

02-16-558987

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Rec'd 9/25/14
J

Technical Memorandum

To: Alex Smith, Enbridge Energy
From: Ryan Erickson
Subject: Superior Terminal Manifold 211 Maintenance Excavation Memo/
Tank 9 Release BRRTS File Addendum
Date: September 25, 2014
BRRTS Site #: 216558987 and 216552700
Barr Project #: 49161253.12

This memorandum summarizes the field screening, analytical sampling and waste management assistance conducted by Barr Engineering (Barr) at the request of Enbridge Energy (Enbridge) in response to the discovery of historical, crude oil contaminated soil at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1) in July of 2014.

Background

In the summer of 2014, Enbridge contractors excavated and removed pipeline infrastructure from the western corner of the Tank 9 containment basin (Figure 2) as part of ongoing Superior Terminal infrastructure maintenance activities. During the excavation, soil with historical crude oil contamination was encountered by the contractors. Enbridge Environment was notified of the contamination and the excavated contaminated soil was managed in the contaminated section of the Superior Terminal soil management area (SMA) facility (Figure 2) until off-site disposal options could be coordinated.

Enbridge requested that Barr complete the following actions:

- review historical release information for this location
- assess the environmental site conditions
- document residual contamination in the final excavation, if applicable
- assist with the identification and segregation of excavated contaminated soil
- assist with the off-site disposal coordination of contaminated soil
- prepare a memorandum summarizing the extent of impacts and response actions completed

Enbridge indicated that the crude oil contamination discovered during the maintenance excavation was likely historical based on the location and characteristics of the contaminated soil. Barr checked the Wisconsin Department of Natural Resources (WDNR) Bureau for Remediation and Redevelopment Tracking System (BRRTS) database for nearby release sites. A 2008 115-gallon crude oil release (BRRTS# 216558987) was identified in the western corner of the Tank 9 basin ("Tank 9 Pressure Relief Line Release"). Additional historical impacts, likely associated with the 2008 release, were also identified in this location in 2012 and a new number was set up for response action (BRRTS# 216552700). The BRRTS sites

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listed above were closed by the WDNR in 2008 and 2012. Historical site figures and analytical data tables associated with these projects are included in Attachment A.

Field Methods

Barr was onsite multiple times during the maintenance and site restoration activities that were completed in this area between July and September 2014. Site activities included assessing existing environmental conditions and conducting field screening, soil sampling and soil disposal coordination. Barr field screened excavated soil for the presence of organic vapors using a photoionization detector (PID) and documented other potential indicators of crude oil impacts such as odor, discoloration and sheen (Attachment B). Excavated soil with PID headspace readings greater than ten parts per million (ppm), or other evidence of crude oil impacts, was segregated and transported to the Superior Terminal Soil Management Area (SMA) for storage until it could be characterized and approved for off-site disposal. Excavated soil with no evidence of contamination was managed in the clean soil section of the SMA, was field screened and sampled with other clean terminal soil and was managed off-site at the Udeen's gravel pit facility south of Superior, WI.

On July 10, 2014, Barr collected field screening soil samples from the final excavation extents to identify whether residual soil impacts were present. Residual soil impacts were considered present if a headspace greater than 10 ppm was identified, as discussed in the pending Enbridge Superior Terminal *Site Investigation and Response Action Plan* (2014). Where residual impacts were identified and the impacted soil could not be excavated, analytical soil samples were collected from the excavation to document the residual soil impacts. Soil samples were submitted to Legend Technical Services for laboratory analyses of petroleum volatile organic compounds (PVOCs) plus naphthalene. Analytical results from each location were input into the WDNR Web Calculator to compare analyte detections to groundwater residual contaminant levels (RCL) and industrial direct contact RCL's and determine whether the soil passes the Cumulative Hazard Index criteria. Soil sample locations are shown in Figure 2, field screening data is provided in Attachment B, and laboratory reports are provided in Attachment C.

The excavation was backfilled and the berm was restored with clean fill material after maintenance activities were completed (Photo 3).

Results

The final maintenance excavation was approximately 30 feet wide by 40 feet long and up to 8 feet deep (Photo 1; Figure 2; Attachment B). Excavated material consisted of fat clay and some sandy backfill material located around pipeline infrastructure. Crude oil impacted soil was identified on the eastern end of the excavation at approximately 3 to 4 feet below ground surface (bgs) near the location of the removed infrastructure, and the 2008 Tank 9 Pressure Relief Line Release (BRRTS# 216558987). The identified impacted soil had a headspace detection of up to 598.8 ppm, dark staining, a petroleum odor

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and residual free product (Photo 2). Additional excavation of the contaminated material was limited by the presence of station infrastructure. Analytical sample *Manifold 211-S-01* was collected from where the contaminated soil that was left in place and *Manifold 211-B-01* was collected from a deeper location to identify whether contaminants were present at depth.

Analyte concentrations from *Manifold 211-S-01* and *Manifold 211-B-01* were below the groundwater RCL and the direct contact pathway RCL, as shown in Table 1, and passed the Cumulative Hazard Index criteria. The laboratory reports are presented in Attachment C.

Table 1: Analytical Soil Sample Laboratory Results (Units, mg/kg)

Sample ID	Sample Date	Sample Depth (ft)	Benzene	Ethyl benzene	Toluene	Xylenes	Naphthalene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene
Industrial RCL's			7.41	37	818	258	26	219	182
Groundwater RCL's			0.0051	0.785	0.5536	1.97	0.3294	1.3793	1.3793
Manifold 211-S-01	7/10/14	3-3.5	<0.0040	0.023	<0.0056	<0.020	<0.68	<0.034	<0.034
Manifold 211-B-01	7/10/14	8	<0.0038	0.016	<0.0054	<0.019	<0.66	<0.033	<0.033

BOLD = analyte detections
 NA = Not applicable

Discussion

Analyte concentrations detected in the Manifold 211 excavation sidewall soil sample (*Manifold 211-S-01*) and the western platform base of excavation soil sample (*Manifold 211-B-01*) were below the groundwater RCL and industrial direct contact RCL concentrations and passed the Cumulative Hazard Index criteria (Table 1).

Additional excavation of the soil with elevated headspace readings encountered in the zero to four foot bgs direct contact zone was not possible due to the presence of the pipeline infrastructure. Following the completion of the maintenance activity, the excavations were backfilled with clean fill and no crude oil impacted soil is exposed at the ground surface (Photo 3).

Waste Disposal Coordination and Documentation

Barr collected two analytical waste characterization samples from the crude oil impacted soil stockpile (*Manifold 211 Stockpile-1* and *Manifold 211 Stockpile-2*) for laboratory analysis at Legend Technical Services (Attachment D). The samples were analyzed for diesel range organics (DRO) and benzene, toluene, ethylbenzene, and xylenes (BTEX). Laboratory reports are included in the Shamrock Landfill Waste Profile application in Attachment D. A waste profile application with the laboratory results was submitted to the Shamrock Landfill near Cloquet, Minnesota and the soil was accepted under waste profile #CL14-0028 (Attachment D). A total of 143.47 tons of crude oil impacted soil was hauled to the Shamrock Landfill.

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Conclusions and Recommendations

The crude oil impacts that were encountered during the Manifold 211 maintenance project were limited to sheen and a trace amount of product near the closed BRRTS #216558987 release site. No new crude oil source was identified. No residual crude oil impacts were observed at the excavation extents. The contaminated soil that was removed from the excavation was properly disposed of at an off-site facility. The excavation has been backfilled with clean fill.

Analyte concentrations in the soil samples collected from the maintenance excavation did not exceed the groundwater RCL's or the industrial direct contact RCL's and passed the Cumulative Hazard Index criteria. Barr believes that no further response action or documentation beyond this report will be required by the WDNR. The figures and tables attached to this memo can be used to update the existing BRRTS file.

Attachments

Site Photos	1 through 3
Figure 1	Site Location
Figure 2	Site Layout Map
Attachment A	WDNR Historical Release Documents
Attachment B	Enbridge Site Investigation Field Sampling and Screening Log
Attachment C	Legend Technical Services Laboratory Report for Excavation Soil Samples
Attachment D	Waste Disposal Documentation

