, cobble-sized, layered.	
	S-9		36-41						S-9A (24"): Tan, SILT and fine Sand. moist.	
37								SILT AND SAND		
					0.0					
38										
39									S-9B (12"): Very dense, apparent saprolite; SILT and SAND in cobble-sized fragments.	
					0.2				S-9C (12"): Apparent saprolite; fine sand to cobble-sized friable fragments. dry.	
40										
					0.0				S-9D (12"): Light tan, Silt to cobble-sized pulverized saprolite, friable. dry.	
41										
	S-10	22	41-44						S-10: Light tan, GRAVEL, some fine to medium Sand. All saprolite fragments, friable, matrix is silt-sized, damp.	
42										
					1.4					
43										
44								SAPROLITE		
	S-11	12	44-47						S-11: Soft, tan, SILT and fine to medium Sand, some Gravel. All friable, apparent saprolite fragments wet. Had trouble drilling; got slough in above and below sample.	
45										
					9.0					
46										
47										
	S-12	41	47-55							
48										
49									S-12A (36"): Light tan, fine to medium SAND and coarse Gravel, some Silt, apparent pulverized saprolite. dry.	
					2.2					
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
51								SAPROLITE	S-12B (12"): Tan, damp. Similar to above.	
52								SAND	S-12C (12"): Light brown, fine SAND, some Silt, and coarse gravel-sized saprolite fragments. moist.	
53									S-12D (36"): Tan, GRAVEL, some fine to medium Sand, trace Silt. More competent than above (less friable pieces).	
54								GRAVEL		
55										
	S-13	41	55-60						S-13A (24"): Red-brown, saprolite, mostly intact, cobble-sized pieces. Matrix is SAND, some Silt. dry.	
56										
57										
58								SAPROLITE	S-13B (36"): Light tan/red-brown, saprolite to more competent rock. Solid cores at 57'-57.5' and 58.5'-59'.	
59										
60									Boring terminated at 60 feet.	
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-68**

Boring Location:

Checked by: J. Ricker

Date Start: September 2, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-1	43	0-5					SAND	S-1A (18"): Brown, fine to medium SAND, little Silt. moist.	
1										
2								SILT	S-1B (24"): Dark brown, Organic SILT, trace fine Sand. moist.	
3										
4								SAND	S-1C (18"): Very dense, dark gray/brown, fine to medium SAND, trace coarse Sand, trace Silt. moist.	
5										
	S-2		5-10		0.0			SILT	S-2A (12"): Dark gray/brown, SILT, some fine Sand. Mottled. wet.	
6										
7								SAND	S-2B (6"): Brown, fine SAND. wet. S-2C (18"): Brown, medium to coarse SAND, trace fine Sand. wet.	
8										
9					0.0				S-2D (24"): Brown, fine SAND, trace Silt. wet.	
10										
	S-3		10-15						S-3: Loose, brown, fine to medium SAND, trace coarse Sand, trace fine Gravel. subangular, wet. Disturbed sample.	
11										
12										
13					0.0					
14										
15										
	S-4	36	15-20						S-4A (6"): Similar to above. S-4B (18"): Brown, fine SAND, little Silt, little coarse Gravel. rounded to subrounded, wet.	
16										
17										
18										
19									S-4C (24"): Brown, fine to coarse SAND, some coarse Gravel. subrounded to subangular, wet.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Collected water sample at 20'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-68**

Boring Location:

Checked by: J. Ricker

Date Start: September 2, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-5	41	20-25						S-5A (12"): Brown, fine to coarse SAND and fine to coarse Gravel. subangular, wet.	
21					0.0			SAND AND GRAVEL	S-5B (12"): Similar to above. Color change to light brown.	
22								SAND	S-5C (6"): Very dense, brown, fine SAND, little Silt, trace coarse Gravel. wet.	
23								SAPROLITE	S-5D (6"): Red-brown and white, apparent saprolite; friable, mottled, fine SAND and SILT matrix. dry.	
24								SAND	S-5E (24"): Brown, fine to coarse SAND, some Gravel. wet.	
25										
	S-6	40	25-30						S-6A (36"): Soft, light brown, saprolite. Grain size is fine to medium SAND, little Silt. moist.	
26										
27					0.1					
28										
29									S-6B (24"): Similar to above, but more competent (less friable, mostl gravel to cobble-sized pieces).	
30								SAPROLITE		
	S-7	53	30-35						S-7A (24"): Light tan, saprolite; matrix is fine SAND and SILT. Grain size is silt to cobbles.. Unable to break up cobbles, dry.	
31					1.5					
32									S-7B (6"): Similar to above. Color change to light gray.	
33									S-7C (12"): Light tan, pulveried (dust) saprolite; silt-sized grains.. dry.	
34									S-7D (18"): Light tan, saprolite; matrix is SILT, some fine Sand.. Can break cobbles with difficulty.	
35					1.1					
	S-8	0	35-40						S-8: Slough. Drilling extremely slow; appeared to pulverize saprolite and then mix during repeated attempts to drill and grab sample. Boring terminated at 35 feet.	
36										
37										
38										
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Collected water sample at 20'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-71**

Boring Location:

Checked by: J. Ricker

Date Start: August 17, 2015

Date Finish: August 18, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1		0					ASPHALT	S-1 (12"): Asphalt.	
2	S-2		1					CLAY WITH SAND AND GRAVEL	S-2 (24"): Dark brown, CLAY with coarse Sand with coarse Gravel, and Cobbles. moist.	
3										
4	S-3		3					SAND AND GRAVEL	S-3 (24"): White and light brown, medium to coarse SAND with Gravel.	
5										
6	S-4		5					SAND	S-4 (48"): Brown, coarse SAND. moist.	
7										
8										
9										
10	S-5		9					SAND	S-5 (12"): White and brown, medium to coarse SAND, slightly friable pieces.	
11	S-6		10					PULVERIZED ROCK	S-6 (48"): White, WEATHERED BEDROCK, pulverized rock. moist.	
12										
13										
14										
15	S-7	20	14-16		1.7			SAND AND SILT	S-7A (8"): Brown, fine to medium SAND and Silt, little fine Gravel. moist.	
16								SAND AND SILT	S-7B (16"): Dense, light brown, fine SAND, some Silt, trace Silt, Appears to be pulverized Saprolite, courser grained than above.	1
17	S-8		16		1.8			SYENITE FRAGMENTS	S-8 (12"): Pink, WEATHERED BEDROCK, Rock flour and pink K-feldspar with Quartz Syenite fragments.	
18	S-9		17					SAND	S-9A (6"): Loose, light brown, fine to coarse SAND.	
19								BEDROCK	S-9B (42"): WEATHERED BEDROCK, Rock flour/Bedrock, smoothed by drilling.	
20										
21										
22								SAND AND SILT	S-9C (12"): Dark gray, fine to medium SAND and Silt. moist.	
23								ROCK FRAGMENTS	S-9D (24"): White, WEATHERED BEDROCK, Rock fragments/powder.	
24										
25	S-10		24					ROCK FRAGMENTS	S-10 (72"): White, WEATHERED BEDROCK, Small rock fragments/powder. Drilling relatively easily throughout.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Cave-in causing slow-down in drilling. Telescope to minimize

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-71**

Boring Location:

Checked by: J. Ricker

Date Start: August 17, 2015

Date Finish: August 18, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
26					0.7			ROCK FRAGMENTS		
27										
28										
29										
30										
31	S-11		30						S-11 (60"): White, WEATHERED BEDROCK, 4" core of Granite at end of core bit. The rest is rock flour/rock fragments.	
32								ROCK FRAGMENTS		
33					0.2					
34										
35								BEDROCK		
36									Boring terminated at 35 feet.	
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Cave-in causing slow-down in drilling. Telescope to minimize

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-72**

Boring Location:

Checked by: J. Ricker

Date Start: August 6, 2015

Date Finish: August 6, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1								ASPHALT AND BASE	Asphalt and base.	
2									Brown, Sandy SILT with Clay. Cobbles.	
3										
4										
5										
6					0.9			SANDY SILT		
7					0.4					
8										
9					0.3				Light brown-gray and white, fine Sandy SILT with Clay. Few large pebbles (Gravel).	
10										
11									Brownish gray, fine SAND, with Gravel, Silt, and Cobbles.	
12										
13								SAND		
14									Orange, fine SAND, some Silt, little coarse Sand to Gravel.	
15									Orange, fine silty SAND, little coarse Sand.	
16					0.1					
17					0.1					
18										
19					0.3			SILTY SAND		
20										
21										
22										
23									Light gray and white, medium to coarse SAND. Mottled.	
24								SAND	Brown, medium to coarse SAND, little fine Gravel, with Silt & Clay.	
25								CLAYEY SILT	Brown and white, coarse SAND. Brown, Clayey SILT with Sand.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Glacial till from 0' to 13', weathered rock (regolith) from 13' to 38', bedrock below 38'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-72**

Boring Location:

Checked by: J. Ricker

Date Start: August 6, 2015

Date Finish: August 6, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
26								CLAYEY SILT		
27								SAND	Dark brown, coarse SAND, little medium Sand.	
28										
29								SILTY CLAY	Brown, Silty CLAY, little Sand. mineral structure apparent.	
30									Dark brown, medium to coarse SAND.	
31								SAND		
32										
33									Sandy SILT with Clay and medium Sand.	
34								SANDY SILT		
35								BOULDER	White, pulverized BOULDER.	
36								CLAY	Dark brown, CLAY. wet.	
37								SILTY SAND	White and brown, fine to medium, silty SAND.	
38								BOULDER	White, pulverized BOULDER.	
39								BEDROCK	Friable rock pieces. BEDROCK.	
40									Boring terminated at 40 feet.	
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Glacial till from 0' to 13', weathered rock (regolith) from 13' to 38', bedrock below 38'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-73**

Boring Location: Brookwood Road

Checked by: J. Ricker

Date Start: August 5, 2015

Date Finish: August 5, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1							ASHPHALT AND BASE	Asphalt and base.	
2									
3								Gray, Cobbly, Silty fine to coarse SAND.	
4								Brown, Clayey, coarse SAND with Cobbles.	
5									
6									
7									
8							SAND		
9									
10									
11									
12									
13									
14								Brown, Silty, clayey SAND. BOULDER.	
15									
16									
17									
18									
19							BOULDER		
20									
21									
22									
23								Boring terminated at 23 feet.	
24									
25									

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) No samples were collected. All PID readings were 0 ppm.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1		0-5					ASPHALT	S-1A (12"): Asphalt.	
2					0.0			SAND	S-1B (30"): Brown, fine to medium SAND, some coarse Gravel, trace Silt. subrounded, moist.	
3										
4								BOULDER/ ROCK FRAGMENTS	S-1C (18"): BOULDER - rock fragments.	
5										
6	S-2		5-9					SAPROLITE AND SAND	S-2 (48"): Light tan, fine to coarse SAND and Gravel, little Silt, Saprolite fragments readily broken by hand. moist.	
7					0.0					
8										
9										
10	S-3		9-11					SAPROLITE AND SAND	S-3 (24"): Moist. Similar to above.	
11										
12	S-4		11-13					SAND	S-4A (12"): Dark brown, SILT and fine to coarse Sand, trace fine Gravel. rounded.	
13					1.3				S-4B (12"): Light tan, fine to coarse SAND, some coarse Gravel, appears to be pulverized Saprolite similar to above. moist.	
14	S-5		13-15						S-5 (24"): Light tan, medium to coarse SAND, some coarse Gravel, trace Silt, appears to be pulverized Saprolite, courser grained than above.	
15					0.0					
16	S-6	108	15-21					SAND AND SILT	S-6A (5"): Brown, SILT and fine Sand. moist.	
								SAPROLITE AND SAND	S-6B (2"): Light tan, WEATHERED BEDROCK and fine Sand, trace Silt, and trace gravel.	
17					2.1			SAPROLITE AND SAND	S-6C (3"): Dark brown, Similar to above.	1
18								SAND	S-6D (45"): Light tan, fine to medium SAND, trace Silt, trace coarse Gravel, pulverized Saprolite.	
19										
20								SAND	S-6E (3"): Light brown, fine to medium SAND, some Silt, trace coarse Gravel,	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								SAPROLITE SAND AND GRAVEL	pulverized Saprolite. moist. Similar to above.	
21									S-6F (14"): Light tan, fine to medium SAND, some coarse Gravel, trace Silt, pulverized Saprolite. Saprolite competent at 20.5.	
	S-7	12	21-23						S-7 (24"): Light brown, fine to medium SAND, some Silt, some coarse Gravel, likely pulverized Saprolite.	
22								SAND		
23										
	S-8	12	23-25					SAND AND SILT	S-8A (12"): Light tan, fine to coarse SAND and Silt, some Gravel. moist.	
24										
								BOULDER	S-8B (6"): BOULDER.	
25					0.0			SAND	S-8C (6"): Light tan, medium to coarse SAND. wet.	
	S-9	54	25-30						S-9A (18"): Granite BOULDER.	
26								BOULDER		
27									S-9B (30"): Light tan, fine to medium SAND, trace Silt, mottled tan with light brown layers. wet.	
28					0.0					
29										
								SAND	S-9C (12"): Soft, light tan, fine SAND, trace Silt. moist.	
30										
	S-10	48	30-34.5		0.1				S-10A (6"): Light tan, fine SAND, some fine Gravel, trace Silt. moist.	
31									S-10B (18"): Light tan, medium SAND, little Silt, some coarse Gravel, Gravel is competent. dry.	
32										
									S-10C (30"): Tan, fine to medium SAND and coarse Gravel, trace Silt, apparent Saprolite, coarse gravel sized Saprolite. dry.	
33								SAPROLITE AND SAND		
34										
35	S-11	42	34.5-38		0.1			SAND	S-11A (9"): Light olive, fine SAND, some coarse Gravel, trace Silt. subrounded, moist.	
36									S-11B (15"): Light tan, fine to coarse SAND, some coarse Gravel, coarse gravel sized Saprolite (friable). dry.	
37								SAND AND SAPROLITE	S-11C (18"): Tan, 2" more extensive Saprolite at 37.5'. moist. Similar to above.	
38					0.1					
								SAND	S-12A (8"): Tan, fine to medium SAND, trace Silt. wet. grades to S-12B.	
39									S-12B (4"): Tan, fine SAND, little Silt, trace medium Sand.	
40								SAPROLITE	S-12C (6"): Layered brown/white, WEATHERED BEDROCK, Saprolite, friable with sand-sized grains. moist.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	S-12	60	40-44					SAPROLITE	S-12D (12"): Dark, WEATHERED BEDROCK, apparently pulverized Saprolite. dry. S-12E (6"): Moist. Similar to above.	
41									S-13 (48"): Light tan, fine SAND, some Silt, trace coarse Gravel, gravel shaped nodes (decomposed). wet.	
42										
43										
44								SAND		
45										
	S-13	54	45-50						S-14A (24"): Light tan, fine to medium SAND, trace fine Gravel, trace Silt, looks like pulvarized Saprolite. dry.	
46										
47										
								SILT AND SAND	S-14B (2"): Dense, olive, SILT and fine Sand. moist. S-14C (16"): Light tan, moist. Similar to 45-47ft above.	
48										
								SAND		
49									S-14D (12"): Dry. Similar to above.	
50								VERY DENSE SAPROLITE	S-14E (6"): Very dense, WEATHERED BEDROCK, near competent Saprolite. Boring terminated at 50 feet.	
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-01**

Boring Location: 55' W of Q400

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-5		0	SB-01 (0-1') 1030				Loose, dk brown, silty SAND (SM), very fine sand, trace medium sand and roots, moist.	
1											
2											
					0					Lt brown and gray, silty SAND (SM), many coarse rock (granite) fragments, dry.	
3						SB-01 (2-4') 1040			SILTY SAND		
4											
5											
		14	5-6.2		0						
6											
7										Boring terminated at 6.2 feet.	1
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6.2'
2) Backfilled borehole with bentonite chips and cuttings
3) Surface sample (0-1') at 1030, subsurface sample (2-4') at 1040

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-02**

Boring Location: 1' N of OP650

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		46	0-5			SB-02 (0-1') 1110			SAND AND SILT	Brown, sandy SILT (ML), sandy silt and silty fine sand, trace rock fragments, trace to little clay, moist, possible fill material, no odor.	
1					0						
2											
3										Brown to dark grayish brown, silty SAND (SM), fine sand, trace to little broken rock / rock fragments, moist, odorous.	
4											
					25				SILTY SAND		
5						SB-02 (4-6') 1130					
			5-7		100						
6											
					88						
7											
					45					Boring terminated at 7 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7'
2) Surface sample (0-1') at 1110, subsurface sample (4-6') at 1130

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-03**

Boring Location: 1' N of P700

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-5			SB-03 (0-1') 1150			SILTY SAND	Dk brown to brown, silty SAND (SM), fine sand, moist, possible fill.	
1					0					Brown, silty SAND (SM), fine-medium sand, trace fine to coarse gravel and rock fragments, moist.	
2					0				BROKEN ROCK AND SILT	Lt gray, poorly-graded GRAVEL with silt (GP-GM), broken rock / rock fragments and silt / powdered rock, dry.	
3											
4											
5		26	5-7		0	SB-03 (5-7') 1200					
6											
7										Boring terminated at 7 feet.	1
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7'
2) Surface sample (0-1') at 1150, subsurface sample (5-7') at 1200

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-04**

Boring Location: 3' W of PQ750

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		44	0-5			SB-04 (0-1') 1330				Dk brown, silty SAND (SM), fine sand, trace clay and roots, moist.	
1											
2					0					Lt brown and gray, silty SAND (SM), fine sand, trace rock fragments / powder.	
3									SILTY SAND		
4											
5						SB-04 (4-6') 1345					
		22	5-7		0						
6											
7									BROKEN ROCK	Poorly-graded GRAVEL (GP), broken rock / rock fragments and powder, dry.	
					0					Boring terminated at 7 feet.	1
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7'
2) Surface sample (0-1') at 1330, subsurface sample (4-6') at 1345

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-05**

Boring Location: 20' N of O800 in dump D excavation

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		43	0-5			SB-05 (0-1') 1400			SILTY SAND	Brown, silty SAND (SM), possible fill.	
1					0				SILTY SAND WITH GRAVEL	Brown and gray, silty SAND with gravel (SM), fine sand, broken rock fragments, trace clay, moist, possible fill.	
2											
3										Dk gray and black, silty SAND (SM), trace fine gravel, moist, odor, stained.	
					20						
4						SB-05 SBD1 (3.5-5.5') 1430			SILTY SAND		
					133						
5											
			5-6.5		225						
6									BROKEN ROCK	Gray/dk gray, poorly-graded GRAVEL (GP), broken rock / rock fragments and powder, some discoloration and odor.	
					50						
7										Boring terminated at 6.5 feet.	1
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6.5'
2) Surface sample (0-1') and MS/MSD at 1400, subsurface sample (3.5-5.5') and dup. (SBD1) at 1430

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-06**

Boring Location: <1' N of No 850 in dump D excavation

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		43	0-5			SB-06 (0-1') 1440				Brown and dk gray, sandy SILT (ML), trace clay and rock fragments, moist, possible fill, no odor.	
1					0						
2											
3											
4									SANDY SILT		
5											
		32	5-8		0						
6						SB-06 (5-7') 1455					
7											
8					0.2				SILTY SAND WITH GRAVEL	Brown, silty SAND with gravel (SM), fine sand, broken rock / rock fragments and powder, dry, no odor.	
										Boring terminated at 8 feet.	1
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 8'
2) Surface sample (0-1') at 1440, subsurface sample (5-7') at 1455

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-07**

Boring Location: 20' S of P800

Checked by: J. Lambert

Date Start: November 19, 2013

Date Finish: November 19, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		46	0-5		0	SB-07 (0-1') 1530			SANDY SILT	Very dk brown, sandy SILT (ML), fine sand, roots, moist, no odor.	
2										Loose, brown, silty SAND (SM), fine sand, trace rock fragments, powdery, dry, no odor.	
3											
4											
5									SILTY SAND		
6		43	5-9		0						
7											
8						SB-07 (7-9') 1540					
9											
10					0					Boring terminated at 9 feet.	1
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 9'
2) Surface sample (0-1') at 1530, subsurface sample (7-9') at 1540

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-08**

Boring Location: 20' E of MW-2

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		44	0-5			SB-08 (0-1') 0830			FILL	Gray to dk gray, well-graded SAND (SW), fine-coarse sand, trace to some coarse gravel, moist, (FILL).	
1					0						
2										Brown, SILT with sand (ML), clayey silt and fine sand, trace coarse gravel, occasional cobble, moist.	
3											
4									CLAYEY SILT AND SAND		
5					0	SB-08 (4-6') 0840					
6		12	5-9								
7					0					Boring terminated at 6 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6'
2) Surface sample (0-1') at 0830, subsurface sample (4-6') at 0840

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-09**

Boring Location: 3' E of N1000

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-3.5		0	SB-09 (0-1') 0920			SILTY SAND	Brown, silty SAND (SM), fine sand, trace clay and coarse gravel, dry.	
1									SILTY SAND AND BROKEN ROCK	Lt brown, silty SAND with gravel (SM), fine sand, broken rock / rock fragments and powder, dry.	
2						SB-09 (1-3') 0930			BROKEN ROCK WITH SILT AND SAND	Poorly-graded GRAVEL with silt and sand (GP-GM), broken rock and powder (silt / fine sand), dry.	
3											
4										Boring terminated at 3.5 feet.	
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 3.5'
2) Surface sample (0-1') at 0920, subsurface sample (1-3') at 0930

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-10**

Boring Location: 5' W of offset N1100 location

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		35	0-3			SB-10 (0-1') 1015			SILTY SAND AND CLAY	Clayey SAND (SC), brown silty fine sand and brownish gray silty clay (some mottled), trace to some medium to coarse sand and fine to medium gravel, occasional rock, moist, likely fill, trace black staining and odor at 2.5-3'.	
1					0						
2						SB-10 (1-3') 1025					
3											
					1.5					Boring terminated at 3 feet.	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Surface sample (0-1') at 1015, subsurface sample (1-3') at 1025

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-11**

Boring Location: 90' E of N1100

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		40	0-5		SB-10 (0-1') 1115			FILL	Dk brown, silty SAND (SM), fine sand, trace to some crushed stone, moist, (FILL).	
1								CRUSHED STONE	Gray, poorly-graded GRAVEL (GP), crushed stone (old roadway / trail?).	
2								SILTY SAND	Dk brown, silty SAND (SM), fine sand, trace clay, moist, likely fill.	
3								SILTY CLAY	Dense, brown, lean CLAY (CL), silty clay mottled with gray, trace to little fine sand, trace fine gravel and cobbles, moist.	
4										
5		42	5-10							
6										
7										
8								SAND	Dense, brownish gray, poorly-graded SAND (SP), fine sand, occasional cobble, moist.	
9										
10		11	10-11		SB-10 (9-11') 1125			SANDY CLAY	Dense, brown and gray, sandy lean CLAY (CL), fine sand, moist.	
11									Boring terminated at 11 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 11'. Dry hole
2) Surface sample (0-1') at 1115, subsurface sample (9-11') at 1125

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-12**

Boring Location:

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		43	0-5		0	SB-12 SBD2 (0-1') 1320			FILL	Dk brown, silty SAND (SM), fine sand, trace clay and coarse gravel, roots and cobbles / crushed stone, (FILL).	
2									SILTY CLAY	Brown, lean CLAY (CL), silty clay, trace to some fine sand, occasional rock, dry, possible fill.	
3									CRUSHED STONE	Poorly-graded GRAVEL (GP), crushed stone / broken rock.	
4									SANDY SILT	Brown to dk brown, sandy SILT (ML), fine sand, roots, dry.	
5											
6		47	5-10		0				SILTY CLAYEY SAND	Dense, brown and gray, poorly-graded SAND (SP), fine-medium sand, some silt and clay, trace gravel, moist.	
7											
8									SILTY CLAY	Plastic / soft, grayish brown, fat CLAY (CH), silty clay, trace to little fine sand, trace gravel, iron staining throughout.	
9											
10											
11		49	10-15		0				SILTY SAND	Loose, orangish brown, silty SAND (SM), fine to medium sand, trace coarse gravel, occasional rock, moist, iron-stained.	
12											
13											
14										Greenish gray and grayish brown, silty SAND (SM), fine to medium sand, trace clay, trace fine to medium gravel, occasional rock, moist.	
15											
16		46	15-20		0						
17											
18						SB-12 (17-19') 1350			BROKEN ROCK / SILTY SAND AND GRAVEL	Silty SAND with gravel (SM), alternating broken rock / rock fragments, powder / silt, and silty sand and gravel, dry.	
19									SAND AND GRAVEL	Dk brown, poorly-graded SAND with gravel (SP), coarse sand and gravel, wet.	
20					0					Boring terminated at 19 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 19'
2) Surface sample (0-1') and dup. (SBD2) at 1320, subsurface sample (17-19') at 1350
3) No water detected in borehole

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township
Nobis Project No.:	84002
Boring No.:	SB-13
Boring Location:	1' S of N1200
Checked by:	J. Lambert
Date Start:	November 20, 2013
Date Finish:	November 20, 2013
Contractor:	Zebra
Driller:	J. Cimic
Nobis Rep.:	T. Maley
Rig Type / Model:	Geoprobe
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Datum:	

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		42	0-5		0	SB-13 (0-1') 1445			SILTY SAND	Dk brown to brown, silty SAND (SM), fine sand.	
3					0.2	SB-13 (3-5') 1500			CRUSHED ROCK	Lt gray, poorly-graded GRAVEL (GP), crushed rock, silt / powder.	
									SILTY SAND	Dense, brown, silty SAND (SM), fine sand, trace medium to coarse sand and fine gravel.	
4					15				ORGANIC SILT	Dk brown to black, ORGANIC SOIL (OL/OH), organic silt, moist, odor.	
6		50	5-10		1.5				CLAYEY SAND	Gray, clayey SAND (SC), fine sand, trace fine to coarse gravel, occasional pebble / cobble, moist, slight odor.	
11		47	10-13								
12						SB-13 (11-13') 1520					
13					0.5					Boring terminated at 13 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Refusal at 13'
2) Surface sample (0-1') at 1445, subsurface samples (3-5' and 11-13') at 1500 and 1520

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-14**

Boring Location: 37' W of M1300

Checked by: J. Lambert

Date Start: November 20, 2013

Date Finish: November 20, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		24	0-0.3			SB-14 (0-1') 1550			FILL	Brown and gray, lean CLAY (CL), silty clay, mottled, trace fine sand, roots and cobbles, moist, possible fill.	
1					0				SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace silt, trace to little fine to coarse gravel, occasional pebbles, rocks, moist.	
2					0.2	SB-14 (1-2') 1600					
3									BROKEN ROCK	Poorly-graded GRAVEL (GP), rock fragments / broken rock, powder / silt, dry.	
4										Boring terminated at 4 feet.	
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal two times at 2', once at 4'
2) Surface sample (0-1') at 1550, subsurface sample (1-2') at 1600

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-15**

Boring Location: 4' N and 2' W of B4 in apparent dump B

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		48	0-5			SB-15 SBD3 (0-1') 0850			CLAYEY SAND	Soft, dk gray to gray, clayey SAND (SC), fine sand, organic, trace gravel, roots, twigs, leaves, moist, swampy odor.	
1					0					Brown to gray, well-graded SAND with gravel (SW), fine to coarse sand and gravel, trace greenish gray silty fine sand, trace to some clay, trace fine to coarse gravel, moist, slight odor.	
2									SAND AND GRAVEL		
3											
4						SB-15 (3-5') 0915					
5					1.2				BROKEN ROCK AND SILT	Poorly-graded GRAVEL with silt (GP-GM), broken rock, silt, dry.	
6					0					Boring terminated at 5 feet.	
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal once at 2' (1.8' recovery), twice at 5' (4' recovery)
2) Surface sample (0-1') and dup. (SBD3) at 0850, subsurface sample (3-5') at 0915

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-16**

Boring Location: 50' S of B-2

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		47	0-5			SB-16 (0-1') 0940			SILTY CLAY	Dense, brown-gray, fat CLAY (CH), mottled silty clay, trace fine to medium sand, occasional cobble, moist, trace iron staining, sticky.	
1					0						
2									SILTY SAND	Brown, silty SAND (SM), fine to medium sand, trace fine to coarse gravel, trace clay, occasional rock fragments / broken rock with silt, moist, some iron staining, no odor.	
3											
4											
5						SB-16 (4-6') 1000					
		16	5-6.3		0						
6											
7					0					Boring terminated at 6.3 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6.3'
2) Surface sample (0-1') at 0940, subsurface sample (4-6') at 1000

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:25 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-17**

Boring Location: 22' S of N1400

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		47	0-5			SB-17 (0-1') 1110			SILTY SAND	Black to dk brown, silty SAND (SM), fine sand, trace to little clay, organic root mat, moist.	
1									CLAYEY SILT	Brown, SILT (ML), clayey silt, trace fine sand.	
					0					Dense, brownish gray, lean CLAY (CL), silty clay, trace fine sand, moist, mottled, iron staining.	
2											
3											
4											
5									SILTY CLAY	Gray, lean CLAY (CL), silty clay, trace to little fine sand, fine to coarse gravel and pebbles, moist.	
		41	5-10		0						
6											
7											
8											
9											
					0					Greenish gray, silty SAND (SM), fine sand, little to some clay, trace fine to coarse gravel, moist.	
10						SB-17 (9-11') 1140					
		47	10-12						SILTY SAND		
11											
					0					Very dense, dk greenish gray, silty SAND (SM), fine to medium sand, trace clay, gravel and rock, dry.	
12											
					0					Boring terminated at 12 feet.	
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 12'
2) Surface sample (0-1') at 1100, subsurface sample (9-11') at 1140

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-18**

Boring Location: 45' N of O1500, 10' W of trail

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		46	0-5			SB-18 (0-1') 1220			ORGANIC SILT	Very dk brown, ORGANIC SOIL (OL/OH), organic silt, trace fine sand, roots, twigs, mat.	
1					0				CLAYEY SAND	Brown, clayey SAND (SC), fine sand, trace fine to coarse gravel, occasional pebble, moist.	
2					0				CLAYEY SILTY SAND	Gray, silty SAND (SM), clayey silty fine sand, trace coarse gravel, cobbles, moist.	
3									SILTY SAND	Gray, silty SAND (SM), fine to medium sand, trace clay, coarse sand and gravel, moist.	
4		32	5-8			SB-18 (5-7') 1340			BROKEN ROCK WITH SILT	Poorly-graded GRAVEL with silt (GP-GM), broken rock / rock fragments with silt / powder, dry.	
5										Boring terminated at 8 feet.	
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 8'
2) Surface sample (0-1') at 1220, subsurface sample (5-7') at 1340

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-19**

Boring Location: 25' S of N1600

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		44	0-3.5			SB-19 (0-1') 1420			ORGANIC SILT	Dk brown, ORGANIC SOIL (OL/OH), organic silt.	
1					0				SANDY SILT	Brown, sandy SILT (ML), fine sand, roots, dry.	
2					0	SB-19 (1-3') 1430			SILTY SAND	Brown, silty SAND (SM), very fine sand, trace clay, dry.	
3					0				BROKEN ROCK	Poorly-graded GRAVEL with silt and sand (GP-GM), broken rock / rock fragments with silty fine sand / powder.	
4										Boring terminated at 3.5 feet.	
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times at 3.5'
2) Surface sample (0-1') and MS/MSD at 1420, subsurface sample (1-3') at 1430

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-20**

Boring Location: 32' N and 7' E of B4

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		42	0-5		SB-20 (0-1') 1440			SILTY CLAY	Brown and gray, lean CLAY (CL), silty clay (mottled), trace fine sand, possible fill.	
1										
2									Dense, brown, silty SAND (SM), fine sand, trace fine to coarse gravel, occasional cobbles.	
3								SILTY SAND		
4					SB-20 (2.5-4.5') 1500					
5								BROKEN ROCK	Poorly-graded GRAVEL with silt and sand (GP-GM), broken rock / rock fragments and silty fine sand / powder.	
6									Boring terminated at 5 feet.	
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 5'
2) Surface sample (0-1') at 1440, subsurface sample (2.5-4.5') at 1500

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-21**

Boring Location: 2' E of O1500

Checked by: J. Lambert

Date Start: November 21, 2013

Date Finish: November 21, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		31	0-5			SB-21 (0-1') 1510			FILL	Black to very dk brown, poorly-graded SAND with silt and gravel (SP-SM), crushed stone (road grade?), moist, possible fill.	
1					0						
2										Brown, silty SAND (SM), fine sand, trace large cobbles / rock fragments, dry, possible fill.	
3									SILTY SAND		
4											
5									SANDY SILT	Gray, sandy SILT (ML), fine sand, trace medium to coarse sand and gravel, dry.	
		55	5-10		0					Brown and gray, silty SAND (SM), fine sand, trace to some rock fragments / broken rock / powder, trace clay, dry.	
6											
7											
8									SILTY SAND		
9						SB-21 SBD4 (8-10') 1545					
10											
11					0					Boring terminated at 10 feet.	
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 10'
2) Surface sample (0-1') at 1510, subsurface sample (8-10') and dup. (SBD4) at 1545

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-22**

Boring Location: 25' E of P600

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		24	0-2			SB-22 (0-1') 0850			SILTY SAND	Dk brown to brown, silty SAND (SM), fine sand, roots, dry.	
1					0						
2									BROKEN ROCK	Poorly-graded GRAVEL with silt (GP-GM), broken rock / rock fragments, silt / powder, dry.	
					0					Boring terminated at 2 feet.	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times at 2'
2) Surface sample (0-1') at 0850, no sample possible below 0-1' interval

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-23**

Boring Location: Within 1-2' N of SK950

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		31	0-5		0	SB-23 (0-1') 0900			SILTY SAND	Brown, silty SAND (SM), fine sand, trace clay and rock fragments / cobbles, possible fill.	
2											
3											
4											
5					0	SB-23 (4-6') 0920					
6		12	5-6							Boring terminated at 6 feet.	
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal twice at 6'
2) Surface sample (0-1') at 0900, subsurface sample (4-6') at 0920

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-24**

Boring Location: 15' N and 3' W of AU-8

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		24	0-3			SB-24 (0-1') 1000			SILTY SAND	Brown, silty SAND (SM), fine sand.	
1					0						
					0					Poorly-graded GRAVEL (GP), broken rock / powder.	
2						SB-24 (1-3') 1020			BROKEN ROCK		
3											
					1					Boring terminated at 3 feet.	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal four times at 3'. One tube came up with decent recovery, slight odor in tip (2.5-3')
2) Surface sample (0-1') at 1000, subsurface sample (1-3') at 1020

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-25**

Boring Location: 1-2' S of K900

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		18	0-2.5			SB-25 SBD5 (0-1') 1055			SILTY SAND	Brown, silty SAND (SM), fine sand, trace fine to coarse sand and gravel, trace clay, moist.	
1					0				BROKEN ROCK	Poorly-graded GRAVEL with silt (GP-GM), broken rock / rock fragments, powder / silt, dry.	
2					0						
3										Boring terminated at 2.5 feet.	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times at 2.5'
2) Surface sample (0-1') and dup. (SBD5) at 1055 and 1105, no subsurface sample

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-26**

Boring Location: 1' W of I1100

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		34	0-3			SB-26 (0-1') 1345			SILTY SAND	Dk brown to brown, silty SAND (SM), fine sand, roots, dry.	
1					0						
2									BROKEN ROCK	Poorly-graded GRAVEL with silt (GP-GM), broken rock / rock fragments, powder / silt, dry.	
3					0					Boring terminated at 3 feet.	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times at 3'
2) Surface sample (0-1') at 1345, no subsurface sample possible

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-27**

Boring Location: 50' S of M1400

Checked by: J. Lambert

Date Start: November 22, 2013

Date Finish: November 22, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Sample Rec (in.)	Sample Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Lithology Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		28	0-5			SB-27 (0-1') 1430			ORGANIC SILT	Very dk brown, ORGANIC SOIL (OL/OH), organic silt, trace fine sand, moist.	
1											
2											
3					0					Very soft, dk brown to brown, SILT (ML), little to some clay, moist.	
4											
5											
		17	5-10		0						
6									SILT		
7											
8											
9											
10									SILTY SAND	Gray, silty SAND (SM), fine to medium sand, trace clay and fine gravel, wet, no odor.	
		12	10-12		0						
11						SB-27 (10-12') 1450			CLAYEY SILT	Brownish gray, SILT (ML), clayey silt, moist, evidence of broken rock in tip.	
12											
					0					Boring terminated at 12 feet.	
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 12'
2) Surface sample (0-1') at 1430, subsurface sample (10-12') at 1450

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-28**

Boring Location: 25' W of K2000

Checked by: J. Lambert

Date Start: November 23, 2013

Date Finish: November 23, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		56	0-5			SB-28 (0-1') 1000				Loose, dk brown to brown, silty SAND (SM), fine sand, top 6" organic, dry.	
1					0					Brown, silty SAND (SM), fine sand, trace clay, occasional rock fragments and coarse gravel, moist.	
2											
3											
4									SILTY SAND		
5											
		26	5-7		0						
6						SB-28 (5-7') 1040					
7											
					0					Boring terminated at 7 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 7'
2) Surface sample (0-1') and MS/MSD at 1000, subsurface sample (5-7') at 1040

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-29**

Boring Location: 18' E of N1700

Checked by: J. Lambert

Date Start: November 23, 2013

Date Finish: November 23, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		41	0-4			SB-29 (0-1') 1110			ORGANICS	Loose, dk brown to brown, silty SAND (SM), fine sand, top 6" organic, trace to some rock with depth.	
1					0						
2											
					0				SILTY SAND		
3						SB-29 (2-4') 1130					
4											
										Boring terminated at 4 feet.	
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times. First two attempts at 2' with 1.9' and 1.8' of recovery. Third attempt at 4' with 3.4' recovery.
2) Surface sample (0-1') at 1110, subsurface sample (2-4') at 1130

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-30**

Boring Location: W of H1300

Checked by: J. Lambert

Date Start: November 23, 2013

Date Finish: November 23, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: T. Maley

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
1		37	0-5		0	SB-30 (0-1') 1200			SANDY SILT	Dk brown to brown, sandy SILT (ML), fine sand, trace clay, trace coarse gravel / rock fragments, moist.	
2											
3											
4											
5					0					Brownish gray, silty SAND (SM), fine sand, trace to some broken rock / rock fragments.	
6		30	5-7			SB-30 (5-7') 1220			SILTY SAND		
7											
8									BROKEN ROCK	Poorly-graded GRAVEL (GP), broken rock / powder.	
9										Boring terminated at 8 feet.	
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal once at 5', twice at 8'
2) Surface sample (0-1') at 1200, subsurface sample (5-7') at 1220

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-31**

Boring Location: Between G1700 and I1700

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		37	0-5		SB-31 (0-1') 0910			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, some leaves / roots, moist, (TOPSOIL).	
1								SILTY SAND	Brown, silty SAND (SM), fine to medium sand, bone fragments at 0.8', moist.	
2									Tan, poorly-graded SAND with gravel (SP), fine sand and fine gravel, trace medium sand, dry.	
3										
4								SAND AND GRAVEL		
5					SB-31 (4-6') 0920					
		12	5-6							
6									Boring terminated at 6 feet.	
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6'
2) Surface sample (0-1') at 0910, subsurface sample (4-6') at 0920

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-32**

Boring Location: H1400

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		36	0-5		0.0	SB-32 (0-1') 0940			TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, moist, (TOPSOIL).	
1										Brown, poorly-graded SAND with gravel (SP), fine to medium sand, some fine gravel, trace silt, moist.	
2										Tan, poorly-graded SAND with gravel (SP), fine to medium sand and fine gravel, mostly rock fragments, dry.	
3									SAND AND GRAVEL		
4						SB-32 (3-5') 0945					
5										Boring terminated at 5 feet.	
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 5'
2) Surface sample (0-1') at 0940, subsurface sample (3-5') at 0945

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-33**

Boring Location: H1200

Checked by: J. Lambert

Date Start: December 4, 2013

Date Finish: December 4, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		16	0-2		0.0	SB-33 (0-1') 1020			TOPSOIL	Dk brown, poorly-graded SAND with silt (SP-SM), fine sand, some silt, moist, (TOPSOIL).	
1									SAND AND GRAVEL	Brown, well-graded SAND with gravel (SW), fine to coarse sand and fine gravel, trace roots.	
2										Boring terminated at 2 feet.	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal three times at 2'
2) Surface sample (0-1') at 1020, no subsurface sample collected

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-34**

Boring Location: 50' NW of P600

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		35	0-5			SB-34 (0-1') 1435			SAND	Dk gray, poorly-graded SAND (SP), fine to medium sand, trace organics, wet.	
1					0.0				SILTY SAND	Dk brown, silty SAND (SM), fine sand, moist.	
2									SAND AND GRAVEL	Gray, poorly-graded SAND with gravel (SP), fine to medium sand, dry.	
3										Lt brown, poorly-graded SAND with silt (SP-SM), fine sand and silt, dry.	
4									SAND AND SILT		
5											
		55	5-10		0.0				SANDY GRAVEL	Tan, poorly-graded GRAVEL with sand (GP), fine to medium gravel, likely cobble fragments, dry.	
6											
7										Tan, poorly-graded SAND (SP), fine to medium sand, dry.	
8											
9											
10									SAND	Tan, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, dry.	
		22	10-12		0.0					Tan, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, trace fine gravel, dry.	
11						SB-34 (10-12') 1450					
12										Boring terminated at 12 feet.	
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 12'
2) Surface sample (0-1') at 1435, subsurface sample (10-12') at 1450

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-35**

Boring Location: 20' SSW of O700

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		43	0-5		0.0	SB-35 (0-1') 1505			TOPSOIL	Dk brown, silty SAND (SM), fine sand and organics, moist, (TOPSOIL).	
1										Brown, poorly-graded SAND with silt (SP-SM), fine sand, some silt, moist.	
2									SILTY SAND	Tan, silty SAND (SM), fine sand, trace fine gravel, moist.	
3											
4										Very dense, tan, poorly-graded SAND with gravel (SP), fine to medium sand and gravel (cobble fragments), dry.	
5									SAND AND GRAVEL		
		22	5-6.5			SB-35 (4.5-6.5') 1510				Tan, poorly-graded SAND with gravel (SP), fine to medium sand and gravel, dry.	
6											
7										Boring terminated at 6.5 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6.5'
2) Surface sample (0-1') at 1505, subsurface sample (4.5-6.5') at 1510

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-36**

Boring Location: E excavation limit - betwen O750 and P750

Checked by: J. Lambert

Date Start: December 5, 2013

Date Finish: December 5, 2013

Contractor: Zebra

Driller: M. Hause

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		46	0-5		0.0	SB-36 (0-1') 1525			TOPSOIL	Brown, silty SAND (SM), fine sand and organics, (TOPSOIL).	
1										Lt brown, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, moist.	
2									SAND		
3											
4										Dense, lt brown, poorly-graded SAND (SP), fine sand, trace silt, moist.	
5									SAND AND GRAVEL	Gray, poorly-graded SAND with gravel (SP), fine to medium sand and gravel, dry.	
		14	5-6.5			SB-36 (4.5-6.5') 1530					
6									SAND	Tan, well-graded SAND (SW), fine to coarse sand, dry.	
7										Boring terminated at 6.5 feet.	
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 6.5', first refusal at 4.5'
2) Surface sample (0-1') at 1525, subsurface sample (4.5-6.5') at 1530

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-37**

Boring Location: 30' ENE of N800

Checked by: J. Lambert

Date Start: December 6, 2013

Date Finish: December 6, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		18	0-3		0.0	SB-37 (0-1') 0850			TOPSOIL	Silty SAND (SM), fine sand, some organics, moist.	
1									COBBLE	Poorly-graded GRAVEL (GP), cobbles.	
2						SB-37 (1-3') 0900			GRAVELLY SAND	Poorly-graded SAND with gravel (SP), fine to medium sand, some gravel, trace silt, moist.	
3										Boring terminated at 3 feet.	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 3', three attempts
2) Surface sample (0-1') at 0850, subsurface sample (1-3') at 0900

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-38**

Boring Location: Center - south edge of excavation - N1250

Checked by: J. Lambert

Date Start: December 6, 2013

Date Finish: December 6, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1		34	0-5			SB-38 (0-1') 0930			SAND	Brown, well-graded SAND (SW), fine to coarse sand, trace silt, wet.	
2									PULVERIZED COBBLE	White, poorly-graded GRAVEL (GP), pulverizd cobble.	
3									SAND	Dense, brown, poorly-graded SAND (SP), fine to medium sand, trace silt, moist.	
4										Lt brown, silty SAND (SM), fine to medium sand, moist.	
5						SB-38 (4-5') 0935			SILTY SAND	Black, silty SAND (SM), organic-rich silty sand, moist, odor.	
6		34	5-10						SANDY SILT	Dk brown, SILT with sand (ML), some fine sand, moist.	
7					0.1				SAND AND GRAVEL	Brown, poorly-graded SAND with gravel (SP), fine to medium sand and gravel.	
8										Green-gray, SILT with sand (ML), some fine sand, more fine sand toward bottom, strong odor.	
9									SANDY SILT		
10						SB-38 (8-10') 0940					
11		31	10-15							Green-gray, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, cobble at 14', wet.	
12					0.0						
13											
14											
15									SAND		
16		26	15-20								
17											
18											
19											
20										Gray, poorly-graded SAND with gravel (SP), fine to medium sand and gravel, wet.	
21		28	20-24		0.0					Brown, well-graded SAND with gravel (SW), fine to coarse sand and fine gravel, wet.	
22									SAND AND GRAVEL		
23											
24											
25										Boring terminated at 24 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 24'
2) Surface sample (0-1') at 0930, subsurface samples (4-5' and 8-10') at 0935 and 0940

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-39**

Boring Location: 50' S of SB-38 (N1300)

Checked by: J. Lambert

Date Start: December 6, 2013

Date Finish: December 6, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		25	0-5						TOPSOIL	Dk brown, silty SAND (SM), fine to medium sand, moist, (TOPSOIL).	
1									SAND	Loose, brown, poorly-graded SAND (SP), fine to medium sand, trace silt, trace coarse sand, moist.	
2											
3											
4									SILTY SAND	Dk brown, poorly-graded SAND with silt (SP-SM), fine to medium sand, some silt, moist. Brown, silty SAND (SM), fine to medium sand, trace coarse sand, moist.	
5											
		29	5-10		0.0						
6											
7											
8									SAND AND GRAVEL	Dense, tan, poorly-graded SAND with gravel (SP), fine to medium sand and gravel, dry.	
9											
10									SANDY SILT	Very stiff, gray-green, sandy SILT (ML), fine sand, moist.	
		37	10-15		0.1					Gray-green, silty SAND (SM), fine sand, trace coarse sand, trace fine gravel, cobble at 14.5', wet, slight odor.	
11											
12											
13									SILTY SAND		
14						SB-39 (13-15') 1055					
15											
		29	15-20		0.0					Gray-green, poorly-graded SAND (SP), fine to medium sand, trace silt, trace coarse sand and fine gravel, wet, no odor.	
16											
17									SAND		
18											
19											
20									GRAVELLY SAND	Gray-green, well-graded SAND with gravel (SW), fine to coarse sand, some gravel, trace silt, wet.	
			20-22							Dense, orange, well-graded SAND with gravel (SW), fine to coarse sand, some gravel, trace silt.	
21						SB-39 (20-22') 1105					
22										Boring terminated at 22 feet.	
23											
24											
25											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 22'
2) Surface sample omitted, subsurface samples (13-15' and 20-22') at 1055 and 1105

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-40**

Boring Location: N1150

Checked by: J. Lambert

Date Start: December 6, 2013

Date Finish: December 6, 2013

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		38	0-5						SAND TOPSOIL	Tan, well-graded SAND (SW), fine to coarse sand, moist.	
1										Brown, silty SAND (SM), fine to medium sand, (TOPSOIL).	
									SANDY SILT	Lt brown, sandy SILT (ML), some fine sand, moist.	
2											
					0.0					Brown, well-graded SAND with silt and gravel (SW-SM), fine to coarse sand, some silt, some fine gravel, moist.	
3									SILTY GRAVELLY SAND		
4											
									SANDY ORGANIC SILT	Soft, black, ORGANIC SOIL with sand (OL/OH), organic-rich silt, some fine sand, slight odor (petroleum?).	
5						SB-40 (4-5') 1130					
		47	5-10		0.0					Stiff, tan, sandy SILT (ML), fine sand, moist, no odor.	
6									SANDY SILT		
7										Tan, poorly-graded SAND with silt (SP-SM), fine sand, moist, no odor.	
									SAND AND SILT		
8											
9										Orange, well-graded SAND with gravel (SW), fine to coarse sand, some gravel, moist.	
									GRAVELLY SAND		
10						SB-40 (9-11') 1140					
		12	10-11								
11										Boring terminated at 11 feet.	
12											
13											
14											
15											
16											
17											
18											
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 11'
2) Surface sample omitted, subsurface samples (4-5' and 9-11') at1130 and 1140

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\SOIL BORING LOGS SB01-SB40.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-50**

Boring Location: MN-1250-W

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	15			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		34	0-5							Brown, poorly-graded SAND with gravel (SP), fine sand, some fine gravel and coarse sand, trace silt, no topsoil, moist.	
1					0.0					Brown, poorly-graded SAND with gravel (SP), fine to medium sand, some fine to coarse gravel, trace coarse sand, moist.	
2											
3									GRAVELLY SAND		
4											
5						SB-50 (4.2') 1045				Brown, poorly-graded SAND with gravel (SP), fine sand, some fine gravel.	
		60	5-10		0.0				GRAVELLY SAND SAND	Soft, dk brown, ORGANIC SOIL (OL/OH), organic-rich peat. Brown, poorly-graded SAND with gravel (SP), fine sand, some fine gravel, trace silt, trace medium sand, moist.	
6										Stiff, olive, sandy SILT (ML), fine sand.	
7										Stiff, gray green, sandy SILT (ML), fine sand.	
8									SANDY SILT		
9											
10									GRAVELLY SAND	Gray green, poorly-graded SAND with gravel (SP), fine sand, some coarse gravel, trace silt.	
		46	10-15		0.0					Gray green, poorly-graded SAND (SP), fine sand, trace coarse sand, trace silt, moist.	
11									SAND	Brown, poorly-graded SAND (SP), fine sand, trace coarse sand, trace silt, moist.	
12										Brown, poorly-graded SAND with gravel (SP), fine to medium sand, some coarse gravel, trace coarse sand, trace silt, moist.	
13											
14						SB-50 (13') 1050					
15									GRAVELLY SAND		
		12	15-17.5							Brown, poorly-graded SAND with gravel (SP), fine to medium sand, some gravel, trace coarse sand, wet.	
16											
17											
18										Boring terminated at 17.5 feet.	
19											
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 17.5'
2) Subsurface samples (4.2' and 13') collected at 1045 and 1050

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:39 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-51**

Boring Location: MN-1300

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	13			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		36	0-5						TOPSOIL	Silty SAND (SM), fine sand, oganics, (TOPSOIL).	
1									COBBLE	Poorly-graded GRAVEL (GP), cobble.	
2									SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace silt, trace fine gravel.	
3											
4									BROKEN COBBLE	Poorly-graded GRAVEL (GP), broken cobble.	
									SANDY SILT	Very soft, brown, sandy SILT (ML), fine sand, moist.	
5						SB-51 (3.7') 1110			WOOD FRAGMENTS	Wood fragments, wet.	
		20	5-10						SILT	Very soft, dk brown, SILT (ML), trace coarse sand, trace fine gravel.	
6											
7					0.0	SB-51 (6.7') 1115			SILTY GRAVEL	Loose, brown, silty GRAVEL (GM), fine gravel, some silt. Dk brown, silty GRAVEL (GM), coarse gravel, looks reworked.	
8											
9											
10									SILTY SANDY GRAVEL	Gray-green, silty GRAVEL (GM), some fine sand.	
		34	10-15			SB-51 (10') 1120				Gray-green, poorly-graded SAND with gravel (SP), fine sand, some coarse gravel, trace medium sand.	
11									GRAVELLY SAND		
12					0.0						
13									COBBLE	Poorly-graded GRAVEL (GP), cobble.	
14									GRAVELLY SAND	Very dense, green, poorly-graded SAND with gravel (SP), fine sand, some medium sand, some fine gravel, wet.	
15											
		41	15-19						SAND AND GRAVEL	Very dense, green, poorly-graded SAND with gravel (SP), fine sand and coarse gravel, trace coarse sand, wet.	
16					0.0					Mottled dk brown / lt green / tan, poorly-graded SAND with gravel (SP), fine sand, some medium sand, some coarse gravel.	
17									GRAVELLY SAND		
18											
19										Very dense, dk orange, poorly-graded SAND with gravel (SP), fine to medium sand, rock fragments in tip.	
										Boring terminated at 19 feet.	
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 19'
2) Subsurface samples (3.7', 6.7', and 10') collected at 1110, 1115, and 1120

