COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE
IRON MOUNTAIN, MI 49801
PHONE: 906-774-3440

200 EAST AYER STREET
IRONWOOD, MI 49938
PHONE: 906-932-5048

120 US HWY 41 E, STE. B
NEGAUNEE, MI 49866
PHONE: 906-475-7489

July 17, 2017

Mr. Thomas Verstegen
WDNR Green Bay Service Center
2984 Shawano Avenue
Green Bay, WI 54313-6727

RE: D&G Mobil Quick Mart
Site Investigation Work Plan
(BRRTS #: 03-38-204911)
125 North USH 141, Coleman, WI

Dear Mr. Verstegen:

Enclosed please find the Site Soil and Groundwater Investigation Report for the above referenced underground storage tank (UST) release site based on discussions with Mr. Alex Edler, former WDNR Project Manager for this site in 2016. This Report has been completed in a manner consistent with NR 700, Wisconsin Administrative Code. The Report incorporates essential elements of the code, particularly those elements described in NR 716.

Should you have any questions or comments, please feel free to contact me at this office at 906-774-3440. If I am not available, please feel free to speak with Mr. Jeff Sjoquist, Principal.

Sincerely,

COLEMAN ENGINEERING COMPANY

Charles A. Saari, CPG, CP
Geological Engineer
American Institute of Professional Geologists (CPG-10030)

CAS/pb
cc: George Hannan
Enclosure
CEC Job EC-15562B
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SITE SOIL AND GROUNDWATER INVESTIGATION REPORT

D&G MOBIL MART
125 NORTH US HIGHWAY 141
COLEMAN, WI

(BRRTS #: 03-38-204911)

JULY 2017

Coleman Engineering

Civil Engineering • Environmental Engineering
Geotechnical Engineering • Land Surveying • Test Drilling
Construction Quality Control • Materials Laboratory Testing

SITE SOIL AND GROUNDWATER INVESTIGATION REPORT

D&G MOBIL MART
125 NORTH US HIGHWAY 141
COLEMAN, WI

(BRRTS #: 03-38-204911)

JULY 2017

COLEMAN ENGINEERING COMPANY
635 Circle Drive
Iron Mountain, MI 49801

CEC Project #EC-15562-B

TABLE OF CONTENTS

APPENDICES

SITE SOIL AND GROUNDWATER INVESTIGATION REPORT
D&G MOBIL MART
125 NORTH USH 141, COLEMAN, WI
(BRRTS #: 03-38-204911)

1.0 INTRODUCTION

Coleman Engineering Company (CEC) was retained by Mr. George Hannan to assist with underground storage tank (UST) site investigation work at his property in the Village of Coleman, Wisconsin. The site investigation took place at the facility located at 125 North US Highway 141, Coleman, Wisconsin 54161. The facility is more specifically located within Section 14, Township 30 North, Range 20 East, Marinette County, Wisconsin.

2.0 SITE HISTORY

November 19, 1998: The Wisconsin Department of Natural Resources (WDNR) sent a notification that the soil contamination exists on his property.

October 22, 1999: Three (3) USTs (two (2) 4,000-gallon and one (1) 10,000-gallon) were removed from the subject property and laboratory analysis results of the samples collected from the UST basin indicated detectable concentrations of Petroleum Volatile Organic Compounds (PVOCs) and Polynuclear Aromatic Hydrocarbons (PAHs) exceeding Wisconsin Administrative Code (WAC) NR 720 regulatory standards. A summary table of laboratory results are provided in Appendix C. Approximately 135 cubic yards of soil was removed and land farmed on a 39-acre parcel in the NW/4 of the NW/4, Section 22, T30N, R21E, Grover Township, Marinette County, Wisconsin.

The findings of the site assessment were reported to the WDNR, a Notice of Noncompliance was issued, and the site was assigned the BRRTS Case Number #03-38-204911.

Previous Activities

October 8, 2002: Midwest Engineering Services (MES) mobilized to the site and advanced two (2) borings (B-1 and B-2) in the former UST basin and installed a monitoring well in B-1 (MW-1) and a temporary monitoring well (TW-1) in B-2. Soil samples were collected and laboratory results indicated PVOCs did not exceed NR 720 (WAC) regulatory standards. Laboratory analysis of groundwater samples collected from the monitoring wells indicated trimethylbenzenes (1,2,4- and 1,3,5-) and naphthalene concentrations exceeded NR 140 enforcement standards. A summary table of laboratory results is provided in Appendix C.

May 5, 2004: Environmental Assessments, Inc. mobilized to the soil pile off of Townline Road and advanced three (3) hand auger soil borings approximately 3 feet into the pile at different locations. Soil samples were collected for laboratory analysis. Laboratory analytical results indicated select PVOCs and gasoline range organics (GRO) were not detected at or above their respective method detection limits.

January 7, 2008: Bay Environmental Strategies, Inc. mobilized to the site and advanced four (4) soil borings (SB-1 through SB-4) via an earthprobe. Soil and groundwater samples were collected for laboratory analysis. Laboratory analytical results indicated select PVOC concentrations in the SB-4 (10'-12') sample exceeded NR 720 and NR 746 WAC regulatory standards. A summary table of laboratory results is provided in Appendix C.

Current Activities

November 3, 2016: A Site Work Plan was submitted to the WDNR – Green Bay Center which detailed the proposed activities to assess soil and groundwater contamination on the subject property. The Work Plan was completed in a manner consistent with NR 700 WAC. The Work Plan incorporated essential elements of the code, particularly those elements described in NR 716.09(2).

November 16, 2016: CEC mobilized to the site of the biopile along Townline Road, per the Work Plan submitted to the WDNR and modified by the Project Manager, Mr. Alex Edler. A Site Location Map is provided in Appendix B. Three (3) soil borings (BP-1, BP-2, and BP-3) were advanced to a depth of 1 foot below ground surface (bgs) via a 4-inch manually turned hand auger. The borings were located at 25-foot spacing, according to the map in the report submitted by Environmental Assessments, Inc. The soil samples were submitted for laboratory analysis of PVOCs at ESC Laboratories in Mt. Juliet, Tennessee. The biopile had been leveled to the ground surface by plowing over the years, but evidence of the pile was present (asphalt, concrete detritus, etc.). A soil boring location map is provided in Appendix B.

January 19 – 26, 2017: CEC mobilized to the site and advanced five (5) borings (MW-2 through MW-6) to a depth of 25 feet bgs via a drill rig using hollow stem augers until bedrock was encountered (approximately 13 feet bgs) and continued with a roller bit thereafter until target depth was reached. Soil samples were collected by stainless steel split spoons until bedrock was encountered. Samples were visually inspected and field screened using a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). A portion of the most contaminated soil from each boring was preserved for laboratory analysis of PVOCs, PAHs, and total lead at ESC Laboratories in Mt. Juliet, Tennessee. A monitoring well was installed in each boring. A soil boring/monitoring well location map is provided in Figure 2, Appendix A.

January 19 – 26, 2017: During monitoring well installation at the site, CEC also advanced four (4) hand auger borings (HA-1 through HA-4) to a depth of 4 feet bgs in close proximity to the pump islands associated with the former USTs. In 1 foot intervals, soil samples were collected from the hand augers and were then visually inspected and field screened using a PID for the presence of VOCs. Samples were collected from 3 to 4 feet bgs at each boring and were preserved for laboratory analysis at ESC Laboratories in Mt. Juliet, Tennessee. A soil boring/monitoring well location map is provided in Figure 2, Appendix A.

February 1, 2017: CEC mobilized to the site, measured water levels, and collected groundwater samples from six (6) monitoring wells (MW-1 through MW-6) for laboratory analysis of PVOCs, PAHs, and dissolved lead at ESC Laboratories in Mt. Juliet, Tennessee. A soil boring/monitoring well location map is provided in Figure 2, Appendix A.

February 9, 2017: CEC mobilized to the site and conducted hydraulic conductivity (slug) tests on monitoring wells MW-2 through MW-6. The average hydraulic conductivity was interpreted to be 8.56×10^{-4} centimeters per second using AQTESOV™(Bouwer-Rice Method). Hydraulic Conductivity Data is provided in Appendix F.

June 2, 2017: U.P. Environmental Services, Inc. mobilized to the site and removed thirty-four (34) investigative derived waste drums from the site. The contents of the drums included soil cuttings, drilling water, monitoring well development water, and decontamination water. CEC was present to sign the appropriate waste manifest.

3.0 PROCEDURES

Borings were advanced by CEC used a drill rig, with 2-foot long stainless steel split spoon samplers for collecting the sample. The spoons were split and the soils examined for color, texture, structure, odors, and moisture. A portion of the soil samples were placed in zip-lock bags and allowed to equilibrate inside the cab of a heated vehicle for a minimum of 45 minutes. Upon reaching their allotted equilibration time, the samples were screened with a PID that measures "meter readings" approximated as parts per million (ppm) to determine the presence of VOCs. Soil samples were collected for analysis from the depths that resulted in the highest PID readings. Sampling depths are shown in the following Sampling Table.

Sampling locations were selected to provide further information concerning the extent of contamination on the property identified above:

Sampling Table

Boring Number	Boring Location	Boring Depth (bgs)	Sample Depth (bgs)	Analyses Requested
MW-2	East of Canopy along USH 141	25.5 feet	10-12 feet	PVOC/GRO/ PAH/ Pb
MW-3	South of Property	27.0 feet	10-12 feet	PVOC/GRO/ PAH/ Pb
MW-4	Western edge of Property*	24.9 feet	10-12 feet	PVOC/GRO/ PAH/ Pb
MW-5	Northeast of the former USTs	25.0 feet	11-13 feet	PVOC/GRO/ PAH/ Pb
MW-6	North of USTs	27.0 feet	10-12 feet	PVOC/GRO/ PAH/ Pb
HA-1	Southeast edge of southwestern pump island	4.0 feet	3-4 feet	PVOC/GRO/ PAH/Pb
HA-2	Northeast corner of southwestern pump island	4.0 feet	3-4 feet	PVOC/GRO/ PAH/Pb
HA-3	Northwest corner of northeastern pump island	4.0 feet	3-4 feet	PVOC/GRO/ PAH/Pb
HA-4	Southeast edge of northeastern pump island	4.0 feet	3-4 feet	PVOC/GRO/ PAH/Pb

*Well was originally scheduled to be installed in the tank basin but tree growth and the canopy resulted in the well being relocated on the property to the west.

Groundwater was encountered in all borings (MW-2 through MW-6). The monitoring wells were constructed using a 10-foot by 2-inch polyvinyl chloride (PVC) Schedule 40 screen with number 10 slots and solid Schedule 40 PVC casing to the ground surface. The annulus was filled with Red Flint Number 15 Filter Pack Sand to 2 feet above the screen. Natural play sand was used as a filter pack seal which extended 2 feet above the filter pack. The annular seal consisted of 3/8-inch bentonite chips up to a foot below surface, approximately. A flush mount well protector was installed in concrete at the surface with a locking well cap. The wells were then surveyed to an USGS benchmark.

Soil samples collected for VOC laboratory analysis were methanol preserved in the field using U.S. Environmental Protection Agency (USEPA) Method 5035.

Soil and groundwater samples collected for laboratory analysis were transported on ice to ESC Lab Sciences, Mt. Juliet, Tennessee, under chain-of-custody protocol. Soil samples were analyzed for PVOCs by USEPA Method 8021B, GRO by Wisconsin Modified GRO Method, PAHs by USEPA Method 8270, and lead by USEPA Method 6010B.

Field Results

The site geology consisted of approximately 12 to 13 feet of sandy loam and silty sand loam with coarse gravel throughout. Fractured dolomitic limestone bedrock was encountered at approximately 13 feet bgs throughout the entirety of the site. According to the boring logs provided by Bay Environmental Strategies, sandy fill was placed in the UST basins on the southwestern edge of D&G Mobil Quick Mart building. Copies of the boring logs are provided in Appendix E. The cross-section of the geology is provided as Figures 7 (Reference Map), 7A (north to south) and 7B (east to west).

Boring MW-2 had PID readings at 10 to 12 feet (6,450 ppm), MW-3 from 10 to 12 feet had no readings, MW-4 had no readings, MW-5 from 11 to 13 feet (1,100 ppm), and MW-6 from 10 to 12 feet (57 ppm). No other PID readings were observed in the remaining soil samples. No odors were observed above 8 feet bgs; however, petroleum odors were detected below 8 feet bgs in MW-2 and also in MW-5 at below 10 feet bgs.

The depth to groundwater was determined to be approximately 9 to 11 feet bgs and flows to the west-northwest with a gradient of .0017 (0.14/83) foot/foot and an estimated advective velocity of 0.014 feet/day. The elevation of MW-1 (701.90') was not utilized in the calculation as it is screened in a higher section of the subsurface. A groundwater flow map is illustrated in Figure 4, Appendix A and a water level table is located in Table 4, Appendix C.

Soil Sample Analyses Results

Results of the laboratory analyses of soil samples are presented on Table 2, Summary of Soil Sample Laboratory Results, in Appendix C and Laboratory Reports are provided as Appendix D. Results which exceeded Protection of Groundwater (Non-Industrial) Residual Contaminant Levels (RCLs) were:

Exceeds Protection of Groundwater Criteria:

- Benzene was detected in MW-2 (147 parts per billion [ppb]) and MW-5 (2,200 ppb) at concentrations which exceeded the RCL of 5.0 ppb.
- Ethylbenzene was detected in MW-2 (813 ppb) and in MW-5 (12,200 ppb) at concentrations which exceeded the RCL of 700 ppb.
- Total Xylenes were detected in MW-5 at a concentration of 45,480 ppb, which exceeded the RCL of 10,000 ppb.

- Naphthalene, as a VOC, was detected in MW-5 at a concentration of 2,850 ppb, which exceeded the RCL of 658 ppb.
- Naphthalene, as a SVOC, was detected in MW-2 (1,070ppb) and MW-5 (1,320 ppb) at concentrations which exceeded the RCL of 658 ppb.
- GRO was detected in MW-5 at a concentration of 469,000 ppb which exceeded the RCL of 100,000 ppb.

Exceeds Direct Contact Pathway:

- Benzene was detected in MW-5 at a concentration of 2,200 ppb, which exceeded the RCL of 1,600 ppb.
- Ethylbenzene was detected in MW-5 at a concentration of 12,200 ppb, which exceeded the RCL of 7,470 ppb.

The compounds methyl-tert-butyl ether (MTBE), total xylenes, naphthalene, GRO, and lead were detected in select borings below applicable RCLs. A soil boring/monitor location map with the estimated limits of contaminant is provided in Figure 5, Appendix A.

Groundwater Analyses Results

Results of the laboratory analyses of groundwater are presented on Table 3, Groundwater Summary Results, which were detected in Appendix C and laboratory reports are in Appendix D. Results which exceeded Preventive Action Limit (PAL) or the Enforcement Standard (ES) were:

Exceeds PAL:

- Benzene was detected in MW-1 (1.33 ppb), MW-4 (198 ppb), MW-5 (156 ppb), and MW-6 (10.8 ppb) at concentrations which exceeded the PAL of 0.5 ppb.
- Ethylbenzene was detected in MW-2 (433 ppb), MW-4 (2,350 ppb), and MW-5 (1,050 ppb) at concentrations which exceeded the PAL of 140 ppb.
- Toluene was detected in MW-2 (394 ppb) and MW-4 (1,270 ppb) at concentrations which exceeded the PAL of 160 ppb.
- Total xylenes were detected in MW-2 (1,601 ppb), MW-4 (8,350 ppb), and MW-5 (5,006 ppb) at concentrations which exceeded the PAL of 400 ppb.
- 1,3,5-Trimethylbenzene was detected in MW-2 (97.3 ppb), MW-4 (1,010 ppb), MW-5 (436 ppb), and MW-6 (99.5 ppb) at concentrations which exceeded the PAL of 96 ppb.
- 1,2,4-Trimethylbenzene was detected in MW-2 (387 ppb), MW-4 (3,840 ppb), MW-5 (1,430 ppb), and MW-6 (407 ppb) at concentrations which exceeded the PAL of 96 ppb.
- Naphthalene, as a VOC, was detected in MW-2 (112 ppb), MW-4 (661 ppb), MW-5 (129 ppb), and MW-6 (23.5 ppb) at concentrations which exceeded the PAL of 10 ppb.

- Benzo(a)pyrene was detected in MW-4 (0.0476 ppb) at concentrations which exceeded the PAL of 0.02 ppb.
- Benzo(b)fluoranthene was detected in MW-4 (0.0491 ppb) at concentrations which exceeded the PAL of 0.02 ppb.
- Chrysene was detected in MW-4 (0.17 ppb) at concentrations which exceed the PAL of 0.02 ppb.
- Naphthalene, as a SVOC, was detected in MW-2 (20.2 ppb), MW-4 (656 ppb), and MW-5 (169 ppb) at concentrations which exceeded the PAL of 10 ppb.
- Dissolved lead was detected in MW-1 (81 ppb) at concentrations which exceeded the PAL of 1.5 ppb.

Exceeds ES:

- Benzene was detected in MW-2 (125 ppb), MW-4 (198 ppb), MW-5 (156 ppb), and MW-6 (10.8 ppb) at concentrations which exceeded the ES of 5.0 ppb.
- Ethylbenzene was detected in MW-4 (2,350 ppb) and MW-5 (1,050 ppb) at concentrations which exceeded the ES of 700 ppb.
- Toluene was detected in MW-4 (1,270 ppb) at concentrations which exceeded the ES of 800 ppb.
- Total xylenes were detected in MW-4 (8,350 ppb) and MW-5 (5,006 ppb) at concentrations which exceeded the ES of 2,000 ppb.
- Trimethylbenzene (1,3,5-, 1,2,4-) was detected in MW-2 (483 ppb), MW-4 (4,850 ppb), MW-5 (1,866 ppb), and MW-6 (506 ppb) at concentrations which exceeded the ES of 480 ppb.
- Naphthalene, as a VOC, was detected in MW-2 (112 ppb), MW-4 (661 ppb), and MW-5 (129 ppb) at concentrations which exceeded the ES of 100 ppb.
- Naphthalene, as a SVOC, was detected in MW-4 (656 ppb) and MW-5 (169 ppb) at concentrations which exceeded the ES of 100 ppb.
- Dissolved lead was detected in MW-1 (81 ppb) at concentrations which exceeded the ES of 15 ppb.

Results from groundwater sampling indicated the compounds toluene, ethylbenzene, total xylenes, 1,2,4-trimethylbenzene, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(g,h,i)-perylene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene were detected in select monitoring wells but did not exceed PAL or the ES limits as defined in Chapter NR 140. A soil boring/monitor well location map with the target contaminant concentrations and estimated limits of contaminant is provided in Figure 6, Appendix A.

4.0 CONCLUSIONS

The purpose of this site investigation was to delineate the extent of contaminants on the Subject Property. The following conclusions have been drawn:

- Soil contamination is not laterally defined to the southeast at Business Highway US-141. Soil contamination is likely associated with contaminated groundwater encountered in MW-2(10'-12') and MW-5 (11'-13') and there is no indication of contaminants at a shallower depth. The soil sample collected from SB-3 (13'-14') advanced directly in the backfill should be contaminated as the bottom samples of the excavation were grossly contaminated, but is not. This would suggest the sampling depth is incorrect or the boring was mislocated.
- Groundwater was encountered throughout the entirety of the site and flows to the west-northwest in the bedrock as it appears there is disconnect between MW-1, TW-1 and the monitoring wells MW-2 through MW-6 in elevation and contaminate distribution. Contamination in MW-1 and TW-2 suggests that there is separation of saturated zones as groundwater contamination in these wells should be more in line with the bottom soil samples (#1,#2, and #3) collected in the excavation.
- Groundwater contamination is not defined to the north, east, or west.
- Due to the direction of groundwater flow and the location of the leaking underground storage tanks (LUSTs) on-site, it is not evident that the groundwater contamination reported in MW-2 and MW-5 has derived from the LUSTs. It is possible that the historical placement of underground storage tanks on the Subject Property were further southeast on the edge of Business Highway US-141 and were leaking prior to the undocumented removal. In the past, it was typical for fill stations to be located near transportation routes for the ease of petroleum transportation companies. However, it is also possible that the source of the contamination found in MW-2 and MW-5 to another off-site source. When MW-2 was being installed, an unmarked storm sewer manhole was observed approximately 2 feet from the boring and very coarse gravel was noted in the upper portion of the soil column. Therefore, it is plausible that the gravel filled storm sewer trench is being used as a migration pathway by contaminated groundwater from an off-site source. However, there is not enough information about the history of the site and the area surrounding to prove these theories valid.
- The high lead level in MW-1 (81 ppb) is likely a total lead concentration and not a dissolved lead concentration. Purged water collected during sampling was discolored and could not be filtered properly as there was breakthrough in the 45 micron filter. It is recommended that this well be redeveloped before being sampled again.
- The low conductivity in the bedrock may be due to silty sand above the bedrock migrating into the fractures or the porosity of the bedrock.

- The structural integrity of the piping components servicing both pump islands is intact and is not the source of contamination on the Subject Property as the source of the release appears to be the USTs.
- The first water level measurements indicate the dissolved contamination is flowing in a west-northwest direction and not towards the village water well to the north.
- The dissolved contaminant plume is off site on the Northwoods Flooring Property.
- The contaminant results from Soil Sample #4 indicate a Vapor Intrusion issue may exist in the building.

5.0 RECOMMENDATIONS

CEC recommends the following in regards to this site:

- Additional monitoring wells be placed to further delineate the soil and groundwater contamination on and off site.
- At least one (1) monitoring well placed west-northwest of the excavated tank basin further down gradient than MW-4 and a deeper well nested with MW-4 to vertically profile the aquifer.
- Also, monitoring wells should be installed to the northeast of MW-5, northwest of MW-6, as well as to the east-southeast of MW-2, across Business Highway US-141, pending approval from the appropriate property owner.
- Conduct a Vapor Intrusion Investigation of the building
- Redevelop monitoring well MW-1 before resampling.
- The further investigation should be scheduled for the fall of 2017 provided the site is back in compliance.

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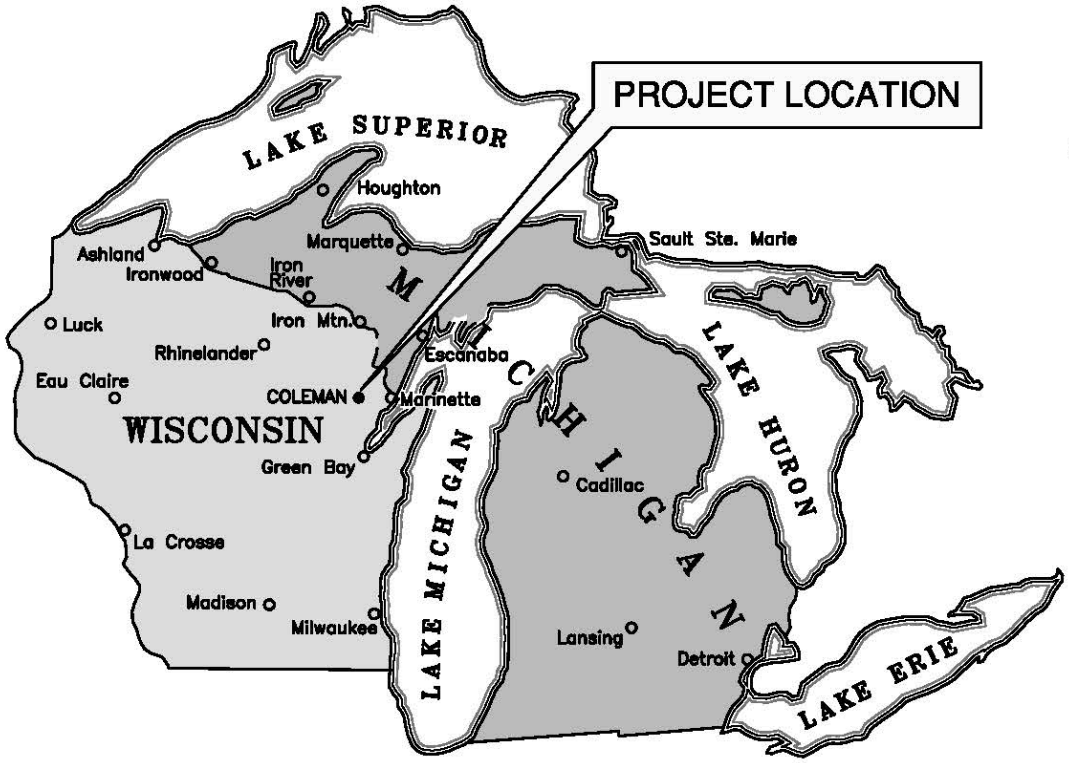
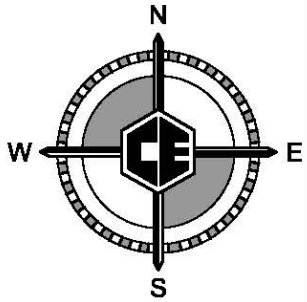
APPENDIX A

SITE FIGURES

Figure 1 – Project Location Map
Figure 2 – Soil Boring/Monitoring Well Site Map
Figure 3 – Soil Excavation Map
Figure 4 – Groundwater Flow Map
Figure 5 – Soil Contamination Map
Figure 6 – Groundwater Contamination Map
Figure 7 – Cross-Section Trace
Figure 7A – Cross-Section A'-A'
Figure 7B – Cross-Section B'-B'





SCALE: NONE

FIGURE 1 - PROJECT LOCATION MAP

GOOGLE EARTH

D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

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200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

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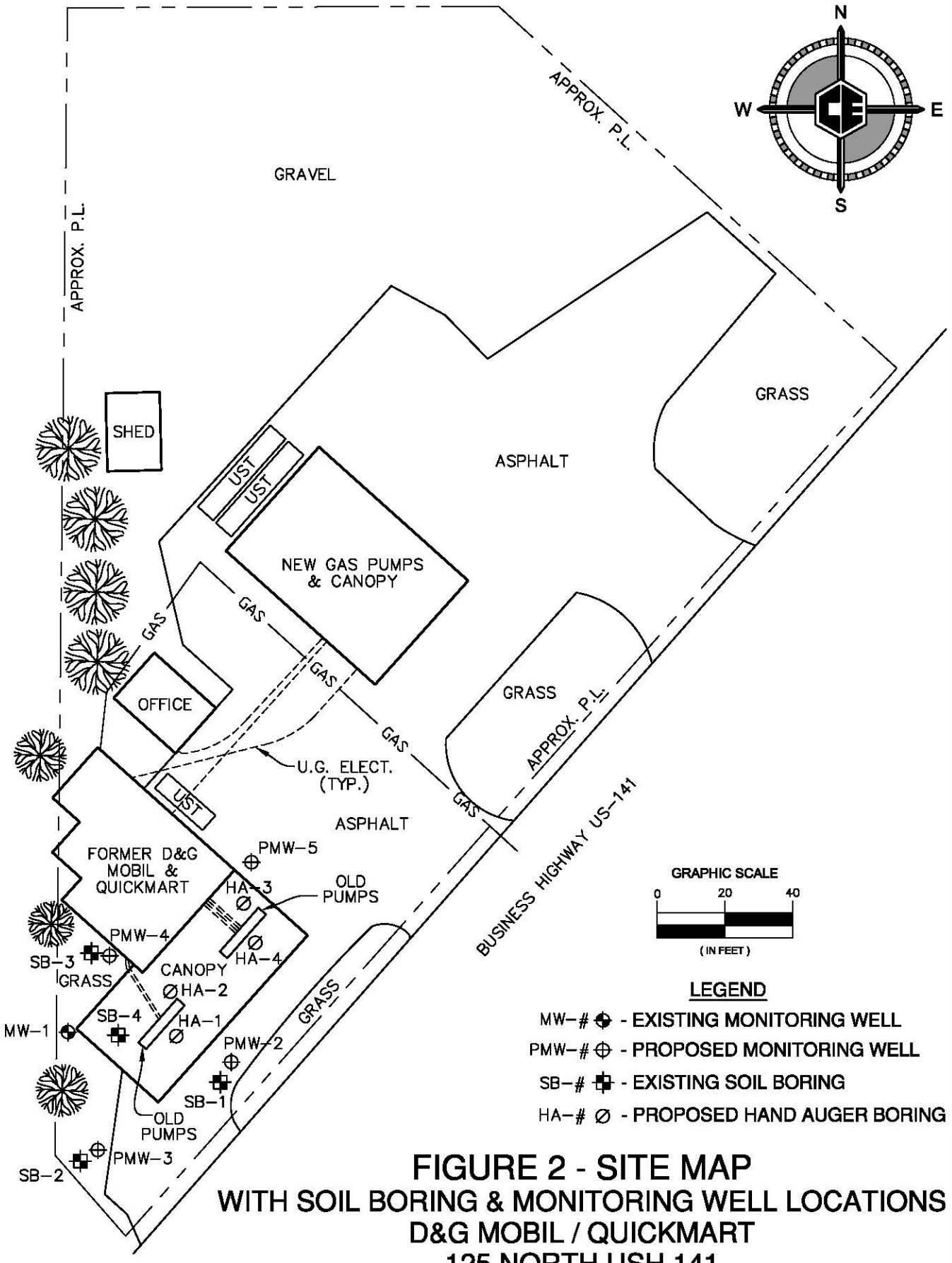

FIGURE 2 - SITE MAP
WITH SOIL BORING & MONITORING WELL LOCATIONS
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

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DATE 9/28/2016
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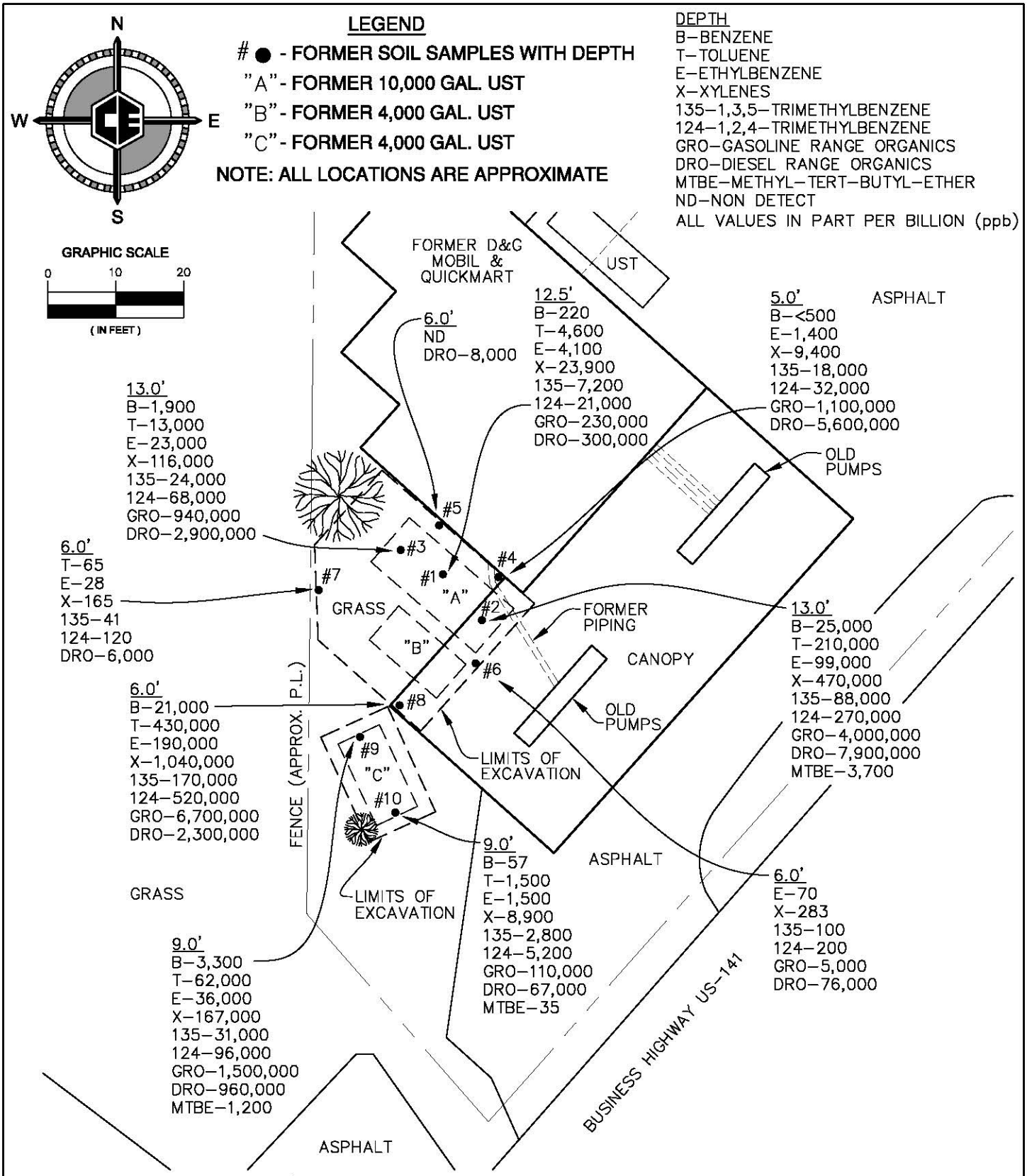