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Site Photos



Photo 1

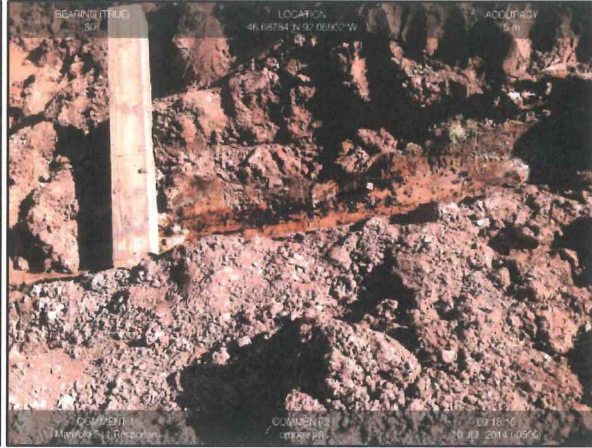


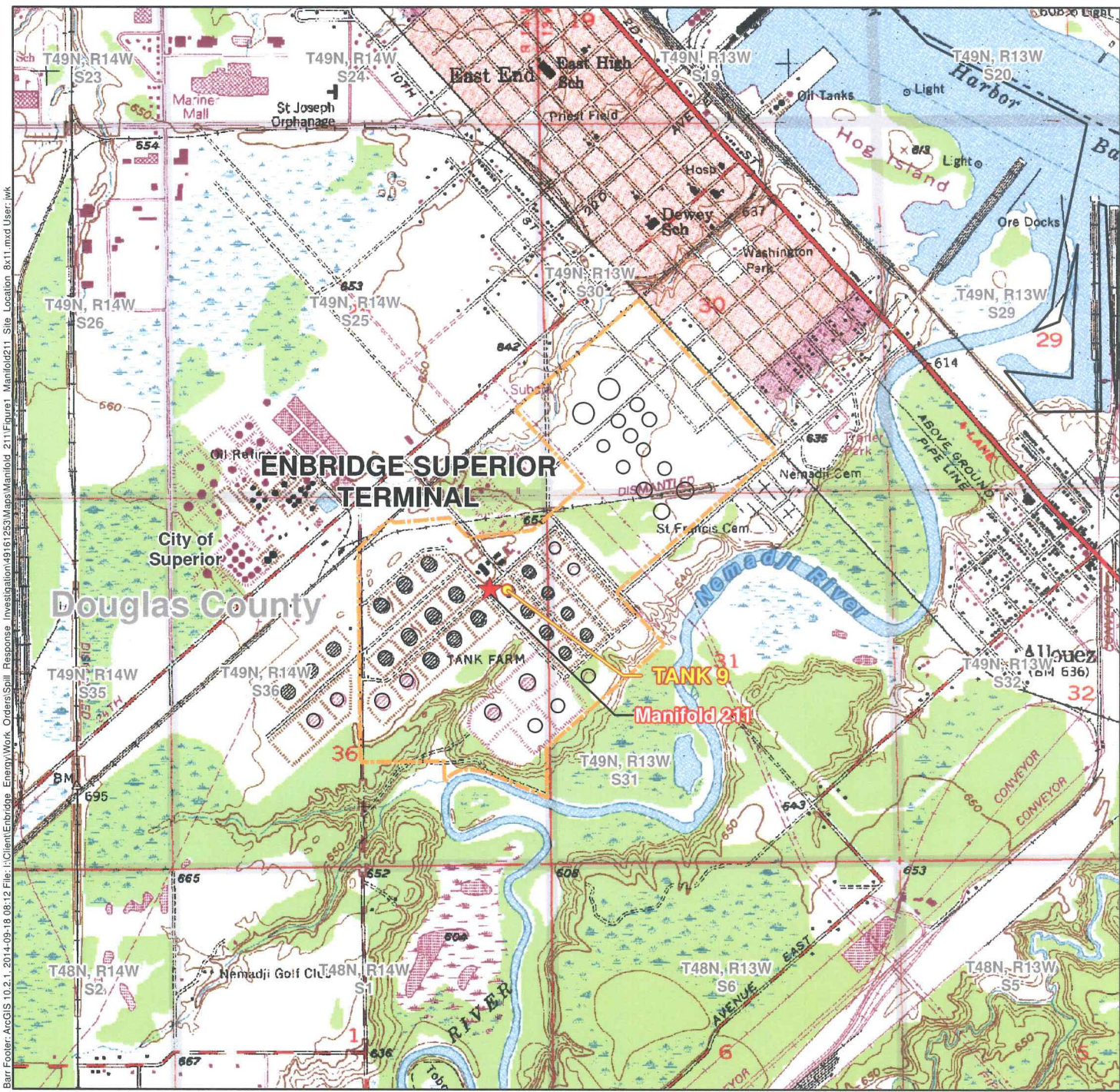
Photo 2

Photo 1: Manifold 211 maintenance excavation. Photo taken facing east on July 10, 2014.

Photo 2: A small volume of free-product observed in the Manifold 211 maintenance excavation. Photo taken on July 10, 2014.



Photo 3: Restored Manifold 211 maintenance excavation site (center right side of photo). Tank 9 is shown on the left side of the photo. Photo taken facing west on September 2, 2014.



- ★ Site Location
- Tank 9
- Terminal Property Boundary



Feet
1 Inch = 2,000 Feet

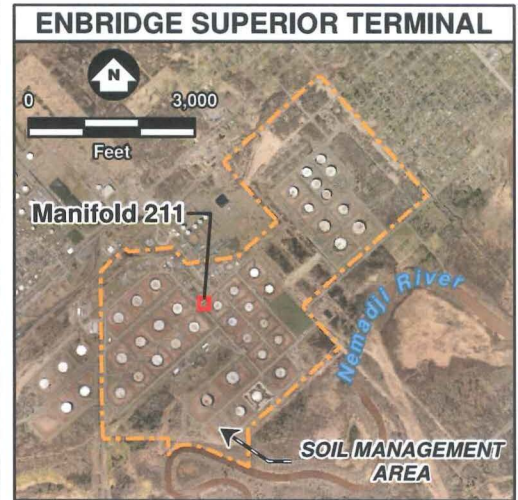
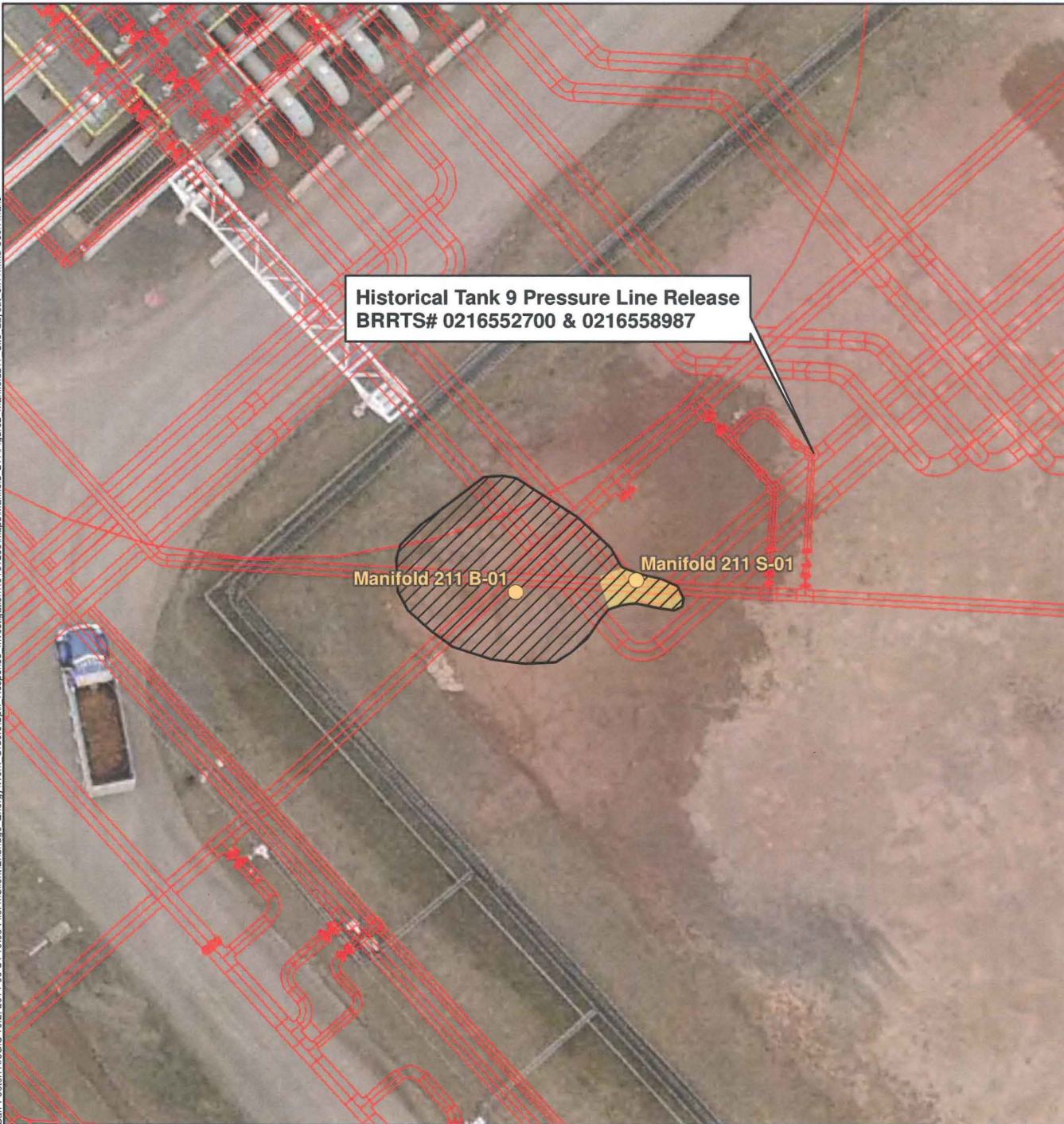
Figure 1

**SITE LOCATION
MANIFOLD 211 RESPONSE
SUPERIOR TERMINAL**
Enbridge Energy, L.P.
Superior, Wisconsin

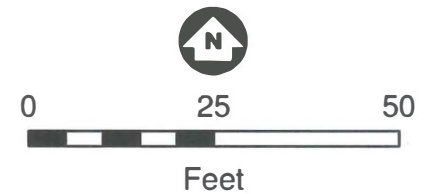


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- Excavation Soil Sample Locations
- ▨ Excavation Extent
- Pipeline Infrastructure
- Crude Oil Impacted Soil
- - - Terminal Property Boundary



1 Inch = 25 Feet
Douglas County Imagery Circa May, 2013

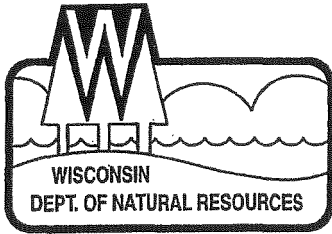
Figure 2

**SITE LAYOUT
MANIFOLD 211 RESPONSE
SUPERIOR TERMINAL**
Enbridge Energy, L.P.
Superior, Wisconsin



Attachment A

WDNR Historical Release Documents



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
John Gozdziwski, Regional Director

Ashland Service Center
2501 Golf Course Road
Ashland, Wisconsin 54806
Telephone 715-685-2900
FAX 715-685-2909

November 14, 2008

FILE COPY

MS KRISTEN BENSON
ENBRIDGE ENERGY LIMITED PARTNERSHIP
119 N 25TH ST E
SUPERIOR WI 54880

SUBJECT: Final Case Closure
Enbridge Superior Terminal – Tank 9 Pressure Relief Line Release
119 North 25th Street East, Superior, Wisconsin
WDNR BRRTS Activity #02-16-552700

Dear Ms. Benson:

The Department of Natural Resources' Northern Region Closure Committee recently reviewed your request for closure of the case described above. The Northern Region Closure Committee reviews environmental remediation cases for compliance with state rules and statutes to maintain consistency in the closure of these cases.

Based on the correspondence and data provided, it appears that your case meets the requirements of ch. NR 726, Wisconsin Administrative Code. The Department considers this case closed and no further investigation or remediation is required at this time.

Please be aware that this case may be reopened pursuant to s. NR 726.09, Wisconsin Administrative Code, if additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety or welfare, or the environment.

