

## Technical Memorandum

**To:** Alex Smith, Enbridge Energy  
**From:** Ryan Erickson  
**Subject:** Superior Terminal Line 1 Quality Skid Building Excavation  
**Date:** January 29, 2015  
**Project:** 49161253.20

This memorandum summarizes the field screening, 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 in a Line 1 quality skid construction excavation at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1) in November of 2014.

### Background

The Line 1 quality skid building was constructed by Enbridge in November and December of 2014 at the Superior Terminal (Figure 2). Crude oil contaminated soil with a petroleum odor and rainbow sheen was encountered by contractors on November 13, 2014 in the building foundation excavation. The Enbridge Environment department was contacted when the contaminated soil was encountered. Excavated contaminated soil was stockpiled in the Superior Terminal Soil Management Area (SMA) (Figure 2).

Enbridge requested that Barr complete the following actions:

- review historical release information for this location
- document environmental actions completed during construction activities
- document the environmental conditions present in the final excavation
- 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 encountered in the excavation was likely historical based on the location and characteristics of the contaminated soil. Barr reviewed the Wisconsin Department of Natural Resources (WDNR) Bureau of Remediation and Redevelopment Tracking System (BRRTS) database for nearby release sites. Barr's findings are included in the *Results* section of this memo and related WDNR documents are included in Attachment A.

### Field Activities

Barr was onsite on November 14, 2014 (Photo 1) to document environmental site conditions and assist with the contaminated soil management. Barr returned to the site on November 19 and 24, 2014 to document the environmental condition of the excavation sidewalls and bottom through field screening and analytical sampling (Photos 2 and 3).

To: Alex Smith, Enbridge Energy  
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Date: January 29, 2015  
Page: 2

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Soil from the final excavation sidewalls and bottom was field screened by Barr for the presence of organic vapors using a photoionization detector (PID) and the presence of other potential indicators of crude oil impacts such as odor, discoloration and sheen was documented (Attachment B). As outlined in the pending WDNR Enbridge Superior Terminal *Site Investigation and Response Action Plan (SI/RAP)* (2014), excavation extent soil is classified as contaminated if it has PID headspace reading greater than 10 parts per million (ppm). If that contaminated soil cannot be excavated, a petroleum volatile organic compounds (PVOC) and naphthalene analytical sample is to be collected from that location to document contaminant concentrations. Barr collected 1 analytical sample (*Line 1 Skid-S-1*) from the construction excavation and submitted it to Legend Technical Services (Legend) in St. Paul, Minnesota for analysis.

During excavation activities, contaminated soil was identified by the contractor based on visual observations (discoloration, sheen) and a petroleum odor. All soil with evidence of contamination was transported to the SMA (Figure 2) contaminated-soil staging area where it was stockpiled until management at an off-site disposal facility was approved. Excavated soil with no evidence of contamination was brought to the SMA clean-soil staging area where it was field screened and sampled prior to off-site management at a local gravel pit.

## Results

On November 14, 2014, Barr was onsite to document site conditions after contaminated soil was first encountered. The excavation work was not completed at this time; however, the planned excavation was approximately 15 feet wide by 15 feet long by 2 feet deep with five 6-foot deep Sonotube borings around the perimeter of the excavation (Attachment B). The soil consisted of approximately 0.5 feet of gravel fill overlying clay and sand fill material. At this time, Barr confirmed that crude oil contaminated soil was present based on visual observations and a strong petroleum odor.

On November 19, 2014, Barr field screened the excavation sidewalls and bottom and identified crude oil contaminated soil with a petroleum odor and headspace of up 632 ppm in the eastern corner of the excavation (Attachment B). The contractor informed Barr that additional soil would be excavated in that location for the placement of a Sonotube; therefore no analytical sample was collected at this time.

On November 24, 2014, Barr field screened the eastern corner of the final excavation and identified crude oil contaminated soil with a petroleum odor and headspace of up 1,941 ppm. Additional excavation was not conducted due to the presence of buried Terminal infrastructure in that location. Analytical sample *Line 1 Skid-S-1* was collected from the contaminated sidewall and submitted to Legend for analysis.

The PVOC and naphthalene analyte concentrations detected in *Line 1 Skid-S-1* (Table 1) were below WDNR Industrial Direct Contact (DC) Residual Contaminant Level's (RCLs) and passed the WDNR Cumulative Hazard Index criteria; which was determined using the EPA Direct Contact Exceedance Hazard Risk Calculator. The analyte concentrations did however exceed the WDNR Groundwater RCL's. The

laboratory results and RCL criteria are summarized in Table 1 below and the laboratory report is included in Attachment C.

**TABLE 1: Analytical Soil Sample Results** (*all analyte concentrations in mg/kg*)

Sample ID	Sample Date	Sample Depth (feet)	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylenes	Naphthalene
Groundwater RCLs			<b>1.3793</b>	<b>1.3793</b>	<b>0.0051</b>	<b>0.785</b>	<b>0.5536</b>	<b>1.97</b>	<b>0.3294</b>
Industrial DC RCLs			219	182	7.41	37	818	258	26
Line 1 Skid-S-1	11/24/14	2.5	<b>9.0</b>	<b>4.9</b>	<b>1.3</b>	<b>1.3</b>	<b>0.14</b>	<b>10</b>	<b>3.8</b>

**BOLD** = Analyte detections exceeding WDNR Groundwater RCLs.

Upon completion of the excavation activity, concrete was poured into the Sonotubes and building foundation forms. Clean fill was used to backfill the void space around the foundation perimeter. Approximately 0.5-feet of gravel covers all exposed ground surfaces surrounding the building. The Line 1 skid building is not defined as a receptor according to *WDNR Enbridge Superior Terminal SI/RAP* (2014) because it is not regularly occupied. Also, all personnel working at the Terminal facility are required to wear a combustible 4-gas meter which will monitor the atmospheric levels during any work conducted in the building.

Barr searched the WDNR BRRTS database for historical releases in this area and identified a site that was discovered in 2012 (Enbridge Energy – Line 6; BRRTS# 0216558991) approximately 50 feet to the northwest of skid excavation and field screening results from the final historical Line 6 excavation identified residual contamination in the southern sidewall along buried terminal infrastructure approximately 30 feet from the skid location. The specific source of the Line 6 contamination was not previously identified and was likely associated with an unidentified historical release.

**Waste Disposal Coordination and Documentation**

Barr collected one waste characterization analytical sample from the contaminated soil stockpile (*Line 1-Stockpile-1*) for laboratory analysis at Legend. The sample was analyzed for diesel range organics (DRO) and benzene, toluene, ethylbenzene, and xylenes (BTEX). A waste profile application was submitted to the Shamrock Landfill located in Cloquet, Minnesota and the soil was accepted under waste profile #CL14-0062. A total of 123.94 tons of petroleum impacted soil was hauled to the landfill for disposal in November and December of 2014. The waste profile documents, the waste characterization laboratory report, and the landfill summary report are included in Attachment D.