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-52**

Boring Location: MN-1350

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	10			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		35	0-5						TOPSOIL	Brown, silty SAND (SM), organics, moist, (TOPSOIL).	
1					14.3				SILTY SAND	Lt brown, poorly-graded SAND with silt (SP-SM), fine to medium sand, some silt.	
2											
3									PEAT	Dark red / brown, (PEAT).	
4									WOOD	Wood - appears to be one piece.	
5									FILL	Black material - appears to be asphalt shingles, sample collected.	
		34	5-10						GRAVELLY SAND	Gray-green, poorly-graded SAND with gravel (SP), fine to medium sand, some coarse gravel, trace silt, wet.	
6					0.8						
7									SANDY SILT	Soft, slightly plastic, olive, sandy SILT (ML), some fine sand.	
8											
9											
10											
		29	10-15						SILTY SAND	Green-gray, silty SAND (SM), fine sand, trace medium sand, trace coarse gravel, wet.	
11					0.0						
12											
13											
14											
15						SB-52 (14') 1130			GRAVELLY SAND	Green-gray, poorly-graded SAND with gravel (SP), fine to medium sand, some fine gravel, trace silt, wet.	
		40	15-20								
16					0.0						
17											
18						SB-52 (17.5') 1140			SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, trace fine gravel, cobble at 18.5', wet.	
19											
20											
		35	20-24						SAND	Brown, poorly-graded SAND (SP), trace silt, trace medium sand, wet.	
21											
22									SAND	Gradual color change to orange, poorly-graded SAND (SP), fine to medium sand, trace fine gravel, trace silt.	
23											
24										Boring terminated at 24 feet.	
25											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 24'
2) Subsurface samples (14' and 17.5') collected at 1130 and 1140

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-53**

Boring Location: N/O 1200E

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		20	0-3		0.0			TOPSOIL	Dk brown, silty SAND (SM), fine sand, organics, moist, (TOPSOIL).	
1								SILTY SAND	Brown, silty SAND (SM), fine sand, trace medium sand.	
2								FILL	Chunk of styrofoam.	
								SILTY SAND	Brown, poorly-graded SAND with silt (SP-SM), fine sand. some silt.	
3								FILL	Wood chunk.	
								SAND	White, poorly-graded SAND (SP), medium sand.	
4									Boring terminated at 3 feet.	
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 3', 2', 1'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-54**

Boring Location: N/O 1250

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		36	0-5						TOPSOIL	Dk brown, silty SAND (SM), fine sand, organics, (TOPSOIL).	
1									SILTY SAND	Brown, poorly-graded SAND with silt and gravel (SP-SM), fine sand, some coarse gravel.	
2					0.4				SANDY SILT	Soft, dk brown, sandy SILT (ML), fine sand, moist.	
3						SB-54 (2.5') 1210 SB-54 (3.5-4.5') 1215			SANDY ORGANIC SILT	Black, ORGANIC SOIL with sand (OL/OH), organic-rich silt, some fine sand and organics (roots / wood).	
4											
5										Lt brown, sandy SILT (ML), fine sand, moist.	
		42	5-10								
6										Soft, gray-green, sandy SILT (ML), fine sand, trace coarse gravel, moist, thin bands of iron staining at 7'-8'.	
7					0.0						
8											
9											
10											
		37	10-15							Gray-green, sandy SILT (ML), fine sand, trace medium sand, trace coarse gravel, cobble at 13', wet.	
11											
12					0.0						
13									SANDY SILT		
14											
15											
		6	15-20							Gray-green, sandy SILT (ML), very little recovery - saturated - appears to be similar to above, wet.	
16											
17											
18											
19											
20											
		10	20-23							Lt brown, well-graded SAND with gravel (SW), fine to coarse sand and gravel, rock in tip of macrocore, wet.	
21											
22					0.0				SAND AND GRAVEL		
23											
24										Boring terminated at 23 feet.	
25											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 23'
2) Subsurface samples (2.5' and 3.5'-4.5') collected at 1210 and 1215

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-55**

Boring Location: N/O 1300

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	10			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		34	0-5					TOPSOIL	Dk brown, sandy SILT (ML), fine sand, organics, (TOPSOIL).	
1					0.0			SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace silt, trace fine gravel, moist.	
2								COBBLE	Poorly-graded GRAVEL (GP), cobble.	
3								SAND	Brown, poorly-graded SAND (SP), fine to medium sand, trace coarse sand.	
4										
5								PEAT	Peat with plastic, glass pieces (reworked), (PEAT).	
		25	5-10						Gray-gree, sandy SILT (ML), fine sand, trace medium sand.	
6								SANDY SILT		
7								COBBLE	Poorly-graded GRAVEL (GP), cobble.	
8									Gray-gree, sandy SILT (ML), trace medium sand, trace fine gravel, iron staining at 8'-9'.	
9										
10								SANDY SILT		
		34	10-15		0.0				Soft, olive, sandy SILT (ML), some fine sand, wet.	
11										
12										
13									Gray-green, poorly-graded SAND (SP), fine sand, trace medium sand, trace fine gravel, wet.	
14								SAND		
15									Dk green / gray, poorly-graded SAND (SP), fine to medium sand, wet.	
									Boring terminated at 15 feet.	
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 15'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-56**

Boring Location: O1250

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	Not Encountered			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		29	0-5					TOPSOIL	Brown, silty SAND (SM), fine sand, organics, (TOPSOIL).	
1					0.0			SANDY ORGANIC SILT	Dk brown, ORGANIC SOIL (OL/OH), organic silt, some fine sand.	
2										
3								SAND	Lt brown, poorly-graded SAND (SP), fine to medium sand, trace coarse gravel, moist.	
4										
5										
		30	5-10		0.0			GRAVELLY SAND	Lt brown, poorly-graded SAND with gravel (SP), fine to medium sand, some coarse gravel, trace silt, moist.	
6										
7										
8										
9								SILTY GRAVELLY SAND	Brown, silty SAND with gravel (SM), fine sand, some fine gravel.	
10										
		18	10-12					SILTY SAND	Lt brown, poorly-graded SAND with silt (SP-SM), fine to medium sand, some silt, moist.	
11										
12									Boring terminated at 12 feet.	
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 12'. Two attempts - first 5'-10' stuck in macrocore and lost

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-57**

Boring Location: M1240

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	Not Encountered			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		24	0-5				TOPSOIL	Brown, sandy SILT (ML), fine sand, organics, (TOPSOIL).	
1							GRAVELLY SAND	Brown, poorly-graded SAND with gravel (SP), fine sand, some medium sand, some fine gravel, trace silt, moist.	
2									
3									
4							SANDY SILT	Dk brown, sandy SILT (ML), fine sand, moist.	
							SAND AND GRAVEL	Brown, well-graded SAND with gravel (SW), fine to coarse sand and fine gravel.	
5							SANDY SILT	Lt brown, sandy SILT (ML), fine sand, moist.	
		30	5-10					Orange / lt brown, poorly-graded SAND (SP), fine to medium sand, trace silt, trace coarse gravel.	
6							SAND		
7									
							COBBLE	Poorly-graded GRAVEL (GP), cobble.	
8								Lt brown, poorly-graded SAND with gravel (SP), fine to medium sand, some fine to coarse gravel, cobble at 9', rock fragments in tip of liner.	
9							GRAVELLY SAND		
10									
		6	10-11				SAND AND GRAVEL	Lt brown, poorly-graded SAND with gravel (SP), fine to medium sand and fine gravel, moist.	
11								Boring terminated at 11 feet.	
12									
13									
14									
15									
16									
17									
18									
19									
20									

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 11'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-58**

Boring Location: L/M 1300

Checked by: J. Lambert

Date Start: January 20, 2014

Date Finish: January 20, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
01/20/14	00:00	Not Encountered			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
		25	0-3		0.0			TOPSOIL	Silty SAND (SM), fine sand, organics, moist, (TOPSOIL).	
1								SAND AND GRAVEL	Brown, well-graded SAND with gravel (SW), fine to coarse sand and coarse gravel, moist 0'-2'; dry 2'-3'.	
2										
3									Boring terminated at 3 feet.	
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Three attempts. Refusal at 2', 3', and 3'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-59**

Boring Location: 20' S of O800

Checked by: J. Lambert

Date Start: February 4, 2014

Date Finish: February 4, 2014

Contractor: Zebra

Driller: J. Cimic

Nobis Rep.: J. Lambert

Rig Type / Model: Geoprobe

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)		2
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Time/ Depth (ft)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
		41	0-5					GRAVELLY SAND	Brown, poorly-graded SAND with gravel (SP), fine to medium sand, some fine gravel.	
1										
									Tan, poorly-graded SAND with gravel (SP), fine to medium sand, some fine to coarse gravel, cobble at 4-4.5 feet.	
2										
3								GRAVELLY SAND		
4					SB-59 (3.5-5') 1225					
5									Orange, poorly-graded SAND with silt (SP-SM), fine to medium sand, some silt.	
		40	5-10							
6									Very dense, grren mottled with orange, silty SAND (SM), fine sand, trace medium sand, moist.	
7										
8								SILTY SAND		
9										
10										
11									Boring terminated at 10 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring - reached target depth
2) Subsurface sample (3.5-5') collected at 1225

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 3/9/15 08:40 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\POST CONFIRMATION MIP SAMPLES SB50-59.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
1								Brown, sandy SILT (ML).		
2										
3										
4										
5							Silty Sand			
6										
7										
8										
9										
10										
11							Weathered Bedrock	Gray, highly fractured and weathered rock.		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32							Bedrock			
33										
34										
35										
36										
37										
38										
39										
40										
41									MLS-1-1	
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Information: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Lithology: Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
51								Gray, SYENITE, Pyroxene, K-feldspar.		
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71								Gray, GRANITE, with black minerals and pyroxene.		
72										
73										
74										
75										
76							Bedrock			
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88									MLS-1-2	
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101								Gray, GRANITE, with black minerals and pyroxene.		
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115									MLS-1-3	
116										
117										
118										
119										
120										
121										
122										
123										
124										
125										
126							Bedrock	Gray, GRANITE/SYENITE, with black minerals, some quartz..		
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137								Gray, GRANITE/SYENITE, similar to above, with pyroxene at ~136'.		
138										
139										
140										
141										
142										
143										
144										
145										
146										
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151								Gray/black, GRANITE, K-feldspar, pyroxene.		
152										
153										
154										
155										
156										
157										
158										
159										
160										
161										
162										
163										
164										
165										
166										
167										
168										
169										
170										
171								Gray, GRANITE, K-feldspar with black minerals.		
172										
173										
174										
175										
176							Bedrock			
177										
178										
179										
180										
181										
182										
183										
184										
185										
186										
187										
188								Pink, coarse-grained, GRANITE, More quartz, K-feldspar, lots of water.		
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201										
202										
203										
204										
205										
206										
207										
208										
209										
210								Gray, GRANITE, with black minerals, pyroxene, K-feldspar, lots of water.		
211										
212										
213										
214										
215										
216										
217										
218										
219										
220										
221										
222										
223										
224										
225										
226							Bedrock			
227										
228										
229										
230								Gray, GRANITE, with black minerals.		
231										
232										
233								Gray, GRANITE, Softer rock ~ 1' thick, easier drilling.		
234										
235										
236										
237									MLS-1-4	
238										
239										
240										
241										
242										
243										
244										
245										
246										
247										
248										
249										
250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251								Gray, GRANITE, with black minerals, pyroxene, K-feldspar.		
252										
253										
254										
255										
256										
257										
258										
259										
260										
261										
262										
263										
264										
265										
266										
267										
268										
269										
270										
271										
272								Gray, GRANITE, with black minerals.		
273										
274										
275										
276							Bedrock			
277										
278										
279										
280										
281										
282										
283										
284										
285										
286										
287										
288										
289										
290										
291										
292								Gray, GRANITE, with black minerals, pyroxene.	MLS-1-5	
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301–350							Bedrock	Gray, GRANITE, with black minerals, pyroxene.	MLS-1-6	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351								Gray, GRANITE.		
352										
353										
354										
355										
356										
357										
358										
359								Black, GRANITE/GNEISS, Mostly black quartz.		
360										
361										
362										
363										
364										
365										
366										
367										
368										
369										
370										
371										
372								Gray, GRANITE, with black minerals.		
373										
374										
375										
376							Bedrock			
377										
378										
379										
380										
381										
382										
383										
384										
385										
386										
387										
388										
389										
390										
391										
392										
393								Gray, GRANITE, with black minerals, pyroxene.		
394										
395										
396										
397										
398										
399										
400										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Boring terminated at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-1**

Boring Location:

Checked by: J. Lambert

Date Start: January 9, 2014

Date Finish: January 13, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 918.54

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
401										1
402										
403										
404										
405										
406										
407										
408										
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449										
450										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 401 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-2**
Boring Location:	
Checked by:	J. Lambert
Date Start:	December 16, 2013
Date Finish:	December 20, 2013
Contractor:	Summit Drilling Co., Inc.
Driller:	Cary Ellison
Nobis Rep.:	T. Maley
Rig Type / Model:	
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	917.23
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)
1–5	Sand and Silt	Dark brown to brown, silty SAND with gravel (SM), fine sand, trace rock fragments, dry.
6–9	Weathered Bedrock	Light gray/tan, GNEISS, weathered rock.
10–50	Bedrock	Gray/tan/orange/pink/white, medium-grained, PYROXENE SYENITE, Possible fractures at 55-60'. Similar to above; soft spot at 38 feet.

WELL DETAIL: MLS-2-1

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
51–62								Similar to above; possible fractures 55-60 feet.		
63									MLS-2-2	
64–75							Bedrock			
76–95								Similar to above; possible water zone with trace water at 100 feet.		
96–100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101–150							Bedrock		MLS-2-3; MLS-2-4	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	Sample Information: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Lithology: Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
151–200							Bedrock		MLS-2-5	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201–250							Bedrock			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256										
257										
258										
259										
260										
261										
262										
263										
264										
265										
266										
267										
268										
269										
270										
271										
272										
273										
274										
275										
276								Bedrock		
277										
278										
279										
280										
281										
282										
283										
284										
285										
286										
287										
288										
289										
290										
291										
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301–350							Bedrock		MLS-2-6	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-2**

Boring Location:

Checked by: J. Lambert

Date Start: December 16, 2013

Date Finish: December 20, 2013

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Maley

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 917.23

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
12/19/13	00:00	160			18 hr
12/20/13	00:00	110			18 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351–400							Bedrock			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 400 feet.

1) Drilling Method: Air rotary, Advancement: Air hammer, Size ID (in.): 6

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
1							Overburden	Poorly-graded SAND with gravel (SP).		
2										
3										
4								Bedrock encountered.		
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27							Bedrock			
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42								Gray, GRANITE, with black minerals and K-feldspar.		
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63								Gray, GRANITE, with black minerals and pyroxene.		
64										
65										
66										
67										
68										
69										
70										
71										
72										
73									MLS-3-1	
74										
75										
76							Bedrock			
77										
78										
79										
80										
81										
82										
83										
84										
85								Gray, GRANITE, with black minerals and pyroxene.		
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101										
102										
103										
104										
105										
106										
107										
108										
109										
110								Gray, GRANITE, with black minerals and pyroxene.		
111										
112										
113										
114										
115										
116										
117										
118									MLS-3-2	
119										
120										
121										
122										
123										
124										
125										
126							Bedrock			
127										
128										
129										
130										
131								Gray, GRANITE, with black minerals and pyroxene.		
132										
133										
134										
135										
136										
137										
138										
139										
140										
141										
142										
143										
144										
145										
146										
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151								Gray, GRANITE, with black minerals.		
152										
153										
154										
155										
156										
157										
158										
159										
160										
161										
162										
163										
164										
165										
166										
167										
168										
169										
170										
171										
172										
173										
174										
175								Bedrock		
176										
177										
178										
179										
180										
181										
182									MLS-3-3	
183										
184										
185								Gray, GRANITE, black minerals more abundant, quartz.		
186										
187										
188										
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201–209										
210								Gray, GRANITE, with black minerals and pyroxene.		
211–222										
223									MLS-3-4	
224–226							Bedrock			
227–237										
238								Gray, GRANITE, with black minerals and pyroxene.		
239–247										
248									MLS-3-5	
249–250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256										
257										
258										
259								Gray, GRANITE, black minerals more abundant, pyroxene, K-feldspar.		
260										
261										
262										
263										
264										
265										
266										
267										
268										
269										
270										
271								Gray, GRANITE, with black minerals and pyroxene, K-feldspar.		
272										
273										
274										
275										
276							Bedrock			
277										
278										
279										
280										
281										
282										
283										
284										
285										
286										
287										
288										
289										
290										
291								Gray, GRANITE, with black minerals and pyroxene.		
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-3**
Boring Location:	
Checked by:	J. Lambert
Date Start:	January 15, 2014
Date Finish:	January 17, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:		Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	950.71
Nobis Rep.:	T. Koach	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301										
302										
303									MLS-3-6	
304										
305										
306										
307										
308										
309										
310										
311										
312								Gray, GRANITE, with black minerals and pyroxene, K-feldspar.		
313										
314										
315										
316										
317										
318										
319										
320										
321										
322										
323										
324										
325										
326							Bedrock			
327										
328										
329										
330										
331								Gray, GRANITE, with black minerals and pyroxene, K-feldspar.		
332										
333									MLS-3-7	
334										
335										
336										
337										
338										
339										
340										
341										
342										
343										
344										
345										
346										
347										
348										
349										
350										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-3**

Boring Location:

Checked by: J. Lambert

Date Start: January 15, 2014

Date Finish: January 17, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 950.71

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351										
352										
353										
354										
355										
356										
357										
358										
359										
360										
361										
362										
363										
364										
365										
366								Dark gray, GRANITE, Increased amount of quartz, pyroxene.		
367										
368										
369										
370										
371										
372										
373										
374										
375										
376							Bedrock			
377										
378										
379										
380										
381										
382										
383								Gray, GRANITE, More quartz, pyroxene.		
384										
385										
386										
387										
388										
389										
390										
391										
392										
393										
394										
395										
396										
397										
398										
399								Dark gray, GRANITE, Quartz, pyroxene.		
400										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 400 feet

Boring terminated at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-4**
Boring Location:	~100' SW of MLS-3
Checked by:	J. Lambert
Date Start:	June 25, 2014
Date Finish:	September 5, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Reich Drill/T-650-W	Ground Surface Elev.:	
Driller:	C. Ellison/ J. Logel/ Dan N.	Hammer Type:		Top of Riser Elev.:	958.24
Nobis Rep.:	J. Lambert/A. Leonido	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
1							Fill	Tan, silty SAND (SM).		1
2							Weathered Bedrock	Weathered rock.		
3								GRANITE, Quartz, some biotite. No oxidation staining. Some light green material. Competent bedrock. Gray drilling dust..		
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15								Tan, Quartz, trace dark minerals, some K-feldspar, some orange/brown oxidation staining.		
16										
17										
18										
19										
20										
21										
22										
23								Light pink, K-feldspar and quartz, trace dark brown oxidation staining. Some dark matrix material.		
24										
25										
26							Bedrock			
27								Gray, Mostly gray quartz, matrix similar to above.		
28										
29										
30										
31										
32										
33										
34										
35										
36										
37								Drilling dust change from gray to brown.		
38										
39										
40										
41								Gray, Gray quartz, some K-feldspar, trace dark minerals, no oxidation staining. Drilling dust change to gray. Slightly faster drilling 39-40 feet..		
42										
43										
44								Very little water blown out of borehole..		
45										
46										
47										
48										
49								Gray/tan, Quartz, K-feldspar, some granite like fragments, no oxidation staining.		
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-4**
Boring Location:	~100' SW of MLS-3
Checked by:	J. Lambert
Date Start:	June 25, 2014
Date Finish:	September 5, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Reich Drill/T-650-W	Ground Surface Elev.:	
Driller:	C. Ellison/ J. Logel/ Dan N.	Hammer Type:		Top of Riser Elev.:	958.24
Nobis Rep.:	J. Lambert/A. Leonido	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
51										
52										
53										
54								Gray, Mostly quartz, some dark minerals, no K-feldspar.		
55										
56										
57										
58										
59										
60										
61								Gray, Gray quartz, trace pink K-feldspar, trace dark material.		
62										
63										
64								Some water upon re-start of drilling.		
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75							Bedrock	Gray/white, GRANITE, Little water.		
76									MLS-4-1	
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90								Gray/white, GRANITE, Little water.		
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101										
102										
103										
104										
105								Gray, GRANITE, Trace black biotite, little water.		
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116										
117										
118									MLS-4-2	
119										
120								Gray, GRANITE, Trace K-feldspar, little water.		
121										
122										
123										
124										
125										
126							Bedrock			
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
139								Light gray, Mostly quartz, trace dark minerals, trace pink K-feldspar, trace white pure quartz grains.		
140										
141										
142										
143										
144										
145										
146								Light gray, Mostly quartz, trace dark minerals, trace white pure quartz grains.		
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151								Mostly quartz with some dark minerals, trace pink K-feldspar. Some green mineral growth (secondary).		
152										
153										
154										
155										
156										
157										
158										
159										
160										
161										
162										
163								Mostly quartz with some dark minerals, trace pink K-feldspar. Trace green mineral growth (secondary).		
164										
165										
166										
167										
168										
169										
170										
171										
172										
173								Gray quartz, trace dark minerals and trace pink K-feldspar.		
174										
175							Bedrock			
176										
177										
178										
179										
180										
181										
182										
183										
184										
185										
186								Light gray quartz, trace dark minerals, trace pink K-feldspar, few pure quartz grains, trace light green secondary mineral growth.		
187										
188										
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199								Light gray, Similar to above..		
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201										
202										
203										
204										
205										
206								Greenish-gray, Quartz, trace dark minerals, greenish-gray likely some green secondary color.		
207										
208									MLS-4-3	
209										
210										
211										
212								Quartz, some green secondary color, drilling slowly..		
213										
214										
215										
216										
217										
218										
219										
220										
221								Quartz and pink K-feldspar, some light green secondary growth, trace dark minerals.		
222										
223										
224										
225										
226							Bedrock			
227										
228										
229										
230										
231								Dark green, Green mineral growth on opaque dark minerals, some quartz, no pink K-feldspar. No change in wash water (light gray).		
232										
233										
234										
235										
236										
237										
238										
239								Even amounts of quartz, dark minerals, & pink K-feldspar.		
240										
241										
242										
243										
244										
245										
246										
247										
248										
249										
250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251								Light green, Quartz, some dark opaques, pyrite on 1 grain, 1-2 pink K-feldspar grains.		
252										
253										
254										
255										
256										
257										
258										
259										
260										
261								Light gray, Light gray quartz, trace dark opaques, trace pink K-feldspar.		
262										
263										
264										
265										
266										
267										
268										
269										
270										
271								Light gray, Light gray quartz, trace dark opaques, trace pink K-feldspar, trace biotite.		
272										
273										
274										
275							Bedrock			
276								Light gray, Light gray quartz, trace dark opaques and pink K-feldspar, trace grains with light green secondary mineralization.		
277										
278										
279										
280										
281								Light gray, Similar to above..		
282										
283										
284										
285										
286										
287										
288										
289										
290										
291								Light gray, Similar to above..		
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301								Dark gray, Light gray quartz and opaque dark minerals. Trace pink K-feldspar, trace green secondary mineral growth.		
302										
303										
304										
305										
306										
307										
308										
309										
310										
311								Light gray, Light gray quartz, some dark opaque minerals, trace pink K-feldspar & light green mineral growth (secondary)-fewer dark minerals than above.		
312										
313										
314										
315										
316										
317										
318									MLS-4-4	
319										
320										
321								Light gray, Similar to above..		
322										
323										
324										
325										
326							Bedrock			
327										
328										
329										
330										
331								Light gray, Light gray quartz, some dark opaque minerals, trace secondary light green mineral growth, pyrite on one grain, mostly dark opaques. Drilling faster from 335-343.		
332										
333										
334										
335										
336										
337										
338										
339										
340										
341								Light gray, Light gray quartz, some dark opaque minerals, trace pink K-feldspar. No visible pyrite.		
342										
343										
344										
345										
346										
347								Green/pink, Light green (secondary?) & pink K-feldspar with some light gray quartz and trace dark opaques.		
348										
349										
350										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351										
352										
353										
354										
355										
356										
357										
358										
359										
360										
361								Light gray quartz, dark opaque minerals, fragments pink K-feldspar.		
362										
363										
364										
365										
366										
367										
368										
369									MLS-4-5	
370										
371										
372										
373										
374										
375										
376							Bedrock			
377										
378										
379										
380										
381								Light gray quartz, pink K-feldspar, dark mineral fragments.		
382										
383										
384										
385										
386										
387										
388										
389										
390										
391										
392										
393										
394										
395										
396										
397										
398										
399										
400										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
401								Light gray quartz, pink K-feldspar, dark mineral fragments.		
402										
403										
404										
405										
406										
407										
408										
409										
410										
411										
412										
413										
414										
415										
416										
417										
418										
419										
420										
421								Similar to above.		
422										
423										
424										
425										
426							Bedrock			
427										
428										
429										
430										
431										
432										
433										
434										
435										
436										
437										
438										
439										
440										
441								Similar to above.		
442										
443										
444										
445										
446										
447										
448										
449										
450										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-4**

Boring Location: ~100' SW of MLS-3

Checked by: J. Lambert

Date Start: June 25, 2014

Date Finish: September 5, 2014

Contractor: Summit Drilling Co., Inc.

Driller: C. Ellison/ J. Logel/ Dan N.

Nobis Rep.: J. Lambert/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 958.24

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/16/14	09:10	56	12	322	24+ hrs

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
451–460										
461–467								Light gray quartz, pink K-feldspar, dark mineral fragments.		
468									MLS-4-6	
469–475										
476							Bedrock			
477–480										
481								Similar to above.		
482–495										
496								Similar to above.		
497–500										2

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing set at 12 feet.
2) End of borehole at 500 feet.

Boring terminated at 500 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
1								Brown, silty SAND with gravel (SM), some boulders.		1
2										
3										
4										
5										
6										
7							Sandy Gravel with Boulders			
8										
9										
10										
11										
12										
13										
14										
15								Competent rock encountered.		
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29								Light gray, Light gray quartz, trace dark opaques in grains, some pink K-feldspar grains.		
30										
31										
32										
33							Bedrock			
34										
35										
36										
37										
38										
39										
40								Light gray, Light gray quartz, trace dark minerals, trace light green secondary mineral, no pink K-feldspar.		
41										
42								Drill cuttings color change to brown; some water entry.	← MLS-5-1	
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-5**
Boring Location:	E of Dump D
Checked by:	J. Lambert
Date Start:	July 7, 2014
Date Finish:	July 11, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Ingersoll - Rand/T-3	Ground Surface Elev.:	
Driller:	J. Logel	Hammer Type:		Top of Riser Elev.:	920.1
Nobis Rep.:	J. Lambert	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51								Red/brown, Fracture between 51 & 52'. Mostly pink/weathered K-feldspar, some quartz.		
52										
53										
54										
55										
56										
57										
58										
59										
60								Quartz with trace dark minerals and pink K-feldspar grains. No apparent staining.		
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71								Quartz with trace dark minerals and pink K-feldspar grains & pieces. Slight dark red oxidized staining, cuttings becoming wet at 73 feet (about 1 gpm produced).		
72										
73										
74										
75							Bedrock			
76										
77										
78										
79										
80								Light gray/pink, Even amounts of light gray quartz & pink K-feldspar with dark opagues (both).		
81										
82										
83									MLS-5-2	
84										
85										
86										
87										
88										
89										
90										
91								Dark pink, Mostly dark pink K-feldspar with trace dark opaques & some quartz (gray); some water entry - damp cuttings, no dust.		
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101								Light gray, Light gray quartz, trace dark minerals, trace pink K-feldspar.		
102										
103										
104										
105										
106										
107										
108										
109										
110									MLS-5-3	
111								Dark red, Pink K-feldspar with some dark minerals, trace light gray quartz.		
112										
113										
114										
115										
116										
117										
118										
119										
120										
121								Dark gray, fine-grained, Light gray quartz and dark minerals, some pink K-feldspar.		
122										
123										
124										
125							Bedrock			
126										
127										
128										
129										
130										
131								Light gray/pink, Light gray quartz and pink K-feldspar, some dark grains, trace light green secondary mineral growth.		
132										
133										
134										
135										
136										
137										
138										
139										
140										
141								Light gray, Light gray quartz with trace dark opaques, trace pink K-feldspar grains.		
142										
143										
144										
145										
146										
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
151								Light gray, Light gray quartz, some opaque dark minerals, trace pink K-feldspar.		
152										
153										
154										
155										
156										
157										
158										
159										
160										
161								Light gray, Light gray quartz, some opaque dark minerals, trace pink/dark red K-feldspar.		
162										
163										
164										
165										
166										
167										
168										
169										
170										
171								Light gray, Similar to above..		
172										
173										
174										
175							Bedrock			
176										
177										
178										
179										
180										
181										
182								Green/gray, Light gray quartz, some pink K-feldspar, some light green secondary mineralization, trace dark opaques.		
183										
184										
185										
186										
187										
188										
189										
190										
191								Green/gray, Light gray quartz, some pink K-feldspar, some light green secondary mineralization, trace dark opaques (more than above).		
192										
193										
194										
195										
196										
197										
198										
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201								Light gray, Light gray quartz, trace dark opagues, trace (few grains) K-feldspar, trace light green secondary mineral growth.	MLS-5-4	
202										
203										
204										
205										
206										
207										
208										
209										
210										
211								Dark gray/green, Dark green opaque minerals, some light gray quartz, trace pink K-feldspar.		
212										
213										
214										
215										
216										
217										
218										
219										
220										
221								Light gray, fine-grained, Light gray quartz & opaque dark minerals, trace biotite, trace individual grains pink K-feldspar.		
222										
223										
224										
225							Bedrock			
226										
227										
228										
229										
230										
231								Dark gray, fine-grained, Mostly dark opaques with some light gray quartz, few grains of white feldspar & pink feldspar.		
232										
233										
234										
235										
236										
237										
238										
239										
240										
241								Light gray, Light gray quartz, some opaque dark minerals, some pink K-feldspar, trace light green secondary mineralization.		
242										
243										
244										
245										
246										
247										
248										
249										
250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251								Light gray, Light gray quartz, some opaque minerals, some pink K-feldspar, trace light green secondary minerals, slightly faster drilling from 252-255 feet.		
252										
253										
254										
255										
256										
257										
258										
259										
260										
261								Light gray, Similar to above.		
262										
263										
264										
265										
266										
267										
268										
269										
270										
271								Light gray, Light gray quartz, some dark green opaques, trace biotite, trace pink K-feldspar.		
272										
273										
274										
275										
276							Bedrock			
277										
278										
279										
280										
281								Light gray, Similar to above.		
282										
283										
284										
285										
286										
287										
288										
289										
290										
291								Light gray, Similar to above.		
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301								Light gray, Light gray quartz, some dark opaque minerals, trace pink K-feldspar, trace light green secondary minerals.		
302										
303										
304										
305										
306										
307										
308										
309										
310										
311								Light gray, Similar to above.		
312										
313										
314										
315										
316										
317										
318										
319										
320										
321								Light gray, Similar to above; borehole producing 1-1.5 gpm.	MLS-5-5	
322										
323										
324										
325										
326							Bedrock			
327										
328										
329										
330										
331								Light gray, Similar to above.		
332										
333										
334										
335										
336										
337										
338										
339										
340										
341								Light gray, Similar to above.		
342										
343										
344										
345										
346										
347										
348										
349										
350										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-5**

Boring Location: E of Dump D

Checked by: J. Lambert

Date Start: July 7, 2014

Date Finish: July 11, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 920.1

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
07/11/14	15:25	39.7	24	400	1 hr
07/11/14	15:45	38.7	24	400	1.5 hr
07/11/14	16:35	37.7	24	400	2.25 hr

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351								Gray, fine-grained, Light gray quartz and fine-grained dark opaque minerals. Trace pink K-feldspar, trace light green secondary minerals.		
352										
353										
354										
355										
356										
357										
358										
359										
360										
361								Light gray, Light gray quartz, some dark opaques, trace pink K-feldspar & light green secondary minerals.		
362										
363										
364										
365										
366										
367										
368										
369										
370										
371								Light gray, Similar to above.		
372										
373										
374										
375							Bedrock			
376										
377										
378										
379										
380										
381								Light gray, Similar to above.		
382										
383										
384										
385										
386										
387										
388										
389										
390										
391								Light gray, Similar to above.		
392										
393										
394										
395										
396										
397										
398										
399								Light gray, Similar to above.		
400										2

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 400 feet.

1) Casing installed to 24 feet.
2) End of boring at 400 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-6**
Boring Location:	
Checked by:	J. Lambert
Date Start:	July 15, 2014
Date Finish:	July 18, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:		Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	921.91
Nobis Rep.:	T. Koach	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
1							Sandy Silt, some Gravel	Brown, sandy SILT (ML), some gravel, dry.		
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26							Bedrock			
27										
28										
29										
30										
31								Gray, GRANITIC GNEISS, with epidote, very dry.		
32										
33										
34										
35										
36										
37										
38									MLS-6-1	
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-6**

Boring Location:

Checked by: J. Lambert

Date Start: July 15, 2014

Date Finish: July 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 921.91

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51										
52										
53										
54										
55										
56										
57										
58									MLS-6-2	
59										
60										
61								Gray, GRANITE, some water.		
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76								Bedrock		
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91								Gray, GRANITE, with black minerals (magnetite?).		
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-6**

Boring Location:

Checked by: J. Lambert

Date Start: July 15, 2014

Date Finish: July 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 921.91

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116										
117										
118									MLS-6-3	
119										
120										
121										
122										
123										
124										
125										
126							Bedrock			
127										
128										
129										
130								Gray, GRANITE, with black minerals, little water.		
131										
132										
133										
134										
135										
136										
137										
138										
139										
140										
141										
142										
143										
144										
145										
146								Gray, GRANITE, similar to above.		
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-6**
Boring Location:	
Checked by:	J. Lambert
Date Start:	July 15, 2014
Date Finish:	July 18, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:		Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	921.91
Nobis Rep.:	T. Koach	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151										
152										
153										
154										
155										
156										
157										
158										
159										
160										
161										
162										
163										
164										
165										
166										
167										
168									MLS-6-4	
169										
170										
171										
172										
173										
174										
175										
176							Bedrock			
177										
178										
179										
180										
181								Gray, GRANITE, with black minerals.		
182										
183										
184										
185										
186										
187										
188										
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-6**
Boring Location:	
Checked by:	J. Lambert
Date Start:	July 15, 2014
Date Finish:	July 18, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:		Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	921.91
Nobis Rep.:	T. Koach	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201										
202										
203										
204										
205										
206										
207										
208									MLS-6-5	
209										
210										
211										
212										
213										
214										
215										
216										
217										
218										
219										
220										
221										
222										
223										
224										
225							Bedrock			
226										
227										
228										
229										
230										
231										
232										
233										
234										
235										
236										
237										
238										
239										
240										
241								Gray, SYENITE, with black minerals, pyroxene, K-feldspar.		
242										
243									MLS-6-6	
244										
245										
246										
247										
248										
249										
250								249-251' soft zone with more water.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-6**

Boring Location:

Checked by: J. Lambert

Date Start: July 15, 2014

Date Finish: July 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 921.91

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256										
257										
258										
259										
260										
261										
262										
263										
264										
265										
266										
267										
268										
269										
270										
271										
272										
273										
274										
275										
276								Bedrock		
277										
278										
279										
280										
281										
282										
283										
284										
285										
286								Gray, SYENITE, with black minerals, pyroxene, K-feldspar, high water flow.		
287										
288										
289										
290										
291										
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-6**

Boring Location:

Checked by: J. Lambert

Date Start: July 15, 2014

Date Finish: July 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: T. Koach

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 921.91

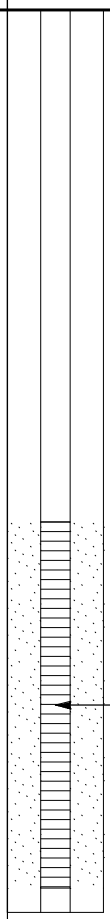
Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301–318										
319							Bedrock			
320–336										
337								Gray, lots of black minerals, water flow preventing further drilling. Boring terminated at 337 feet.		
338–350										



Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) End of boring at 337 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
1–6							Sand and Gravel	Brown, poorly-graded SAND with gravel (SP), boulder from 2-4 feet, dry.		
3–4							Boulders/Cobbles			
5–6							Sand and Gravel			
7								Bedrock encountered.		
12								Light gray/pink, Light gray quartz, pink K-feldspar, significant oxidized surfaces (brown).		
28							Bedrock			
30								Gray, GRANITE, water.		
43									MLS-7-1	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75									MLS-7-2	
76							Bedrock			
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-7**
Boring Location:	~100' N-NE of MLS-2
Checked by:	J. Lambert
Date Start:	July 17, 2014
Date Finish:	July 23, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Ingersoll - Rand/T-3	Ground Surface Elev.:	
Driller:	J. Logel	Hammer Type:		Top of Riser Elev.:	903.72
Nobis Rep.:	J. Lambert/ R. Rizza	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101–107										
108–110								Light gray, Light gray quartz, little dark opaques, trace pink K-feldspar, trace grains with green secondary mineralization.		
111–117										
118–125								Light pink, Large fracture producing 10+ gallons per minute. Light pink K-feldspar, trace light gray quartz, trace dark minerals, trace white quartz, trace light green grains.		
126–134							Bedrock	Light pink, Pink K-feldspar, trace light gray quartz, trace dark minerals, trace white quartz, trace light green grains.	MLS-7-3	
135–147								Light gray, Light gray quartz and pink K-feldspar, little dark minerals, traces grains with green secondary mineralization.		
148–150								Light gray, Light gray quartz, trace pink K-feldspar, trace grains with green secondary mineralization, trace dark minerals. Gray wash water..		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151										
152										
153										
154										
155										
156										
157										
158								Light gray, Light gray quartz, trace pink K-feldspar, trace dark minerals, trace light green minerals. Gray wash water..		
159										
160										
161										
162										
163										
164										
165										
166										
167										
168								Light gray, Similar to above..		
169										
170										
171										
172										
173										
174										
175							Bedrock			
176										
177										
178								Light gray, Light gray quartz, some pink K-feldspar, some dark minerals, trace grains with green secondary mineralization. Gray wash water.		
179										
180										
181										
182										
183										
184										
185										
186										
187										
188								Light gray, Light gray quartz, little pink K-feldspar, trace dark minerals, Gray wash water.		
189										
190										
191										
192										
193										
194										
195										
196										
197										
198								Gray, Gray quartz, some pink K-feldspar, little light green minerals, little dark minerals. Gray wash water.		
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201–207										
208–217								Gray, Gray quartz, some pink K-feldspar, little dark minerals, trace light green minerals. Gray wash water.		
218–227							Bedrock	Dark gray, Gray quartz and dark minerals, trace pink K-feldspar, trace light green minerals, trace reddish/brown oxidized staining on minerals. Gray wash water.		
228–237								Gray, Gray quartz, little pink K-feldspar, little light green minerals, little dark minerals. Gray wash water.		
238–247								Gray, Light gray quartz, little dark minerals, trace pink K-feldspar, trace light green minerals. Gray wash water.		
248–250								Light gray, Light gray quartz, trace pink K-feldspar, trace dark minerals. Gray wash water.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256										
257										
258								Pinkish/gray, Pink K-feldspar and light gray quartz, little dark minerals, trace light green minerals. Gray wash water.		
259										
260										
261										
262										
263										
264										
265										
266										
267								Pinkish/gray, gray quartz, some pink K-feldspar, some dark minerals, trace light green minerals, trace grains with green secondary mineralization. Gray wash water.		
268										
269										
270										
271										
272										
273										
274										
275							Bedrock			
276										
277										
278								Gray, Gray quartz, little pink K-feldspar, some dark minerals, trace light green minerals, trace grains with green secondary mineralization. Gray wash water.	MLS-7-4	
279										
280										
281										
282										
283										
284										
285										
286										
287										
288								Light gray, Light gray quartz, some dark minerals, little pink K-feldspar. Gray wash water.		
289										
290										
291										
292										
293										
294										
295										
296										
297										
298								Light gray, Light gray quartz, some dark minerals, little pink K-feldspar, trace grains with light green secondary mineralization. Gray wash water.		
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301										
302										
303										
304										
305										
306										
307										
308								Light gray, Light gray quartz, trace pink K-feldspar, trace grains with light green secondary mineralization, some dark minerals. Gray wash.		
309										
310										
311										
312										
313										
314										
315										
316										
317										
318								Light gray, Similar to above..		
319										
320										
321										
322										
323										
324										
325							Bedrock			
326										
327										
328								Dark gray/gray, Dark minerals and light gray quartz, little pink K-feldspar, trace grains with green secondary mineralization. Gray wash water.		
329										
330										
331										
332										
333										
334										
335										
336										
337										
338								Gray, Light gray quartz with dark opaques, little pink K-feldspar, trace green secondary mineralization. Gray wash water.		
339										
340										
341										
342										
343										
344										
345										
346										
347										
348								Gray, Light gray quartz with dark opaques, little pink K-feldspar, little green secondary mineralization. Gray wash water.		
349										
350										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-7**

Boring Location: ~100' N-NE of MLS-2

Checked by: J. Lambert

Date Start: July 17, 2014

Date Finish: July 23, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert/ R. Rizza

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 903.72

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351										
352										
353										
354										
355										
356										
357										
358								Gray, Light gray quartz with dark opaques, some pink K-feldspar, little green secondary mineralization. Gray wash water.		
359										
360										
361										
362										
363										
364										
365										
366										
367										
368								Gray, Light gray quartz with dark opaques minerals, little pink K-feldspar, little green secondary mineralization. Gray wash water.		
369										
370										
371										
372										
373										
374										
375										
376							Bedrock			
377										
378								Light gray/light green, Light gray quartz with dark opaque minerals, and light green secondary mineralization, trace pink K-feldspar, trace (2) orange/reddish oxidized grains. Gray wash water.		
379										
380										
381										
382										
383										
384									← MLS-7-5	
385										
386										
387										
388								Gray, Light gray quartz with dark minerals, little pink K-feldspar, trace light green secondary mineralization. Gray wash water. drilling faster.		
389										
390										
391								Dark gray, Possible large fracture, water increased. Dark minerals, some dark red grains, little pink K-feldspar, little green secondary mineralization, trace pyrite. Dark gray wash water.		
392										
393										
394										
395										
396										
397										
398								Dark gray/pink, Dark minerals and pink K-feldspar, some gray quartz, little green secondary mineralization. Dark gray wash water.		
399										
400										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 400 feet.

1) Casing depth to 16 feet bgs
2) Missing data for depths 50' through 100'
3) PID not working from 132-182 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-8**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Reich Drill/T-650-W	Ground Surface Elev.:	
Driller:	C. Ellison	Hammer Type:		Top of Riser Elev.:	949.64
Nobis Rep.:	A. Leonido	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
1							Asphalt	(ASPHALT).		
2								(FILL).		
3										
4										
5							Fill			
6										
7										
8										
9								Top of rock.		
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30							Bedrock			
31								Dry fractures at 30 and 35'.		
32										
33										
34										
35										
36										
37										
38										
39										
40										
41								Light gray/pink, light gray quartz, light pink feldspar, some darker plagioclase. Minor secondary rust staining, trace amounts of biotite.		
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-8**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	C. Ellison
Nobis Rep.:	A. Leonido
Rig Type / Model:	Reich Drill/T-650-W
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	949.64
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61								Gray/green, Dry fractures at 65' and 75'. gray to green plagioclase, trace white garnet.		
62										
63									MLS-8-1	
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75							Bedrock			
76										
77										
78									MLS-8-2	
79										
80										
81								Gray, gray plagioclase, trace white & clear quartz, trace pink K-feldspar.		
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99								Gray, gray plagioclase, some pink K-feldspar, trace white quartz, trace black fragments with rust stains.		
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-8**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	C. Ellison
Nobis Rep.:	A. Leonido
Rig Type / Model:	Reich Drill/T-650-W
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	949.64
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116									MLS-8-3	
117										
118										
119										
120										
121								Green/black, green/black mineral fragments, trace K-feldspar. No visible quartz, drilklers note slight inflow at 120 feet.		
122										
123										
124										
125										
126							Bedrock			
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
139										
140										
141								Green, light green & dark green mineral fragments. Some black fragments.		
142										
143										
144										
145										
146										
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	MLS-8
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	C. Ellison
Nobis Rep.:	A. Leonido
Rig Type / Model:	Reich Drill/T-650-W
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	949.64
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151										
152										
153										
154										
155										
156								Pink, pink K-feldspar fragments, trace green fragments (color change).		
157										
158										
159										
160										
161								Green, green mineral fragments, little pink K-feldspar.		
162										
163										
164										
165										
166										
167										
168										
169										
170										
171										
172										
173										
174										
175										
176							Bedrock			
177										
178										
179										
180										
181								Gray, white non-quartz fragments, gray and black mineral fragments with trace clear quartz fragments.		
182										
183										
184										
185										
186										
187										
188										
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199										
200								Green/pink, green and pink mineral fragments, trace biotite fragments.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-8**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	C. Ellison
Nobis Rep.:	A. Leonido
Rig Type / Model:	Reich Drill/T-650-W
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	949.64
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201–250							Bedrock	Dark green/black, dark green fragments, black mineral fragments (hornblende), little quartz crystals.	MLS-8-4	
								Pink, pink K-feldspar fragments with green fragments, trace quartz, color change at 230 feet.		
								Pink, pink K-feldspar fragments, green/black mineral fragments (hornblende), trace quartz fragments.	MLS-8-5	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-8**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 20, 2014
Date Finish:	August 21, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	C. Ellison
Nobis Rep.:	A. Leonido
Rig Type / Model:	Reich Drill/T-650-W
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	949.64
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256								Dark green/black, dark green/black mineral fragments. No visible quartz present, color change at 255 feet.		
257										
258										
259										
260										
261								Dark green/black, dark green/black mineral fragments. No quartz present, water encountered at 275 feet.		
262										
263										
264										
265										
266										
267										
268										
269										
270										
271										
272										
273										
274										
275							Bedrock			
276										
277										
278										
279										
280										
281								Green, light and dark green mineral fragments (olivine & epidote), little pink K-feldspar fragments. No visible quartz.		
282										
283										
284										
285										
286										
287										
288										
289									MLS-8-6	
290										
291										
292										
293										
294										
295										
296										
297										
298										
299								Green, light and dark green mineral fragments. Trace quartz, trace pink K-feldspar fragments.		
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 300 feet.

1) 6-inch casing cemented into rock socket at 20 feet.
2) End of boring at 300 feet.

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-9**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	August 28, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Ingersoll - Rand/T-3	Ground Surface Elev.:	
Driller:	J. Logel	Hammer Type:		Top of Riser Elev.:	788.94
Nobis Rep.:	M. Murphy	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
1–40							Fill	Overburden.		
41–50							Bedrock	Bedrock encountered at 41'.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-9**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	August 28, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	J. Logel
Nobis Rep.:	M. Murphy
Rig Type / Model:	Ingersoll - Rand/T-3
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	788.94
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
51								Light gray/green plagioclase, dark gray/black minerals (amphibole, mica), significant oxidized surfaces (rusty brown), grayish brown wash water.		
52										
53										
54										
55										
56										
57										
58										
59										
60										
61								Smooth drilling; unable to collect samples due to pipe configuration, several hundred gallons of water produced.		
62									MLS-9-1	
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76							Bedrock			
77										
78										
79										
80										
81								Light gray, light gray quartz, trace surface oxidation/pyrite mineralization, trace K-feldspar (pink), trace dark/light green mierals, light gray-milky white wash water.		
82										
83										
84										
85										
86										
87										
88										
89										
90									MLS-9-2	
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-9**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	August 28, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Ingersoll - Rand/T-3	Ground Surface Elev.:	
Driller:	J. Logel	Hammer Type:		Top of Riser Elev.:	788.94
Nobis Rep.:	M. Murphy	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101–107								Light gray, light gray quartz, trace pink K-feldspar, trace mica (black opaques). Increased surface oxidation/discoloration, return water light gray/milky white.		
108									MLS-9-3	
109–120										
121–124								Light gray, light gray/white quartz, trace surface oxidation, trace pink K-feldspar, return water very light gray/milky white.		
125–132							Bedrock			
133									MLS-9-4	
134–140										
141								Gray, quartz.		
142–150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-9**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	August 28, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	J. Logel
Nobis Rep.:	M. Murphy
Rig Type / Model:	Ingersoll - Rand/T-3
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Top of Riser Elev.:	788.94
Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
151–153								Light gray, Possible fracture at 153'. light gray/white quartz, trace pink K-feldspar, trace green minerals, no surface oxidation noted on grain surface. Material above and below fracture is identical.		
171–173								Light gray, light gray quartz with pink K-feldspar, little green minerals, trace opaque orange/reddish oxidized grains. Trace pyrite noted immediatly below 170'.		
175–178							Bedrock	White, white quartz with trace feldspar & trace green minerals up to 178'.		
179–183								Similar to above, trace pyrite and notable surface oxidation. 1500-2000 gallons of return water.	MLS-9-5	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-9**
Boring Location:	
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	August 28, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Ingersoll - Rand/T-3	Ground Surface Elev.:	
Driller:	J. Logel	Hammer Type:		Top of Riser Elev.:	788.94
Nobis Rep.:	M. Murphy	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201								Pink, pink K-feldspar and light/dark green secondary mineral, trace white quartz, light gray return water (2000+ gallons); drilling rate decreased.		
202										
203										
204										
205										
206										
207										
208										
209										
210										
211										
212										
213										
214										
215										
216										
217										
218										
219										
220										
221								Light gray, light gray quartz, little pink K-feldspar, little green minerals. No surface oxidation noted.		
222										
223										
224										
225										
226							Bedrock			
227										
228										
229										
230										
231										
232										
233										
234										
235										
236										
237										
238										
239										
240										
241								Light gray, light gray quartz, little green inclusions & mineral grains noted throughout. No feldspar or other minerals detected, homogenous.		
242										
243										
244										
245										
246										
247										
248										
249										
250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-9**

Boring Location:

Checked by: J. Lambert

Date Start: August 25, 2014

Date Finish: August 28, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: M. Murphy

Rig Type / Model: Ingersoll - Rand/T-3

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 788.94

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
08/15/14	00:00	20			

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
251–260										
261–278							Bedrock	Pink, pink K-feldspar & secondary green minerals, trace quartz, trace opaque mica noted. No surface oxidation noted on grain surface. Milky white return water; exceptionally slow drilling rate.		
279									MLS-9-6	
280–286								Light gray, light gray/white quartz, little pink/orange K-feldspar, trace green minerals and opaques; heavy grinding and rig chatter, milky white return water.		
287–297										
298–300								Similar to above.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 300 feet.