FIGURE 3 - SOIL EXCAVATION MAP
WITH FORMER UST AND SOIL SAMPLE LOCATIONS
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

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200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

DATE 6/27/2017
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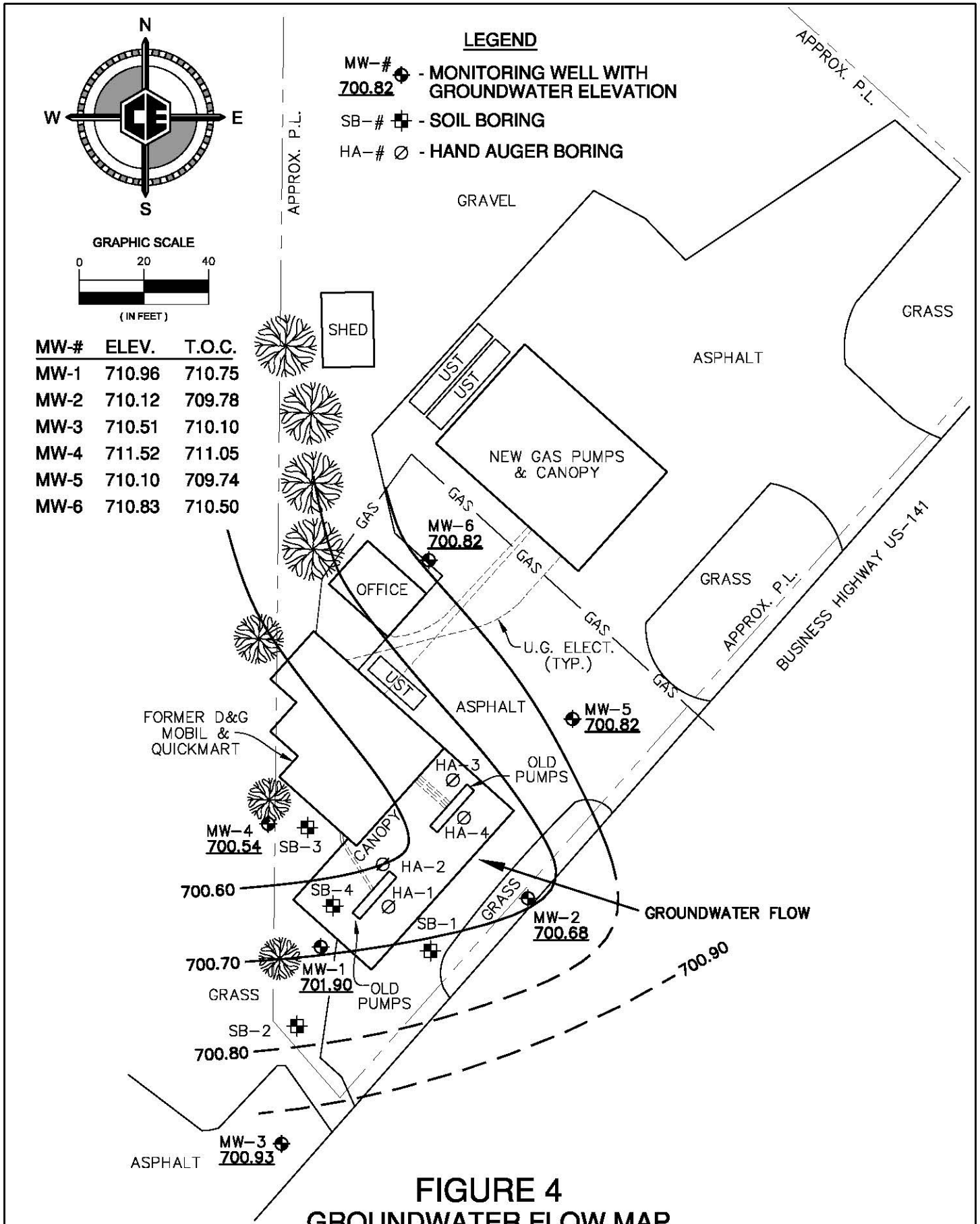

MW-#	ELEV.	T.O.C.
MW-1	710.96	710.75
MW-2	710.12	709.78
MW-3	710.51	710.10
MW-4	711.52	711.05
MW-5	710.10	709.74
MW-6	710.83	710.50

FIGURE 4
GROUNDWATER FLOW MAP
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

DATE 6/27/2017
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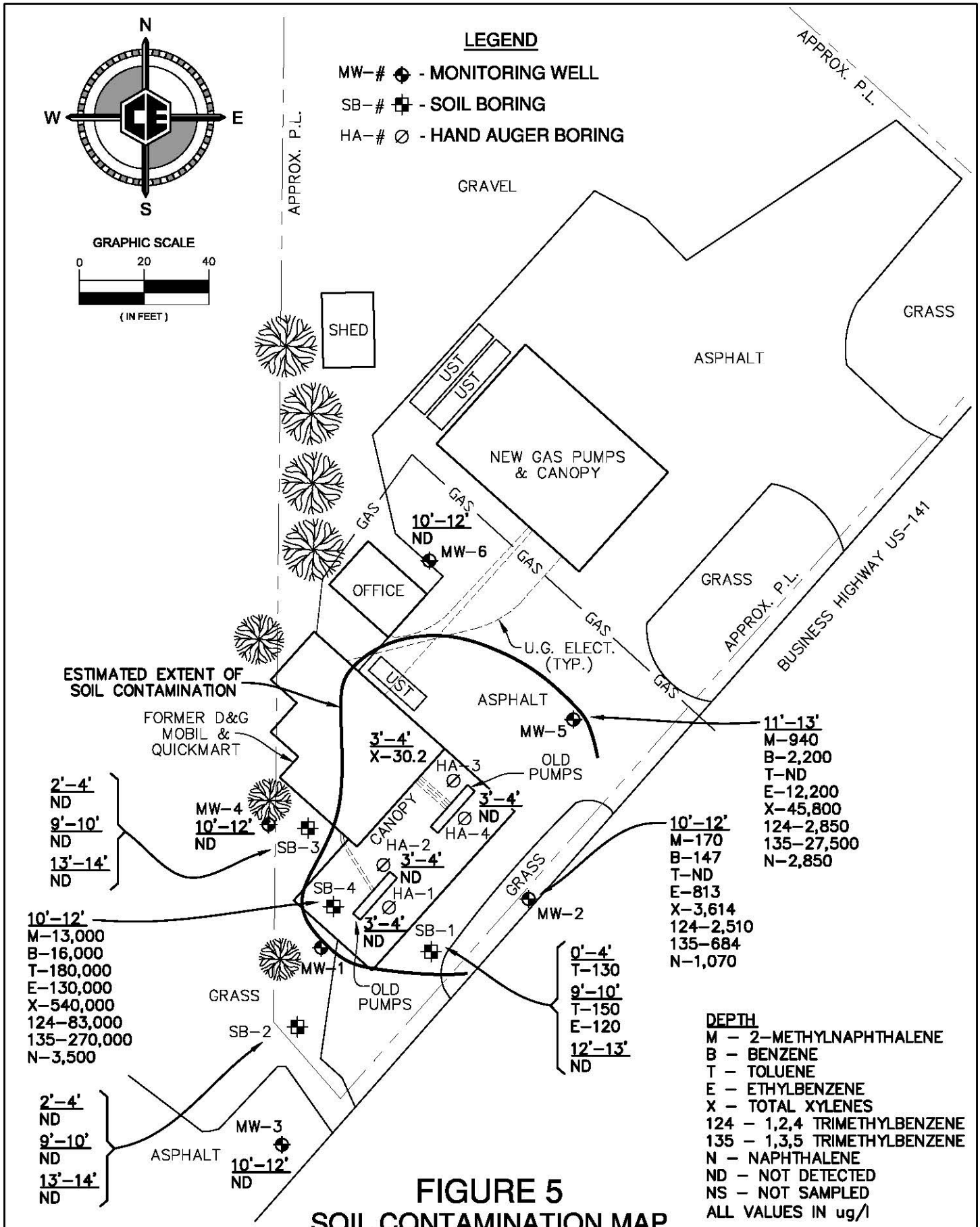

DEPTH
M – 2-METHYLNAPHTHALENE
B – BENZENE
T – TOLUENE
E – ETHYLBENZENE
X – TOTAL XYLENES
124 – 1,2,4 TRIMETHYLBENZENE
135 – 1,3,5 TRIMETHYLBENZENE
N – NAPHTHALENE
ND – NOT DETECTED
NS – NOT SAMPLED
ALL VALUES IN ug/l

FIGURE 5
SOIL CONTAMINATION MAP
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

DATE 5/5/2017
JOB NO 15562-B
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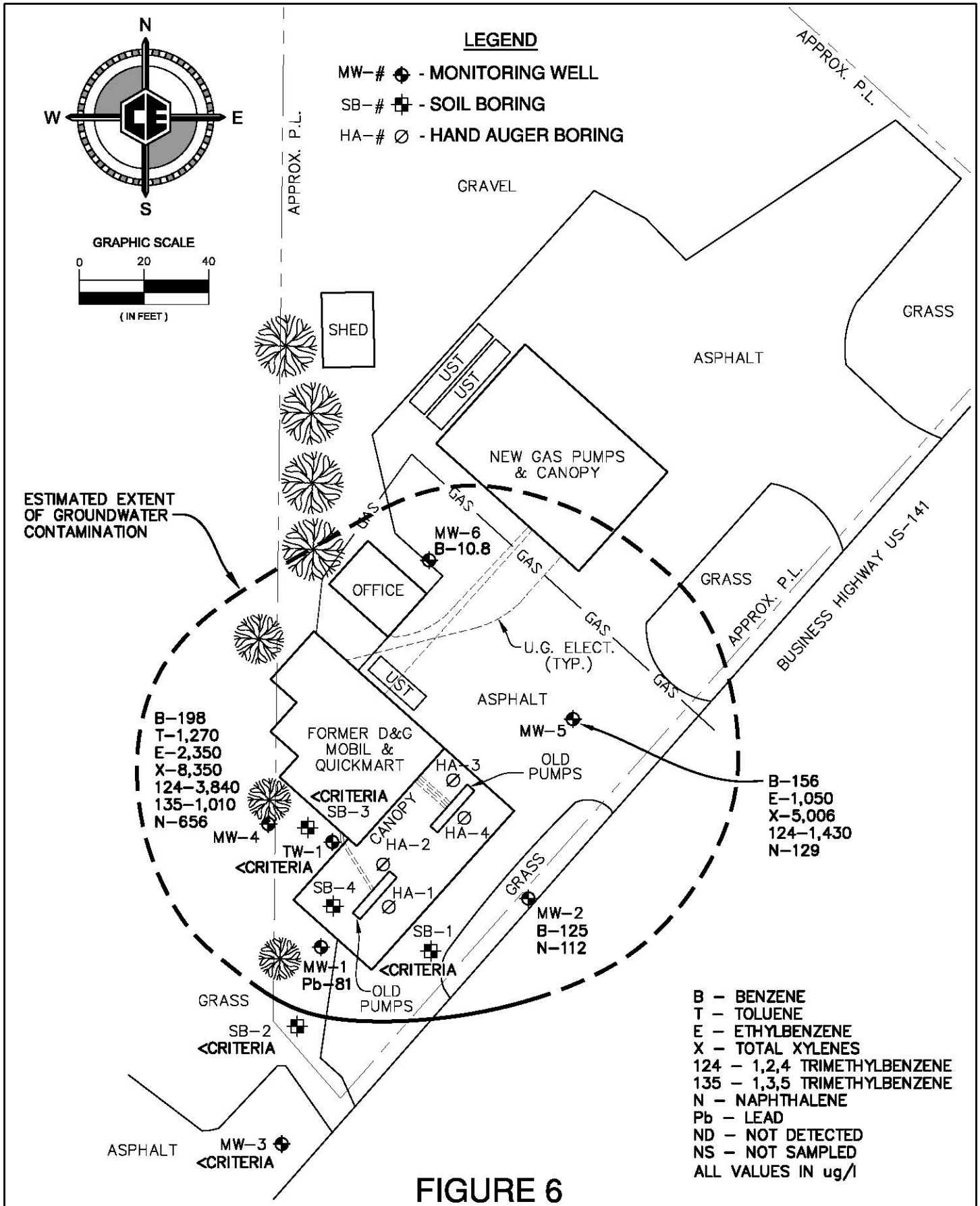
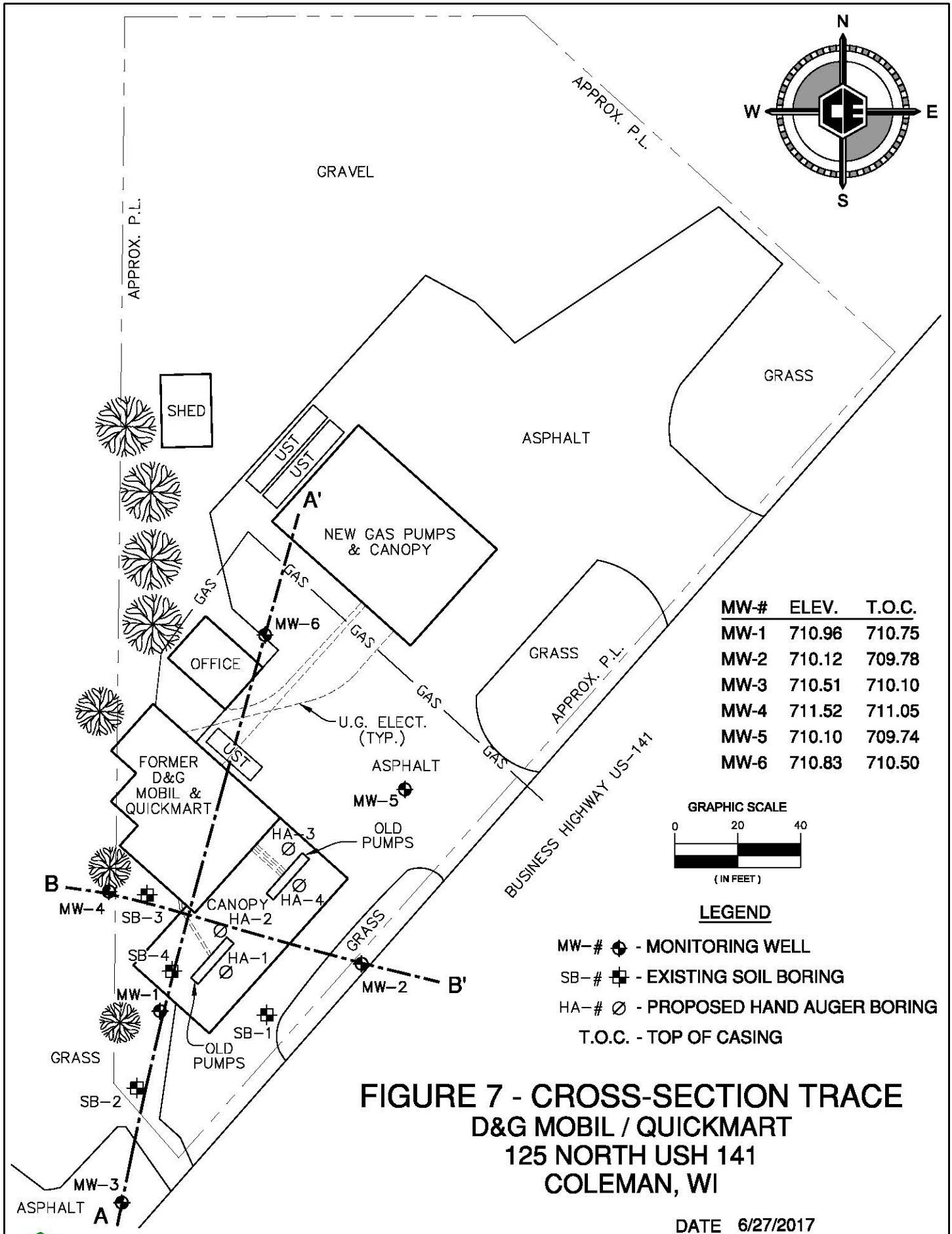
PDF FILE 15562-B-SOIL.PDF



B – BENZENE
T – TOLUENE
E – ETHYLBENZENE
X – TOTAL XYLENES
124 – 1,2,4 TRIMETHYLBENZENE
135 – 1,3,5 TRIMETHYLBENZENE
N – NAPHTHALENE
Pb – LEAD
ND – NOT DETECTED
NS – NOT SAMPLED
ALL VALUES IN ug/l

FIGURE 6
GROUNDWATER CONTAMINATION MAP
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

DATE 6/27/2017
JOB NO 15562-B
CADD FILE 15562-B-GW CONT.DWG
PDF FILE 15562-B-GW CONT.PDF



MW-#	ELEV.	T.O.C.
MW-1	710.96	710.75
MW-2	710.12	709.78
MW-3	710.51	710.10
MW-4	711.52	711.05
MW-5	710.10	709.74
MW-6	710.83	710.50

GRAPHIC SCALE

0 20 40

(IN FEET)

LEGEND

MW-# ⊕ - MONITORING WELL

SB-# ⊕ - EXISTING SOIL BORING

HA-# ∅ - PROPOSED HAND AUGER BORING

T.O.C. - TOP OF CASING

FIGURE 7 - CROSS-SECTION TRACE

D&G MOBIL / QUICKMART

125 NORTH USH 141

COLEMAN, WI

COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440

200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

DATE 6/27/2017

JOB NO 15562-B

CADD FILE 15562-B-CS TRACE.DWG

PDF FILE 15562-B-CS TRACE.PDF

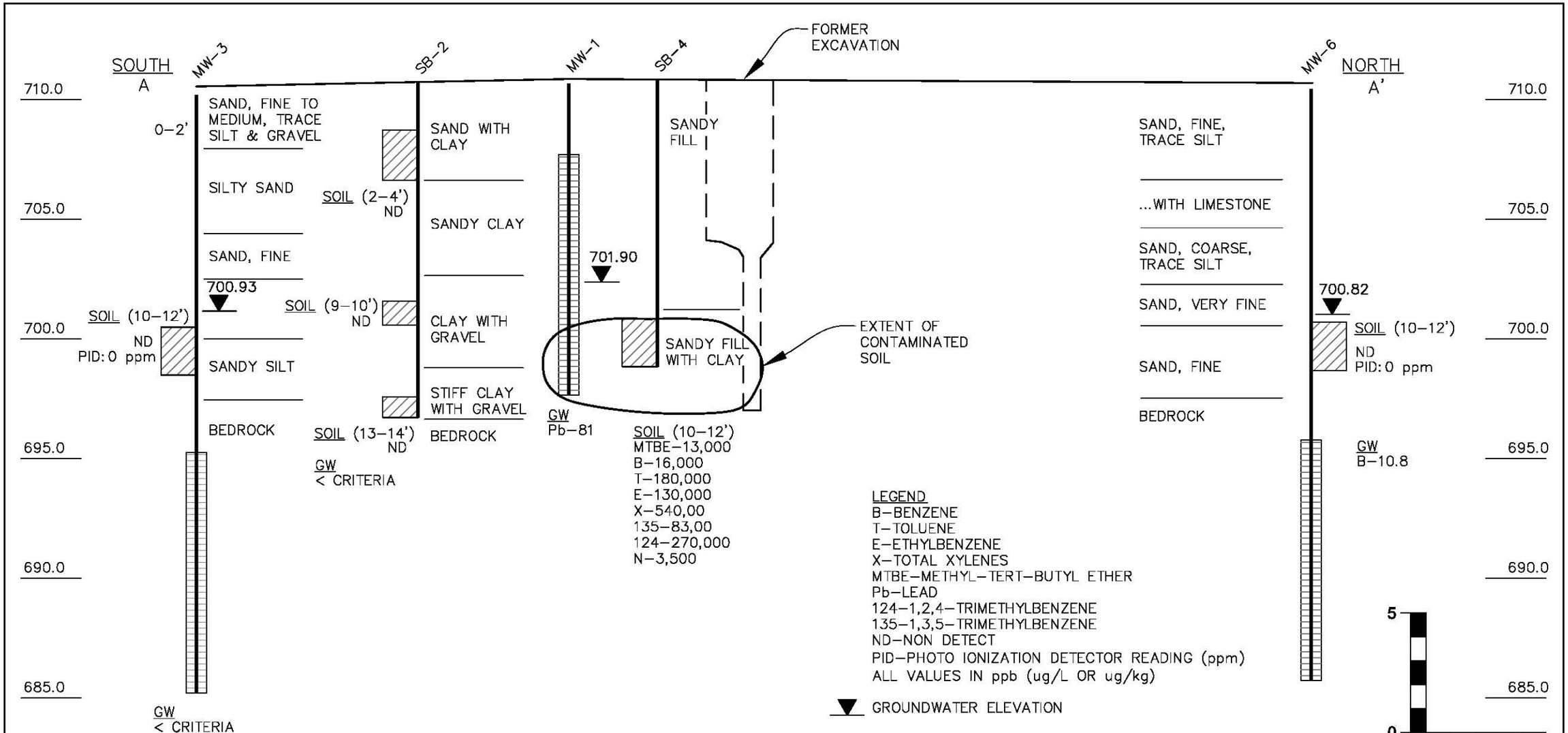


FIGURE 7A - CROSS-SECTION A-A

D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

DATE 6/27/2017
JOB NO 15562-B
CADD FILE 15562-B-CROSS SECTION.DWG
PDF FILE 15562-B-CROSS SECTION A-A.PDF

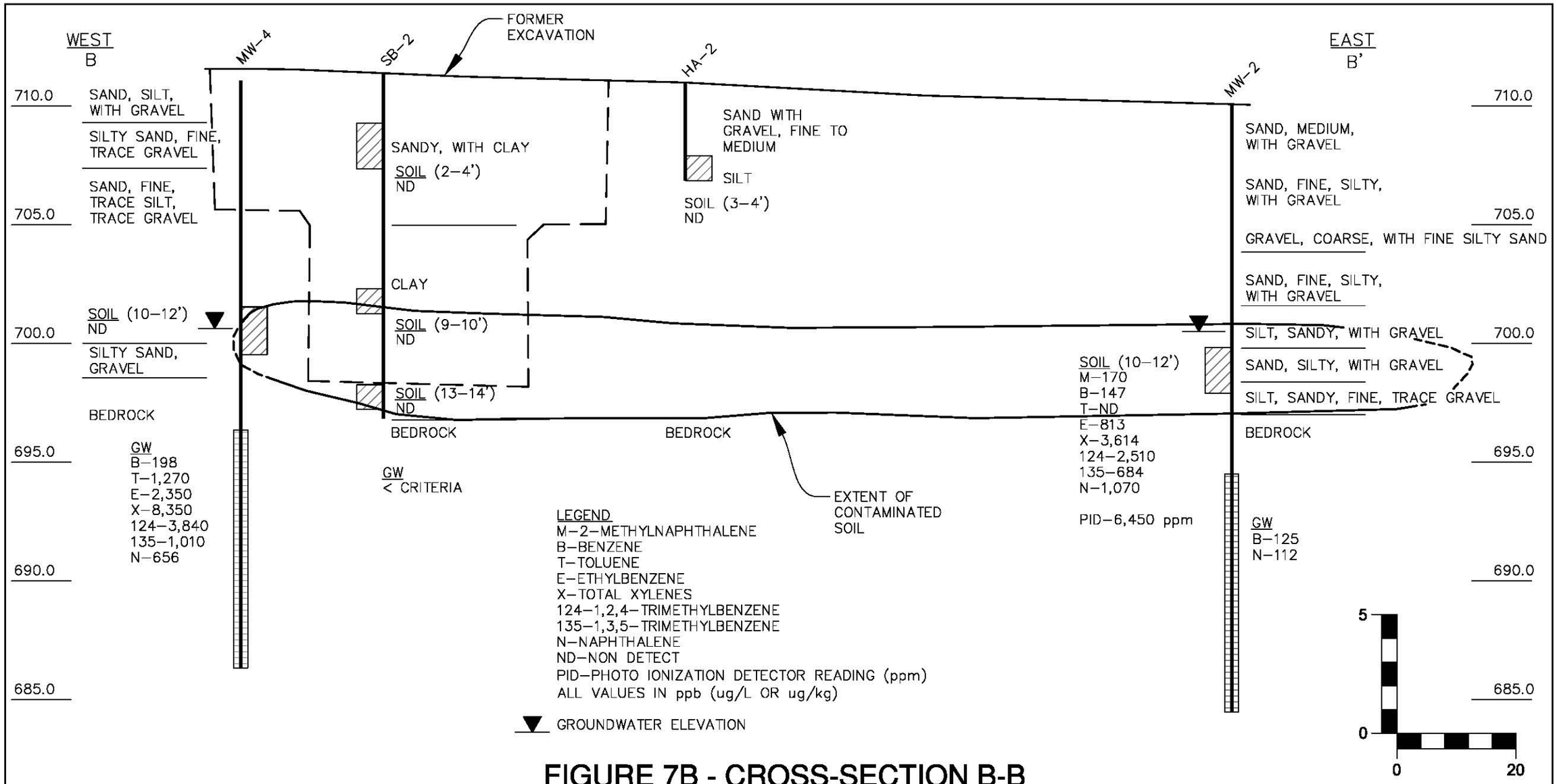


FIGURE 7B - CROSS-SECTION B-B
D&G MOBIL / QUICKMART
125 NORTH USH 141
COLEMAN, WI

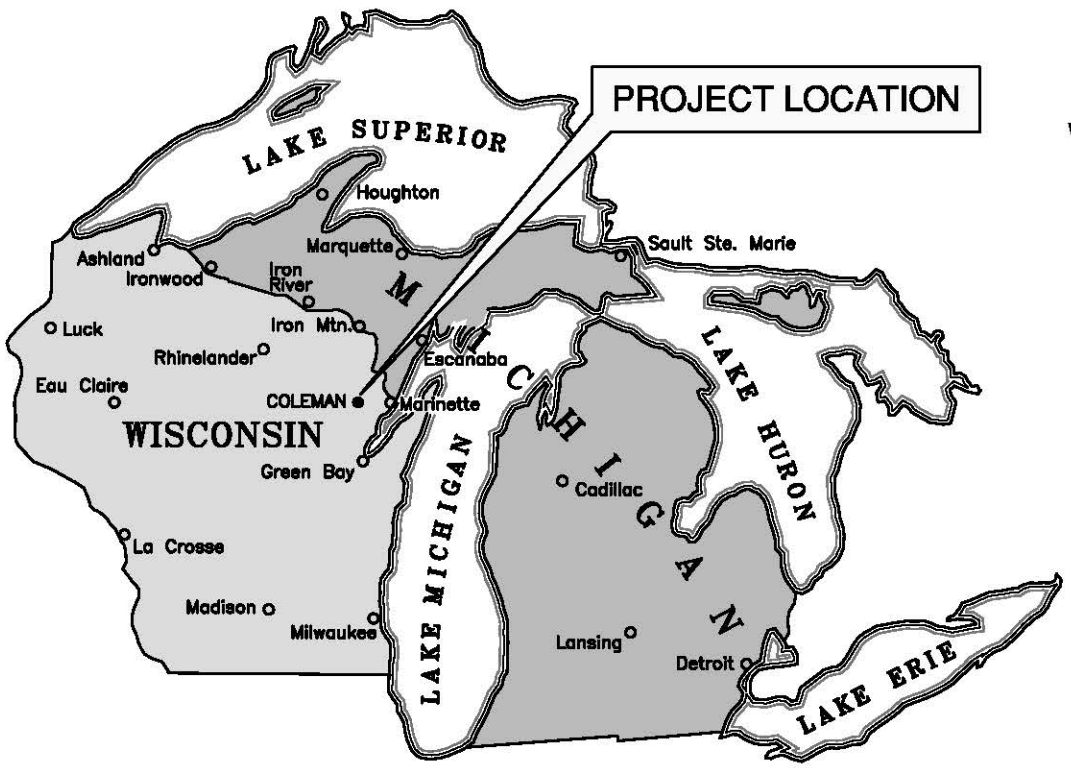
COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

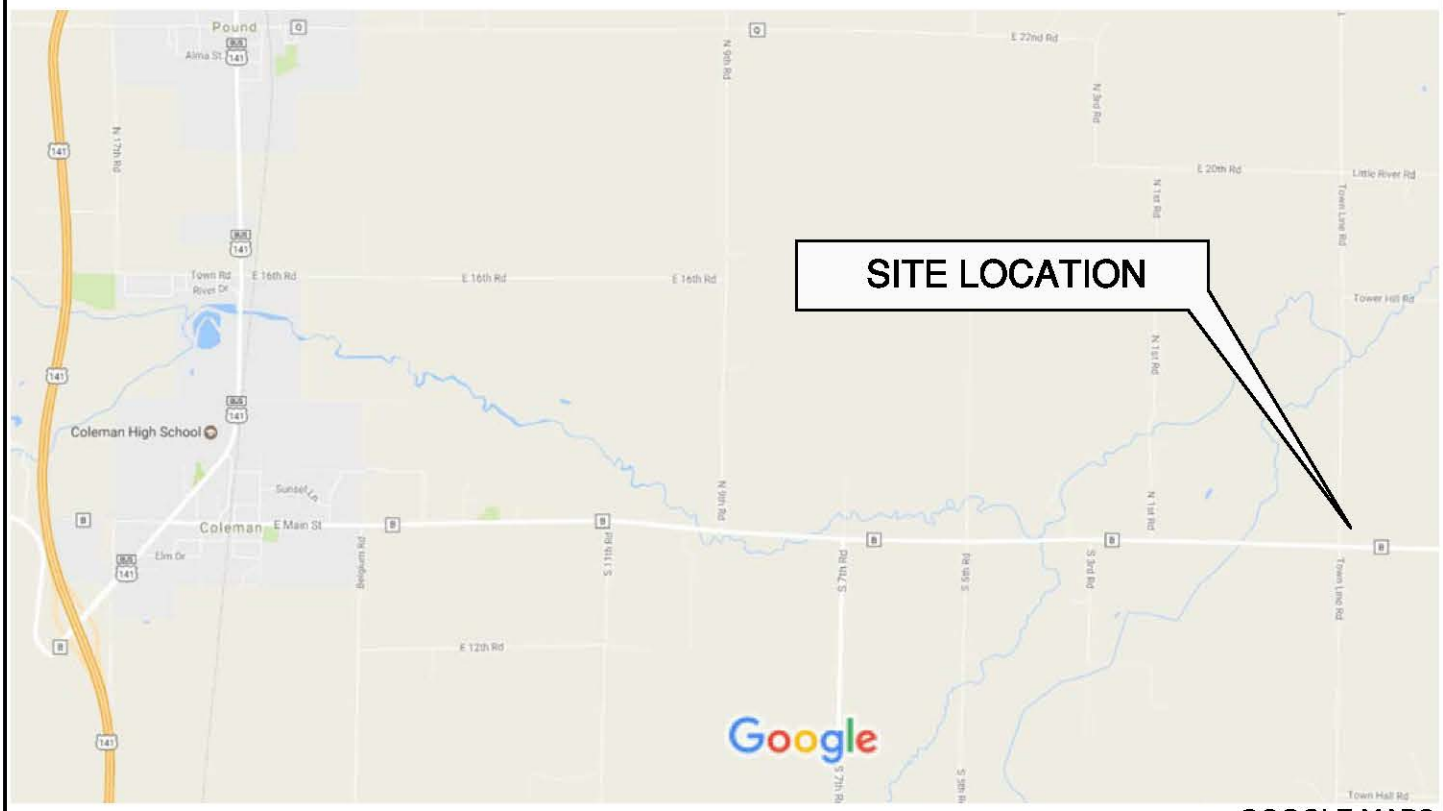
DATE 6/27/2017
JOB NO 15562-B
CADD FILE 15562-B-CROSS SECTION.DWG
PDF FILE 15562-B-CROSS SECTION B-B.PDF