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**Page:** 4

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### **Conclusions**

Crude oil contaminated soil excavated from the Line 1 skid excavation was disposed of at an approved landfill. Contaminated soil that could not be excavated due to the presence of terminal infrastructure was identified in the eastern corner of the project excavation. Analyte concentrations in the representative soil sample *Line 1 Skid-S-1* did not exceed WDNR Industrial Direct Contact RCLs and passed the WDNR Cumulative Hazard Index criteria. The presence of clean fill and employee-awareness will prevent direct contact exposure. Analyte concentrations did exceed WDNR Groundwater Criteria; however, groundwater monitoring at the Superior Terminal will be conducted on a facility-wide basis as part of the hydrogeologic performance standard established in the WDNR *Enbridge Superior Terminal SI/RAP* (2014) and project specific monitoring is not required for this site.

No new crude oil source was identified. Given the close proximity and the physical characteristics of the contaminated Line 1 skid soil to the historical BRRTS# 0216558991 site, contamination at both sites may be related to the same historical release event.

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 WDNR BRRTS# 0216558991 file.

### **Attachments:**

Site Photos 1 through 3  
Figure 1 Site Location  
Figure 2 Site Layout  
Attachment A WDNR Historical BRRTS Documents  
Attachment B Site Investigation Field Sampling and Screening Log  
Attachment C Legend Laboratory Report  
Attachment D Waste Management Documentation

## Site Photos



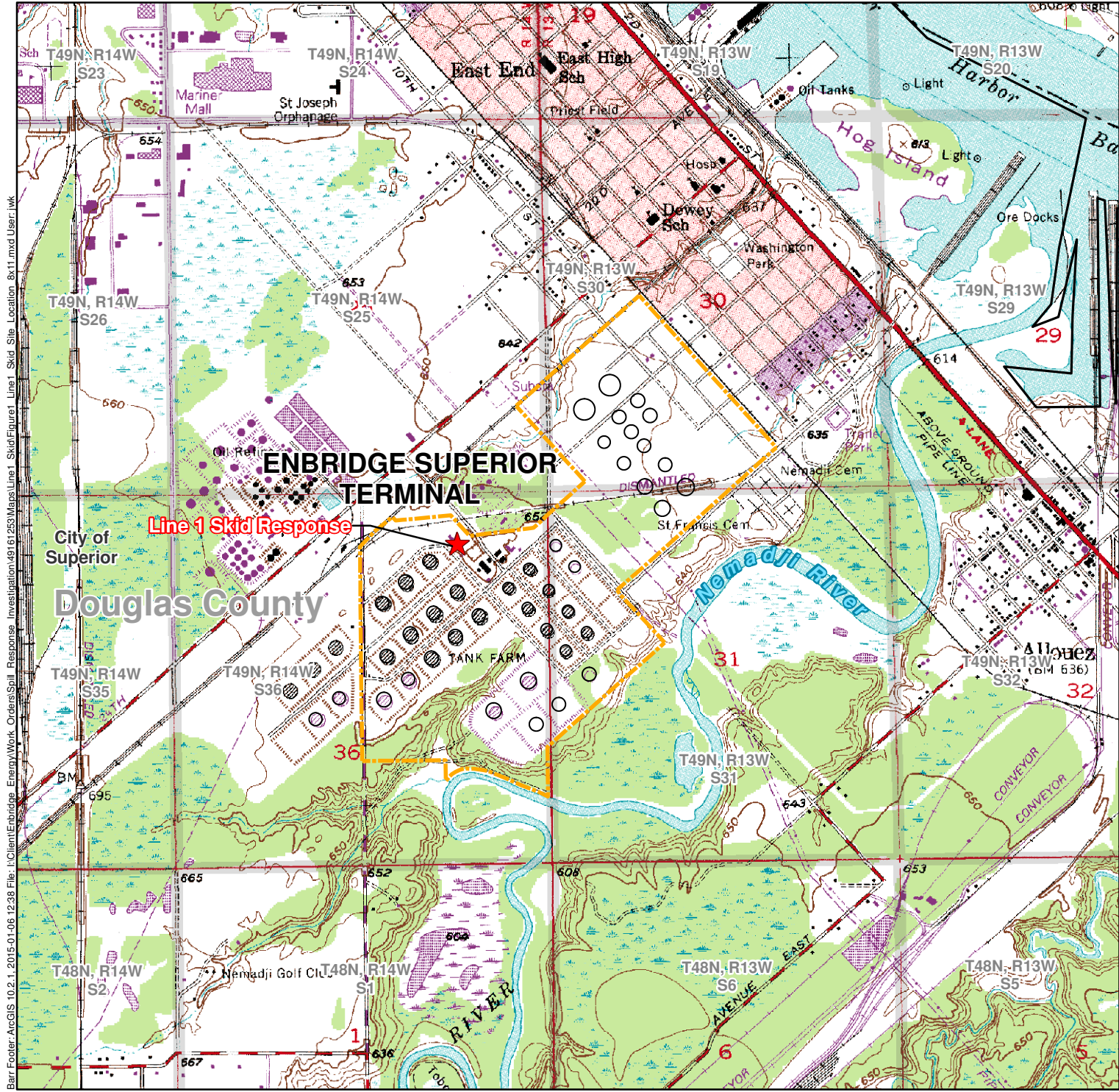
**Photo 1:** Line 1 Skid excavation. Photo facing southwest on November 19, 2014.



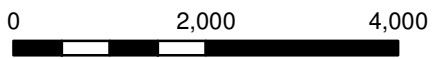
**Photo 2:** The Line 1 excavation with concrete foundation form. The contaminated soil was located in the bottom left corner. Photo facing southwest on November 21, 2014.



**Photo 3:** The Line 1 excavation with foundation form and Sonotube borings. The contaminated soil was located in the upper left corner. Photo facing south on November 24, 2014.