1) Isolation casing set to 50 feet.
2) End of boring at 300 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:34 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-11**
Boring Location:	Brookwood Drive near #83 & #82
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	September 3, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Reich Drill/T-650-W	Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	710.43
Nobis Rep.:	J.Bolduc/A. Leonido	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
1–32							Fine to Coarse Sand with Cobbles	Well-graded SAND with gravel (SW), fine to coarse sand with cobbles.		
33								Top of bedrock.		
33–50							Weathered Bedrock			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site		Boring No.: **MLS-11**
		Boring Location: Brookwood Drive near #83 & #82
Location: Byram Township, NJ		Checked by: J. Lambert
Nobis Project No.: 84002		Date Start: August 25, 2014
		Date Finish: September 3, 2014
Contractor: Summit Drilling Co., Inc.	Rig Type / Model: Reich Drill/T-650-W	Ground Surface Elev.:
Driller: Cary Ellison	Hammer Type:	Top of Riser Elev.: 710.43
Nobis Rep.: J.Bolduc/A. Leonido	Hammer Hoist:	Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
51–62							Weathered Bedrock			
63–80								Severely weathered, predominantly plagioclase feldspar, little quartz, trace mafic minerals, some fine/coarse sand, harder rock than above.	MLS-11-1	
81–100							Bedrock	Severely weathered, predominantly plagioclase feldspar, some fine/coarse sand from highly weathered material.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site		Boring No.: **MLS-11**
		Boring Location: Brookwood Drive near #83 & #82
Location: Byram Township, NJ		Checked by: J. Lambert
Nobis Project No.: 84002		Date Start: August 25, 2014
		Date Finish: September 3, 2014
Contractor: Summit Drilling Co., Inc.	Rig Type / Model: Reich Drill/T-650-W	Ground Surface Elev.:
Driller: Cary Ellison	Hammer Type:	Top of Riser Elev.: 710.43
Nobis Rep.: J.Bolduc/A. Leonido	Hammer Hoist:	Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
101								Severely weathered, predominantly plagioclase feldspar, minor quartz, trace mafic minerals.		
102										
103										
104										
105										
106										
107										
108									MLS-11-2	
109										
110										
111										
112										
113										
114										
115										
116										
117										
118										
119										
120										
121								Predominantly plagioclase feldspar, <20% quartz, some mafic minerals, trace K-feldspar. Rock getting harder at ~130'.		
122										
123										
124										
125							Bedrock			
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
139										
140										
141								Moderately weathered, predominantly plagioclase feldspar, some K-feldspar, trace quartz and mafic minerals, occasional green alteration.		
142										
143										
144										
145										
146										
147										
148										
149										
150										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site		Boring No.: **MLS-11**
		Boring Location: Brookwood Drive near #83 & #82
Location: Byram Township, NJ		Checked by: J. Lambert
Nobis Project No.: 84002		Date Start: August 25, 2014
		Date Finish: September 3, 2014
Contractor: Summit Drilling Co., Inc.	Rig Type / Model: Reich Drill/T-650-W	Ground Surface Elev.:
Driller: Cary Ellison	Hammer Type:	Top of Riser Elev.: 710.43
Nobis Rep.: J.Bolduc/A. Leonido	Hammer Hoist:	Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
151										
152										
153										
154										
155										
156										
157										
158										
159										
160										
161								Moderately weathered, predominantly plagioclase feldspar, trace smoky quartz, abundant mafic minerals, some green alteration.		
162										
163										
164										
165										
166										
167										
168										
169										
170										
171										
172										
173										
174										
175							Bedrock			
176										
177										
178										
179										
180										
181								Slightly weathered, predominantly plagioclase feldspar, trace K-feldspar, little quartz, little mafic minerals, abundant green mineralization.		
182										
183									MLS-11-3	
184										
185										
186										
187										
188										
189										
190										
191										
192										
193										
194										
195										
196										
197										
198										
199										
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-11**

Boring Location: Brookwood Drive near #83 & #82

Checked by: J. Lambert

Date Start: August 25, 2014

Date Finish: September 3, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: J.Bolduc/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 710.43

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
201								Plagioclase, minor quartz, trace mafic minerals, abundant brown staining, minor green alteration.		
202										
203										
204										
205										
206										
207										
208									MLS-11-4	
209										
210										
211										
212										
213										
214										
215										
216										
217										
218										
219										
220										
221								Predominantly plagioclase feldspar, little quartz, little K-feldspar, abundant brown mineralization, trace mafic minerals, borehole produced ~4000 gallons of water in 2 hours.		
222										
223										
224										
225										
226							Bedrock			
227										
228										
229										
230										
231										
232										
233										
234										
235										
236										
237										
238										
239										
240										
241								Predominantly plagioclase feldspar, little quartz, trace K-feldspar, trace mafic minerals, some green mineralization.		
242										
243										
244										
245										
246										
247										
248										
249										
250										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	**MLS-11**
Boring Location:	Brookwood Drive near #83 & #82
Checked by:	J. Lambert
Date Start:	August 25, 2014
Date Finish:	September 3, 2014

Contractor:	Summit Drilling Co., Inc.	Rig Type / Model:	Reich Drill/T-650-W	Ground Surface Elev.:	
Driller:	Cary Ellison	Hammer Type:		Top of Riser Elev.:	710.43
Nobis Rep.:	J.Bolduc/A. Leonido	Hammer Hoist:		Datum:	

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
251										
252										
253										
254										
255										
256										
257										
258										
259										
260										
261								Predominantly plagioclase and quartz, little mafic minerals, minor brown staining, trace K-feldspar.		
262										
263										
264										
265										
266										
267										
268										
269										
270										
271										
272										
273										
274										
275							Bedrock			
276										
277										
278										
279										
280										
281								Fresh, plagioclase and quartz with few mafic minerals, few K-feldspar; produced 4000 gallons in 28 minutes.		
282										
283										
284										
285									MLS-11-5	
286										
287										
288										
289										
290										
291										
292										
293										
294										
295										
296										
297										
298										
299										
300										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MLS-11**

Boring Location: Brookwood Drive near #83 & #82

Checked by: J. Lambert

Date Start: August 25, 2014

Date Finish: September 3, 2014

Contractor: Summit Drilling Co., Inc.

Driller: Cary Ellison

Nobis Rep.: J.Bolduc/A. Leonido

Rig Type / Model: Reich Drill/T-650-W

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Top of Riser Elev.: 710.43

Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
301								Plagioclase and quartz, numerous mafic minerals, few K-feldspar, abundant green mineralization, very few pyrite crystals.		
302										
303										
304										
305										
306										
307										
308										
309										
310										
311										
312										
313										
314										
315										
316										
317										
318										
319										
320										
321								Plagioclase feldspar and quartz, mafic minerals, trace K-feldspar crystals.		
322										
323										
324										
325										
326							Bedrock			
327										
328										
329										
330										
331										
332										
333										
334										
335										
336										
337										
338										
339										
340										
341								Similar to above.		
342										
343										
344										
345										
346										
347										
348										
349										
350										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site		Boring No.: **MLS-11**
		Boring Location: Brookwood Drive near #83 & #82
Location: Byram Township, NJ		Checked by: J. Lambert
Nobis Project No.: 84002		Date Start: August 25, 2014
		Date Finish: September 3, 2014
Contractor: Summit Drilling Co., Inc.	Rig Type / Model: Reich Drill/T-650-W	Ground Surface Elev.:
Driller: Cary Ellison	Hammer Type:	Top of Riser Elev.: 710.43
Nobis Rep.: J.Bolduc/A. Leonido	Hammer Hoist:	Datum:

	Drilling Method	Sampler
Type	air-rotary	
Size ID (in.)	6	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
351										
352										
353										
354										
355										
356										
357										
358										
359										
360									MLS-11-6	
361										
362										
363								Plagioclase feldspar, quartz and mafic minerals, trace K-feldspar.		
364										
365										
366										
367										
368										
369										
370										
371										
372										
373										
374										
375										
376							Bedrock			
377										
378										
379										
380										
381								Similar to above.		
382										
383										
384										
385										
386										
387										
388										
389										
390										
391										
392										
393										
394										
395										
396										
397										
398										
399										
400										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES: Boring terminated at 400 feet.

1) 10" conductor casing to 32', 6" conductor casing to 62'
2) End of boring at 400 feet

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 13:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1									Fill/Overburden.	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
	R-1		20-26		0				Hard, very slightly weathered, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, High-angle fractures with orange staining on fracture face. Bands of fine dark minerals present.	
21									Hard, very slightly weathered, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Bands of fine dark minerals present.	
22										
23										
24									Hard, very slightly weathered, moderately fractured, gray, coarse-grained, QUARTZ SYENITE, Intersecting high-angle & near-vertical fractures with black material on faces; fragments ripped from core from drilling. Bands of fine dark minerals present.	
25										
26										
	R-2		26-36		50				Hard, very slightly weathered, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Vertical & near horizontal fractures.	
27										
28									Hard, very slightly weathered, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Moderate-angle fractures. Blocky-green building-up on fracture faces.	
29										
30										
31										
32									Hard, very slightly weathered, moderately fractured, pink, coarse-grained, K-FELDSPAR SYENITE, Moderate-angle fractures, come core pitting at 6'.	
33									Hard, very slightly weathered, sound, white, coarse-grained, QUARTZ SYENITE, Few large dark grains.	
34									Hard, slightly weathered, sound, pink, coarse-grained, K-FELDSPAR SYENITE, Pitted core. Little weathering on fracture surfaces.	
35									Hard, very slightly weathered, slightly fractured, white, coarse-grained, QUARTZ SYENITE. Hard, very slightly weathered, extremely fractured, gray, coarse-grained, QUARTZ SYENITE, Iron stains on fractures, texture change at 9' to angular breccia.	
36									Hard, very slightly weathered, slightly fractured, pink, coarse-grained, K-FELDSPAR SYENITE.	
	R-3		36-46		29				Hard, very slightly weathered, slightly fractured, white, coarse-grained, QUARTZ SYENITE, Rounded quartz grains (from coring).	
37									Hard, very slightly weathered, slightly fractured, white, coarse-grained, QUARTZ SYENITE. Hard, very slightly weathered, slightly fractured, green, coarse-grained, Apparent sulfide vein, green chunks/banding with pyrite crystals up to 3mm diameter.	
38										
39									Hard, very slightly weathered, slightly fractured, pink, coarse-grained, QUARTZ SYENITE, Low-angle fractures. At 3' yellow staining on fracture faces.	
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
41									Hard, fresh, moderately fractured, pink, coarse-grained, QUARTZ SYENITE, Fractures evenly spaced with dark material on fracture faces - blocky fractures. Pitted.	
42										
43										
44									Similar to above, with hard spot at 43.8' during drilling.	
45										
46										
	R-4		46-56		62				Hard, fresh, sound, pink, coarse-grained, QUARTZ SYENITE, Pitted at top, with thin high-angle sealed fractures - a few mechanical breaks. 10% magnetic dark minerals; iron stain on fracture surface.	
47										
48									Similar to above, with fewer dark minerals, green growth on fracture surfaces.	
49									Hard, fresh, slightly fractured, pink, coarse-grained, K-FELDSPAR SYENITE, Moderate-angle fractures. ~10% dark minerals.	
50										
51										
52										
53									Slightly fractured, Similar to above, with high-angle fractures intersecting low-medium angle fractures. ~10% dark minerals.	
54									Hard, fresh, moderately fractured, pink, coarse-grained, K-FELDSPAR SYENITE, Rubble fracture zone. Thick iron stain on fracture faces; dark green minerals in matrix with some platy fractures.	
55									Hard, fresh, sound, pink, coarse-grained, K-FELDSPAR SYENITE, ~10% magnetic dark minerals.	
56										
	R-5		56-66		44				Hard, fresh, extremely fractured, pink, coarse-grained, K-FELDSPAR SYENITE, Rounded core edges & intersecting vertical & low angle fractures. Thick green growth on fracture faces.	
57									Hard, fresh, sound, pink, coarse-grained, K-FELDSPAR SYENITE, Heavily pitted from 1-2'. Around 2' near horizontal fractures. Moderate angle fractures, parallel. 1.8-2.3' - secondary dark (non-magnetic) staining. Iron-stain on fracture faces.	
58										
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
61										
62									Hard, fresh, slightly fractured, pink, coarse-grained, K-FELDSPAR SYENITE.	
63									Hard, fresh, slightly fractured, pink, fine-grained, K-FELDSPAR SYENITE, No foliation visible. Some secondary yellow/light green veins, some white quartz visible in hand lens.	
64										
65										
66										
67	R-6		66-73		38				Hard, fresh, slightly fractured, pink, fine-grained, K-FELDSPAR SYENITE, Fractures present. Rubble zone in top 0.2'. <10% magnetic dark minerals; green growth on fracture surfaces, pitted side of core.	
68										
69										
70									Very Hard, fresh, sound, pink, coarse-grained, QUARTZ SYENITE, Breccia texture, banded, light green veins - epidote.	
71										
72										
73									Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Some magnetic dark minerals, little pink K-feldspar.	
74	R-6A		73-76						Hard, fresh, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Fractures present. Some light green banding (grains too small to distinguish) wth minor green growth on fracture faces. Bottom 1' - small pyrite veins & tiny pyrite crystals throughout.	
75										
76										
77	R-7		76-83						Hard, fresh, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Moderate-high angle fractures. Few magnetic dark minerals and pyrite (tiny grains throughout). Green on fracture faces.	
78										
79									QUARTZ SYENITE, Similar to above, with green in filling of old fractures.	
80										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
81										
82										
83									Hard, fresh, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Moderate-high angle fractures. Few magnetic dark minerals and pyrite (tiny grains throughout). Green in filling only along major fractures.	
	R-7A		83-86		86				Hard, fresh, sound, pink, coarse-grained, K-FELDSPAR SYENITE, 1 mechanical break. Veins filled with light green epidote. Some banding. 1 cross-cutting calcite vein, few tiny pyrite grains, some dark red material - possibly hematite.	
84										
85										
86										
	R-8		86-91		45				QUARTZ SYENITE, Similar to above, with bands of pink K-feldspar at 0.3-0.4 and 1.1-1.3'. Light green epidote in-filling veins; pyrite in dark mineral seams.	
87										
88										
89									Hard, fresh, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Zone of relatively fresh, near parallel high angle fractures.	
90									Hard, fresh, slightly fractured, white/some pink, coarse-grained, QUARTZ SYENITE, Very slightly foliated (near-horizontal foliation). White feldspar, pink K-feldspar, white quartz, green growth on fracture faces with calcite.	
91										
	R-9		91-93		150				Hard, fresh, sound, white/some pink, coarse-grained, QUARTZ SYENITE, 1 high-angle fracture with calcite growth; slight foliation. Most dark minerals (not all) magnetic.	
92										
93										
	R-10		93-96		97				Hard, fresh, slightly fractured, white/some pink, coarse-grained, QUARTZ SYENITE, Rounded; may be from above.	
94									Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slightly foliated, 1.3'-low angle fractures, 2.1'-fracture set-moderate angle. Moderate parallel banding, 1.2-1.6 and 1.9-2.1' = crystalline pink K-feldspar. 1.3' some brown oxidation staining. 2.1' brown & yellow-green sealed fractures with calcite.	
95										
96										
	R-11		96-106		80				Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Minor foliation at moderate angle. 3.2' moderate angle fracture with green growth. 4.1' moderate angle fracture with mottled dark/light green growth.. Chunks of K-feldspar, tiny specs pyrite, some quartz, magnetic dark minerals, trace white feldspar, a few discolord (yellow) areas..	
97										
98										
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
101										
102									Hard, fresh, moderately fractured, gray, coarse-grained, QUARTZ SYENITE, 1" rubble zone; multiple fractures.	
103									Hard, fresh, sound, white/pink, coarse-grained, QUARTZ SYENITE, Very large (2cm diameter) crystals - pink K-feldspar and white quartz.	
104									Hard, fresh, moderately fractured, pink, coarse-grained, QUARTZ SYENITE, Rubble zone; fractures along pink K-feldspar cleavage. Yellow-orange oxidation staining on fracture surface.	
105									Hard, fresh, sound, pink, coarse-grained, K-FELDSPAR SYENITE, Slight foliation. Crystalline pink K-feldspar; some light yellow veins (look like scratches) perpendicular to slight foliation.	
106										
	R-12		106-116		16					
107										
108										
109										
110										
111									Hard, fresh, slightly fractured, gray, coarse-grained, QUARTZ SYENITE, Foliation present. Banded syenite with magnetic dark minerals; light green growth on fractures. Void at 108'; recovery likely from below 110'.	
112										
113										
114										
115										
116										
	R-13		116-126		102				Very Hard, fresh, sound, pink/some white, coarse-grained, K-FELDSPAR SYENITE, Few light green veins.	
117									Hard, fresh, sound, white, medium-grained, QUARTZ SYENITE, <10% magnetic dark minerals.	
118										
119										
120									Very Hard, fresh, sound, white, coarse-grained, QUARTZ SYENITE, Some minor foliation visible in dark grains. 9.4-9.6' only non-mechanical fractures - high-angle fracture intersecting	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
									low-angle fracture. More white quartz than above (10-20%); 6-9'-some yellow/light green discoloration in matrix; appears to be from sealed veins (epidote).	
121										
122										
123										
124										
125										
126										
	R-14		126-136		88				Hard, fresh, slightly fractured, pink, coarse-grained, K-FELDSPAR SYENITE, Very slight dark mineral foliation. 1.3' - fracture with dark blue/green and light green on face. 2.9' - fractures with dark green/light green mottling on face. Some dark minerals (20-30%), less quartz (10-15%), light green veins perpendicular to foliation.	
127										
128										
129										
130										
131										
132										
133									Hard, fresh, sound, gray, coarse-grained, K-FELDSPAR SYENITE, Apparent breccia zone. Bands of non-magnetic dark minerals with off-set 2cm K-feldspar grains, some pyrite specks. Similar to above, slightly more foliated. Some dark minerals and pink K-feldspar.	
134										
135										
136									Hard, fresh, sound, white/pink, coarse-grained, QUARTZ SYENITE, Crystalline white quartz/pink k-feldspar. Light green veins.	
	R-15		136-146		77				Similar to above, with thick (2cm) veins of light green epidote.	
137									Hard, fresh, sound, white, coarse-grained, QUARTZ SYENITE, Healed fractures with dark mineral staining. Dark minerals (some magnetic), trace pink K-feldspar, trace tiny pyrite grains, some pitting of core surface.	
138									Hard, fresh, sound, white, coarse-grained, QUARTZ SYENITE, only fracture at 1.3' with dark green staining on face. Near-horizontal foliation of dark grains. Magnetite with pyrite haloes. Trace pink K-feldspar. Few light green cross-cutting veins. 7-7.2' - zone of crystalline gray quartz.	
139										
140										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
141										
142										
143										
144										
145										
146										
	R-16		146-156		83				Hard, fresh, sound, gray, fine-grained, QUARTZ SYENITE, High-angle fractures with dark green growth on faces. Near-horizontal dark mineral foliation. 50% quartz, 50% dark minerals, less than 5% pink K-feldspar. 2.3-2.5' - pyrite around dark minerals and in tiny specks in matrix.	
147										
148										
149										
150										
151									Hard, fresh, sound, gray/pink, coarse-grained, QUARTZ SYENITE, Almost no foliation. Very coarse (1cm) grained quartz.	
152										
153									Hard, fresh, sound, gray, fine-grained, QUARTZ SYENITE, Slight horizontal foliation; few sealed veins. Some dark minerals and pink K-feldspar, specks of pyrite associated with dark minerals.	
154										
155									Hard, fresh, sound, white/pink, coarse-grained, QUARTZ SYENITE, Crystalline quartz & pink K-feldspar (3cm diameter) with pyrite in gaps & some magnetic dark minerals.	
156									Hard, fresh, slightly fractured, white, coarse-grained, QUARTZ SYENITE, Very slight foliation. Trace dark minerals. Green fracture faces.	
	R-17		156-166		69				Hard, fresh, sound, white, coarse-grained, QUARTZ SYENITE, Some magnetic dark minerals, trace pink K-feldspar.	
157									Hard, fresh, slightly fractured, white, coarse-grained, QUARTZ SYENITE, Fracture present. Dark green zone around fracture, some calcite.	
158									Hard, fresh, sound, white, coarse-grained, QUARTZ SYENITE, Slight near-horizontal foliation.. Some magnetic dark minerals, trace pink K-feldspar in a few areas. Tiny specks calcite (trace). Fractures have dark green growth, no calcite.	
159										
160										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
161									Very Hard, fresh, slightly fractured, gray/pink, coarse-grained, QUARTZ SYENITE, Low angle, slight foliation with yellow/light green veins cross-cutting foliation. Alternating bands crystalline pink K-feldspar and quartz with coarse grained quartz, feldspar, dark minerals.	
162										
163									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slight near-horizontal foliation. Fractures present. Magnetic dark minerals; few pink K-feldspar grains. 9-10': dark veins perpendicular to light streaks (white feldspar); both veins set at moderate angles. Fracture surface - mottled light & dark green, no calcite.	
164										
165										
166										
	R-18		166-176		92				Very Hard, fresh, sound, white/pink, coarse-grained, QUARTZ SYENITE, Very slight foliation. At 1.5', 75 degree fracture with dark/light green growth, calcite, and slicken sides on face. Dark minerals present. Light yellow/green fracture in-filling. Quartz & K-feldspar 1-2 cm diameter; dark minerals=small sand-sized.	
167										
168										
169									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slight foliation. At 4.5', 70 degree fracture with calcite, green & light yellow growth on face, no slickensides. Some dark minerals (magnetic) with some pyrite haloes, trace pink K-feldspar, high-angle veins with light green in-filling.	
170										
171										
172									Very Hard, fresh, sound, white/pink, coarse-grained, QUARTZ SYENITE, No foliation, few veins. Some "scratches" - very fine, short light yellow veins.	
173									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slight near-horizontal foliation. Some dark minerals, trace pink K-feldspar.	
174										
175									Very Hard, fresh, gray, coarse-grained, QUARTZ SYENITE, "Rubble zone", all fresh surfaces. Core damaged - over-filled barrel; composition similar to above.	
176										
	R-19		176-186		100				Very Hard, fresh, sound, light gray/ some pink, coarse-grained, QUARTZ SYENITE, Slight near-horizontal foliation of dark minerals. Trace dark minerals. Pyrite haloes around some dark mineral grains. Dark & light green high-angle sealed veins.	
177										
178									Similar to above, with light green/yellow discoloration throughout.	
179									Very Hard, fresh, sound, light gray, coarse-grained, QUARTZ SYENITE, Quartz (50%), ~20% dark minerals, ~30% pink K-feldspar.	
180										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
181									Very Hard, fresh, sound, light gray/pink, coarse-grained, QUARTZ SYENITE, 2+ cm crystals pink K-feldspar.	
182									Very Hard, fresh, sound, light gray/pink, coarse-grained, QUARTZ SYENITE, Slight foliation of dark minerals. Some dark minerals in veins and matrix.	
183									Similar to above, with light green/yellow discoloration.	
184									Very Hard, fresh, sound, light gray/ some pink, coarse-grained, QUARTZ SYENITE, Trace dark minerals.	
185										
186									Dark green, coarse-grained, SYENITE, No foliation. Some light gray quartz and pink feldspar.	
	R-20		186-196						Very Hard, fresh, sound, light gray, QUARTZ SYENITE, Slight near-horizontal foliation. Cross-cutting light green/yellow veins.	
187									Very Hard, fresh, sound, light gray/ pink, coarse-grained, QUARTZ SYENITE, Very slight foliation (0-15 degrees). Tiny dark minerals - biotite, magnetic darks, pyrite. High-angle veins with dark minerals & light green/yellow in-filling.	
188										
189										
190										
191										
192										
193										
194									Very Hard, fresh, sound, light gray/ some pink, coarse-grained, QUARTZ SYENITE, 45 degree fracture at 8'. 2-4 cm crystals or quartz and K-feldspar. Some magnetic dark minerals and pyrite between grains. Fracture, dull green & pyrite on face, no calcite.	
195										
196									Very Hard, fresh, sound, light gray, coarse-grained, QUARTZ SYENITE, Some dark minerals, trace pink K-feldspar. High-angle calcite vein at 9.8'.	
	R-21		196-206						Very Hard, fresh, sound, light gray/pink, coarse-grained, QUARTZ SYENITE, No foliation. 2-4 cm quartz and K-feldspar crystals; few spots of dark minerals.	
197									Very Hard, fresh, sound, light gray/pink, coarse-grained, QUARTZ SYENITE, No foliation. Trace dark minerals. Some irregular dark veins.	
198									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, 1 cm quartz crystals and dark minerals; some pink K-feldspar. A few light green/yellow veins.	
199									Very Hard, fresh, sound, light gray, coarse-grained, QUARTZ SYENITE, Slight foliation of dark minerals with cross-cutting orange veins. Fracture present. ~20% dark minerals, few areas of pink K-feldspar. Fracture face and healed veins have dark and light green growth (no	
200										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
									calcite).	
201										
202										
203										
204										
205									Very Hard, fresh, sound, light gray/ some pink, coarse-grained, QUARTZ SYENITE, 1-3 cm crystalline quartz, patches of dark minerals (green, magnetic, & pyrite) - distinct from unit above.	
206									Very Hard, fresh, sound, light gray, coarse-grained, QUARTZ SYENITE, Some dark minerals, little pink K-feldspar.	
	R-22		206-216		96				Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slight foliation, near-parallel fractures with light green/blue growth (calcite). ~40% dark minerals, trace pink K-feldspar. Few veins.	
207										
208										
209									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Healed fractures with light green and dark mineral in-filling. Similar to above.	
210									Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Fewer healed fractures than above unit. At 5', 70 degree fracture with dark green/blue face (calcite). Similar to above. Zones of significant pyrite at 1.8', 7.2-7.5'.	
211										
212										
213										
214										
215										
216										
	R-23		216-222		100				Very Hard, fresh, sound, gray, coarse-grained, QUARTZ SYENITE, Slight foliation of dark minerals (near-horizontal). Few thin high-angle yellow/light green veins cross-cutting foliation. 50% quartz, 40% dark minerals, 10% pink K-feldspar. Very few pyrite specks. Core slightly pitted.	
217										
218										
219										
220										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-1**

Boring Location: 20 feet Southeast of MLS-2

Checked by: J. Lambert

Date Start: April 1, 2014

Date Finish: April 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: J. Logel

Nobis Rep.: J. Lambert

Rig Type / Model: Truck / Diedrich D-120

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
221									Similar to above with several horizontal thin yellow-green veins. Very Hard, fresh, sound, light gray, coarse-grained, QUARTZ SYENITE, Slight near-horizontal foliation. Some dark min., trace pink K-feldspar.	
222									Boring terminated at 222 feet.	
223										
224										
225										
226										
227										
228										
229										
230										
231										
232										
233										
234										
235										
236										
237										
238										
239										
240										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Casing installed to 20' bgs

) No paste reaction on any core

) Black drops in wash water starting at 26', more oil stringers at 51.5', glob of oil appears at 90.8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project:	Mansfield Trail Dump Site
Location:	Byram Township, NJ
Nobis Project No.:	84002
Boring No.:	CB-2
Boring Location:	Center of dump E
Checked by:	J. Lambert
Date Start:	August 4, 2014
Date Finish:	August 7, 2014
Contractor:	Summit Drilling Co., Inc.
Driller:	M. Wilson
Nobis Rep.:	J. Bolduc
Rig Type / Model:	ATV Track Rig / CME 75
Hammer Type:	
Hammer Hoist:	
Ground Surface Elev.:	
Datum:	

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1									Fill/Overburden.	
2										
3										
4										
5										
6										
7	R-1		6-9.5		69				Extremely fractured, QUARTZ SYENITE, Rubble zone. Predominantly plagioclase & K-feldspar, trace epidote/pyrite, some mafic minerals. Iron oxide staining on fracture surfaces.	
8										
9										
10	R-2		9.5-15.5		67				Extremely fractured, QUARTZ SYENITE, Rubble zone. Predominantly plagioclase & K-feldspar, trace epidote/pyrite, some mafic minerals. Iron oxide staining on fracture surfaces. Epidote rich zone. QUARTZ SYENITE, High angle fractures at 1.3', 2.0' (no staining, slightly undulating), 3.5 & 4.5' (no staining, healed). Low angle fracture at 5.5', no staining, rough surface. Abundant epidote from 0-2'. Possibly healed fractures, some pyrite and hematite alteration.	
11										
12										
13										
14										
15										
16	R-3		15.5-23		84				PYROXENE GRANITE, Occasional mechanical fractures. 1.2 & 1.4' are green infilled (<1mm thick) fractures - moderate angle. Pyrite mineralized throughout.	
17										
18									Extremely fractured, PYROXENE GRANITE, "Rubble zone". Intersecting moderate & low angle fractures.	
19									PYROXENE GRANITE, Occasional mechanical fractures. At 3, 3.9, 4.3, 4.6, and 5.3', high angle green mineralized completely healed fracture ~ 0.5 mm thick. At 6.1 & 6.3' - low angle green mineralized healed fractures 1-4 mm thick. Pyrite mineralized throughout. No staining on fracture surfaces at the bottom of core.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Overburden drilled using HSA to 6'; roller-bit 6-6.5'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-2**

Boring Location: Center of dump E

Checked by: J. Lambert

Date Start: August 4, 2014

Date Finish: August 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
21										
22										
23										
	R-4		23-28		65				PYROXENE GRANITE, At 0.3' moderately angled green healed fracture 1-10mm thick. At 2.4' moderately angled black mineralization healed 1mm thick fracture.	
24										
25										
26										
27									Extremely fractured, PYROXENE GRANITE, Mostly high angle planes and stepped fractures. Some brown staining on fracture faces.	
28										
	R-5		28-33		93				PYROXENE GRANITE, Healing low/moderate angle fractures at 0.7 & 1.8'. Weakly foliated parallel to fractures. At 3.1' moderately angled stepped fracture with green staining/mineralization on rough fracture surface. At 3.4' 45 degree undulating fracture with iron staining on. Pyrite throughout, occasional green mineralization..	
29										
30										
31										
32										
33										
	R-6		33-38		80				GRANITE, High angle fractures throughout (60 degrees). Planar with rough surfaces. Fracture at 0.1 has no staining while fractures at 1.3 and 1.5' have dark brown staining. Fracture at 3.7' is completely healed with green mineralization. Fractures at 4.2 and 4.4' have occasional brown mineralization of faces, stepped.	
34										
35										
36										
37										
38										
	R-7		38-40		42				GRANITE, At beginning of core fracture present with no staining, undulating, rough. Between 0.5 and 1.0' are 5 low angle tight fractures.	
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Overburden drilled using HSA to 6'; roller-bit 6-6.5'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-2**

Boring Location: Center of dump E

Checked by: J. Lambert

Date Start: August 4, 2014

Date Finish: August 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
	R-8		40-43		97				PYROXENE GRANITE, At 0.6' high angle planar, smooth fracture with minor brown staining. Between 2-3' there is a 1-3mm thick green mineral healed high angle fracture.	
41										
42										
43										
	R-9		43-45		71				PYROXENE GRANITE, At 0.7' nearly vertical high angle fracture 1-2mm thick, completely healed with green mineralization. At 1', 3 high angle (1mm) thick fractures healed with green mineralization parallel to foliation.	
44										
45										
	R-10		45-48		47				PYROXENE GRANITE, At 0.5' low angle stepped fracture, smooth with minor staining. At 1.1' low angle green mineral healed fracture <1mm thick.	
46										
47									PYROXENE GRANITE, "Rubble zone" high & low angle intersecting fractures. Black and rust colored staining.	
48									PYROXENE GRANITE, Intersecting horizontal and high angle planar to undulating, rough fractures. Oxidation on fracture surfaces.	
	R-11		48-53		72				PYROXENE GRANITE, At 0.3' low angle (30 degree) undulating fracture. Between 3.7 and 4.1' intersecting high angle planar & undulating fractures with foliation. Oxidation staining on fracture faces.	
49										
50										
51										
52										
53										
	R-12		53-56		78				PYROXENE GRANITE, At 1.3' high angle 0.5mm thick green mineral healed fracture. At 1.9' low angle undulating fracture with some green mineralization on fracture face; foliated.	
54										
55										
56										
	R-13		56-58		100				PYROXENE GRANITE, At 1.6' low angle fracture with some green mineralization on fracture face, undulating to stepped fracture, rough.	
57										
58										
	R-14		58-60		104				PYROXENE GRANITE, At 0.3 and 0.9', completely healed 0.5-1mm thick high angle fractures parallel to foliation.	
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Overburden drilled using HSA to 6'; roller-bit 6-6.5'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-2**

Boring Location: Center of dump E

Checked by: J. Lambert

Date Start: August 4, 2014

Date Finish: August 7, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
	R-15		60-61		67				QUARTZ GRANITE, Quartz rich (~50%) zone with no K-feldspar.	
61										
	R-16		61-63		104				PYROXENE GRANITE, At 0.1 & 0.5' series of two 0.25mm high angle fractures connected by vertical fracture, all completely healed by green mineral. Between 1.6 & 2.1' undulating vertical fracture (0.25mm thick) completely healed with black mineralization.	
62										
63										
	R-17		63-68		77				PYROXENE GRANITE, At 0.1' vertical undulating fracture. At 1.1' high angle planar fracture (rough with brown staining). 4' low angle fracture with green mineralization on face. 4.5' stepped, rough to undulating fracture with black staining on fracture face.	
64										
65										
66										
67										
68										
									Boring terminated at 68 feet.	
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Overburden drilled using HSA to 6'; roller-bit 6-6.5'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
1									Overburden.	
2										
3										
4										
5										
6										
7										
8										
9	R-1		8-13		10				Extremely fractured, PYROXENE GRANITE GNEISS, 0-3' intensely fractured, mostly high-angle fractures. 3-3.6', vertical fracture. 3.5, 3.7, 4, 4.3', high angle fractures. Dark brown staining on all fracture faces.	
10										
11										
12										
13										
14	R-2		13-18		8				PYROXENE GRANITE GNEISS, Rubble zone. Vertical and high angle fractures intersecting. Dark brown staining on fracture faces.	
15									PYROXENE GRANITE GNEISS, Low angle and high angle intersecting fractures. Dark brown staining on fracture faces. At 2.4' fractures have green staining.	
16										
17									PYROXENE GRANITE GNEISS, Rubble zone. Vertical fractures. Green staining. At 3.3', 20mm thick quartz vein.	
18									PYROXENE GRANITE GNEISS. Moderately weathered, PYROXENE GRANITE GNEISS, Rubble zone.	
19	R-3		18-23		20				PYROXENE GRANITE GNEISS. PYROXENE GRANITE GNEISS, Rubble zone. Moderately weathered, PYROXENE GRANITE GNEISS, High and low angle fractures. Dark brown staining.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
21										
22										
23										
	R-4		23-25.5		103				PYROXENE GRANITE GNEISS, Rubble zone. No staining except for minor oxidation.	
24										
25									PYROXENE GRANITE GNEISS, High and low angle fractures. High angle fractures have dark brown staining, low angle fracture has black staining.	
26	R-5		25.5-28		103				PYROXENE GRANITE GNEISS, Low angle fracture at 2.5' and a high angle fracture at 2.8'. Fractures have brown staining on surface which continues into matrix vertically ~2.5 inches below and above the fracture.	
27										
28										
	R-6		28-33		53				PYROXENE GRANITE GNEISS, Mostly high angle fractures with several low angle fractures in between. Brown staining on fracture faces. On high angle fracture at 0.3', brown staining continues into matrix ~2.5 inches.	
29										
30										
31										
32										
33										
	R-7		33-34.5		122				PYROXENE GRANITE GNEISS, At 0.7 and 0.8', low angle fractures with minor light brown staining. At 1.2', high angle fracture that is completely healed (<1mm thick) with dark green mineralization.	
34										
35	R-8		34.5-38		74				PYROXENE GRANITE GNEISS, At 0.9', two low angle fractures. Several high angle fractures throughout the rest of the core sample. Low angle fractures, brown staining on fracture faces & stained halo extending 2" into matrix. High angle fracture at 1.5', dark brown staining. High angle fractures at 2.6, 2.8 & 2.9', dark green staining. High angle fracture at 3.3', light brown stains.	
36										
37										
38										
	R-9		38-43		65				PYROXENE GRANITE GNEISS, At 0.0 & 0.2' high angle healed fractures <1mm thick. High angle fracture at 1.0' with black staining on face and light brown stain in matrix. At 1.1' vertical healed fracture <1mm thick. At 1.5, 2.4 & 2.7' low angle fractures with black staining on face. Low angle fracture at 1.5' also has light brown staining in matrix.	
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
41									Extremely fractured, PYROXENE GRANITE GNEISS, Low to high angle fractures, parallel. Fractures have black stains.	
42									PYROXENE GRANITE GNEISS.	
43										
	R-10		43-46.5		19				PYROXENE GRANITE GNEISS, "Rubble zone". Intersecting high and low angle fractures. Dark brown staining on faces.	
44									PYROXENE GRANITE GNEISS, At 1.0', parallel high angle fractures-nearly vertical. At 1.3', low angle fracture. At 1.65 & 2.0', high angle fractures. At 2.2', intersecting nearly vertical fractures. At 3.0 and 3.3', high angle fractures. All fractures have dark brown to black staining on faces.	
45										
46										
47	R-11		46.5-48		50				PYROXENE GRANITE GNEISS, At 0.25, 0.3, & 0.5', high angle fractures. At 1.2 & 1.3', intersecting high angle fractures. Between 1.5 and 1.9', "Rubble zone". All fractures have dark brown to black staining on faces.	
48										
	R-12		48-53		33				PYROXENE GRANITE GNEISS, At 0.4', high angle stepped fracture. Between 1.2 and 1.6', 5 low angle undulating fractures. At 1.9 & 2.0', 2 low angle undulating fractures. At 2.3', high angle fracture. At 2.7', low angle undulating fracture. At 4.0', nearly verticle fracture. Numerous fractures throughout. All fracture faces have brown staining on faces.	
49										
50										
51										
52										
53										
	R-13		53-58		45				PYROXENE GRANITE GNEISS, At 0.3 & 0.9', high angle fracture. At 1.3', high angle undulating fracture. At 1.4', healed high angle facture (<1mm thick). At 1.7', low angle fracture. All fractures have dark brown staining.	
54										
55										
56									PYROXENE GRANITE GNEISS, Rubble zone.	
57									PYROXENE GRANITE GNEISS, At 2.7', stepped high angle fracture. At 3.0', 2 intersecting high angle fractures. At 3.5 & 3.9', high angle fracture. At 4.4', stepped low angle fracture. Between 4.5 & 5.0', 4 intersecting planar & undulating high angle fractures. All fractures have dark brown staining.	
58										
	R-14		58-60		0				PYROXENE GRANITE GNEISS, High angle fractured rubble zone. Brown staining on fracture faces.	
59										
60									PYROXENE GRANITE GNEISS, At 1.0 & 1.9', high angle fracture. Brown staining on fracture faces.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
	R-15		60-63		0				PYROXENE GRANITE GNEISS, Rubble zone. Brown stains on fracture faces.	
61										
62									PYROXENE GRANITE GNEISS, Between 1.5 & 2.2', vertical fracture with brown staining on face. At 2.4', high angle planar fracture with brown surface staining.	
63										
	R-16		63-68		35				PYROXENE GRANITE GNEISS, At 0.3', healed verticle fracture. At 0.4 & 0.7', high angle fractures with stains on face. At 1.4', stepped fracture, no stains present.	
64										
65									Moderately weathered, PYROXENE GRANITE GNEISS, Fractured zone.	
66									PYROXENE GRANITE GNEISS, At 2.5 & 2.7', intersecting high angle planar & stepped fractures. Between 3.3 & 5.2', series of 8 high angle planar fractures with staining on faces. At 4.0', high angle fracture with light brown staining.	
67										
68										
	R-17		68-72		44				PYROXENE GRANITE GNEISS, Rubble zone.	
69									PYROXENE GRANITE GNEISS, High and low angle fractures throughout entire core. At 3.0', healed fracture present. Fractures below 1.0' have black staining.	
70										
71										
72										
	R-18		72-78		33				PYROXENE GRANITE GNEISS, 0.2 & 1.6' (step fracture), high angle fractures. 0.7', horizontal fracture intersecting vertical fracture. 1.9', horizontal fracture. 3.2 & 3.4', two intersecting high angle fractures. 4.4, 4.6, & 4.8', high angle fracture. 4.9', vertical fracture. At 0.2, 1.6 & 1.9', brown staining. Horizontal fracture at 0.7' has no staining and vertical fracture has dark brown staining. At 4.4, 4.6 & 4.8', black stains. At 4.9', dark brown stains. Between 5.6 & 5.8, 3 high angle fractures with black stains.	
73										
74										
75										
76										
77										
78										
	R-19		78-83		43				PYROXENE GRANITE GNEISS, 0.1', 2 intersecting high angle fractures. Dark brown stains on faces.	
79									PYROXENE GRANITE GNEISS, Rubble zone.	
80									PYROXENE GRANITE GNEISS, 1.1', high angle fracture. 1.1-2.1', several healed high angle fractures intersecting a verticle fracture (<1mm thick). 2.3, 3.9, 4.2 & 4.5', high angle fracture.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Notes
									2.6', high angle fracture with rubble. 3.1 & 3.4', 2 intersecting high angle fractures. All fractures have brown stains.	
81										
82										
83										
	R-20		83-88		67				PYROXENE GRANITE GNEISS, 0.2', high angle stepped fracture. 1.3, 4.5 & 4.7', low angle planar fracture. 1.7 & 1.9', high angle step & planar fractures. 2.3, 3.3 & 3.7', high angle planar fracture. Fractures at 0.2 & 1.3' have brown staining. Fractures at 1.7, 1.9 & 2.3' have black staining. Fractures at 3.3 & 3.7' have red/brown/black stains. Fractures at 4.5 & 4.7' have reddish brown stains.	
84										
85										
86										
87										
88										
	R-21		88-93		85				PYROXENE GRANITE GNEISS, At 0.1', high angle fracture with some brown stains. At 1.7', low angle fracture with no stains.	
89										
90										
91										
92										
93										
	R-22		93-97.5		35				PYROXENE GRANITE GNEISS, 0.3', horizontal fracture. 0.7-1.5', near vertical fracture with intersecting high and low angle fractures. 1.8', high angle fracture. 2.2', nearly horizontal fracture. 2.9', stepped high angle fracture. 3.4', high angle fracture. Fracture at 2.9' has no staining. Fractures at 0.3 & 2.2' have minor stains. Fracture at 1.8' has light brown stains. Fractures from 0.7-1.5 & 3.4' have dark brown stains.	
94										
95										
96										
97										
98	R-23		97.5-102		67				PYROXENE GRANITE GNEISS, At 0.5', healed fracture. At 0.7', low angle fracture with no stains. At 2.3, 2.7 & 2.9', high angle fractures with black stains.	
99										
100										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **CB-3**

Boring Location: Dump A

Checked by: J. Lambert

Date Start: August 11, 2014

Date Finish: August 14, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M. Wilson

Nobis Rep.: J. Bolduc

Rig Type / Model: ATV Track Rig / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Core/SSA	Core Barrel
Size ID (in.)		3
Advancement	Core/SSA	Cored

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	RQD (in)/(%)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	NOTES
101										
102									Boring terminated at 102 feet.	
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116										
117										
118										
119										
120										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Conductor casing set at 8'

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 4/26/16 10:33 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\OLD\ROCKCORE BORINGS_NO_RC.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-60**

Boring Location:

Checked by: J. Ricker

Date Start: August 12, 2015

Date Finish: August 12, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1							SAND	Dark brown-black, Silty SAND with coarse Gravel. Orange, fine to medium SAND with coarse Sand and fine Gravel.	
2									
3							ROCK	Pulverized, weathered rock, some friable.	
4									
5									
6								Light brown, pulverized rock, friable. White, pulverized rock, not friable.	
7									
8								White and light brown, pulverized rock. More competent to 9', friable below 9'.	
9									
10									
11									
12									
13									
14								Boring terminated at 13 feet.	
15									
16									
17									
18									
19									
20									

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-61**

Boring Location:

Checked by: J. Ricker

Date Start: August 11, 2015

Date Finish: August 11, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1									Black, Clayey SILT, little Sand, Roots.	
									Brown, Clayey SILT, little Sand.	
					2.7					
2								CLAYEY SILT		
3										
4								COBBLES	COBBLES with brown Clayey Silt and Sand.	
								CLAYEY SAND	Brown, Clayey, fine SAND with Silt and Gravel.	
5								BOULDER	BOULDER.	
								CLAYEY SILT	Gray-brown, Clayey SILT, little Sand.	
6					0.9			COBBLES	Two COBBLES. Wet below 6'.	
7								SAND	Grayish brown, coarse SAND with Gravel, some Silt & Clay.	
8									COBBLES with coarse Sand and Gravel.	
9								COBBLES		
10									COBBLES with coarse Sand and angular Gravel.	
11								CLAYEY SILT FILL	Dark gray, fine to coarse GRAVEL, with Clay & Silt. moist.	
12									Pulverized BOULDERS.	
13								BOULDER		
14										
15										
16					3.5 1.1 2.7			SILT	Dark gray, SILT and large pieces of black Rock, some Clay. wet.	
17										
18										
19									Boring terminated at 18 feet.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62A**

Boring Location:

Checked by: J. Ricker

Date Start: August 7, 2015

Date Finish: August 7, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1								LOAMY SOIL	Dark brown, loamy soil.	
					0.4			CLAYEY SILT	Brown, Clayey SILT, little Sand and Cobbles.	
2										
3								SILT	White to light brown, SILT, large Cobbles.	
					0.5				Dark gray, SILT with Sand and coarse Gravel.	
4					0.6				Light brown, fine SAND, with coarse Sand through Cobbles.	
5										
6								SAND		
7										
8										
9								CLAYEY SILT	Dark brown, Clayey SILT, some coarse Sand, Gravel, and Cobbles.	
10								BOULDER	White, granite BOULDER.	
									Boring terminated at 10 feet.	
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 10'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62B**

Boring Location:

Checked by: J. Ricker

Date Start: August 10, 2015

Date Finish: August 10, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1								LOAMY SOIL	Dark brown, loamy soil.	
2								CLAYEY SILT	Brown, Clayey SILT, little Sand and Cobbles.	
3					0.7			SILT	White to light brown, SILT, large Cobbles.	
4									Dark gray, SILT with Sand and coarse Gravel.	
5					0.9				Light brown, fine SAND, with coarse Sand through Cobbles.	
6					0.7			SAND		
7										
8										
9								CLAYEY SILT	Dark brown, Clayey SILT, some coarse Sand, Gravel, and Cobbles.	
10								BOULDER	White, granite BOULDER.	
11								SILT AND SAND	Brown and white, SILT and fine Sand. weathered rock.	
12								BOULDER	White, pulverized rock.	
13								SAND	White and brown, coarse SAND, weathered rock.	
14										
15								SILTY SAND	Dark gray, Silty SAND with rock pieces (weathered rock). Rock is dark gray to black with small white grains. Light gray, Silty, fine SAND, rock.	
16									Brown, Silty SAND with friable rock pieces.	
17										
18								ROCK	Dark gray ROCK with white veins. Boring terminated at 17.5 feet.	
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Refusal at 17.5'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-62C**

Boring Location:

Checked by: J. Ricker

Date Start: August 5, 2015

Date Finish: August 5, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
							LOAMY SILT	Dark brown, loamy SILT.	
1								Red-brown, Clayey SILT with coarse Sand and fine Gravel.	
2									
3									
4							CLAYEY SILT		
5								Light brown, Clayey SILT, little Sand, small Cobbles.	
6									
7							SILTY SAND	Dark brown, fine Silty SAND with Gravel and Cobbles.	
8									
9								Brown-gray, fine to coarse SAND, weathered rock.	
10							SAND		
11									
12							COBBLES AND GRAVEL	Light gray, COBBLES and GRAVEL with coarse Sand. Pulverized ROCK; white granite and at least two others.	
13									
14							ROCK		
15									
16							SAND	Brown and white, coarse SAND with Gravel.	
17								Brown and white, Clayey, coarse GRAVEL and coarse Sand, some Cobbles. saturated.	
18							CLAYEY GRAVEL AND SAND		
19									
20								Boring terminated at 19 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

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BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								TOPSOIL	Dark brown, SILT and fine Sand, little Clay. slightly moist. (TOPSOIL).	
1					2.2				Light brown, Clayey SILT with Gravel. angular.	
2										
3										
4								CLAYEY SILT	Brown, Clayey SILT, little coarse Sand. weathered rock, slightly moist.	
5										
6					0.4					
7									Dark and light brown, some mottled with orange, Clayey SILT, coarse Gravel.	
8					4.4			SILT	Orange and brown, SILT with coarse Sand and Gravel, Mottled.	
9								SILTY SAND	Dark brown, Silty SAND with Cobbles.	
10					0.7					
11									Gray, medium to coarse SAND. Damp above 12.5', moist below.	
12										
13								SAND		
14										
15										
16								CLAYEY SAND	Dark brown, Clayey, fine SAND, little Gravel. moist.	
17									Light brown and white, medium to coarse SAND. damp.	
18										
19								SAND		
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								SILTY SAND	Dark brown, Silty, fine SAND with Clay, little medium Sand. moist.	
21									Light brown, coarse SAND, some medium Sand. damp.	
									White, coarse SAND. dry.	
22										
									White and light brown, coarse SAND. Mottled. slightly moist.	
23										
24										
25										
									White and light brown, coarse SAND, with friable rock.	
26										
27								SAND		
									Brown, medium SAND, mottled with black Clay. saturated.	
28										
									White and light brown, medium to coarse SAND, with friable rock.	
29										
30										
31										
32										
33										
									White, pulverized rock, coarse Gravel pieces, not friable. dry.	
34									Light brown, friable rock.	
35								ROCK		
36										
									White and light brown, coarse to very coarse SAND; weathered rock. moist.	
37										
38								SAND		
									Grayish brown, medium SAND. moist.	
39									Dark brown, fine to medium SAND, with Silt & Clay, weathered rock. Mica apparent, moist.	
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-63**

Boring Location:

Checked by: J. Ricker

Date Start: August 13, 2015

Date Finish: August 14, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
41								SAND	Same as above.	
42									White, pulverized rock, friable pieces. dry.	
43									Same as above, less friable.	
44										
45								ROCK		
46									Same as above.	
47										
48										
49									Boring terminated at 48 feet.	
50										
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Water level was at 24' to 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-1	46	0-5					SILT	S-1A (6"): Organic-rich, SILT, some fine Sand, Roots. dry. (TOPSOIL).	
1									S-1B (24"): Brown, SILT and fine Sand. moist.	
2								SILT AND SAND		
3									S-1C (6"): Mottled gray-brown. Similar to above, but more dense.	
									S-1D (24"): Light brown, fine SAND, little Silt, some medium Sand.	
4										
5					20.4					
	S-2		5-10						S-2: Brown, medium SAND, some coarse Gravel, trace fine Sand, trace silt. subangular, wet. Possible petroleum odor at 9-10'.	
6										
7					1.5					
8										
9					6.2					
10										
	S-3	46	10-15						S-3A (48"): Brown, fine to medium SAND, trace coarse Gravel, cobble at 13.5'. wet.	
11										
12								SAND		
13					1.2					
14										
15					0.3				S-3B (12"): Brown, fine to coarse SAND, trace fine Gravel. wet.	
	S-4	36	15-20						S-4: Brown, medium SAND, some coarse Sand, little fine Sand. moist.	
16										
17										
18					0.3					
19										
20					0.0					

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-5	48	20-25						S-5A (24"): Tan, fine to medium SAND, trace Silt, trace Gravel. subrounded to rounded, wet.	
21					1.4			SAND		
22									S-5B (6"): Tan, fine SAND, some Silt, little Cobbles. subrounded to rounded, wet.	
23									S-5C (30"): Light tan, apparent saprolite. Matrix is SILT and fine to medium Sand. hard to break, intact cores at 24'-25'.	
24										
25					0.2					
	S-6	46	25-30						S-6A (18"): Light tan, cobble-sized saprolite pieces, some coarse sand to coarse gravel-sized fragments. Matrix is fine SAND, some Silt.	
26					0.2					
27									S-6B (42"): Tan, soft, pulverized saprolite. Fine SAND, trace Silt in matrix and pulverized material. dry.	
28										
29								SAPROLITE		
30										
	S-7	23	30-33		0.4				S-7: Tan, pulverized saprolite. Fine SAND and SILT in matrix. moist.	
31										
32										
33					1.2					
	S-8	0	33-35						S-8: Lost Sample.	
34										
35										
	S-9	24	35-37						S-9: Light tan, fine SAND, some Silt, some coarse Gravel. wet. Lost most of sample on first try; will retry.	
36										
37										
	S-10	24	37-40						S-10: Mottled tan/gray and red/brown, fine SAND, little Silt. Non-intact sample moist.	
38								SAND		
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-65**

Boring Location:

Checked by: J. Ricker

Date Start: September 1, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-11	14	40-42		0.8			SAPROLITE	S-11: Light brown, pulverized saprolite. Matrix is fine to medium SAND, some Silt. moist. Lost part of sample.	
41										
42										
	S-12		42-45					SAND	S-12: Light brown, fine to medium SAND, some Silt, some cobble-sized saprolite fragments. Non-intact sample. Will try groundwater sample here.	
43										
					0.0					
44										
45										
	S-13	46	45-49		3.1			SAND AND SILT	S-13A (24"): Brown, fine to medium SAND and Silt. moist.	
46										
47										
48								SAPROLITE	S-13B (24"): Saprolite. Fine to medium SAND, little Silt. Matrix friable, pulverized. Some cobble-sized fragments. dry.	
49					1.9					
	S-14	48	49-54						S-14A (18"): Tan, pulverized saprolite. Matrix is fine SAND, trace Silt. Some natural, coarse subrounded gravel. dry.	
50										
51									S-14B (12"): Light brown, saprolite. Matrix is fine to coarse SAND, trace Silt. dry.	
52					1.3				S-14C (18"): Light tan, saprolite. Matrix is fine to coarse SAND, trace Silt. dry.	
53										
54					0.0				S-14D (12"): White, saprolite. Matrix is SILT and fine Sand. dry.	
55									Slough; lost sample. Will end here. Boring terminated at 54 feet.	
56										
57										
58					0.0					
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) A water sample was collected from 5-10' and submitted for analysis of VOCs and total metals.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1	30	0-5		0.3			SILT	S-1A (24"): Dark brown, organic-rich, SILT, some fine to coarse Sand, cobble at 2'. moist.	
2										
3									S-1B (24"): Brown, fine to medium SAND, some Silt, cobble at 3.5'. moist.	
4										
5									S-1C (12"): Red-brown, fine to coarse SAND, trace Silt, some coarse Gravel. wet.	
6	S-2	54	5-10						S-2A (36"): Red-brown, medium to coarse SAND, trace fine Sand, trace Silt. wet.	
7										
8										
9					0.5			SAND	S-2B (6"): Red-brown, fine SAND, trace medium Sand, little Silt. wet. S-2C (18"): Brown, fine to medium SAND, some coarse Gravel. subrounded to subangular.	
10										
11	S-3	50	10-15						S-3A (30"): Brown, medium to coarse SAND, trace fine Sand. wet.	
12										
13									S-3B (8"): Olive, fine SAND, and rounded cobbles, little Silt. wet.	
14									S-3C (22"): Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand. moist.	
15										
16	S-4	48	15-20						S-4A (12"): Brown, fine to medium SAND and coarse Gravel, trace Silt. subrounded, wet.	
17					0.0			SAND AND GRAVEL	S-4B (24"): Similar to above, but with some coarse gravel.	
18										
19									S-4C (24"): Fine to medium SAND, trace coarse Sand, trace Silt. moist.	
20								SAND		
21	S-5	58	20-25						S-5A (6"): Tan, fine SAND, some Silt, some coarse Gravel. subangular to subrounded moist.	
22					0.0				S-5B (54"): Tan to light tan, apparent saprolite. SILT and fine to coarse SAND with some coarse gravel-sized saprolite pieces. Dry zones at 22'-22.8' and 23'-24' are more orange-colored.	
23								SAPROLITE		
24										
25					0.0					

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-6	54	25-30		0.1			SAND	S-6A (12"): Tan, fine SAND, some Silt, and coarse gravel-sized apparent saprolite, likely from above.	
26									S-6B (48"): Light tan, fine to coarse SAND, and coarse gravel-sized apparent pulverized saprolite, little silt. dry.	
27										
					0.3			SAND AND GRAVEL		
28										
29										
30										
	S-7	60	30-35		0.1				S-7A (12"): Light brown, fine SAND, some coarse Sand, some coarse gravel (saprolite). damp.	
31									S-7B (36"): Tan, similar to above; color change only.	
32								SAND		
33										
34										
35								SILT AND GRAVEL	S-7C (12"): Powdery, SILT and coarse Gravel. some cobbles; mostly pulverized saprolite. A few cobbles are competant rock. dry.	
	S-8	18	35-36		1.3				S-8A (6"): Similar to above.	
36								SAPROLITE	S-8B (6"): Olive, saprolite; silt matrix, cobble-sized, layered.	
	S-9		36-41						S-9A (24"): Tan, SILT and fine Sand. moist.	
37								SILT AND SAND		
					0.0					
38										
39									S-9B (12"): Very dense, apparent saprolite; SILT and SAND in cobble-sized fragments.	
					0.2				S-9C (12"): Apparent saprolite; fine sand to cobble-sized friable fragments. dry.	
40										
					0.0				S-9D (12"): Light tan, Silt to cobble-sized pulverized saprolite, friable. dry.	
41										
	S-10	22	41-44						S-10: Light tan, GRAVEL, some fine to medium Sand. All saprolite fragments, friable, matrix is silt-sized, damp.	
42										
					1.4					
43										
44								SAPROLITE		
	S-11	12	44-47						S-11: Soft, tan, SILT and fine to medium Sand, some Gravel. All friable, apparent saprolite fragments wet. Had trouble drilling; got slough in above and below sample.	
45										
					9.0					
46										
47										
	S-12	41	47-55							
48										
49									S-12A (36"): Light tan, fine to medium SAND and coarse Gravel, some Silt, apparent pulverized saprolite. dry.	
					2.2					
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-66**

Boring Location:

Checked by: J. Ricker

Date Start: August 24, 2015

Date Finish: September 1, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
51								SAPROLITE	S-12B (12"): Tan, damp. Similar to above.	
52								SAND	S-12C (12"): Light brown, fine SAND, some Silt, and coarse gravel-sized saprolite fragments. moist.	
53									S-12D (36"): Tan, GRAVEL, some fine to medium Sand, trace Silt. More competent than above (less friable pieces).	
54								GRAVEL		
55										
	S-13	41	55-60						S-13A (24"): Red-brown, saprolite, mostly intact, cobble-sized pieces. Matrix is SAND, some Silt. dry.	
56										
57										
58								SAPROLITE	S-13B (36"): Light tan/red-brown, saprolite to more competent rock. Solid cores at 57'-57.5' and 58.5'-59'.	
59										
60									Boring terminated at 60 feet.	
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Boulder at 47'-48'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-68**

Boring Location:

Checked by: J. Ricker

Date Start: September 2, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-1	43	0-5					SAND	S-1A (18"): Brown, fine to medium SAND, little Silt. moist.	
1										
2								SILT	S-1B (24"): Dark brown, Organic SILT, trace fine Sand. moist.	
3										
4								SAND	S-1C (18"): Very dense, dark gray/brown, fine to medium SAND, trace coarse Sand, trace Silt. moist.	
5										
	S-2		5-10		0.0			SILT	S-2A (12"): Dark gray/brown, SILT, some fine Sand. Mottled. wet.	
6										
7								SAND	S-2B (6"): Brown, fine SAND. wet. S-2C (18"): Brown, medium to coarse SAND, trace fine Sand. wet.	
8										
9					0.0				S-2D (24"): Brown, fine SAND, trace Silt. wet.	
10										
	S-3		10-15						S-3: Loose, brown, fine to medium SAND, trace coarse Sand, trace fine Gravel. subangular, wet. Disturbed sample.	
11										
12										
13					0.0					
14										
15										
	S-4	36	15-20						S-4A (6"): Similar to above. S-4B (18"): Brown, fine SAND, little Silt, little coarse Gravel. rounded to subrounded, wet.	
16										
17										
18										
19									S-4C (24"): Brown, fine to coarse SAND, some coarse Gravel. subrounded to subangular, wet.	
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Collected water sample at 20'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-68**

Boring Location:

Checked by: J. Ricker

Date Start: September 2, 2015

Date Finish: September 2, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
	S-5	41	20-25						S-5A (12"): Brown, fine to coarse SAND and fine to coarse Gravel. subangular, wet.	
21					0.0			SAND AND GRAVEL	S-5B (12"): Similar to above. Color change to light brown.	
22								SAND	S-5C (6"): Very dense, brown, fine SAND, little Silt, trace coarse Gravel. wet.	
23								SAPROLITE	S-5D (6"): Red-brown and white, apparent saprolite; friable, mottled, fine SAND and SILT matrix. dry.	
24								SAND	S-5E (24"): Brown, fine to coarse SAND, some Gravel. wet.	
25										
	S-6	40	25-30						S-6A (36"): Soft, light brown, saprolite. Grain size is fine to medium SAND, little Silt. moist.	
26										
27					0.1					
28										
29									S-6B (24"): Similar to above, but more competent (less friable, mostl gravel to cobble-sized pieces).	
30								SAPROLITE		
	S-7	53	30-35						S-7A (24"): Light tan, saprolite; matrix is fine SAND and SILT. Grain size is silt to cobbles.. Unable to break up cobbles, dry.	
31					1.5					
32									S-7B (6"): Similar to above. Color change to light gray.	
33									S-7C (12"): Light tan, pulveried (dust) saprolite; silt-sized grains.. dry.	
34									S-7D (18"): Light tan, saprolite; matrix is SILT, some fine Sand.. Can break cobbles with difficulty.	
35					1.1					
	S-8	0	35-40						S-8: Slough. Drilling extremely slow; appeared to pulverize saprolite and then mix during repeated attempts to drill and grab sample. Boring terminated at 35 feet.	
36										
37										
38										
39										
40										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Collected water sample at 20'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-71**

Boring Location:

Checked by: J. Ricker

Date Start: August 17, 2015

Date Finish: August 18, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1		0					ASPHALT	S-1 (12"): Asphalt.	
2	S-2		1					CLAY WITH SAND AND GRAVEL	S-2 (24"): Dark brown, CLAY with coarse Sand with coarse Gravel, and Cobbles. moist.	
3										
4	S-3		3					SAND AND GRAVEL	S-3 (24"): White and light brown, medium to coarse SAND with Gravel.	
5										
6	S-4		5					SAND	S-4 (48"): Brown, coarse SAND. moist.	
7										
8										
9										
10	S-5		9					SAND	S-5 (12"): White and brown, medium to coarse SAND, slightly friable pieces.	
11	S-6		10					PULVERIZED ROCK	S-6 (48"): White, WEATHERED BEDROCK, pulverized rock. moist.	
12										
13										
14										
15	S-7	20	14-16		1.7			SAND AND SILT	S-7A (8"): Brown, fine to medium SAND and Silt, little fine Gravel. moist.	
16								SAND AND SILT	S-7B (16"): Dense, light brown, fine SAND, some Silt, trace Silt, Appears to be pulverized Saprolite, courser grained than above.	1
17	S-8		16		1.8			SYENITE FRAGMENTS	S-8 (12"): Pink, WEATHERED BEDROCK, Rock flour and pink K-feldspar with Quartz Syenite fragments.	
18	S-9		17					SAND	S-9A (6"): Loose, light brown, fine to coarse SAND.	
19								BEDROCK	S-9B (42"): WEATHERED BEDROCK, Rock flour/Bedrock, smoothed by drilling.	
20										
21										
22								SAND AND SILT	S-9C (12"): Dark gray, fine to medium SAND and Silt. moist.	
23								ROCK FRAGMENTS	S-9D (24"): White, WEATHERED BEDROCK, Rock fragments/powder.	
24										
25	S-10		24					ROCK FRAGMENTS	S-10 (72"): White, WEATHERED BEDROCK, Small rock fragments/powder. Drilling relatively easily throughout.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Cave-in causing slow-down in drilling. Telescope to minimize

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-71**

Boring Location:

Checked by: J. Ricker

Date Start: August 17, 2015

Date Finish: August 18, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
26					0.7			ROCK FRAGMENTS		
27										
28										
29										
30										
31	S-11		30						S-11 (60"): White, WEATHERED BEDROCK, 4" core of Granite at end of core bit. The rest is rock flour/rock fragments.	
32								ROCK FRAGMENTS		
33					0.2					
34										
35								BEDROCK		
36									Boring terminated at 35 feet.	
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Cave-in causing slow-down in drilling. Telescope to minimize

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-72**

Boring Location:

Checked by: J. Ricker

Date Start: August 6, 2015

Date Finish: August 6, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1								ASPHALT AND BASE	Asphalt and base.	
2									Brown, Sandy SILT with Clay. Cobbles.	
3										
4										
5										
6					0.9			SANDY SILT		
7					0.4					
8										
9					0.3				Light brown-gray and white, fine Sandy SILT with Clay. Few large pebbles (Gravel).	
10										
11									Brownish gray, fine SAND, with Gravel, Silt, and Cobbles.	
12										
13								SAND		
14									Orange, fine SAND, some Silt, little coarse Sand to Gravel.	
15									Orange, fine silty SAND, little coarse Sand.	
16					0.1					
17					0.1					
18										
19					0.3			SILTY SAND		
20										
21										
22										
23									Light gray and white, medium to coarse SAND. Mottled.	
24								SAND	Brown, medium to coarse SAND, little fine Gravel, with Silt & Clay.	
25								CLAYEY SILT	Brown and white, coarse SAND. Brown, Clayey SILT with Sand.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Glacial till from 0' to 13', weathered rock (regolith) from 13' to 38', bedrock below 38'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-72**

Boring Location:

Checked by: J. Ricker

Date Start: August 6, 2015

Date Finish: August 6, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
26								CLAYEY SILT		
27								SAND	Dark brown, coarse SAND, little medium Sand.	
28										
29								SILTY CLAY	Brown, Silty CLAY, little Sand. mineral structure apparent.	
30									Dark brown, medium to coarse SAND.	
31								SAND		
32										
33									Sandy SILT with Clay and medium Sand.	
34								SANDY SILT		
35								BOULDER	White, pulverized BOULDER.	
36								CLAY	Dark brown, CLAY. wet.	
37								SILTY SAND	White and brown, fine to medium, silty SAND.	
38								BOULDER	White, pulverized BOULDER.	
39								BEDROCK	Friable rock pieces. BEDROCK.	
40									Boring terminated at 40 feet.	
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Glacial till from 0' to 13', weathered rock (regolith) from 13' to 38', bedrock below 38'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-73**

Boring Location: Brookwood Road

Checked by: J. Ricker

Date Start: August 5, 2015

Date Finish: August 5, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: M. Ebel

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1							ASHPHALT AND BASE	Asphalt and base.	
2									
3								Gray, Cobbly, Silty fine to coarse SAND.	
4								Brown, Clayey, coarse SAND with Cobbles.	
5									
6									
7									
8							SAND		
9									
10									
11									
12									
13									
14								Brown, Silty, clayey SAND. BOULDER.	
15									
16									
17									
18									
19							BOULDER		
20									
21									
22									
23								Boring terminated at 23 feet.	
24									
25									

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) No samples were collected. All PID readings were 0 ppm.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1		0-5					ASPHALT	S-1A (12"): Asphalt.	
2					0.0			SAND	S-1B (30"): Brown, fine to medium SAND, some coarse Gravel, trace Silt. subrounded, moist.	
3										
4								BOULDER/ ROCK FRAGMENTS	S-1C (18"): BOULDER - rock fragments.	
5										
6	S-2		5-9					SAPROLITE AND SAND	S-2 (48"): Light tan, fine to coarse SAND and Gravel, little Silt, Saprolite fragments readily broken by hand. moist.	
7					0.0					
8										
9										
10	S-3		9-11					SAPROLITE AND SAND	S-3 (24"): Moist. Similar to above.	
11										
12	S-4		11-13					SAND	S-4A (12"): Dark brown, SILT and fine to coarse Sand, trace fine Gravel. rounded.	
13					1.3				S-4B (12"): Light tan, fine to coarse SAND, some coarse Gravel, appears to be pulverized Saprolite similar to above. moist.	
14	S-5		13-15						S-5 (24"): Light tan, medium to coarse SAND, some coarse Gravel, trace Silt, appears to be pulverized Saprolite, courser grained than above.	
15					0.0					
16	S-6	108	15-21					SAND AND SILT	S-6A (5"): Brown, SILT and fine Sand. moist.	
								SAPROLITE AND SAND	S-6B (2"): Light tan, WEATHERED BEDROCK and fine Sand, trace Silt, and trace gravel.	
17					2.1			SAPROLITE AND SAND	S-6C (3"): Dark brown, Similar to above.	1
18								SAND	S-6D (45"): Light tan, fine to medium SAND, trace Silt, trace coarse Gravel, pulverized Saprolite.	
19										
20								SAND	S-6E (3"): Light brown, fine to medium SAND, some Silt, trace coarse Gravel,	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
								SAPROLITE SAND AND GRAVEL	pulverized Saprolite. moist. Similar to above.	
21									S-6F (14"): Light tan, fine to medium SAND, some coarse Gravel, trace Silt, pulverized Saprolite. Saprolite competent at 20.5.	
	S-7	12	21-23						S-7 (24"): Light brown, fine to medium SAND, some Silt, some coarse Gravel, likely pulverized Saprolite.	
22								SAND		
23										
	S-8	12	23-25					SAND AND SILT	S-8A (12"): Light tan, fine to coarse SAND and Silt, some Gravel. moist.	
24										
								BOULDER	S-8B (6"): BOULDER.	
25					0.0			SAND	S-8C (6"): Light tan, medium to coarse SAND. wet.	
	S-9	54	25-30						S-9A (18"): Granite BOULDER.	
26								BOULDER		
27									S-9B (30"): Light tan, fine to medium SAND, trace Silt, mottled tan with light brown layers. wet.	
28					0.0					
29										
								SAND	S-9C (12"): Soft, light tan, fine SAND, trace Silt. moist.	
30										
	S-10	48	30-34.5		0.1				S-10A (6"): Light tan, fine SAND, some fine Gravel, trace Silt. moist.	
31									S-10B (18"): Light tan, medium SAND, little Silt, some coarse Gravel, Gravel is competent. dry.	
32										
									S-10C (30"): Tan, fine to medium SAND and coarse Gravel, trace Silt, apparent Saprolite, coarse gravel sized Saprolite. dry.	
33								SAPROLITE AND SAND		
34										
35	S-11	42	34.5-38		0.1			SAND	S-11A (9"): Light olive, fine SAND, some coarse Gravel, trace Silt. subrounded, moist.	
36									S-11B (15"): Light tan, fine to coarse SAND, some coarse Gravel, coarse gravel sized Saprolite (friable). dry.	
37								SAND AND SAPROLITE	S-11C (18"): Tan, 2" more extensive Saprolite at 37.5'. moist. Similar to above.	
38					0.1					
								SAND	S-12A (8"): Tan, fine to medium SAND, trace Silt. wet. grades to S-12B.	
39									S-12B (4"): Tan, fine SAND, little Silt, trace medium Sand.	
40								SAPROLITE	S-12C (6"): Layered brown/white, WEATHERED BEDROCK, Saprolite, friable with sand-sized grains. moist.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **SB-74**

Boring Location:

Checked by: J. Ricker

Date Start: August 19, 2015

Date Finish: August 21, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	S-12	60	40-44					SAPROLITE	S-12D (12"): Dark, WEATHERED BEDROCK, apparently pulverized Saprolite. dry. S-12E (6"): Moist. Similar to above.	
41									S-13 (48"): Light tan, fine SAND, some Silt, trace coarse Gravel, gravel shaped nodes (decomposed). wet.	
42										
43										
44								SAND		
45										
	S-13	54	45-50						S-14A (24"): Light tan, fine to medium SAND, trace fine Gravel, trace Silt, looks like pulvarized Saprolite. dry.	
46										
47										
								SILT AND SAND	S-14B (2"): Dense, olive, SILT and fine Sand. moist. S-14C (16"): Light tan, moist. Similar to 45-47ft above.	
48										
								SAND		
49									S-14D (12"): Dry. Similar to above.	
50								VERY DENSE SAPROLITE	S-14E (6"): Very dense, WEATHERED BEDROCK, near competent Saprolite. Boring terminated at 50 feet.	
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Very light material - pulverized saprolite expanded during extraction

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 09:55 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\SB71,74.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MW-4**

Boring Location:

Checked by: J. Lambert

Date Start: March 18, 2014

Date Finish: March 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M.Willson

Nobis Rep.: J. Stewart

Rig Type / Model: Truck / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Hollow Stem Auger	N/A
Size ID (in.)	4	N/A
Advancement	Augered	N/A

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
-2										
-1										
0										
1							FILL / 1.5	Brown, silty SAND with gravel (SM).		
2								Black, silty SAND (SM).		
3									Grout	
4										
5										
6							SILTY SAND			
7									Bentonite Seal	
8								Dark gray, silty SAND (SM).		
9										
10							/ 10.0			
11								Blue gray, sandy SILT (ML).		
12										
13										
14									Filter sand	
15							SANDY SILT			
16										
17										
18										
19										
20							/ 20.0			
21								Boring terminated at 20 feet.		
22										
23										
24										
25										
26										
27										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 5/4/15 12:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MW-5**

Boring Location:

Checked by: J. Lambert

Date Start: March 18, 2014

Date Finish: March 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M.Willson

Nobis Rep.: J. Stewart

Rig Type / Model: Truck / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Hollow Stem Auger	N/A
Size ID (in.)	4	N/A
Advancement	Augered	N/A

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified ASTM)	WELL DETAIL	NOTES
-2										
-1										
0										
1							SILTY SAND / 8.0	Tan, silty SAND (SM).	Grout; Bentonite Seal; Filter sand	
2										
3										
4										
5										
6										
7										
8										
9							WEATHERED ROCK / 10.0	Silty GRAVEL with sand (GM).		
10										
11								Boring terminated at 10 feet on auger refusal.		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 5/4/15 12:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township, NJ

Nobis Project No.: 84002

Boring No.: **MW-6**

Boring Location:

Checked by: J. Lambert

Date Start: March 18, 2014

Date Finish: March 18, 2014

Contractor: Summit Drilling Co., Inc.

Driller: M.Willson

Nobis Rep.: J. Stewart

Rig Type / Model: Truck / CME 75

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Hollow Stem Auger	N/A
Size ID (in.)	4	N/A
Advancement	Augered	N/A

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified ASTM)	Well Detail	Notes
-2										
-1										
0										
1							FILL / 2.0	Brown, silty SAND with gravel (SM).		
2										
3							SILTY SAND / 5.0	Tan, silty SAND (SM).	Grout	
4										
5										
6							SILTY SAND WITTH GRAVEL / 7.0	Dark gray blue, silty SAND with gravel (SM).		
7									Bentonite Seal	
8							SILTY SAND / 20.0	Dark gray blue, silty SAND (SM), wet.		
9										
10										
11								Dark gray blue, silty SAND (SM), wet.		
12										
13										
14									Filter sand	
15										
16										
17										
18										
19										
20										
21								Boring terminated at 20 feet.		
22										
23										
24										
25										
26										
27										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

) Slight sweet odor from cuttings on last auger (bottom) when removed

Soil descriptions and gradation percentagesare based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 5/4/15 12:26 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\PRE-FINALIZATION\MLS BORING LOGS.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-07**

Boring Location: By Playgrounds

Checked by: J. Ricker

Date Start: August 27, 2015

Date Finish: August 27, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

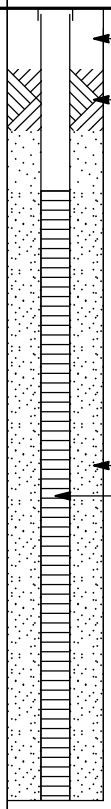
	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▽ 08/24/15	00:00	3.7			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	S-1	38	0-5					S-1A (30"): Brown, SILT and fine Sand, some fine Gravel. subrounded to subangular, moist.	
1							SILT AND SAND		
2									
3					0.1			S-1B (8"): Fine to coarse SAND, some fine Gravel. rounded to subrounded, wet.	
4						▽			
5							SAND		
	S-2	42	5-10					S-2A (18"): Similar to above.	
6									
7								S-2B (6"): Dark gray, fine to coarse SAND, some Gravel. subrounded, wet.	
8					0.1		GRAVEL	S-2C (6"): Gray, fine SAND. wet. S-2D (12"): Dark gray, fine GRAVEL. subangular to subrounded, wet.	
9								S-2E (18"): Gray, fine SAND. wet.	
10									
	S-3	30	10-15					S-3: Gray, fine SAND. wet.	
11									
12									
13									
14							SAND		
15									
	S-4	43	15-20					S-4A (18"): Similar to above.	
16									
17								S-4B (18"): Gray, fine SAND, little Silt. wet.	
18									
19							SILT AND SAND	S-4C (24"): Gray, SILT and fine Sand. wet.	
20									

WELL DETAIL



Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:08 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-07**

Boring Location: By Playgrounds

Checked by: J. Ricker

Date Start: August 27, 2015

Date Finish: August 27, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▽ 08/24/15	00:00	3.7			

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Well Detail	Notes
	S-5	24	20-25		0.0		SILT AND GRAVEL	S-5A (24"): Blue-gray, SILT and Gravel, some medium to coarse Sand. angular, wet.		
21										
22										
23							SAND	S-5B: Dense, blue-gray, fine to coarse SAND, some Gravel, little Silt. subangular to angular, wet.		
24										
25										
	S-6	34	25-30		0.0			S-6A (6"): Dense, blue-gray, fine to medium SAND. moist.		
26								S-6B (18"): Very dense, blue-gray, fine to coarse SAND, some Gravel, trace Silt. subangular to angular, moist.		
27										
28								S-6C (12"): Very dense, blue-gray, fine to coarse SAND, trace fine Gravel. subrounded, moist.		
29							SILT	S-6D (24"): Very dense, white/blue-gray, SILT. moist. Broken into cobble-sized fragments, possible saprolite.		
30										
	S-7	54	30-35		0.0		SAND	S-7A (18"): Blue-gray, medium to coarse SAND, trace fine Sand. wet.		
31										
32							SILT	S-7B (18"): Very dense, olive, SILT, with cobbles.		
33										
34							SAND AND SILT	S-7C (12"): Very dense, mottled olive/red-brown, fine to medium SAND & SILT. moist.		
35					0.0			S-7D (12"): Very dense, light gray, apparent pulverized saprolite grains, silt to coarse sand. dry.		
	S-8	58	35-40				COBBLES	S-8A (6"): Cobbles.		
36							SAND AND GRAVEL	S-8B (6"): Olive, fine to medium SAND and coarse Gravel, some Silt. wet.		
37								S-8C (6"): Granite COBBLES. S-8D (30"): SILT and Cobbles, some coarse gravel. wet.		
38							SILT AND COBBLES			
39										
40							BROKEN ROCK AND SILT	S-8E (12"): Granite BOULDER (solid).		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:08 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-07**

Boring Location: By Playgrounds

Checked by: J. Ricker

Date Start: August 27, 2015

Date Finish: August 27, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▽ 08/24/15	00:00	3.7			

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Well Detail	Notes
	S-9	30	40-45						S-9A (24"): Broken rock and SILT, damaged from drilling (boulder).		
41								SILT			
42									S-9B (18"): SILT.		
43								SILT			
44									S-9C (18"): Granite, competent rock.		
45								BEDROCK	Boring terminated at 45 feet.		
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:08 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-08**

Boring Location: Baseball Diamond

Checked by: J. Ricker

Date Start: August 25, 2015

Date Finish: August 26, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Well Detail	Notes
1	S-1	31	0-5						S-1A (24"): Loose, dark brown, fine to coarse SAND. moist.	8" roadbox, top of riser set at 4" bgs	
2					0.0						
3					0.0				S-1B (6"): Dense, brown, fine SAND, some Silt, trace medium Sand, and fine subrounded gravel. moist. S-1C (30"): Loose, brown, fine to medium SAND, trace Silt, some fine Gravel. rounded to subrounded, moist.	cement seal	
4											
5					0.0						
6	S-2	41	5-10		0.0				S-2A (36"): Loose, brown, medium to coarse SAND, trace fine Sand. wet.		
7											
8											
9					0.0				S-2B (24"): Loose, brown, medium SAND, trace fine Sand, trace coarse Sand. wet.	filter sand	
10								SAND		10' screen	
11	S-3	42	10-15						S-3: Loose, brown, medium SAND, little fine Sand. wet.		
12					0.0						
13											
14											
15											
16	S-4	48	15-20						S-4A (18"): Similar to above.		
17									S-4B (24"): Loose, tan, fine SAND. wet.		
18											
19									S-4C (18"): Loose, tan, SILT and fine Sand. wet.		
20								SILT AND SAND			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.
2) Will need to start adding water starting at 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-08**

Boring Location: Baseball Diamond

Checked by: J. Ricker

Date Start: August 25, 2015

Date Finish: August 26, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	S-5	42	20-25						S-5A (24"): Loose, brown, fine to medium SAND. wet.		
21											
22											
					0.0				S-5B (36"): Dense, olive-brown, fine SAND. wet.		
23											
24											
25											
	S-6	38	25-30		0.0				S-6: Dense, olive, fine SAND and Silt. wet.		
26											
27											
28											
					0.0						
29											
30											
	S-7	38	30-35					SAND	S-7A (54"): Dense, olive, fine SAND. wet.		
31											
32											
					0.0						
33											
34											
35									S-7B (6"): Light brown, fine SAND. wet.		
	S-8		35-40						S-8: Light brown, fine SAND, trace medium Sand. wet.		
36											
37											
38											
39											
40											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.
2) Will need to start adding water starting at 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-08**

Boring Location: Baseball Diamond

Checked by: J. Ricker

Date Start: August 25, 2015

Date Finish: August 26, 2015

Contractor: Cascade

Driller: M. Queen

Nobis Rep.: J. Lambert

Rig Type / Model:

Hammer Type:

Hammer Hoist:

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	Poly Bag
Size ID (in.)		
Advancement		Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Well Detail	Notes
	S-9	48	40-45						S-9A (24"): Brown, fine to medium SAND, some fine Gravel, cobble at 41.5' and 42'. subangular to angular, wet. First attempt lost volume.		
41					0.0			SAND			
42											
43								SAND AND GRAVEL	S-9B (12"): Brown, medium to coarse SAND and coarse Gravel, trace fine Sand. wet.		
					0.0				S-9C (6"): Tan, SILT and coarse Gravel, little fine Sand. wet.		
44									S-9D (12"): White, SILT and Gravel. pulverized, dry.		
45								SILT AND GRAVEL	S-9E (6"): Tan, SILT and Gravel. wet.		
	S-10	52	45-49						S-10A (18"): Similar to above.		
46											
47								SILT	S-10B (12"): Tan, SILT, trace fine Gravel. wet.		
					1.2						
48									S-10C (6"): Apparent saprolite, fine sand to coarse gravel-sized pieces. moist.		
	S-11	24	48-50		0.0			SILT AND GRAVEL	S-11A (18"): Tan, SILT and Gravel, trace Clay. wet.		
49											
50								ROCK	S-11B (6"): Rock (solid), potential bedrock.		
									Boring terminated at 50 feet.		
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Monitoring well elevation has not been surveyed.
2) Will need to start adding water starting at 30'.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 9/11/15 11:09 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\REPORTS\RI REPORT\BORING LOGS\MW07-08, SB60-68,72,73.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-9**

Boring Location:

Checked by:

Date Start: October 19, 2015

Date Finish: October 21, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

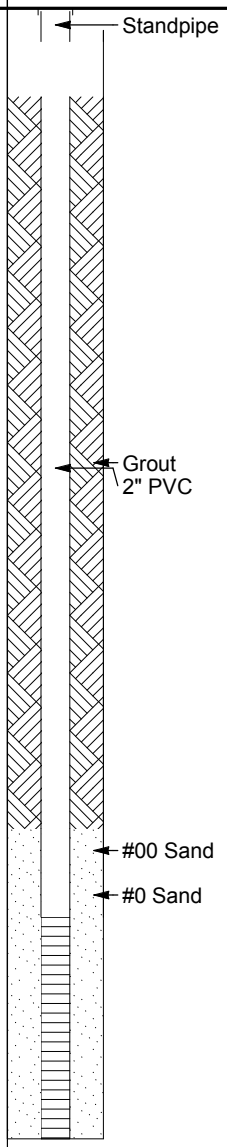
Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
0–54								See SB-73 for stratigraphy and sample details.		
51								Boring terminated at 50 feet.		



Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-10**

Boring Location:

Checked by:

Date Start: October 22, 2015

Date Finish: October 22, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
0								See SB-71 for stratigraphy and sample details.	Standpipe	
1										
2										
3										
4										
5									Grout	
6										
7									2" PVC	
8										
9										
10									#00 Sand	
11										
12									#0 Sand	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23								Boring terminated at 23 feet.		
24										
25										
26										
27										
28										
29										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-11**

Boring Location:

Checked by:

Date Start: October 23, 2015

Date Finish: October 24, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
1								See SB-66 for stratigraphy and sample details.	Roadbox Cover	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13									Grout	
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25									#00 Sand	
26										
27										
28										
29										
30										
31										
32										
33									#0 Sand	
34										
35										
36										
37										
38										
39										
40								Boring terminated at 39 feet.		
41										
42										
43										
44										
45										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-12**

Boring Location:

Checked by:

Date Start: October 22, 2015

Date Finish: October 22, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

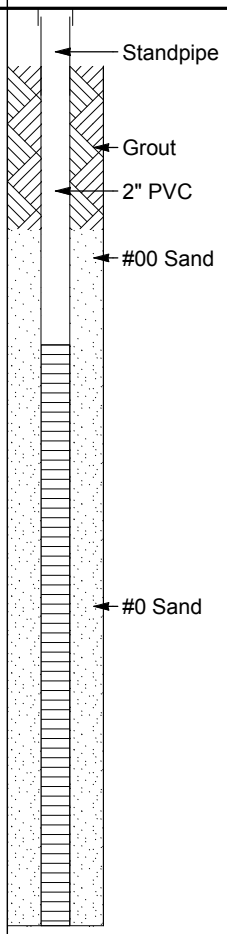
	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)
0								
	S-1		0-5				ORGANIC SILT	S-1A (6"): Dark brown/black, Organic SILT, little Sand, trace Gravel, roots. S-1B: Brown, fine to medium SAND, little Silt, little Gravel, few layers of weathered rock (saprolite). moist.
1								
2								
3								
4								
5								
	S-2		5-10					S-2: Brown, fine to medium SAND, little Silt, little Gravel, few rock fragments. moist.
6								
7								
8							SAND	
9								
10								
	S-3		10-15					S-3: Brown, fine to medium SAND, some Silt, little fine Gravel. till-like material. wet.
11								
12								
13								
14								
15								
16								Boring terminated at 15 feet.
17								
18								
19								
20								

WELL DETAIL



NOTES

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Samples were not bagged to be logged.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-13**

Boring Location:

Checked by:

Date Start: October 21, 2015

Date Finish: October 21, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
0								See SB-61 for stratigraphy and sample details.	Standpipe	
1										
2										
3									Grout	
4									2" PVC	
5										
6									#00 Sand	
7										
8										
9										
10										
11										
12										
13									#0 Sand	
14										
15										
16										
17										
18										
19								Boring terminated at 18.5 feet.		
20										
21										
22										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

BORING LOG

EES JV

Project: Mansfield Trail Dump Site

Location: Byram Township

Nobis Project No.: 84002

Boring No.: **MW-14**

Boring Location:

Checked by:

Date Start: October 24, 2015

Date Finish: October 24, 2015

Contractor: Cascade Drilling

Driller: M. Queen

Nobis Rep.: J. Stewart

Rig Type / Model: BLY Mini-Sonic

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Mini-Sonic	
Size ID (in.)	6"	
Advancement	Sonic	

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Well Detail	Notes
0									Standpipe	
	S-1	60	0-10				ORGANIC SILT	S-1A (12"): Dark gray, Organic SILT, little fine Sand, with root fragments. very moist.		
1								S-1B (18"): Gray to tan, SILT, some fine to medium Sand, trace Gravel. very moist.	Grout	
2							SILT		2" PVC	
3								S-1C (30"): Brown, fine to coarse SAND, little Gravel, trace Silt. wet.	#00 Sand	
4										
5										
6										
7										
8										
9							SAND		#0 Sand	
10										
11										
12										
13										
14										
15								Boring terminated at 14 feet.		
16										
17										
18										
19										
20										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) No recovery below 10 ft.
2) Added water to open hole to install well.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

TEST LOG 2 - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 12/28/15 16:31 - T:\RAC WORK ASSIGNMENTS\84002 MANSFIELD TRAIL DUMP RI FS\TECHNICAL DATA\BORING LOGS\MW-9 THROUGH MW-14.GPJ

Nobis
Engineering a Sustainable Future

Development
~~Low-Flow Field~~ Log
Mansfield

SOP No: SA-003
Date: Mar. 2010

Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 3-19-14 Page 1 of 1
Field Personnel
Well Depth as installed (ft.): 21.45 PVC 20ft bgs
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 7.79 From: PVC
Pump/Tubing Intake set (ft.): From:
Sample Designation
Sample Time

Well ID : MW-4
Purging Start Time : 1050
Measured Well Depth (ft.):
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 55 gal
Time at Purge Completion: 1505
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Whale pump
Multimeter model and serial number YSI 556 Turbidity meter model and serial number Lamotte 2020 we
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 2.2 gal in well Develop by purge dry Recharge purge dry etc.

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1050						5.33	476	6.19	71.7	3.35	over range	water gray turbid
1105						8.12	408	6.51	18.8	4.91	over range	
1115						8.42	333	6.51	-9.4	6.22	over range	
1130						9.82	290	6.57	-11.3	3.25	over range	
1200						9.73	248	6.58	-23.6	1.17	over range	
1230						9.87	299	6.56	-36.9	1.70	over range	
1400						9.81	307	6.46	-35.1	3.50	over range	
1430						9.90	173	6.45	-19.0	1.97	over range	
1440						10.10	204	6.48	-0.8	4.52	over range	
1450						9.92	220	6.57	-68.5	4.01	2192	
1500						10.25	207	6.48	-23.6	4.81	115	
1505						10.09	225	6.44	-5.5	4.30	29.4	55 gal purged

Finish Development

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

Nobis
Engineering a Sustainable Future

Development
~~Low-Flow Field Log~~
Mansfield

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 3-19-14 Page ____ of ____
Field Personnel Josh Stewart
Well Depth as installed (ft.): 10 12.24 (PVC)
Screen Length in ft. ____ Screen Depth in ft. ____
Depth to GW (ft.): 3.34 From: PVC
Pump/Tubing Intake set (ft.): ____ From: ____
Sample Designation ____
Sample Time ____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) where
Multimeter model and serial number YSI 556 Turbidity meter model and serial number Lamotte we
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Purge 1/2 recharge and repeat
1.45 gal in well

Well ID : MW-5
Purging Start Time : 1525
Measured Well Depth (ft.): ____
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): ~ 36
Time at Purge Completion: 1745
Signature: Josh S

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1525						5.99	351	6.50	21.4	1.23	Over range	Purge water too turbid
1555						5.62	238	6.49	-41.9	7.02	over range	
1615						5.31	232	6.14	27.6	7.93	650	
1645						5.10	215	6.12	37.9	8.58	819	
1715						4.86	209	6.12	44.2	8.94	43	
1745						5.10	205	6.05	52.1	8.92	45	purge approx 36 gal

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

Nobis
Engineering a Sustainable Future

Development ~~Low-Flow Field~~ Log
Mansfield

SOP No: SA-003
Date: Mar. 2010

Attachment B, Page 1 of 1
Rev.: 2

Prepared by:
Reviewed by:

Date : 3-20-14 Page ____ of ____
Field Personnel J. Stewart
Well Depth as installed (ft.): 20 bgs
Screen Length in ft. ____ Screen Depth in ft. ____
Depth to GW (ft.): 5.86 From: PVC
Pump/Tubing Intake set (ft.): ____ From: ____
Sample Designation ____
Sample Time ____

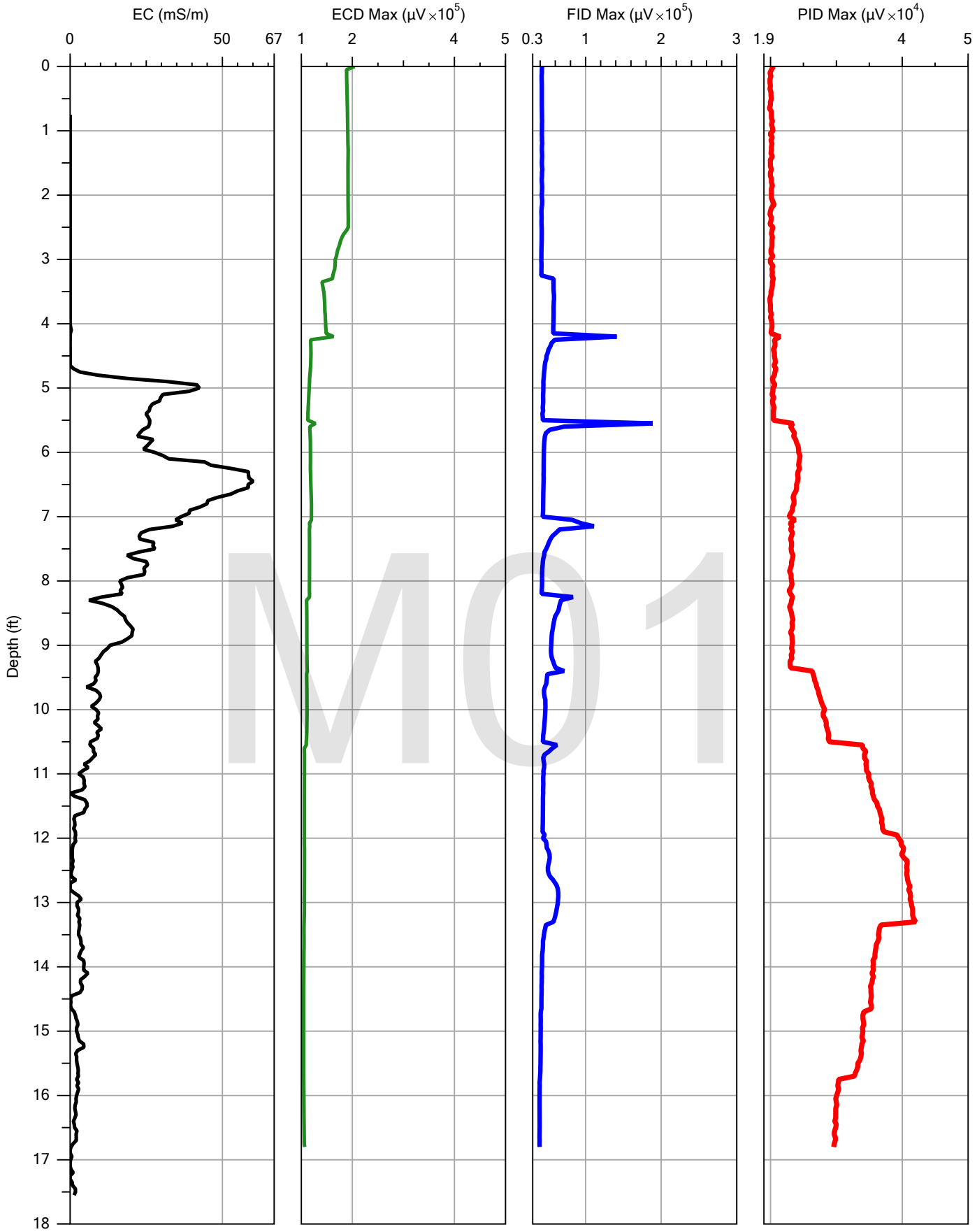
Well ID : MW-6
Purging Start Time : 1050
Measured Well Depth (ft.): 21.54 PVC
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 110
Time at Purge Completion: 1230
Signature: ____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Whale Pump
Multimeter model and serial number YSI 556 Turbidity meter model and serial number Lamotte 2020WE
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 2.55 gal in well Purge

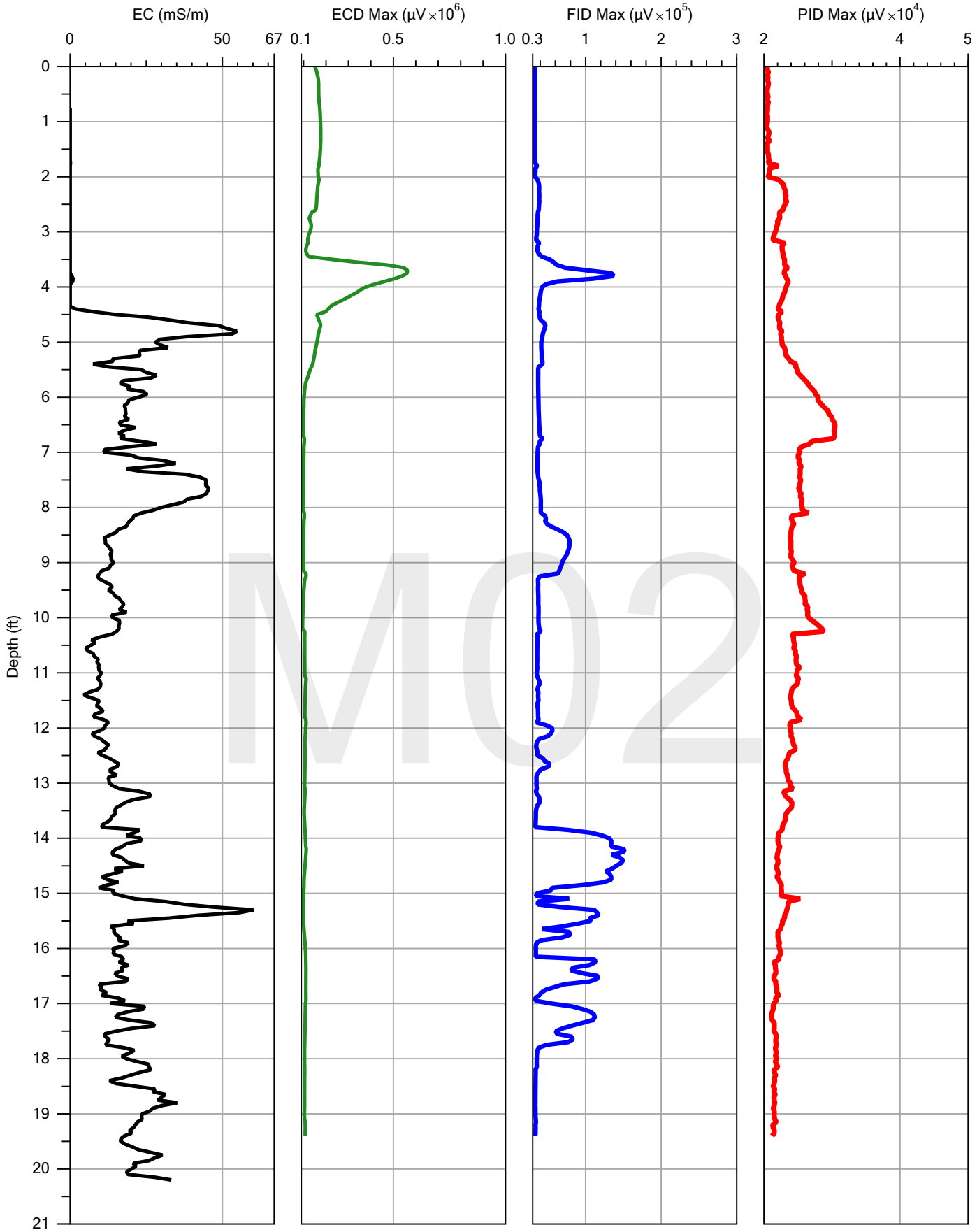
Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1050						9.89	549	6.66	8.6	2.22	over range	Purgewater gray turbid
1100						11.38	222	7.01	-89.2	1.14	over range.	
1120						11.74	192	6.85	-74.2	2.67	300 1	
1150						10.83	171	6.63	-31.3	2.80	68	
1220						10.42	164	6.61	-20.2	2.63	57.3	
1230						10.32	164	6.61	-17.2	2.71	42.3	Purged 110 gal

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling



		File: SULLM1.MIP
Company: zebra	Operator: mike/will	Date: 1/23/2014
Project ID:	Client: sullivan	Location:



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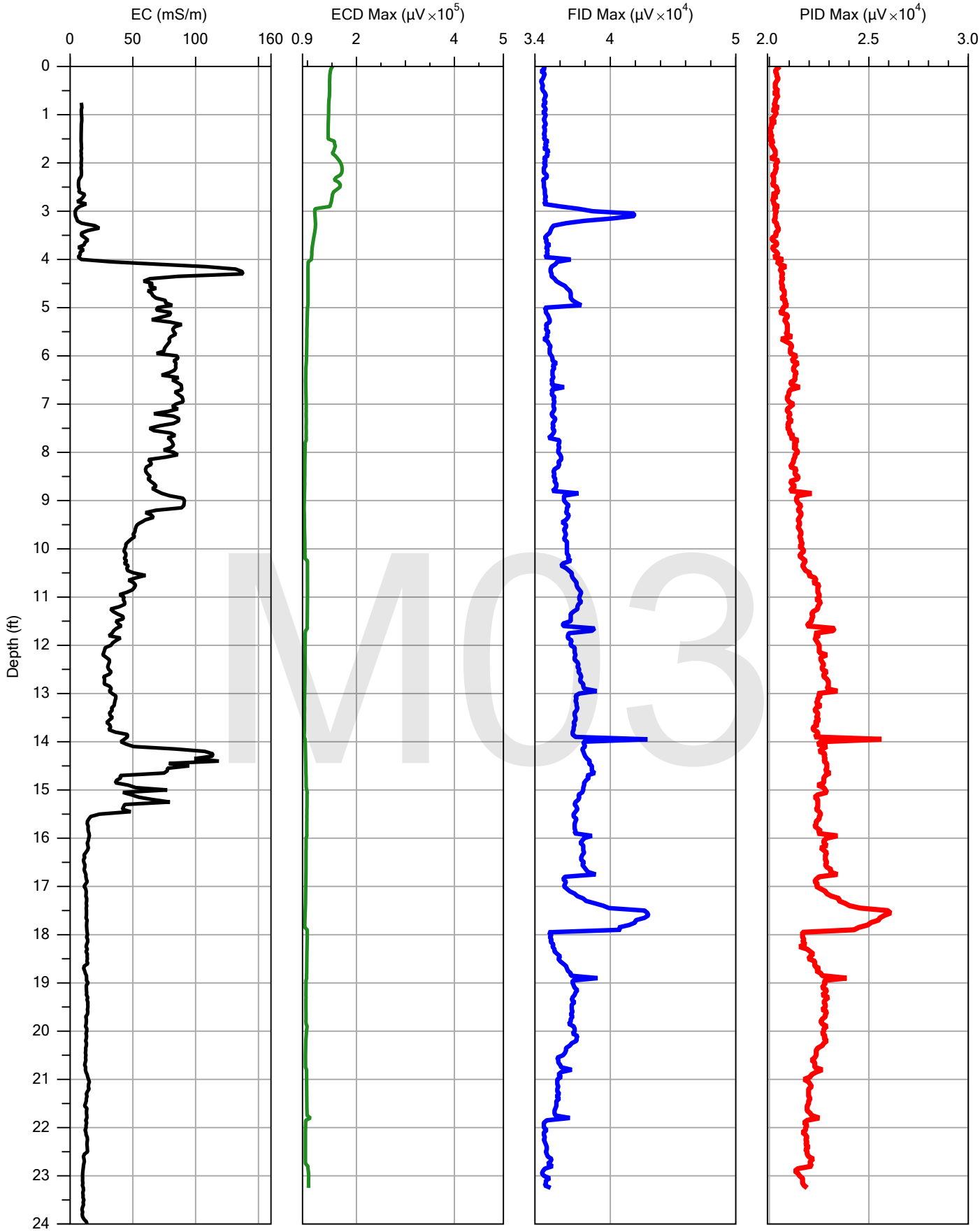
Company: zebra	Operator: mike/will	Date: 1/23/2014
Project ID:	Client: sullivan	Location:



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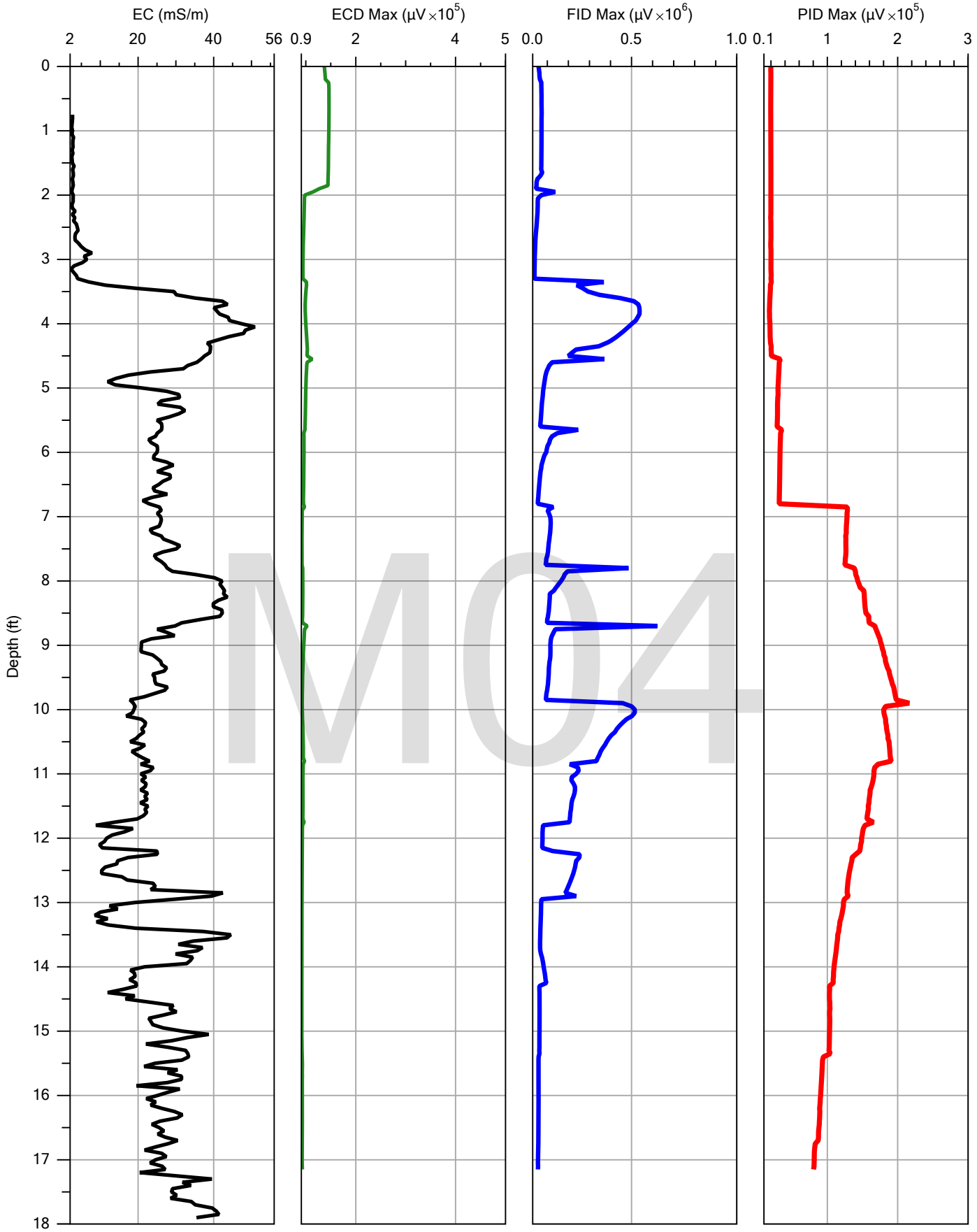
Company: zebra	Operator: mike/will	Date: 1/23/2014
Project ID:	Client: sullivan	Location:



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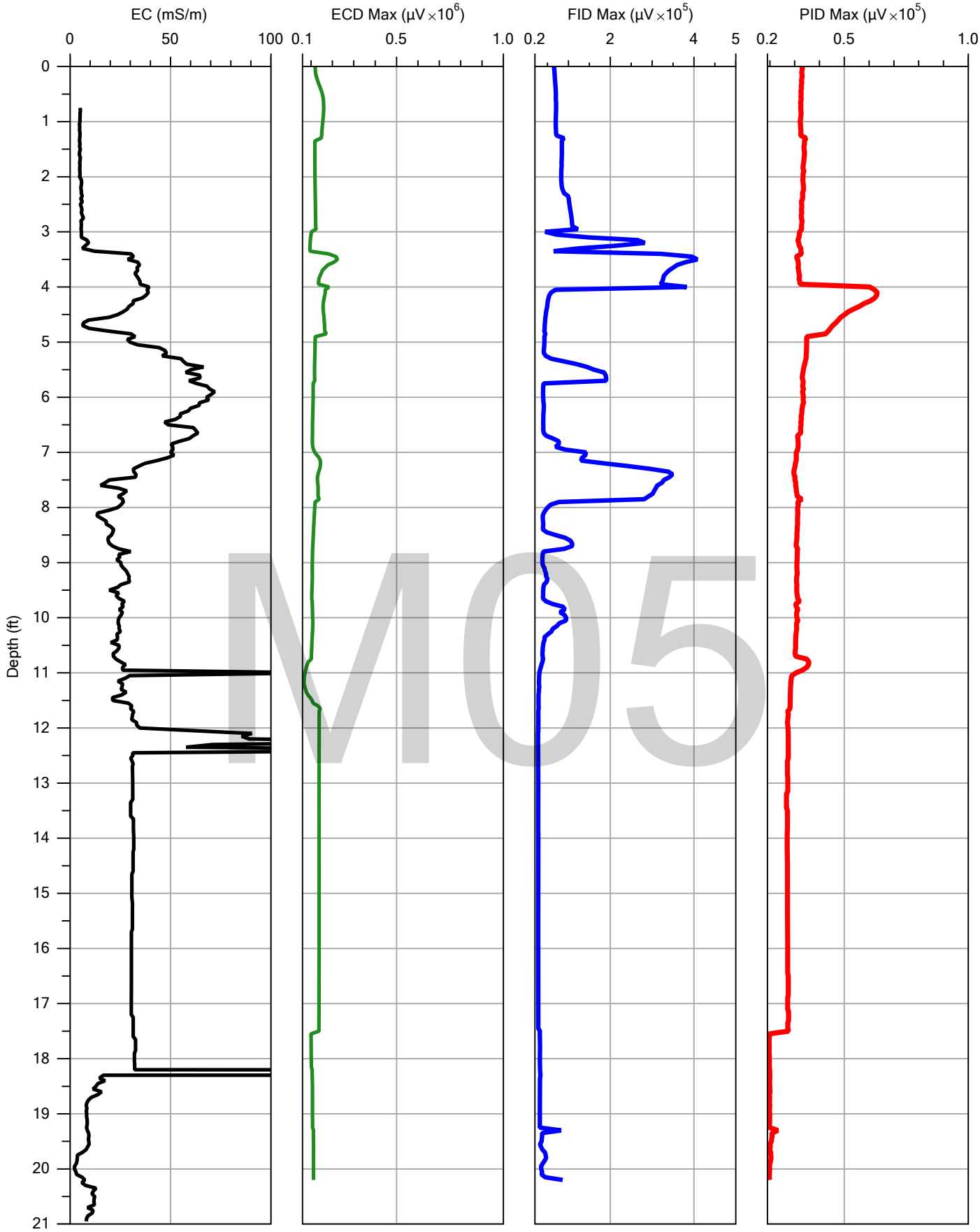
Company: zebra	Operator: mike/will	Date: 1/23/2014
Project ID:	Client: sullivan	Location:



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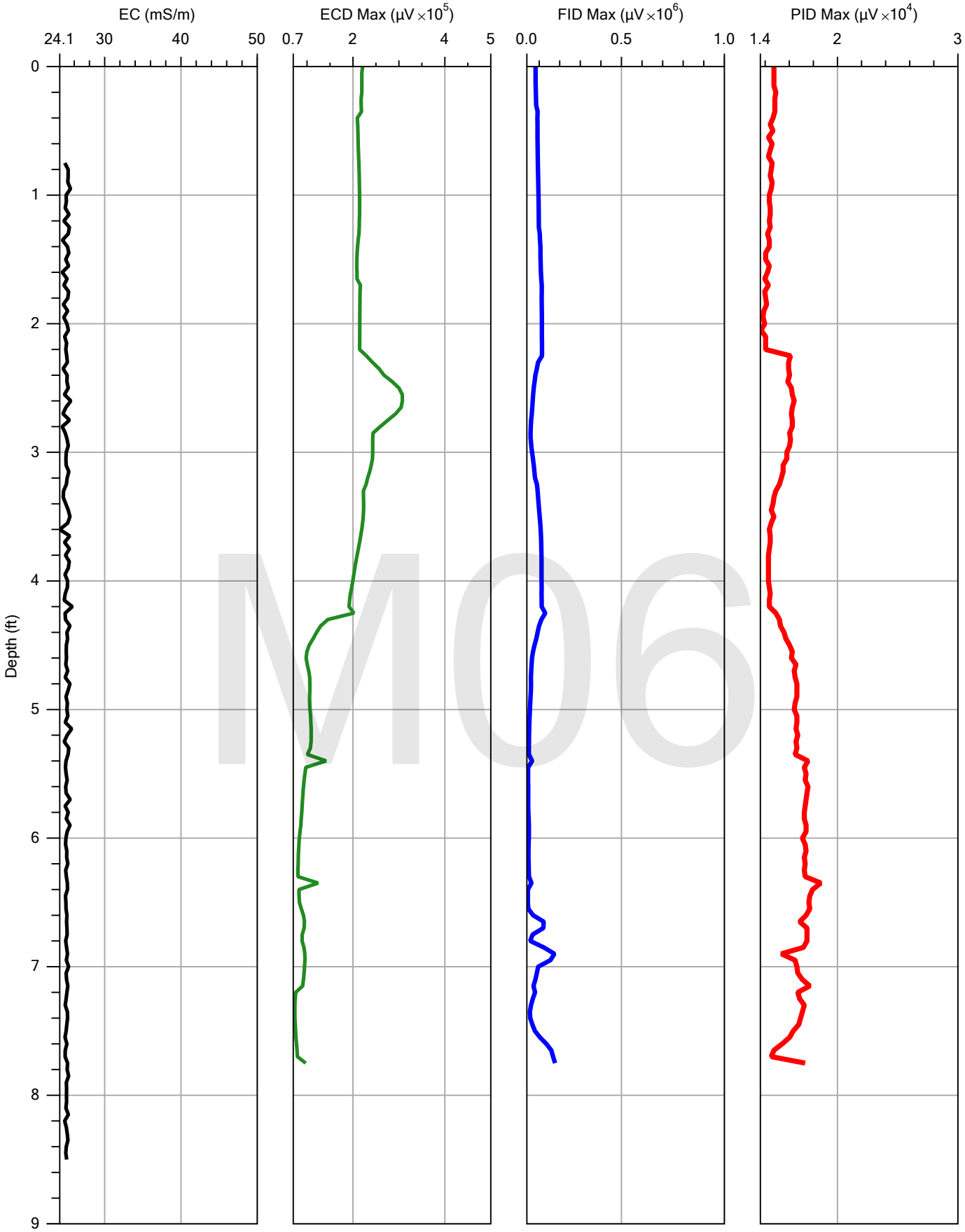
Company: zebra	Operator: mike/will	Date: 1/23/2014
Project ID:	Client: sullivan	Location:



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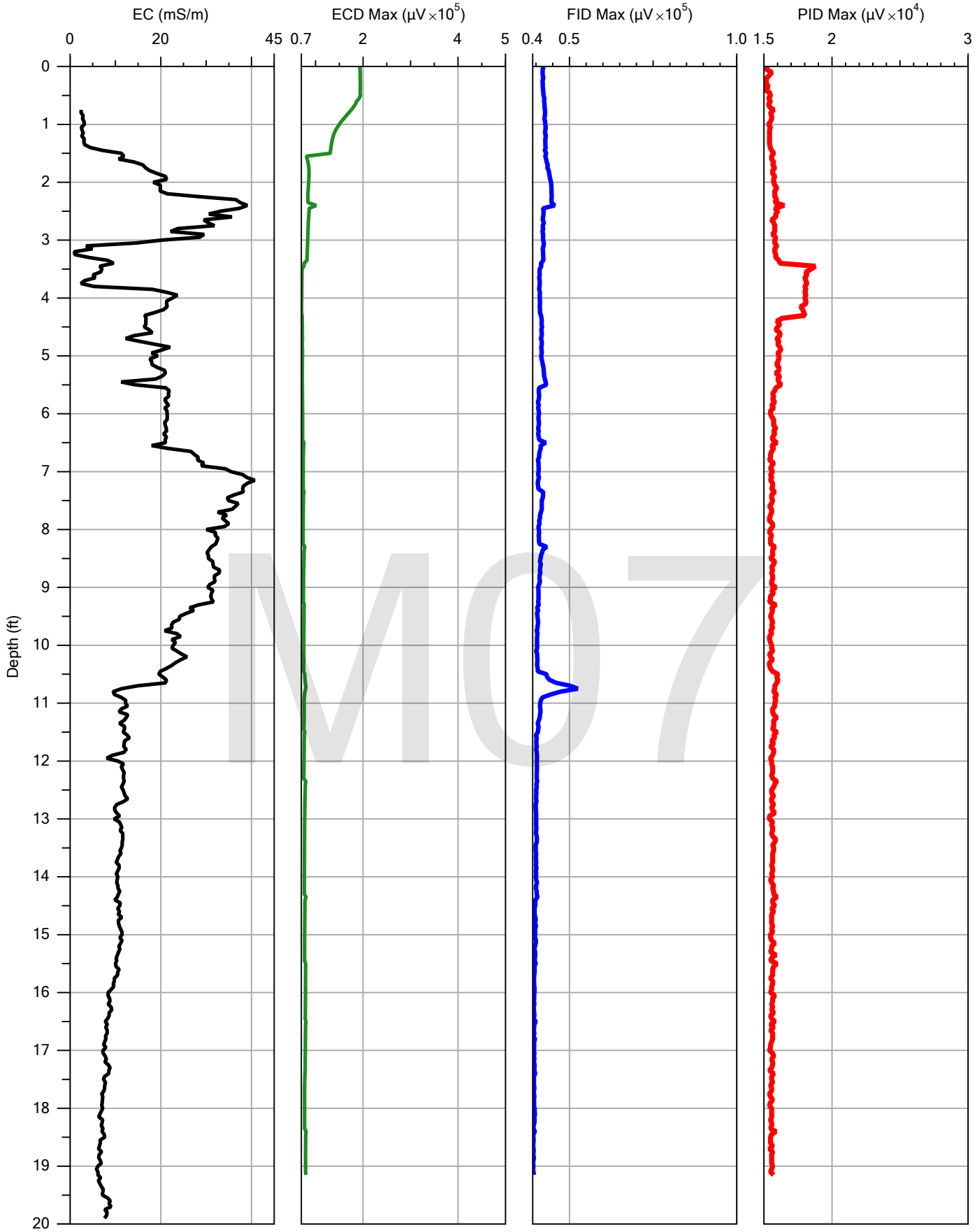
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



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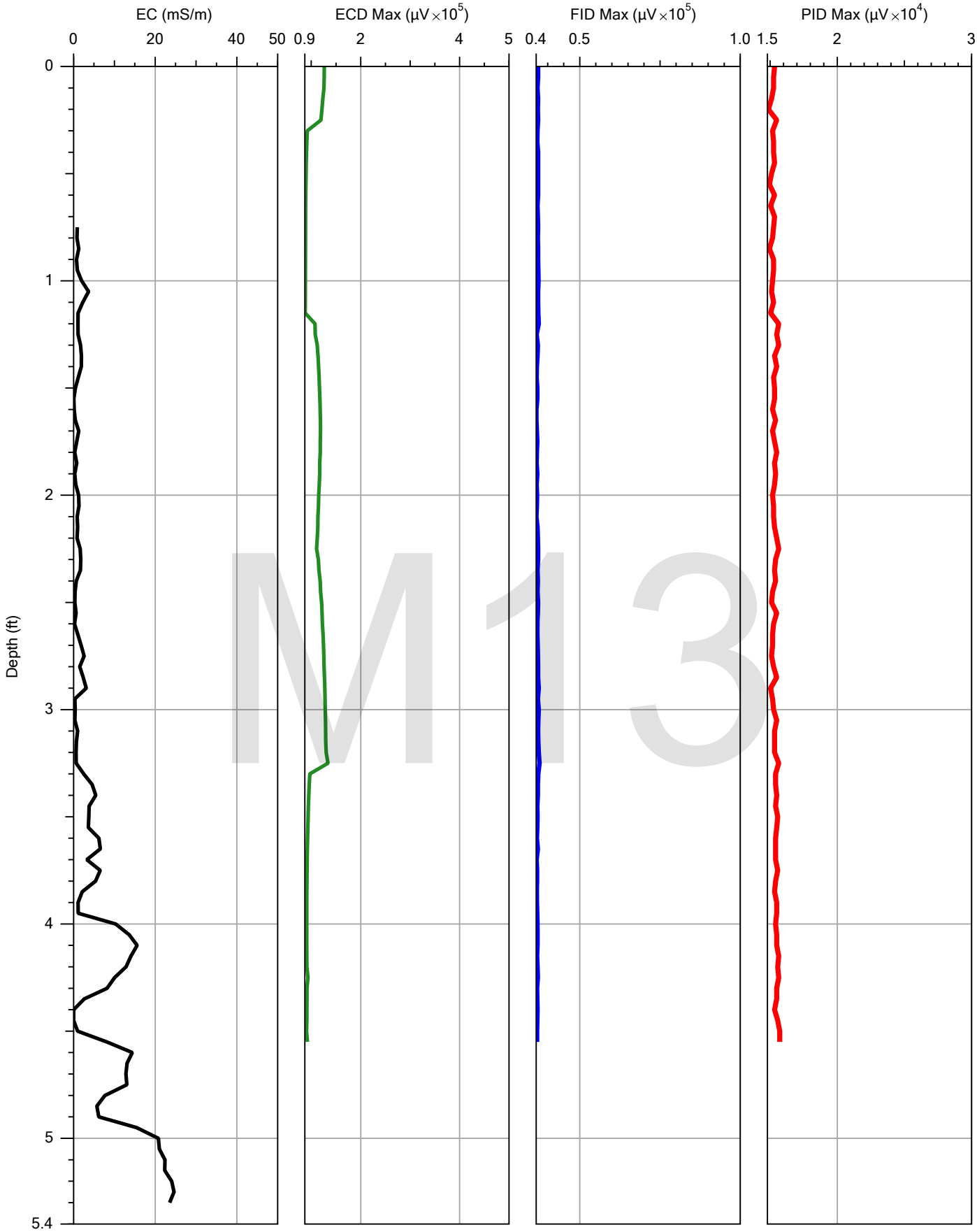
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



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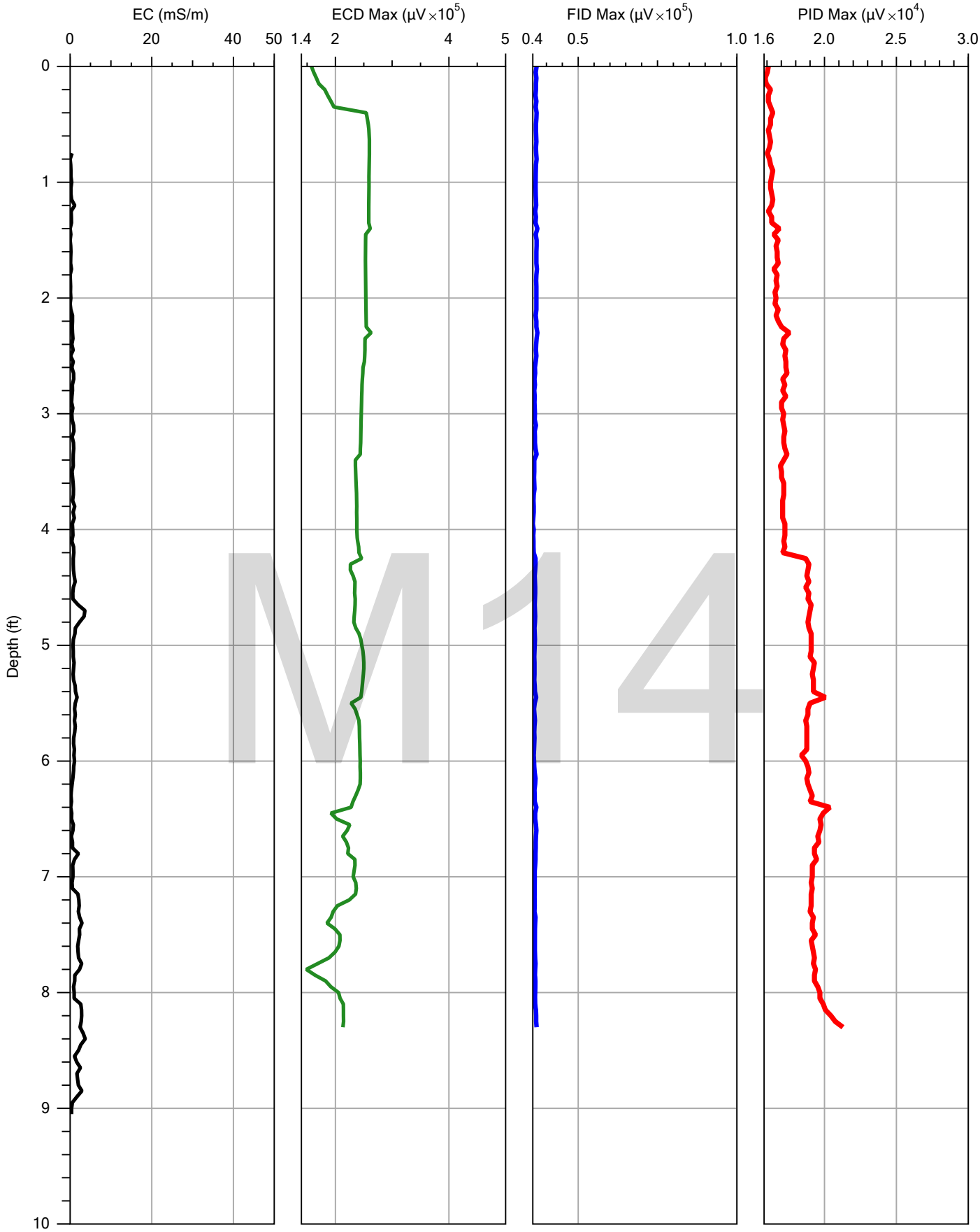
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



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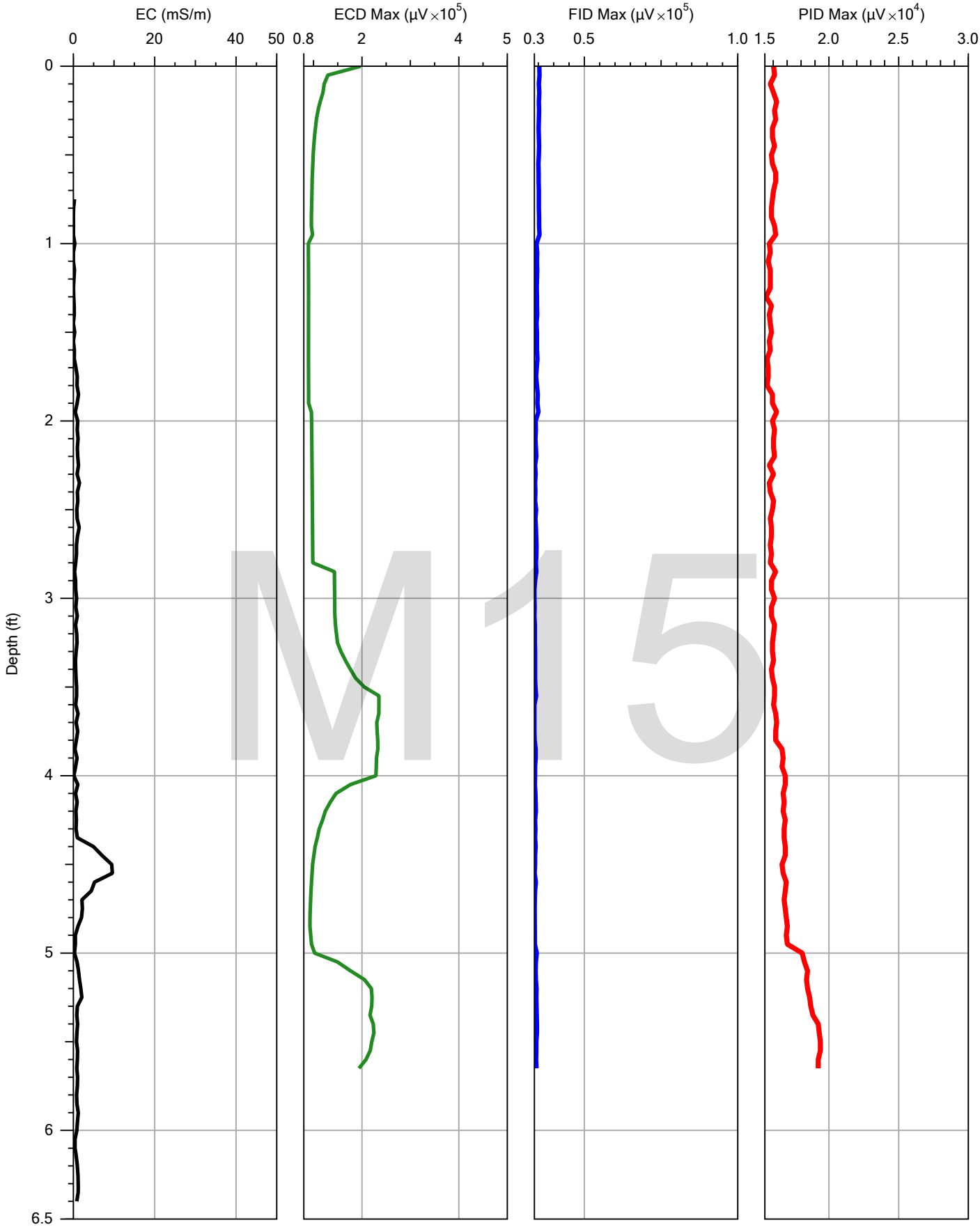
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



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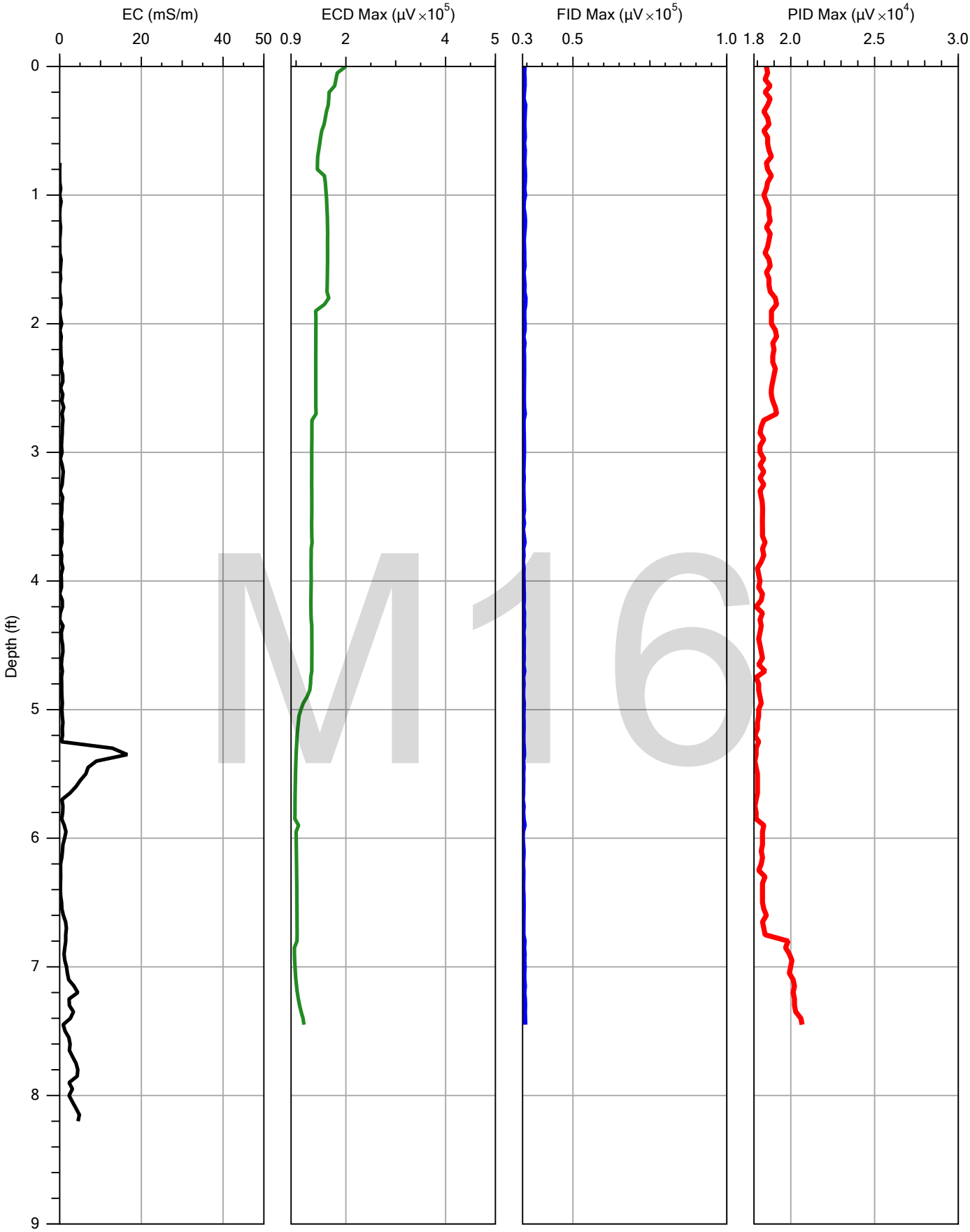
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



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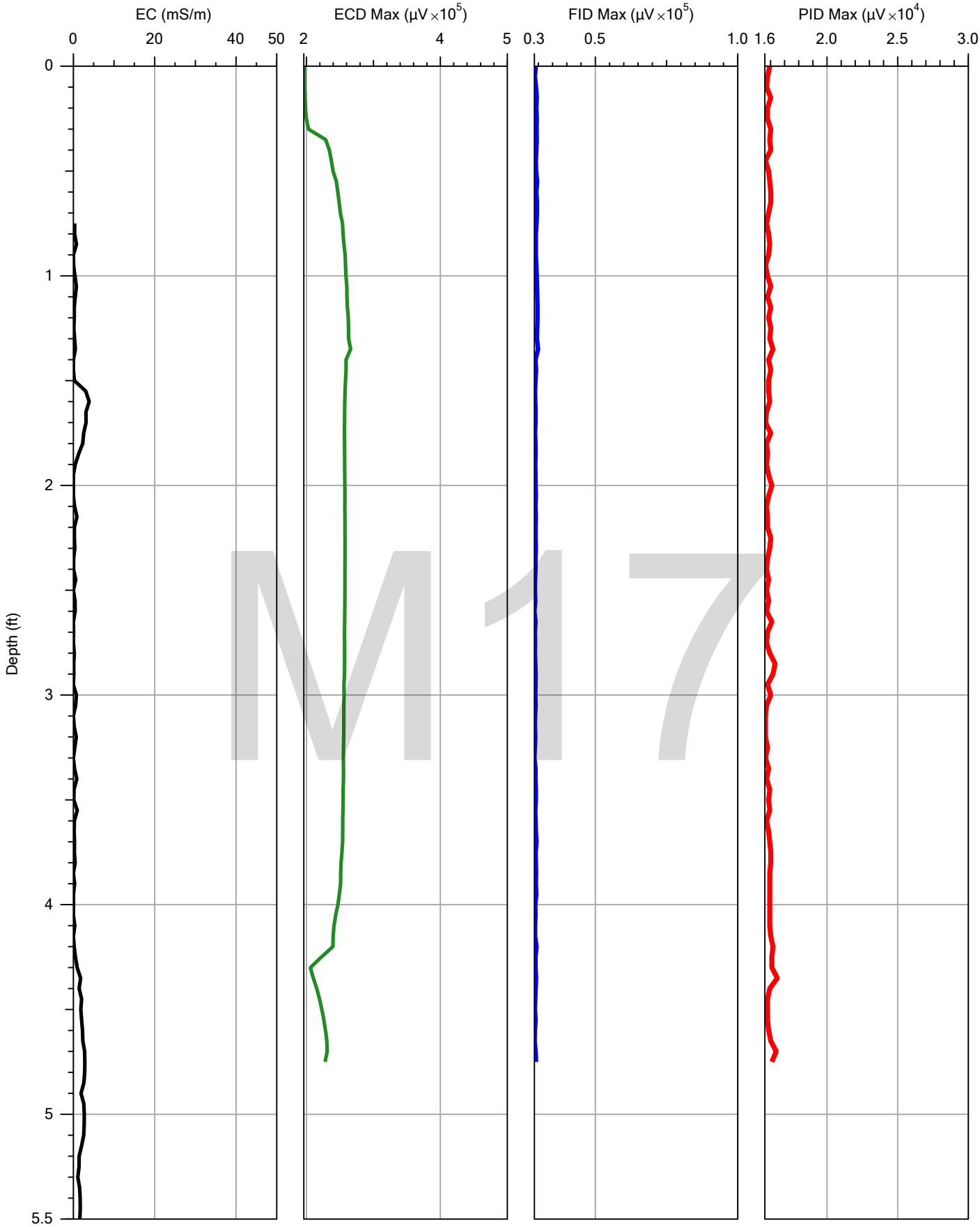
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:



		File: SULLMIP17.MIP
Company: ZEBRA	Operator: Will M	Date: 1/29/2014
Project ID:	Client: Sullivan	Location:

APPENDIX D
GEOPHYSICAL SURVEY REPORTS

Files presented on CD only.

EDN
Earth Data Northeast, Inc.

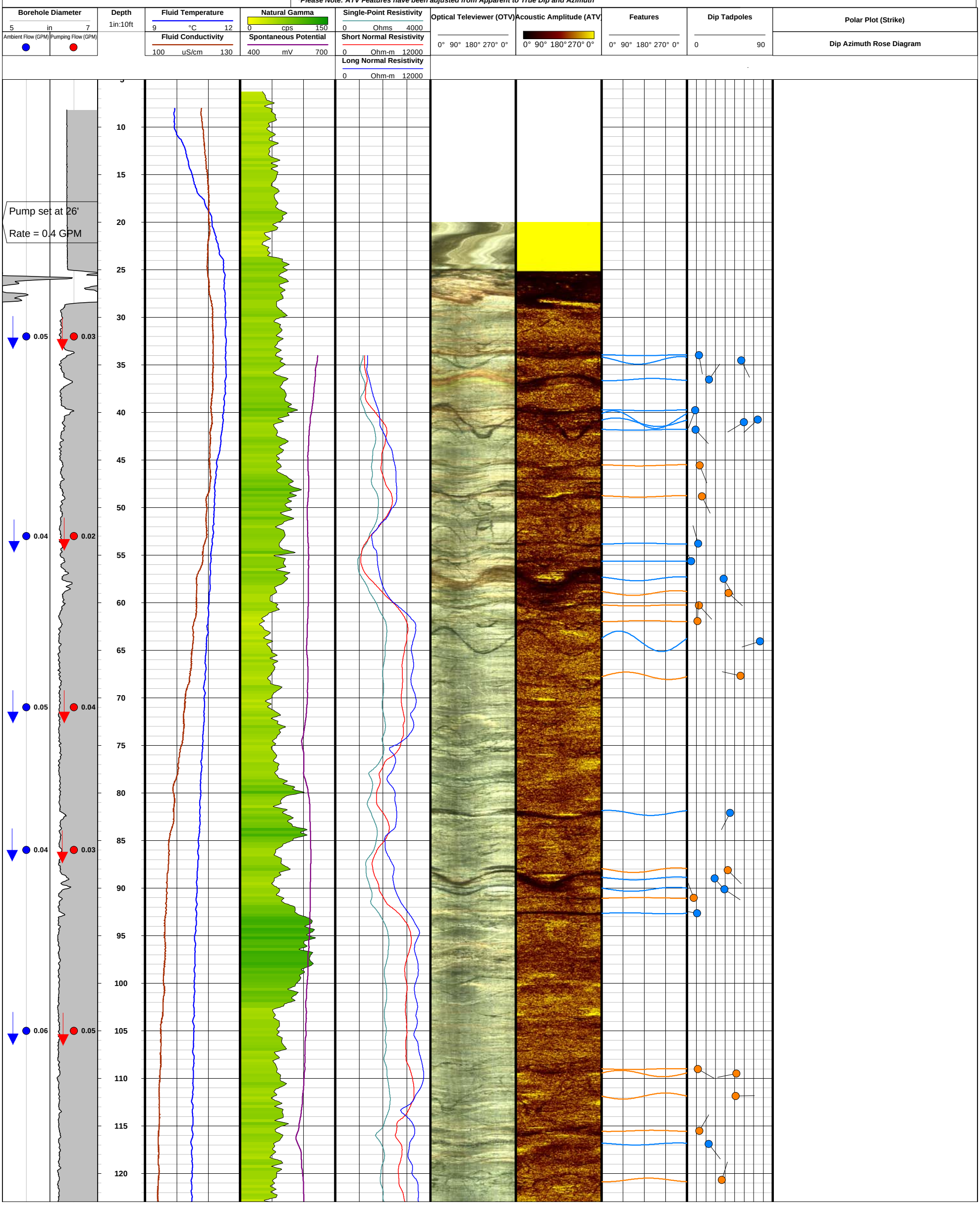
Client: **Sullivan International**
Location: **Hopatcong, NJ**
Well Name: **MLS-1**
Date: **1/13-15/2014**
Depth Reference: **Top of Casing**
Magnetic Declination: **-12.74**
North reference: **True**

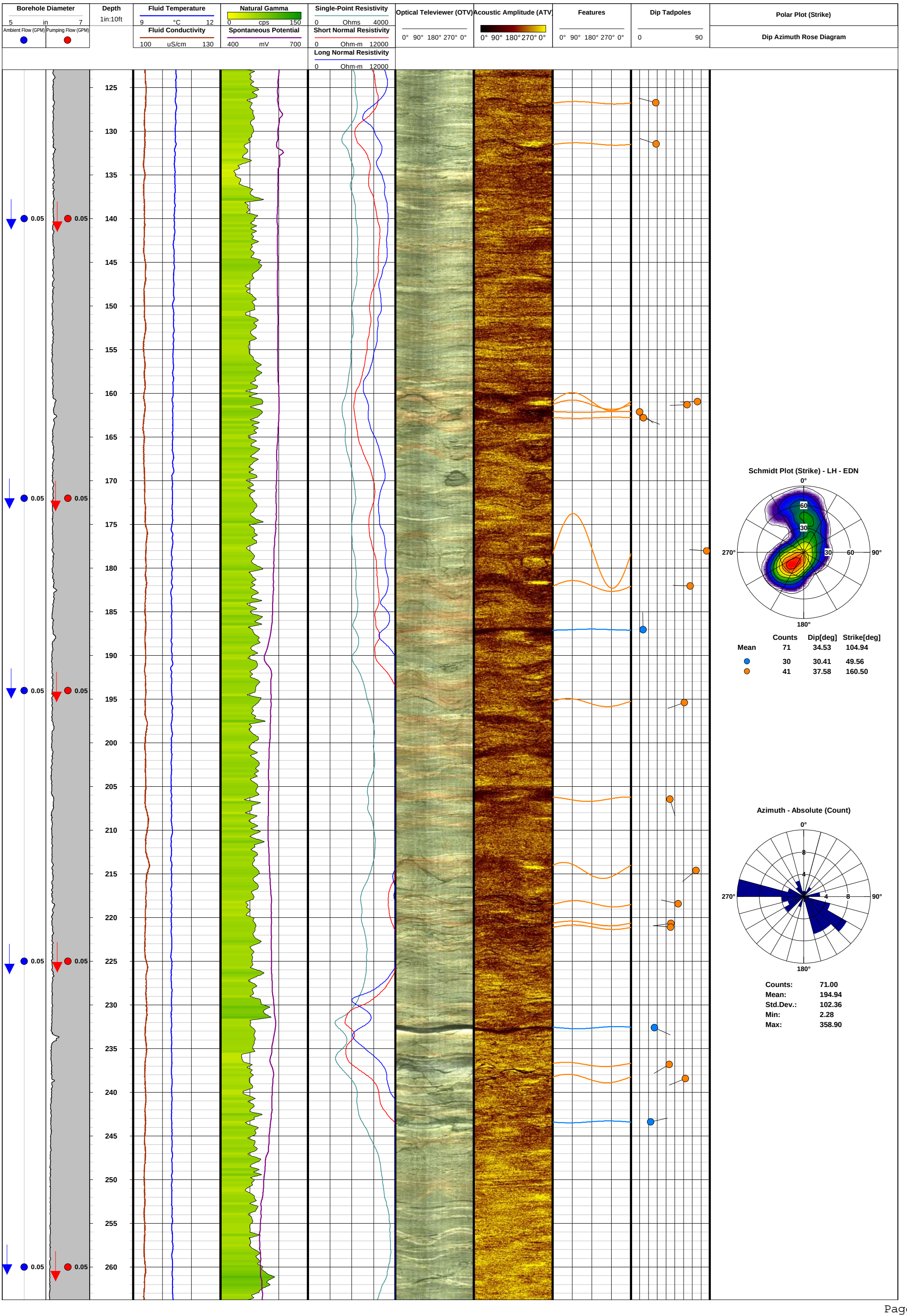
Borehole Diameter: **6" Nominal**
Static Water Level: **4'**
Casing Depth: **25'**
Total Depth: **400'**

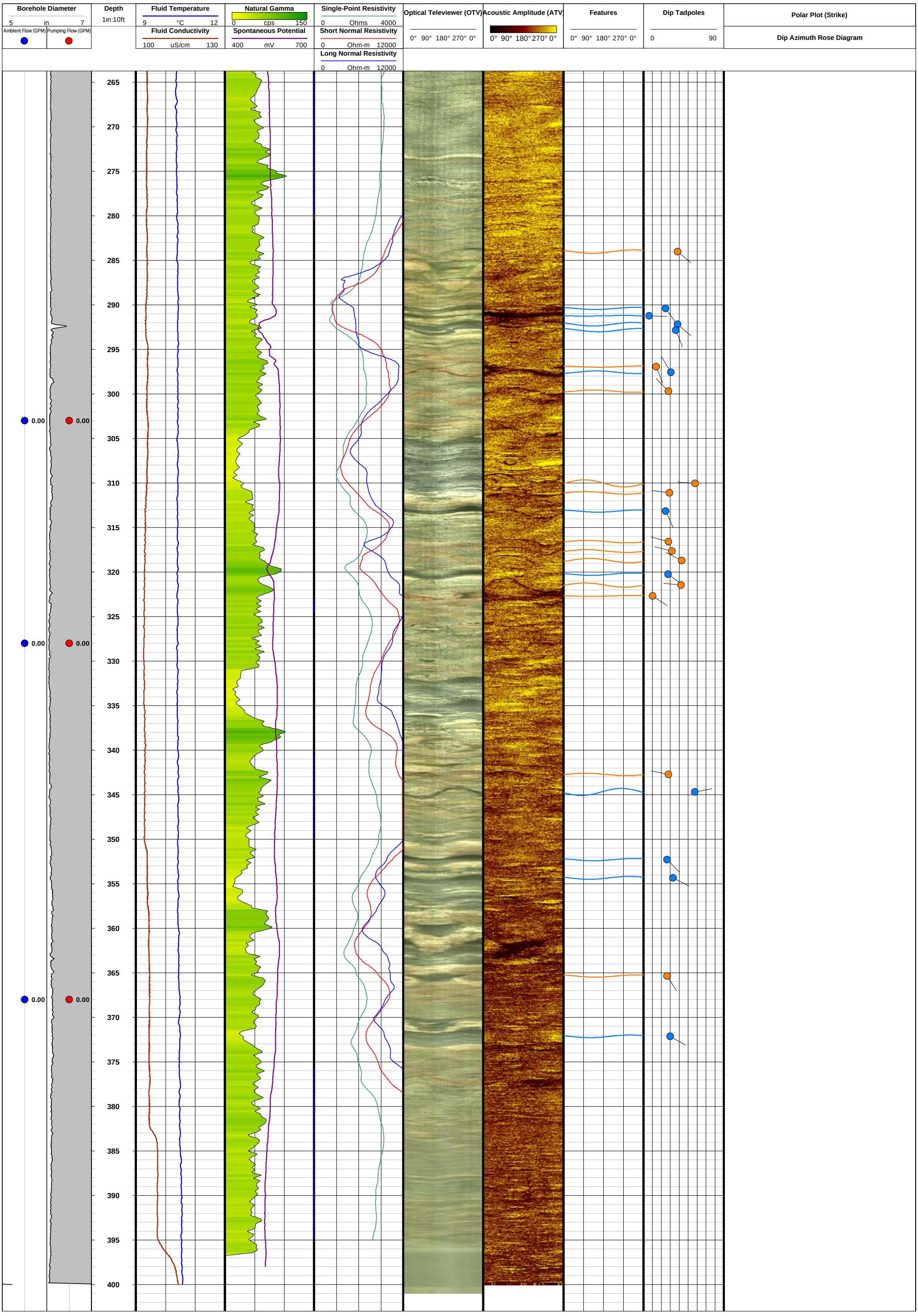
Hairline Fracture/Feature

Discontinuous Hairline Fracture/Feature

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
Ambient Flow (GPM)
Pumping Flow (GPM)
Depth
1in:10ft
Fluid Temperature
9 °C 12
Fluid Conductivity
100 uS/cm 130
Natural Gamma
0 cps 150
Spontaneous Potential
400 mV 700
Single-Point Resistivity
0 Ohms 4000
Short Normal Resistivity
0 Ohm-m 12000
Long Normal Resistivity
0 Ohm-m 12000
Optical Televiewer (OTV)
0° 90° 180° 270° 0°
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
Schmidt Plot (Strike) - LH - EDN
0°
90°
180°
270°
60
30
Counts Dip[deg] Strike[deg]
Mean 71 34.53 104.94
30 30.41 49.56
41 37.58 160.50
Azimuth - Absolute (Count)
0°
90°
180°
270°
8
4
Counts: 71.00
Mean: 194.94
Std.Dev.: 102.36
Min: 2.28
Max: 358.90


Borehole Diameter
5 in 7
Ambient Flow (GPM)
Pumping Flow (GPM)
Depth
1in:10ft
Fluid Temperature
9 °C 12
Fluid Conductivity
100 uS/cm 130
Natural Gamma
0 cps 150
Spontaneous Potential
400 mV 700
Single-Point Resistivity
0 Ohms 4000
Short Normal Resistivity
0 Ohm-m 12000
Long Normal Resistivity
0 Ohm-m 12000
Optical Televiewer (OTV)
0° 90° 180° 270° 0°
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400
0.00
0.00

EDN
Earth Data Northeast, Inc.