APPENDIX B

BIOPILE FIGURES

Figure 1 – Project Location Map
Figure 2 – Soil Boring Site Map





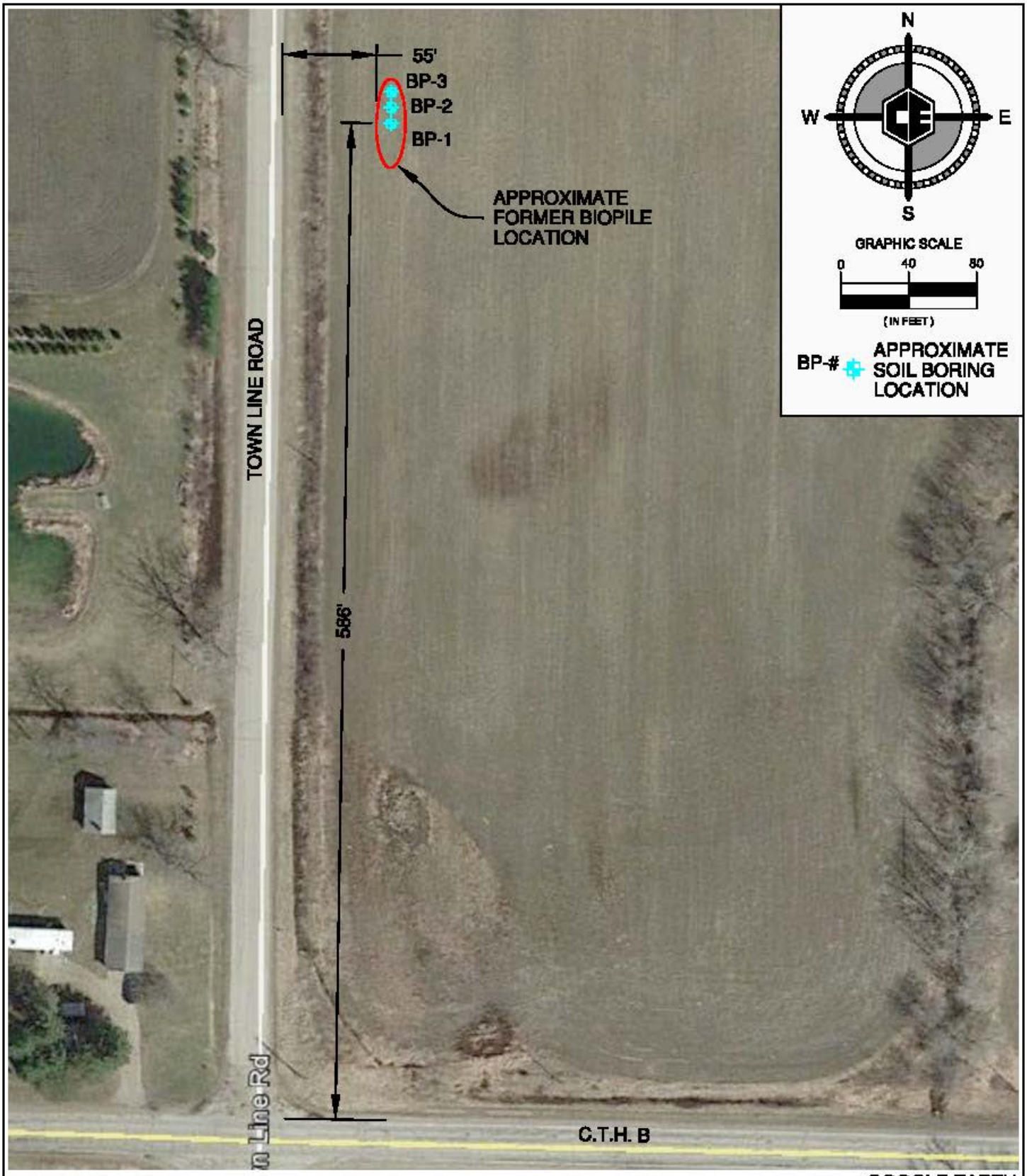
GOOGLE MAPS

FIGURE 1 - PROJECT LOCATION MAP

D&G MOBIL BIOPILE
TOWNLINE ROAD
COLEMAN, WI

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

DATE	12/9/2016
JOB NO	15562-B
CADD FILE	15562-B-WIW-WIQ.DWG
PDF FILE	15562-B-WIW-WIQ.PDF



GOOGLE EARTH

FIGURE 2 - SOIL BORING LOCATION MAP

D&G MOBIL BIOPILE
TOWNLINE ROAD
COLEMAN, WI

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AYER STREET • IRONWOOD, MI • PHONE: 906-932-5048

DATE	12/9/2016
JOB NO	15562-B
CADD FILE	15562-B-BORELOC.DWG
PDF FILE	15562-B-BORELOC.PDF

APPENDIX C

LABORATORY RESULTS SUMMARY TABLES

Table 1 – Summary of Excavation Analytical Results
Table 2 – Summary of Soil Analytical Results
Table 3 – Summary of Groundwater Analytical Results
Table 4 – Groundwater Elevations

Table 1 . Summary of Soil Sample Laboratory Results - Detected Analytes
D&G Mobil - Excavation Samples
Coleman, Wisconsin

SAMPLE ID:	Chemical Abstract Service Number	RCLs - Protection of Groundwater (Non-Industrial)	RCLs - Groundwater Pathway	RCLs - Direct Contact Pathway (Non-Industrial)	Indicator of Residual Petroleum Product in Pores	Direct Contact with Contaminated Soil	#1 South Bottom	#2 NE Bottom	#3 NW Bottom	#4 NE Sidewall	#5 NW Sidewall	#6 E Sidewall
Sample Depth (feet)							12.5'	13'	13'	5'	6'	6'
SAMPLE DATE:							10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Source of Data							MES	MES	MES	MES	MES	MES
Volatiles (ug/Kg)												
Benzene	**71432**	**NS**	**NS**	**NS**	**NS**	**NA**	**220**	**25,000**	**1,900**	**<500**	<25	<25
Toluene	**108883**	**5.1**	**5.1**	**1,490**	**8,500**	**1,100**	**4,600**	**210,000**	**13,000**	<500	<25	<25
Ethylbenzene	**100414**	**1,000**	**1,000**	**7,640**	**38,000**	**NA**	**4,100**	**99,000**	**23,000**	1,400	<25	70
Total Xylenes	**1330207**	**700**	**700**	**7,470**	**4,600**	**NA**	**23,900**	**470,000**	**116,000**	9,400	<25	283
Methyl-tert-butyl ether (MTBE)	**1634044**	**10,000**	**10,000**	**258,000**	**42,000**	**NA**	<130	**3,700**	<630	<500	<25	<25
1,3,5-Trimethylbenzene	**108678**	**480**	**NS**	**182,000**	**11,000**	**NA**	**7,200**	**88,000**	**24,000**	**18,000**	<25	100
1,2,4-Trimethylbenzene	**95636**	**480**	**NS**	**89,800**	**83,000**	**NA**	**21,000**	**270,000**	**68,000**	**32,000**	<25	200
Naphthalene	**91203**	**658**	**NS**	**5,150**	**NS**	**NA**	*****	*****	*****	*	*	*
Organics (mg/kg)		**100,000**	**NS**	**NS**	**NS**	**NA**						
Gasoline Range Organics (GRO)	**NA**	**100**	**NA**	**NA**	**NA**	**NA**	**230**	**4,000**	**940**	**1,100**	<2.7	5
Diesel Range Organics	**NA**	**100**	**NA**	**NA**	**NA**	**NA**	**300**	**7,900**	**2,900**	**5,600**	8	76
Metals (ug/Kg)												
Lead	**7439921**	**50,000**	**NA**	**NA**	**NA**	**NA**	*****	*****	*****	*	*	*

Criteria Footnotes

Notes:

RCL = Residual Contaminant Level

< = Results are less than the LOD

Bolded results exceed Chapter NR 720 Soil Cleanup Standards

NS = No Chapter NR720 Soil Cleanup Standard

* = Not analyzed or no data available.

Source of Data:

Midwest Engineering Services

Laboratory Footnotes:

J = Analyte detected between LOD and LOQ.

Q = The analyte has been detected between the limit of detection (LOD) and the limit of quantification (LOQ). The results are qualified due to the uncertainty of the analyte concentrations within this range.

Table 1 . Summary of Soil Sample Laboratory Results - Detected Analytes
D&G Mobil - Excavation Samples
Coleman, Wisconsin

SAMPLE ID:							#7 SW Sidewall	#8 S Sidewall	#9 S:4000 West	#10 S:4000 East
Sample Depth (feet)							6'	6'	9'	9'
SAMPLE DATE:	**Chemical Abstract Service Number**	**RCLs - Protection of Groundwater (Non-Industrial)**	**RCLs - Groundwater Pathway**	**RCLs - Direct Contact Pathway (Non-Industrial)**	**Indicator of Residual Petroleum Product in Pores**	**Direct Contact with Contaminated Soil**	10/21/1999	10/21/1999	9/30/1999	9/30/1999
Source of Data							MES	MES	MES	MES
Volatiles (ug/Kg)										
Benzene	**71432**	**NS**	**NS**	**NS**	**NS**	**NA**	<25	**21,000**	**3,300**	**57Q**
Toluene	**108883**	**5.1**	**5.1**	**1,490**	**8,500**	**1,100**	65	**430,000**	**62,000**	**1,500**
Ethylbenzene	**100414**	**1,000**	**1,000**	**7,640**	**38,000**	**NA**	28	**190,000**	**36,000**	**1,500**
Total Xylenes	**1330207**	**700**	**700**	**7,470**	**4,600**	**NA**	165	**1,040,000**	**167,000**	**8,900**
Methyl-tert-butyl ether (MTBE)	**1634044**	**10,000**	**10,000**	**258,000**	**42,000**	**NA**	<25	<2000	**1,200Q**	35Q
1,3,5-Trimethylbenzene	**108678**	**480**	**NS**	**182,000**	**11,000**	**NA**	41	**170,000**	31,000	**2,800**
1,2,4-Trimethylbenzene	**95636**	**480**	**NS**	**89,800**	**83,000**	**NA**	120	**520,000**	**96,000**	**8,200**
Naphthalene	**91203**	**658**	**NS**	**5,150**	**NS**	**NA**	*	*	*	*
Organics (mg/kg)		**100,000**	**NS**	**NS**	**NS**	**NA**				
Gasoline Range Organics (GRO)	**NA**	**100**	**NA**	**NA**	**NA**	**NA**	<2.6	**6,700**	**1,500**	**110**
Diesel Range Organics	**NA**	**100**	**NA**	**NA**	**NA**	**NA**	6	**2,300**	**960**	67
Metals (ug/Kg)										
Lead	**7439921**	**50,000**	**NA**	**NA**	**NA**	**NA**	*	*	*	*

Criteria Footnotes

Notes:

RCL = Residual Contaminant Level

< = Results are less than the LOD

Bolded results exceed Chapter NR 720 Soil Cleanup Standards

NS = No Chapter NR720 Soil Cleanup Standard

* = Not analyzed or no data available.

Laboratory Footnotes:

J = Analyte detected between LOD and LOQ.

Q = The analyte has been detected between the limit of detection (LOD) and the limit of quantification (LOQ). The results are qualified due to the uncertainty of the analyte conc

Source of Data:

Midwest Engineering Services

Table 2. Summary of Soil Sample Laboratory Results - Detected Analytes
D&G Mobil - Soil Borings
Coleman, Wisconsin

SAMPLE ID:						B-1	B-2	SB-1	SB-1	SB-1	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-4
Sample Depth (feet)						2-4'	4.0-6.0'	0-4'	9-10'	12-13'	2-4'	9-10'	13-14'	2-4'	9-10'	13-14'	10-12'
SAMPLE DATE:	**Chemical Abstract Service Number**	**RCLs - Protection of Groundwater (Non-Industrial)**	**RCLs - Groundwater Pathway**	**RCLs - Direct Contact Pathway (Non-Industrial)**	**Indicator of Residual Petroleum Product in Pores**	10/8/2002	10/8/2002	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008	1/7/2008
Source of Data						MES	MES	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE
Volatiles (ug/Kg)																	
Methyl-tert-butyl ether (MTBE)	**1634044**	**NS**	**NS**	**63,800**	**NS**	<25	<25	<22	<22	<22	<22	<22	<220	<22	<220	<220	**13,000**
Benzene	**71432**	**5.0**	**5.0**	**1,600**	**8,500**	<25	<25	<23	<23	<23	<23	<23	<230	<23	<230	<230	**16,000**
Toluene	**108883**	**1,000**	**1,000**	**7,600**	**38,000**	<25	<25	130	150	<23	<23	<23	<230	<23	<230	<230	**180,000**
Ethylbenzene	**100414**	**700**	**700**	**7,470**	**4,600**	<25	<25	<23	120	<23	<23	<23	<230	<23	<230	<230	**130,000**
Total Xylenes	**1330207**	**10,000**	**10,000**	**258,000**	**42,000**	<25	<25	<64	<64	<64	<64	<64	<640	<64	<640	<640	**540,000**
1,3,5-Trimethylbenzene	**108678**	**480**	**NS**	**182,000**	**11,000**	<25	<25	<23	<23	<23	<23	<23	<230	<23	<230	<230	**83,000**
1,2,4-Trimethylbenzene	**95636**	**480**	**NS**	**89,800**	**83,000**	<25	<25	<24	<24	<24	<24	<24	<240	<24	<240	<240	**270,000**
Naphthalene	**91203**	**658**	**NS**	**5,150**	**NS**	<25	<25	*	*	*	*	*	*	*	*	*	*
Gasoline Range Organics (GRO)	**NA**	**100,000**	**NS**	**NS**	**NS**	5,200	4,400	*	*	*	*	*	*	*	*	*	*
Semivolatiles (ug/Kg)																	
Acenaphthene	**83329**	**NS**	**38,800**	**900,000**	**NS**	*	*	<83	<41	<41	<41	<41	<41	<41	<4100	<41	140
Acenaphthylene	**208968**	**NS**	**700**	**18,000**	**NS**	*	*	<83	<41	<41	<41	<41	<41	<41	<4100	<41	<41
Anthracene	**120127**	**NS**	**3,000,000**	**5,000,000**	**NS**	*	*	<70	<37	<37	<37	<37	<37	<37	<3700	<37	390
Benzo(a)anthracene	**56553**	**NS**	**17,000**	**88**	**NS**	*	*	<90	<45	<45	<45	<45	<45	<45	<4500	<45	<45
Benzo(a)pyrene	**50328**	**NS**	**48,000**	**8.8**	**NS**	*	*	<80	<40	<40	<40	<40	<40	<40	<4000	<40	<40
Benzo(b)fluoranthene	**205992**	**NS**	**360,000**	**88**	**NS**	*	*	<80	<40	<40	<40	<40	<40	<40	<4000	<40	<40
Benzo(g,h,i)perylene	**191242**	**NS**	**6,800,000**	**1,800**	**NS**	*	*	<72	<36	<36	<36	<36	<36	<36	<3600	<36	<36
Benzo(k)fluoranthene	**207089**	**NS**	**870,000**	**880**	**NS**	*	*	<89	<44	<44	<44	<44	<44	<44	<4400	<44	<44
Chrysene	**218019**	**NS**	**37,000**	**8,800**	**NS**	*	*	<82	<41	<41	<41	<41	<41	<41	<4100	<41	<41
Dibenzo(a,h)anthracene	**53703**	**NS**	**38,000**	**8.8**	**NS**	*	*	<69	<34	<34	<34	<34	<34	<34	<3400	<34	<34
Fluoranthene	**206440**	**NS**	**500,000**	**600,000**	**NS**	*	*	<85	<43	<43	<43	<43	<43	<43	<4300	<43	<43
Fluorene	**86737**	**NS**	**100,000**	**600,000**	**NS**	*	*	<85	<42	<42	<42	<42	<42	<42	<4200	<42	<42
Indeno(1,2,3-cd)pyrene	**193395**	**NS**	**680,000**	**88**	**NS**	*	*	<72	<36	<36	<36	<36	<36	<36	<3600	<36	<36
1-Methylnaphthalene		**NS**	**23,000**	**1,100,000**	**NS**	*	*	<86	<43	<43	<43	<43	<43	<43	<4300	<43	3,200
2-Methylnaphthalene	**91576**	**NS**	**20,000**	**600,000**	**NS**	*	*	<91	<45	<45	<45	<45	<45	<45	<4500	<45	6,100
Naphthalene	**91203**	**658**	**658**	**5,150**	**NS**	*	*	<87	<43	<43	<43	<43	<43	<43	<4300	<43	**3,500**
Phenanthrene	**85018**	**NS**	**1,800**	**18,000**	**NS**	*	*	<84	<42	<42	<42	<42	<42	<42	<4200	<42	420
Pyrene	**129000**	**NS**	**8,700,000**	**500,000**	**NS**	*	*	<77	<39	<39	<39	<39	<39	<39	<3900	<39	<39
Diesel Range Organics (DRO)	**NA**	**100,000**	**NA**	**NA**	**NA**	7,400	5,200	*	*	*	*	*	*	*	*	*	*
Metals (ug/Kg)																	
Lead	**7439921**	**50,000**	**NA**	**NA**	**NA**	*	*	*	*	*	*	*	*	*	*	*	*

Soil Type
Criteria Footnotes

Notes:

RCL = Residual Contaminant Level

< = Results are less than the LOD

Bolded results exceed Chapter NR 720 Soil Cleanup Standards

NS = No Chapter NR720 Soil Cleanup Standard

* = Not analyzed or no data available.

Source of Data:

MES - Midwest Engineering Services

BE - Bay Environmental Strategies, Inc.

Laboratory Footnotes:

LOD = Limit of Detection

LOQ = Limit of Quantification

J = Analyte detected between LOD and LOQ.

Q = The analyte has been detected between the limit of detection (LOD) and the limit of quantification (LOQ). The results are qualified due to the uncertainty of the analyte concentrations within this range.

Table 2. Summary of Soil Sample Laboratory Results - Detected Analytes
D&G Mobil - Soil Borings
Coleman, Wisconsin

SAMPLE ID:						**BP-1**	**BP-2**	**BP-3**	**HA-1**	**HA-2**	**HA-3**	**HA-4**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**
Sample Depth (feet)						0-2'	0-2'	0-2'	3-4'	3-4'	3-4'	3-4'	10-12'	10-12'	10-12'	11-13'	10-12'
SAMPLE DATE:	**Chemical Abstract Service Number**	**RCLs - Protection of Groundwater (Non-Industrial)**	**RCLs - Groundwater Pathway**	**RCLs - Direct Contact Pathway (Non-Industrial)**	**Indicator of Residual Petroleum Product in Pores**	11/16/2016	11/16/2016	11/16/2016	1/20/2017	1/20/2017	1/27/2017	1/27/2017	1/19/2017	1/23/2017	1/25/2017	1/17/2017	1/26/2017
Source of Data						CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC
Volatiles (ug/Kg)																	
Methyl-tert-butyl ether (MTBE)	**1634044**	**NS**	**NS**	**63,800**	**NS**	<32.9	<29.8	<30.5	<61.3	<54.2	<56.2	<52.9	190	<52.7	<53.6	940	<54.9
Benzene	**71432**	**5.0**	**5.0**	**1,600**	**8,500**	<18.1	<16.4	<16.8	<30.6	<27.1	<28.1	<26.5	**147**	<26.4	<26.8	**2,200**	<27.4
Toluene	**108883**	**1,000**	**1,000**	**7,600**	**38,000**	<33.1	<30.1	<30.7	<306	<271	<281	<265	<283	<264	<268	<2,480	<274
Ethylbenzene	**100414**	**700**	**700**	**7,470**	**4,600**	<18.7	<17	<17.3	<30.6	<27.1	<28.1	<26.5	**813**	<26.4	<26.8	**12,200**	<27.4
Total Xylenes	**1330207**	**10,000**	**10,000**	**258,000**	**42,000**	<52.6	<46.6	<47.7	<61.3	<54.2	30.2	<52.9	3614	<52.7	<53.6	**45,480**	<54.9
1,3,5-Trimethylbenzene	**108678**	**480**	**NS**	**182,000**	**11,000**	<16.8	<15.3	<15.6	<61.3	<54.2	<56.2	<52.9	**684**	<52.7	<53.6	**7,820**	<54.9
1,2,4-Trimethylbenzene	**95636**	**480**	**NS**	**89,800**	**83,000**	<22	<20	<20.4	<61.3	<54.2	<56.2	<52.9	**2,510**	<52.7	<53.6	**27,500**	<54.9
Naphthalene	**91203**	**658**	**NS**	**5,150**	**NS**	*	*	*	<306	<271	<281	<265	363	<264	<268	**2,850**	<274
Gasoline Range Organics (GRO)	**NA**	**100,000**	**NS**	**NS**	**NS**	<2,260	<2,060	<2,100	<6130	<5420	7750	<5290	44,800	<5,270	<5,360	**469,000**	<5,490
Semivolatiles (ug/Kg)																	
Acenaphthene	**83329**	**NS**	**38,800**	**900,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Acenaphthylene	**208968**	**NS**	**700**	**18,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Anthracene	**120127**	**NS**	**3,000,000**	**5,000,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Benzo(a)anthracene	**56553**	**NS**	**17,000**	**88**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Benzo(a)pyrene	**50328**	**NS**	**48,000**	**8.8**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Benzo(b)fluoranthene	**205992**	**NS**	**360,000**	**88**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Benzo(g,h,i)perylene	**191242**	**NS**	**6,800,000**	**1,800**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Benzo(k)fluoranthene	**207089**	**NS**	**870,000**	**880**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Chrysene	**218019**	**NS**	**37,000**	**8,800**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Dibenzo(a,h)anthracene	**53703**	**NS**	**38,000**	**8.8**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Fluoranthene	**206440**	**NS**	**500,000**	**600,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Fluorene	**86737**	**NS**	**100,000**	**600,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Indeno(1,2,3-cd)pyrene	**193395**	**NS**	**680,000**	**88**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
1-Methylnaphthalene		**NS**	**23,000**	**1,100,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
2-Methylnaphthalene	**91576**	**NS**	**20,000**	**600,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Naphthalene	**91203**	**658**	**658**	**5,150**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	**1,070**	<35.5	<36.1	**1,320**	<37.0
Phenanthrene	**85018**	**NS**	**1,800**	**18,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Pyrene	**129000**	**NS**	**8,700,000**	**500,000**	**NS**	NA	NA	NA	<36.4	<36.1	<37.5	<36.0	<35.6	<35.5	<36.1	<35.6	<37.0
Diesel Range Organics (DRO)	**NA**	**100,000**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (ug/Kg)																	
Lead	**7439921**	**50,000**	**NA**	**NA**	**NA**	NA	NA	NA	4,300	6,640	4,750	3,470	2,360	4,290	2,370	2,330	1,740
Soil Type													silty sand				

Criteria Footnotes

Notes:

RCL = Residual Contaminant Level

< = Results are less than the LOD

Bolded results exceed Chapter NR 720 Soil Cleanup Standards

NS = No Chapter NR720 Soil Cleanup Standard

* = Not analyzed or no data available.

Laboratory Footnotes:

LOD = Limit of Detection

LOQ = Limit of Quantification

J = Analyte detected between LOD and LOQ.

Q = The analyte has been detected between the limit of detection (LOD) and the limit of quantification (LOQ). The results are qualified due to the uncertainty of t

Table 3. Summary of Groundwater Laboratory Results - Detected Analytes
D&G Mobil - Monitoring Wells
Coleman, Wisconsin

SAMPLE ID:	Chemical Abstract Service Number	NR 140 Enforcement Statute	NR 140 Preventative Action Limit	TW-1	SB-1	SB-2	SB-3	MW-1		MW-2	MW-3	MW-4	MW-5	MW-6
SAMPLE DATE:				10/8/2002	1/7/2008	1/7/2008	1/7/2008	10/8/2002	2/1/2017	2/1/2017	2/1/2017	2/1/2017	2/1/2017	2/1/2017
Source of Data				MES	BE	BE	BE	MES	CEC	CEC	CEC	CEC	CEC	CEC
Volatiles (ug/L)														
Methyl-tert-butyl ether (MTBE)	**1634044**	**60**	**50**	<0.87	<0.12	<0.12	<0.12	<8.7	<0.840	<8.40	<0.84	<420	<42.0	<8.40
Benzene	**71432**	**5.0**	**0.5**	*3.2*	0.98	<0.21	0.24J	**8.7**	*1.33*	**125**	<0.23	**198**	**156**	**10.8**
Toluene	**108883**	**800**	**160**	21	0.86	0.24J	0.77	13	<1.37	*394*	<1.37	**1,270**	98.9	<13.7
Ethylbenzene	**100414**	**700**	**140**	28	<0.23	<0.23	<0.23	*510*	<0.40	*433*	0.629	**2,350**	**1,050**	33.3
Total Xylenes	**1330207**	**2,000**	**400**	94	1.5	<0.66	0.66J	**2,000**	1.38	*1601*	2.4	**8,350**	**5,006**	68.3
Trimethylbenzene (1,2,4-,1,3,5-)	**108678**	**480**	**96**	62	4.5	<0.24	0.37J	**1,530**	<0.263	**484.3**	0.7	**4,850**	**1,866**	**506.5**
Naphthalene	**91203**	**100**	**10**	*12*	2.2	4.9	8.1	**180**	<0.737	**112**	<0.74	**661**	**129**	*23.5*
TPH		*****	*****	*	*	*	*	*****	183	7,120	<50.0	52,600	16,600	4,730
Semivolatiles (ug/L)														
Acenaphthene	**83329**	**NS**	**NS**	*****	0.16	0.65	1.30	*****	0.094	0.107	<0.0333	5.62	0.232	0.947
Acenaphthylene	**208968**	**NS**	**NS**	*****	0.24J	0.057J	0.11	*****	<0.040	<0.040	<0.040	1.20	0.0769	0.218
Anthracene	**120127**	**3000**	**600**	*****	0.033J	0.062J	0.046J	*****	<0.0467	<0.0467	<0.0467	<0.0467	<0.0467	<0.0467
Benzo(a)anthracene	**56553**	**NS**	**NA**	*****	0.033J	0.034J	0.040J	*****	<0.0137	<0.0137	<0.0137	0.18	<0.0137	0.0158
Benzo(a)pyrene	**50328**	**0.2**	**0.02**	*****	<0.014	<0.028	<0.028	*****	<0.0387	<0.0387	<0.0387	*0.0476*	<0.0387	<0.0387
Benzo(b)fluoranthene	**205992**	**0.2**	**0.02**	*****	*0.030J*	<0.034	<0.034	*****	<0.00707	<0.00707	<0.00707	*0.0491*	<0.00707	<0.00707
Benzo(g,h,i)perylene	**191242**	**NS**	**NS**	*****	0.021J	<0.028	<0.028	*****	<0.00757	<0.00757	<0.00757	0.0891	<0.00757	0.0125
Benzo(k)fluoranthene	**207089**	**NS**	**NS**	*****	<0.016	<0.032	<0.032	*****	<0.0453	<0.0453	<0.0453	<0.0453	<0.0453	<0.0453
Chrysene	**218019**	**0.2**	**0.02**	*****	*0.042J*	<0.036	*0.062J*	*****	*<0.0360*	*<0.0360*	*<0.0360*	*0.17*	*<0.0360*	*<0.0360*
Dibenzo(a,h)anthracene	**53703**	**NS**	**NS**	*****	<0.014	<0.028	<0.028	*****	<0.0132	<0.0132	<0.0132	<0.0132	<0.0132	<0.0132
Fluoranthene	**206440**	**400**	**80**	*****	0.15	0.074J	0.043J	*****	<0.0523	<0.0523	<0.0523	<0.0523	<0.0523	<0.0523
Fluorene	**86737**	**400**	**80**	*****	0.14	0.48	1.30	*****	0.064	0.0548	<0.0283	5.93	0.125	1.14
Indeno(1,2,3-cd)pyrene	**193395**	**NS**	**NS**	*****	0.013J	<0.024	<0.024	*****	<0.0493	<0.0493	<0.0493	<0.0493	<0.0493	<0.0493
1-Methylnaphthalene	**90120**	**NS**	**NS**	*****	0.045J	2.40	2.10	*****	0.094	27.3	<0.0274	322	90.3	37.5
2-Methylnaphthalene	**91576**	**NS**	**NS**	*****	0.030J	0.40	<0.048	*****	<0.0301	14.1	<0.0301	508	83.8	7.98
Naphthalene	**91203**	**100**	**10**	*****	0.37	1.90	0.27	*****	<0.0660	*20.2*	0.0697	**656**	**169**	2.94
Phenanthrene	**85018**	**NS**	**NS**	*****	<0.021	<0.042	0.77	*****	0.148	0.0628	<0.0273	11.7	0.0786	1.64
Pyrene	**129000**	**250**	**50**	*****	0.10	0.067J	0.058J	*****	<0.0390	<0.0390	<0.0390	2.02	<0.0390	0.271
Metals (ug/Kg)														
Lead	**7439921**	**15**	**1.5**	*****	*****	*****	*****	*****	**81**	<6.33	<6.33	<6.33	<6.33	<6.33

Criteria Footnotes

Notes:

< = Results are less than the LOD

Bolded results exceed Chapter NR 140 Groundwater Cleanup Standards

NS = No Chapter NR720 Soil Cleanup Standard

* = Not analyzed or no data available.

Results in Italics exceed PAL only

Laboratory Footnotes:

J = Analyte detected between LOD and LOQ.

Source of Data:

MES - Midwest Enginneering Services

BE - Bay Environmental Strategies, Inc.