- ★ Site Location
- Terminal Property Boundary



Feet  
1 Inch = 2,000 Feet

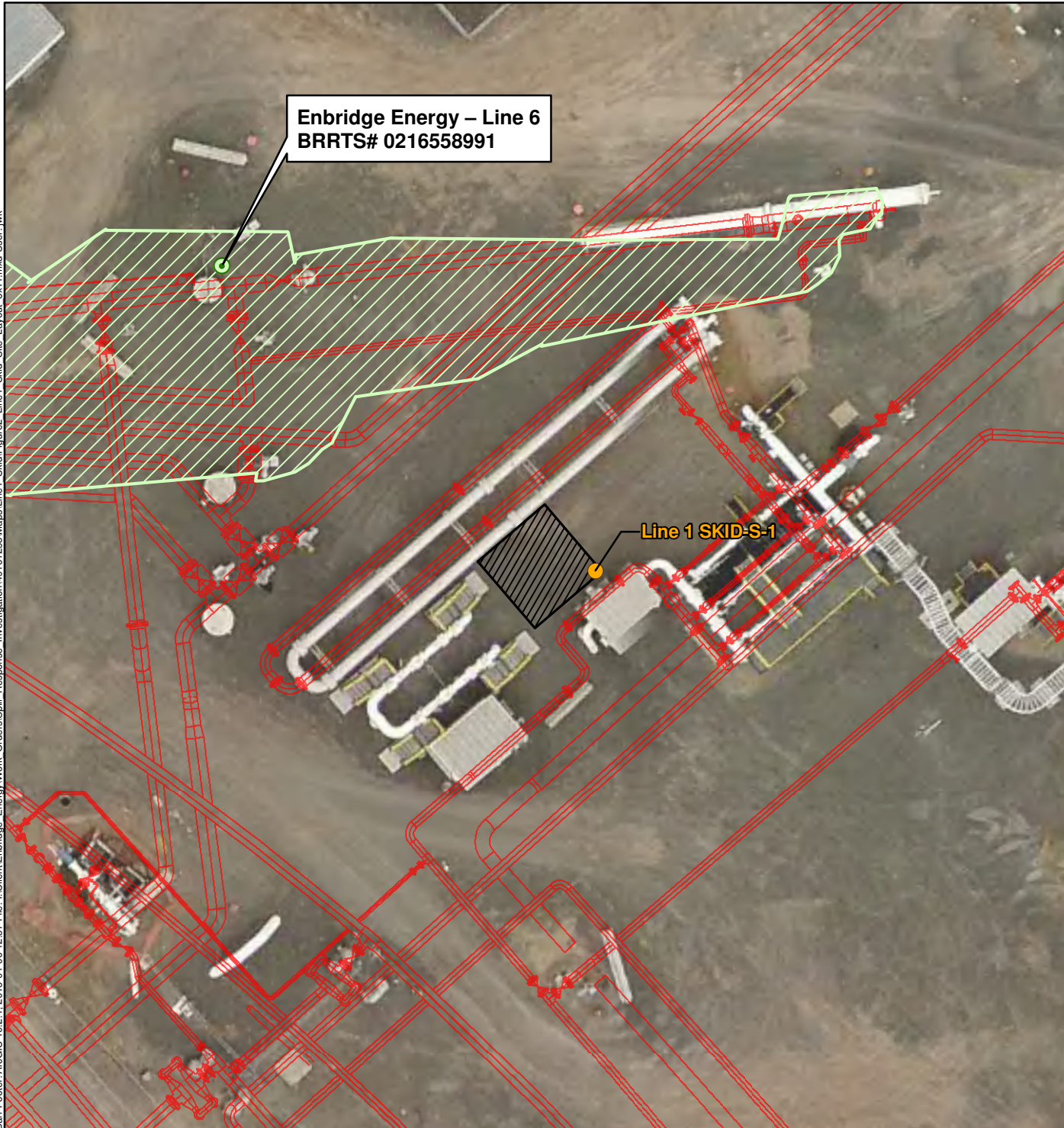
Figure 1

**SITE LOCATION**  
**LINE 1 SKID RESPONSE**  
**SUPERIOR TERMINAL**  
 Enbridge Energy, L.P.  
 Superior, Wisconsin



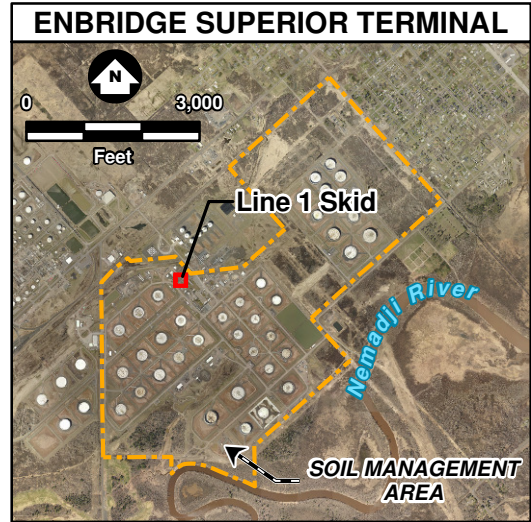
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Barr Footer: ArcGIS 10.2.1, 2015-01-06 12:57 File: I:\Client\Enbridge\_Energy\Work\_Orders\Spill\_Response\_Investigation\491612531\Maps\Line1\_Skid\Figure2\_Line1\_Skid\_Site\_Layout\_8x11.mxd User: jwk

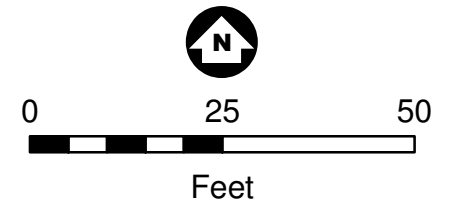


Enbridge Energy – Line 6  
BRRTS# 0216558991

Line 1 SKID-S-1



- Analytical Sample Location
- Approximate Excavation Extent
- 2012 Line 6 Hydrotest Excavation Extent
- WDNR BRRTS Site
- Pipeline Infrastructure
- Terminal Property Boundary