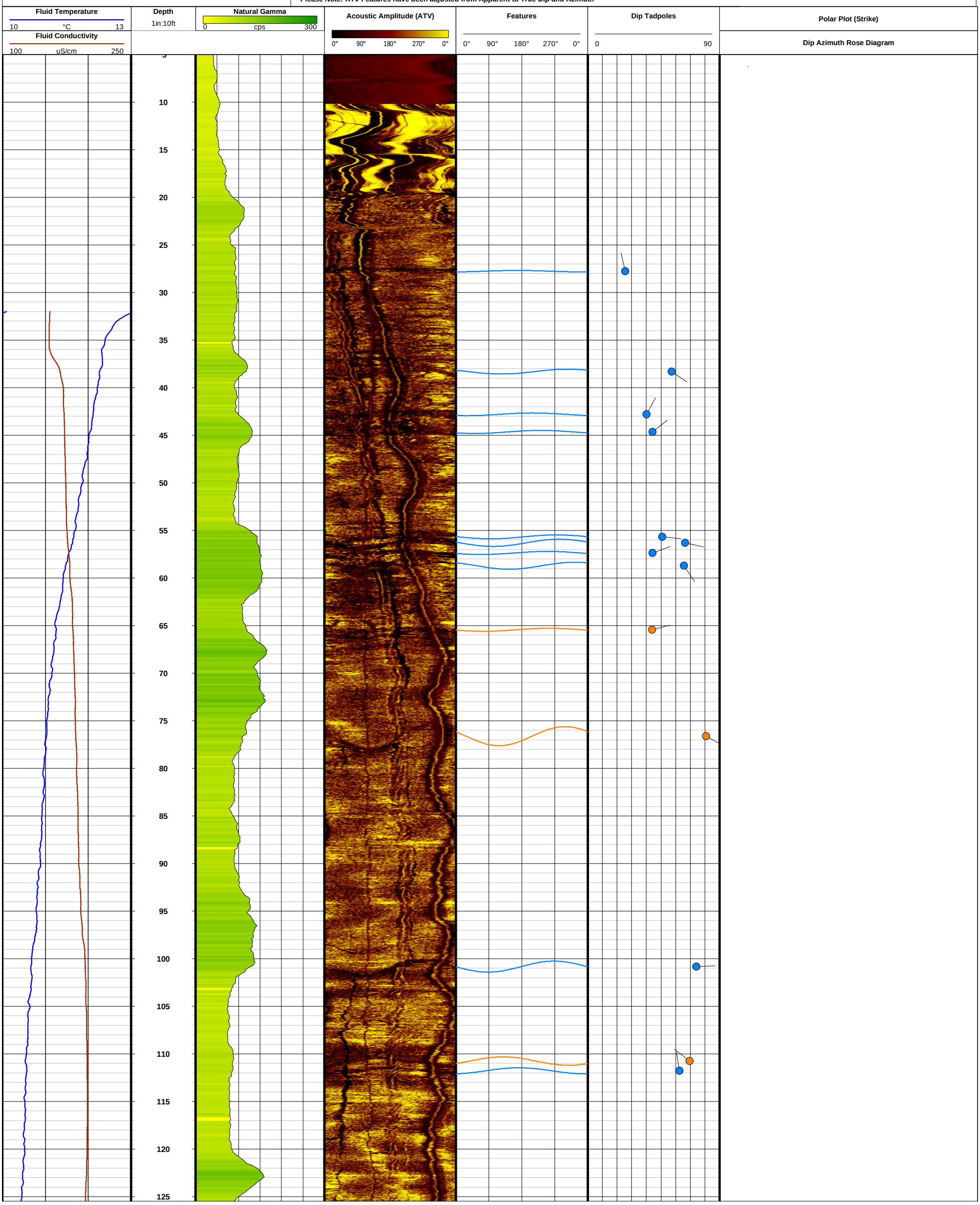
Client: **Sullivan International**
Location: **Hopatcong, NJ**
Well Name: **MLS-2**
Date: **1/14/2014 and 1/22/2014**
Depth Reference: **Top of Casing**
Magnetic Declination: **-12.74**
North reference: **True**

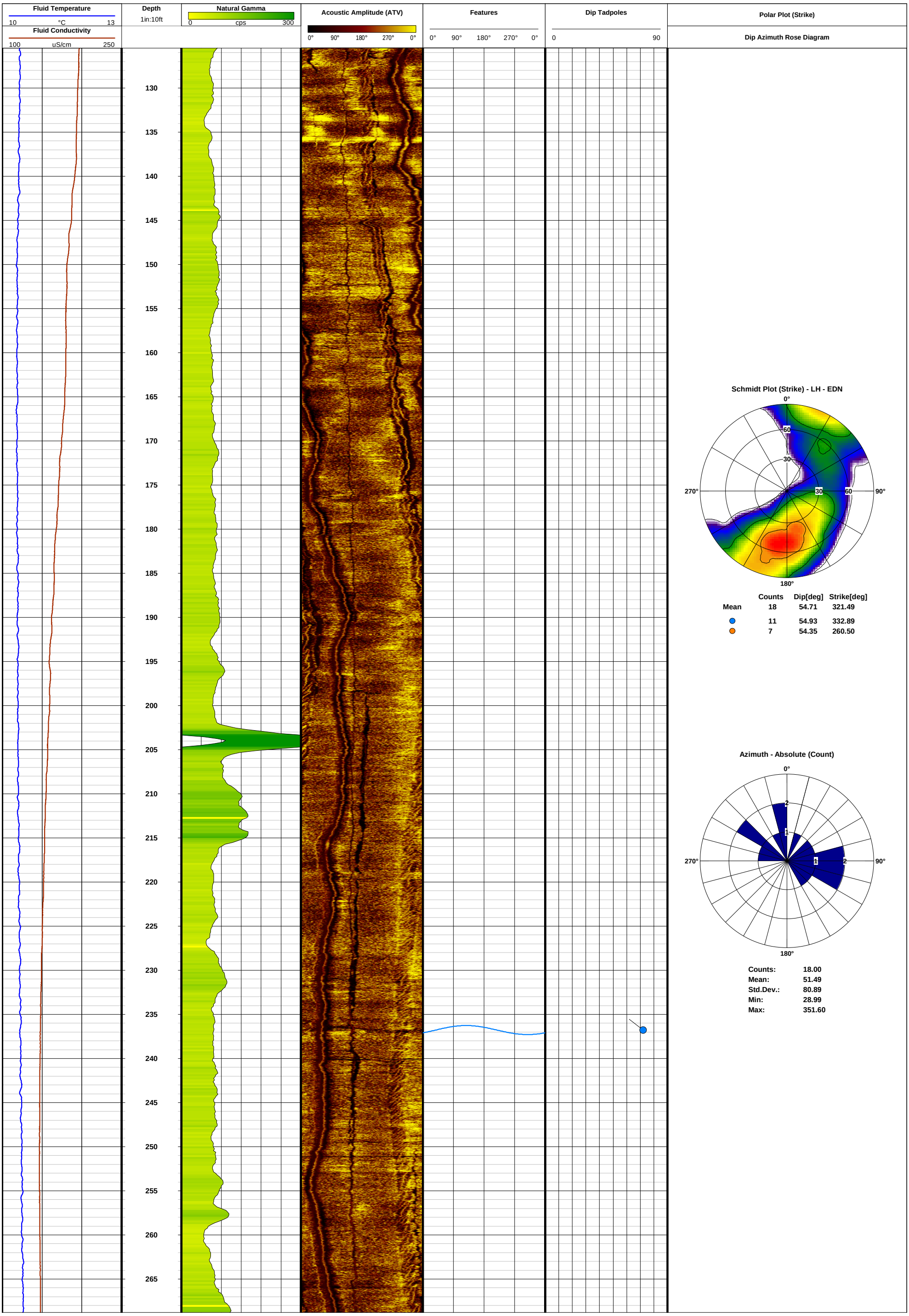
Borehole Diameter: **6" Nominal**
Static Water Level: **31' on 1-14-2014**
Casing Depth: **19'**
Total Depth: **400'**

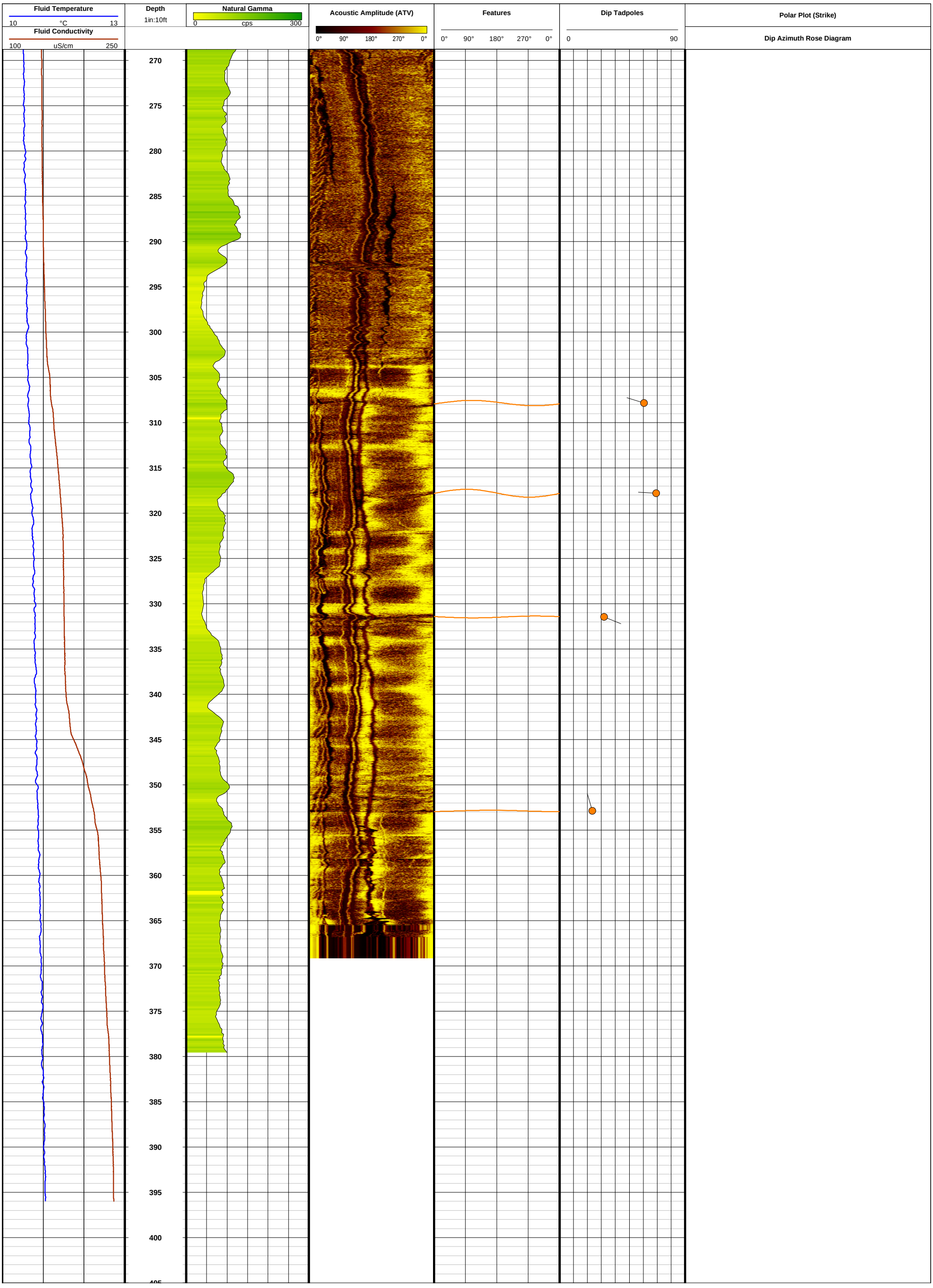
Hairline Fracture/Feature

Discontinuous Hairline Fracture/Feature

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Fluid Temperature
10 °C 13
Fluid Conductivity
100 uS/cm 250
Depth
1in:10ft
Natural Gamma
0 cps 300
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
Schmidt Plot (Strike) - LH - EDN
0°
60
30
270°
30
60
90°
180°
Counts Dip[deg] Strike[deg]
Mean 18 54.71 321.49
11 54.93 332.89
7 54.35 260.50
Azimuth - Absolute (Count)
0°
2
1
270°
1
2
90°
180°
Counts: 18.00
Mean: 51.49
Std.Dev.: 80.89
Min: 28.99
Max: 351.60

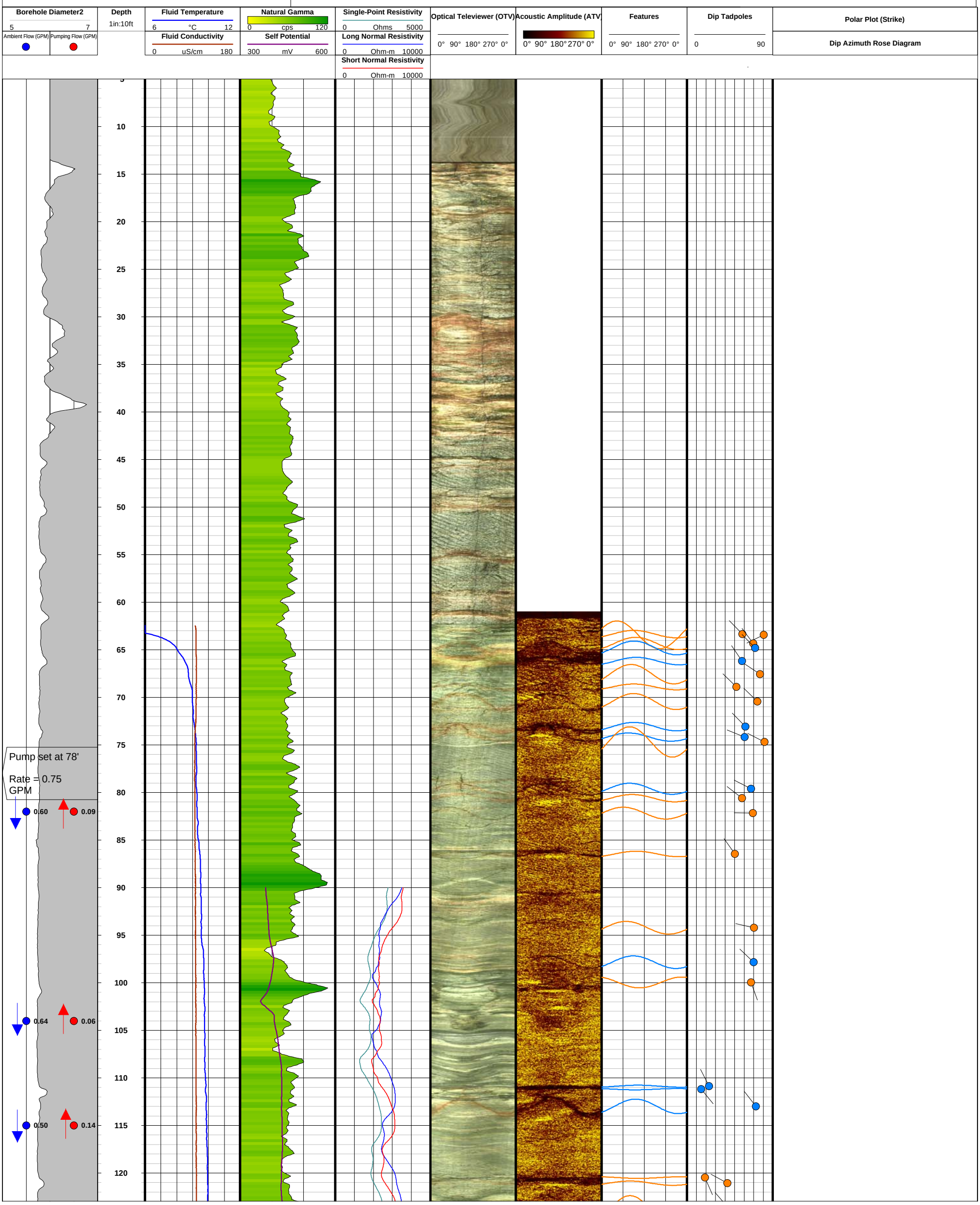

Fluid Temperature
10 °C 13
Fluid Conductivity
100 uS/cm 250
Depth
1in:10ft
Natural Gamma
0 cps 300
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400

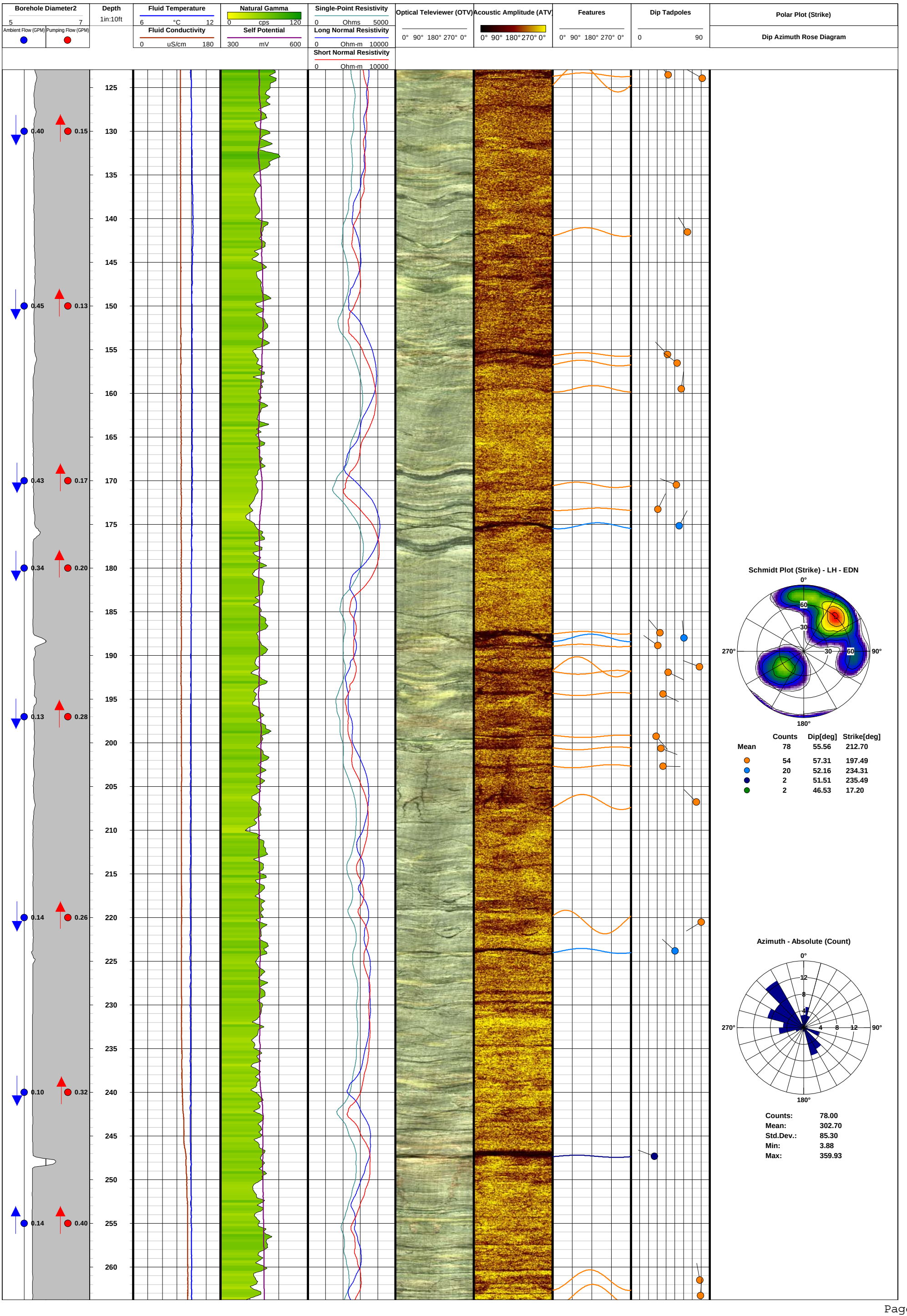
EDN
Earth Data Northeast, Inc.

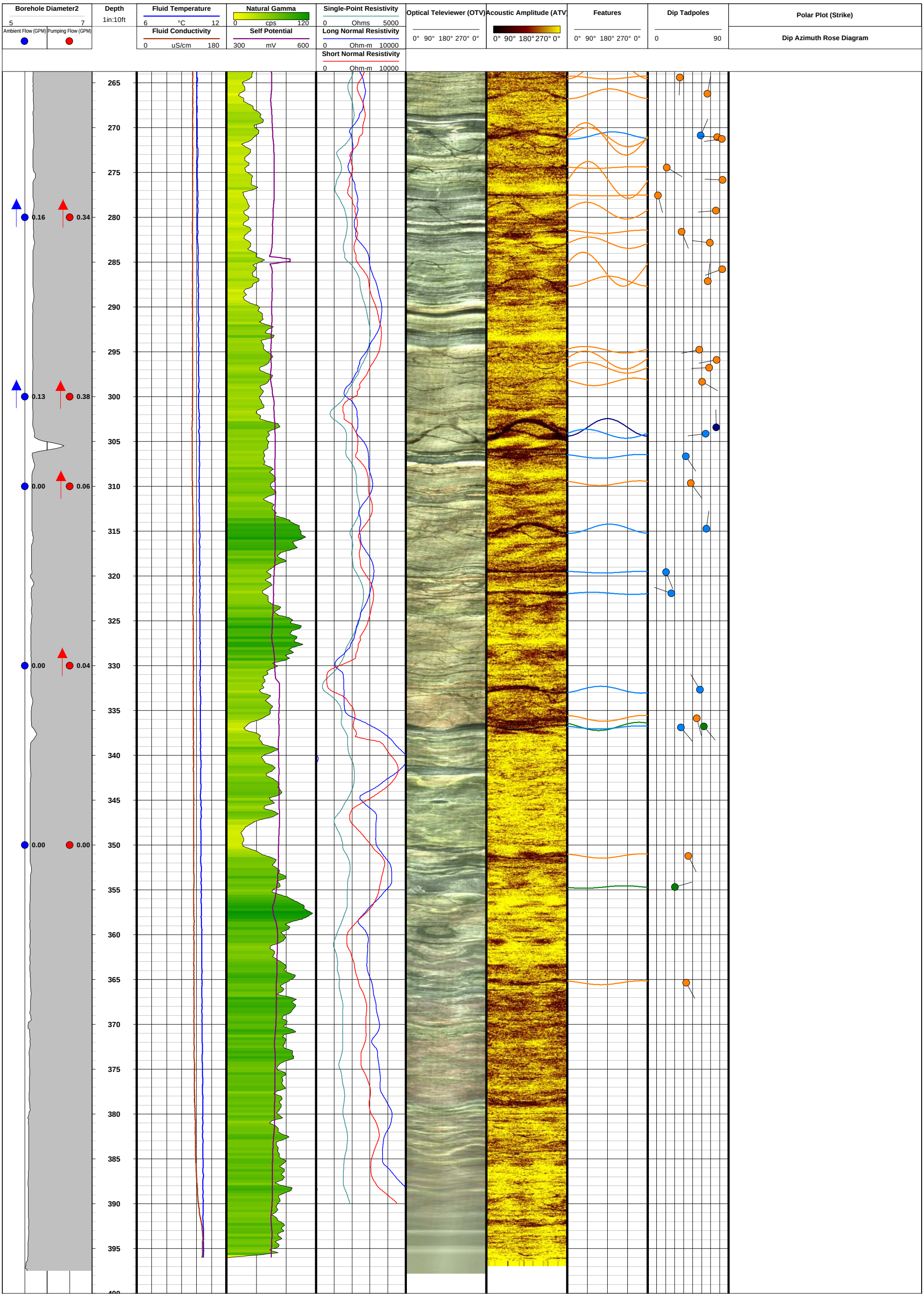
Client: **Sullivan International**
Location: **Hopatcong, NJ**
Well Name: **MLS-3**
Date: **1/23-24/2014**
Depth Reference: **Top of Casing**
Magnetic Declination: **-12.74**
North reference: **True**

Borehole Diameter: **6" Nominal**
Static Water Level: **62'**
Casing Depth: **14'**
Total Depth: **396'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology




Borehole Diameter2
5 7
Ambient Flow (GPM)
Pumping Flow (GPM)
Depth
1in:10ft
Fluid Temperature
6 °C 12
Fluid Conductivity
0 uS/cm 180
Natural Gamma
0 cps 120
Self Potential
300 mV 600
Single-Point Resistivity
0 Ohms 5000
Long Normal Resistivity
0 Ohm-m 10000
Short Normal Resistivity
0 Ohm-m 10000
Optical Televiewer (OTV)
0° 90° 180° 270° 0°
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
0.40 0.15
0.45 0.13
0.43 0.17
0.34 0.20
0.13 0.28
0.14 0.26
0.10 0.32
0.14 0.40
Schmidt Plot (Strike) - LH - EDN
0°
90°
180°
270°
60
30
Counts Dip[deg] Strike[deg]
Mean 78 55.56 212.70
54 57.31 197.49
20 52.16 234.31
2 51.51 235.49
2 46.53 17.20
Azimuth - Absolute (Count)
0°
90°
180°
270°
4
8
12
Counts: 78.00
Mean: 302.70
Std.Dev.: 85.30
Min: 3.88
Max: 359.93


Borehole Diameter2
5 7
Ambient Flow (GPM)
Pumping Flow (GPM)
Depth
1in:10ft
Fluid Temperature
6 °C 12
Fluid Conductivity
0 uS/cm 180
Natural Gamma
0 cps 120
Self Potential
300 mV 600
Single-Point Resistivity
0 Ohms 5000
Long Normal Resistivity
0 Ohm-m 10000
Short Normal Resistivity
0 Ohm-m 10000
Optical Televiewer (OTV)
0° 90° 180° 270° 0°
Acoustic Amplitude (ATV)
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot (Strike)
Dip Azimuth Rose Diagram
0.16
0.34
0.13
0.38
0.00
0.06
0.00
0.04
0.00
0.00
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395

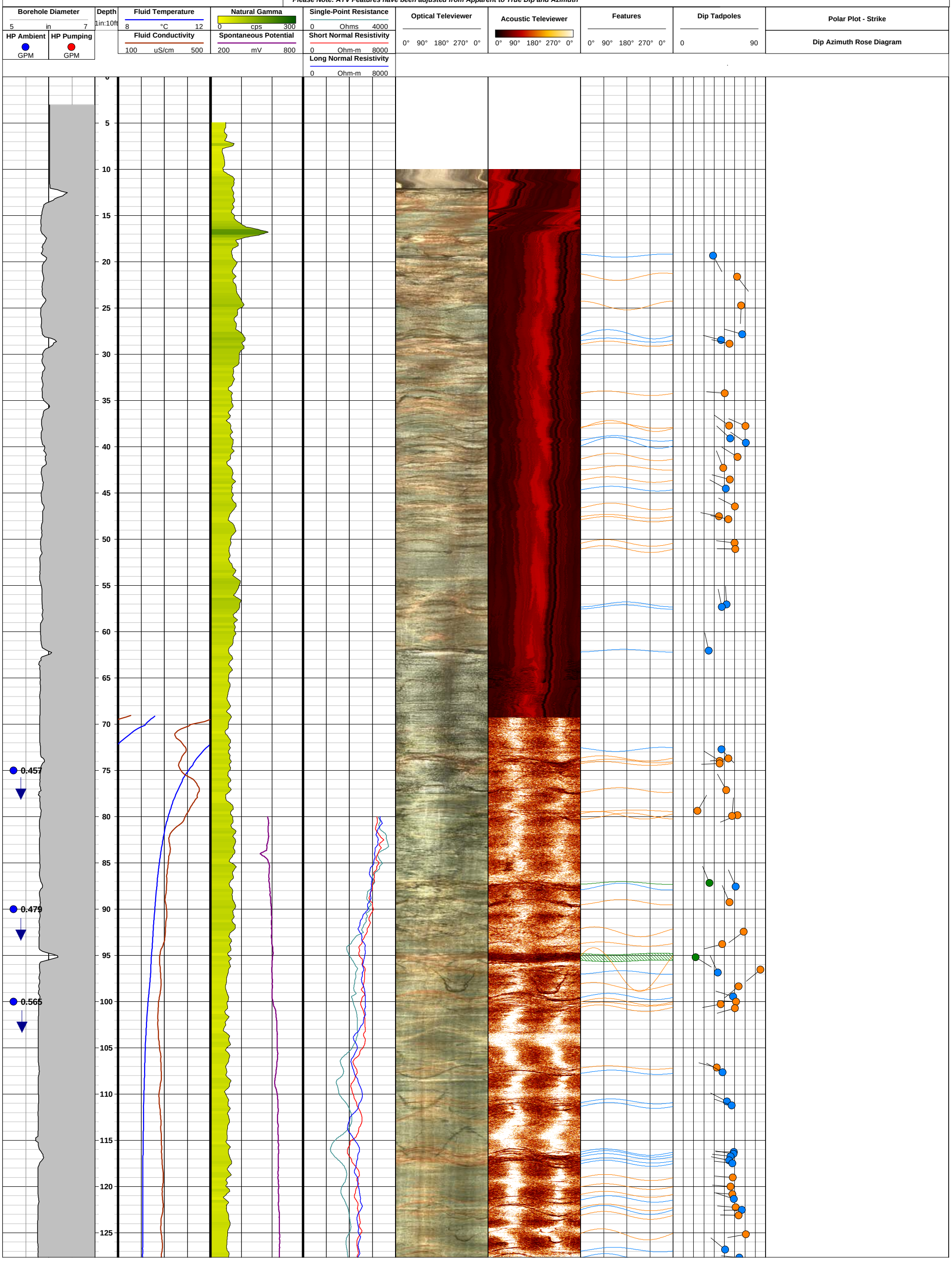
EDN
Earth Data Northeast, Inc.

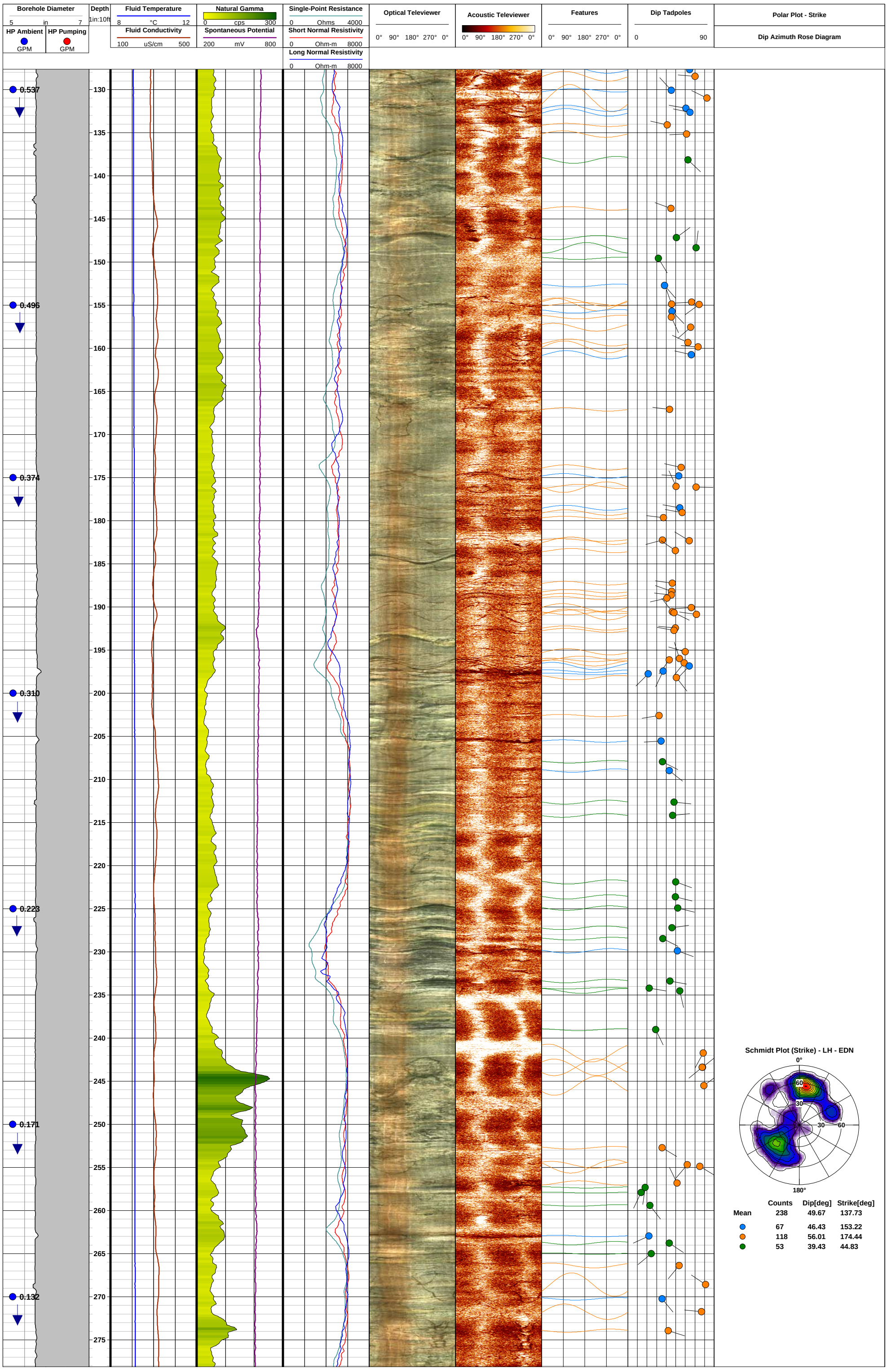
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-4**
Date: **07/21 & 09/11/14**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

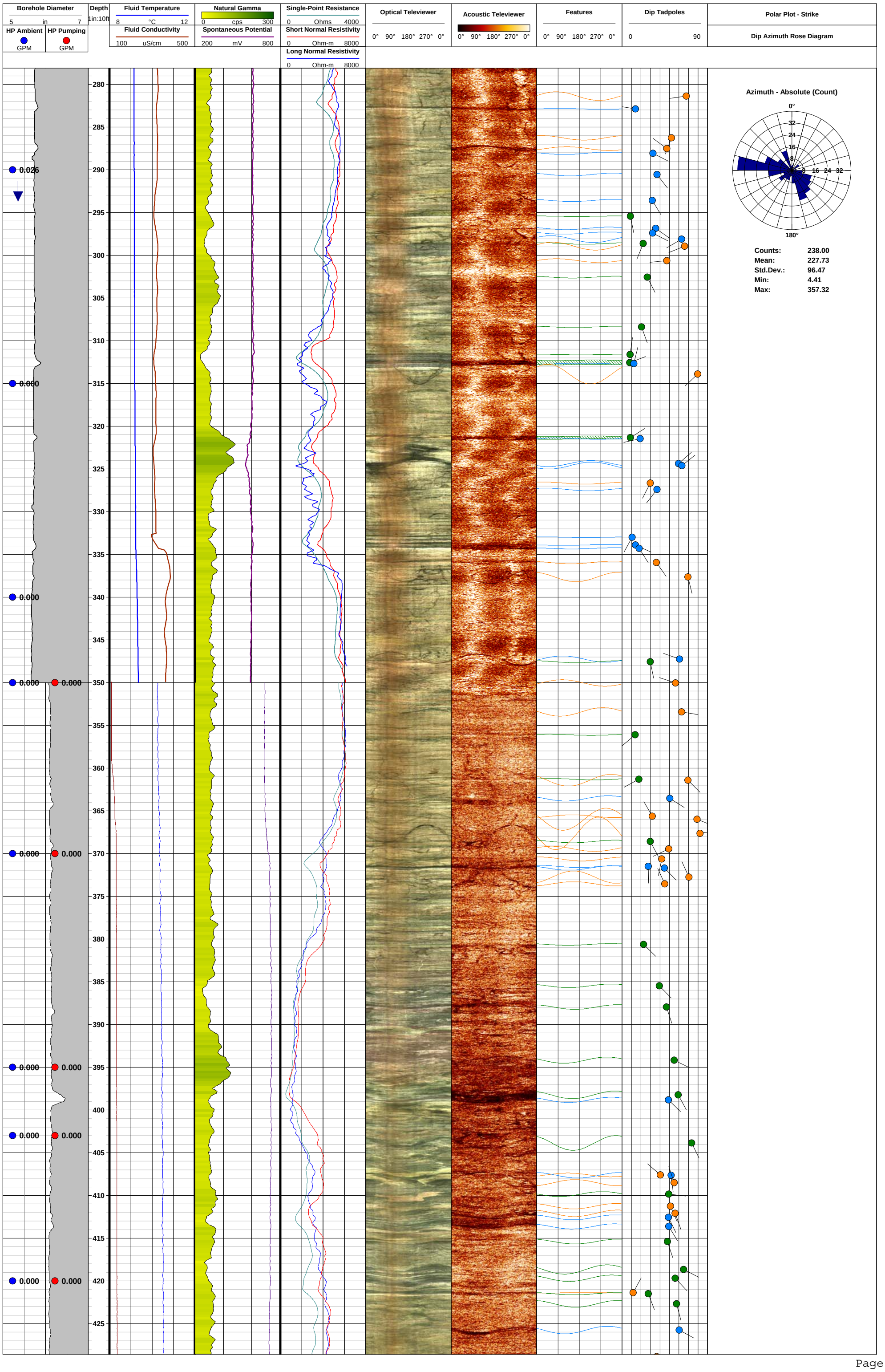
Borehole Diameter: **6" Nominal**
Static Water Level: **68' (on 7/21)**
Casing Depth: **12'**
Total Depth: **500' (on 9/11)**

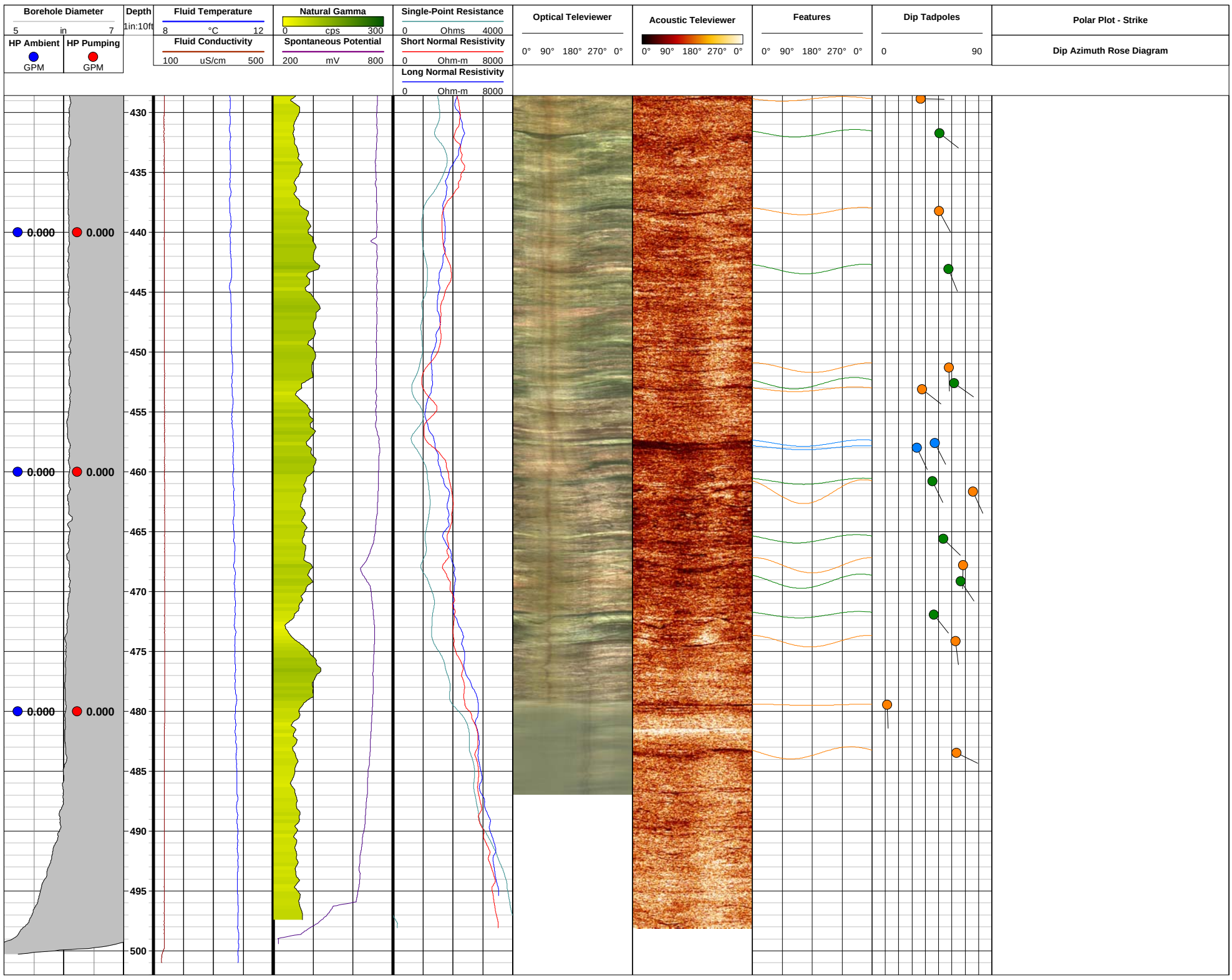
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
HP Ambient
GPM
HP Pumping
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
100 uS/cm 500
Natural Gamma
0 cps 300
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 4000
Short Normal Resistivity
0 Ohm-m 8000
Long Normal Resistivity
0 Ohm-m 8000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.537
0.496
0.374
0.310
0.223
0.171
0.132
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
Schmidt Plot (Strike) - LH - EDN
0°
60
30
30
60
180°
Counts Dip[deg] Strike[deg]
Mean 238 49.67 137.73
67 46.43 153.22
118 56.01 174.44
53 39.43 44.83


Borehole Diameter
5 in 7
Depth
1in:10ft
Fluid Temperature
8 °C 12
Natural Gamma
0 cps 300
Single-Point Resistance
0 Ohms 4000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
HP Ambient
GPM
HP Pumping
GPM
Fluid Conductivity
100 uS/cm 500
Spontaneous Potential
200 mV 800
Short Normal Resistivity
0 Ohm-m 8000
Long Normal Resistivity
0 Ohm-m 8000
Dip Azimuth Rose Diagram
Azimuth - Absolute (Count)
0°
180°
Counts: 238.00
Mean: 227.73
Std.Dev.: 96.47
Min: 4.41
Max: 357.32


Borehole Diameter
5 in 7
Depth
1in:10ft
HP Ambient
GPM
HP Pumping
GPM
Fluid Temperature
8 °C 12
Fluid Conductivity
100 uS/cm 500
Natural Gamma
0 cps 300
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 4000
Short Normal Resistivity
0 Ohm-m 8000
Long Normal Resistivity
0 Ohm-m 8000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.000
0.000
430
435
440
445
450
455
460
465
470
475
480
485
490
495
500

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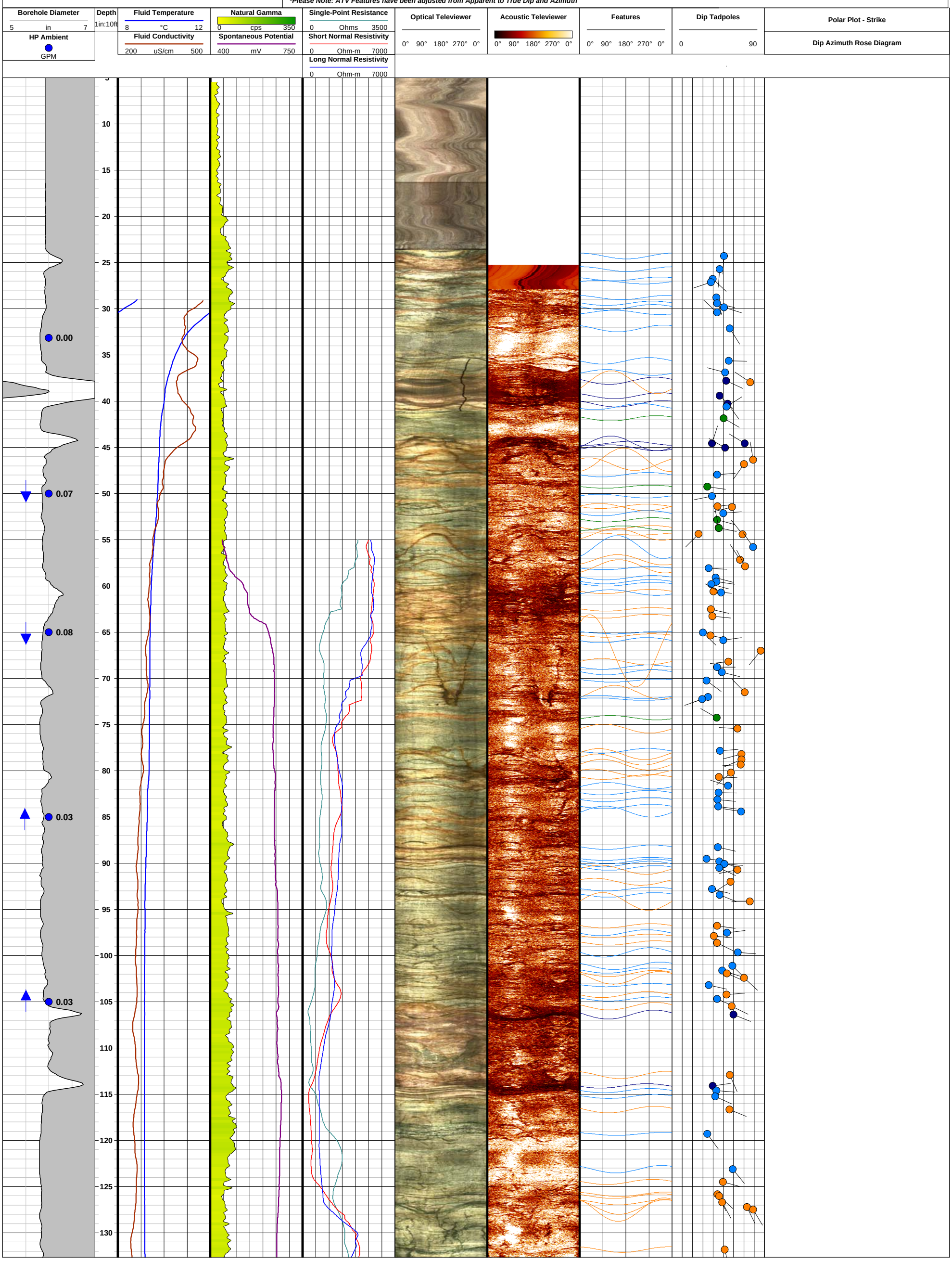
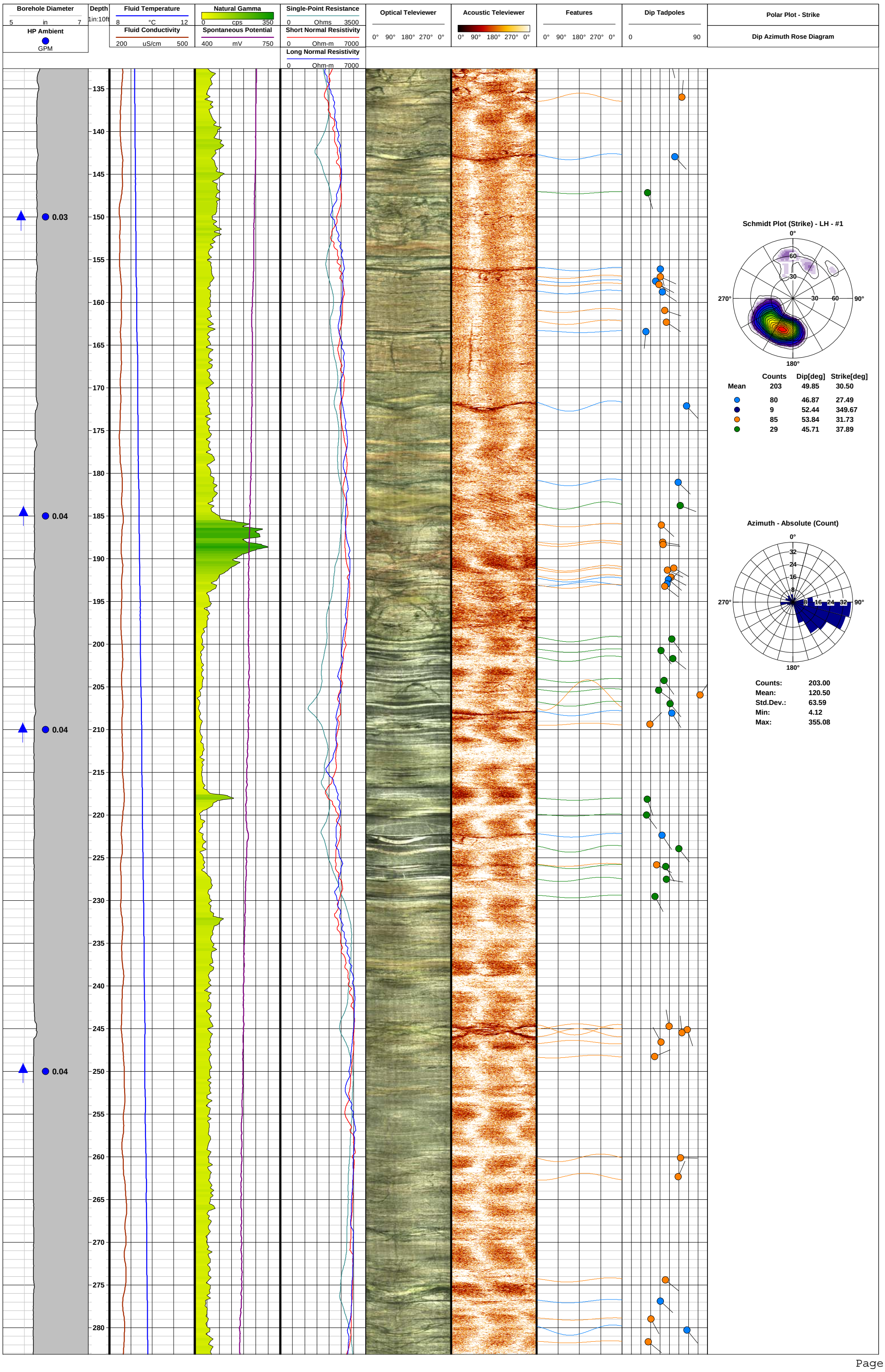
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-5**
Date: **7-22-2014 & 9-12-2014**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

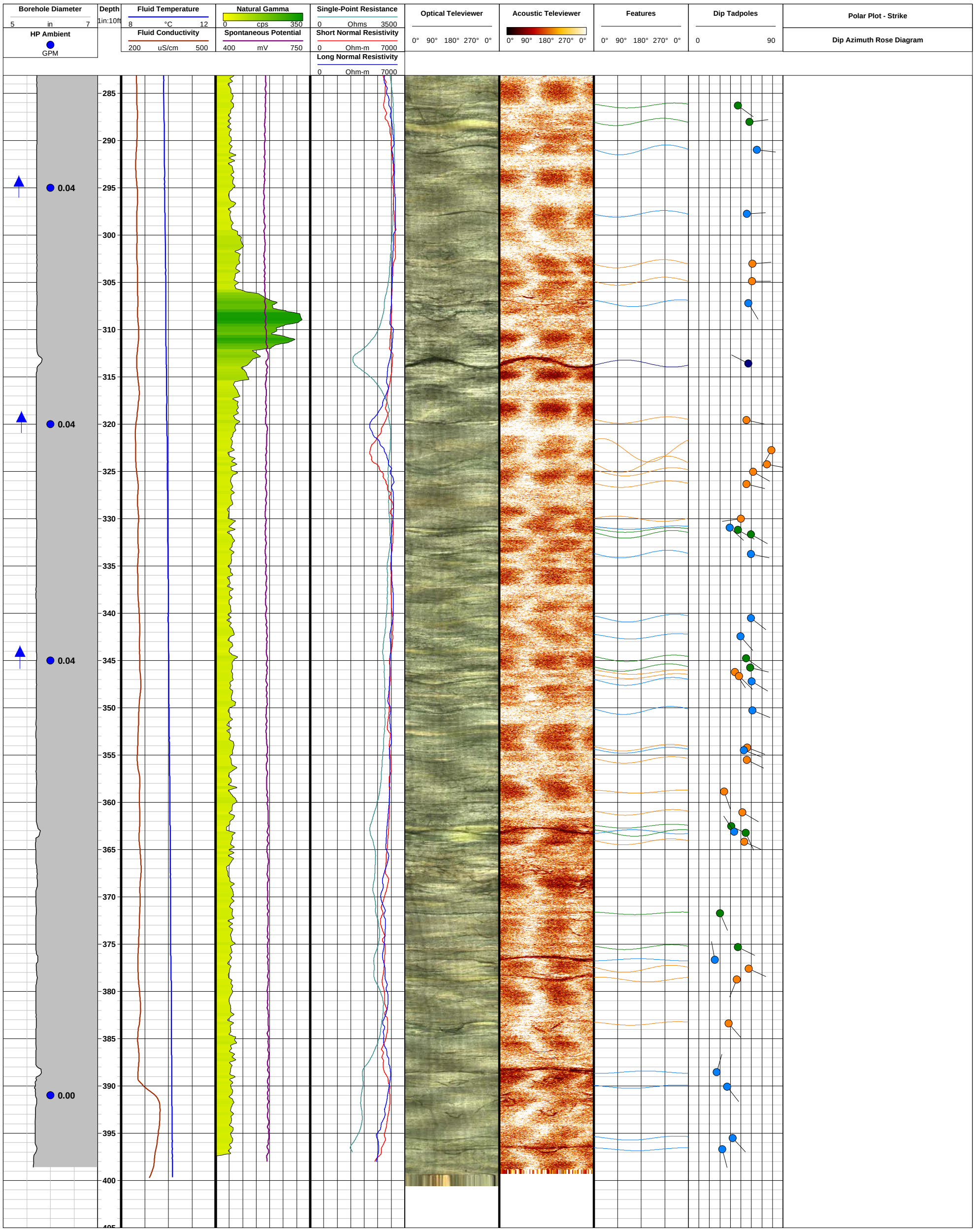
Borehole Diameter: **6"**
Static Water Level: **28' on 7/22/14**
Casing Depth: **23.5'**
Total Depth: **399'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
200 uS/cm 500
Natural Gamma
0 cps 350
Spontaneous Potential
400 mV 750
Single-Point Resistance
0 Ohms 3500
Short Normal Resistivity
0 Ohm-m 7000
Long Normal Resistivity
0 Ohm-m 7000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.03
0.04
0.04
0.04
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
280
Schmidt Plot (Strike) - LH - #1
0°
60
30
270°
30
60
90°
180°
Counts Dip[deg] Strike[deg]
Mean 203 49.85 30.50
80 46.87 27.49
9 52.44 349.67
85 53.84 31.73
29 45.71 37.89
Azimuth - Absolute (Count)
0°
32
24
16
8
270°
8 16 24 32
90°
180°
Counts: 203.00
Mean: 120.50
Std.Dev.: 63.59
Min: 4.12
Max: 355.08


Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
200 uS/cm 500
Natural Gamma
0 cps 350
Spontaneous Potential
400 mV 750
Single-Point Resistance
0 Ohms 3500
Short Normal Resistivity
0 Ohm-m 7000
Long Normal Resistivity
0 Ohm-m 7000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.04
0.04
0.04
0.00
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400

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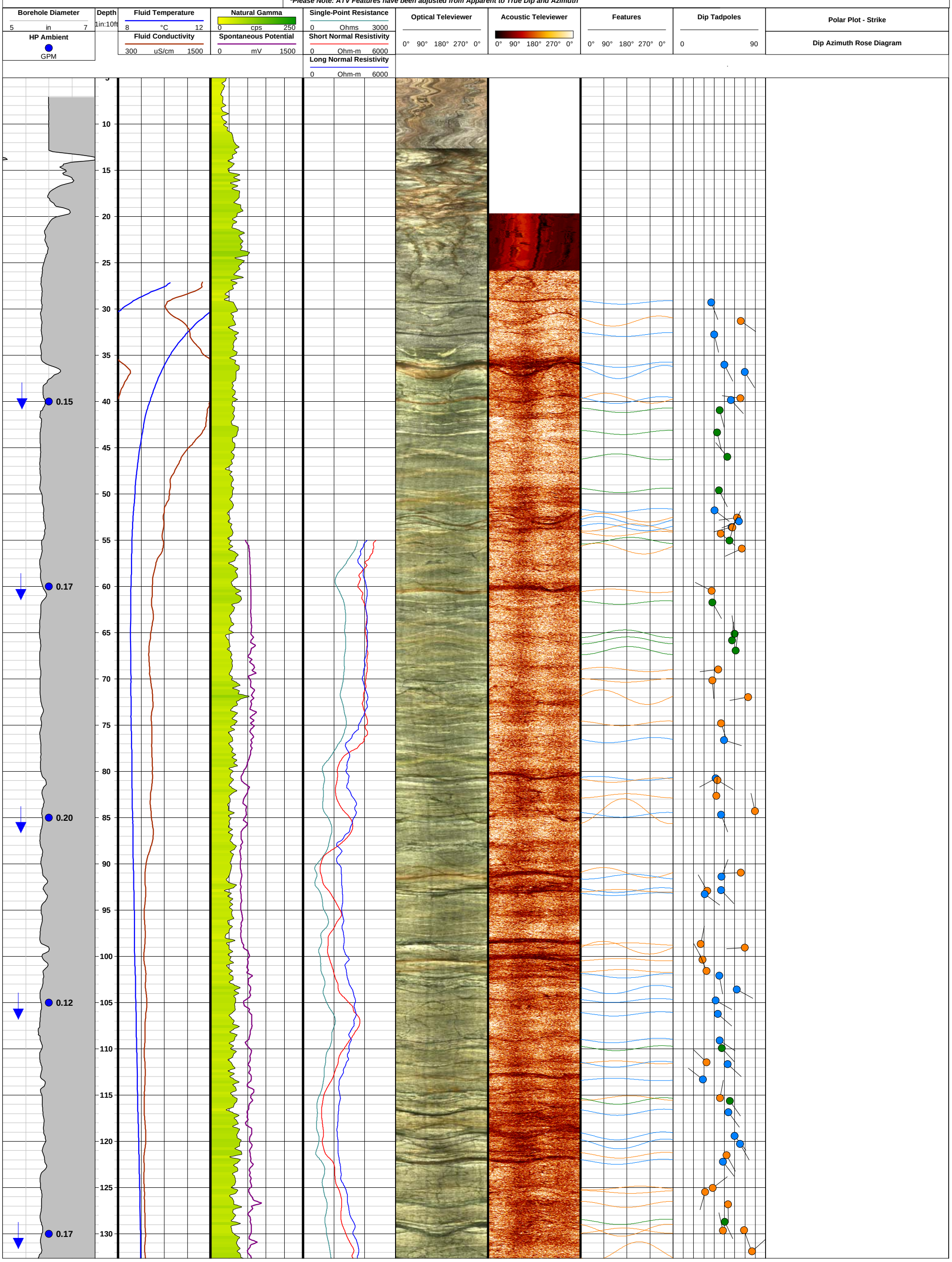
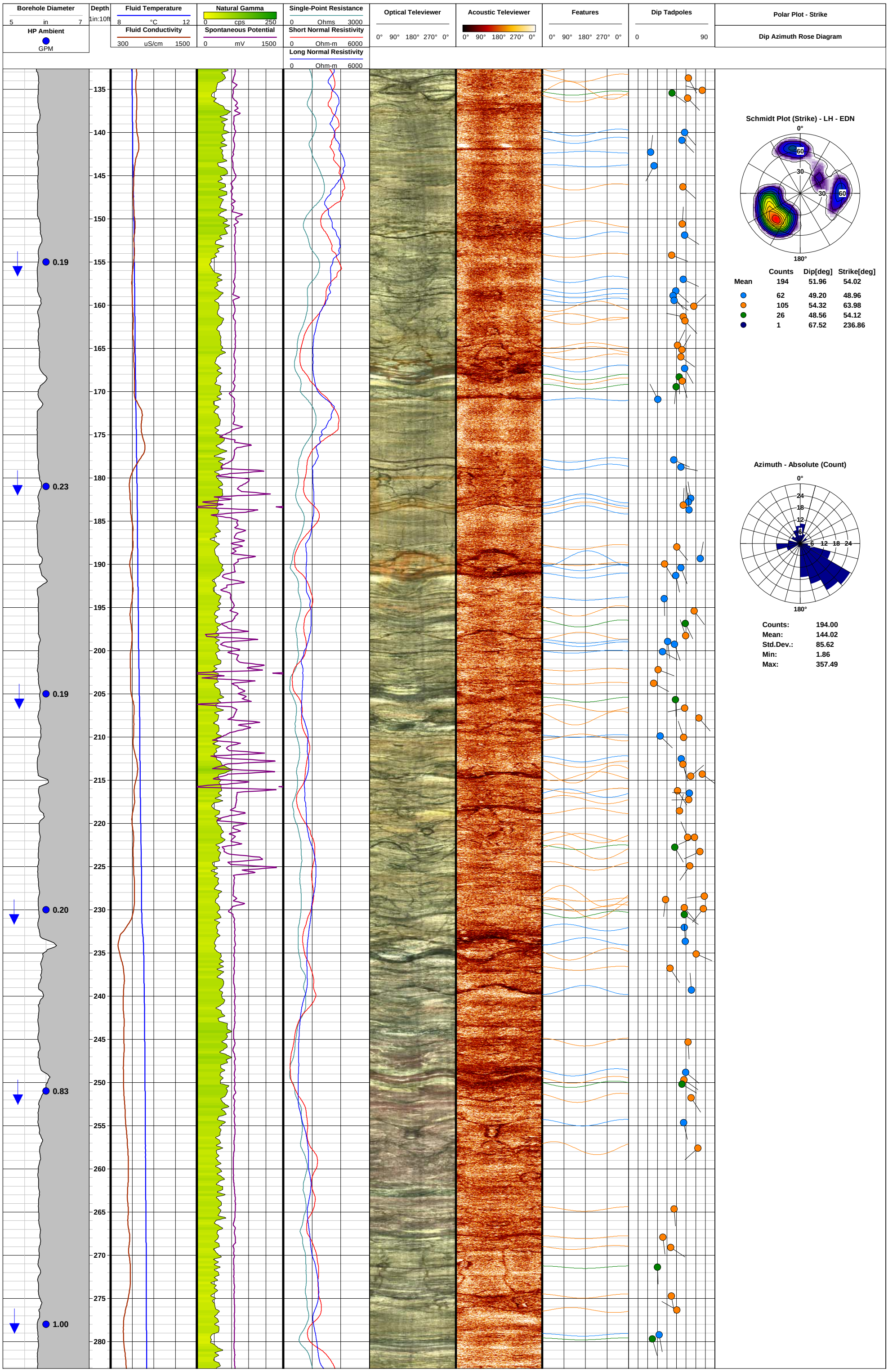
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-6**
Date: **7-22/23-2014 & 9-12-2014**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