CEC - Coleman Engineering Company

Table 4

Groundwater Elevations - 2/1/17
D&G Mobil Mart
Village of Coleman, Wisconsin

Well No.	Ground Elevation (feet)	Top of Casing (feet)	Depth to LNAPL (feet)	LNAPL Elevation (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Total Depth (feet)	Top of Screen (feet)	Bottom of Screen (feet)	Groundwater Elevation (feet)
MW-1	710.96	710.75	NA	NA	NA	8.85	13.00	3.00	13.00	701.90
MW-2	710.12	709.78	NA	NA	NA	9.10	25.11	15.11	25.11	700.68
MW-3	710.51	710.10	NA	NA	NA	9.17	24.79	14.79	24.79	700.93
MW-4	711.52	711.05	NA	NA	NA	10.50	24.51	14.51	24.51	700.55
MW-5	710.10	709.74	NA	NA	NA	8.92	24.84	14.84	24.84	700.82
MW-6	710.83	710.50	NA	NA	NA	9.68	24.61	14.61	24.61	700.82

Note: Elevations surveyed to a USGS Benchmark
NA - Not Available
LNAPL - Light Non-Aqueous Phase Liquid

APPENDIX D

LABORATORY REPORTS

ANALYTICAL REPORT

November 28, 2016

Coleman Engineering Company

Sample Delivery Group:	L873615
Samples Received:	11/18/2016
Project Number:	EC-15562 B
Description:	D & G Mobile
Site:	BIOPILE
Report To:	Charles A. Saari 635 Circle Drive Iron Mountain, MI 49801

Entire Report Reviewed By:

John Hawkins
Technical Service Representative

TABLE OF CONTENTS

BP-1 (0-2) L873615-01 Solid

Collected by: CHarles Saari
Collected date/time: 11/16/16 10:30
Received date/time: 11/18/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG928230	1	11/19/16 10:14	11/19/16 10:22	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG928815	49	11/19/16 17:21	11/22/16 23:39	ACG

BP-2 (0-2) L873615-02 Solid

Collected by: CHarles Saari
Collected date/time: 11/16/16 10:40
Received date/time: 11/18/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG928230	1	11/19/16 10:14	11/19/16 10:22	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG928815	49.5	11/19/16 17:21	11/23/16 00:01	ACG

BP-3 (0-2) L873615-03 Solid

Collected by: CHarles Saari
Collected date/time: 11/16/16 10:45
Received date/time: 11/18/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG928230	1	11/19/16 10:14	11/19/16 10:22	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG928815	49	11/19/16 17:21	11/23/16 00:23	ACG

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.4		1	11/19/2016 10:22	WG928230

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		18.1	49	11/22/2016 23:39	WG928815
Toluene	ND		33.1	49	11/22/2016 23:39	WG928815
Ethylbenzene	ND		18.7	49	11/22/2016 23:39	WG928815
m&p-Xylene	ND		31.6	49	11/22/2016 23:39	WG928815
o-Xylene	ND		19.7	49	11/22/2016 23:39	WG928815
Methyl tert-butyl ether	ND		32.9	49	11/22/2016 23:39	WG928815
Naphthalene	ND		214	49	11/22/2016 23:39	WG928815
1,3,5-Trimethylbenzene	ND		16.8	49	11/22/2016 23:39	WG928815
1,2,4-Trimethylbenzene	ND		22.0	49	11/22/2016 23:39	WG928815
TPH (GC/FID) Low Fraction	ND		2260	49	11/22/2016 23:39	WG928815
(S) a,a,a-Trifluorotoluene(PID)	*110*		*80.0-200*		*11/22/2016 23:39*	WG928815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.4		1	11/19/2016 10:22	WG928230

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		16.4	49.5	11/23/2016 00:01	WG928815
Toluene	ND		30.1	49.5	11/23/2016 00:01	WG928815
Ethylbenzene	ND		17.0	49.5	11/23/2016 00:01	WG928815
m&p-Xylene	ND		28.7	49.5	11/23/2016 00:01	WG928815
o-Xylene	ND		17.9	49.5	11/23/2016 00:01	WG928815
Methyl tert-butyl ether	ND		29.8	49.5	11/23/2016 00:01	WG928815
Naphthalene	ND		194	49.5	11/23/2016 00:01	WG928815
1,3,5-Trimethylbenzene	ND		15.3	49.5	11/23/2016 00:01	WG928815
1,2,4-Trimethylbenzene	ND		20.0	49.5	11/23/2016 00:01	WG928815
TPH (GC/FID) Low Fraction	ND		2060	49.5	11/23/2016 00:01	WG928815
(S) a,a,a-Trifluorotoluene(PID)	*110*		*80.0-200*		*11/23/2016 00:01*	WG928815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.6		1	11/19/2016 10:22	WG928230

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		16.8	49	11/23/2016 00:23	WG928815
Toluene	ND		30.7	49	11/23/2016 00:23	WG928815
Ethylbenzene	ND		17.3	49	11/23/2016 00:23	WG928815
m&p-Xylene	ND		29.4	49	11/23/2016 00:23	WG928815
o-Xylene	ND		18.3	49	11/23/2016 00:23	WG928815
Methyl tert-butyl ether	ND		30.5	49	11/23/2016 00:23	WG928815
Naphthalene	ND		199	49	11/23/2016 00:23	WG928815
1,3,5-Trimethylbenzene	ND		15.6	49	11/23/2016 00:23	WG928815
1,2,4-Trimethylbenzene	ND		20.4	49	11/23/2016 00:23	WG928815
TPH (GC/FID) Low Fraction	ND		2100	49	11/23/2016 00:23	WG928815
(S) a,a,a-Trifluorotoluene(PID)	*111*		*80.0-200*		*11/23/2016 00:23*	WG928815

Method Blank (MB)

(MB) R3179491-1 11/19/16 10:22

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00130			

L873627-05 Original Sample (OS) • Duplicate (DUP)

(OS) L873627-05 11/19/16 10:22 • (DUP) R3179491-3 11/19/16 10:22

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.5	83.0	1	1.86		5

Laboratory Control Sample (LCS)

(LCS) R3179491-2 11/19/16 10:22

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3180264-3 11/22/16 17:09

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Benzene	U		0.0880	0.293
Toluene	U		0.161	0.537
Ethylbenzene	0.0922	J	0.0910	0.303
m&p-Xylene	0.243	J	0.154	0.513
o-Xylene	0.107	J	0.0960	0.320
Methyl tert-butyl ether	U		0.160	0.533
Naphthalene	U		1.04	3.47
1,3,5-Trimethylbenzene	0.113	J	0.0820	0.273
1,2,4-Trimethylbenzene	0.142	J	0.107	0.357
TPH (GC/FID) Low Fraction	U		11.0	36.7
(S) a,a,a-Trifluorotoluene(PID)	*109*			*80.0-200*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3180264-1 11/22/16 15:09 • (LCSD) R3180264-8 11/23/16 02:58

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	50.0	50.2	51.7	100	103	80.0-120			2.91	20
Toluene	50.0	51.7	52.4	103	105	80.0-120			1.34	20
Ethylbenzene	50.0	53.4	54.0	107	108	80.0-120			1.13	20
m&p-Xylene	100	108	109	108	109	80.0-120			0.580	20
o-Xylene	50.0	52.2	53.7	104	107	80.0-120			2.76	20
Methyl tert-butyl ether	50.0	47.3	55.1	94.6	110	80.0-120			15.2	20
Naphthalene	50.0	52.9	57.9	106	116	80.0-120			8.91	20
1,3,5-Trimethylbenzene	50.0	50.1	49.7	100	99.4	80.0-120			0.870	20
1,2,4-Trimethylbenzene	50.0	55.1	54.3	110	109	80.0-120			1.55	20
(S) a,a,a-Trifluorotoluene(PID)				*109*	*110*	*80.0-200*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3180264-2 11/22/16 15:09 • (LCSD) R3180264-9 11/23/16 02:58

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	500	457	452	91.5	90.5	80.0-120			1.12	20
(S) a,a,a-Trifluorotoluene(PID)				*109*	*110*	*80.0-200*				

L872794-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L872794-01 11/22/16 20:19 • (MS) R3180264-4 11/22/16 19:13 • (MSD) R3180264-6 11/22/16 19:35

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	ug/kg	mg/kg	%	%		%			%	%
Benzene	61.1	269	2930	2810	79.2	75.6	55	32.0-137			4.25	39
Toluene	61.1	ND	2880	2790	84.6	81.9	55	20.0-142			3.23	42
Ethylbenzene	61.1	209	3490	3470	97.8	97.1	55	10.0-150			0.660	44
m&p-Xylene	122	247	6710	6670	96.3	95.7	55	14.0-141			0.610	44
o-Xylene	61.1	241	3770	3790	105	106	55	10.0-157			0.620	44
Methyl tert-butyl ether	61.1	ND	2900	2690	86.1	79.7	55	24.0-151			7.61	37
Naphthalene	61.1	ND	3530	3620	105	108	55	80.0-120			2.62	20
1,3,5-Trimethylbenzene	61.1	673	3500	3480	84.3	83.7	55	80.0-120			0.550	20
1,2,4-Trimethylbenzene	61.1	1260	4440	4450	95.0	95.0	55	80.0-120			0.0600	20
(S) a,a,a-Trifluorotoluene(PID)					*115*	*113*		*80.0-200*				

L872794-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L872794-01 11/22/16 20:19 • (MS) R3180264-5 11/22/16 19:13 • (MSD) R3180264-7 11/22/16 19:35

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	ug/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	611	97900	108000	113000	30.3	43.8	55	80.0-120	J6	J6	4.11	20
(S) a,a,a-Trifluorotoluene(PID)					*115*	*113*		*80.0-200*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

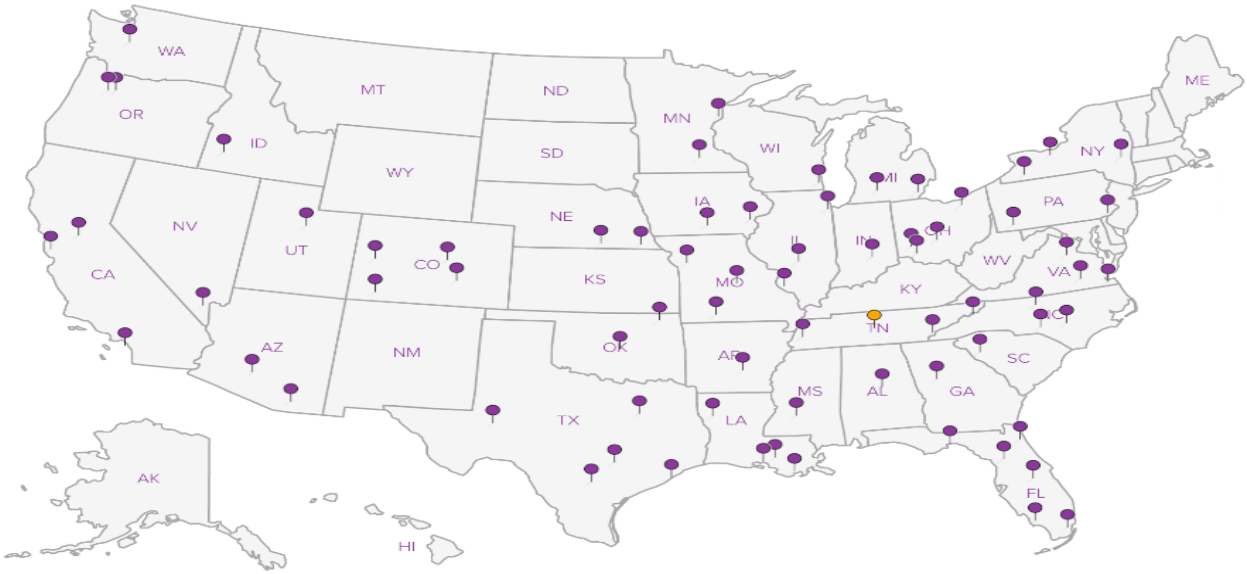
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Coleman Engineering Company

635 Circle Drive
Iron Mountain, MI 49801

Billing Information & Quote Number:
Accounts payable
635 Circle Drive
Iron Mountain, MI 49801

Report to: Charles A. Saari

Email To: csaari@coleman-engineering.com

Project Description: D & G Mobile

City/State Collected: Coleman WISCONSIN

Phone: 906-774-3440
Fax: 906-774-7776

Client Project # EC-15562B

Lab Project # COLENGMI-DG MOBILE

Collected by (print): CHARLES SAARI

Site/Facility ID # BioPile

P.O. # 15562B

Collected by (signature): Charles Saari

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	PBHCP-2oz Clr-NoPres	PVOCGRO 60mlAmb/MeOH/Syr	SVOC 40mlAmb, TS 4ozClr-NoPres								Rem./Contaminant	Sample # (lab only)
BP-1 (0-2)	GRAB	SS		11/16/16	1030	2	X	X	X									01
BP-2 (0-2)		SS			1040	2	X	X	X									02
BP-3 (0-2)		SS			1045	2	X	X	X									03
		SS				2	X	X	X									
		SS				2	X	X	X									
		SS				2	X	X	X									
		SS				2	X	X	X									
		SS				2	X	X	X									

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABS SCIENCES
YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 873615
A108

Acctnum: COLENGMI
Template: T117533
Prelogin: P575670
TSR: 341 - John Hawkins
PB:
Shipped Via: FedEx Ground

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ___

Remarks:

pH ___ Temp ___
Flow ___ Other ___

7066812558 45

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Charles Saari	11/16/16	1502	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ___
Temp: 2.9 °C Bottles Received: 4
Date: 11.18.16 Time: 0900

Condition: (lab use only) 4
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF:

ESC
LAB SCIENCES
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Cooler Receipt Form

Client: COLENGMI	SDG#	877615
Cooler Received/Opened On: 11/18/16	Temperature Upon Receipt:	2.9 °c
Received By: Nikki Farmer		
Signature:		

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			✓
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

ANALYTICAL REPORT

February 02, 2017

Coleman Engineering Company

Sample Delivery Group:	L885892
Samples Received:	01/25/2017
Project Number:	EC-15562B
Description:	D&G Mobil
Site:	D&G MOBIL
Report To:	Charles A. Saari 635 Circle Drive Iron Mountain, MI 49801

Entire Report Reviewed By:

John Hawkins
Technical Service Representative

TABLE OF CONTENTS

MW-5 (11-13) L885892-01 Solid

Collected by: Mike Gotham
Collected date/time: 01/17/17 12:50
Received date/time: 01/25/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG947268	1	01/27/17 10:35	01/27/17 20:41	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG946674	1	01/25/17 23:06	01/26/17 06:10	KMP
Total Solids by Method 2540 G-2011	WG946831	1	01/26/17 10:26	01/26/17 10:40	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG947428	460	01/17/17 12:50	02/01/17 15:19	ACG

MW-2 (10-12) L885892-02 Solid

Collected by: Mike Gotham
Collected date/time: 01/19/17 11:20
Received date/time: 01/25/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG947268	1	01/27/17 10:35	01/27/17 20:44	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG946674	1	01/25/17 23:06	01/26/17 06:32	KMP
Total Solids by Method 2540 G-2011	WG946831	1	01/26/17 10:26	01/26/17 10:40	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG947428	52.5	01/19/17 11:20	02/01/17 14:32	ACG

HA-1 (3-4) L885892-03 Solid

Collected by: Mike Gotham
Collected date/time: 01/20/17 12:00
Received date/time: 01/25/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG947268	1	01/27/17 10:35	01/27/17 20:47	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG946674	1	01/25/17 23:06	01/26/17 06:54	KMP
Total Solids by Method 2540 G-2011	WG946831	1	01/26/17 10:26	01/26/17 10:40	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG947428	55.5	01/20/17 12:00	02/01/17 14:56	ACG

HA-2 (3-4) L885892-04 Solid

Collected by: Mike Gotham
Collected date/time: 01/20/17 12:30
Received date/time: 01/25/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG947268	1	01/27/17 10:35	01/27/17 20:50	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG946674	1	01/25/17 23:06	01/26/17 07:17	KMP
Total Solids by Method 2540 G-2011	WG946831	1	01/26/17 10:26	01/26/17 10:40	KDW
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG947428	49.5	01/26/17 11:17	02/01/17 14:09	ACG

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.7		1	01/26/2017 10:40	WG946831

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	2330		539	1	01/27/2017 20:41	WG947268

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	2200		248	460	02/01/2017 15:19	WG947428
Toluene	ND		2480	460	02/01/2017 15:19	WG947428
Ethylbenzene	12200		248	460	02/01/2017 15:19	WG947428
m&p-Xylene	36300		496	460	02/01/2017 15:19	WG947428
o-Xylene	9180		248	460	02/01/2017 15:19	WG947428
Methyl tert-butyl ether	940		496	460	02/01/2017 15:19	WG947428
Naphthalene	2850		2480	460	02/01/2017 15:19	WG947428
1,3,5-Trimethylbenzene	7820		496	460	02/01/2017 15:19	WG947428
1,2,4-Trimethylbenzene	27500		496	460	02/01/2017 15:19	WG947428
TPH (GC/FID) Low Fraction	469000		49600	460	02/01/2017 15:19	WG947428
(S) a,a,a-Trifluorotoluene(PID)	*133*		*80.0-200*		*02/01/2017 15:19*	WG947428

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		35.6	1	01/26/2017 06:10	WG946674
Acenaphthene	ND		35.6	1	01/26/2017 06:10	WG946674
Acenaphthylene	ND		35.6	1	01/26/2017 06:10	WG946674
Benzo(a)anthracene	ND		35.6	1	01/26/2017 06:10	WG946674
Benzo(a)pyrene	ND		35.6	1	01/26/2017 06:10	WG946674
Benzo(b)fluoranthene	ND		35.6	1	01/26/2017 06:10	WG946674
Benzo(g,h,i)perylene	ND		35.6	1	01/26/2017 06:10	WG946674
Benzo(k)fluoranthene	ND		35.6	1	01/26/2017 06:10	WG946674
Chrysene	ND		35.6	1	01/26/2017 06:10	WG946674
Dibenz(a,h)anthracene	ND		35.6	1	01/26/2017 06:10	WG946674
Fluoranthene	ND		35.6	1	01/26/2017 06:10	WG946674
Fluorene	ND		35.6	1	01/26/2017 06:10	WG946674
Indeno(1,2,3-cd)pyrene	ND		35.6	1	01/26/2017 06:10	WG946674
Naphthalene	1320		35.6	1	01/26/2017 06:10	WG946674
Phenanthrene	ND		35.6	1	01/26/2017 06:10	WG946674
Pyrene	ND		35.6	1	01/26/2017 06:10	WG946674
(S) Nitrobenzene-d5	*81.6*		*31.0-146*		*01/26/2017 06:10*	WG946674
(S) 2-Fluorobiphenyl	*78.3*		*31.0-130*		*01/26/2017 06:10*	WG946674
(S) p-Terphenyl-d14	*82.8*		*20.0-127*		*01/26/2017 06:10*	WG946674

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.7		1	01/26/2017 10:40	WG946831

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	2360		540	1	01/27/2017 20:44	WG947268

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	147		28.3	52.5	02/01/2017 14:32	WG947428
Toluene	ND		283	52.5	02/01/2017 14:32	WG947428
Ethylbenzene	813		28.3	52.5	02/01/2017 14:32	WG947428
m&p-Xylene	2840		56.7	52.5	02/01/2017 14:32	WG947428
o-Xylene	774		28.3	52.5	02/01/2017 14:32	WG947428
Methyl tert-butyl ether	190		56.7	52.5	02/01/2017 14:32	WG947428
Naphthalene	363		283	52.5	02/01/2017 14:32	WG947428
1,3,5-Trimethylbenzene	684		56.7	52.5	02/01/2017 14:32	WG947428
1,2,4-Trimethylbenzene	2510		56.7	52.5	02/01/2017 14:32	WG947428
TPH (GC/FID) Low Fraction	44800		5670	52.5	02/01/2017 14:32	WG947428
(S) a,a,a-Trifluorotoluene(PID)	*129*		*80.0-200*		*02/01/2017 14:32*	WG947428

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		35.6	1	01/26/2017 06:32	WG946674
Acenaphthene	ND		35.6	1	01/26/2017 06:32	WG946674
Acenaphthylene	ND		35.6	1	01/26/2017 06:32	WG946674
Benzo(a)anthracene	ND		35.6	1	01/26/2017 06:32	WG946674
Benzo(a)pyrene	ND		35.6	1	01/26/2017 06:32	WG946674
Benzo(b)fluoranthene	ND		35.6	1	01/26/2017 06:32	WG946674
Benzo(g,h,i)perylene	ND		35.6	1	01/26/2017 06:32	WG946674
Benzo(k)fluoranthene	ND		35.6	1	01/26/2017 06:32	WG946674
Chrysene	ND		35.6	1	01/26/2017 06:32	WG946674
Dibenz(a,h)anthracene	ND		35.6	1	01/26/2017 06:32	WG946674
Fluoranthene	ND		35.6	1	01/26/2017 06:32	WG946674
Fluorene	ND		35.6	1	01/26/2017 06:32	WG946674
Indeno(1,2,3-cd)pyrene	ND		35.6	1	01/26/2017 06:32	WG946674
Naphthalene	1070		35.6	1	01/26/2017 06:32	WG946674
Phenanthrene	ND		35.6	1	01/26/2017 06:32	WG946674
Pyrene	ND		35.6	1	01/26/2017 06:32	WG946674
(S) Nitrobenzene-d5	*87.8*		*31.0-146*		*01/26/2017 06:32*	WG946674
(S) 2-Fluorobiphenyl	*82.6*		*31.0-130*		*01/26/2017 06:32*	WG946674
(S) p-Terphenyl-d14	*85.5*		*20.0-127*		*01/26/2017 06:32*	WG946674

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.6		1	01/26/2017 10:40	WG946831

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	4300		552	1	01/27/2017 20:47	WG947268

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		30.6	55.5	02/01/2017 14:56	WG947428
Toluene	ND		306	55.5	02/01/2017 14:56	WG947428
Ethylbenzene	ND		30.6	55.5	02/01/2017 14:56	WG947428
m&p-Xylene	ND		61.3	55.5	02/01/2017 14:56	WG947428
o-Xylene	ND		30.6	55.5	02/01/2017 14:56	WG947428
Methyl tert-butyl ether	ND		61.3	55.5	02/01/2017 14:56	WG947428
Naphthalene	ND		306	55.5	02/01/2017 14:56	WG947428
1,3,5-Trimethylbenzene	ND		61.3	55.5	02/01/2017 14:56	WG947428
1,2,4-Trimethylbenzene	ND		61.3	55.5	02/01/2017 14:56	WG947428
TPH (GC/FID) Low Fraction	ND		6130	55.5	02/01/2017 14:56	WG947428
(S) a,a,a-Trifluorotoluene(PID)	*102*		*80.0-200*		*02/01/2017 14:56*	WG947428

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		36.4	1	01/26/2017 06:54	WG946674
Acenaphthene	ND		36.4	1	01/26/2017 06:54	WG946674
Acenaphthylene	ND		36.4	1	01/26/2017 06:54	WG946674
Benzo(a)anthracene	ND		36.4	1	01/26/2017 06:54	WG946674
Benzo(a)pyrene	ND		36.4	1	01/26/2017 06:54	WG946674
Benzo(b)fluoranthene	ND		36.4	1	01/26/2017 06:54	WG946674
Benzo(g,h,i)perylene	ND		36.4	1	01/26/2017 06:54	WG946674
Benzo(k)fluoranthene	ND		36.4	1	01/26/2017 06:54	WG946674
Chrysene	ND		36.4	1	01/26/2017 06:54	WG946674
Dibenz(a,h)anthracene	ND		36.4	1	01/26/2017 06:54	WG946674
Fluoranthene	ND		36.4	1	01/26/2017 06:54	WG946674
Fluorene	ND		36.4	1	01/26/2017 06:54	WG946674
Indeno(1,2,3-cd)pyrene	ND		36.4	1	01/26/2017 06:54	WG946674
Naphthalene	ND		36.4	1	01/26/2017 06:54	WG946674
Phenanthrene	ND		36.4	1	01/26/2017 06:54	WG946674
Pyrene	ND		36.4	1	01/26/2017 06:54	WG946674
(S) Nitrobenzene-d5	*85.3*		*31.0-146*		*01/26/2017 06:54*	WG946674
(S) 2-Fluorobiphenyl	*78.5*		*31.0-130*		*01/26/2017 06:54*	WG946674
(S) p-Terphenyl-d14	*79.1*		*20.0-127*		*01/26/2017 06:54*	WG946674

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.4		1	01/26/2017 10:40	WG946831

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	6640		547	1	01/27/2017 20:50	WG947268

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		27.1	49.5	02/01/2017 14:09	WG947428
Toluene	ND		271	49.5	02/01/2017 14:09	WG947428
Ethylbenzene	ND		27.1	49.5	02/01/2017 14:09	WG947428
m&p-Xylene	ND		54.2	49.5	02/01/2017 14:09	WG947428
o-Xylene	ND		27.1	49.5	02/01/2017 14:09	WG947428
Methyl tert-butyl ether	ND		54.2	49.5	02/01/2017 14:09	WG947428
Naphthalene	ND		271	49.5	02/01/2017 14:09	WG947428
1,3,5-Trimethylbenzene	ND		54.2	49.5	02/01/2017 14:09	WG947428
1,2,4-Trimethylbenzene	ND		54.2	49.5	02/01/2017 14:09	WG947428
TPH (GC/FID) Low Fraction	ND		5420	49.5	02/01/2017 14:09	WG947428
(S) a,a,a-Trifluorotoluene(PID)	*104*		*80.0-200*		*02/01/2017 14:09*	WG947428

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		36.1	1	01/26/2017 07:17	WG946674
Acenaphthene	ND		36.1	1	01/26/2017 07:17	WG946674
Acenaphthylene	ND		36.1	1	01/26/2017 07:17	WG946674
Benzo(a)anthracene	ND		36.1	1	01/26/2017 07:17	WG946674
Benzo(a)pyrene	ND		36.1	1	01/26/2017 07:17	WG946674
Benzo(b)fluoranthene	ND		36.1	1	01/26/2017 07:17	WG946674
Benzo(g,h,i)perylene	ND		36.1	1	01/26/2017 07:17	WG946674
Benzo(k)fluoranthene	ND		36.1	1	01/26/2017 07:17	WG946674
Chrysene	ND		36.1	1	01/26/2017 07:17	WG946674
Dibenz(a,h)anthracene	ND		36.1	1	01/26/2017 07:17	WG946674
Fluoranthene	ND		36.1	1	01/26/2017 07:17	WG946674
Fluorene	ND		36.1	1	01/26/2017 07:17	WG946674
Indeno(1,2,3-cd)pyrene	ND		36.1	1	01/26/2017 07:17	WG946674
Naphthalene	ND		36.1	1	01/26/2017 07:17	WG946674
Phenanthrene	ND		36.1	1	01/26/2017 07:17	WG946674
Pyrene	ND		36.1	1	01/26/2017 07:17	WG946674
(S) Nitrobenzene-d5	*107*		*31.0-146*		*01/26/2017 07:17*	WG946674
(S) 2-Fluorobiphenyl	*69.8*		*31.0-130*		*01/26/2017 07:17*	WG946674
(S) p-Terphenyl-d14	*74.3*		*20.0-127*		*01/26/2017 07:17*	WG946674

Method Blank (MB)

(MB) R3193129-1 01/26/17 10:40

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00110			

L885900-01 Original Sample (OS) • Duplicate (DUP)

(OS) L885900-01 01/26/17 10:40 • (DUP) R3193129-3 01/26/17 10:40

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	79.2	79.8	1	0.765		5

Laboratory Control Sample (LCS)

(LCS) R3193129-2 01/26/17 10:40

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3193476-1 01/27/17 19:53

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Lead	U		190	500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193476-2 01/27/17 19:55 • (LCSD) R3193476-3 01/27/17 19:58

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Lead	100000	97200	102000	97	102	80-120			4	20

L885869-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885869-04 01/27/17 20:01 • (MS) R3193476-6 01/27/17 20:09 • (MSD) R3193476-7 01/27/17 20:11

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	107000	4810	112000	111000	100	99	1	75-125			2	20

Method Blank (MB)

(MB) R3194162-3 02/01/17 13:03

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Benzene	U		0.0880	0.500
Toluene	U		0.161	5.00
Ethylbenzene	U		0.0910	0.500
m&p-Xylene	U		0.154	1.00
o-Xylene	U		0.0960	0.500
Methyl tert-butyl ether	U		0.160	1.00
Naphthalene	U		1.04	5.00
1,3,5-Trimethylbenzene	U		0.0820	1.00
1,2,4-Trimethylbenzene	U		0.107	1.00
TPH (GC/FID) Low Fraction	U		11.0	100
(S) a,a,a-Trifluorotoluene(PID)	*103*			*80.0-200*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194162-1 02/01/17 12:16 • (LCSD) R3194162-4 02/01/17 16:13

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	50.0	50.9	51.1	102	102	80.0-120			0.360	20
Toluene	50.0	51.2	51.2	102	102	80.0-120			0.100	20
Ethylbenzene	50.0	52.2	52.1	104	104	80.0-120			0.230	20
m&p-Xylene	100	107	105	107	105	80.0-120			1.20	20
o-Xylene	50.0	52.8	52.6	106	105	80.0-120			0.420	20
Methyl tert-butyl ether	50.0	49.0	48.3	97.9	96.6	80.0-120			1.38	20
Naphthalene	50.0	51.6	48.0	103	96.0	80.0-120			7.21	20
1,3,5-Trimethylbenzene	50.0	52.8	52.4	106	105	80.0-120			0.930	20
1,2,4-Trimethylbenzene	50.0	53.2	52.5	106	105	80.0-120			1.24	20
(S) a,a,a-Trifluorotoluene(PID)				*101*	*100*	*80.0-200*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194162-2 02/01/17 12:16 • (LCSD) R3194162-5 02/01/17 16:13

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	550	526	525	95.6	95.5	80.0-120			0.0700	20
(S) a,a,a-Trifluorotoluene(PID)				*101*	*100*	*80.0-200*				

Method Blank (MB)

(MB) R3192987-3 01/26/17 04:19

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Anthracene	U		7.28	33.0
Acenaphthene	U		7.37	33.0
Acenaphthylene	U		7.51	33.0
Benzo(a)anthracene	U		4.28	33.0
Benzo(a)pyrene	U		5.02	33.0
Benzo(b)fluoranthene	U		6.95	33.0
Benzo(g,h,i)perylene	U		7.21	33.0
Benzo(k)fluoranthene	U		5.06	33.0
Chrysene	U		7.85	33.0
Dibenz(a,h)anthracene	U		5.91	33.0
Fluoranthene	U		7.08	33.0
Fluorene	U		7.19	33.0
Indeno(1,2,3-cd)pyrene	U		5.61	33.0
Naphthalene	U		5.13	33.0
Phenanthrene	U		7.10	33.0
Pyrene	U		7.76	33.0
(S) Nitrobenzene-d5	*89.3*			*31.0-146*
(S) 2-Fluorobiphenyl	*85.9*			*31.0-130*
(S) p-Terphenyl-d14	*86.1*			*20.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192987-1 01/26/17 03:35 • (LCSD) R3192987-2 01/26/17 03:57

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	400	378	378	94.4	94.5	51.0-126			0.0800	20
Acenaphthylene	400	356	379	89.0	94.8	50.0-130			6.29	20
Anthracene	400	346	346	86.6	86.5	48.0-128			0.160	20
Benzo(a)anthracene	400	338	348	84.6	87.1	48.0-127			2.93	20
Benzo(b)fluoranthene	400	329	348	82.3	87.0	44.0-131			5.58	20
Benzo(k)fluoranthene	400	335	358	83.7	89.6	48.0-128			6.86	20
Benzo(g,h,i)perylene	400	370	404	92.6	101	46.0-140			8.59	20
Benzo(a)pyrene	400	349	363	87.2	90.8	48.0-136			4.14	20
Chrysene	400	341	362	85.2	90.4	49.0-130			5.99	20
Dibenz(a,h)anthracene	400	371	398	92.9	99.4	47.0-135			6.79	20
Fluoranthene	400	314	324	78.6	80.9	53.0-131			2.88	20
Fluorene	400	341	372	85.3	93.0	49.0-128			8.55	20
Naphthalene	400	356	358	88.9	89.5	53.0-120			0.700	20
Phenanthrene	400	358	370	89.6	92.4	47.0-129			3.07	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192987-1 01/26/17 03:35 • (LCSD) R3192987-2 01/26/17 03:57

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Pyrene	400	376	394	94.0	98.5	50.0-146			4.67	20
Indeno(1,2,3-cd)pyrene	400	374	403	93.6	101	49.0-136			7.47	20
(S) Nitrobenzene-d5				*92.2*	*83.0*	*31.0-146*				
(S) 2-Fluorobiphenyl				*76.2*	*89.6*	*31.0-130*				
(S) p-Terphenyl-d14				*80.6*	*82.3*	*20.0-127*				

L885926-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885926-02 01/26/17 07:39 • (MS) R3192987-4 01/26/17 08:01 • (MSD) R3192987-5 01/26/17 08:23

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	453	U	371	379	82.0	83.7	1	35.0-125			2.05	20
Acenaphthylene	453	U	379	386	83.8	85.3	1	41.0-125			1.74	20
Anthracene	453	U	308	300	68.1	66.3	1	19.0-132			2.64	20
Benzo(a)anthracene	453	U	264	255	58.3	56.4	1	13.0-130			3.20	22
Benzo(b)fluoranthene	453	U	242	230	53.5	50.7	1	10.0-133			5.43	25
Benzo(k)fluoranthene	453	U	261	249	57.7	55.0	1	19.0-125			4.77	26
Benzo(g,h,i)perylene	453	U	290	269	64.1	59.5	1	10.0-138			7.41	24
Benzo(a)pyrene	453	U	254	252	56.1	55.6	1	10.0-139			0.950	24
Chrysene	453	U	293	286	64.7	63.3	1	16.0-133			2.31	21
Dibenz(a,h)anthracene	453	U	277	264	61.1	58.2	1	21.0-129			4.87	24
Fluoranthene	453	U	261	253	57.5	55.8	1	10.0-142			3.01	21
Fluorene	453	U	317	322	70.1	71.0	1	31.0-126			1.27	20
Naphthalene	453	U	398	385	88.0	85.1	1	39.0-123			3.33	20
Phenanthrene	453	U	320	325	70.7	71.7	1	19.0-132			1.36	20
Pyrene	453	U	337	332	74.5	73.2	1	11.0-150			1.67	22
Indeno(1,2,3-cd)pyrene	453	U	268	251	59.1	55.5	1	13.0-133			6.29	24
(S) Nitrobenzene-d5					*91.6*	*94.9*		*31.0-146*				
(S) 2-Fluorobiphenyl					*72.1*	*70.4*		*31.0-130*				
(S) p-Terphenyl-d14					*62.2*	*61.6*		*20.0-127*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