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

Figure 2

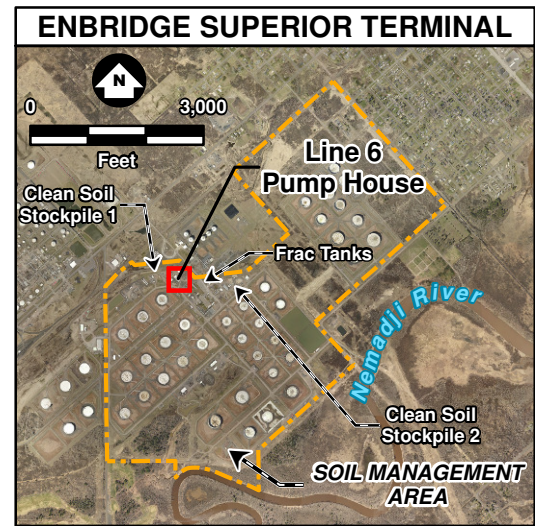
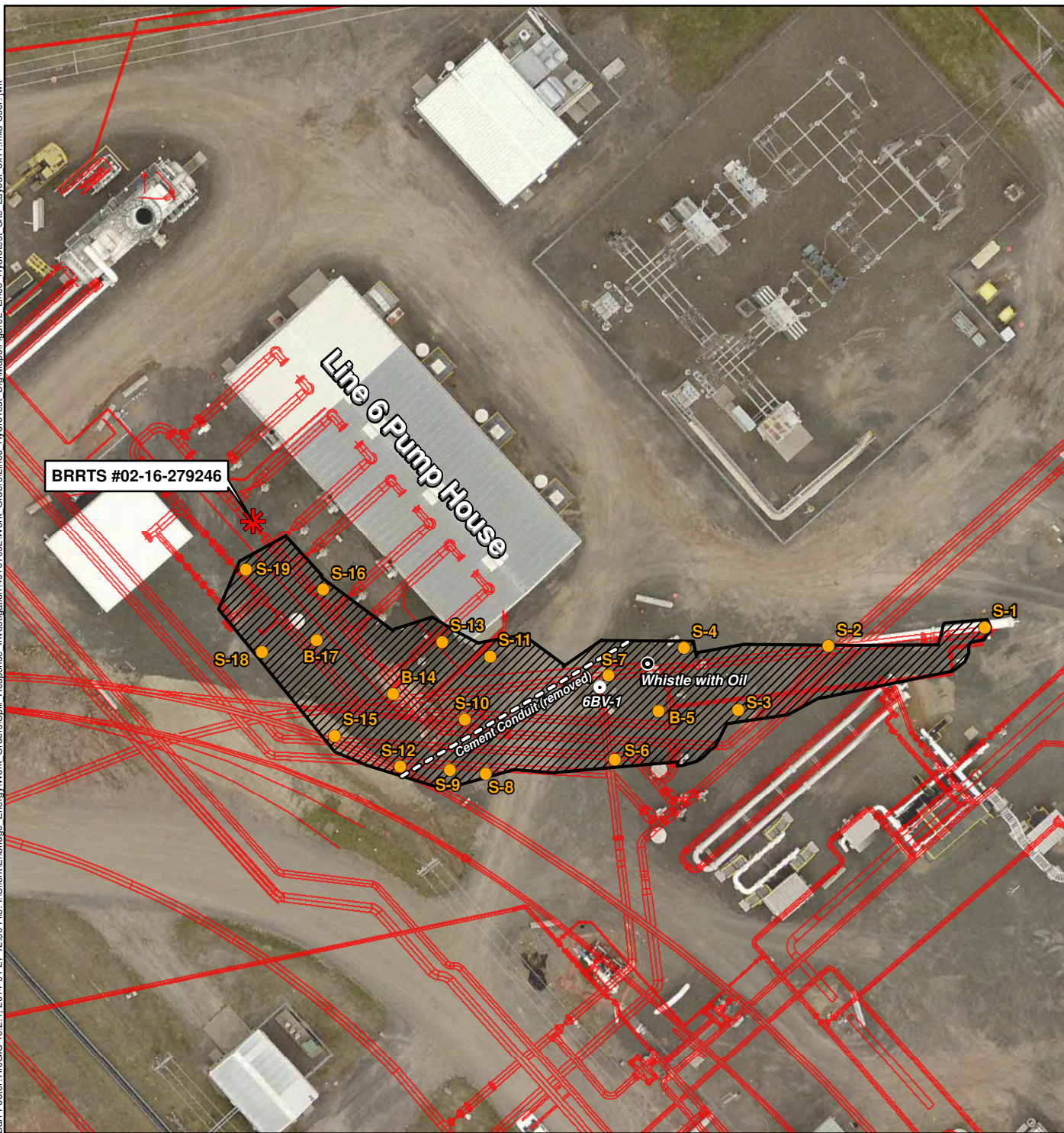
**SITE LAYOUT  
LINE 1 SKID RESPONSE  
SUPERIOR TERMINAL**  
Enbridge Energy, L.P.  
Superior, Wisconsin



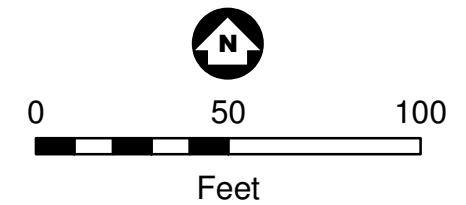
## **Attachment A**

### **WDNR Historical BRRTS Documents**





- Analytical Sample Locations
- 6BV-1 Valve
- Crude Oil Impacted Whistle
- ★ Historical Release Location
- ▨ Excavation Extent
- Terminal Property Boundary
- Pipeline Infrastructure



1 Inch = 50 Feet  
Douglas County Imagery Circa May, 2013

**Figure 2**  
**SITE LAYOUT MAP**  
**LINE 6 HYDROTEST EXCAVATION**  
**SUPERIOR TERMINAL**  
Enbridge Energy, L.P.  
Superior, Wisconsin



**Table 1  
Soil Analytical Data Summary  
Line 6 Hydrotest Excavation  
Enbridge Energy Terminal - Superior, Wisconsin  
Units, mg/kg (unless otherwise noted)**