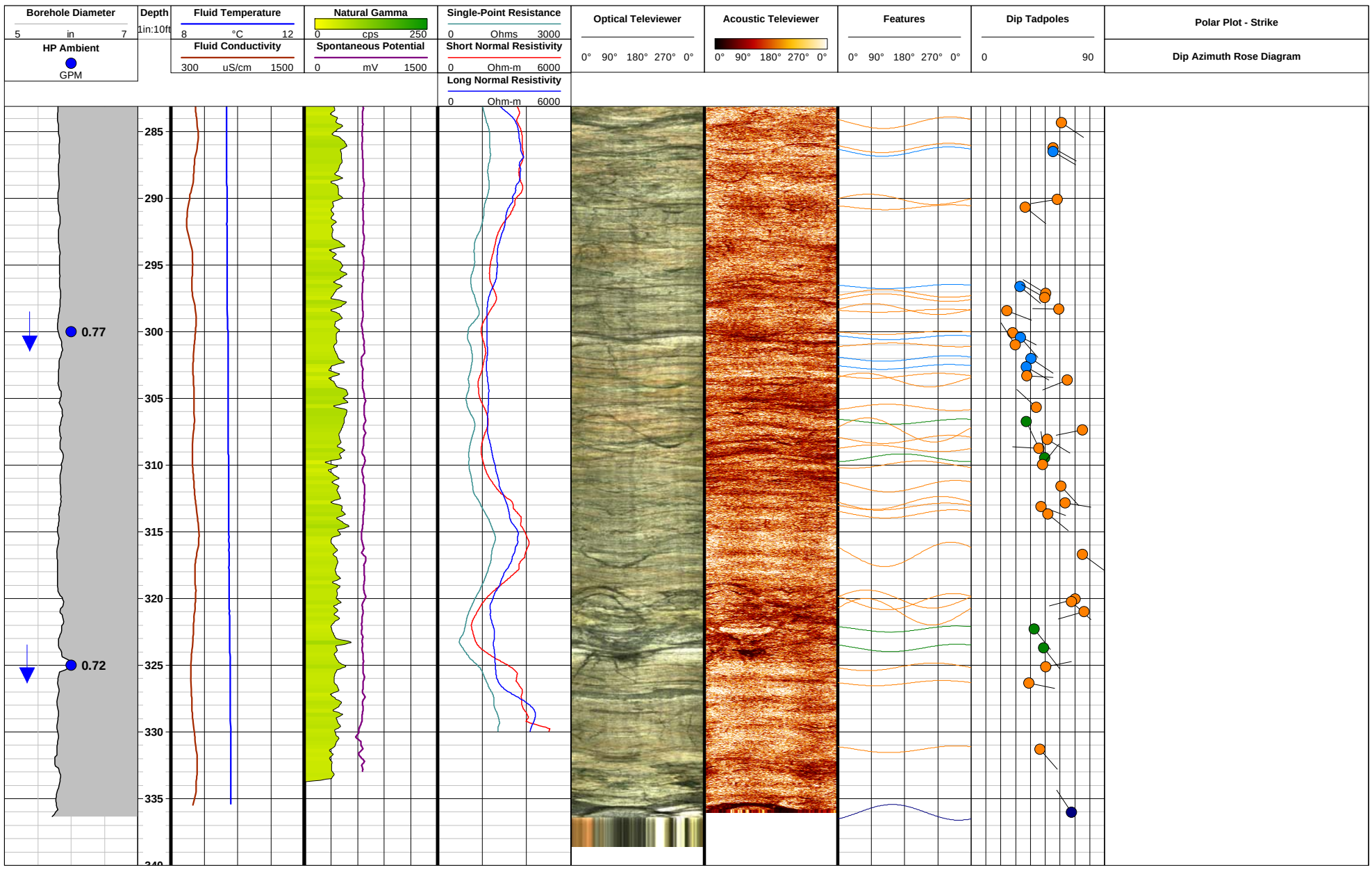
Borehole Diameter: **6" Nominal**
Static Water Level: **26' on 7/22/14**
Casing Depth: **13'**
Total Depth: **335'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
300 uS/cm 1500
Natural Gamma
0 cps 250
Spontaneous Potential
0 mV 1500
Single-Point Resistance
0 Ohms 3000
Short Normal Resistivity
0 Ohm-m 6000
Long Normal Resistivity
0 Ohm-m 6000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.19
0.23
0.19
0.20
0.83
1.00
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
280
Schmidt Plot (Strike) - LH - EDN
0°
60
30
30
60
180°
Counts Dip[deg] Strike[deg]
Mean 194 51.96 54.02
62 49.20 48.96
105 54.32 63.98
26 48.56 54.12
1 67.52 236.86
Azimuth - Absolute (Count)
0°
24
18
12
6
6 12 18 24
180°
Counts: 194.00
Mean: 144.02
Std.Dev.: 85.62
Min: 1.86
Max: 357.49


Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
300 uS/cm 1500
Natural Gamma
0 cps 250
Spontaneous Potential
0 mV 1500
Single-Point Resistance
0 Ohms 3000
Short Normal Resistivity
0 Ohm-m 6000
Long Normal Resistivity
0 Ohm-m 6000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.77
0.72
285
290
295
300
305
310
315
320
325
330
335

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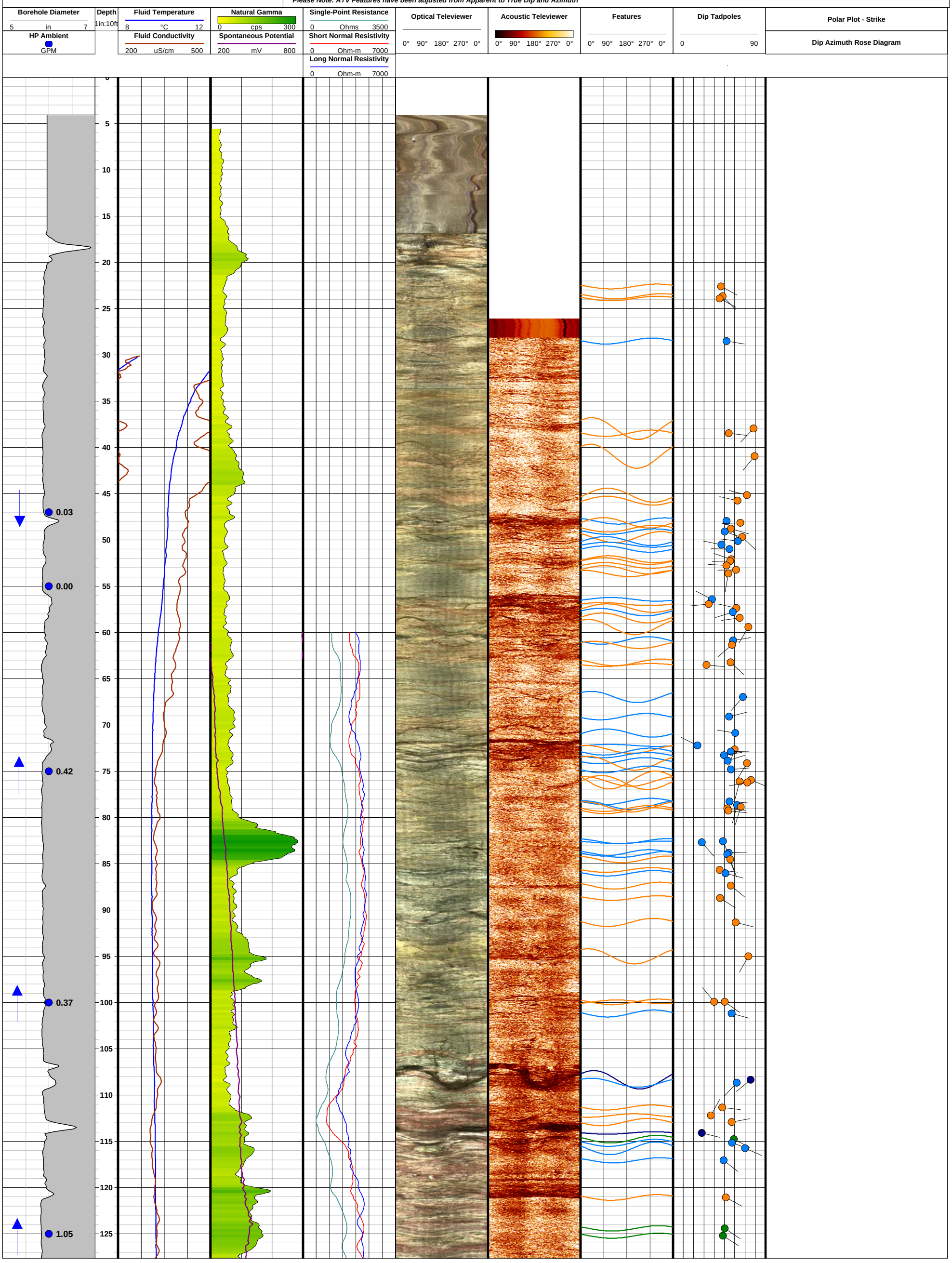
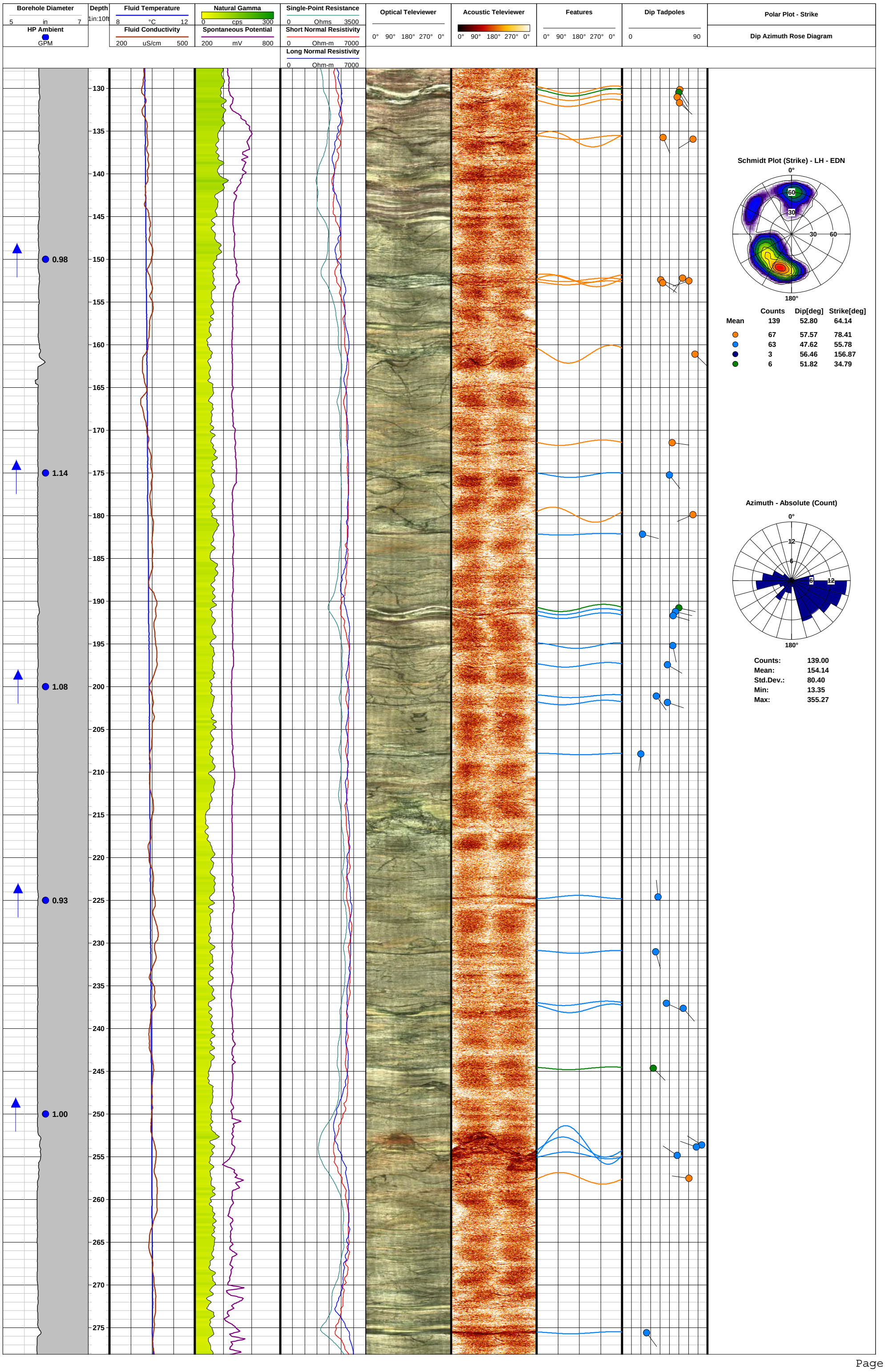
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-7**
Date: **7-24-2014 and 9-11-2014**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

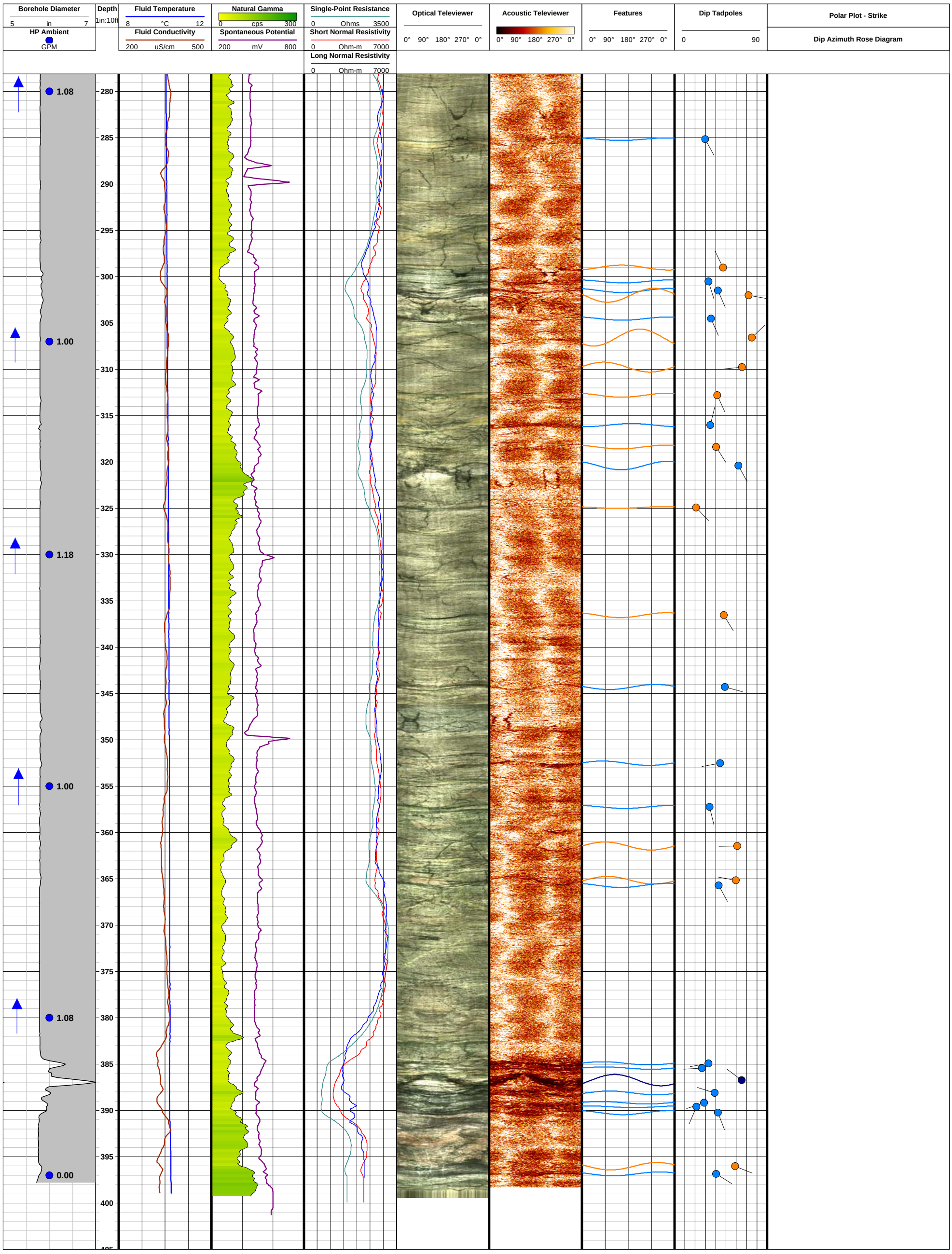
Borehole Diameter: **6" Nominal**
Static Water Level: **29'**
Casing Depth: **17'**
Total Depth: **399'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
200 uS/cm 500
Natural Gamma
0 cps 300
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 3500
Short Normal Resistivity
0 Ohm-m 7000
Long Normal Resistivity
0 Ohm-m 7000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.98
1.14
1.08
0.93
1.00
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
Schmidt Plot (Strike) - LH - EDN
0°
60
30
30
60
180°
Counts Dip[deg] Strike[deg]
Mean 139 52.80 64.14
67 57.57 78.41
63 47.62 55.78
3 56.46 156.87
6 51.82 34.79
Azimuth - Absolute (Count)
0°
12
6
6
12
180°
Counts: 139.00
Mean: 154.14
Std.Dev.: 80.40
Min: 13.35
Max: 355.27


Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
8 °C 12
Fluid Conductivity
200 uS/cm 500
Natural Gamma
0 cps 300
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 3500
Short Normal Resistivity
0 Ohm-m 7000
Long Normal Resistivity
0 Ohm-m 7000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
1.08
1.00
1.18
1.00
1.08
0.00
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400

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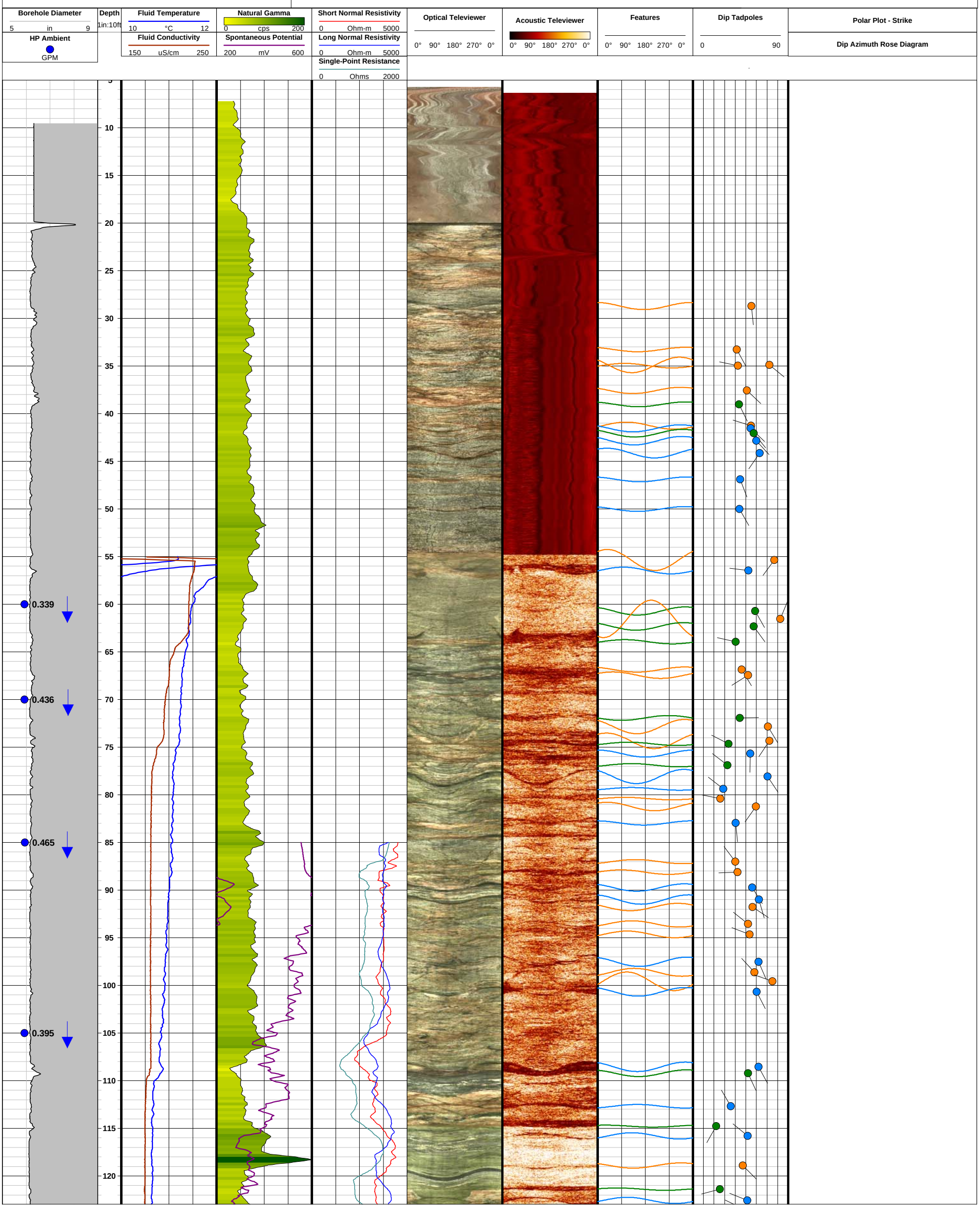
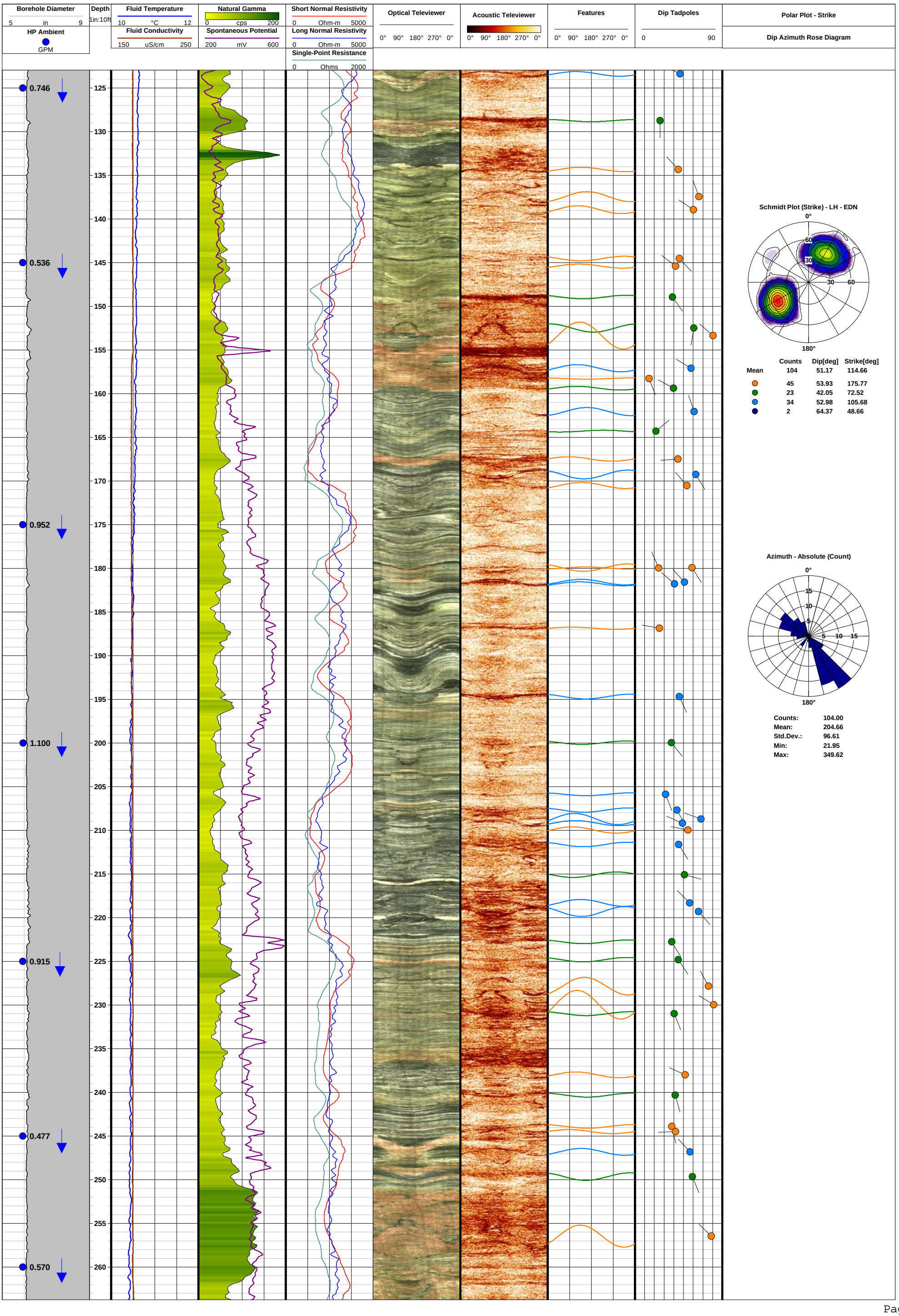
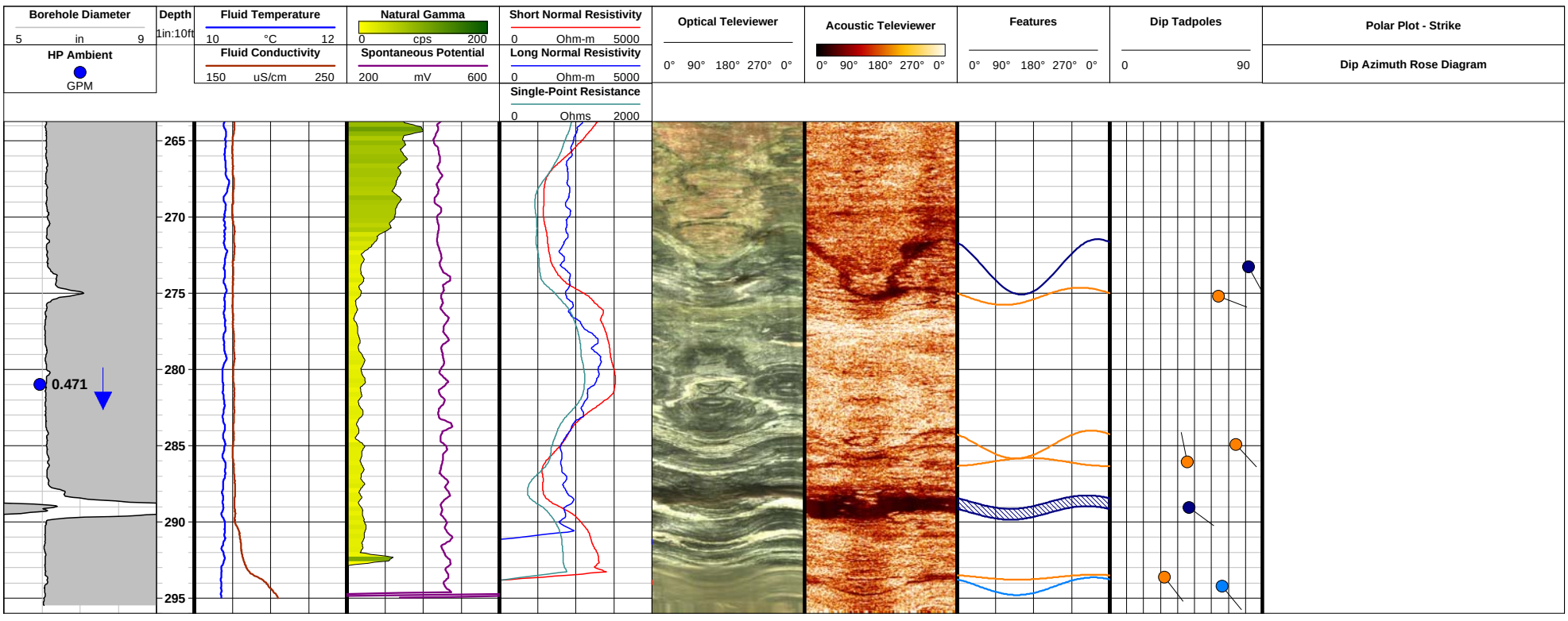
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-8**
Date: **09/09/14**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73 deg**
North reference: **True**

Borehole Diameter: **6" nominal**
Static Water Level: **55'**
Casing Depth: **20'**
Total Depth: **296'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology




Borehole Diameter
5 in 9
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
10 °C 12
Fluid Conductivity
150 uS/cm 250
Natural Gamma
0 cps 200
Spontaneous Potential
200 mV 600
Short Normal Resistivity
0 Ohm-m 5000
Long Normal Resistivity
0 Ohm-m 5000
Single-Point Resistance
0 Ohms 2000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.746
0.536
0.952
1.100
0.915
0.477
0.570
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
Schmidt Plot (Strike) - LH - EDN
0°
60
30
30
60
180°
Counts Dip[deg] Strike[deg]
Mean 104 51.17 114.66
45 53.93 175.77
23 42.05 72.52
34 52.98 105.68
2 64.37 48.66
Azimuth - Absolute (Count)
0°
15
10
5
5
10
15
180°
Counts: 104.00
Mean: 204.66
Std.Dev.: 96.61
Min: 21.95
Max: 349.62


Borehole Diameter
5 in 9
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
10 °C 12
Fluid Conductivity
150 uS/cm 250
Natural Gamma
0 cps 200
Spontaneous Potential
200 mV 600
Short Normal Resistivity
0 Ohm-m 5000
Long Normal Resistivity
0 Ohm-m 5000
Single-Point Resistance
0 Ohms 2000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.471
265
270
275
280
285
290
295

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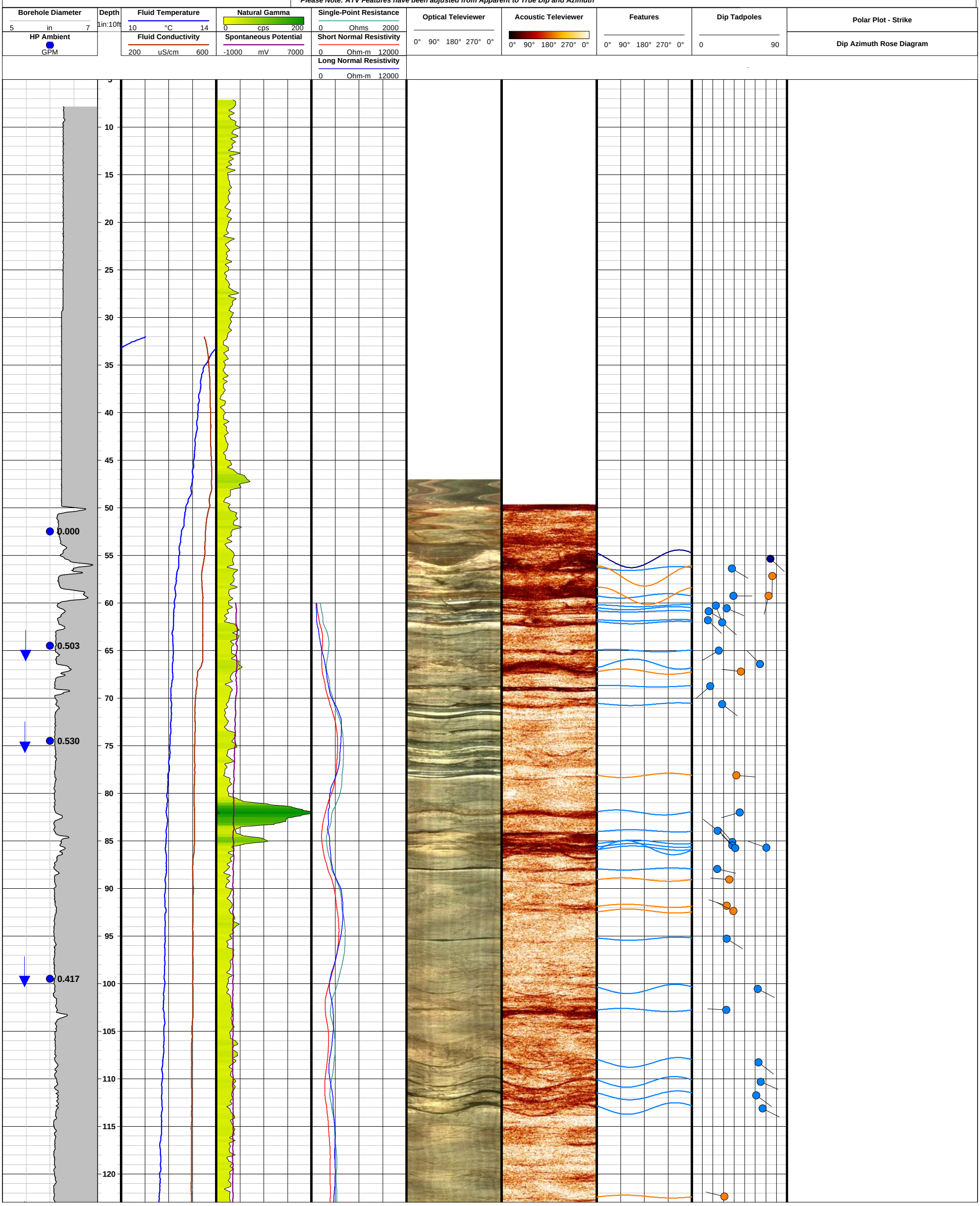
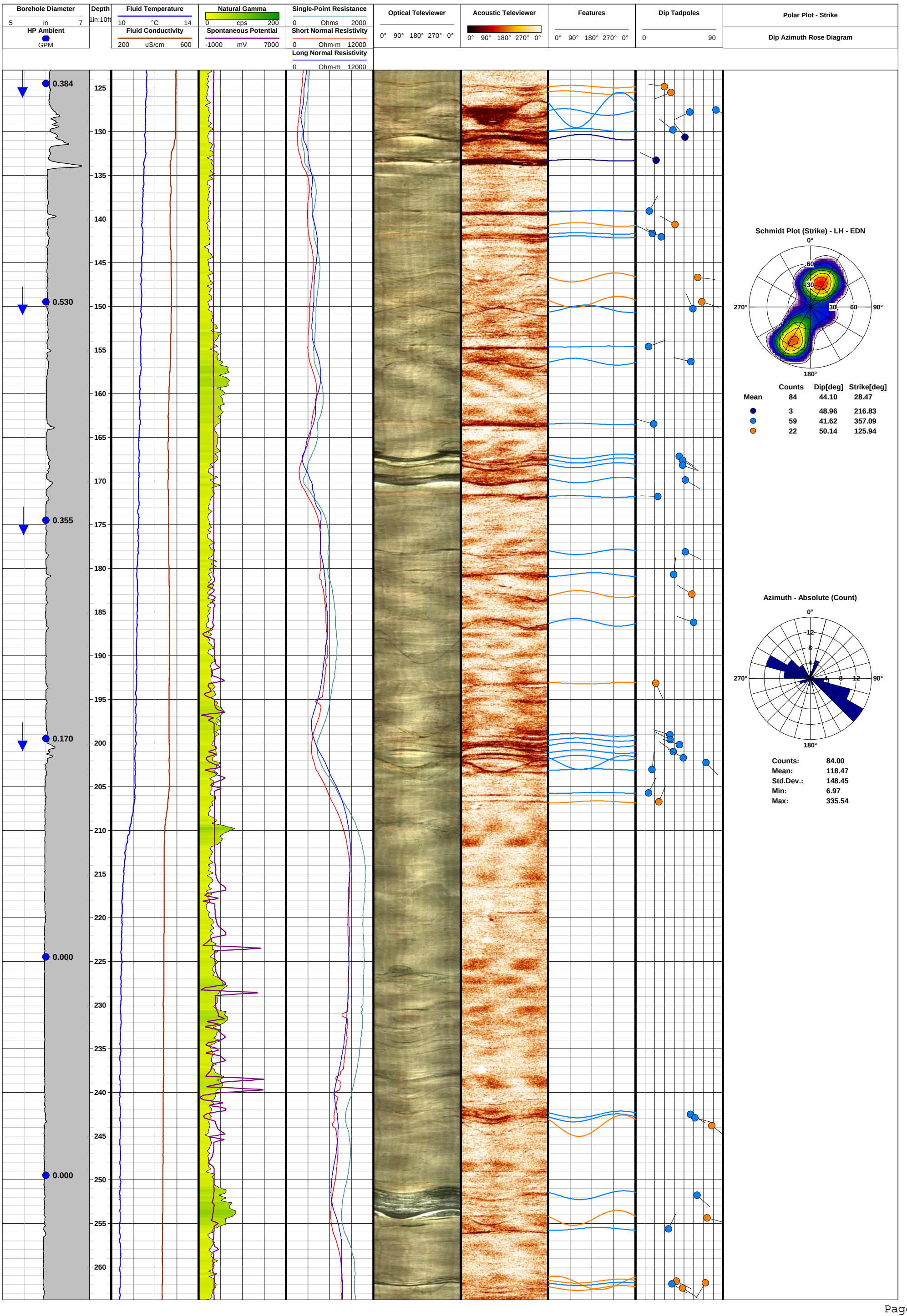
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-9**
Date: **9-10/11-2014**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

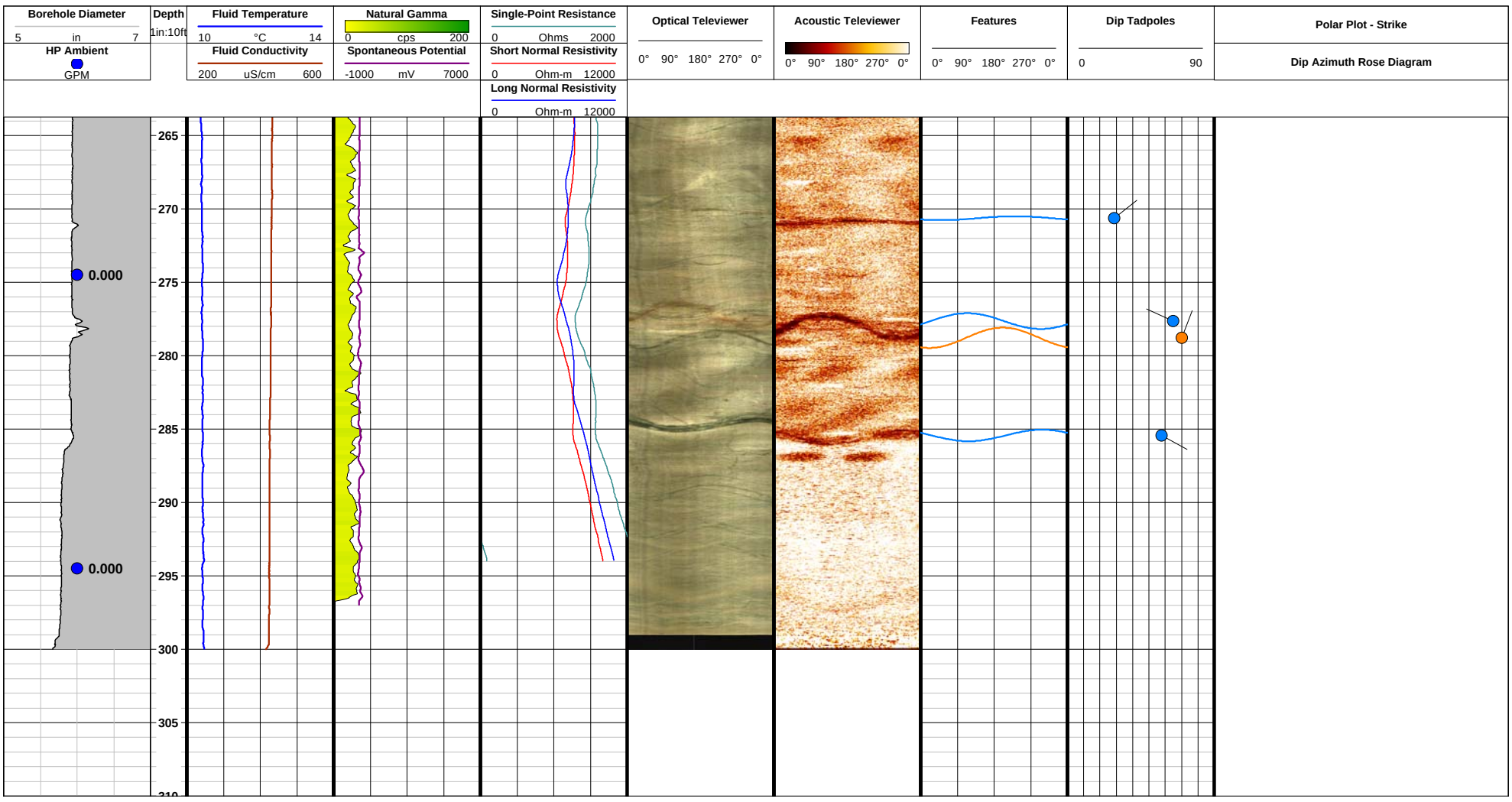
Borehole Diameter: **6" Nominal**
Static Water Level: **31'**
Casing Depth: **50'**
Total Depth: **300'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Hairline Fracture/Feature

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in 7
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
10 °C 14
Fluid Conductivity
200 uS/cm 600
Natural Gamma
0 cps 200
Spontaneous Potential
-1000 mV 7000
Single-Point Resistance
0 Ohms 2000
Short Normal Resistivity
0 Ohm-m 12000
Long Normal Resistivity
0 Ohm-m 12000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.384
0.530
0.355
0.170
0.000
0.000
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
Schmidt Plot (Strike) - LH - EDN
0°
90°
180°
270°
60
30
Counts Dip[deg] Strike[deg]
Mean 84 44.10 28.47
3 48.96 216.83
59 41.62 357.09
22 50.14 125.94
Azimuth - Absolute (Count)
0°
90°
180°
270°
4
8
12
Counts: 84.00
Mean: 118.47
Std.Dev.: 148.45
Min: 6.97
Max: 335.54


Borehole Diameter
5 in 7
Depth
1in:10ft
Fluid Temperature
10 °C 14
Natural Gamma
0 cps 200
Single-Point Resistance
0 Ohms 2000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
HP Ambient
GPM
Fluid Conductivity
200 uS/cm 600
Spontaneous Potential
-1000 mV 7000
Short Normal Resistivity
0 Ohm-m 12000
Dip Azimuth Rose Diagram
Long Normal Resistivity
0 Ohm-m 12000
0.000
0.000
265
270
275
280
285
290
295
300
305
310

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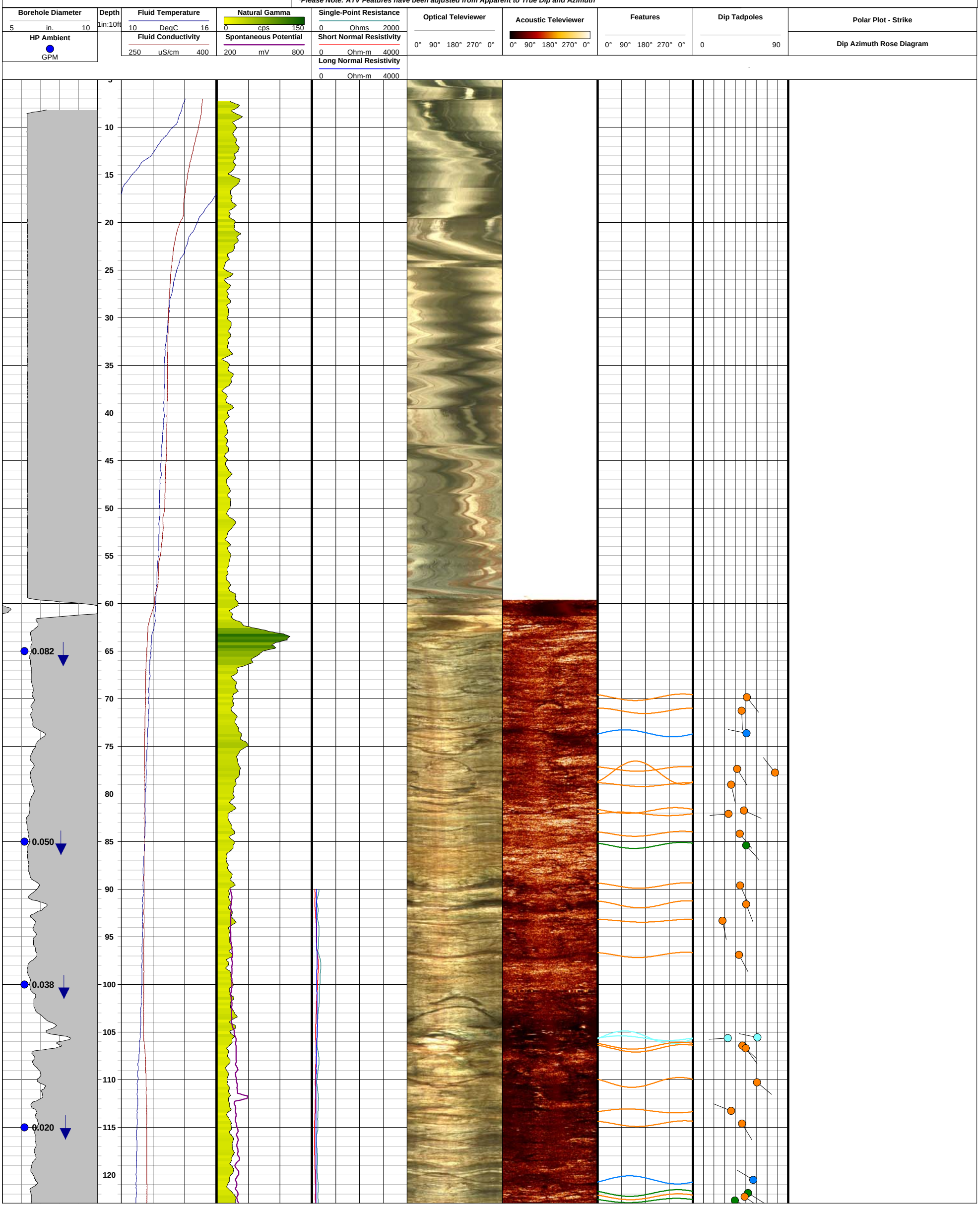
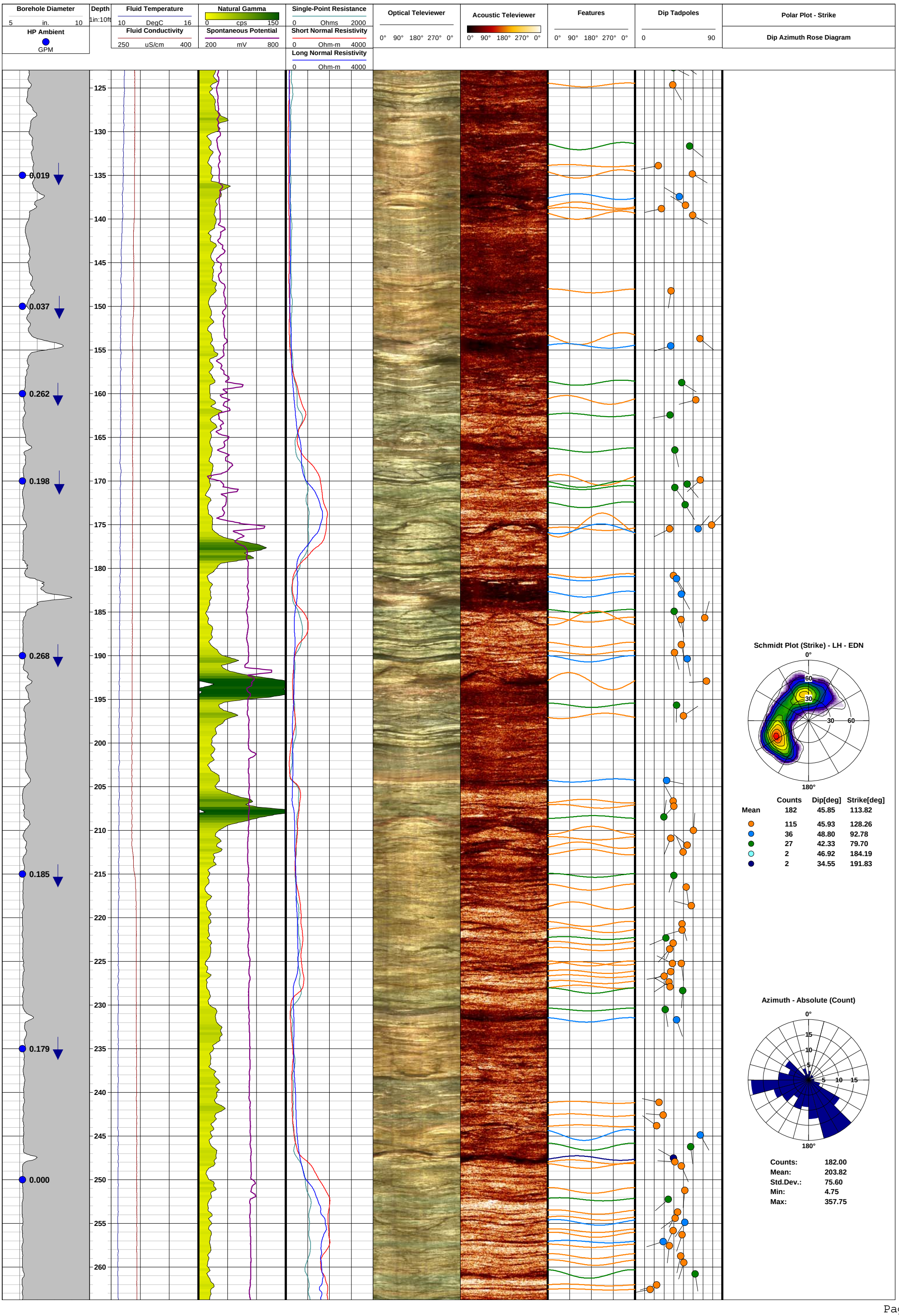
Client: **Sullivan**
Location: **Hopatcong, NJ**
Well Name: **MLS-11**
Date: **09/09 - 09/10/2014**
Depth Reference: **Ground Surface**
Magnetic Declination: **-12.73**
North reference: **True**

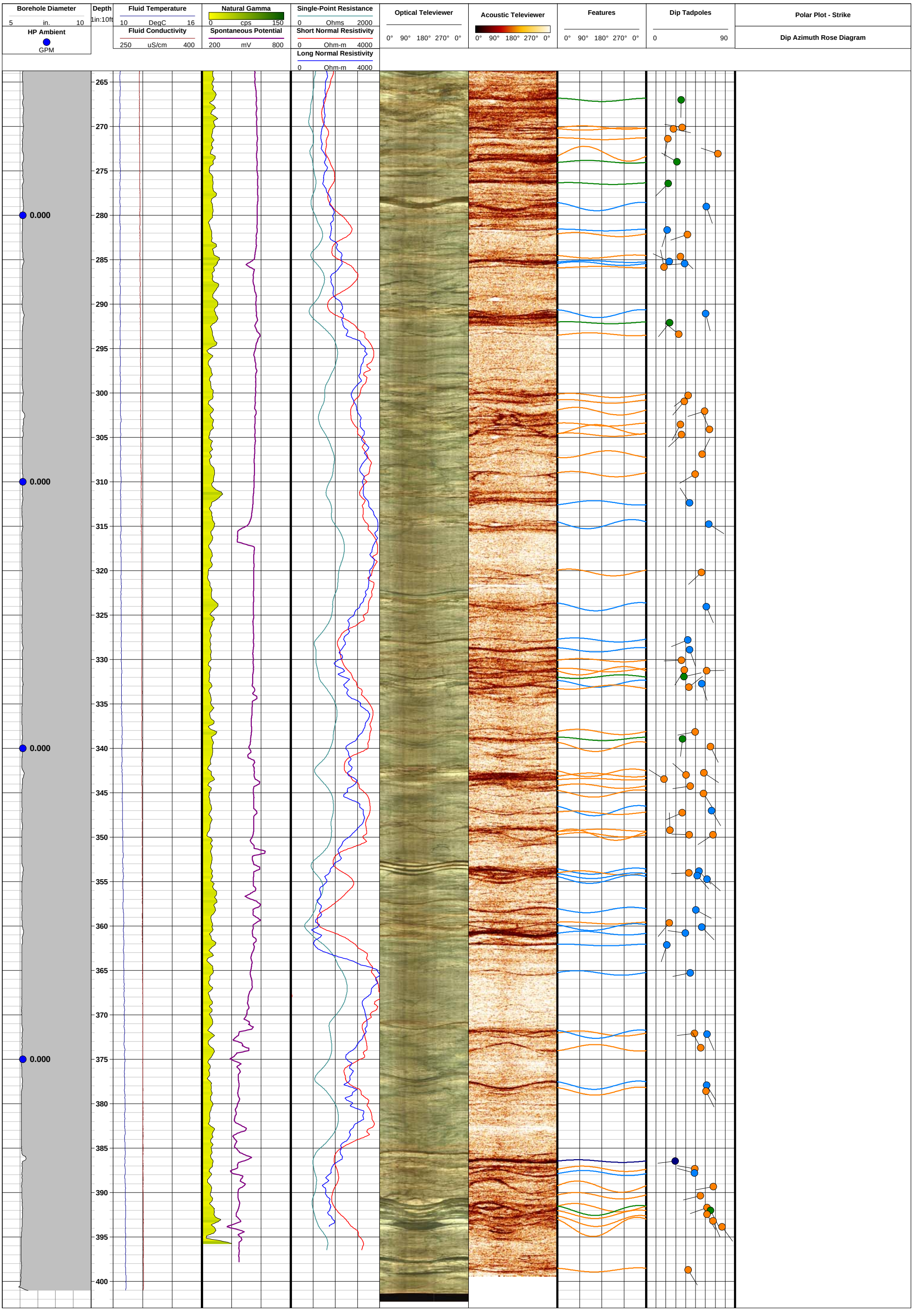
Borehole Diameter: **6" Nominal**
Static Water Level: **7'**
Casing Depth: **59.5'**
Total Depth: **401'**

Fracture/Feature
Hairline Fracture/Feature
Discontinuous Fracture/Feature
Discontinuous Hairline Fracture/Feature
Bedding/Change in Lithology

Please Note: ATV Features have been adjusted from Apparent to True Dip and Azimuth




Borehole Diameter
5 in. 10
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
10 DegC 16
Fluid Conductivity
250 uS/cm 400
Natural Gamma
0 cps 150
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 2000
Short Normal Resistivity
0 Ohm-m 4000
Long Normal Resistivity
0 Ohm-m 4000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.019
0.037
0.262
0.198
0.268
0.185
0.179
0.000
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
Schmidt Plot (Strike) - LH - EDN
0°
60
30
30
60
180°
Counts Dip[deg] Strike[deg]
Mean 182 45.85 113.82
115 45.93 128.26
36 48.80 92.78
27 42.33 79.70
2 46.92 184.19
2 34.55 191.83
Azimuth - Absolute (Count)
0°
15
10
5
5 10 15
180°
Counts: 182.00
Mean: 203.82
Std.Dev.: 75.60
Min: 4.75
Max: 357.75


Borehole Diameter
5 in. 10
HP Ambient
GPM
Depth
1in:10ft
Fluid Temperature
10 DegC 16
Fluid Conductivity
250 uS/cm 400
Natural Gamma
0 cps 150
Spontaneous Potential
200 mV 800
Single-Point Resistance
0 Ohms 2000
Short Normal Resistivity
0 Ohm-m 4000
Long Normal Resistivity
0 Ohm-m 4000
Optical Televiewer
0° 90° 180° 270° 0°
Acoustic Televiewer
0° 90° 180° 270° 0°
Features
0° 90° 180° 270° 0°
Dip Tadpoles
0 90
Polar Plot - Strike
Dip Azimuth Rose Diagram
0.000
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400

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GEOPHYSICAL INVESTIGATION
Mansfield Trail Dump Site
Byram Township, New Jersey

Prepared for:
EES JV
485A Route 1 South Suite 360
Iselin, NJ 08830
May 6, 2015

Prepared by:

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THG Project No. 927-5936

1.0 INTRODUCTION

1.1 Background

The Mansfield Trail Dump Site, Byram Township, New Jersey is within the auspices of CERCLA and an investigation as to the contaminant pathways from the dump site was required to mediate the impact of groundwater contamination (Figure 1). NJDEP identified five areas of concern (AOCs) within various dump trenches in a wooded area southeast of this report's study area where sludge from an unknown origin was disposed of, causing groundwater contamination and affecting a number of homes in this report's study area (A through E; Figure 1). The purpose of this study is to locate top of bedrock, saturated overburden deposits, and bedrock fractures to help determine groundwater pathways to the affected homes.