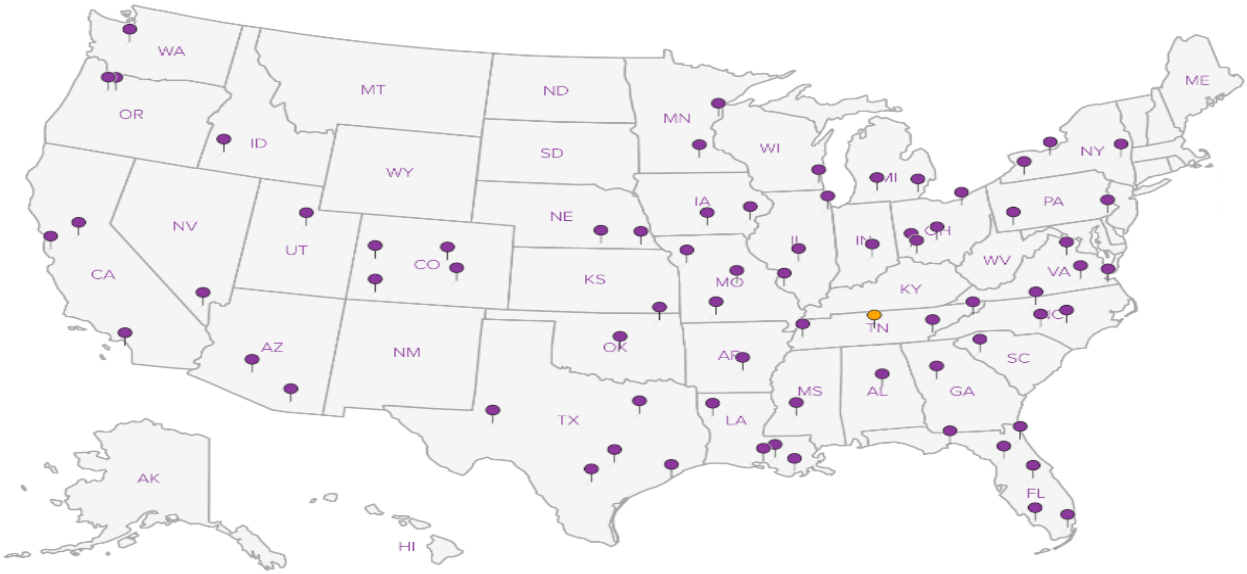
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Coleman Engineering Company
635 Circle Drive
Iron Mountain, MI 49801

Alternate billing information:
Accounts Payable
635 Circle Drive
Iron Mountain, MI 49801

Report to: Charles A. Scari
Email to: CScari@Coleman-engineering.com

Project Description: D&G Mob:1
City/State Collected: Coleman Wisconsin

Phone: 906-774-3440
FAX: 906-774-7776

Client Project #: EC-15562-B
ESC Key:

Collected by: Mike Gotham
Site/Facility ID#: D&G Mob:1
P.O.#: 15562B

Collected by (signature):

Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
___ Same Day..... 200%
___ Next Day..... 100%
___ Two Day..... 50%

Date Results Needed:
Email? __No X Yes
FAX? __No __Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	PVOC 40ml/MeOH/Syr	SV8270 PAH TS 4oz Clr - No Pres	6010 Pb, 2oz Clr - No Pres
MW-5 (11-13)	Grab	SS		1/17/17	1250	4	X	X	X
MW-2 (10-12)	Grab	SS		1/19/17	1120	4	X	X	X
HA-1 (3-4)	↓	↓		1/20/17	1200	4	X	X	X
HA-2 (3-4)	↓	↓		1/20/17	1230	3	X	X	X

Chain of Custody Page 1 of 1

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

F160

CoCode (lab use only)
Template/Prelogin
Shipped Via: L885892

Remarks/Contaminant	Sample # (lab only)
	-01
	-02
	-03
	-04

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks:

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	1/20/17	1530	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	1/24/17	1500	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 3.1 Bottles Received: 15+TB

Date: 1-25-17 Time: 900

Condition: (lab use only) GHV OK

pH Checked: NCF:

706681144157

ESC LAB SCIENCES
Cooler Receipt Form

Client:	SDG#	L885892	
Cooler Received/Opened On: 1/25 /17	Temperature:	3.1	
Received By: Nadiar Yakob			
Signature: Nadiar Yakob			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

ANALYTICAL REPORT

February 07, 2017

Coleman Engineering Company

Sample Delivery Group:	L887010
Samples Received:	01/31/2017
Project Number:	EC-15562B
Description:	D&G Mobil

Report To:

Charles A. Saari
635 Circle Drive
Iron Mountain, MI 49801

Entire Report Reviewed By:

Jason Romer
Technical Service Representative

TABLE OF CONTENTS

MW-3 (10'-12') L887010-01 Solid

Collected by: Mike Gotham
Collected date/time: 01/23/17 14:15
Received date/time: 01/31/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948905	1	02/02/17 15:16	02/04/17 00:28	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG948261	1	01/31/17 19:12	02/01/17 14:22	KMP
Total Solids by Method 2540 G-2011	WG948941	1	02/02/17 15:06	02/02/17 15:16	MEL
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG949094	49	02/01/17 16:22	02/05/17 21:19	JHH

MW-4 (10'-12') L887010-02 Solid

Collected by: Mike Gotham
Collected date/time: 01/25/17 10:00
Received date/time: 01/31/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948905	1	02/02/17 15:16	02/04/17 00:31	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG948261	1	01/31/17 19:12	02/01/17 14:45	KMP
Total Solids by Method 2540 G-2011	WG948941	1	02/02/17 15:06	02/02/17 15:16	MEL
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG949094	49	01/25/17 10:00	02/05/17 21:42	JHH

MW-6 (10'-12') L887010-03 Solid

Collected by: Mike Gotham
Collected date/time: 01/26/17 10:30
Received date/time: 01/31/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948905	1	02/02/17 15:16	02/04/17 00:39	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG948261	1	01/31/17 19:12	02/01/17 15:07	KMP
Total Solids by Method 2540 G-2011	WG948941	1	02/02/17 15:06	02/02/17 15:16	MEL
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG949094	49	01/26/17 10:30	02/05/17 22:06	JHH

HA-3 (3'-4') L887010-04 Solid

Collected by: Mike Gotham
Collected date/time: 01/27/17 11:45
Received date/time: 01/31/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948905	1	02/02/17 15:16	02/04/17 00:42	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG948261	1	01/31/17 19:12	02/01/17 15:30	KMP
Total Solids by Method 2540 G-2011	WG948941	1	02/02/17 15:06	02/02/17 15:16	MEL
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG949094	49.5	01/27/17 11:45	02/05/17 22:29	JHH

HA-4 (3'-4') L887010-05 Solid

Collected by: Mike Gotham
Collected date/time: 01/27/17 12:45
Received date/time: 01/31/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948905	1	02/02/17 15:16	02/04/17 00:44	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG948261	1	01/31/17 19:12	02/01/17 15:52	KMP
Total Solids by Method 2540 G-2011	WG948941	1	02/02/17 15:06	02/02/17 15:16	MEL
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG949094	48.5	01/27/17 12:45	02/06/17 01:51	JHH

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.9		1	02/02/2017 15:16	WG948941

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	4290		538	1	02/04/2017 00:28	WG948905

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		26.4	49	02/05/2017 21:19	WG949094
Toluene	ND		264	49	02/05/2017 21:19	WG949094
Ethylbenzene	ND		26.4	49	02/05/2017 21:19	WG949094
m&p-Xylene	ND		52.7	49	02/05/2017 21:19	WG949094
o-Xylene	ND		26.4	49	02/05/2017 21:19	WG949094
Methyl tert-butyl ether	ND		52.7	49	02/05/2017 21:19	WG949094
Naphthalene	ND		264	49	02/05/2017 21:19	WG949094
1,3,5-Trimethylbenzene	ND		52.7	49	02/05/2017 21:19	WG949094
1,2,4-Trimethylbenzene	ND		52.7	49	02/05/2017 21:19	WG949094
TPH (GC/FID) Low Fraction	ND		5270	49	02/05/2017 21:19	WG949094
(S) a,a,a-Trifluorotoluene(PID)	*103*		*80.0-200*		*02/05/2017 21:19*	WG949094

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		35.5	1	02/01/2017 14:22	WG948261
Acenaphthene	ND		35.5	1	02/01/2017 14:22	WG948261
Acenaphthylene	ND		35.5	1	02/01/2017 14:22	WG948261
Benzo(a)anthracene	ND		35.5	1	02/01/2017 14:22	WG948261
Benzo(a)pyrene	ND		35.5	1	02/01/2017 14:22	WG948261
Benzo(b)fluoranthene	ND		35.5	1	02/01/2017 14:22	WG948261
Benzo(g,h,i)perylene	ND		35.5	1	02/01/2017 14:22	WG948261
Benzo(k)fluoranthene	ND		35.5	1	02/01/2017 14:22	WG948261
Chrysene	ND		35.5	1	02/01/2017 14:22	WG948261
Dibenz(a,h)anthracene	ND		35.5	1	02/01/2017 14:22	WG948261
Fluoranthene	ND		35.5	1	02/01/2017 14:22	WG948261
Fluorene	ND		35.5	1	02/01/2017 14:22	WG948261
Indeno(1,2,3-cd)pyrene	ND		35.5	1	02/01/2017 14:22	WG948261
Naphthalene	ND		35.5	1	02/01/2017 14:22	WG948261
Phenanthrene	ND		35.5	1	02/01/2017 14:22	WG948261
Pyrene	ND		35.5	1	02/01/2017 14:22	WG948261
(S) Nitrobenzene-d5	*85.7*		*31.0-146*		*02/01/2017 14:22*	WG948261
(S) 2-Fluorobiphenyl	*78.0*		*31.0-130*		*02/01/2017 14:22*	WG948261
(S) p-Terphenyl-d14	*78.8*		*20.0-127*		*02/01/2017 14:22*	WG948261

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.4		1	02/02/2017 15:16	WG948941

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	2370		547	1	02/04/2017 00:31	WG948905

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		26.8	49	02/05/2017 21:42	WG949094
Toluene	ND		268	49	02/05/2017 21:42	WG949094
Ethylbenzene	ND		26.8	49	02/05/2017 21:42	WG949094
m&p-Xylene	ND		53.6	49	02/05/2017 21:42	WG949094
o-Xylene	ND		26.8	49	02/05/2017 21:42	WG949094
Methyl tert-butyl ether	ND		53.6	49	02/05/2017 21:42	WG949094
Naphthalene	ND		268	49	02/05/2017 21:42	WG949094
1,3,5-Trimethylbenzene	ND		53.6	49	02/05/2017 21:42	WG949094
1,2,4-Trimethylbenzene	ND		53.6	49	02/05/2017 21:42	WG949094
TPH (GC/FID) Low Fraction	ND		5360	49	02/05/2017 21:42	WG949094
(S) a,a,a-Trifluorotoluene(PID)	*102*		*80.0-200*		*02/05/2017 21:42*	WG949094

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		36.1	1	02/01/2017 14:45	WG948261
Acenaphthene	ND		36.1	1	02/01/2017 14:45	WG948261
Acenaphthylene	ND		36.1	1	02/01/2017 14:45	WG948261
Benzo(a)anthracene	ND		36.1	1	02/01/2017 14:45	WG948261
Benzo(a)pyrene	ND		36.1	1	02/01/2017 14:45	WG948261
Benzo(b)fluoranthene	ND		36.1	1	02/01/2017 14:45	WG948261
Benzo(g,h,i)perylene	ND		36.1	1	02/01/2017 14:45	WG948261
Benzo(k)fluoranthene	ND		36.1	1	02/01/2017 14:45	WG948261
Chrysene	ND		36.1	1	02/01/2017 14:45	WG948261
Dibenz(a,h)anthracene	ND		36.1	1	02/01/2017 14:45	WG948261
Fluoranthene	ND		36.1	1	02/01/2017 14:45	WG948261
Fluorene	ND		36.1	1	02/01/2017 14:45	WG948261
Indeno(1,2,3-cd)pyrene	ND		36.1	1	02/01/2017 14:45	WG948261
Naphthalene	ND		36.1	1	02/01/2017 14:45	WG948261
Phenanthrene	ND		36.1	1	02/01/2017 14:45	WG948261
Pyrene	ND		36.1	1	02/01/2017 14:45	WG948261
(S) Nitrobenzene-d5	*87.0*		*31.0-146*		*02/01/2017 14:45*	WG948261
(S) 2-Fluorobiphenyl	*76.4*		*31.0-130*		*02/01/2017 14:45*	WG948261
(S) p-Terphenyl-d14	*74.9*		*20.0-127*		*02/01/2017 14:45*	WG948261

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.3		1	02/02/2017 15:16	WG948941

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	1740		560	1	02/04/2017 00:39	WG948905

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		27.4	49	02/05/2017 22:06	WG949094
Toluene	ND		274	49	02/05/2017 22:06	WG949094
Ethylbenzene	ND		27.4	49	02/05/2017 22:06	WG949094
m&p-Xylene	ND		54.9	49	02/05/2017 22:06	WG949094
o-Xylene	ND		27.4	49	02/05/2017 22:06	WG949094
Methyl tert-butyl ether	ND		54.9	49	02/05/2017 22:06	WG949094
Naphthalene	ND		274	49	02/05/2017 22:06	WG949094
1,3,5-Trimethylbenzene	ND		54.9	49	02/05/2017 22:06	WG949094
1,2,4-Trimethylbenzene	ND		54.9	49	02/05/2017 22:06	WG949094
TPH (GC/FID) Low Fraction	ND		5490	49	02/05/2017 22:06	WG949094
(S) a,a,a-Trifluorotoluene(PID)	*102*		*80.0-200*		*02/05/2017 22:06*	WG949094

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		37.0	1	02/01/2017 15:07	WG948261
Acenaphthene	ND		37.0	1	02/01/2017 15:07	WG948261
Acenaphthylene	ND		37.0	1	02/01/2017 15:07	WG948261
Benzo(a)anthracene	ND		37.0	1	02/01/2017 15:07	WG948261
Benzo(a)pyrene	ND		37.0	1	02/01/2017 15:07	WG948261
Benzo(b)fluoranthene	ND		37.0	1	02/01/2017 15:07	WG948261
Benzo(g,h,i)perylene	ND		37.0	1	02/01/2017 15:07	WG948261
Benzo(k)fluoranthene	ND		37.0	1	02/01/2017 15:07	WG948261
Chrysene	ND		37.0	1	02/01/2017 15:07	WG948261
Dibenz(a,h)anthracene	ND		37.0	1	02/01/2017 15:07	WG948261
Fluoranthene	ND		37.0	1	02/01/2017 15:07	WG948261
Fluorene	ND		37.0	1	02/01/2017 15:07	WG948261
Indeno(1,2,3-cd)pyrene	ND		37.0	1	02/01/2017 15:07	WG948261
Naphthalene	ND		37.0	1	02/01/2017 15:07	WG948261
Phenanthrene	ND		37.0	1	02/01/2017 15:07	WG948261
Pyrene	ND		37.0	1	02/01/2017 15:07	WG948261
(S) Nitrobenzene-d5	*83.0*		*31.0-146*		*02/01/2017 15:07*	WG948261
(S) 2-Fluorobiphenyl	*70.5*		*31.0-130*		*02/01/2017 15:07*	WG948261
(S) p-Terphenyl-d14	*64.0*		*20.0-127*		*02/01/2017 15:07*	WG948261

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.0		1	02/02/2017 15:16	WG948941

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	4750		568	1	02/04/2017 00:42	WG948905

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		28.1	49.5	02/05/2017 22:29	WG949094
Toluene	ND		281	49.5	02/05/2017 22:29	WG949094
Ethylbenzene	ND		28.1	49.5	02/05/2017 22:29	WG949094
m&p-Xylene	ND		56.2	49.5	02/05/2017 22:29	WG949094
o-Xylene	30.2		28.1	49.5	02/05/2017 22:29	WG949094
Methyl tert-butyl ether	ND		56.2	49.5	02/05/2017 22:29	WG949094
Naphthalene	ND		281	49.5	02/05/2017 22:29	WG949094
1,3,5-Trimethylbenzene	ND		56.2	49.5	02/05/2017 22:29	WG949094
1,2,4-Trimethylbenzene	176		56.2	49.5	02/05/2017 22:29	WG949094
TPH (GC/FID) Low Fraction	7750		5620	49.5	02/05/2017 22:29	WG949094
(S) a,a,a-Trifluorotoluene(PID)	*102*		*80.0-200*		*02/05/2017 22:29*	WG949094

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		37.5	1	02/01/2017 15:30	WG948261
Acenaphthene	ND		37.5	1	02/01/2017 15:30	WG948261
Acenaphthylene	ND		37.5	1	02/01/2017 15:30	WG948261
Benzo(a)anthracene	ND		37.5	1	02/01/2017 15:30	WG948261
Benzo(a)pyrene	ND		37.5	1	02/01/2017 15:30	WG948261
Benzo(b)fluoranthene	ND		37.5	1	02/01/2017 15:30	WG948261
Benzo(g,h,i)perylene	ND		37.5	1	02/01/2017 15:30	WG948261
Benzo(k)fluoranthene	ND		37.5	1	02/01/2017 15:30	WG948261
Chrysene	ND		37.5	1	02/01/2017 15:30	WG948261
Dibenz(a,h)anthracene	ND		37.5	1	02/01/2017 15:30	WG948261
Fluoranthene	ND		37.5	1	02/01/2017 15:30	WG948261
Fluorene	ND		37.5	1	02/01/2017 15:30	WG948261
Indeno(1,2,3-cd)pyrene	ND		37.5	1	02/01/2017 15:30	WG948261
Naphthalene	ND		37.5	1	02/01/2017 15:30	WG948261
Phenanthrene	ND		37.5	1	02/01/2017 15:30	WG948261
Pyrene	ND		37.5	1	02/01/2017 15:30	WG948261
(S) Nitrobenzene-d5	*82.1*		*31.0-146*		*02/01/2017 15:30*	WG948261
(S) 2-Fluorobiphenyl	*67.5*		*31.0-130*		*02/01/2017 15:30*	WG948261
(S) p-Terphenyl-d14	*62.9*		*20.0-127*		*02/01/2017 15:30*	WG948261

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.6		1	02/02/2017 15:16	WG948941

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Lead	3470		546	1	02/04/2017 00:44	WG948905

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Benzene	ND		26.5	48.5	02/06/2017 01:51	WG949094
Toluene	ND		265	48.5	02/06/2017 01:51	WG949094
Ethylbenzene	ND		26.5	48.5	02/06/2017 01:51	WG949094
m&p-Xylene	ND		52.9	48.5	02/06/2017 01:51	WG949094
o-Xylene	ND		26.5	48.5	02/06/2017 01:51	WG949094
Methyl tert-butyl ether	ND		52.9	48.5	02/06/2017 01:51	WG949094
Naphthalene	ND		265	48.5	02/06/2017 01:51	WG949094
1,3,5-Trimethylbenzene	ND		52.9	48.5	02/06/2017 01:51	WG949094
1,2,4-Trimethylbenzene	ND		52.9	48.5	02/06/2017 01:51	WG949094
TPH (GC/FID) Low Fraction	ND		5290	48.5	02/06/2017 01:51	WG949094
(S) a,a,a-Trifluorotoluene(PID)	*99.4*		*80.0-200*		*02/06/2017 01:51*	WG949094

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg		date / time	
Anthracene	ND		36.0	1	02/01/2017 15:52	WG948261
Acenaphthene	ND		36.0	1	02/01/2017 15:52	WG948261
Acenaphthylene	ND		36.0	1	02/01/2017 15:52	WG948261
Benzo(a)anthracene	ND		36.0	1	02/01/2017 15:52	WG948261
Benzo(a)pyrene	ND		36.0	1	02/01/2017 15:52	WG948261
Benzo(b)fluoranthene	ND		36.0	1	02/01/2017 15:52	WG948261
Benzo(g,h,i)perylene	ND		36.0	1	02/01/2017 15:52	WG948261
Benzo(k)fluoranthene	ND		36.0	1	02/01/2017 15:52	WG948261
Chrysene	ND		36.0	1	02/01/2017 15:52	WG948261
Dibenz(a,h)anthracene	ND		36.0	1	02/01/2017 15:52	WG948261
Fluoranthene	ND		36.0	1	02/01/2017 15:52	WG948261
Fluorene	ND		36.0	1	02/01/2017 15:52	WG948261
Indeno(1,2,3-cd)pyrene	ND		36.0	1	02/01/2017 15:52	WG948261
Naphthalene	ND		36.0	1	02/01/2017 15:52	WG948261
Phenanthrene	ND		36.0	1	02/01/2017 15:52	WG948261
Pyrene	ND		36.0	1	02/01/2017 15:52	WG948261
(S) Nitrobenzene-d5	*87.3*		*31.0-146*		*02/01/2017 15:52*	WG948261
(S) 2-Fluorobiphenyl	*73.5*		*31.0-130*		*02/01/2017 15:52*	WG948261
(S) p-Terphenyl-d14	*70.3*		*20.0-127*		*02/01/2017 15:52*	WG948261

Method Blank (MB)

(MB) R3194579-1 02/02/17 15:16

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000600			

L887010-04 Original Sample (OS) • Duplicate (DUP)

(OS) L887010-04 02/02/17 15:16 • (DUP) R3194579-3 02/02/17 15:16

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.0	87.8	1	0.222		5

Laboratory Control Sample (LCS)

(LCS) R3194579-2 02/02/17 15:16

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3194865-1 02/04/17 00:07

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Lead	U		190	500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194865-2 02/04/17 00:09 • (LCSD) R3194865-3 02/04/17 00:12

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Lead	100000	98800	101000	99	101	80-120			3	20

Method Blank (MB)

(MB) R3195275-3 02/05/17 20:32

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Benzene	U		0.0880	0.500
Toluene	U		0.161	5.00
Ethylbenzene	U		0.0910	0.500
m&p-Xylene	U		0.154	1.00
o-Xylene	U		0.0960	0.500
Methyl tert-butyl ether	U		0.160	1.00
Naphthalene	U		1.04	5.00
1,3,5-Trimethylbenzene	U		0.0820	1.00
1,2,4-Trimethylbenzene	U		0.107	1.00
TPH (GC/FID) Low Fraction	U		11.0	100
(S) a,a,a-Trifluorotoluene(PID)	*104*			*80.0-200*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3195275-1 02/05/17 19:45 • (LCSD) R3195275-8 02/06/17 03:25

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	50.0	51.1	48.5	102	96.9	80.0-120			5.32	20
Toluene	50.0	52.1	49.5	104	99.1	80.0-120			5.10	20
Ethylbenzene	50.0	53.6	50.8	107	102	80.0-120			5.44	20
m&p-Xylene	100	108	102	108	102	80.0-120			5.78	20
o-Xylene	50.0	53.8	51.5	108	103	80.0-120			4.38	20
Methyl tert-butyl ether	50.0	50.5	50.0	101	99.9	80.0-120			0.980	20
Naphthalene	50.0	52.7	51.6	105	103	80.0-120			2.06	20
1,3,5-Trimethylbenzene	50.0	55.8	52.8	112	106	80.0-120			5.59	20
1,2,4-Trimethylbenzene	50.0	54.1	51.1	108	102	80.0-120			5.83	20
(S) a,a,a-Trifluorotoluene(PID)				*102*	*100*	*80.0-200*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3195275-2 02/05/17 19:45 • (LCSD) R3195275-9 02/06/17 03:25

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	550	543	542	98.8	98.6	80.0-120			0.180	20
(S) a,a,a-Trifluorotoluene(PID)				*102*	*100*	*80.0-200*				

L887010-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887010-01 02/05/17 21:19 • (MS) R3195275-4 02/06/17 02:38 • (MSD) R3195275-6 02/06/17 03:01

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	53.8	ND	2370	2450	89.7	93.1	49	32.0-137			3.69	39
Toluene	53.8	ND	2390	2490	90.8	94.4	49	20.0-142			3.90	42
Ethylbenzene	53.8	ND	2500	2600	94.8	98.8	49	10.0-150			4.09	44
m&p-Xylene	108	ND	5150	5340	97.7	101	49	14.0-141			3.57	44
o-Xylene	53.8	ND	2570	2670	97.4	101	49	10.0-157			4.07	44
Methyl tert-butyl ether	53.8	ND	2430	2520	92.1	95.5	49	24.0-151			3.61	37
Naphthalene	53.8	ND	2440	2670	92.4	101	49	80.0-120			9.29	20
1,3,5-Trimethylbenzene	53.8	ND	2560	2670	97.0	101	49	80.0-120			4.50	20
1,2,4-Trimethylbenzene	53.8	ND	2580	2710	97.9	103	49	80.0-120			4.67	20
(S) a,a,a-Trifluorotoluene(PID)					*99.2*	*99.4*		*80.0-200*				

L887010-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887010-01 02/05/17 21:19 • (MS) R3195275-5 02/06/17 02:38 • (MSD) R3195275-7 02/06/17 03:01

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	592	ND	27700	28100	95.6	96.8	49	80.0-120			1.19	20
(S) a,a,a-Trifluorotoluene(PID)					*99.2*	*99.4*		*80.0-200*				

Method Blank (MB)

(MB) R3194110-3 02/01/17 08:22

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Anthracene	U		7.28	33.0
Acenaphthene	U		7.37	33.0
Acenaphthylene	U		7.51	33.0
Benzo(a)anthracene	U		4.28	33.0
Benzo(a)pyrene	U		5.02	33.0
Benzo(b)fluoranthene	U		6.95	33.0
Benzo(g,h,i)perylene	U		7.21	33.0
Benzo(k)fluoranthene	U		5.06	33.0
Chrysene	U		7.85	33.0
Dibenz(a,h)anthracene	U		5.91	33.0
Fluoranthene	U		7.08	33.0
Fluorene	U		7.19	33.0
Indeno(1,2,3-cd)pyrene	U		5.61	33.0
Naphthalene	U		5.13	33.0
Phenanthrene	U		7.10	33.0
Pyrene	U		7.76	33.0
(S) Nitrobenzene-d5	*83.1*			*31.0-146*
(S) 2-Fluorobiphenyl	*82.0*			*31.0-130*
(S) p-Terphenyl-d14	*82.9*			*20.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194110-1 02/01/17 07:38 • (LCSD) R3194110-2 02/01/17 08:00

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	400	396	399	99.1	99.8	51.0-126			0.770	20
Acenaphthylene	400	380	381	95.0	95.2	50.0-130			0.240	20
Anthracene	400	364	368	91.1	92.0	48.0-128			0.920	20
Benzo(a)anthracene	400	340	349	85.0	87.4	48.0-127			2.69	20
Benzo(b)fluoranthene	400	330	336	82.6	84.0	44.0-131			1.66	20
Benzo(k)fluoranthene	400	336	344	84.0	85.9	48.0-128			2.28	20
Benzo(g,h,i)perylene	400	379	386	94.7	96.5	46.0-140			1.91	20
Benzo(a)pyrene	400	331	339	82.9	84.8	48.0-136			2.29	20
Chrysene	400	352	357	88.0	89.3	49.0-130			1.38	20
Dibenz(a,h)anthracene	400	401	406	100	101	47.0-135			1.31	20
Fluoranthene	400	320	326	79.9	81.4	53.0-131			1.85	20
Fluorene	400	371	370	92.8	92.6	49.0-128			0.280	20
Naphthalene	400	378	386	94.6	96.6	53.0-120			2.09	20
Phenanthrene	400	382	389	95.5	97.2	47.0-129			1.75	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194110-1 02/01/17 07:38 • (LCSD) R3194110-2 02/01/17 08:00

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Pyrene	400	375	378	93.7	94.5	50.0-146			0.850	20
Indeno(1,2,3-cd)pyrene	400	389	394	97.2	98.4	49.0-136			1.29	20
(S) Nitrobenzene-d5				*90.7*	*91.7*	*31.0-146*				
(S) 2-Fluorobiphenyl				*90.3*	*89.4*	*31.0-130*				
(S) p-Terphenyl-d14				*84.2*	*85.5*	*20.0-127*				

L886889-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L886889-01 02/01/17 12:52 • (MS) R3194110-4 02/01/17 13:15 • (MSD) R3194110-5 02/01/17 13:37

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	563	U	510	524	90.7	93.2	1	35.0-125			2.70	20
Acenaphthylene	563	U	475	480	84.5	85.4	1	41.0-125			1.03	20
Anthracene	563	U	484	457	86.0	81.3	1	19.0-132			5.61	20
Benzo(a)anthracene	563	U	435	434	77.3	77.2	1	13.0-130			0.160	22
Benzo(b)fluoranthene	563	U	437	456	77.7	81.1	1	10.0-133			4.25	25
Benzo(k)fluoranthene	563	U	417	396	74.2	70.3	1	19.0-125			5.28	26
Benzo(g,h,i)perylene	563	U	475	475	84.4	84.5	1	10.0-138			0.150	24
Benzo(a)pyrene	563	U	439	443	78.1	78.7	1	10.0-139			0.790	24
Chrysene	563	U	440	431	78.2	76.6	1	16.0-133			2.06	21
Dibenz(a,h)anthracene	563	U	502	495	89.2	87.9	1	21.0-129			1.45	24
Fluoranthene	563	U	417	399	74.2	70.9	1	10.0-142			4.48	21
Fluorene	563	U	453	467	80.5	83.1	1	31.0-126			3.11	20
Naphthalene	563	U	512	497	91.0	88.3	1	39.0-123			3.03	20
Phenanthrene	563	U	496	480	88.2	85.4	1	19.0-132			3.22	20
Pyrene	563	U	487	487	86.5	86.6	1	11.0-150			0.0900	22
Indeno(1,2,3-cd)pyrene	563	U	485	482	86.3	85.7	1	13.0-133			0.630	24
(S) Nitrobenzene-d5					*87.5*	*84.3*		*31.0-146*				
(S) 2-Fluorobiphenyl					*76.9*	*74.6*		*31.0-130*				
(S) p-Terphenyl-d14					*71.5*	*68.0*		*20.0-127*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

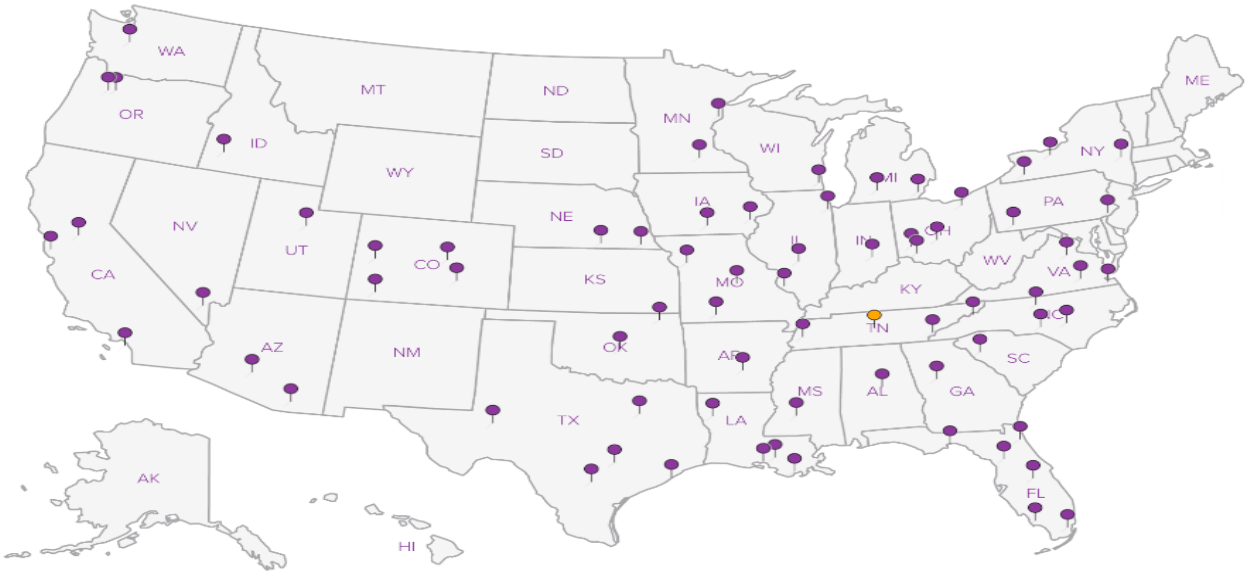
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Coleman Engineering Company
635 Circle Drive
Iron Mountain, MI 49801

Alternate billing information:
Accounts Payable
635 Circle Drive
Iron Mountain, MI

Report to: Charles Searl
Email to: CSearl@Coleman-engineering.com

Project Description: D&G Mob: 1
City/State Collected: Coleman, WI

Phone: 906-774-3440
FAX: 906-774-7776

Client Project #: EC-[illegible]15562B

ESC Key:

Collected by: Mike Gotham

Site/Facility ID#:

P.O.#: EC-15562B

Collected by (signature):

Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%

Date Results Needed:

Email? __No X Yes
FAX? __No __Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	PVOC / 40 ml x MeOH / Syr	SV8270 PAH, TS 4oz Clr - No Pres	6010 Pb, 2oz Clr - No Pres	Remarks/Contaminant	Sample # (lab only)
MW-3(10'-12')	Grab	SS		1/23/17	1415	3	X	X	X		-01
MW-4(10'-12')				1/25/17	1000	3	X	X	X		-02
MW-6(10'-12')				1/26/17	1030	3	X	X	X		-03
HA-3(3'-4')				1/27/17	1145	3	X	X	X		-04
HA-4(3'-4')				1/27/17	1245	3	X	X	X		-05

Chain of Custody Page ___ of ___

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

CoCode: L887010 (lab use only)
Template/Prelogin: H229
Shipped V.