Remaining Residual Soil Contamination

Residual soil contamination remains at post-excavation soil sample locations SS-2 and SS-6 along the clay containment berm, as depicted on the attached Figure 3: Soil Contamination Contour Map submitted to the Department of Natural Resources. If soil in the specific locations described above is excavated in the future, then pursuant to ch. NR 718 or, if applicable, ch. 289, Stats., and chs. 500 to 536, the property owner at the time of excavation must sample and analyze the excavated soil to determine if residual contamination remains. If sampling confirms that contamination is present the property owner at the time of excavation will need to determine whether the material would be considered solid or hazardous waste and ensure that any storage, treatment or disposal is in compliance with applicable standards and rules. In addition, all current and future owners and occupants of the property need to be aware that excavation of the contaminated soil may pose an inhalation or other direct contact hazard and as a result special precautions may need to be taken to prevent a direct contact health threat to humans.

Ms. Kristen Benson – November 14, 2008
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GIS Registry

Due to the presence of the contaminated soil described above, the site will be listed on the Remediation and Redevelopment Program's GIS Registry. The specific reasons are summarized below:

Information that was submitted with your closure request application will be included on the GIS Registry. To review the sites on the GIS Registry web page, visit the RR Sites Map page at: <http://dnr.wi.gov/org/aw/rr/gis/index.htm>. If your property is listed on the GIS Registry because of remaining contamination and you intend to construct or reconstruct a well, you will need prior Department approval in accordance with s. NR 812.09(4)(w), Wis. Adm. Code. To obtain approval, Form 3300-254 needs to be completed and submitted to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained on-line at the web address listed above for the GIS Registry or at <http://dnr.wi.gov/org/water/dwg/3300254.pdf>.

The Department appreciates your efforts to restore the environment at this site. If you have any questions concerning this letter or the project in general, please do not hesitate to write or call me at 715-685-2920. I can also be reached by e-mail at Christopher.Saari@Wisconsin.gov.

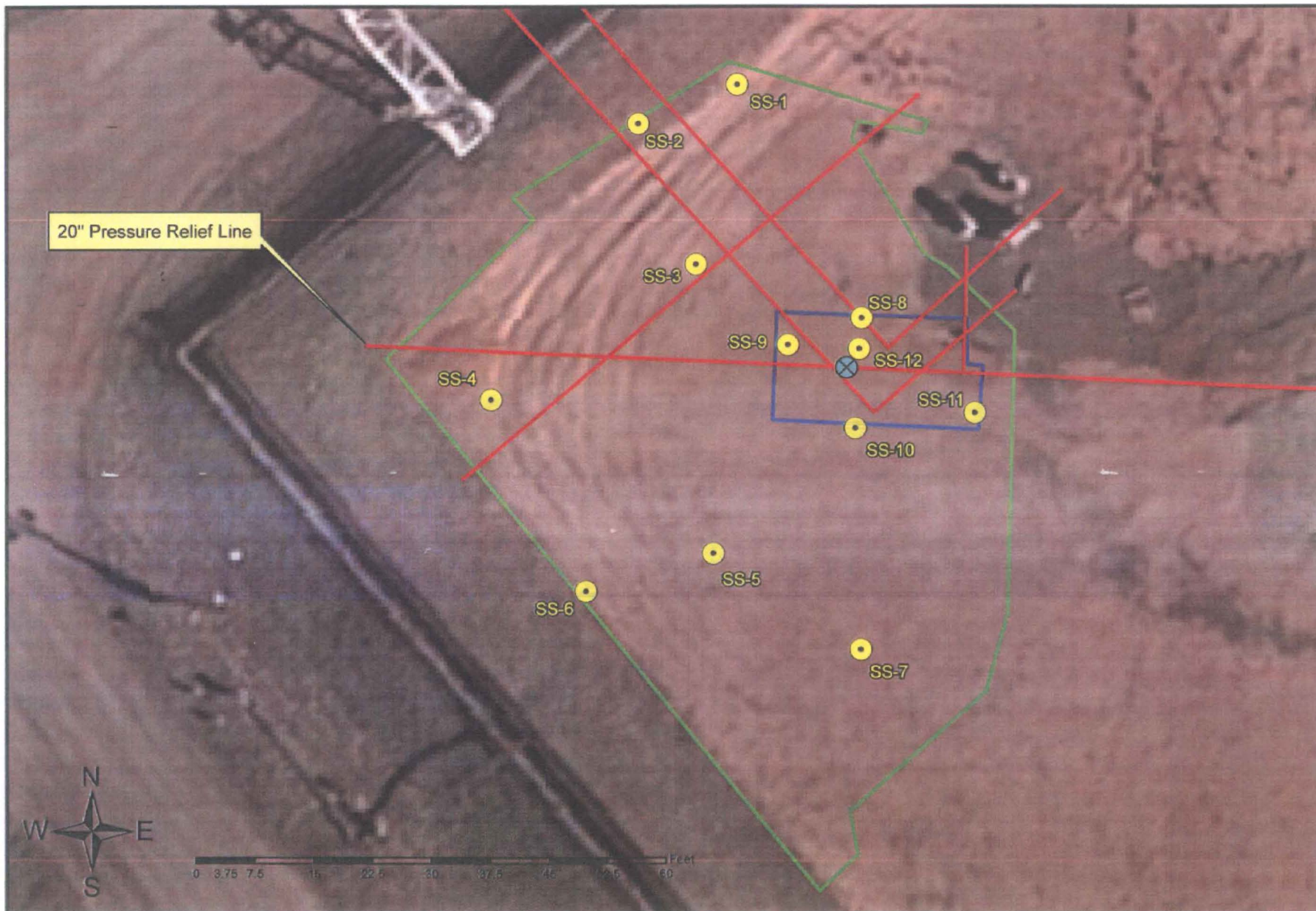
Sincerely,



Christopher A. Saari
Hydrogeologist

attach. – Figure 3: Soil Contamination Contour Map

cc: Barry Power – Natural Resources Engineering Co.



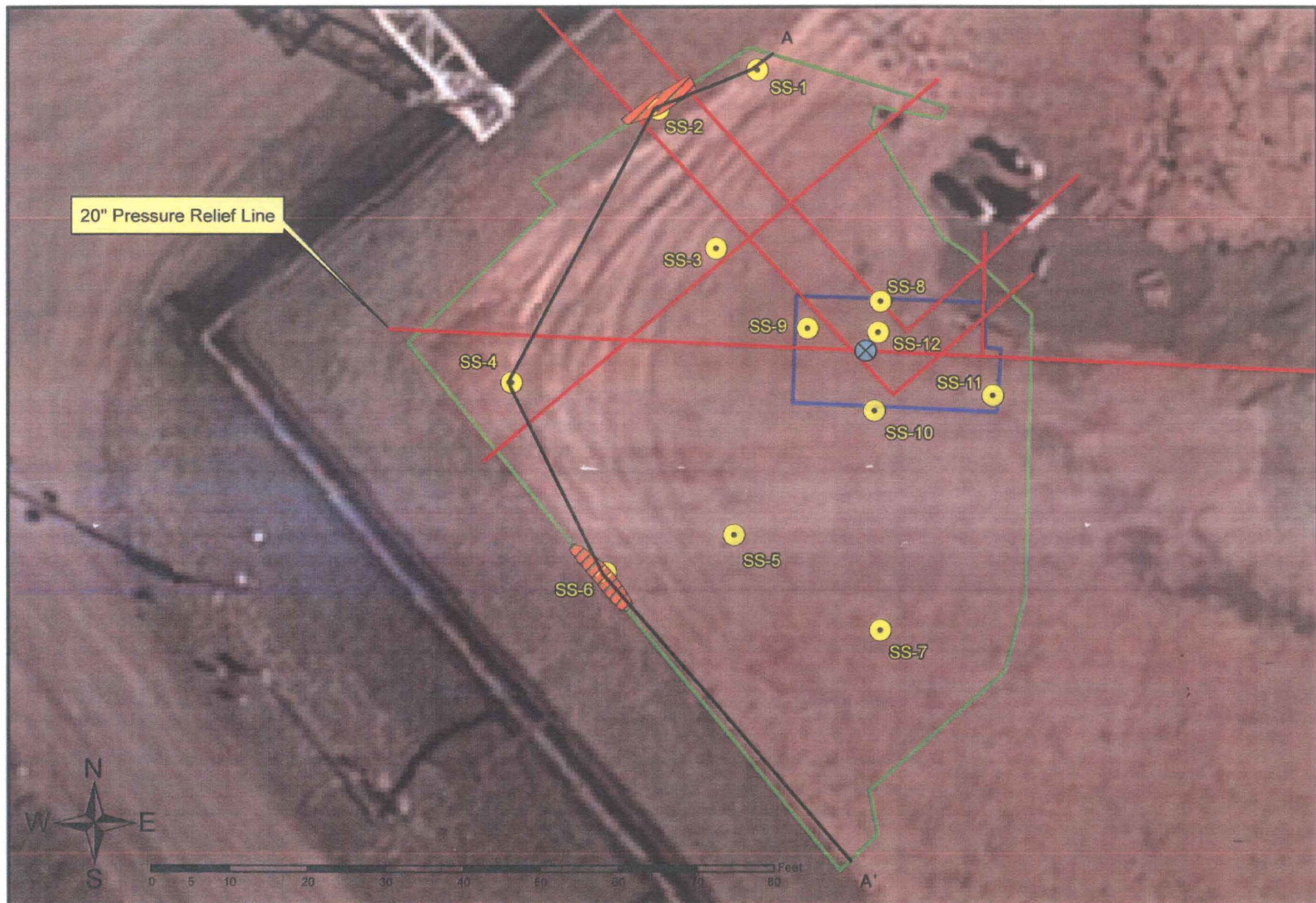
Legend

- ▭ Main Excavation (~8' Deep)
- ▭ Surficial Excavation (~3'-4' Deep)
- ⊗ Release Location
- Soil Sample Location
- Pipeline

Enbridge Energy, Limited Partnership
 Superior Terminal - Tank 9 Pressure Relief Line Release
 Figure 2: Detailed Site Map