Parameter	Moisture	Benzene	Ethyl benzene	Toluene	Xylene, total	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Diesel Range Organics-silica gel cleanup	Naphthalene	WDNR RCL Determinations <sup>1</sup>						
										Exceedance Count	Hazard Index	Cumulative Cancer Risk	Pass or Fail			
Groundwater RCL		<b>0.0051</b>	<b>0.785</b>	<b>0.5536</b>	<b>1.97 XYL</b>	<b>1.3793 TR</b>	<b>1.3793 TR</b>		<b>0.3294</b>							
Industrial Direct Contact RCL	05/01/2012	No Exceed	7.41	37	818	258	219	182	26	0	1.0	0.00001	Pass			
Sample Name	Location (Figure 2)	Date	Depth (ft)													
LINE 6 - S1	S-1	5/11/2012	2	13.7 %	< 0.057	< 0.057	< 0.057	< 0.17	< 0.057	< 0.057	< 10.6	--	0	0.0003	9.2E-09	Pass
LINE 6 - S2	S-2	5/11/2012	5	7.4 %	< 0.061	< 0.061	< 0.061	< 0.18	< 0.061	< 0.061	< 9.4	--	0	0.0003	9.9E-09	Pass
LINE 6 - S3	S-3	5/11/2012	8	22.5 %	< 0.066	< 0.066	< 0.066	< 0.20	< 0.066	< 0.066	< 13.8	--	0	0.0003	1.1E-08	Pass
LINE 6 - S4	S-4	5/11/2012	2	21.8 %	< 0.064	< 0.064	< 0.064	< 0.19	< 0.064	< 0.064	< 13.5	--	0	0.0003	1.0E-08	Pass
LINE 6 - B5	B-5	5/11/2012	15	29.3 %	< 0.071	< 0.071	< 0.071	< 0.21	< 0.071	< 0.071	< 12.8	--	0	0.0004	1.2E-08	Pass
LINE 6 - S6	S-6	5/11/2012	5	19.4 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.7	--	0	0.0003	9.7E-09	Pass
LINE 6 - S7	S-7	5/11/2012	6	3.4 %	<b>0.28 *</b>	<b>1.6 *</b>	<b>0.43 *</b>	<b>11.6 *</b>	<b>10.6 *</b>	<b>5.6 *</b>	7960	<b>2.18</b>	0	0.0348	5.8E-06	Pass
LINE 6 - S8	S-8	5/11/2012	4	6.0 %	< 0.055	< 0.055	< 0.055	< 0.17	< 0.055	< 0.055	46.5	--	0	0.0003	8.9E-09	Pass
LINE 6 - S9	S-9	5/11/2012	7	20.8 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.1	--	0	0.0003	9.7E-09	Pass
LINE 6 - S10	S-10	5/14/2012	12	20.3 %	< 0.074	< 0.074	< 0.074	< 0.22	< 0.074	< 0.074	< 10.5	--	0	0.0004	1.2E-08	Pass
LINE 6 - S11	S-11	5/14/2012	3	22.8 %	<b>0.18</b>	< 0.063	< 0.063	< 0.19	< 0.063	< 0.063	< 14.2	--	0	0.0005	2.6E-08	Pass
LINE 6 - S12	S-12	5/14/2012	5	3.6 %	< 1.1 *	<b>1.3 *</b>	<b>1.8 *</b>	<b>32.6 *</b>	<b>18.2 *</b>	<b>11.4 *</b>	5500	< 0.517	0	0.0603	5.9E-06	Pass
LINE 6 - S13	S-13	5/14/2012	12	26.8 %	< 0.076	< 0.076	< 0.076	< 0.23	< 0.076	< 0.076	< 13.3	--	0	0.0004	1.2E-08	Pass
LINE 6 - B14	B-14	5/14/2012	15	18.4 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 12.8	--	0	0.0003	9.7E-09	Pass
LINE 6 - S15	S-15	5/14/2012	2	23.5 %	< 0.067	< 0.067	< 0.067	< 0.20	< 0.067	< 0.067	< 13.4	--	0	0.0003	1.1E-08	Pass
LINE 6 - S16	S-16	5/14/2012	4	12.5 %	< 0.055	< 0.055	< 0.055	< 0.17	< 0.055	< 0.055	40.9	--	0	0.0003	8.9E-09	Pass
LINE 6 - B17	B-17	5/14/2012	8	18.0 %	< 0.062	< 0.062	< 0.062	< 0.19	< 0.062	< 0.062	< 9.7	--	0	0.0003	1.0E-08	Pass
LINE 6 - S18	S-18	5/14/2012	6	15.1 %	< 0.060	< 0.060	< 0.060	< 0.18	< 0.060	< 0.060	< 11.8	--	0	0.0003	9.7E-09	Pass
LINE 6 - S19	S-19	5/14/2012	7	16.5 %	< 0.062	< 0.062	< 0.062	< 0.19	< 0.062	< 0.062	< 11.3	--	0	0.0003	1.0E-08	Pass

PAH analyses were completed for LINE 6 - S12 and LINE 6 - S7. Only the PAH parameters that exceeded WDNR groundwater or industrial direct contact RCL's are shown on this table. All other PAH results can be found in Pace lab report 10192287 in Attachment C.

<sup>1</sup>WDNR RCL Determinations based on guidance criteria described in WDNR document PUB-RR-890. Hazard index is based a cumulative direct contact standard.

XYL - Based on Xylenes (m-, o-, p- combined).

TR - Based on Trimethylbenzenes (1,2,4 - and 1,3,5- combined).

\* Estimated value, QA/QC criteria not met.

**SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG**

Location: Facility or Milepost Enbridge Terminal Line 6 Hydrotest Excavation

Equipment used: PID -ionization detector with 10.6 eV lamp

Background Headspace: 0 ppm

Date: 5/9 - 5/11/12

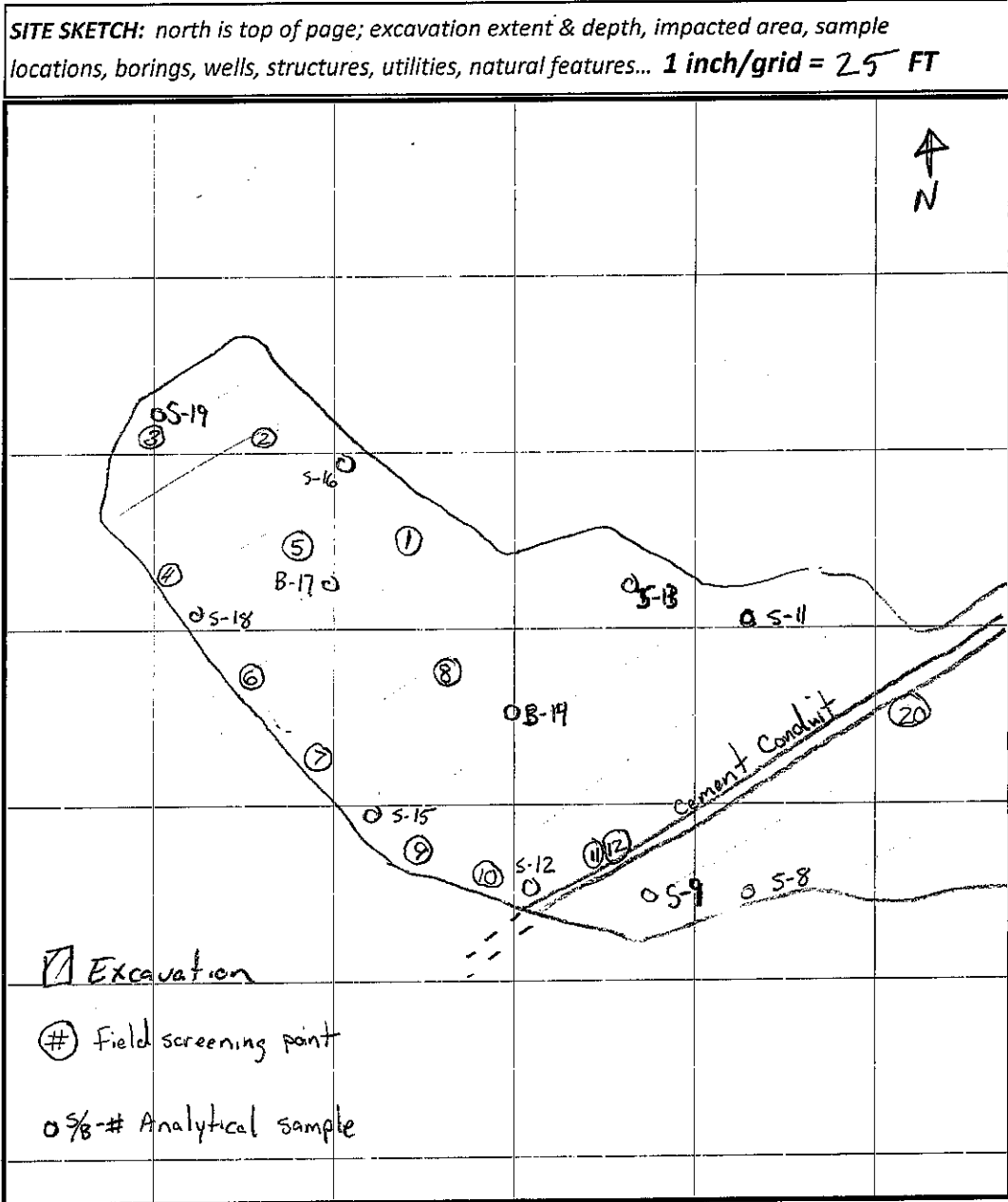
Sampler: REE/CTF/BLJZ

Calibration Time: —

Sample Nomenclature (Location - sample type - #): Line 6 -

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

Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
1	8		Fill/SP	Brown /N	N/-	0
2	8		SP	Brown /N		0
3	3		CL	Reddishbrown/N		0.1
4	3		CL	RB/N		0
5	12		SP	Brown/N		0
6	4		CL	RB/N		0
7	3		CL	RB/N		0
8	16		SP	Brown/N		0
9	4		CL	RB/N		0
10	3		CL	RB/N	∇	0
11	6		SP	Darkbrown/y	Petroleum/-	330+
12	4		SP	Brown /N	N/-	0.5
S-8	4			/N	N/-	7.7
S-9	7			/N		0.6
S-10	12			/N		1.3
S-11	3			/N	∇	9.2
S-12	5			/N	V/-	696
S-13	12		CL	RB/N	N/-	0.4
B-14	15		CL	RB/N		0.4
S-15	2		CL	RB/N		0.2
S-16	4		CL	RB/N		0.5
B-17	8		SP	Brown/N		4.3
S-18	6		CL	RB/N		0.7
S-19	7				∇	0.9

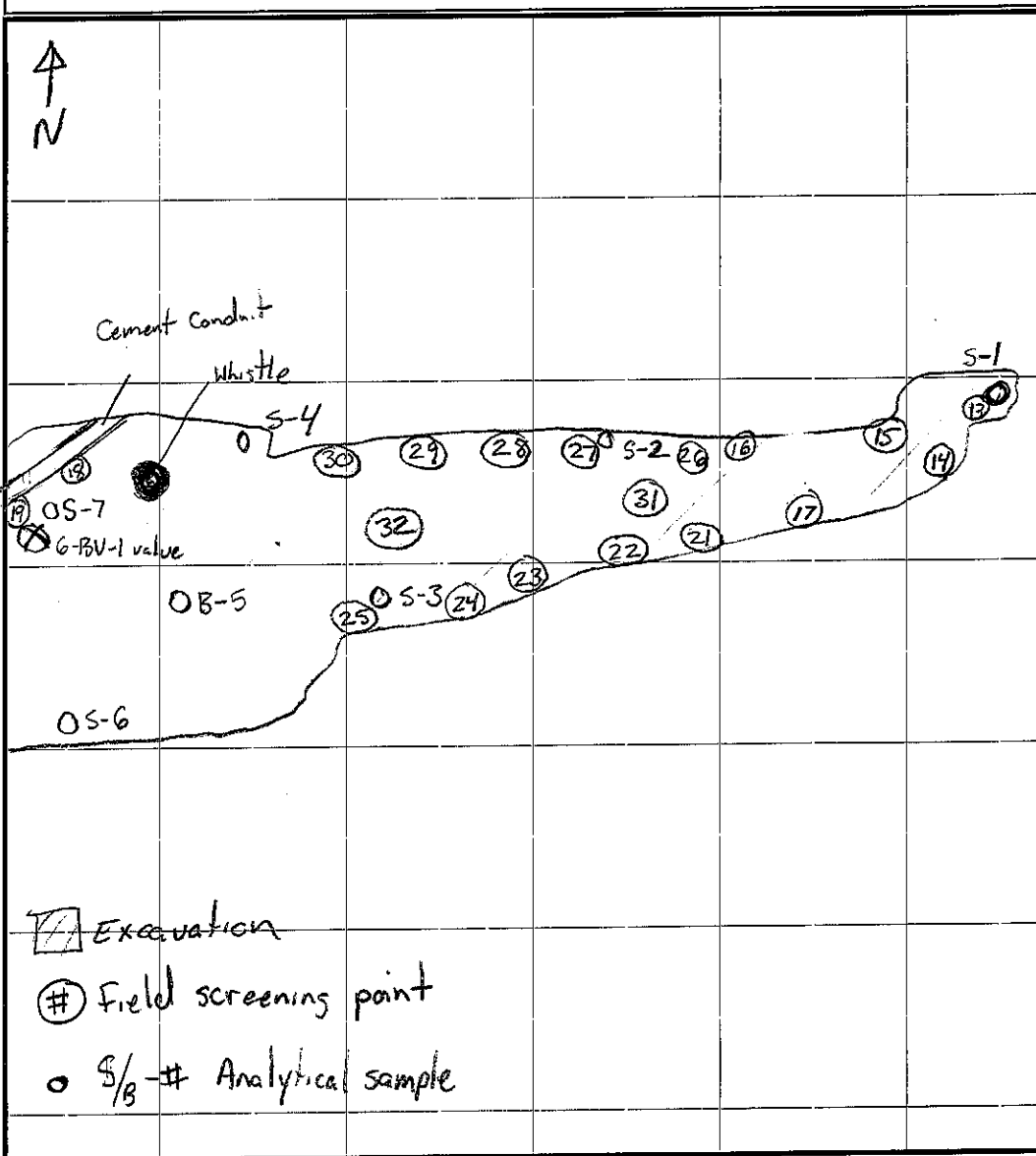


**SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG**Location: Facility or Milepost Enbridge Terminal Line 6 ExcavationEquipment used: PID -ionization detector with 10.6 eV lampBackground Headspace: 0.0 ppmDate: 5/9-5/11/12Sampler: REE/CTE/BIL2Calibration Time: —Sample Nomenclature (Location - sample type - #): Line 6 -