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks:

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____	Condition: (lab use only)
Relinquished by: (Signature)	1/27/17	1600	Received by: (Signature)	Temp: 3.1 / Bottles Received:	
Relinquished by: (Signature)	1/30/17	1500	Received for lab by: (Signature)	Date: 2-3-17 / Time: 9:00	pH Checked: / NCF: X

ESC LAB SCIENCES
Cooler Receipt Form

Client: COLENGNI	SDG#	L887010
Cooler Received/Opened On: 01/ 31 /17	Temperature:	3.1
Received By: **Rickey Mosley**		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Troy Dunlap

ESC Lab Sciences
Non-Conformance Form

Login #: L887010	Client: COLENGMI	Date: 1/31/17	Evaluated by: Troy Dunlap

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
X	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: 60ml PVOCGRO received broken for MW-3 (10'-12').

Client informed by:	x	Call		Email		Voice Mail		Date: 1-31-17	Time: 4:31
TSR Initials: JVH	Client Contact: Mike Gotham / Chuck Saari								

Login Instructions:

Please prepare replacement 60ml amber with 25 meoh added form PAH or TS container

ANALYTICAL REPORT

February 10, 2017

Coleman Engineering Company

Sample Delivery Group:	L887718
Samples Received:	02/03/2017
Project Number:	
Description:	D & G Mobile

Report To: Charles A. Saari
635 Circle Drive
Iron Mountain, MI 49801

Entire Report Reviewed By:

John Hawkins
Technical Service Representative

TABLE OF CONTENTS

MW-1 L887718-01 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 11:40 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 13:02	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 06:56	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	1	02/07/17 14:41	02/07/17 14:41	JHH

MW-2 L887718-02 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 12:30 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 10:15	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 07:18	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	10	02/07/17 15:04	02/07/17 15:04	JHH

MW-3 L887718-03 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 11:10 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 13:04	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 07:40	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	1	02/07/17 15:28	02/07/17 15:28	JHH

MW-4 L887718-04 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 14:45 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 13:07	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 08:02	FMB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	20	02/05/17 19:14	02/08/17 11:10	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	500	02/07/17 15:51	02/07/17 15:51	JHH

MW-5 L887718-05 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 13:00 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 13:10	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 08:24	FMB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	20	02/05/17 19:14	02/08/17 11:33	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	50	02/07/17 16:15	02/07/17 16:15	JHH

MW-6 L887718-06 GW

Collected by: Mike Gotham | Collected date/time: 02/01/17 13:30 | Received date/time: 02/03/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG949378	1	02/04/17 10:56	02/06/17 13:13	CCE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG949666	1	02/05/17 19:14	02/07/17 08:46	FMB
Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO	WG950085	10	02/07/17 16:38	02/07/17 16:38	JHH

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	80.6		6.33	1	02/06/2017 13:02	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	1.33		0.233	1	02/07/2017 14:41	WG950085
Toluene	ND		1.37	1	02/07/2017 14:41	WG950085
Ethylbenzene	ND		0.400	1	02/07/2017 14:41	WG950085
m&p-Xylene	1.38		0.403	1	02/07/2017 14:41	WG950085
o-Xylene	ND		0.347	1	02/07/2017 14:41	WG950085
Methyl tert-butyl ether	ND		0.840	1	02/07/2017 14:41	WG950085
Naphthalene	ND		0.737	1	02/07/2017 14:41	WG950085
1,3,5-Trimethylbenzene	ND		0.263	1	02/07/2017 14:41	WG950085
1,2,4-Trimethylbenzene	ND		0.310	1	02/07/2017 14:41	WG950085
TPH (GC/FID) Low Fraction	183		50.0	1	02/07/2017 14:41	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*104*		*80.0-200*		*02/07/2017 14:41*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0467	1	02/07/2017 06:56	WG949666
Acenaphthene	0.0940		0.0333	1	02/07/2017 06:56	WG949666
Acenaphthylene	ND		0.0400	1	02/07/2017 06:56	WG949666
Benzo(a)anthracene	ND		0.0137	1	02/07/2017 06:56	WG949666
Benzo(a)pyrene	ND		0.0387	1	02/07/2017 06:56	WG949666
Benzo(b)fluoranthene	ND		0.00707	1	02/07/2017 06:56	WG949666
Benzo(g,h,i)perylene	ND		0.00757	1	02/07/2017 06:56	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 06:56	WG949666
Chrysene	ND		0.0360	1	02/07/2017 06:56	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 06:56	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 06:56	WG949666
Fluorene	0.0640		0.0283	1	02/07/2017 06:56	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 06:56	WG949666
Naphthalene	ND		0.0660	1	02/07/2017 06:56	WG949666
Phenanthrene	0.148		0.0273	1	02/07/2017 06:56	WG949666
Pyrene	ND		0.0390	1	02/07/2017 06:56	WG949666
1-Methylnaphthalene	0.0944		0.0274	1	02/07/2017 06:56	WG949666
2-Methylnaphthalene	ND		0.0301	1	02/07/2017 06:56	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 06:56	WG949666
(S) Nitrobenzene-d5	*97.9*		*31.0-160*		*02/07/2017 06:56*	WG949666
(S) 2-Fluorobiphenyl	*102*		*48.0-148*		*02/07/2017 06:56*	WG949666
(S) p-Terphenyl-d14	*100*		*37.0-146*		*02/07/2017 06:56*	WG949666

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		6.33	1	02/06/2017 10:15	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	125		2.33	10	02/07/2017 15:04	WG950085
Toluene	394		13.7	10	02/07/2017 15:04	WG950085
Ethylbenzene	433		4.00	10	02/07/2017 15:04	WG950085
m&p-Xylene	1210		4.03	10	02/07/2017 15:04	WG950085
o-Xylene	391		3.47	10	02/07/2017 15:04	WG950085
Methyl tert-butyl ether	ND		8.40	10	02/07/2017 15:04	WG950085
Naphthalene	112		7.37	10	02/07/2017 15:04	WG950085
1,3,5-Trimethylbenzene	97.3		2.63	10	02/07/2017 15:04	WG950085
1,2,4-Trimethylbenzene	387		3.10	10	02/07/2017 15:04	WG950085
TPH (GC/FID) Low Fraction	7120		500	10	02/07/2017 15:04	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*117*		*80.0-200*		*02/07/2017 15:04*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0467	1	02/07/2017 07:18	WG949666
Acenaphthene	0.107		0.0333	1	02/07/2017 07:18	WG949666
Acenaphthylene	ND		0.0400	1	02/07/2017 07:18	WG949666
Benzo(a)anthracene	ND		0.0137	1	02/07/2017 07:18	WG949666
Benzo(a)pyrene	ND		0.0387	1	02/07/2017 07:18	WG949666
Benzo(b)fluoranthene	ND		0.00707	1	02/07/2017 07:18	WG949666
Benzo(g,h,i)perylene	ND		0.00757	1	02/07/2017 07:18	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 07:18	WG949666
Chrysene	ND		0.0360	1	02/07/2017 07:18	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 07:18	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 07:18	WG949666
Fluorene	0.0548		0.0283	1	02/07/2017 07:18	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 07:18	WG949666
Naphthalene	20.2		0.0660	1	02/07/2017 07:18	WG949666
Phenanthrene	0.0628		0.0273	1	02/07/2017 07:18	WG949666
Pyrene	ND		0.0390	1	02/07/2017 07:18	WG949666
1-Methylnaphthalene	27.3		0.0274	1	02/07/2017 07:18	WG949666
2-Methylnaphthalene	14.1		0.0301	1	02/07/2017 07:18	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 07:18	WG949666
(S) Nitrobenzene-d5	*98.9*		*31.0-160*		*02/07/2017 07:18*	WG949666
(S) 2-Fluorobiphenyl	*100*		*48.0-148*		*02/07/2017 07:18*	WG949666
(S) p-Terphenyl-d14	*94.4*		*37.0-146*		*02/07/2017 07:18*	WG949666

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		6.33	1	02/06/2017 13:04	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.233	1	02/07/2017 15:28	WG950085
Toluene	ND		1.37	1	02/07/2017 15:28	WG950085
Ethylbenzene	0.629		0.400	1	02/07/2017 15:28	WG950085
m&p-Xylene	1.83		0.403	1	02/07/2017 15:28	WG950085
o-Xylene	0.576		0.347	1	02/07/2017 15:28	WG950085
Methyl tert-butyl ether	ND		0.840	1	02/07/2017 15:28	WG950085
Naphthalene	ND		0.737	1	02/07/2017 15:28	WG950085
1,3,5-Trimethylbenzene	ND		0.263	1	02/07/2017 15:28	WG950085
1,2,4-Trimethylbenzene	0.681		0.310	1	02/07/2017 15:28	WG950085
TPH (GC/FID) Low Fraction	ND		50.0	1	02/07/2017 15:28	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*102*		*80.0-200*		*02/07/2017 15:28*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0467	1	02/07/2017 07:40	WG949666
Acenaphthene	ND		0.0333	1	02/07/2017 07:40	WG949666
Acenaphthylene	ND		0.0400	1	02/07/2017 07:40	WG949666
Benzo(a)anthracene	ND		0.0137	1	02/07/2017 07:40	WG949666
Benzo(a)pyrene	ND		0.0387	1	02/07/2017 07:40	WG949666
Benzo(b)fluoranthene	ND		0.00707	1	02/07/2017 07:40	WG949666
Benzo(g,h,i)perylene	ND		0.00757	1	02/07/2017 07:40	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 07:40	WG949666
Chrysene	ND		0.0360	1	02/07/2017 07:40	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 07:40	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 07:40	WG949666
Fluorene	ND		0.0283	1	02/07/2017 07:40	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 07:40	WG949666
Naphthalene	0.0697	B	0.0660	1	02/07/2017 07:40	WG949666
Phenanthrene	ND		0.0273	1	02/07/2017 07:40	WG949666
Pyrene	ND		0.0390	1	02/07/2017 07:40	WG949666
1-Methylnaphthalene	ND		0.0274	1	02/07/2017 07:40	WG949666
2-Methylnaphthalene	ND		0.0301	1	02/07/2017 07:40	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 07:40	WG949666
(S) Nitrobenzene-d5	*89.9*		*31.0-160*		*02/07/2017 07:40*	WG949666
(S) 2-Fluorobiphenyl	*104*		*48.0-148*		*02/07/2017 07:40*	WG949666
(S) p-Terphenyl-d14	*96.9*		*37.0-146*		*02/07/2017 07:40*	WG949666

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		6.33	1	02/06/2017 13:07	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	198		117	500	02/07/2017 15:51	WG950085
Toluene	1270		685	500	02/07/2017 15:51	WG950085
Ethylbenzene	2350		200	500	02/07/2017 15:51	WG950085
m&p-Xylene	6850		202	500	02/07/2017 15:51	WG950085
o-Xylene	1500		174	500	02/07/2017 15:51	WG950085
Methyl tert-butyl ether	ND		420	500	02/07/2017 15:51	WG950085
Naphthalene	661		369	500	02/07/2017 15:51	WG950085
1,3,5-Trimethylbenzene	1010		132	500	02/07/2017 15:51	WG950085
1,2,4-Trimethylbenzene	3840		155	500	02/07/2017 15:51	WG950085
TPH (GC/FID) Low Fraction	52600		25000	500	02/07/2017 15:51	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*104*		*80.0-200*		*02/07/2017 15:51*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0467	1	02/07/2017 08:02	WG949666
Acenaphthene	5.62		0.0333	1	02/07/2017 08:02	WG949666
Acenaphthylene	1.20		0.0400	1	02/07/2017 08:02	WG949666
Benzo(a)anthracene	0.180		0.0137	1	02/07/2017 08:02	WG949666
Benzo(a)pyrene	0.0476		0.0387	1	02/07/2017 08:02	WG949666
Benzo(b)fluoranthene	0.0491		0.00707	1	02/07/2017 08:02	WG949666
Benzo(g,h,i)perylene	0.0891		0.00757	1	02/07/2017 08:02	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 08:02	WG949666
Chrysene	0.170		0.0360	1	02/07/2017 08:02	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 08:02	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 08:02	WG949666
Fluorene	5.93		0.0283	1	02/07/2017 08:02	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 08:02	WG949666
Naphthalene	656		1.32	20	02/08/2017 11:10	WG949666
Phenanthrene	11.7		0.0273	1	02/07/2017 08:02	WG949666
Pyrene	2.02		0.0390	1	02/07/2017 08:02	WG949666
1-Methylnaphthalene	322		0.548	20	02/08/2017 11:10	WG949666
2-Methylnaphthalene	508		0.602	20	02/08/2017 11:10	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 08:02	WG949666
(S) Nitrobenzene-d5	*117*	J7	*31.0-160*		*02/08/2017 11:10*	WG949666
(S) Nitrobenzene-d5	*122*		*31.0-160*		*02/07/2017 08:02*	WG949666
(S) 2-Fluorobiphenyl	*103*		*48.0-148*		*02/07/2017 08:02*	WG949666
(S) 2-Fluorobiphenyl	*99.5*	J7	*48.0-148*		*02/08/2017 11:10*	WG949666
(S) p-Terphenyl-d14	*93.7*		*37.0-146*		*02/07/2017 08:02*	WG949666
(S) p-Terphenyl-d14	*88.8*	J7	*37.0-146*		*02/08/2017 11:10*	WG949666

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		6.33	1	02/06/2017 13:10	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	156		11.7	50	02/07/2017 16:15	WG950085
Toluene	98.9		68.5	50	02/07/2017 16:15	WG950085
Ethylbenzene	1050		20.0	50	02/07/2017 16:15	WG950085
m&p-Xylene	4800		20.2	50	02/07/2017 16:15	WG950085
o-Xylene	206		17.4	50	02/07/2017 16:15	WG950085
Methyl tert-butyl ether	ND		42.0	50	02/07/2017 16:15	WG950085
Naphthalene	129		36.9	50	02/07/2017 16:15	WG950085
1,3,5-Trimethylbenzene	436		13.2	50	02/07/2017 16:15	WG950085
1,2,4-Trimethylbenzene	1430		15.5	50	02/07/2017 16:15	WG950085
TPH (GC/FID) Low Fraction	16600		2500	50	02/07/2017 16:15	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*115*		*80.0-200*		*02/07/2017 16:15*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0467	1	02/07/2017 08:24	WG949666
Acenaphthene	0.232		0.0333	1	02/07/2017 08:24	WG949666
Acenaphthylene	0.0769		0.0400	1	02/07/2017 08:24	WG949666
Benzo(a)anthracene	ND		0.0137	1	02/07/2017 08:24	WG949666
Benzo(a)pyrene	ND		0.0387	1	02/07/2017 08:24	WG949666
Benzo(b)fluoranthene	ND		0.00707	1	02/07/2017 08:24	WG949666
Benzo(g,h,i)perylene	ND		0.00757	1	02/07/2017 08:24	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 08:24	WG949666
Chrysene	ND		0.0360	1	02/07/2017 08:24	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 08:24	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 08:24	WG949666
Fluorene	0.125		0.0283	1	02/07/2017 08:24	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 08:24	WG949666
Naphthalene	169		1.32	20	02/08/2017 11:33	WG949666
Phenanthrene	0.0786		0.0273	1	02/07/2017 08:24	WG949666
Pyrene	ND		0.0390	1	02/07/2017 08:24	WG949666
1-Methylnaphthalene	90.3		0.0274	1	02/07/2017 08:24	WG949666
2-Methylnaphthalene	83.8		0.0301	1	02/07/2017 08:24	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 08:24	WG949666
(S) Nitrobenzene-d5	*88.8*	J7	*31.0-160*		*02/08/2017 11:33*	WG949666
(S) Nitrobenzene-d5	*98.4*		*31.0-160*		*02/07/2017 08:24*	WG949666
(S) 2-Fluorobiphenyl	*94.4*	J7	*48.0-148*		*02/08/2017 11:33*	WG949666
(S) 2-Fluorobiphenyl	*96.6*		*48.0-148*		*02/07/2017 08:24*	WG949666
(S) p-Terphenyl-d14	*74.7*	J7	*37.0-146*		*02/08/2017 11:33*	WG949666
(S) p-Terphenyl-d14	*91.1*		*37.0-146*		*02/07/2017 08:24*	WG949666

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		6.33	1	02/06/2017 13:13	WG949378

Volatile Organic Compounds (GC) by Method 8021B/WI(95) GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	10.8		2.33	10	02/07/2017 16:38	WG950085
Toluene	ND		13.7	10	02/07/2017 16:38	WG950085
Ethylbenzene	33.3		4.00	10	02/07/2017 16:38	WG950085
m&p-Xylene	68.3		4.03	10	02/07/2017 16:38	WG950085
o-Xylene	ND		3.47	10	02/07/2017 16:38	WG950085
Methyl tert-butyl ether	ND		8.40	10	02/07/2017 16:38	WG950085
Naphthalene	23.5		7.37	10	02/07/2017 16:38	WG950085
1,3,5-Trimethylbenzene	99.5		2.63	10	02/07/2017 16:38	WG950085
1,2,4-Trimethylbenzene	407		3.10	10	02/07/2017 16:38	WG950085
TPH (GC/FID) Low Fraction	4730		500	10	02/07/2017 16:38	WG950085
(S) a,a,a-Trifluorotoluene(PID)	*112*		*80.0-200*		*02/07/2017 16:38*	WG950085

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0467	1	02/07/2017 08:46	WG949666
Acenaphthene	0.947		0.0333	1	02/07/2017 08:46	WG949666
Acenaphthylene	0.218		0.0400	1	02/07/2017 08:46	WG949666
Benzo(a)anthracene	0.0158		0.0137	1	02/07/2017 08:46	WG949666
Benzo(a)pyrene	ND		0.0387	1	02/07/2017 08:46	WG949666
Benzo(b)fluoranthene	ND		0.00707	1	02/07/2017 08:46	WG949666
Benzo(g,h,i)perylene	0.0125		0.00757	1	02/07/2017 08:46	WG949666
Benzo(k)fluoranthene	ND		0.0453	1	02/07/2017 08:46	WG949666
Chrysene	ND		0.0360	1	02/07/2017 08:46	WG949666
Dibenz(a,h)anthracene	ND		0.0132	1	02/07/2017 08:46	WG949666
Fluoranthene	ND		0.0523	1	02/07/2017 08:46	WG949666
Fluorene	1.14		0.0283	1	02/07/2017 08:46	WG949666
Indeno(1,2,3-cd)pyrene	ND		0.0493	1	02/07/2017 08:46	WG949666
Naphthalene	2.94		0.0660	1	02/07/2017 08:46	WG949666
Phenanthrene	1.64		0.0273	1	02/07/2017 08:46	WG949666
Pyrene	0.271		0.0390	1	02/07/2017 08:46	WG949666
1-Methylnaphthalene	37.5		0.0274	1	02/07/2017 08:46	WG949666
2-Methylnaphthalene	7.98		0.0301	1	02/07/2017 08:46	WG949666
2-Chloronaphthalene	ND		0.0216	1	02/07/2017 08:46	WG949666
(S) Nitrobenzene-d5	*97.8*		*31.0-160*		*02/07/2017 08:46*	WG949666
(S) 2-Fluorobiphenyl	*97.6*		*48.0-148*		*02/07/2017 08:46*	WG949666
(S) p-Terphenyl-d14	*96.3*		*37.0-146*		*02/07/2017 08:46*	WG949666

Method Blank (MB)

(MB) R3194970-1 02/06/17 10:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lead	U		1.90	6.33

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3194970-2 02/06/17 10:09 • (LCSD) R3194970-3 02/06/17 10:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Lead	1000	1010	1020	101	102	80-120			1	20

L887718-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887718-02 02/06/17 10:15 • (MS) R3194970-5 02/06/17 10:20 • (MSD) R3194970-6 02/06/17 10:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Lead	1000	ND	1060	1060	106	106	1	75-125			0	20

Method Blank (MB)

(MB) R3196062-3 02/07/17 13:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0700	0.233
Toluene	U		0.412	1.37
Ethylbenzene	U		0.120	0.400
m&p-Xylene	U		0.121	0.403
o-Xylene	U		0.104	0.347
Methyl tert-butyl ether	U		0.252	0.840
Naphthalene	U		0.221	0.737
1,3,5-Trimethylbenzene	U		0.0790	0.263
1,2,4-Trimethylbenzene	U		0.0930	0.310
TPH (GC/FID) Low Fraction	U		15.0	50.0
(S) a,a,a-Trifluorotoluene(PID)	*104*			*80.0-200*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3196062-1 02/07/17 11:00 • (LCSD) R3196062-4 02/08/17 00:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	50.0	42.8	46.6	85.7	93.3	80.0-120			8.50	20
Toluene	50.0	43.7	48.3	87.4	96.7	80.0-120			10.1	20
Ethylbenzene	50.0	45.7	50.0	91.3	100	80.0-120			9.11	20
m&p-Xylene	100	93.9	102	93.9	102	80.0-120			8.04	20
o-Xylene	50.0	46.8	51.4	93.7	103	80.0-120			9.26	20
Methyl tert-butyl ether	50.0	44.1	48.2	88.1	96.4	80.0-120			8.97	20
Naphthalene	50.0	44.8	46.7	89.6	93.4	80.0-120			4.18	20
1,3,5-Trimethylbenzene	50.0	47.0	52.8	94.1	106	80.0-120			11.5	20
1,2,4-Trimethylbenzene	50.0	47.6	51.7	95.1	103	80.0-120			8.39	20
(S) a,a,a-Trifluorotoluene(PID)				*101*	*101*	*80.0-200*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3196062-2 02/07/17 11:00 • (LCSD) R3196062-5 02/08/17 00:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	550	502	532	91.3	96.7	80.0-120			5.70	20
(S) a,a,a-Trifluorotoluene(PID)				*101*	*101*	*80.0-200*				

Method Blank (MB)

(MB) R3195175-3 02/06/17 23:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0467
Acenaphthene	U		0.0100	0.0333
Acenaphthylene	U		0.0120	0.0400
Benzo(a)anthracene	U		0.00410	0.0137
Benzo(a)pyrene	U		0.0116	0.0387
Benzo(b)fluoranthene	U		0.00212	0.00707
Benzo(g,h,i)perylene	U		0.00227	0.00757
Benzo(k)fluoranthene	U		0.0136	0.0453
Chrysene	U		0.0108	0.0360
Dibenz(a,h)anthracene	U		0.00396	0.0132
Fluoranthene	U		0.0157	0.0523
Fluorene	U		0.00850	0.0283
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0493
Naphthalene	0.0671		0.0198	0.0660
Phenanthrene	U		0.00820	0.0273
Pyrene	U		0.0117	0.0390
1-Methylnaphthalene	U		0.00821	0.0274
2-Methylnaphthalene	U		0.00902	0.0301
2-Chloronaphthalene	U		0.00647	0.0216
(S) Nitrobenzene-d5	*92.6*			*31.0-160*
(S) 2-Fluorobiphenyl	*92.6*			*48.0-148*
(S) p-Terphenyl-d14	*94.2*			*37.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3195175-1 02/06/17 22:47 • (LCSD) R3195175-2 02/06/17 23:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	2.22	2.17	111	109	64.0-142			2.33	20
Acenaphthene	2.00	2.07	2.01	103	100	66.0-132			3.11	20
Acenaphthylene	2.00	2.03	1.96	101	97.9	65.0-132			3.45	20
Benzo(a)anthracene	2.00	1.93	1.86	96.4	93.2	59.0-134			3.41	20
Benzo(a)pyrene	2.00	2.15	2.09	107	104	61.0-145			3.02	20
Benzo(b)fluoranthene	2.00	2.06	2.02	103	101	57.0-136			1.54	20
Benzo(g,h,i)perylene	2.00	2.10	2.09	105	104	54.0-140			0.420	20
Benzo(k)fluoranthene	2.00	2.19	2.14	110	107	57.0-141			2.30	20
Chrysene	2.00	2.20	2.19	110	109	63.0-140			0.510	20
Dibenz(a,h)anthracene	2.00	2.24	2.25	112	113	49.0-141			0.520	20
Fluoranthene	2.00	2.22	2.18	111	109	65.0-143			2.09	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3195175-1 02/06/17 22:47 • (LCSD) R3195175-2 02/06/17 23:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	1.94	1.91	97.2	95.4	64.0-129			1.89	20
Indeno(1,2,3-cd)pyrene	2.00	2.26	2.24	113	112	53.0-141			0.760	20
Naphthalene	2.00	2.23	2.19	111	109	68.0-129			1.89	20
Phenanthrene	2.00	1.94	1.90	97.0	95.0	62.0-132			2.08	20
Pyrene	2.00	1.78	1.75	89.1	87.5	58.0-156			1.83	20
1-Methylnaphthalene	2.00	2.29	2.20	114	110	68.0-137			3.60	20
2-Methylnaphthalene	2.00	2.13	2.06	107	103	68.0-134			3.38	20
2-Chloronaphthalene	2.00	1.98	1.89	99.1	94.7	65.0-129			4.56	20
(S) Nitrobenzene-d5				*89.8*	*90.2*	*31.0-160*				
(S) 2-Fluorobiphenyl				*101*	*101*	*48.0-148*				
(S) p-Terphenyl-d14				*93.4*	*92.1*	*37.0-146*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

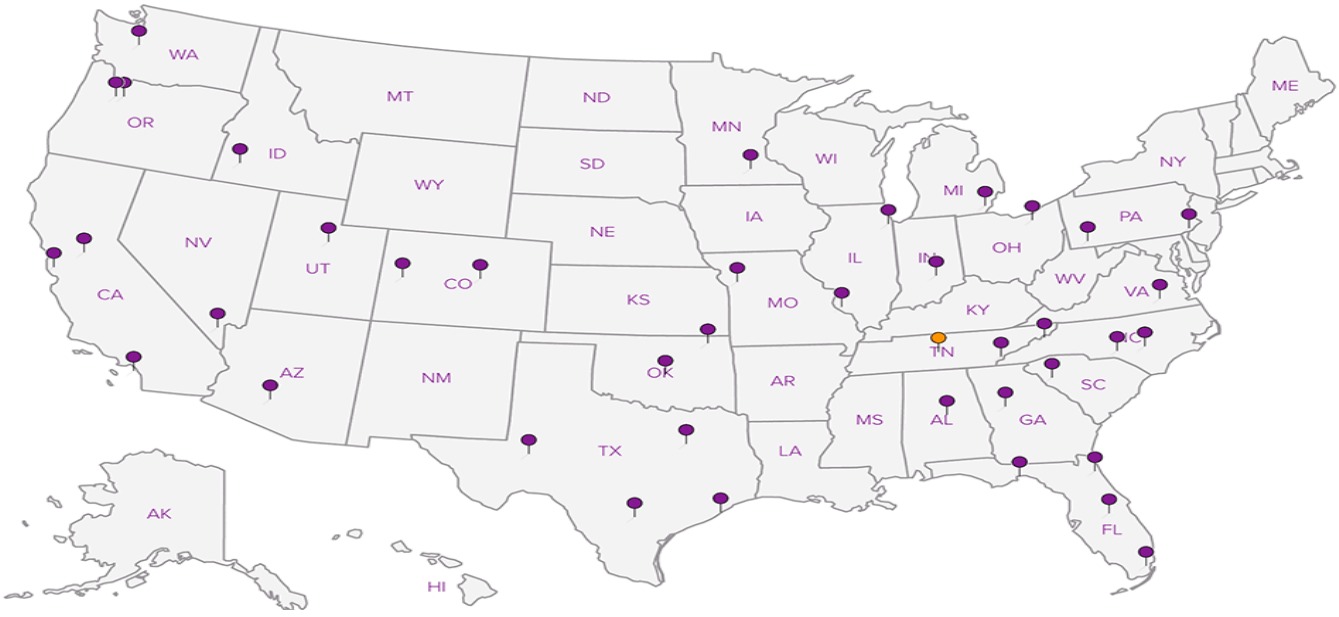
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Coleman Engineering Company

635 Circle Drive
Iron Mountain, MI 49801

Billing Information:
Accounts payable
635 Circle Drive
Iron Mountain, MI 49801

Report to: Charles A. Saari

Email To: csaari@coleman-engineering.com

Project Description: D & G Mobile

City/State Collected: Coleman, WI

Phone: 906-774-3440
Fax: 906-774-7776

Client Project #

Lab Project # COLENGMI-DG MOBILE

Collected by (print): Mike Gotham

Site/Facility ID #

P.O. #

Collected by (signature): MBotham

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	PAHSIMLVI 40mlAmb-NoPres-WT	PBICP 250mlHDPE-HNO3	PVOCGRO 40mlAmb HCl	Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW		2/1/17	11:40	5	X	X	X		01
MW-2	"	GW		2/1/17	12:30	5	X	X	X		02
MW-3	"	GW		2/1/17	11:10	5	X	X	X		03
MW-4	"	GW		2/1/17	14:45	5	X	X	X		04
MW-5	"	GW		2/1/17	13:00	5	X	X	X		05
MW-6	"	GW		2/1/17	13:30	5	X	X	X		06

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 887718

G057

Acctnum: COLENGMI
Template: T119687
Prelogin: P585672
TSR: 341 - John Hawkins
PB: 1-24-17 MWG
Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air
GW - Groundwater
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
MBotham	2/1/17	17:00	Charles Saari
Charles Saari	2/2/17	1500	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 3.4 °C 2.1 Bottles Received: 30

Date: 2-3-17 Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

APPENDIX E

BORING LOGS/WELL DIAGRAMS

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: BP-1

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 2.0

DATE STARTED: 11/16/16 — DATE COMPLETED: 11/16/16 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
1				0	(FILL) SAND, brown, fine to medium, gravel, debris concrete & asphalt								
				1	± 1.0' SILT, brown, sandy, some gravel								
				2	2.0' End of Boring								
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: BP-1

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: BP-2

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 2.0

DATE STARTED: 11/16/16 — DATE COMPLETED: 11/16/16 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SPT VALUES BLOWS/6" (N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS: +4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
1				0	(FILL) SAND, brown, fine to medium, with gravel, debris concrete & asphalt								
				1	± 0.5' SILT, brown, sandy, some gravel								
				2	2.0' End of Boring								
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: BP-2