DATE ISSUED: 9/2/08
DATE REVISED:
SCALE: 1:200
DRAWN BY: JPM
SERIES: Tank 9 Relief Line





20" Pressure Relief Line

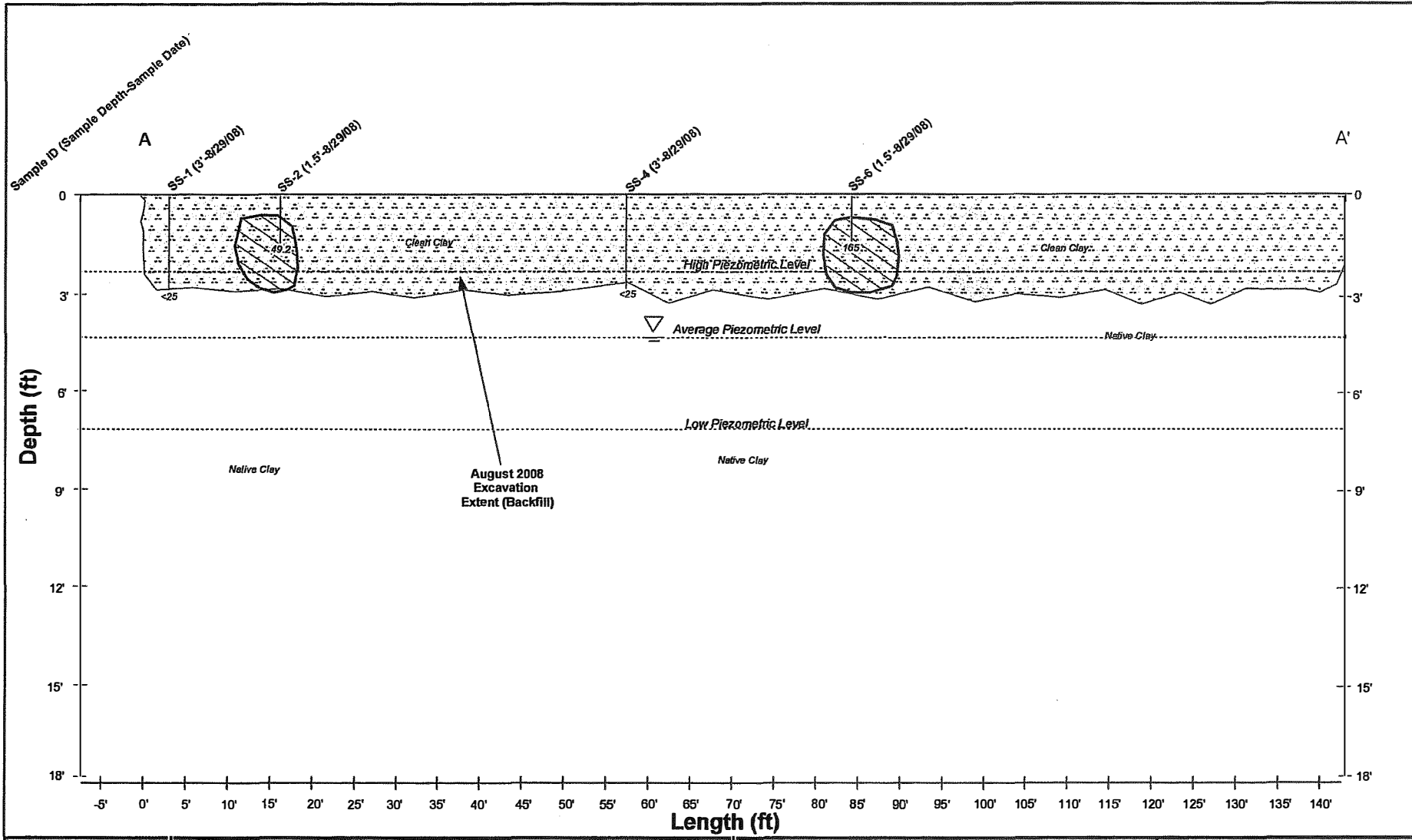


Legend

- ▭ Main Excavation (~8' Deep)
- ▭ Surficial Excavation (~3'-4' Deep)
- ▨ NR720 Exceeding Soil
- ⊗ Release Location
- Soil Sample Location
- Cross-Section A-A'
- Pipeline

Enbridge Energy, Limited Partnership
 Superior Terminal - Tank 9 Pressure Relief Line Release
 Figure 3: Soil Contamination Contour Map

DATE ISSUED: 9/12/08	
DATE REVISED:	
SCALE: 1:200	
DRAWN BY: JPM	
SERIES: Tank 9 Relief Line	
715-395-5680	



Legend	
150	Soil Sample Depth & Benzene Content (ppb)
	Approximate Water Table Elevation
	2008 Excavation Extent
	NR 720 Exceeding Soil

Enbridge Energy, Limited Partnership
Tank 9 Relief Line
Figure 4: Geologic Cross-Section A - A' Map

DATE ISSUED: 9/12/08	
DATE REVISED:	Resources
SCALE: NTS	Engineering Co.
DRAWN BY: JPM	745-305-5580
SERIES: Tank 9 Relief Line	

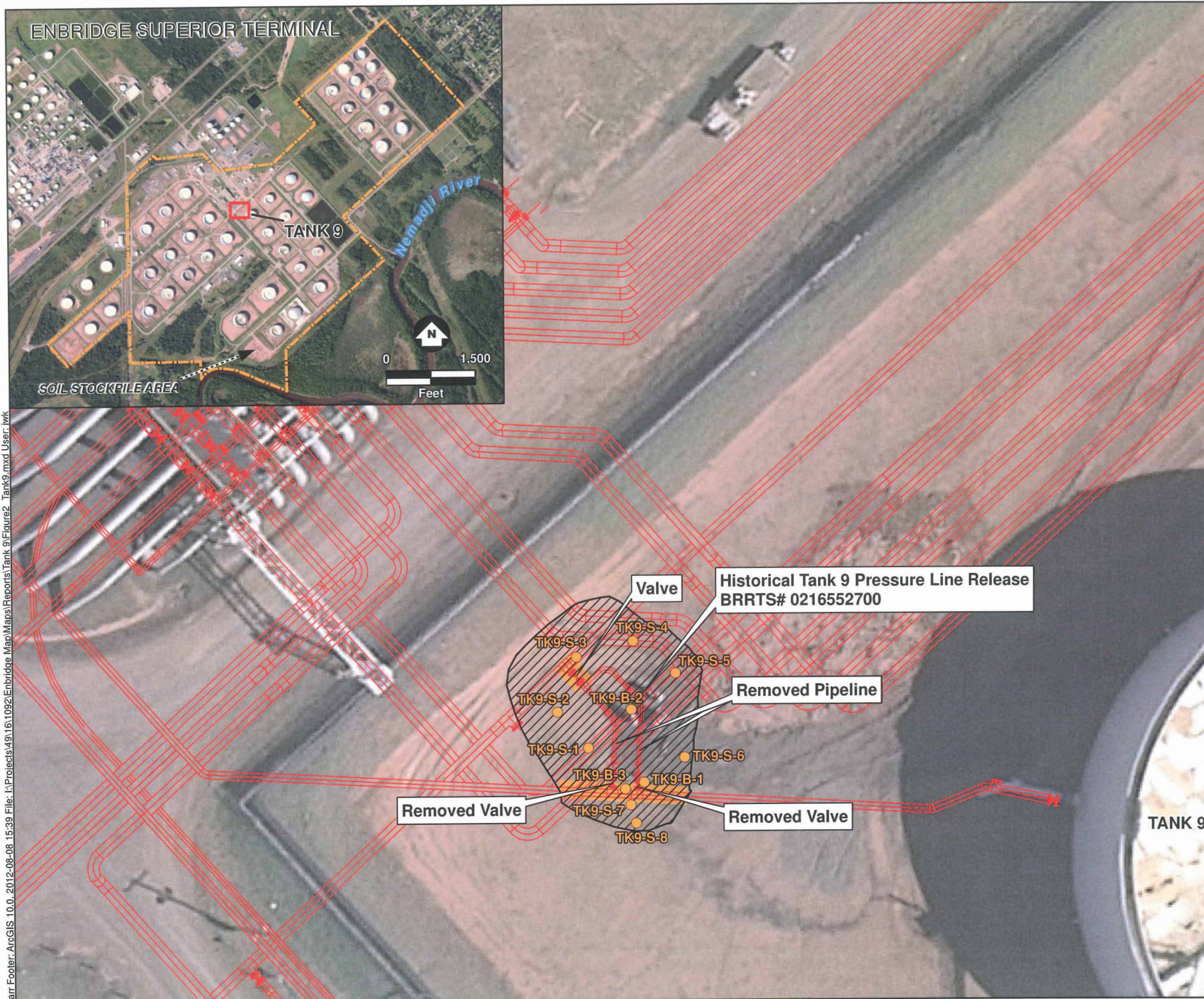
Soil Analytical Results: PVOC
Enbridge Energy, Limited Partnership - Tank 9 Pressure Relief Line Release
All results are in µg/Kg.






Location	Base/Sidewall	Depth (ft)	Date	PfO (ppm)	Benzene	Ethylbenzene	Methyltert-butyl ether	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes, m-p	Xylenes, o
NR 720 Generic RCL				5.5	2,900		1,500				4,100 (total)	
Direct Contact Industrial RCL				1,100								
SS-1	Base	3.0	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-2	Sidewall	1.5	8/29/2008	< 10	49.2	<25	<25	68.3	<25	<25	<50	<25
SS-3	Base	3.0	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-4	Base	3.0	8/29/2008	< 10	<25	82.5	<25	<25	164	122	<50	<25
SS-5	Base	3.0	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-6	Sidewall	1.5	8/29/2008	< 10	165	114	<25	286	146	63.7	233	94.1
SS-7	Base	3.0	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-8	Sidewall	6.5	8/29/2008	< 10	<25	<25	<25	<25	39	<25	<50	<25
SS-9	Sidewall	6.5	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-10	Sidewall	6.5	8/29/2008	< 10	<25	<25	<25	<25	<25	<25	<50	<25
SS-11	Sidewall	6.5	8/29/2008	45	<25	45.9	<25	<25	91.2	177	<50	<25
SS-12	Base	8.0	8/29/2008	447	<25	<25	<25	<25	<25	<25	<50	<25
MeOH Blank			8/29/2008	NA	<25	<25	<25	<25	<25	<25	<50	<25

Bold results indicate NR 720 Generic RCL exceedences.