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

Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
13	2		Fill/CL	RB/ N	N/-	0.1
14	2		CL	RB/ N		0.2
15	2		CL	RB/N		0.0
16	2		CL	RB/N		0.1
17	2		CL	RB/N		0.5
18	7		SP	Brown/N		15.6
19	5		SP	Brown/N		79
20 <sup>Other sheet</sup>	7		SP	Brown/N		23
21	2		CL	RB/N		0.5
22	2		SP	Brown/N		0.4
23	3		SP	Brown/N		0.7
24	4		CL	RB/N		0.2
25	3		CL	RB/N		0.2
26	2		CL	RB/N		0.3
27	4		SP	Brown/N		0.2
28	5		SP	Brown/N		0.2
29	6		SP	Brown/N		0.3
30	4		CL	RB/N		0.2
31	6		SP	Brown/N		0.3
32	8		CL	RB/N		0.2
S-1	2			/N		0.2
S-2	5			/N		0.0
S-3	8			/N		0.0
S-4	2			/N		0.2

**SITE SKETCH:** north is top of page; excavation extent & depth, impacted area, sample locations, borings, wells, structures, utilities, natural features... **1 inch/grid = 25 FT**



Additional Analytical results on Page 3



**Attachment B**

**Site Investigation Field Sampling and Screening Log**

**ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG**

Location: Milepost or Facility Line 1 Sed, Superior Terminal

Equipment used: Pluto -ionization detector with eV lamp

Sample Nomenclature (Location - sample type - #): 10.6 (11/14), 11.7 (11/24)

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

Background Headspace: 0.0 ppm

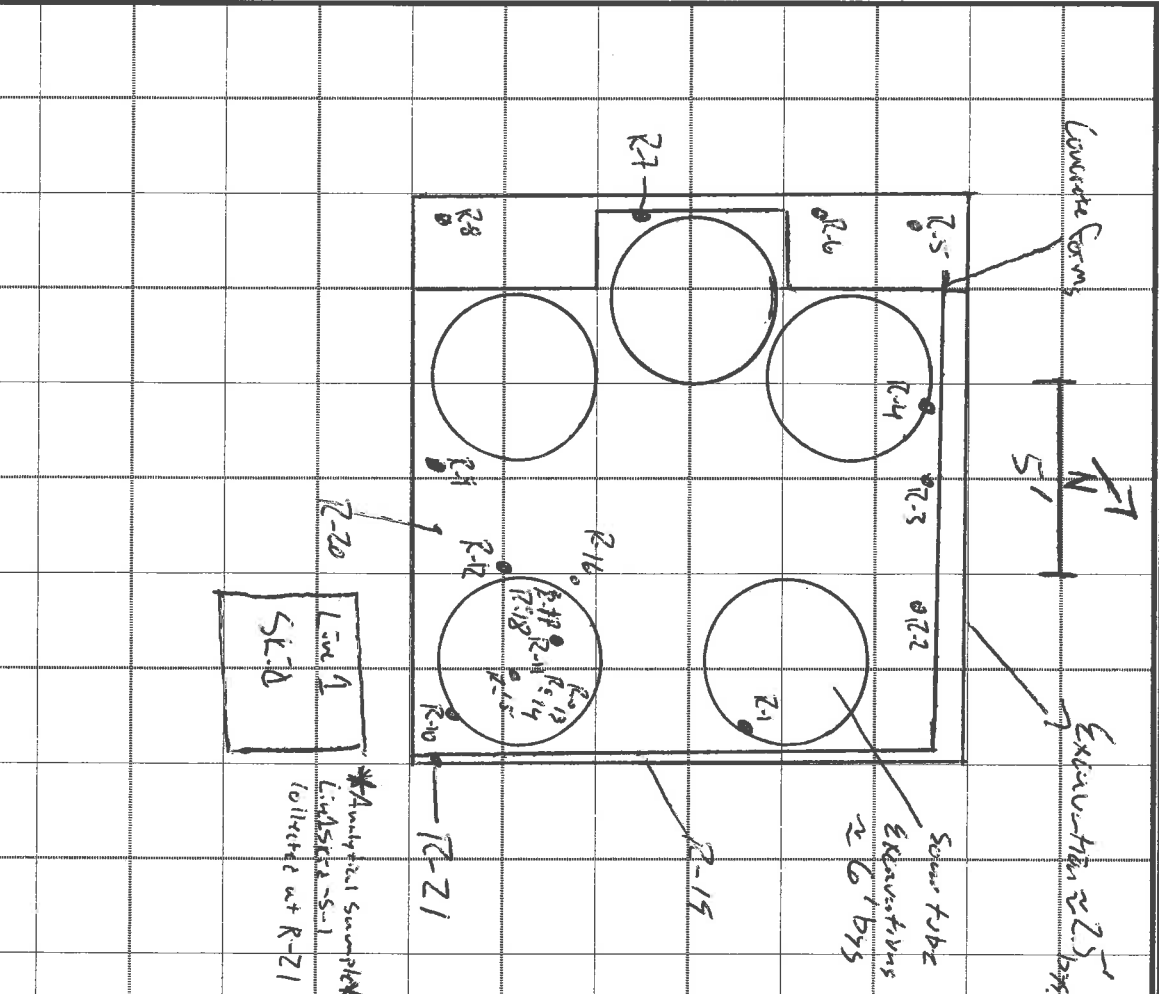
Calibration Time: 1300, 930

Date: 11/14/14 11/24/14

Sampler: CG-7

SITE SKETCH: north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features... **1 inch/grid = 5 FEET**

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/Discolor	Odor/Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/Rainbow	275
R-1	2	1400	GP/LL	Red brown	none known	3.4
R-2	2					1.7
R-3	2					1.2
R-4	2					1.4
R-5	2					1.8
R-6	2					1.6
R-7	2					2.1
R-8	2					1.6
R-9	2					10.9
R-10	2					14.8
R-11	4.5					6.32*
R-12	4.5					2.7
11/24/14						
R-13	3.5	1410	GP/LL	Red brown	slight Petro	6.3
R-14	4.5	1415			none known	9.6
R-15	5.5	1420				20.3
R-16	3.5	1425				4.2
R-17	4.5	1430				45.1, 5
R-18	5.5	1435				7.3
R-19	2.5	1440	GP/SM	grey/white		5.1
R-20	2.5	1445	GP/SP			6.7
R-21	2.5	1450				
Analytical Summary:						
Line 1 SK-2-S-1		1500				6.21



## **Attachment C**

### **Legend Laboratory Report**





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

December 11, 2014

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

Work Order Number: 1405360  
RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 11/25/14. 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

A handwritten signature in black ink, appearing to read "Bach Pham", written over a horizontal line.

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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line 1 skid-S-1_2.5-2.5	1405360-01	Soil	11/24/14 15:00	11/25/14 09:45

**Shipping Container Information**

**Default Cooler**                      Temperature (°C): 1.2

Received on ice: Yes                      Temperature blank was present                      Received on ice pack: No  
 Received on melt water: No                      Ambient: No                      Acceptable (IH/ISO only): No  
 Custody seals: No

**Case Narrative:**

The dry weight correction and dilution applies to the sample result, MDL, and RL.