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: BP-3

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 2.0

DATE STARTED: 11/16/16 — DATE COMPLETED: 11/16/16 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
1				0	(FILL) SAND, brown, fine to medium, with gravel, debris concrete & asphalt								
				1	± 0.5' SILT, brown, some sand, some gravel, moist								
				2	2.0' End of Boring								
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: BP-3

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-1

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 4.0

DATE STARTED: 1/20/17 — DATE COMPLETED: 1/20/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SPT VALUES BLOWS/6" (N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS: +4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				0	ASPHALT 0.17'			PID: 0 ppm					
				1	GRAVEL, brown, coarse sand			PID: 0 ppm					
				2	± 2.0' SAND, brown, silty , dry			PID: 0 ppm					
1				3	± 3.0' SAND, light brown, trace gravel, dry								
				4	4.0' End of Boring			PID: 0 ppm					
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

▌ -AS-Auger Sample ▣ -BS-Bag Sample ▌▌ -RC-Rock-Core
▨ -GS-Grab Sample ▣ -PS-Piston Tube ▩ -2SS-2" Split Spoon
▨ -3SS-3" Split Spoon ◪ -2ST-2" Shelby Tube ◪ -3ST-3" Shelby Tube

▽ while drilling ▼ after drilling

▼ after hours

BORING NO.: HA-1

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-2

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 4.0

DATE STARTED: 1/20/17 — DATE COMPLETED: 1/20/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	GRAVEL, with sand, dry			PID: 0 ppm					
				1				PID: 0 ppm					
				2	± 2.0' SAND, brown, medium, with gravel, damp			PID: 0 ppm					
1				3	...brown, fine to medium, gravel, damp ...brown, silty, with gravel, damp			PID: 0 ppm					
				4	4.0' End of Boring								
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: HA-2

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-3

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 4.0

DATE STARTED: 1/27/17 — DATE COMPLETED: 1/27/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS: +4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				0	ASPHALT, GRAVEL 0.17'			PID: Photo Ionization Detector					
				1	SAND, brown, fine, some coarse, trace silt, frozen			PID: 0 ppm					
					...dark brown, fine, silty, some gravel, frozen			PID: 0 ppm					
				2	...brown, fine, trace silt, trace limestone, damp			PID: 0 ppm					
1				3	...brown, fine, trace silt, trace limestone, damp			PID: 0 ppm					
				4	4.0' End of Boring								
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: HA-3

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-3-A

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 1.7

DATE STARTED: 1/27/17 — DATE COMPLETED: 1/27/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT 0.25'			PID: Photo Ionization Detector					
				1	SAND, brown, fine, silty gravel, damp			PID: 0 ppm					
					1.7'			PID: 0 ppm					
				2	End of Boring								
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: HA-3-A

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-4

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 4.0

DATE STARTED: 1/27/17 — DATE COMPLETED: 1/27/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS: +4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				0	ASPHALT, GRAVEL			PID: Photo Ionization Detector					
					0.25'								
				1	SAND, brown, fine to medium, gravel, frozen ...fine to medium, silty cobbles, gravel, damp			PID: 0 ppm					
								PID: 0 ppm					
				2	...brown, fine, silty, trace gravel, damp								
								PID: 0 ppm					
1				3	...brown, fine, trace silt, trace gravel, damp								
								PID: 0 ppm					
				4	4.0'								
					End of Boring								
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

▌ -AS-Auger Sample
B -BS-Bag Sample
▌ -RC-Rock-Core
G -GS-Grab Sample
P -PS-Piston Tube
X -2SS-2" Split Spoon
/ -3SS-3" Split Spoon
◪ -2ST-2" Shelby Tube
◪ -3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: HA-4

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: HA-4-A

CLIENT: D & G Mobil — 1 OF 1

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Hand Auger — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: — BORING DEPTH: 1.4

DATE STARTED: 1/27/17 — DATE COMPLETED: 1/27/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Native Soil

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT 0.25'			PID: Photo Ionization Detector					
				1	GRAVEL / SAND, brown, fine to medium, trace silt, damp 1.4'			PID: 0 ppm					
				2	End of Boring								
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: HA-4-A

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-2

CLIENT: D & G Mobil — 1 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 25.5

DATE STARTED: 1/19/17 — DATE COMPLETED: 1/19/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS: +4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				0	GRASS / TOPSOIL (frozen)			5" Solid Stem Auger 0.0' to 13.0' 3" casing 0.0' to 13.0' PID: Photo Ionization Detector					
				± 1.0'									
				1	SAND, light brown, medium, with gravel, dry			PID: 0 ppm					
				2	...brown, fine, silty, coarse gravel								
				3				PID: 0 ppm					
				4									
				± 5.0'		▽							
				5	GRAVEL, brown, coarse, fine silty sand, wet			PID: 0 ppm					
				± 6.0'									
				6	SAND, fine, silty gravel, with / trace limestone, wet								
				7				PID: 0 ppm					
				± 8.0'									
				8	SILT, dark brown, sandy, with gravel, with / trace red and light brown, wet, petroleum odor			PID: 250 ppm					
				9									
				± 10.0'									
1				10	SAND, brown with dark brown veins, fine, silty with gravel and limestone			PID: 6450 ppm					
				11									
				± 12.0'									
				12	SILT, light brown, fine, sandy, with / trace gravel, limestone, wet top half, petroleum odor			PID: 2250 ppm					
					Auger Refusal 13.0'								
				13	BEDROCK, Limestone			3-7/8" Roller Bit 13.0' to 25.5'					
				14									
				15									
				16									
				17									
				18									
				19									
				20									

[AS] -AS-Auger Sample
[BS] -BS-Bag Sample
[RC] -RC-Rock-Core
[GS] -GS-Grab Sample
[PS] -PS-Piston Tube
[2SS] -2SS-2" Split Spoon
[3SS] -3SS-3" Split Spoon
[2ST] -2ST-2" Shelby Tube
[3ST] -3ST-3" Shelby Tube

▽ while drilling 5.0
▼ after drilling
▼ after hours

BORING NO.: MW-2

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-2

CLIENT: D & G Mobil — 2 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 25.5

DATE STARTED: 1/19/17 — DATE COMPLETED: 1/19/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE								TEST RESULTS				
NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	+4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				20	BEDROCK, Limestone								
				21									
				22									
				23									
				24									
				25	25.5'								
				26									
				27									
				28									
				29									
				30									
				31									
				32									
				33									
				34									
				35									
				36									
				37									
				38									
				39									
				40									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling 5.0
▼ after drilling

▼ after hours

BORING NO.: MW-2

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-3

CLIENT: D & G Mobil — 1 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 27.0

DATE STARTED: 1/23/17 — DATE COMPLETED: 1/24/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT 0.33'			5" Solid Stem Auger 0.0' to 13.0'					
				1	SAND, brown-black, fine to medium, gravel, with / trace silt, dry			3" casing 0.0' to 13.0' PID: Photo Ionization Detector PID: 0 ppm					
				2	...dark brown, silty, trace gravel, damp								
				3				PID: 0 ppm					
				4	...brown, very fine, silty, trace limestone, dry								
				5				PID: 0 ppm					
				6	± 6.0' SAND, brown, fine, trace limestone, damp								
				7				PID: 0 ppm					
				8	± 8.0' SILT, brown, very fine, sandy, limestone, dry								
				9				PID: 0 ppm					
1				10	...brown, very fine, trace limestone, dry								
				11				PID: 0 ppm					
				12	...brown, sandy, trace limestone, with veins of black, dry								
				13	Auger Refusal 13.0' BEDROCK, Limestone			PID: 0 ppm 3-7/8" Roller Bit 13.0' to 27.0'					
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-3

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-3

CLIENT: D & G Mobil — 2 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 27.0

DATE STARTED: 1/23/17 — DATE COMPLETED: 1/24/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				20	BEDROCK, Limestone								
				21									
				22									
				23									
				24									
				25									
				26									
				27	27.0' End of Boring								
				28									
				29									
				30									
				31									
				32									
				33									
				34									
				35									
				36									
				37									
				38									
				39									
				40									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-3

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-4

CLIENT: D & G Mobil — 1 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 24.9

DATE STARTED: 1/25/17 — DATE COMPLETED: 1/25/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT 0.33'			5" Solid Stem Auger 0.0' to 13.2'					
				1	SAND, brown, fine, silty, gravel, dry			3" casing 0.0' to 13.0'					
								PID: Photo Ionization Detector					
								PID: 0 ppm					
				2	± 2.0'								
					SILTY SAND LOAM, brown, fine, trace gravel, trace limestone, damp								
				3				PID: 0 ppm					
				4	± 4.0'								
					SAND, brown, fine, trace silt, trace gravel, limestone lens, damp								
				5				PID: 0 ppm					
				6	...brown, fine, trace silt, trace limestone, damp								
				7				PID: 0 ppm					
				8	...brown, fine trace silt, limestone, lens of black, wet from 8' to 9'								
				9				PID: 0 ppm					
1				10	...brown, fine, trace silt, limestone lens, damp								
				11				PID: 0 ppm					
				12	...brown, fine, silty, limestone, damp			PID: 0 ppm					
				13	Auger Refusal 13.0'			3-7/8" Roller Bit 13.2' to 25.4'					
					BEDROCK, Limestone								
				14									
				15									
				16									
				17									
				18									
				19									
				20									

[AS] -AS-Auger Sample
[BS] -BS-Bag Sample
[RC] -RC-Rock-Core
[GS] -GS-Grab Sample
[PS] -PS-Piston Tube
[2SS] -2SS-2" Split Spoon
[3SS] -3SS-3" Split Spoon
[2ST] -2ST-2" Shelby Tube
[3ST] -3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-4

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-4

CLIENT: D & G Mobil — 2 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 24.9

DATE STARTED: 1/25/17 — DATE COMPLETED: 1/25/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE								TEST RESULTS				
NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	+4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				20	BEDROCK, Limestone								
				21									
				22									
				23									
				24									
				25	24.9' End of Boring								
				26									
				27									
				28									
				29									
				30									
				31									
				32									
				33									
				34									
				35									
				36									
				37									
				38									
				39									
				40									

▯ -AS-Auger Sample ▯ -BS-Bag Sample ▯ -RC-Rock-Core
▯ -GS-Grab Sample ▯ -PS-Piston Tube ▯ -2SS-2" Split Spoon
▯ -3SS-3" Split Spoon ▯ -2ST-2" Shelby Tube ▯ -3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-4

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-5

CLIENT: D & G Mobil — 1 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 25.0

DATE STARTED: 1/17/17 — DATE COMPLETED: 1/18/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT 0.33'			5" Solid Stem Auger 0.0' to 14.8' PID: Photo Ionization Detector					
				1	GRAVEL, light brown, some sand, frozen			PID: 0 ppm					
				2									
				3	± 3.0' SILT, brown, sandy, some clay, damp			PID: 0 ppm					
				4									
				5	...trace gravel			PID: 0 ppm					
				6	± 6.0' SAND, brown, very fine, silty, with gravel, dry			PID: 0 ppm					
				7									
				8	...brown, medium to coarse, silty, gravel, dry			PID: 0 ppm					
				9									
				10	± 10.0' SILT, brown, very sandy, some gravel, wet, petroleum odor			PID: 0 ppm					
1				11									
				12									
				13	...red-brown, sandy, with gravel, limestone, dry, petroleum odor								
				14									
				15	...light brown, sandy, with / trace gravel, trace petroleum odor			3-7/8" Roller Bit 14.8' to 25.5'					
				16	± 16.0' BEDROCK, Limestone								
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-5

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-5

CLIENT: D & G Mobil — 2 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 25.0

DATE STARTED: 1/17/17 — DATE COMPLETED: 1/18/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE								TEST RESULTS				
NUMBER	SPT VALUES BLOWS/6"(N)	RECOVERY	LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	+4 -4 -200	MOISTURE CONTENT (%)	LL PL	T (tsf)	q_a (tsf) q_u (tsf)
				20	BEDROCK, Limestone								
				21									
				22									
				23									
				24									
				25	25.0' End of Boring								
				26									
				27									
				28									
				29									
				30									
				31									
				32									
				33									
				34									
				35									
				36									
				37									
				38									
				39									
				40									

▯ -AS-Auger Sample ▯ -BS-Bag Sample ▯ -RC-Rock-Core
▯ -GS-Grab Sample ▯ -PS-Piston Tube ▯ -2SS-2" Split Spoon
▯ -3SS-3" Split Spoon ▯ -2ST-2" Shelby Tube ▯ -3ST-3" Shelby Tube

▽ while drilling
▼ after drilling

▼ after hours

BORING NO.: MW-5

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-6

CLIENT: D & G Mobil — 1 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 27.0

DATE STARTED: 1/26/17 — DATE COMPLETED: 1/26/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				0	ASPHALT, gravel			5" Solid Stem Auger 0.0' to 13.0'					
					0.17'			3" casing 0.0' to 13.0'					
				1	SAND, dark brown, fine, trace silt, frozen topsoil			PID: Photo Ionizatiion Detector					
								PID: 0 ppm					
				2	...brown, fine, trace silt, trace limestone, dry								
				3				PID: 0 ppm					
				4	...brown, fine, trace silt, limestone lens, dry								
					...crushed limestone								
				5				PID: 0 ppm					
				6	...coarse, trace silt, dry								
				7				PID: 0 ppm					
				8	...very fine, brown, trace silt, limestone, damp								
				9				PID: 0 ppm					
1				10	...fine, brown, wet	▽							
				11				PID: 0 ppm					
				12	...fine, brown, wet			PID: 0 ppm					
					Auger Refusal 13.0'								
				13	BEDROCK, Limestone			3-7/8" Roller Bit 13.0' to 27.0'					
				14									
				15									
				16									
				17									
				18									
				19									
				20									

-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling 10.0
▼ after drilling

▼ after hours

BORING NO.: MW-6

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801
Telephone: (906)-774-3440 Fax: (906)-774-7776

JOB NO.: 15562-B.GPJ

PROJECT: Site Investigation — BORING NO.: MW-6

CLIENT: D & G Mobil — 2 OF 2

BORING LOCATION: See soil boring location drawing — ELEV.:

RIG TYPE: Diedrich D-50 ATV — DRILL CREW: M. Gotham / C. Saari

DRILLING METHOD: 5" Solid Stem Auger & Roller Bit — BORING DEPTH: 27.0

DATE STARTED: 1/26/17 — DATE COMPLETED: 1/26/17 — REVIEWED BY: C. Saari — DATE: 2/14/17

HOLE CLOSURE: Monitoring well installed

SAMPLE NUMBER	SAMPLE SPT VALUES BLOWS/6"(N)	SAMPLE RECOVERY	SAMPLE LEGEND	DEPTH (FT)	SOIL DESCRIPTION	WATER TABLE	ELEV. (FT)	COMMENTS	TEST RESULTS +4 -4 -200	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LL PL	TEST RESULTS T (tsf)	TEST RESULTS q_a (tsf) q_u (tsf)
				20	BEDROCK, Limestone								
				21									
				22									
				23									
				24									
				25	25.0' End of Boring								
				26									
				27									
				28									
				29									
				30									
				31									
				32									
				33									
				34									
				35									
				36									
				37									
				38									
				39									
				40									

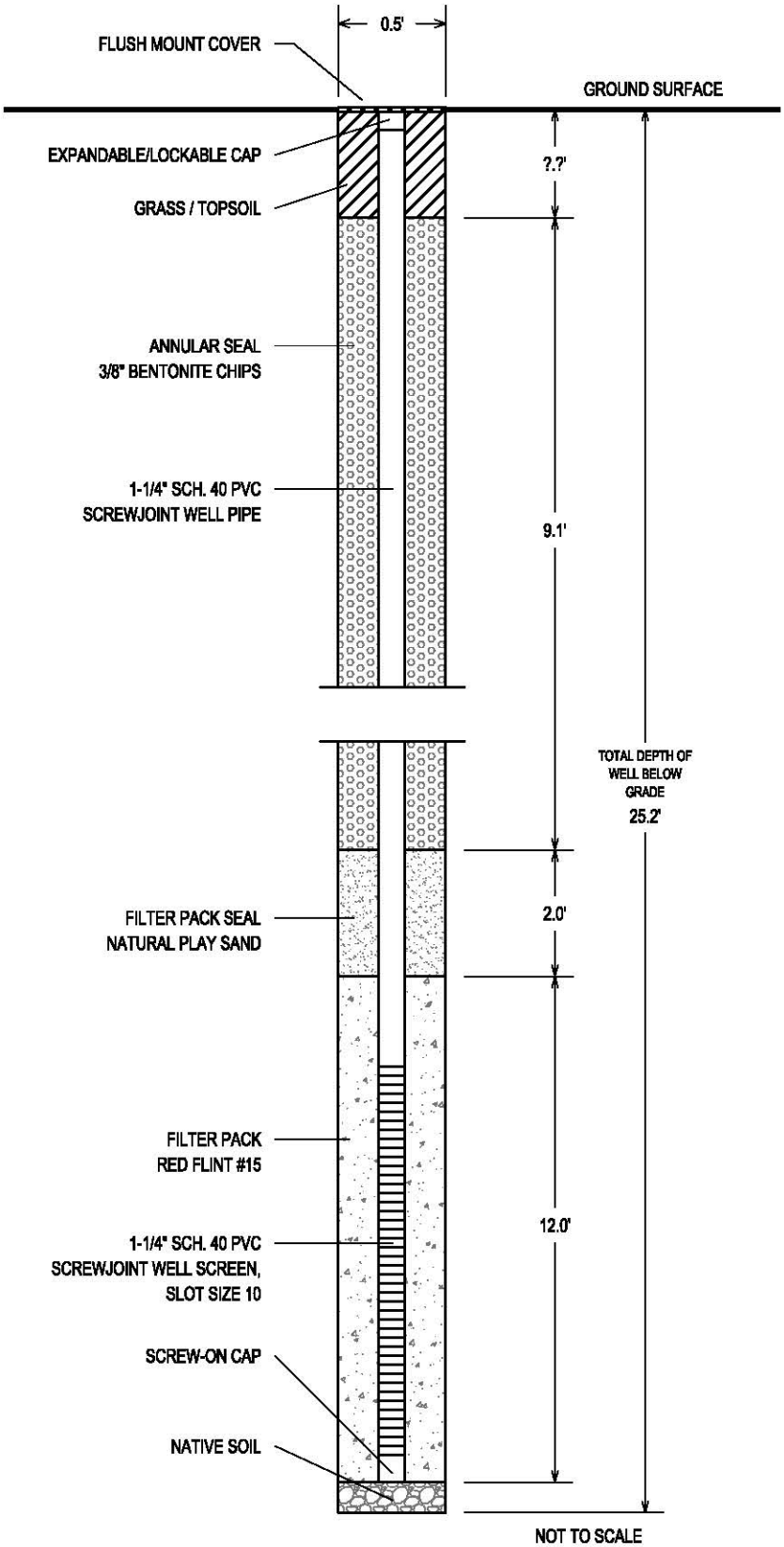
-AS-Auger Sample
-BS-Bag Sample
-RC-Rock-Core
-GS-Grab Sample
-PS-Piston Tube
-2SS-2" Split Spoon
-3SS-3" Split Spoon
-2ST-2" Shelby Tube
-3ST-3" Shelby Tube

▽ while drilling 10.0
▼ after drilling

▼ after hours

BORING NO.: MW-6

GROUNDWATER MONITORING WELL
MW-2
CONSTRUCTION DETAIL



NOTES: -

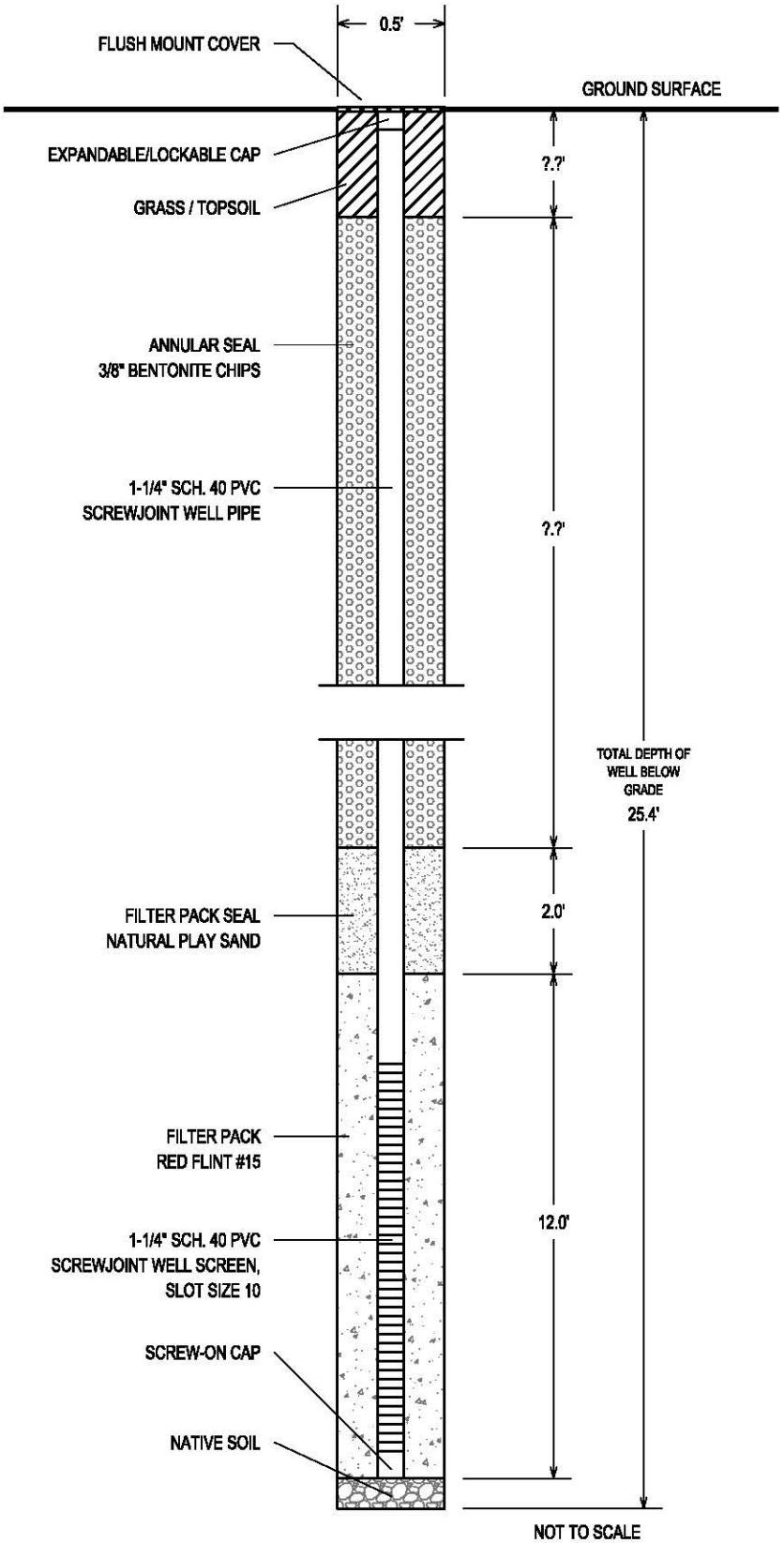
JOB NO. : 11562-B

DATE : 1/31/17

JOB NAME : D&G MOBIL

COLEMAN ENGINEERING COMPANY

GROUNDWATER MONITORING WELL
MW-3
CONSTRUCTION DETAIL



NOTES: -

NOT TO SCALE

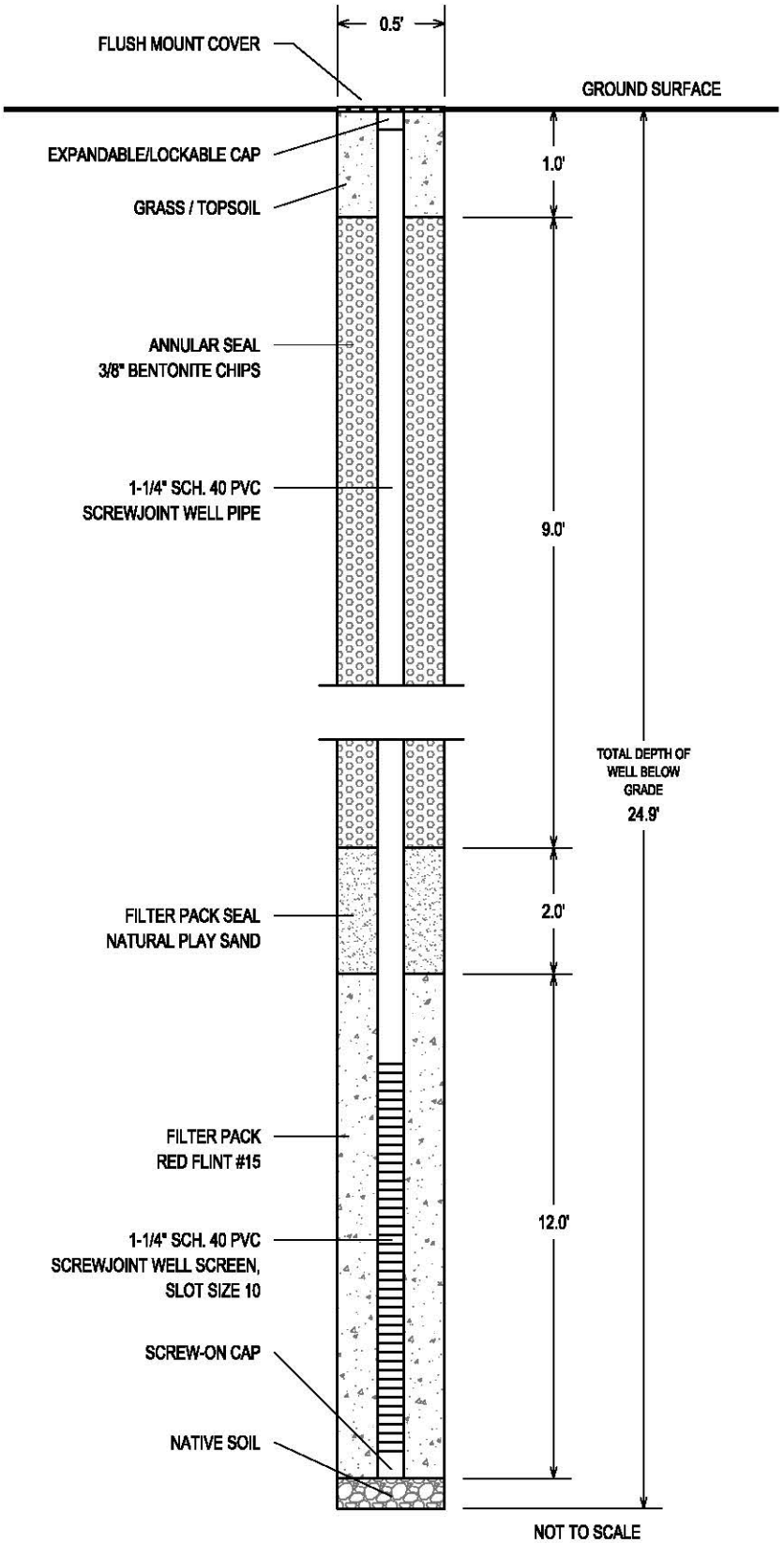
JOB NO. : 11562-B

DATE : 1/31/17

JOB NAME : D&G MOBIL

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AVIS STREET • IRONWOOD, MI 49938 • PHONE: 906-932-5048

GROUNDWATER MONITORING WELL
MW-4
CONSTRUCTION DETAIL



NOTES: -

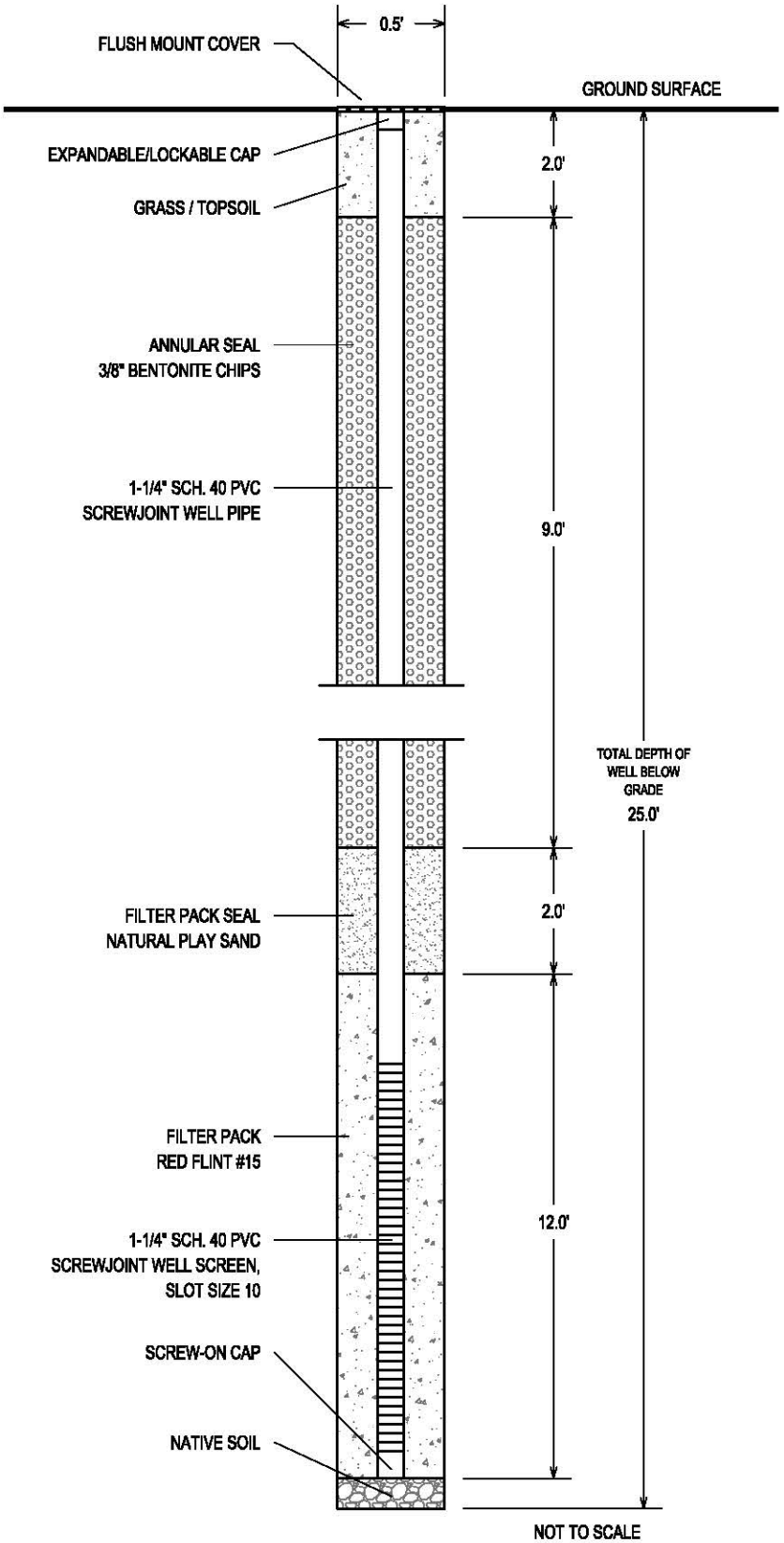
JOB NO. : 11562-B

DATE : 1/31/17

JOB NAME : D&G MOBIL

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
200 EAST AVIS STREET • IRONWOOD, MI 49938 • PHONE: 906-932-5048