Soil Analytical Results: PAH
Enbridge Energy, Limited Partnership - Tank 9 Pressure Relief Line Release
 All results are in µg/Kg.

Location	Base/Sidewall	Depth (ft)	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)pyrene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Protection of Groundwater RCL				3.8×10^4	700	3.6×10^6	1.7×10^4	4.8×10^4	3.6×10^5	6.8×10^5	8.7×10^6	6.8×10^6	3.7×10^4	3.6×10^4	5×10^5	1×10^5	2×10^4	2.3×10^6	400	1.8×10^3	8.7×10^5
Direct Contact Industrial RCL				6×10^7	3.6×10^5	3×10^6	3.9×10^5	390	3.9×10^3	3.9×10^4	3.9×10^4	3.9×10^3	3.9×10^4	390	4.0×10^7	4.0×10^7	4.0×10^7	7.0×10^7	1.1×10^5	3.9×10^5	3.0×10^7
SS-1	Base	3.0	8/29/2008	<1.3	<2.5	<6.6	<12.0	<5.2	<8.2	<6.1	<8.9	<6.1	<5.0	<6.7	<1.6	<1.3	3.7	<2.7	2.3	<2.9	<1.5
SS-2	Sidewall	1.5	8/29/2008	<1.2	<2.2	<5.8	<10.7	8.8	8.1	7.5	<7.9	<5.4	11.0	<6.0	8.6	<1.2	<2.4	<2.4	2.0	3.9	7.2
SS-3	Base	3.0	8/29/2008	<1.2	<2.3	<6.1	<11.2	<4.8	<7.6	<5.6	<8.3	<5.6	<4.6	<8.2	3.4	1.2	4.5	3.1	2.7	3.0	3.0
SS-4	Base	3.0	8/29/2008	2.7	<2.4	<6.3	<11.6	<5.0	<7.9	<5.8	<8.6	<5.8	<4.8	<6.5	6.1	20.2	19.7	19.7	14.5	19.2	4.0
SS-5	Base	3.0	8/29/2008	<1.3	<2.3	<6.3	<11.4	<5.0	<7.8	<5.8	<8.5	<5.8	<4.7	<6.4	<1.5	<1.2	<2.5	<2.5	<1.7	<2.7	<1.4
SS-6	Sidewall	1.5	8/29/2008	<1.3	<2.3	<6.3	<11.5	<5.0	<7.8	<5.8	<8.5	<5.8	<4.7	<6.4	<1.5	2.7	14.6	12.0	6.6	6.2	<1.4
SS-7	Base	3.0	8/29/2008	<1.2	<2.2	<6.0	<11.0	<4.8	<7.4	<5.5	<8.2	<5.5	<4.5	<6.1	7.1	<1.2	<2.4	<2.4	2.1	3.2	4.9
SS-8	Sidewall	6.5	8/29/2008	<1.3	<2.4	<6.4	<11.7	<5.1	<8.0	<5.9	<8.7	<5.9	<4.8	<6.6	12.1	1.6	8.5	5.2	5.9	4.1	8.6
SS-9	Sidewall	6.5	8/29/2008	2.3	<2.4	19.1	<11.8	6.3	<8.0	<6.0	<8.8	<5.9	8.5	<6.6	19.7	3.0	20.9	12.8	25.2	14.7	14.2
SS-10	Sidewall	6.5	8/29/2008	<1.3	<2.4	<6.4	<11.7	<5.1	<7.9	<5.9	<8.7	<5.9	<4.8	<6.5	2.8	<1.3	<2.6	<2.6	1.7	<3.2	2.1
SS-11	Sidewall	6.5	8/29/2008	3.3	<2.4	<6.4	<11.8	<5.1	<8.0	<5.9	<8.7	<5.9	<4.8	<6.6	<1.6	14.3	46.8	60.0	13.9	20.8	1.6
SS-12	Base	8.0	8/29/2008	<1.3	<2.4	<6.6	<12.0	<5.2	<8.1	<6.0	<8.9	<6.0	<4.9	<6.7	9.7	3.8	13.5	7.9	15.7	7.0	6.9



-  Excavation Soil Sample Locations
-  Excavation Extent
-  Pipeline Infrastructure
-  Crude Oil Impacted Soil
-  Terminal Property Boundary

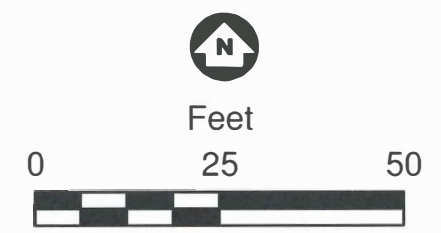


Figure 2

TANK 9 HISTORICAL RELEASE ASSESSMENT AND EXCAVATION AREA
 Enbridge Superior Terminal
 Superior, Wisconsin



Barr Footer: ArcGIS 10.0, 2012-08-08 15:39 File: I:\Projects\4911611092\Enbridge_Map\Reports\Tank 9\Figure2_Tank9.mxd User: iwk

Table 1
Soil Analytical Data Summary
PVOC and DRO
Tank 9 Soil Boring Investigation
Enbridge Energy Terminal - Superior, Wisconsin

	Chemical Name		Moisture, percent	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylenes, total	Diesel Range Organics
	Effective Date	Exceedance Key								
Wisconsin Generic Residual Contaminant Levels NR 720.09	09/01/2007	No Exceed				0.0055 mg/kg	2.9 mg/kg	1.5 mg/kg	4.1 mg/kg	250 mg/kg
Wisconsin Soil Screening Levels for Ingestion (Carcinogenic)		No Exceed				104 mg/kg				
Wisconsin Soil Screening Levels for Ingestion (Non-Carcinogenic)		No Exceed					102000 mg/kg	81800 mg/kg	204000 mg/kg	
Sys Loc Code	Depth Interval (ft)	Sample Date								
Geoprobe Samples										
TK9-B-1	9 - 9	5/17/2012	28.1%	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.21 mg/kg	53.2 mg/kg
TK9-B-2	9 - 9	5/17/2012	28.8%	< 0.067 mg/kg	< 0.067 mg/kg	< 0.067 mg/kg	< 0.067 mg/kg	< 0.067 mg/kg	< 0.20 mg/kg	< 10.4 mg/kg
TK9-B-3	11 - 12	7/18/2012	23.9%	< 0.063 mg/kg	< 0.063 mg/kg	< 0.063 mg/kg	< 0.063 mg/kg	< 0.063 mg/kg	< 0.19 mg/kg	< 12.9 mg/kg
TK9-S-1	3.5 - 3.5	5/17/2012	27.2%	< 0.085 mg/kg	< 0.085 mg/kg	< 0.085 mg/kg	< 0.085 mg/kg	< 0.085 mg/kg	< 0.25 mg/kg	< 13.3 mg/kg
TK9-S-2	5 - 5	5/17/2012	27.6%	< 0.086 mg/kg	< 0.086 mg/kg	< 0.086 mg/kg	< 0.086 mg/kg	< 0.086 mg/kg	< 0.26 mg/kg	< 12.7 mg/kg
TK9-S-3	2 - 2	5/17/2012	25.4%	< 0.072 mg/kg	< 0.072 mg/kg	< 0.072 mg/kg	< 0.072 mg/kg	< 0.072 mg/kg	< 0.22 mg/kg	< 11.9 mg/kg
TK9-S-4	2 - 2	5/17/2012	22.3%	--	--	--	--	--	--	< 11.0 mg/kg
TK9-S-5	6 - 6	5/17/2012	29.5%	< 0.070 mg/kg	< 0.070 mg/kg	< 0.070 mg/kg	< 0.070 mg/kg	< 0.070 mg/kg	< 0.21 mg/kg	< 14.2 mg/kg
TK9-S-6	3 - 3	5/17/2012	16.1%	< 0.058 mg/kg	< 0.058 mg/kg	< 0.058 mg/kg	< 0.058 mg/kg	< 0.058 mg/kg	< 0.17 mg/kg	< 9.4 mg/kg
TK9-S-7	4 - 4	5/17/2012	26.2%	< 0.068 mg/kg	< 0.068 mg/kg	< 0.068 mg/kg	< 0.068 mg/kg	< 0.068 mg/kg	< 0.21 mg/kg	< 11.3 mg/kg
TK9-S-8	2 - 2	7/18/2012	25.0%	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.069 mg/kg	< 0.21 mg/kg	19.7 mg/kg

Attachment B

Enbridge Site Investigation Field Sampling and Screening Log

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Milepost or Facility PR Retirement Manifold 211

Equipment used: Photo -ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 7/10/2014