1.2 Work Scope

THG Geophysics, Ltd. collected a series of electrical imaging (EI) profiles along and near Ross and Brookwood Roads, and Brookwood Drive, Byram Township, New Jersey. EI was selected as the most appropriate method for imaging the subsurface due to the site geology and likelihood of fractures within the bedrock.

2.0 ELECTRICAL IMAGING INVESTIGATION

2.1 Theory

Electrical resistance is based upon Ohm's Law:

$$R = \frac{V}{I}$$

Where, resistance, **R** (Ohms), is equal to the ratio of potential, **V** (volts) to current flow, **I** (amperes). Resistivity is the measure of the resistance along a linear distance of a material with a known cross-sectional area. Consequently, resistivity is measured in Ohm-meters. This report presents the geophysical results as geo-electrical profiles of modeled resistivity versus depth, in units of feet.

Electrical currents propagate as a function of three material properties (1) ohmic conductivity, (2) electrolytic conductivity, and (3) dielectric conductivity. Ohmic conductivity is a property exhibited by metals. Electrolytic conductivity is a function of the concentration of total dissolved solids and chlorides in the groundwater that exists in the pore spaces of a material. Dielectric conductivity is a function of the permittivity of the matrix of the material. Therefore, the matrix of most soil and bedrock is highly resistive. Of these three properties, electrolytic conductivity is the dominant material characteristic that influences the apparent resistivity values collected by this method. In general, resistivity values decrease in water-bearing rocks and soil with increasing:

a. Fractional volume of the rock occupied by groundwater;
b. Total dissolved solid and chloride content of the groundwater;
c. Permeability of the pore spaces; and,
d. Temperature.

Materials with minimal primary pore space (i.e., granite, limestone) or lack groundwater in the pore spaces will exhibit high resistivity values (Mooney, 1980). Highly porous, moist or saturated soil, such as fat clays, will exhibit very low resistivity values.

In homogeneous ground, the apparent resistivity is the true ground resistivity; however, in heterogeneous ground, the apparent resistivity represents a weighted average of all formations through which the current passes. Many electrode placements (arrays) have been proposed (for examples see Reynolds, 1997); however, the Schlumberger array has proven to be an effective configuration for imaging fractures in bedrock settings. The following Schlumberger array was used in the collection of data:

$$R_i = \frac{\pi a^2}{b}[1 - \frac{b^2}{4a^2}]R; a = 5b$$

Where, $\boldsymbol{R_i}$, resistivity, is related to the number of poles, ***n***, the separation distance between the current source and current sink ***b***, and the pole spacing, **a**.

2.2 Methods

The resistivity survey was performed using the ARES multi-electrode cable system (GF Instruments, s.r.o., Brno, Czech Republic). The survey was conducted using stainless steel electrodes and stainless-steel cylinder-bearing cables.

Six EI survey lines totaling 6,622 feet were collected pursuant to the survey plan provided by the client (Figure 1). Three profiles, Lines 1, 2, and 3, were oriented southwest to northeast and three profiles, Lines 4, 5, and 6, were oriented southeast to northwest (Figures 1-6).

2.3 Processing

A forward modeling subroutine was used to calculate the apparent resistivity values using the EarthImager program (AGI, 2002). This program is based on the smoothness-constrained

least-squares method (deGroot-Hedlin and Constable, 1990; Loke and Barker, 1996). The smoothness-constrained least-squares method is based upon the following equation:

$$J^T g = (J^T J + \mu F)d$$

Where, **F** is a function of the horizontal and vertical flatness filter, **J** is the matrix of partial derivatives, **μ** is the damping factor, **d** is the model perturbation vector and **g** is the discrepancy vector.

The EarthImager program divides the subsurface 2-D space into a number of rectangular blocks. Resistivities of each block are then calculated to produce an apparent resistivity pseudosection. The pseudosection is compared to the actual measurements for consistency. A measure of the difference is given by the root-mean-squared (rms) error.

3.0 GEOLOGY

The geology of this area consists of Proterozoic plutonic and metamorphic assemblages of poorly understood ages and associations (Figure 3). The site is located on the southeastern side of a prominent northeast-trending ridge that is composed of a Middle Proterozoic pyroxene granite. This unit is "…medium- to medium-coarse-grained, buff to greenish–gray, gneissoid to indistinctly foliated granite composed dominantly of mesoperthite to microantiperthite, quartz, oligoclase, clinopyroxene, and in some areas hornblende." (Dalton et al., 1999).

The northwestern face to this ridge slope consists of a Middle Proterozoic quartz-oligoclase gneiss, called the Losee Metamorphic Suite (Dalton, et al. 1999). The Losee Suite in this area is composed of "…medium-fine- to medium-coarse-grained, white to light-greenish-gray, poorly foliated gneiss composed of quartz, oligoclase, and minor biotite, garnet, chlorite, and hornblende." (Dalton et al., 1999).

The alluvial valley northwest of the ridge shows glacial scouring and infilling of Quaternary sediments (Profile 6; Figure 6). The sediments are Wisconsin to pre-Wisconsin in age and form swampy lowlands (Dalton, et al. 1999).

One predominant structural feature displayed on various geologic maps is a fault of unknown age and displacement (Dalton et al., 1999). The fault, termed the Mansfield Fault within this report, terminates in a spring on the northwest side of the prominent ridge. EI profile Line 2 intercepted the fault between 675 and 725 feet along the profile. The fault, long since inactive and probably Proterozoic in age and related to mountain building, may have a wide cataclastic zone that can transport groundwater.

4.0 GEOPHYSICAL ANALYSES

Six EI profiles were collected within the residential area northwest of the Mansfield Trail Dump Site. The profiles imaged the subsurface geo-electric stratigraphy to a depth of approximately 90 feet below grade. Three different geologic units were encountered during this survey; Proterozoic Pyroxene Granite, Proterozoic Losee Metamorphic Suite, and Quaternary Deposits. Electrical resistivity values greater than 300 Ohm-m (saturated reds) that are not surface anomalies (caused by large granitic boulders) are interpreted as bedrock. Low electrical resistivity values less than 20 Ohm-m (deep blues) are considered potential conductive water-bearing zones, and sections with strong contrasts in resistivity values are inferred as fractures.

Line 1, a 2,352-foot long profile, runs southwest to northeast along the northern property boundaries of the houses on the north side of Brookwood Road (Figures 1 and 2). The geologic contact between the Proterozoic Losee Metamorphic Suite and the overlying Quaternary Deposits is apparent at 1,680 ft along the line where the contours indicate electrical resistivity values over 300 Ohm-m. This contact may also represent a fracture. The 300 Ohm-m contour is interpreted as top of bedrock. Bedrock lies at the surface at the northeast section of the profile and abruptly increases with depth to the southwest where it becomes greater than 90 feet below the surface. One fracture is interpreted at 530 feet along the profile. Three weathered bedrock zones are shown on the profile between distances 1695 feet to 1740 feet, 1778 feet to 1828 feet, and 1939 feet to 2196 feet along the profile (Figure 4).

Line 2, a 1,092-foot long profile, runs southwest to northeast behind the houses south of Brookwood Road (Figures 1 and 2). The color scale showing the electrical resistivity values is different than those of the other EI profiles to reflect any anomalies within the high resistivity hard rock. Potential fractures are interpreted at 486 feet, 714 feet, 838 feet, and 907 feet. The fractures at 714 feet and 838 feet are likely part of the Mansfield Fault and extend to reach the spring at the base of the outcrop behind House 1 north of the profile at approximately 700 feet along the profile (Figures 2, 3 and 5). Top of competent bedrock (Proterozoic Pyroxene

Granite) is interpreted below the depth of the profile at the beginning of the line and sharply increases from 205 feet along the profile until it reaches the surface at 280 feet to the end of the profile (Figure 5).

Line 3, a 462-foot long profile, runs southwest to northeast behind House 2 along the south side of Brookwood Road (Figures 1 and 2). This line was added as separate extension of Line 2 as electrical coupling with the earth could not be established within the gravel-filled retaining wall behind the last House 2 north of the profile. The color scale is the same as that of Line 2 to reflect anomalies within the high resistivity hard rock. Top of bedrock (Proterozoic Pyroxene Granite) is interpreted to be at the surface for the entire length of the line. Electrical resistivity values of this profile range from approximately 4,300 Ohm-m to over 10,000 Ohm-m, typical of hard, competent bedrock. No significant fractures are interpreted to lie within this profile (Figure 5).

Line 4, a 1,250-foot long profile, runs southeast to northwest, starting at the north side of Ross Road and following a straight path crossing Brookwood Road and Brookwood Drive and terminates in a marsh area north of House 3 (Figures 1 and 2). This profile begins in the Proterozoic Metamorphic Suite and changes to the overlying Quaternary Deposits at approximately 500 feet. Fractures are interpreted at 328 feet, 574 feet, 931 feet along the line where the contours sharply change from high to low. A conductive zone exists at 402 feet potentially representing a water-bearing unit within weathered bedrock. A fracture is inferred at 931 feet where ponding water was also noted at the ground surface. Top of competent bedrock is interpreted to be below the depth of the profile as the nearby monitoring well, MLS-11, log showed severely weather bedrock from the surface to 100 feet below grade (Figure 6).

Line 5, a 846-foot long profile, runs southeast to northwest, starts in the front yard of House 4 and follows a straight path crossing Brookwood Road until terminating east of the Brookwood Drive cul-de-sac (Figures 1 and 2). This profile begins in the Proterozoic Metamorphic Suite and changes to the overlying Quaternary Deposits at approximately 270 feet along the profile. Fractures are inferred at 60 feet, 168 feet, 247 feet, and 625 feet along the profile. Natural

springs were noted at the surface at 60 feet and 193 feet along the profile. Several conductive zones, potentially water-bearing are present along this profile notably at distances of 118 feet, 210 feet, and 272 feet along the profile. Top of competent bedrock (Proterozoic Metamorphic Suite) is interpreted at 55 to 94 feet below grade between distances 588 feet and 641 feet and below the depth of the profile everywhere else. Nearby boring, MLS-11 (150 feet southwest of the profile at distance 707 feet), shows severely weather bedrock from the surface to 100 feet below grade (Figure 6).

Line 6, a 620-foot long profile, runs southeast to northwest begins at the east side of the property boundary of House 5 and follows a straight path into the woods (Figures 1 and 2). This line starts in the Proterozoic Metamorphic Suite and transitions to the overlying Quaternary deposits at approximately 395 feet along the profile. Top of bedrock is inferred as the 300 Ohm-m contour and appears as an uneven weathered surface. No notable fractures were interpreted along this line.

5.0 CONCLUSION

Approximately 6,622 feet of EI profiles were collected in six profiles in an area where residential water wells have been contaminated with volatile organic compounds by the Mansfield Trail Dump Site, Byram Township, New Jersey. Several natural springs exist within the study area and correlate to interpreted fractures or localized conductive zones on the EI profiles (Figures 1-6). The conductive zones are likely water-bearing and part of a fracture pattern or weathered bedrock zones. The Mansfield Fault enters the survey area from the south and crosses EI Line 2 (Figure 2). Geologic contacts of the three units depicted on the USGS Geologic Quadrangle of Stanhope, New Jersey also correlate to electrical resistivity contrasts (Figures 2-4).

Several localized fractures are interpreted to exist along EI profiles 1, 2, 4, and 5 (Figures 1-6) One major fracture is interpreted to exist within the study area from the EI data, oriented N 8°W (Mansfield Fault). Consideration of which homes were affected by the contamination should be used to tie the inferred fractures together form the EI profiles into a local fracture pattern.

Overall, the EI data quality was good. EI methods rely on electrical resistivity contrasts and are negatively impacted by subsurface conductive utilities. THG purposely avoided obvious power lines and above-ground utility markers when possible for this survey. However, the survey area is an urban environment and some of the profiles may still be impacted by the presence of utilities. Previously marked utilities that were crossed by an EI line are noted on the profiles.

Geophysical investigations are a non-invasive method of interpreting physical properties of the shallow earth using electrical, electromagnetic, or mechanical energy. This document contains geophysical interpretations of responses to induced or real-world phenomena. As such, the measured phenomenon may be impacted by variables not readily identified in the field that can result in a false-positive and/or false negative interpretations. THG makes no representations or warranties as to the accuracy of the interpretations.

6.0 REFERENCES

AGI, 2002. EarthImager Program. American Geosciences Inc., Austin Texas.

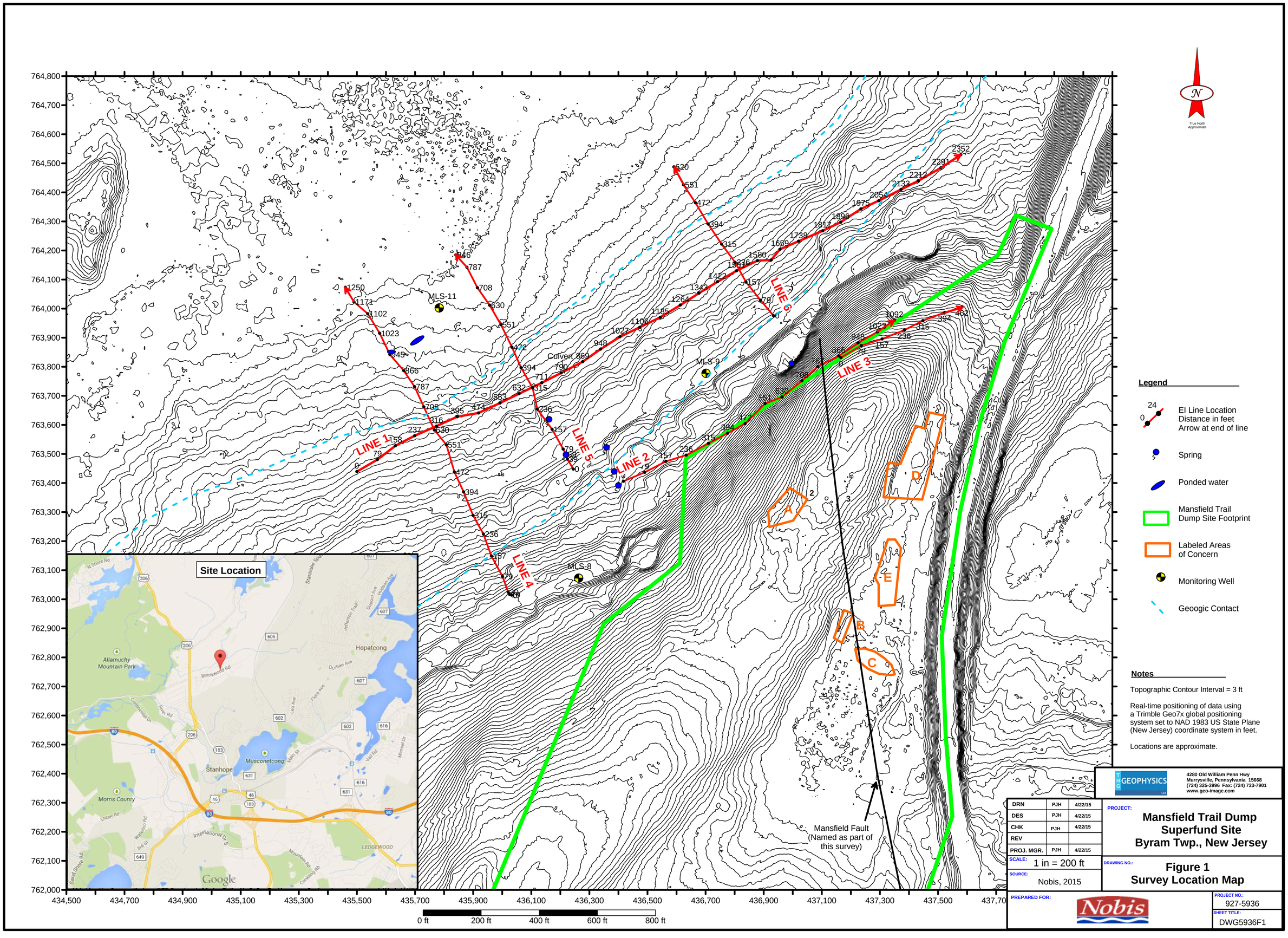
deGroot-Hedlin, C. and Constable, S., 1990, Occam's inversion to generate smooth, two-dimensional models from magnetotelluric data. Geophysics, V. 55, 1613-1624.

Loke, M. N., and Barker, R. D., 1996, Rapid least-squares inversion of apparent resistivity pseudosection by quasi-Newton method. Geophysical Prospecting, V. 44, 131-152.

Mooney, H. M. (1980). Handbook of Engineering Geophysics: Volume 2: Electrical Resistivity, Bison Instruments, Inc.

Reynolds, J. M. (1997). An Introduction to Applied and Environmental Geophysics. New York, NY, Wiley.

Dalton, R. F., Herman, G. C., Monteverde, D. H., Pristas, R. S., Sugarman, P. J., Volkert, R. A., 1999, New Jersey Department Of Environmental Protection, Bedrock Geology and Topographic Base Maps of New Jersey: New Jersey Geological Survey CD Series CD 00-1; ARC/INFO (v. 7.1) export file: geology.e00, scale 1:100,000, unit description files: cslegend.pdf and nlegend.pdf, metadata: metast.pdf.


LINE 1
LINE 2
LINE 3
LINE 4
LINE 5
LINE 6
MLS-11
MLS-9
MLS-8
Culvert 869
Site Location
Allamuchy Mountain Park
Hopatcong
Musconetcong
Stanhope
Morris County
LEDGEWOOD
Google
Mansfield Fault (Named as part of this survey)
A
B
C
D
E
Legend
EI Line Location
Distance in feet
Arrow at end of line
Spring
Ponded water
Mansfield Trail Dump Site Footprint
Labeled Areas of Concern
Monitoring Well
Geoogic Contact
Notes
Topographic Contour Interval = 3 ft
Real-time positioning of data using a Trimble Geo7x global positioning system set to NAD 1983 US State Plane (New Jersey) coordinate system in feet.
Locations are approximate.
0 ft 200 ft 400 ft 600 ft 800 ft
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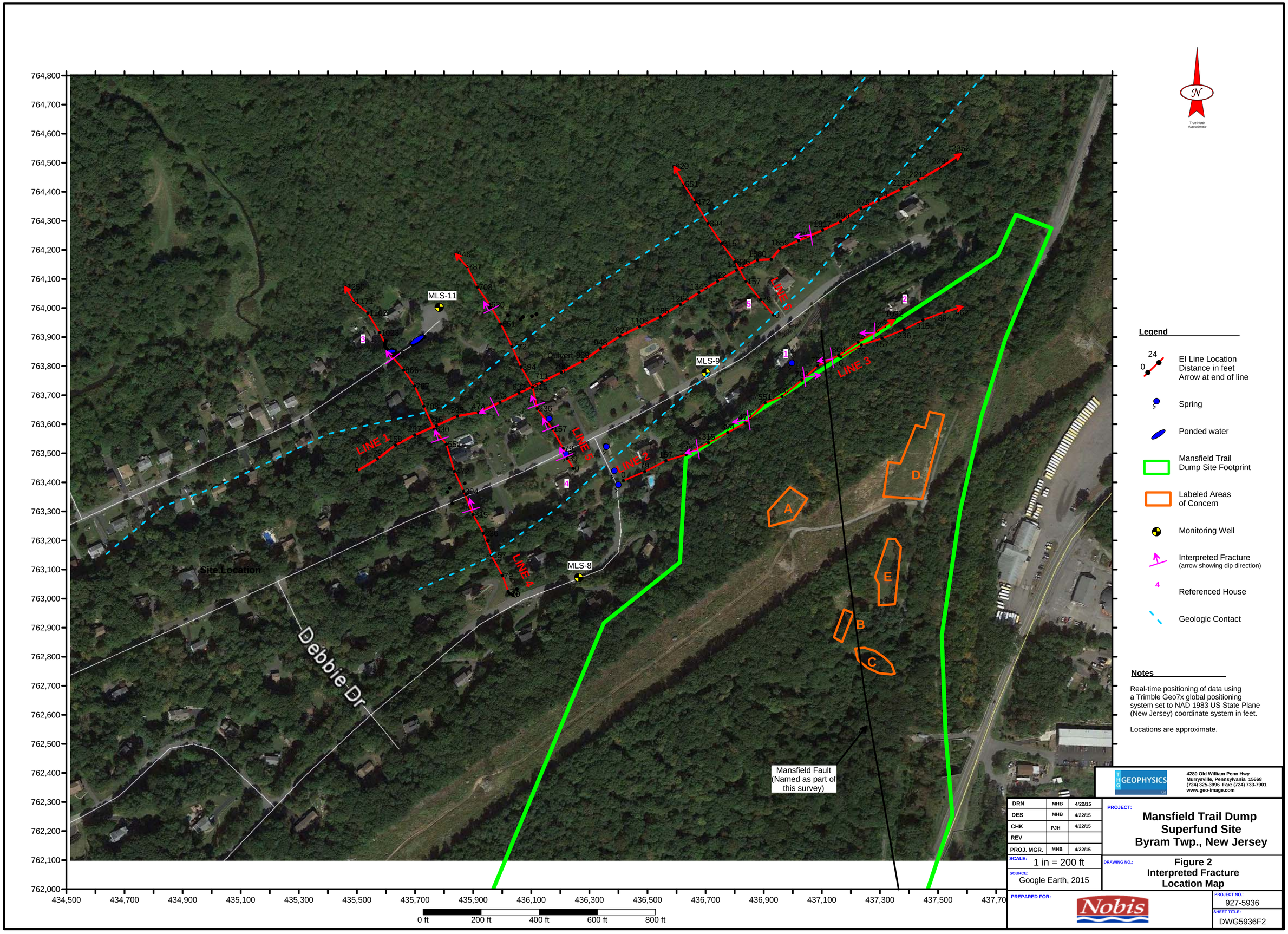
DRN PJH 4/22/15
DES PJH 4/22/15
CHK PJH 4/22/15
REV
PROJ. MGR. PJH 4/22/15
SCALE: 1 in = 200 ft
SOURCE: Nobis, 2015
PROJECT:
Mansfield Trail Dump Superfund Site
Byram Twp., New Jersey
DRAWING NO.:
Figure 1
Survey Location Map
PREPARED FOR:
Nobis
PROJECT NO.: 927-5936
SHEET TITLE: DWG5936F1



Notes

Real-time positioning of data using a Trimble Geo7x global positioning system set to NAD 1983 US State Plane (New Jersey) coordinate system in feet.

Locations are approximate.

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DES	MHB	4/22/15
CHK	PJH	4/22/15
REV		
PROJ. MGR.	MHB	4/22/15

SCALE: 1 in = 200 ft

SOURCE: Google Earth, 2015

PROJECT:

Mansfield Trail Dump Superfund Site Byram Twp., New Jersey

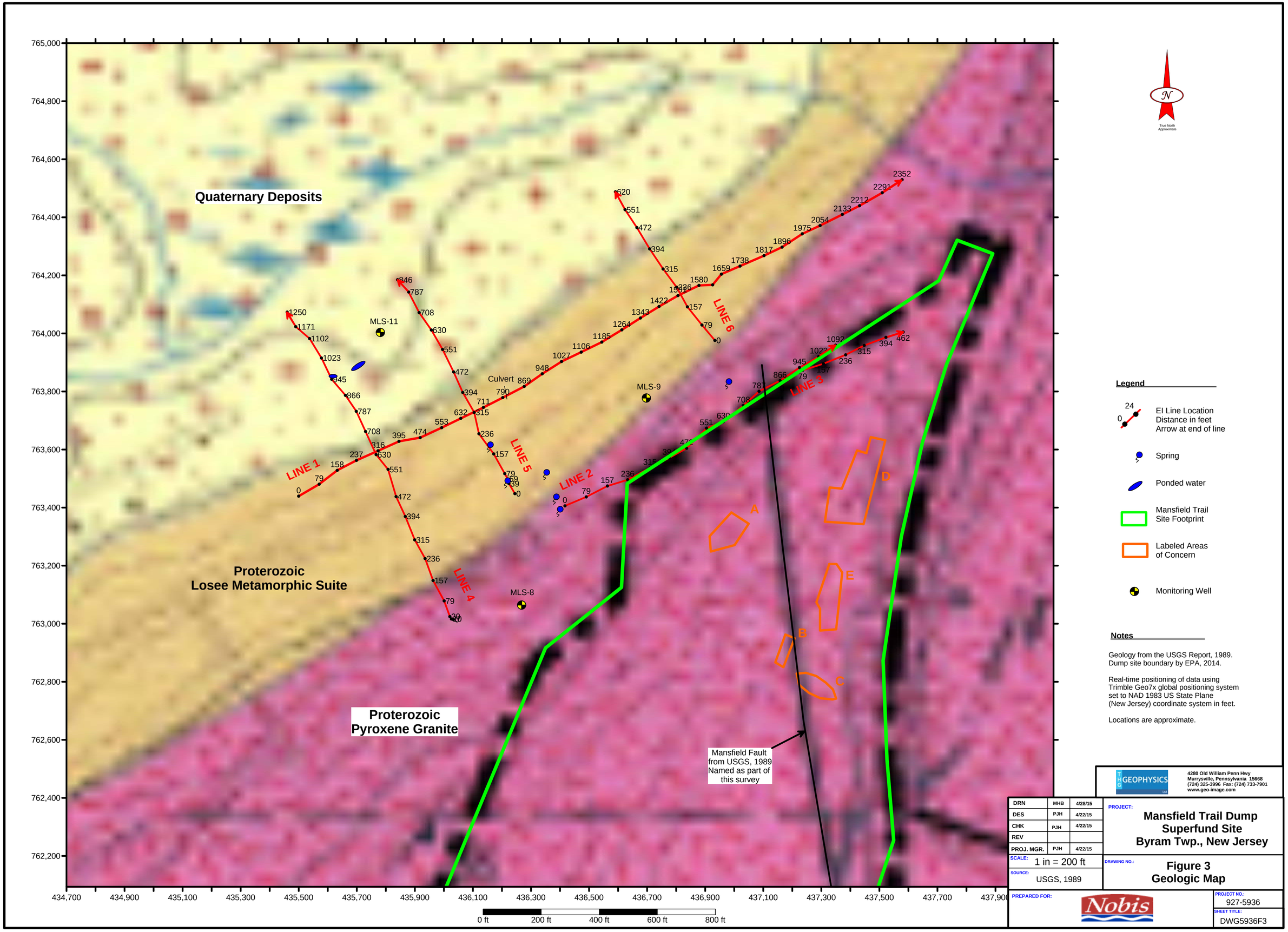
DRAWING NO.:

Figure 2 Interpreted Fracture Location Map

PREPARED FOR: Nobis

PROJECT NO.: 927-5936

SHEET TITLE: DWG5936F2



Quaternary Deposits
Proterozoic
Losee Metamorphic Suite
Proterozoic
Pyroxene Granite
LINE 1
LINE 2
LINE 3
LINE 4
LINE 5
LINE 6
MLS-11
MLS-9
MLS-8
Culvert
A
B
C
D
E
Mansfield Fault
from USGS, 1989
Named as part of
this survey
765,000
764,800
764,600
764,400
764,200
764,000
763,800
763,600
763,400
763,200
763,000
762,800
762,600
762,400
762,200
434,700
434,900
435,100
435,300
435,500
435,700
435,900
436,100
436,300
436,500
436,700
436,900
437,100
437,300
437,500
437,700
437,900
0 ft
200 ft
400 ft
600 ft
800 ft
N
True North
Approximate
Legend
24
0
EI Line Location
Distance in feet
Arrow at end of line
Spring
Ponded water
Mansfield Trail
Site Footprint
Labeled Areas
of Concern
Monitoring Well
Notes
Geology from the USGS Report, 1989.
Dump site boundary by EPA, 2014.
Real-time positioning of data using
Trimble Geo7x global positioning system
set to NAD 1983 US State Plane
(New Jersey) coordinate system in feet.
Locations are approximate.
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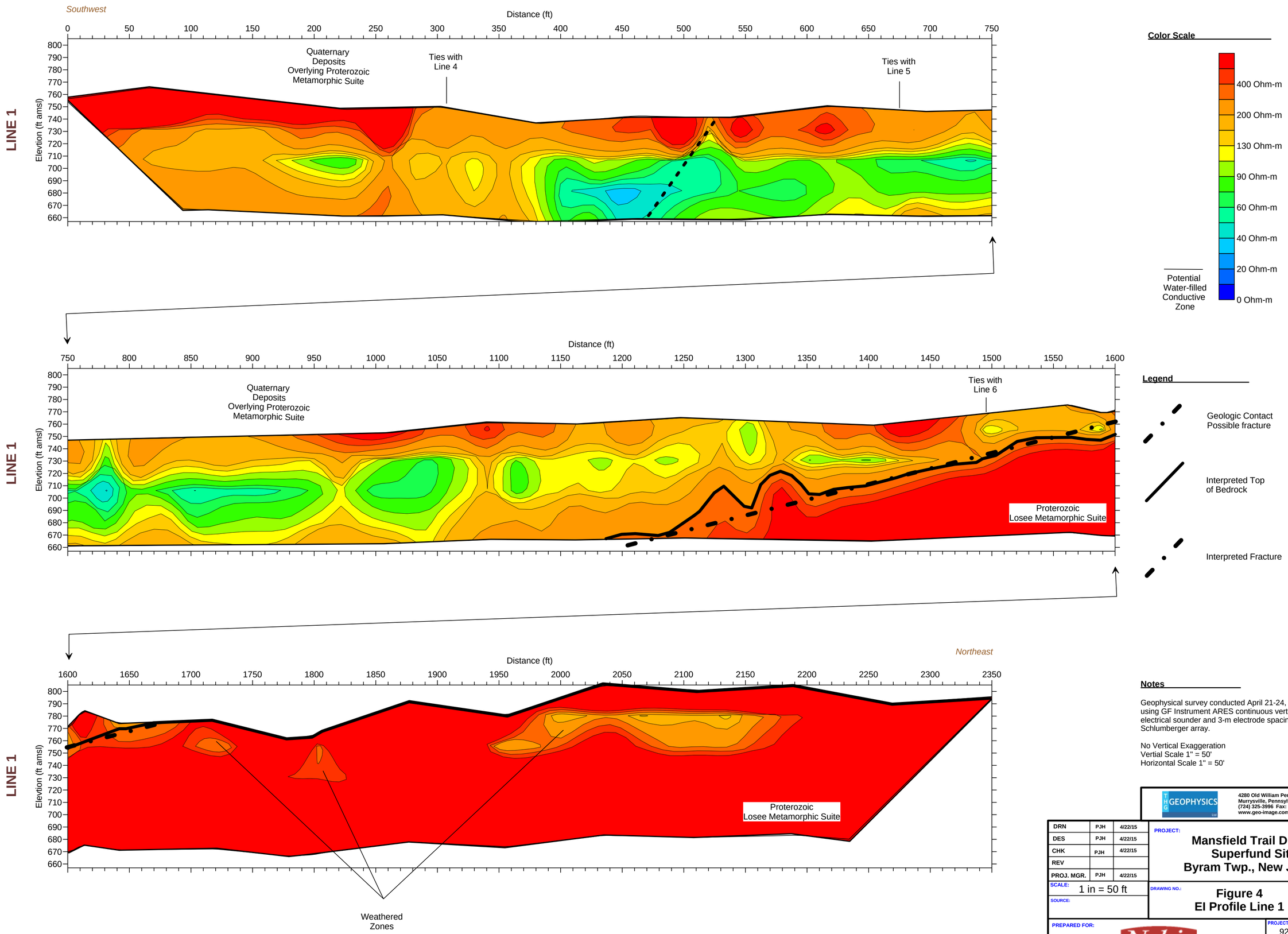
DES PJH 4/22/15
CHK PJH 4/22/15
REV
PROJ. MGR. PJH 4/22/15
SCALE: 1 in = 200 ft
SOURCE: USGS, 1989
PROJECT:
Mansfield Trail Dump
Superfund Site
Byram Twp., New Jersey
DRAWING NO.:
Figure 3
Geologic Map
PREPARED FOR:
Nobis
PROJECT NO.: 927-5936
SHEET TITLE: DWG5936F3



Notes

Geophysical survey conducted April 21-24, 2015 using GF Instrument ARES continuous vertical electrical sounder and 3-m electrode spacing Schlumberger array.

No Vertical Exaggeration
Vertial Scale 1" = 50'
Horizontal Scale 1" = 50'

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DES	PJH	4/22/15
CHK	PJH	4/22/15
REV		
PROJ. MGR.	PJH	4/22/15

SCALE: 1 in = 50 ft

SOURCE:

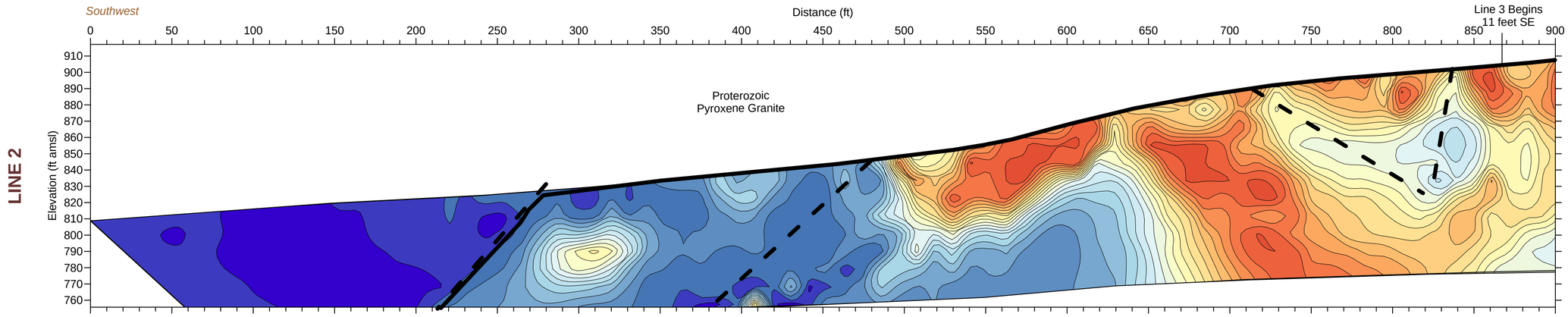
PROJECT:
Mansfield Trail Dump Superfund Site
Byram Twp., New Jersey

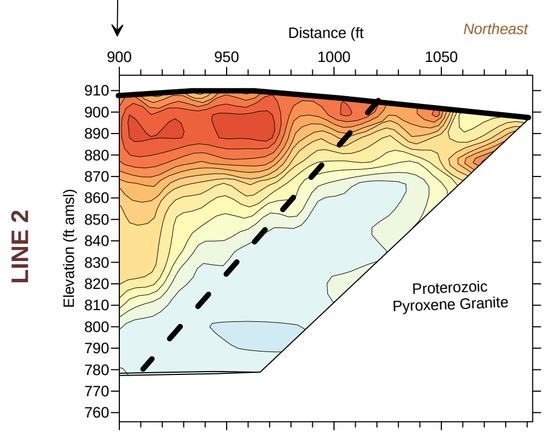
DRAWING NO.:
Figure 4
EI Profile Line 1

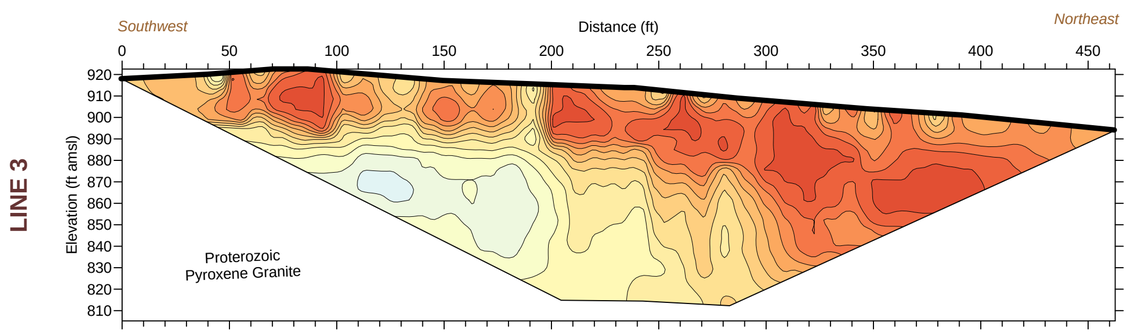
PREPARED FOR: Nobis

PROJECT NO.: 927-5936

SHEET TITLE: DWG5936F4







Legend

Inferred Fracture

Geologic Contact
Possible fracture

Interpreted Top
of Bedrock

Color Scale (Ohm-m)

Bedrock

10500
10000
9500
9000
8500
8000
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
250
0

Low Resistivity

Notes

These profiles were processed with a different color paradigm to reflect the hard rock.

Geophysical survey conducted April 21-24, 2015 using GF Instrument ARES continuous vertical electrical sounder and 3-m electrode spacing Schlumberger array.

No Vertical Exaggeration
Vertial Scale 1" = 50'
Horizontal Scale 1" = 50'

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REV		
PROJ. MGR.	PJH	4/22/15

SCALE: 1 in = 50 ft

SOURCE:

PROJECT:

Mansfield Trail Dump Superfund Site
Byram Twp., New Jersey

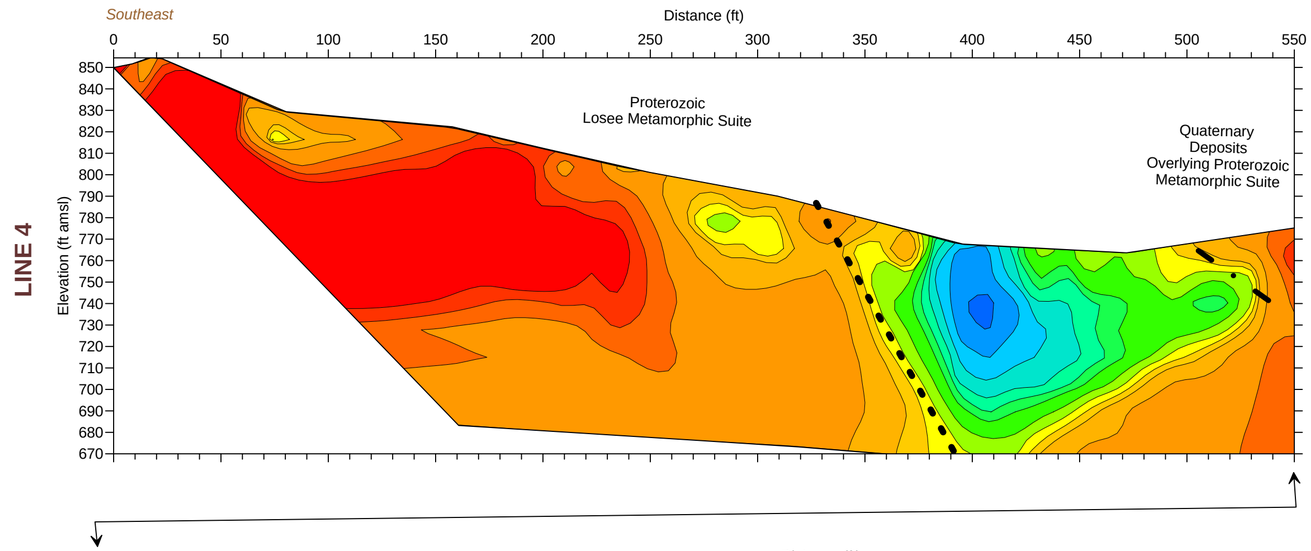
DRAWING NO.:

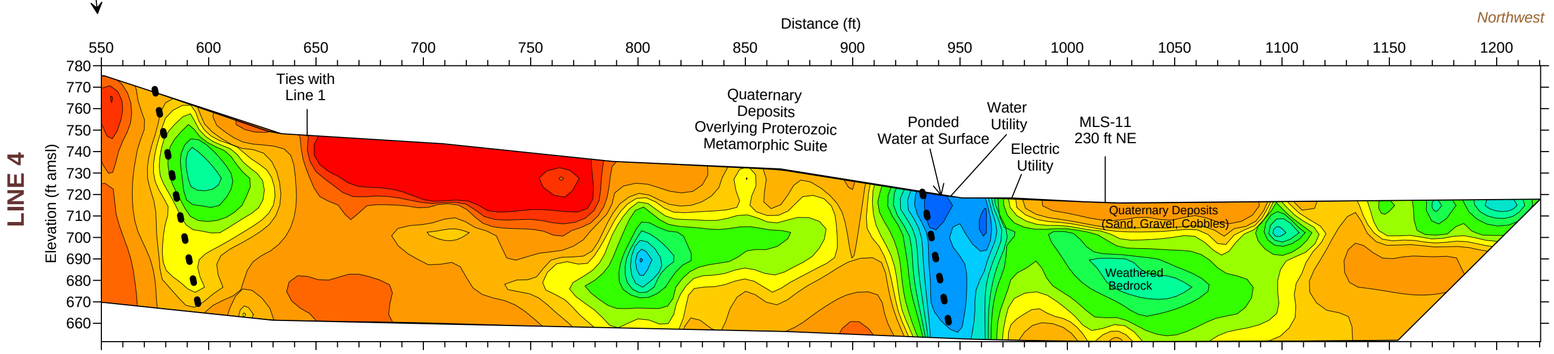
Figure 5
EI Profile Lines 2 and 3

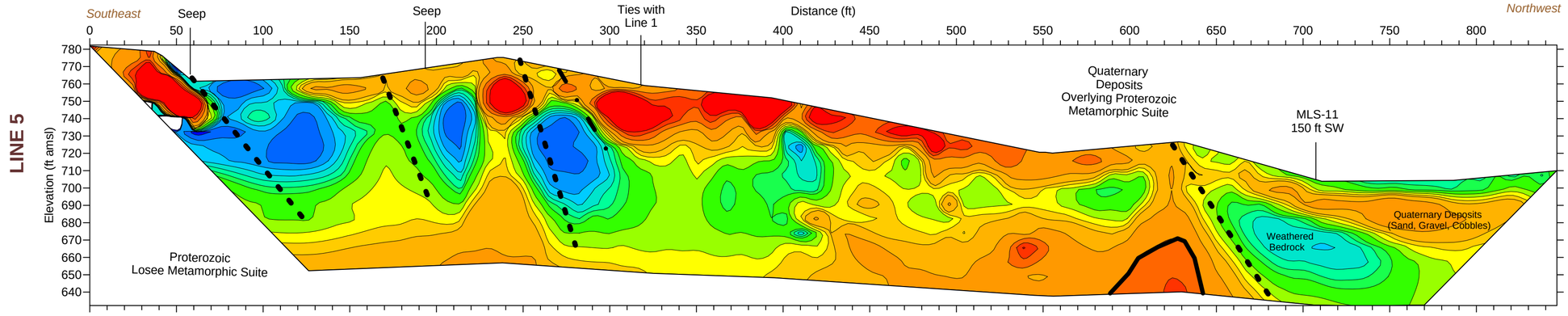
PREPARED FOR: Nobis

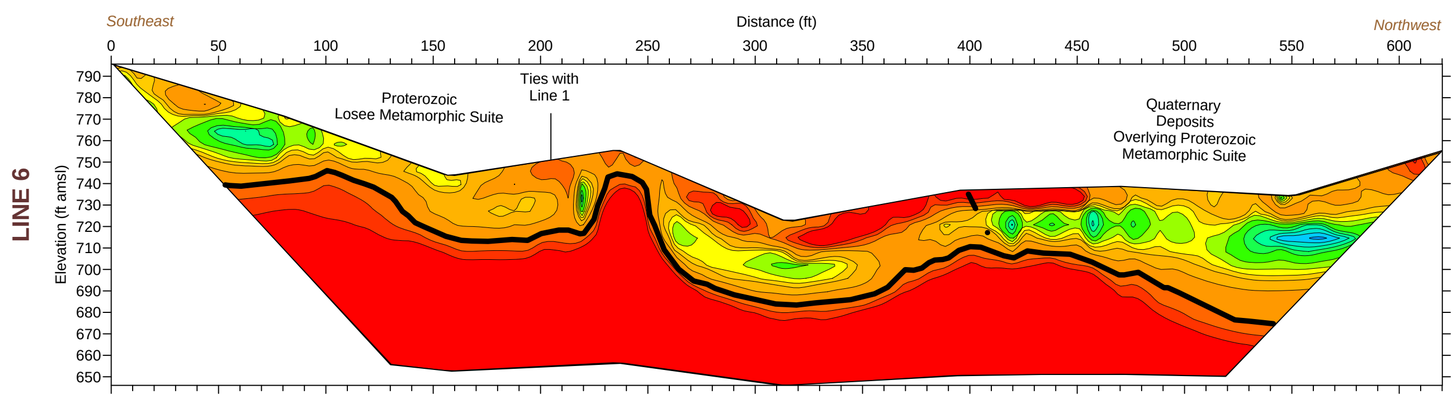
PROJECT NO.: 927-5936

SHEET TITLE: DWG5936F5









Color Scale

400 Ohm-m
200 Ohm-m
130 Ohm-m
90 Ohm-m
60 Ohm-m
40 Ohm-m
20 Ohm-m
0 Ohm-m

Potential Water-filled Conductive Zone

Legend

Inferred Fracture

Inferred Top of Bedrock

Geologic Contact

Notes

Geophysical survey conducted April 21-24, 2015 using GF Instrument ARES continuous vertical electrical sounder and 3-m electrode spacing Schlumberger array.

No Vertical Exaggeration
Vertial Scale 1" = 50'
Horizontal Scale 1" = 50'

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CHK	PJH	4/22/15
REV		
PROJ. MGR.	PJH	4/22/15

SCALE: 1 in = 50 ft

SOURCE:

PROJECT:

Mansfield Trail Dump Superfund Site
Byram Twp., New Jersey

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Figure 6
EI Profile Lines 4, 5, and 6

PREPARED FOR: Nobis

PROJECT NO.: 927-5936

SHEET TITLE: DWG5936F6