GROUNDWATER MONITORING WELL
MW-5
CONSTRUCTION DETAIL



NOTES: -

NOT TO SCALE

JOB NO. : 11562-B

DATE : 1/31/17

JOB NAME : D&G MOBIL

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE • IRON MOUNTAIN, MI 49801 • PHONE: 906-774-3440
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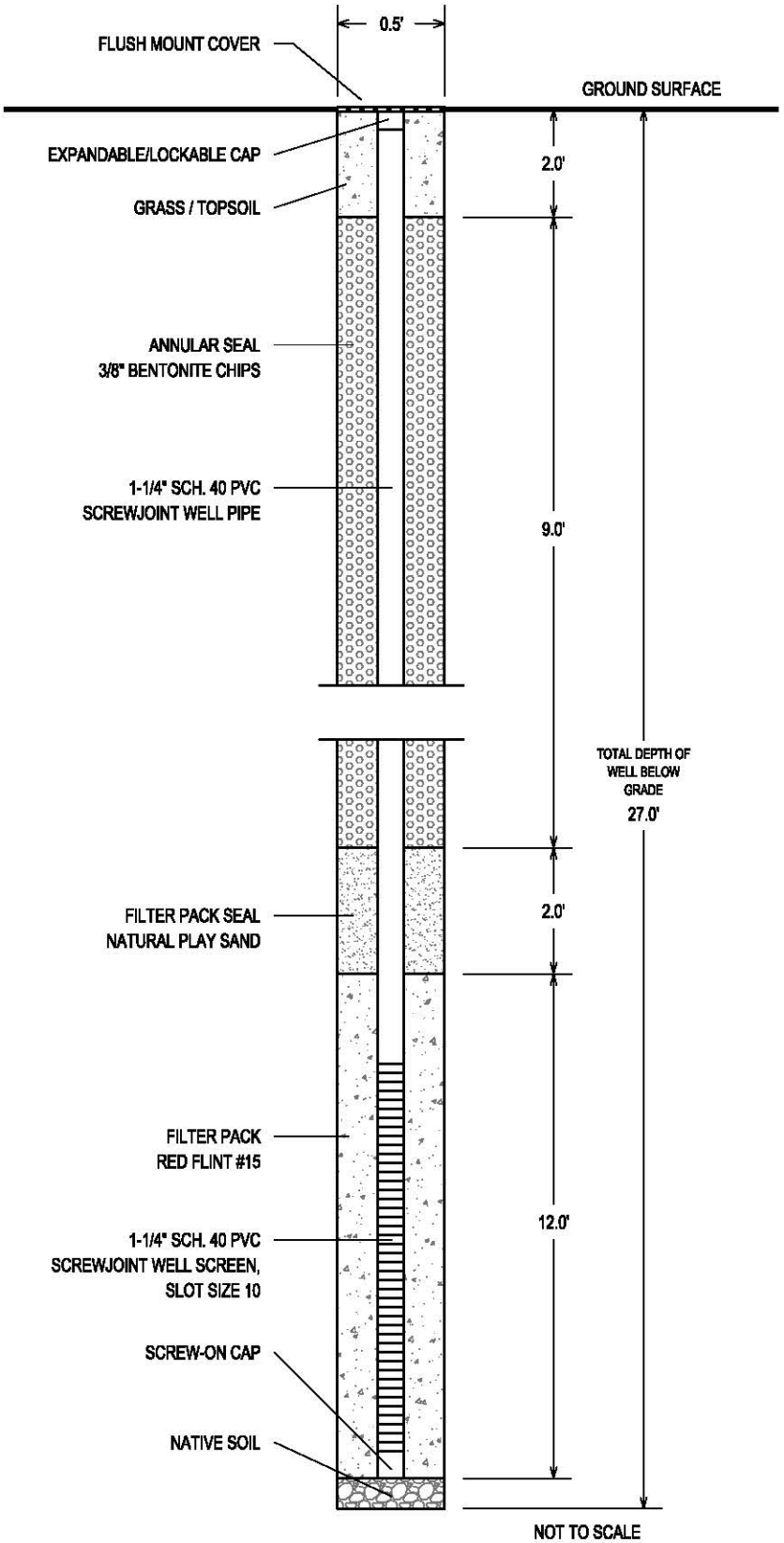
GROUNDWATER MONITORING WELL
MW-6
CONSTRUCTION DETAIL



NOTES: -

NOT TO SCALE

JOB NO. : 11562-B

DATE : 1/31/17

JOB NAME : D&G MOBIL

COLEMAN ENGINEERING COMPANY
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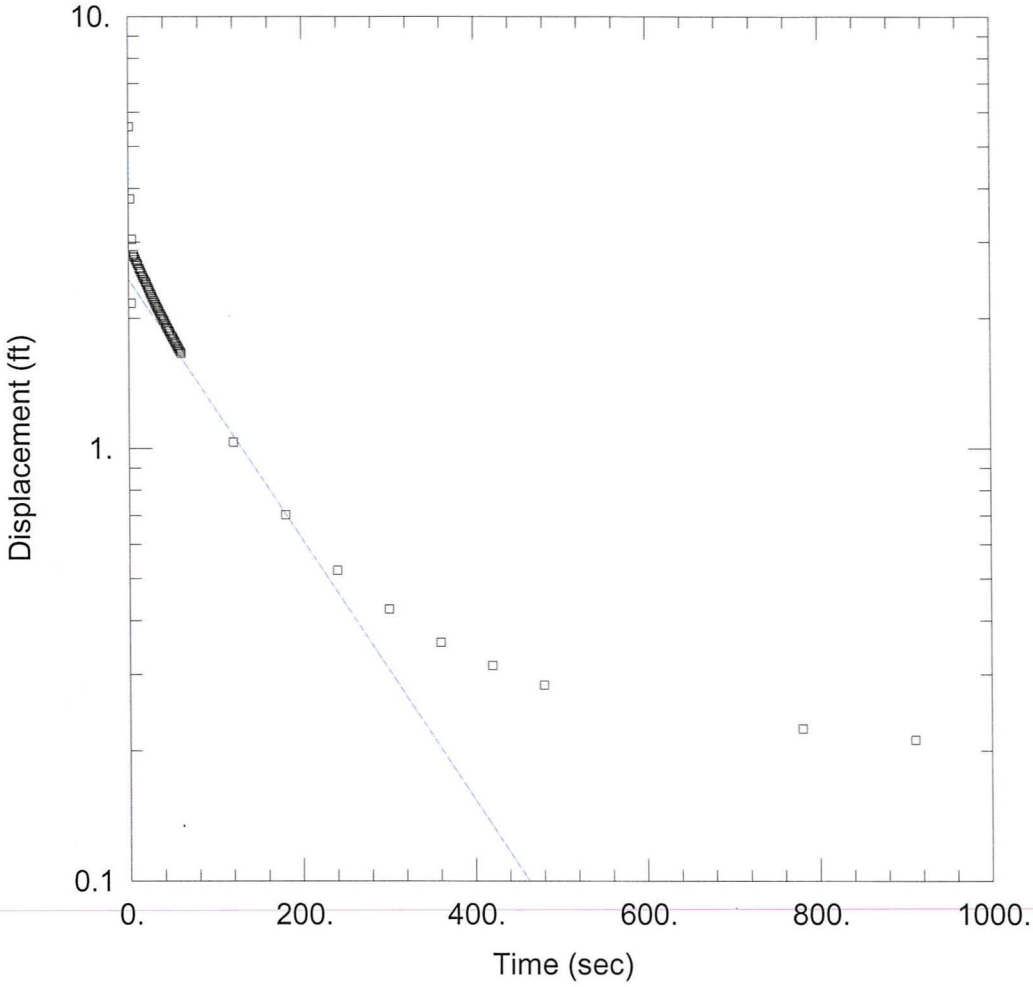
APPENDIX F

HYDRAULIC CONDUCTIVITY DATA



WELL TEST ANALYSIS

Data Set:
Date: 05/24/17 Time: 11:04:03

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Well: MW-2
Test Date: 2-9-17

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2)

Initial Displacement: 15. ft
Total Well Penetration Depth: 16.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 16.01 ft
Screen Length: 10. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002511 cm/sec y0 = 2.462 ft

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-2.aqt
Date: 05/25/17
Time: 10:24:50

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Date: 2-9-17
Test Well: MW-2

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-2

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 15. ft
Static Water Column Height: 16.01 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.25 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.01 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.083 ft
Gravel Pack Porosity: 0.4

No. of Observations: 69

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	5.555	36.	2.051
2.	3.78	37.	2.035
3.	2.167	38.	2.016
4.	3.047	39.	1.997
5.	2.784	40.	1.979
6.	2.807	41.	1.962
7.	2.767	42.	1.943
8.	2.735	43.	1.922
9.	2.704	44.	1.903
10.	2.68	45.	1.891
11.	2.653	46.	1.872
12.	2.608	47.	1.858
13.	2.597	48.	1.841
14.	2.567	49.	1.821
15.	2.539	50.	1.809
16.	2.511	51.	1.792
17.	2.483	52.	1.777
18.	2.462	53.	1.764
19.	2.44	54.	1.749
20.	2.417	55.	1.729
21.	2.394	56.	1.719
22.	2.366	57.	1.704
23.	2.34	58.	1.689
24.	2.316	59.	1.676
25.	2.288	60.	1.662

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
26.	2.268	120.	1.033
27.	2.241	180.	0.702
28.	2.219	240.	0.523
29.	2.198	300.	0.425
30.	2.176	360.	0.356
31.	2.153	420.	0.315
32.	2.132	480.	0.284
33.	2.114	780.	0.225
34.	2.091	911.	0.212
35.	2.073		

SOLUTION

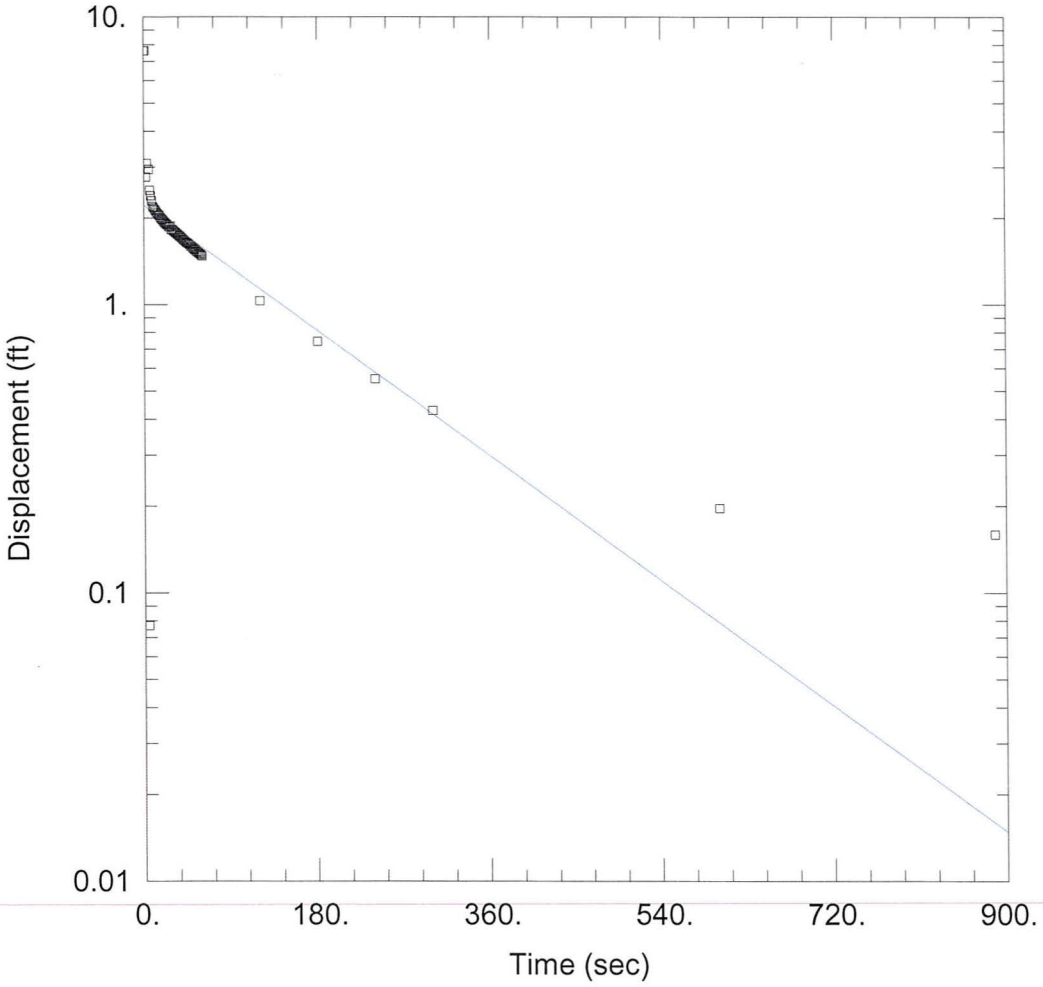
Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.451

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002511	cm/sec
y0	2.462	ft

T = K*b = 0.3827 cm²/sec



WELL TEST ANALYSIS

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-3.aqt
Date: 05/25/17 Time: 10:30:49

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Well: MW-3
Test Date: 2-9-17

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 7.612 ft
Total Well Penetration Depth: 15.62 ft
Casing Radius: 0.083 ft
Static Water Column Height: 13.85 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.4

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001497 cm/sec
y0 = 2.209 ft

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-3.aqt
Date: 05/25/17
Time: 10:31:09

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Date: 2-9-17
Test Well: MW-3

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-3

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 7.612 ft
Static Water Column Height: 13.85 ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft
Well Skin Radius: 0.25 ft
Screen Length: 10. ft
Total Well Penetration Depth: 15.62 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.083 ft
Gravel Pack Porosity: 0.4

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.001	7.622	34.	1.757
2.12	2.773	35.	1.746
3.001	3.097	36.	1.732
4.001	0.077	37.	1.726
5.001	2.948	38.	1.711
6.001	2.493	39.	1.699
7.001	2.387	40.	1.681
8.001	2.295	41.	1.675
9.001	2.189	42.	1.661
10.	2.167	43.	1.648
11.	2.139	44.	1.641
12.	2.12	45.	1.631
13.	2.093	46.	1.622
14.	2.069	47.	1.611
15.	2.048	48.	1.593
16.	2.038	49.	1.589
17.	2.006	50.	1.576
18.	1.988	51.	1.564
19.	1.971	52.	1.552
20.	1.951	53.	1.545
21.	1.933	54.	1.53
22.	1.919	55.	1.524
23.	1.904	56.	1.515
24.	1.893	57.	1.504
25.	1.876	58.	1.495

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
26.	1.862	59.	1.483
27.	1.873	60.	1.473
28.	1.82	120.	1.029
29.	1.821	180.	0.744
30.	1.808	240.	0.551
31.	1.796	300.	0.428
32.	1.782	600.	0.196
33.	1.77	888.	0.159

SOLUTION

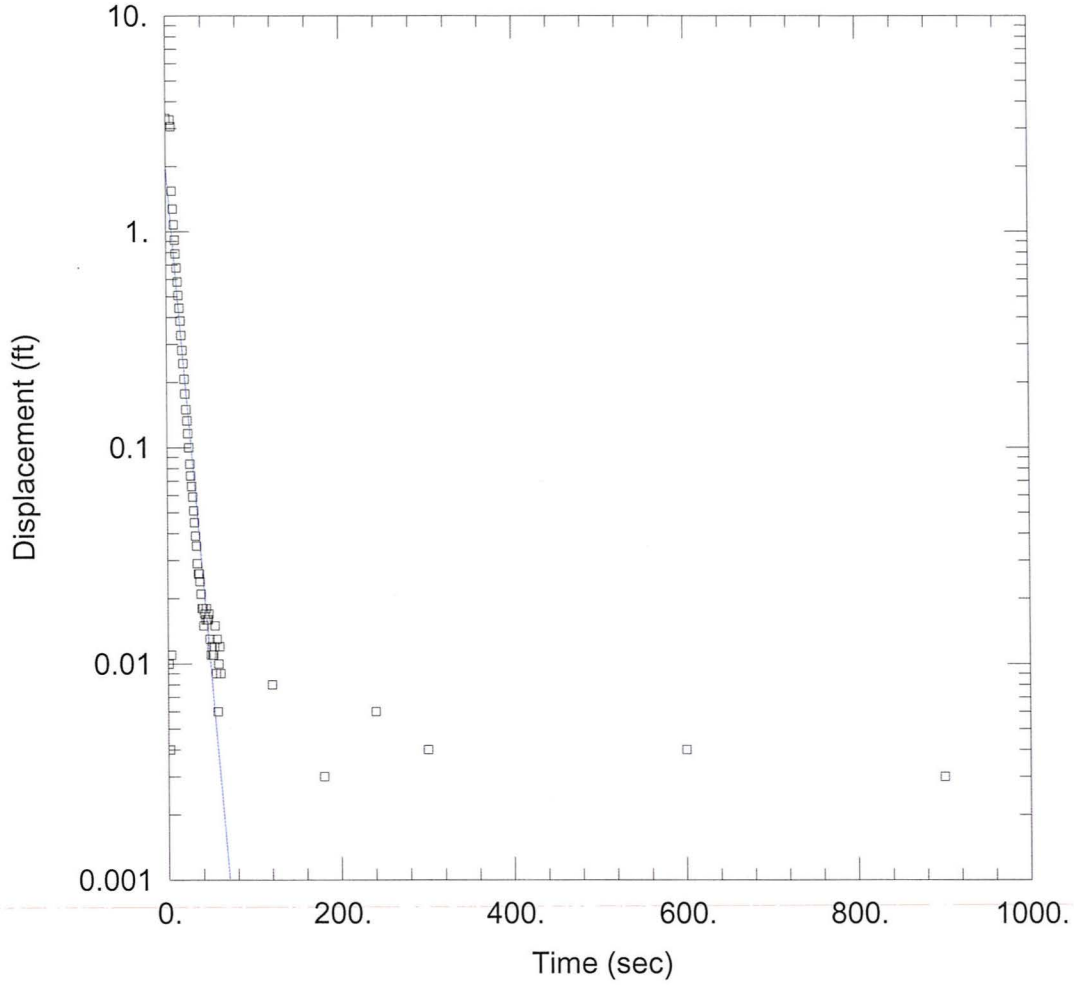
Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 2.563

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001497	cm/sec
y0	2.209	ft

$T = K*b = 0.2282$ cm²/sec



WELL TEST ANALYSIS

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-4.aqt
Date: 05/25/17 Time: 10:36:17

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Well: MW-4
Test Date: 2-9-17

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 3.349 ft
Total Well Penetration Depth: 14.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 13.17 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.4

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.002868 cm/sec
y0 = 1.96 ft

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-4.aqt
Date: 05/25/17
Time: 10:36:39

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Date: 2-9-17
Test Well: MW-4

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-4

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 3.349 ft
Static Water Column Height: 13.17 ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft
Well Skin Radius: 0.25 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.01 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.083 ft
Gravel Pack Porosity: 0.4

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.001	0.01	34.	0.029
2.001	0.004	35.	0.026
3.001	0.	36.	0.026
4.001	0.011	37.	0.024
5.001	3.299	38.	0.021
6.001	3.068	39.	0.018
7.001	1.538	40.	0.018
8.001	1.274	41.	0.015
9.001	1.076	42.	0.017
10.	0.913	43.	0.016
11.	0.788	44.	0.018
12.	0.678	45.	0.016
13.	0.585	46.	0.016
14.	0.507	47.	0.017
15.	0.442	48.	0.013
16.	0.385	49.	0.011
17.	0.331	50.	0.012
18.	0.282	51.	0.011
19.	0.245	52.	0.011
20.	0.207	53.	0.012
21.	0.177	54.	0.015
22.	0.15	55.	0.009
23.	0.133	56.	0.013
24.	0.116	57.	0.006
25.	0.1	58.	0.01

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
26.	0.084	59.	0.012
27.	0.074	60.	0.009
28.	0.066	120.	0.008
29.	0.059	180.	0.003
30.	0.051	240.	0.006
31.	0.045	300.	0.004
32.	0.039	600.	0.004
33.	0.035	900.	0.003

SOLUTION

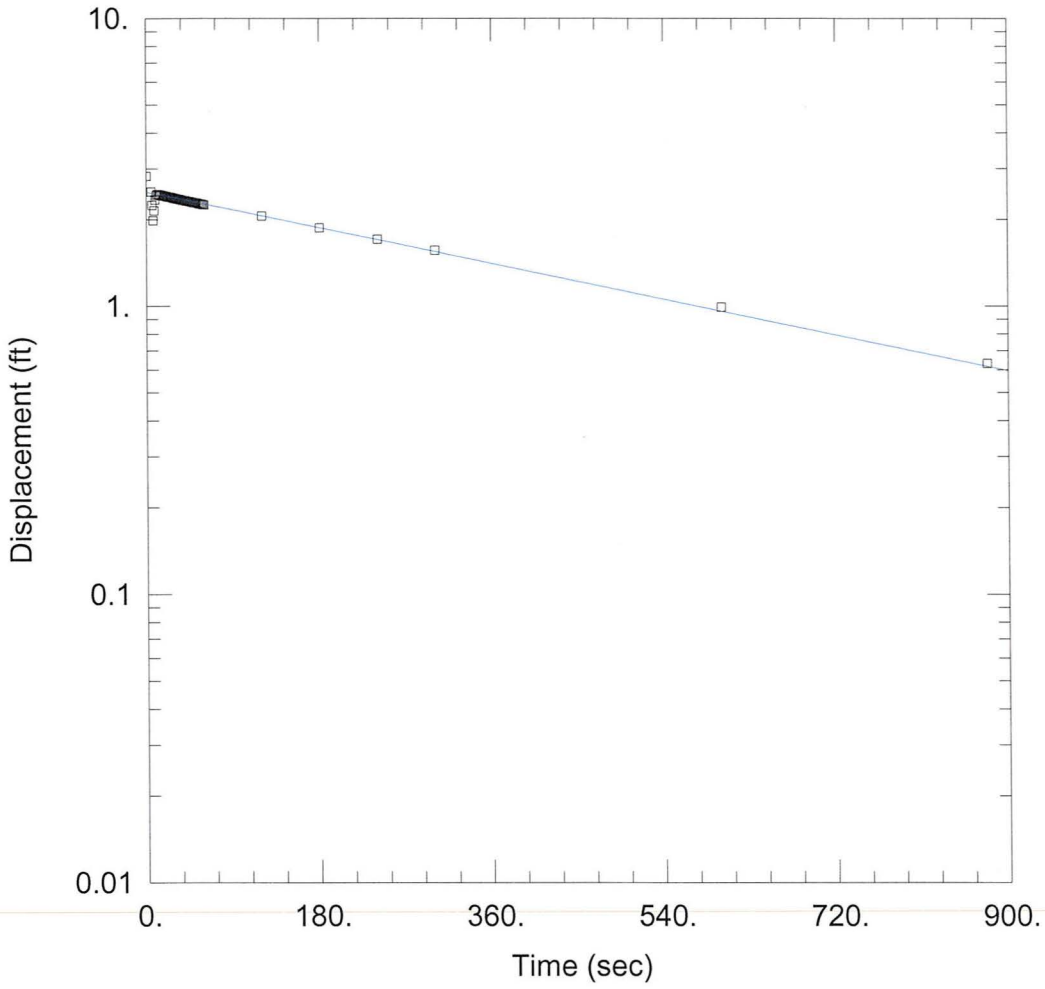
Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 2.513

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.002868	cm/sec
y0	1.96	ft

T = K*b = 4.372 cm²/sec



WELL TEST ANALYSIS

Data Set:
Date: 05/25/17 Time: 09:58:50

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Well: MW-5
Test Date: 2-9-17

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-5)

Initial Displacement: 2.828 ft
Total Well Penetration Depth: 60. ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.54 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 6.465E-5 cm/sec y0 = 2.49 ft

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-5.aqt
Date: 05/25/17
Time: 10:39:46

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Date: 2-9-17
Test Well: MW-5

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-5

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.828 ft
Static Water Column Height: 15.54 ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft
Well Skin Radius: 0.25 ft
Screen Length: 10. ft
Total Well Penetration Depth: 60. ft
Corrected Casing Radius (Bouwer-Rice Method): 0.083 ft
Gravel Pack Porosity: 0.4

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	0.003	34.	2.346
2.223	0.007	35.	2.344
3.	0.	36.	2.339
4.	0.004	37.	2.336
5.	2.495	38.	2.331
6.	2.242	39.	2.327
7.	1.984	40.	2.328
8.	2.144	41.	2.317
9.	2.34	42.	2.316
10.	2.418	43.	2.311
11.	2.443	44.	2.309
12.	2.446	45.	2.304
13.	2.44	46.	2.3
14.	2.437	47.	2.299
15.	2.433	48.	2.292
16.	2.425	49.	2.29
17.	2.425	50.	2.287
18.	2.415	51.	2.281
19.	2.416	52.	2.285
20.	2.408	53.	2.278
21.	2.402	54.	2.272
22.	2.397	55.	2.267
23.	2.393	56.	2.267
24.	2.389	57.	2.259
25.	2.387	58.	2.259

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
26.	2.386	59.	2.248
27.	2.376	60.	2.25
28.	2.373	120.	2.054
29.	2.365	180.	1.868
30.	2.367	240.	1.705
31.	2.359	300.	1.564
32.	2.352	600.	0.991
33.	2.352	878.	0.632

SOLUTION

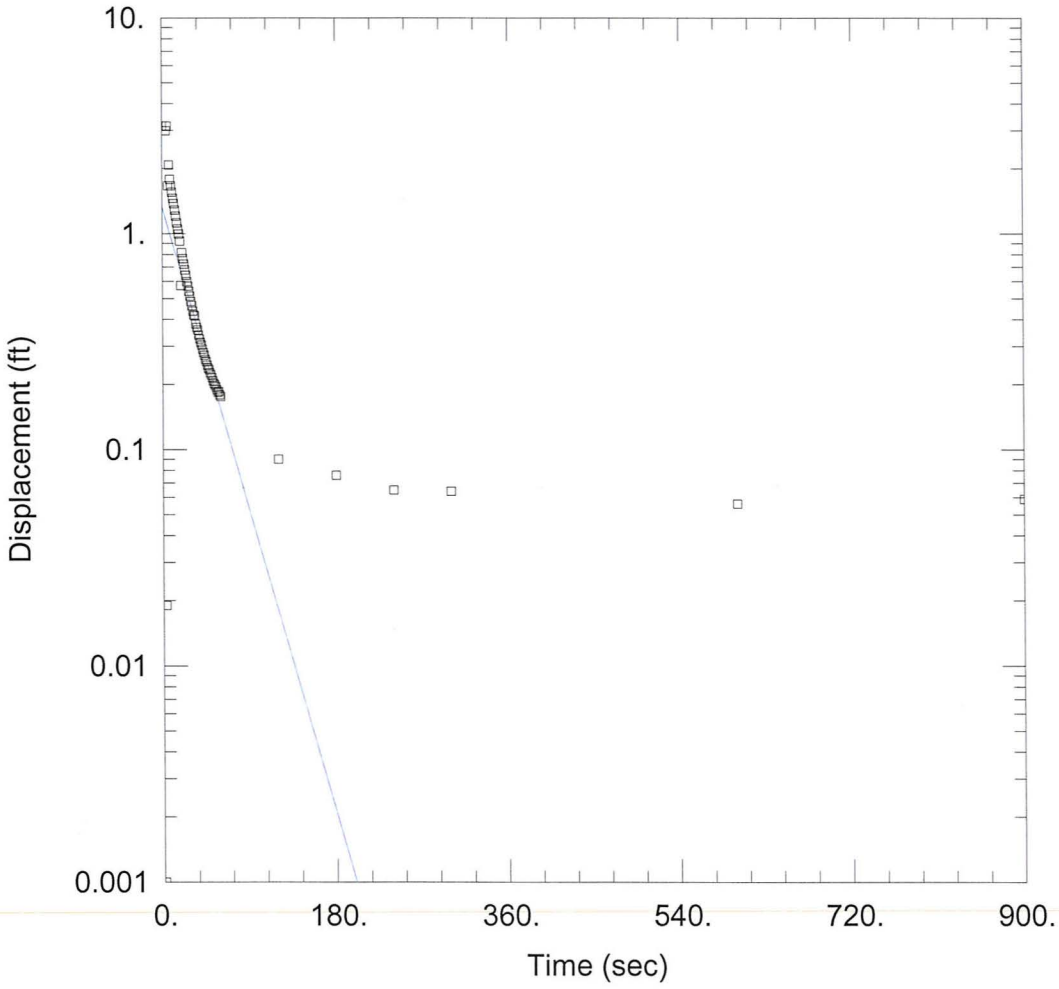
Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.874

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	6.465E-5	cm/sec
y0	2.49	ft

T = K*b = 0.09852 cm²/sec



WELL TEST ANALYSIS

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-6.aqt
Date: 06/21/17 Time: 13:03:21

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Well: MW-6
Test Date: 2-9-17

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: 3.151 ft
Total Well Penetration Depth: 14.93 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.12 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.4

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0009589 cm/sec
y0 = 1.324 ft

Data Set: F:\Data\15000\15562 - D&G Mobil - PECFA\Report\Slug Tests\D&G Mobil\MW-6.aqt
Date: 06/21/17
Time: 13:03:52

PROJECT INFORMATION

Company: Coleman Engineering Company
Client: D&G Mobil
Project: EC-15562F
Location: D&G Mobil
Test Date: 2-9-17
Test Well: MW-6

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-6

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 3.151 ft
Static Water Column Height: 14.12 ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft
Well Skin Radius: 0.25 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.93 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.083 ft
Gravel Pack Porosity: 0.4

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	0.001	34.	0.382
2.	0.	35.	0.368
3.	0.019	36.	0.357
4.	2.997	37.	0.339
5.	3.151	38.	0.325
6.	1.667	39.	0.313
7.	2.08	40.	0.305
8.	1.784	41.	0.291
9.	1.667	42.	0.281
10.	1.558	43.	0.273
11.	1.458	44.	0.261
12.	1.376	45.	0.255
13.	1.283	46.	0.246
14.	1.205	47.	0.238
15.	1.122	48.	0.234
16.	1.049	49.	0.226
17.	0.996	50.	0.222
18.	0.924	51.	0.215
19.	0.574	52.	0.208
20.	0.816	53.	0.202
21.	0.766	54.	0.199
22.	0.723	55.	0.195
23.	0.679	56.	0.189
24.	0.641	57.	0.184
25.	0.598	58.	0.186

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
26.	0.57	59.	0.179
27.	0.54	60.	0.176
28.	0.514	120.	0.09
29.	0.485	180.	0.076
30.	0.463	240.	0.065
31.	0.438	300.	0.064
32.	0.42	600.	0.056
33.	0.416	900.	0.059

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 2.542

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0009589	cm/sec
y0	1.324	ft

$T = K*b = 1.461$ cm²/sec

APPENDIX G

LIMITATIONS

LIMITATIONS
FOR
SITE INVESTIGATION REPORTS

1. The conclusions and recommendations contained in this report are based upon the data obtained from a limited number of soil and groundwater samples from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If other latent conditions then appear evident, it could be necessary to re-evaluate the conclusions and recommendations of this report.

2. Water level observations have been made in the borings and/or monitoring wells at the times and under the conditions stated on the boring logs. Fluctuations in the level of groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.

3. Where quantitative laboratory testing has been conducted by an outside laboratory, CEC has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data.

4. The conclusions and recommendations contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in this report. Variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, migration pathways, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed and the conclusions and recommendations presented herein modified accordingly.

5. Chemical analyses have been performed for specific parameters during the course of this site review, as described in the text. Additional chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site.

6. This report has been prepared for, and is intended for the exclusive use of George Hannan. The contents of this report should not be relied upon by any other party without the express written consent of CEC.

7. The Remedial Action Alternative Analysis (RAAA) was performed by reviewing the most practical remedial technologies for the conditions found at D&G Mobil Mart. All remedial action alternatives are approvable by the Department of Natural Resources as effective remedial technologies. CEC's opinion of probable construction costs and/or operations and maintenance costs provided for the RAAA are made on the basis of CEC's judgment as an experienced and qualified design professional, familiar with the construction industry. CEC cannot and does not guarantee that proposals, bids, or total construction costs will not vary from opinions of probable costs prepared by CEC.

8. The soil borings and monitoring wells were installed by a subcontractor. Drilling methods are assumed to have been performed in accordance with Wisconsin Administrative Code NR 141. Information on soil boring and monitoring well construction was provided by the subcontractor.

9. George Hannan and/or his designee were responsible for identifying the location of all utility lines and subterranean structures within the property lines of D&G Mobil Mart's property lines and/or adjacent properties, as the case may be. CEC has requested responsible utilities and/or other appropriate public agencies to locate any utility lines known to exist within the public right-of-way. The drawings within this report reflect the locations of utilities and underground structures at the time of the investigation.

10. CEC shall not assume responsibility as generator for any wastes generated at the D&G Mobil Mart. CEC will assist the client in making arrangements for the transportation, treatment and disposal of these wastes.