Sample Nomenclature (Location - sample type - #): _____

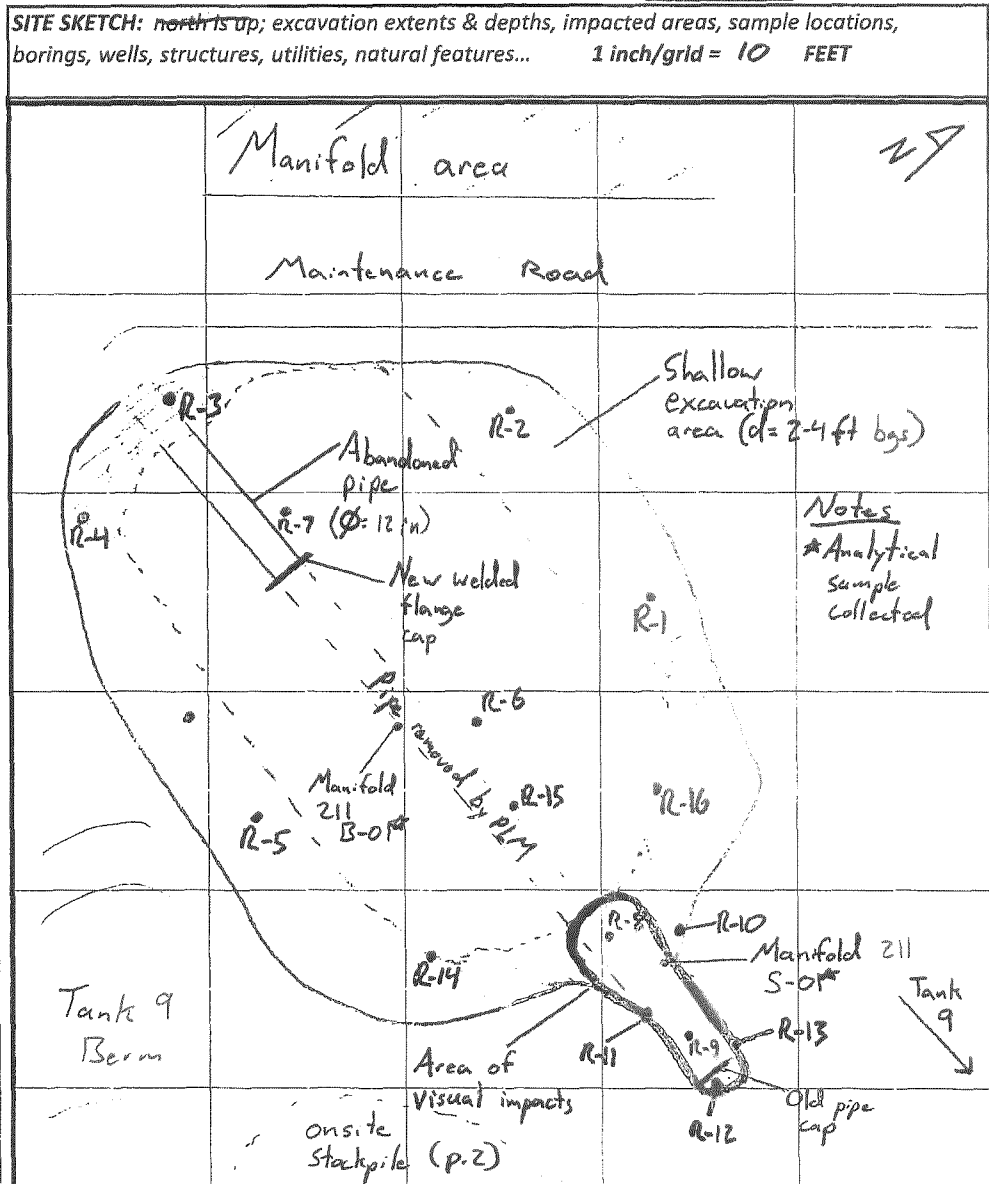
Sampler: TTS

Soil Sample Types: R = Removed Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Calibration Time: 0930



Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/Discolor	Odor/Sheen	Headspace Reading (ppm)
Example: Stockpile-1	4	16:30	CL	Reddish brown	Petroleum/Rainbow	275
R-1	2	1320	CH	Reddish brown	N/N	0.0
R-2	2					0.0
R-3	1					0.0
R-4	4					0.0
R-5	2					0.0
R-6	8	✓				0.0
R-7	8	1325				0.0
R-8	4				Petro/Manif w/product	598.8
R-9	4				N/N	6.0
R-10	3				Furat/Mod.	44.9
R-11	3					0.8
R-12	3					0.0
R-13	2	✓				1.7
R-14	2	1415				0.0
R-15	7					0.0
R-16	4	✓				0.0
Manifold 211 S-01	3	1410			N/N	0.0
Manifold 211 B-01	8	1412	✓	✓	N/N	0.0



Attachment C

**Legend Technical Services Laboratory Report
for Excavation Soil Samples**

July 16, 2014

Ms. Andrea Nord
 Barr Engineering Co
 4700 W 77th St
 Minneapolis, MN 55435

Work Order Number: 1403026
 RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 07/11/14. If you have any questions concerning this report, please feel free to contact me.

Results are not blank corrected unless noted within the report. Additionally, all QC results meet requirements unless noted.

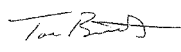
All samples will be retained by Legend Technical Services, Inc., unless consumed in the analysis, at ambient conditions for 30 days from the date of this report and then discarded unless other arrangements are made. All samples were received in acceptable condition unless otherwise noted.

WI Accreditation #090022410

Prepared by,
 LEGEND TECHNICAL SERVICES, INC



Samantha Jaworski
 Manager, Organics
 sjaworski@legend-group.com



Tom Barrett
 Vice President, Strategic Analytical Services
 tbarrett@legend-group.com

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12.001.001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Manifold 211 S-01_3-3-5	1403026-01	Soil	07/10/14 14:10	07/11/14 09:25
Manifold 211 B-01_8-8	1403026-02	Soil	07/10/14 14:12	07/11/14 09:35

Shipping Container Information

Default Cooler Temperature (°C): 2.4
 Received on ice: Yes Temperature blank was present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (HHSO only) No
 Custody seals: Yes

Case Narrative:

The dry weight correction and dilution applies to the sample result, MDL, and RL.
 Ethylbenzene was present in the method blank between the MDL and RL for the BTEX analysis.

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12.001.001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

WI(95) GRO/B015D
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manifold 211 S-01_3-3-5 (1403026-01) Soil Sampled: 07/10/14 14:10 Received: 07/11/14 9:35										
1,2,4-Trimethylbenzene	<0.034	0.034	0.0037	mg/kg dry	1	B401405	07/14/14	07/14/14	WI(95) GRO	
1,3,5-Trimethylbenzene	<0.034	0.034	0.0055	mg/kg dry	1	-	-	-	-	
Benzene	<0.0040	0.034	0.0040	mg/kg dry	1	-	-	-	-	
Ethylbenzene	0.023	0.034	0.0058	mg/kg dry	1	-	-	-	-	B-01, J
Naphthalene	<0.65	0.68	0.030	mg/kg dry	1	-	-	-	-	T-1
Toluene	<0.0056	0.034	0.0056	mg/kg dry	1	-	-	-	-	
Xylenes (total)	<0.020	0.10	0.020	mg/kg dry	1	-	-	-	-	
Surrogate: 4-Fluorochlorobenzene	94.1	-	80-150 %	-	-	-	-	-	-	
Manifold 211 B-01_8-8 (1403026-02) Soil Sampled: 07/10/14 14:12 Received: 07/11/14 9:35										
1,2,4-Trimethylbenzene	<0.033	0.033	0.0036	mg/kg dry	1	B401405	07/14/14	07/14/14	WI(95) GRO	
1,3,5-Trimethylbenzene	<0.033	0.033	0.0082	mg/kg dry	1	-	-	-	-	
Benzene	<0.0038	0.033	0.0058	mg/kg dry	1	-	-	-	-	
Ethylbenzene	0.016	0.033	0.0084	mg/kg dry	1	-	-	-	-	B-01, J
Naphthalene	<0.66	0.66	0.026	mg/kg dry	1	-	-	-	-	T-1
Toluene	<0.0054	0.033	0.0054	mg/kg dry	1	-	-	-	-	
Xylenes (total)	<0.019	0.099	0.019	mg/kg dry	1	-	-	-	-	
Surrogate: 4-Fluorochlorobenzene	93.1	-	80-150 %	-	-	-	-	-	-	

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12.001.001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

PERCENT SOLIDS
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manifold 211 S-01_3-3-5 (1403026-01) Soil Sampled: 07/10/14 14:10 Received: 07/11/14 9:35										
% Solids	73	-	-	%	1	B401513	07/15/14	07/16/14	% calculation	
Manifold 211 B-01_8-8 (1403026-02) Soil Sampled: 07/10/14 14:12 Received: 07/11/14 9:35										
% Solids	76	-	-	%	1	B401513	07/15/14	07/16/14	% calculation	

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bar Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253-12001001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

WI(95) GRO/8015D - Quality Control
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B4G1406 - EPA 5035 Soil (Purge and Trap)											
Blank (B4G1406-BLK1) Prepared & Analyzed: 07/14/14											
1,2,4-Trimethylbenzene	< 0.025	0.025	0.0027	mg/kg wet							
1,3,5-Trimethylbenzene	< 0.025	0.025	0.0052	mg/kg wet							
Benzene	< 0.0029	0.025	0.0029	mg/kg wet							B-02, J
Ethylbenzene	0.0059	0.025	0.0054	mg/kg wet							
Naphthalene	< 0.50	0.50	0.022	mg/kg wet							
Toluene	< 0.0041	0.025	0.0041	mg/kg wet							
Xylenes (total)	< 0.014	0.075	0.014	mg/kg wet							
Surrogate: 4-Fluorobenzene	22.9			ug/L	25.0		91.6	89-150			
LCS (B4G1406-BS1) Prepared & Analyzed: 07/14/14											
1,2,4-Trimethylbenzene	92.5			ug/L	100		92.5	80-120			
1,3,5-Trimethylbenzene	91.4			ug/L	100		91.4	80-120			
Benzene	99.2			ug/L	100		99.2	80-120			
Ethylbenzene	97.5			ug/L	100		97.5	80-120			
Naphthalene	84.9			ug/L	100		84.9	80-120			
Toluene	99.5			ug/L	100		99.5	80-120			
Xylenes (total)	284			ug/L	300		94.7	80-120			
Surrogate: 4-Fluorobenzene	23.3			ug/L	25.0		93.0	80-150			
LCS Dup (B4G1406-BSD1) Prepared: 07/14/14 Analyzed: 07/15/14											
1,2,4-Trimethylbenzene	89.4			ug/L	100		89.4	80-120	3.44	20	
1,3,5-Trimethylbenzene	88.0			ug/L	100		88.0	80-120	3.78	20	
Benzene	96.5			ug/L	100		96.0	80-120	2.53	20	
Ethylbenzene	94.1			ug/L	100		94.1	80-120	3.47	20	
Naphthalene	82.2			ug/L	100		82.2	80-120	3.21	20	
Toluene	96.5			ug/L	100		96.5	80-120	3.11	20	
Xylenes (total)	270			ug/L	300		92.1	80-120	2.63	20	
Surrogate: 4-Fluorobenzene	23.2			ug/L	25.0		92.0	80-150			
Matrix Spike (B4G1406-MS1) Source: 1403068-02 Prepared: 07/14/14 Analyzed: 07/15/14											
1,2,4-Trimethylbenzene	88.8			ug/L	100	<	88.8	80-120			
1,3,5-Trimethylbenzene	87.3			ug/L	100	<	87.3	80-120			
Benzene	94.9			ug/L	100	<	94.9	80-120			
Ethylbenzene	92.3			ug/L	100	0.245	92.0	80-120			
Naphthalene	80.4			ug/L	100	<	80.4	80-120			
Toluene	95.1			ug/L	100	<	95.1	80-120			
Xylenes (total)	271			ug/L	300	<	90.3	80-120			
Surrogate: 4-Fluorobenzene	23.2			ug/L	25.0		92.1	80-150			

Legend Technical Services, Inc.

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Bar Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253-12001001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

PERCENT SOLIDS - Quality Control
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B4G1513 - General Preparation											
Duplicate (B4G1513-DUP1) Source: 1403068-02 Prepared: 07/15/14 Analyzed: 07/16/14											
% Solids	94.0			%			94.0		0.00	20	

Legend Technical Services, Inc.

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Bar Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253-12001001 Work Order #: 1403026
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/16/14

Notes and Definitions

- T-1 MDH does not offer certification for this parameter.
- J Parameter was present between the MDL and RL and should be considered an estimated value
- B-02 Target analyte was present in the method blank between the MDL and RL
- B-01 Analyte was present in the method blank. Sample result is less than or equal to 10 times the blank concentration.
- < Less than value listed
- dry Sample results reported on a dry weight basis
- NA Not applicable. The %RPD is not calculated from values less than the reporting limit.
- MDL Method Detection Limit
- RL Reporting Limit
- RPD Relative Percent Difference
- LCS Laboratory Control Spike = Blank Spike (BS) + Laboratory Fortified Blank (LFB)
- LCS Laboratory Control Spike = Blank Spike (BS) + Laboratory Fortified Matrix (LFM)
- MS Matrix Spike = Laboratory Fortified Matrix (LFM)

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Chain of Custody

1403068

Project Number: 49161253-12001001

Project Name: 4700 W 77th St

Sample ID: 1403068-02

Sample Location: 7th

Sample Date: 7/16/14

Sample Time: 14:10

Sample Volume: 100 mL

Sample Weight: 100 g

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

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Sample Date: 7/16/14

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Sample Weight: 100 g

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Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry

Sample Results: 94.0%

Sample Date: 7/16/14

Sample Time: 14:10

Sample Location: 7th

Sample Weight: 100 g

Sample Volume: 100 mL

Sample Temperature: 14°C

Sample Description: 7 solids

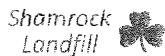
Sample Storage: 3 day TAT

Sample Handling: 100% dry

Sample Analysis: 100% dry</

Attachment D

Waste Disposal Documentation



July 16, 2014

Alex Smith
Enbridge Pipelines Limited Partnership, LLC
Accounts Payable
1100 Louisiana Ave, Ste 3300
Houston, TX 77002

RE: C114-0028 Crude contaminated soil - Manifold 211

Dear Mr. Smith,

This agreement will confirm the price and length of service for disposal and/or transportation of your non-hazardous industrial material at our facility. This agreement is for the term of the Waste Approval granted by Shamrock Landfill and is for all services ordered and performance initiated within such period and does include the disposal surcharge fees which you are obligated to pay as of the date of this agreement. Shamrock Landfill may incur additional costs including but not limited to increases in state and local taxes. Shamrock Landfill may pass these costs on to the customer only after notification to the Customer. This agreement grants Shamrock Landfill the exclusive right to dispose of the referenced waste for the term of this agreement. This agreement shall automatically renew thereafter for an additional term of 24 months "Renewal Term" unless either party gives the other party written notification of termination at least 90 days prior to the termination of the then-existing term. Shamrock Landfill will notify the customer prior to the expiration of the agreement of any rate changes prior to the start of the Renewal Term. Payment and terms are net thirty (30) days. Interest will be charged at a rate of 1 1/2% per month (18% annually) on any unpaid balance 30 days after the date of the invoice. In the event Customer terminates this Agreement prior to its expiration other than as a result of a breach by Shamrock Landfill or Shamrock Landfill terminates this agreement for Customer's breach (including nonpayment) Customer agrees to pay to Shamrock Landfill as liquidated damages a sum calculated as follows: (1) if the remaining term under this agreement is six or more months Customer shall pay its average monthly charges multiplied by six; or (2) if the remaining term under this agreement is less than six months Customer shall pay its average monthly charge multiplied by the number of months remaining in the term. Customer expressly acknowledges that in the event of an unauthorized termination of this agreement the anticipated loss to Shamrock Landfill in such event is estimated to be the amount set forth in the foregoing liquidated damages provision and such estimated value is reasonable and is not imposed as a penalty.

These prices are based on an approved waste stream composition. In the event that a non-conforming waste is received, you will be notified of additional charges, when applicable.

To accept this agreement, please sign one copy and return it to our St. Paul, MN office at Shamrock Landfill, 251 Starkey St., St. Paul, MN 55107 or Via Fax at 651-223-8197 or email to jomp@shamrocklandfill.com

Shamrock Landfill

Joe Penheller

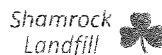
Customer ACCEPTED BY: (name, position)

DATE:

WASTE APPROVAL Period: 7/16/2014 to 7/16/2016

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120



Bill To Customer

Enbridge Pipelines Limited Partnership, LLC
Accounts Payable
1100 Louisiana Ave, Ste 3300
Houston, TX 77002

Service For Generator

Enbridge Pipelines Limited Partnership, LLC
1320 Grand Ave
Superior Terminal Manifest 211
Superior, WI 54880

Disposal

Waste Description: Crude contaminated soil - Manifold 211

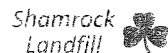
Estimated Volume: 100 YARDS / ONE TIME ONLY

Disposal Method: Secure Non-Hazardous Landfill

Treatment Method: None Expected For Conforming Waste

Pricing

Disposal \$16.00 Per Ton Crude contaminated soil - Manifold 211



Notification of Waste Acceptance

PAGE 1 of 2
7/16/2014

CUSTOMER INFORMATION

EPA ID#: WJD981092133
Enbridge Pipelines Limited Partnership,
Enbridge Superior Terminal/Manifest 2

1320 Grand Ave
Superior Terminal Manifest 211
Superior, WI 54880
Contact: Alex Smith
Phone: (715) 398-4795

Profile Sheet #:
Waste Stream #: C114-0028
Waste Name: Crude contaminated soil - Manifold 211

INVOICE INFORMATION

Bill #: 2133
Enbridge Pipelines Limited Partnership,
Accounts Payable

1100 Louisiana Ave, Ste 3300
Houston, TX 77002
Contact: Alex Smith
Phone: (715) 398-4795

Thank you for selecting SHAMROCK LANDFILL for your waste management requirements. Your waste stream has been reviewed and is acceptable for management at our facility based on the information provided in the profile sheet number listed above and conditions below. Our facility has the necessary permits to allow the storage, treatment, or disposal of this waste. The above referenced acceptance number should be listed on all shipping documents and correspondence. Please retain these documents for your records and future reference.

To schedule a shipment, or should you have any questions, please contact the facility at (218) 878-0112.

ACCEPTANCE INFORMATION

The waste stream identified by the reference above is acceptable for disposal.
The anticipated frequency of shipment is 100 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 7/16/2014 thru 7/16/2016 at which time the material will need to be reanalyzed and recertified.

PCB Statement: The Minnesota Pollution Control Agency encourages generators of non-hazardous PCB waste to voluntarily manage the waste as hazardous waste or to seek an alternative to land disposal such as incineration

Spill Reporting Reminder: Proper County and MPCA spill reporting procedures must be followed.

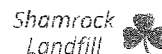
Empty Container Statement: Each shipment containing empty containers must be accompanied with a completed EMPTY CONTAINER CERTIFICATION FORM.

Free Liquid Statement: Free liquids will not be placed in cells at Shamrock Landfill. Free liquids must be solidified either prior to shipment to Shamrock Landfill or at Shamrock Landfill.

Shipping Requirements: A NON-HAZARDOUS certificate is required to be on file, certifying the waste is non-hazardous as specified per 40 CFR 261.4. The shipment must be accompanied with an Shamrock Landfill manifest.

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120



WASTE STREAM ANALYSIS INFORMATION

Waste Name: Crude contaminated soil - Manifold 211
Physical State: Solid
Process Producing Waste: Pipeline terminal activities

PRE-ACCEPTANCE SAMPLE RESULTS

Color: Physical State:
Dust Present: 0 Free Liquids: 0
Paint Filter Test: 0 Odor:
Flash Point Range: Density:
Radioactive?: 0 Water Reactivity: 0
pH Range: React to Acid: 0
React to Base: 0 % Moisture:
OVM Sniff: Sulfide:
Oxidizers: 0 Cyanide:
Reacts with Air: 0

This analysis is solely for use by Shamrock Landfill employees for the purpose of determining waste acceptability. No other claims are made or implied.

COMMENTS

AUTHORIZATION

Approval: [Signature] Date: 7/16/14

PAGE 2 of 2
7/16/2014

P.O. Number	Customer Code	SKB Representative	CL
I. Generator Information			
Generator Name: Enbridge Pipelines Limited Partnership, LLC		Generator EPA ID Number	
Generator Location: Enbridge Superior Terminal - Manifold 211		SIC Code	
County: Douglas		Generator Contact: Alex Smith	
Generator Mailing Address (if different): 1320 Grand Ave, Superior, WI 54880		Phone: 715-398-4795 Fax: 832-325-5511	
Generator Email Address: alex.smith@enbridge.com		Billing Contact: Alex Smith	
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002		Phone: 715-398-4795 Fax: 832-325-5511	
Billing Email Address: alex.smith@enbridge.com		Billing Contact: Alex Smith	
II. Waste Generation Information			
Waste Name: Crude contaminated soil - Manifold 211		Estimated rate of waste generation: 100	
Generator Facility Operations and/or Site History: Enbridge Pipeline Terminal		<input type="checkbox"/> Lbs <input type="checkbox"/> tons <input checked="" type="checkbox"/> cu <input type="checkbox"/> drums <input type="checkbox"/> or/other <input type="checkbox"/> year/yr	
Describe the generating process or source of contaminated soil/debris and/or waste: Pipeline Terminal Activities			
III. Waste Composition and Constituents (at all known)			
Crude contaminated soil		Actual Range % ppm	
		100	
IV. Waste Properties			
Physical state: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Sludge <input type="checkbox"/> Liquid <input type="checkbox"/> Gas		Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
pH Range: <input type="checkbox"/> <2 <input type="checkbox"/> 2-4 <input type="checkbox"/> 5-8 <input checked="" type="checkbox"/> >12.5		Flash point: <input type="checkbox"/> ≤ 140°F <input type="checkbox"/> > 140°F to < 200°F <input type="checkbox"/> > 200°F	
Color: Brown		Odor (describe) per/leum odor	
V. Waste Classification			
Waste stream properties (answer ALL questions)		Does this waste contain a sorbent? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste stream contain any D, F, K, U or P listed as hazardous waste, either in pure form, as a mixture, or treatment residue? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this waste lethal (by Minn. Rules 7045.0131 Subp. 6)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste stream contain PCB material? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this waste recyclable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
If yes, concentration: _____ ppm		Is this waste explosive? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste stream contain flammable acids? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this waste infectious? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste contain asbestos? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this putrescible waste? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste contain oxidizers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this waste demolition debris? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this waste contain radioactive material? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is this waste sewer sludge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Please attach any available information or analytical test results that have previously been performed on this waste that substantiates these determinations. Include MSDS's and any information from other agencies (i.e., MPCA, USEPA)			
VI. Shipping Information			
Proper DOT Shipping Name (per CFR 172.101) where applicable			
Reposable Quantity	DOT Hazard Class	UN/NA Number	Packing Group
Method of packaging: <input type="checkbox"/> drums (size _____)		Method of shipment: <input type="checkbox"/> Roll-off <input checked="" type="checkbox"/> Enddump <input type="checkbox"/> Rail <input type="checkbox"/> Other (Specify) _____	
<input checked="" type="checkbox"/> Bulk Solids <input type="checkbox"/> boxes (size _____)			
VII. Certification of Non-Hazardous Waste & Approval Conditions			
I hereby certify and warrant, on behalf of the generator and myself that, to the best of my knowledge and belief, the information contained herein is accurate and true and that the waste is non-hazardous as defined in Title 42, United States Code Section 6903, Minnesota Statute Section 116.06, Subdivision 13, and/or any rules adopted by the Minnesota Pollution Control Agency under Minnesota Statute Section 116.07.			
I understand that any approval is no longer valid if there are any changes in the process generating the waste or there have been changes in the composition of the waste. Therefore, if the composition of the waste stream changes or potentially changes, for someone representing the generator, will immediately notify SKB Environmental. I, on behalf of the generator, hereby agree to fully indemnify SKB Environmental for any damages and/or costs incurred as a result of this certification being inaccurate or untrue.			
Signature:	Alex Smith	Environmental Analyst	15 July 2014
	Printed Name	Title	Date



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

July 14, 2014

Ms. Andrea Nord
Barr Engineering Co.
4700 W 77th St
Minneapolis, MN 55435

Work Order Number: 1402999
RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 07/10/14. If you have any questions concerning this report, please feel free to contact me.

Results are not blank corrected unless noted within the report. Additionally, all QC results meet requirements unless noted. All samples will be retained by Legend Technical Services, Inc. unless consumed in the analysis, at ambient conditions for 30 days from the date of this report and then discarded unless other arrangements are made. All samples were received in acceptable condition unless otherwise noted.

WI Accreditation #998022410

Prepared by:
LEGEND TECHNICAL SERVICES, INC

Bach Pham
Client Manager/II
bpham@legend-group.com

Samantha Jaworski
Manager, Organics
sjaworski@legend-group.com

Legend Technical Services, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435
Project: 49161253
Project Number: 49161253.12001.001
Project Manager: Ms. Andrea Nord
Work Order #: 1402999
Date Reported: 07/14/14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Manifold 211 Stockpile-1	1402999-01	Soil	07/09/14 11:05	07/10/14 09:15
Manifold 211 Stockpile-2	1402999-02	Soil	07/09/14 11:10	07/10/14 09:15

Shipping Container Information

Default Cooler Temperature (°C): 2.6
Received on ice: Yes
Received on melt water: No
Custody seals: Yes
Temperature blank was present
Ambient: No
Received on ice pack: No
Acceptable (H/HISO only): No

Case Narrative:

The dry weight correction and dilution applies to the sampler result MDL, and RL.
Ethylbenzene was present in the method blank between the MDL and RL for the BTEX analysis.



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435
Project: 49161253
Project Number: 49161253.12001001
Project Manager: Ms. Andrea Nord
Work Order #: 1402999
Date Reported: 07/14/14

DRO/8015D

Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manifold 211 Stockpile-1 (1402999-01) Soil Sampled: 07/09/14 11:06 Received: 07/10/14 9:16										
Diesel Range Organics	11	27	4.4	mg/kg dry	1	B4G1103	07/11/14	07/11/14	W(S)SDRO	J
Surrogate: Toluene(C-30)	76.4			70-130 %						
Manifold 211 Stockpile-2 (1402999-02) Soil Sampled: 07/09/14 11:10 Received: 07/10/14 8:16										
Diesel Range Organics	9.6	20	3.2	mg/kg dry	1	B4G1103	07/11/14	07/11/14	W(S)SDRO	J
Surrogate: Toluene(C-30)	76.4			70-130 %						

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12001001 Work Order #: 1402999
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/14/14

WI(95) GRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manifold 211 Stockpile-1 (1402999-01) Soil Sampled: 07/09/14 11:05 Received: 07/10/14 9:15										
Benzene	<0.013	0.11	0.013	mg/kg dry	1	B4G1013	07/10/14	07/10/14	WI(95)GRO	
Ethylbenzene	0.064	0.11	0.028	mg/kg dry	1	-	-	-	-	B-01, J
Toluene	<0.018	0.11	0.018	mg/kg dry	1	-	-	-	-	
Xylenes (total)	<0.062	0.33	0.062	mg/kg dry	1	-	-	-	-	
Surrogate: 4-Fluorochlorobenzene	93.6			80-150 %		-	-	-	-	
Manifold 211 Stockpile-2 (1402999-02) Soil Sampled: 07/09/14 11:10 Received: 07/10/14 9:15										
Benzene	<0.012	0.10	0.012	mg/kg dry	1	B4G1013	07/10/14	07/10/14	WI(95)GRO	
Ethylbenzene	0.066	0.10	0.028	mg/kg dry	1	-	-	-	-	B-01, J
Toluene	<0.016	0.10	0.016	mg/kg dry	1	-	-	-	-	
Xylenes (total)	<0.057	0.30	0.057	mg/kg dry	1	-	-	-	-	
Surrogate: 4-Fluorochlorobenzene	93.5			80-150 %		-	-	-	-	

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12001001 Work Order #: 1402999
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/14/14

PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manifold 211 Stockpile-1 (1402999-01) Soil Sampled: 07/09/14 11:05 Received: 07/10/14 9:15										
% Solids	23			%	1	B4G1106	07/11/14	07/11/14	% calculation	
Manifold 211 Stockpile-2 (1402999-02) Soil Sampled: 07/09/14 11:10 Received: 07/10/14 9:15										
% Solids	26			%	1	B4G1106	07/11/14	07/11/14	% calculation	

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12001001 Work Order #: 1402999
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/14/14

DRO/8016D - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B4G1103 - Sonication (Wisc DRO)											
Blank (B4G1103-BLK1) Prepared and Analyzed: 07/11/14											
Diesel Range Organics	< 1.3	8.0	1.3	mg/kg wet							
Surrogate: Triacetone (C-30)	12.8			mg/kg wet	16.0		79.6	70-130			
LCS (B4G1103-BS1) Prepared and Analyzed: 07/11/14											
Diesel Range Organics	58.7	8.0	1.3	mg/kg wet	64.0		91.7	70-120			
Surrogate: Triacetone (C-30)	13.4			mg/kg wet	16.0		83.6	70-130			
LCS Dup (B4G1103-BSD1) Prepared: 07/11/14 Analyzed: 07/12/14											
Diesel Range Organics	55.6	8.0	1.3	mg/kg wet	64.0		86.9	70-120	5.37	20	
Surrogate: Triacetone (C-30)	12.9			mg/kg wet	16.0		80.8	70-130			

Barr Engineering Co. Project: 49161253
 4700 W 77th St Project Number: 49161253.12001001 Work Order #: 1402999
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 07/14/14

WI(95) GRO/8016D - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B4G1013 - EPA 5035 Soil (Purge and Trap)											
Blank (B4G1013-BLK1) Prepared and Analyzed: 07/10/14											
Benzene	< 0.0029	0.025	0.0029	mg/kg wet							
Ethylbenzene	0.00721	0.025	0.0064	mg/kg wet							B-02, J
Toluene	< 0.0041	0.025	0.0041	mg/kg wet							
Xylenes (total)	< 0.014	0.075	0.014	mg/kg wet							
Surrogate: 4-Fluorochlorobenzene	22.9			ug/L	25.0		91.5	80-150			
LCS (B4G1013-BS1) Prepared and Analyzed: 07/10/14											
Benzene	98.0			ug/L	100		98.0	80-120			
Ethylbenzene	95.4			ug/L	100		95.4	80-120			
Toluene	97.7			ug/L	100		97.7	80-120			
Xylenes (total)	284			ug/L	300		94.6	80-120			
Surrogate: 4-Fluorochlorobenzene	23.5			ug/L	25.0		94.2	80-150			
LCS Dup (B4G1013-BSD1) Prepared: 07/10/14 Analyzed: 07/11/14											
Benzene	104			ug/L	100	104	104	80-120	5.61	20	
Ethylbenzene	103			ug/L	100	103	103	80-120	7.84	20	
Toluene	103			ug/L	100	103	103	80-120	5.03	20	
Xylenes (total)	267			ug/L	300	267	89.1	80-120	4.62	20	
Surrogate: 4-Fluorochlorobenzene	22.9			ug/L	25.0		91.5	80-150			
Matrix Spike (B4G1013-MS1) Source: 1402998-01 Prepared: 07/10/14 Analyzed: 07/11/14											
Benzene	112			ug/L	100	<	<	112	80-120		
Ethylbenzene	111			ug/L	100	0.264	110	80-120			
Toluene	111			ug/L	100	0.101	111	80-120			
Xylenes (total)	326			ug/L	300	0.317	108	80-120			
Surrogate: 4-Fluorochlorobenzene	22.9			ug/L	25.0		91.7	80-150			