Ethylbenzene; 1,3,5-trimethylbenzene; 1,2,4-trimethylbenzene; and naphthalene were present in the method blank between the MDL and RL for the BTEX analysis.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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**WI(95) GRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Line 1 skid-S-1_2.5-2.5 (1405360-01) Soil</b> <b>Sampled: 11/24/14 15:00</b> <b>Received: 11/25/14 9:45</b>										
1,2,4-Trimethylbenzene	9.0	0.033	0.0036	mg/kg dry	1	B4L0411	12/04/14	12/04/14	WI(95) GRO	
1,3,5-Trimethylbenzene	4.9	0.033	0.0083	mg/kg dry	1	"	"	"	"	
Benzene	1.3	0.033	0.0039	mg/kg dry	1	"	"	"	"	
Ethylbenzene	1.3	0.033	0.0085	mg/kg dry	1	"	"	"	"	
Naphthalene	3.8	0.67	0.029	mg/kg dry	1	"	"	"	"	T-1
Toluene	0.14	0.033	0.0055	mg/kg dry	1	"	"	"	"	
Xylenes (total)	10	0.10	0.019	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	149			80-150 %		"	"	"	"	



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 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Line 1 skid-S-1_2.5-2.5 (1405360-01) Soil</b> <b>Sampled: 11/24/14 15:00</b> <b>Received: 11/25/14 9:45</b>										
<b>% Solids</b>	<b>75</b>			<b>%</b>	<b>1</b>	<b>B4L0208</b>	<b>12/02/14</b>	<b>12/02/14</b>	<b>% calculation</b>	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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**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
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**Batch B4L0411 - EPA 5035 Soil (Purge and Trap)**

**Blank (B4L0411-BLK1)**

Prepared & Analyzed: 12/04/14

1,2,4-Trimethylbenzene	0.00713	0.025	0.0027	mg/kg wet							B-02, J
1,3,5-Trimethylbenzene	0.00624	0.025	0.0062	mg/kg wet							B-02, J
Benzene	< 0.0029	0.025	0.0029	mg/kg wet							
Ethylbenzene	0.0151	0.025	0.0064	mg/kg wet							B-02, J
Naphthalene	0.0448	0.50	0.022	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							
<i>Surrogate: 4-Fluorochlorobenzene</i>	25.2			ug/L	25.0		101	80-150			

**LCS (B4L0411-BS1)**

Prepared & Analyzed: 12/04/14

1,2,4-Trimethylbenzene	92.2			ug/L	100		92.2	80-120			
1,3,5-Trimethylbenzene	96.4			ug/L	100		96.4	80-120			
Benzene	98.9			ug/L	100		98.9	80-120			
Ethylbenzene	99.3			ug/L	100		99.3	80-120			
Naphthalene	90.9			ug/L	100		90.9	80-120			
Toluene	99.2			ug/L	100		99.2	80-120			
Xylenes (total)	293			ug/L	300		97.5	80-120			
<i>Surrogate: 4-Fluorochlorobenzene</i>	25.2			ug/L	25.0		101	80-150			

**LCS Dup (B4L0411-BSD1)**

Prepared: 12/04/14 Analyzed: 12/05/14

1,2,4-Trimethylbenzene	95.1			ug/L	100		95.1	80-120	3.11	20	
1,3,5-Trimethylbenzene	98.0			ug/L	100		98.0	80-120	1.60	20	
Benzene	96.7			ug/L	100		96.7	80-120	2.23	20	
Ethylbenzene	98.5			ug/L	100		98.5	80-120	0.782	20	
Naphthalene	103			ug/L	100		103	80-120	12.7	20	
Toluene	96.8			ug/L	100		96.8	80-120	2.44	20	
Xylenes (total)	295			ug/L	300		98.2	80-120	0.741	20	
<i>Surrogate: 4-Fluorochlorobenzene</i>	24.5			ug/L	25.0		97.8	80-150			

**Matrix Spike (B4L0411-MS1)**

Source: 1405394-02

Prepared: 12/04/14 Analyzed: 12/05/14

1,2,4-Trimethylbenzene	106			ug/L	100	3.84	103	80-120			
1,3,5-Trimethylbenzene	111			ug/L	100	2.57	108	80-120			
Benzene	97.6			ug/L	100	0.00651	97.6	80-120			
Ethylbenzene	102			ug/L	100	2.79	99.6	80-120			
Naphthalene	114			ug/L	100	9.29	105	80-120			
Toluene	97.0			ug/L	100	0.526	96.5	80-120			
Xylenes (total)	302			ug/L	300	3.66	99.4	80-120			
<i>Surrogate: 4-Fluorochlorobenzene</i>	27.2			ug/L	25.0		109	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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**PERCENT SOLIDS - Quality Control**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B4L0208 - General Preparation</b>											
<b>Duplicate (B4L0208-DUP1)</b>						<b>Source: 1405318-10</b>		<b>Prepared &amp; Analyzed: 12/02/14</b>			
% Solids	79.0			%		79.0			0.00	20	
<b>Duplicate (B4L0208-DUP2)</b>						<b>Source: 1405361-02</b>		<b>Prepared &amp; Analyzed: 12/02/14</b>			
% Solids	88.0			%		86.0			2.30	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253 Project Manager: Ms. Andrea Nord	Work Order #: 1405360 Date Reported: 12/11/14
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### 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.
<	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)
MS	Matrix Spike = Laboratory Fortified Matrix (LFM)



**Chain of Custody**

4700 West 77th Street  
 Minneapolis, MN 55435-4803  
 (952) 832-2600

1405360

Project Number: 49161253  
 Project Name: Line 1 Skid - Eubridge  
 Sample Origination State: W I (use two letter postal state abbreviation)  
 COC Number: No 41220

Number of Containers/Preservative		COC <u>1</u> of <u>1</u>
Water	Soil	
VOCs (unpreserved) #2	VOCs (unpreserved) #2	Project Manager: <u>REE</u> Project QC Contact: <u>AAW</u> Sampled by: <u>LSGZ</u> Laboratory: <u>Legend</u> Total Number Of Containers:
Dissolved Metals (HNO <sub>3</sub> )	GR0, BTEX (unpreserved) #1	
Total Metals (HNO <sub>3</sub> )	DIR0 (unpreserved)	
General (unpreserved) #3	Metals (unpreserved)	
Diesel Range Organics (HCl)	SVOCS (unpreserved) #2	
Nutrients (H <sub>2</sub> SO <sub>4</sub> ) #4	% Solids (plastic vial, unpres.)	
	<u>PVOC-MTBE, NAPHTHALENE</u>	

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type		VOCs (HCl) #1	SVOCS (unpreserved) #2	Dissolved Metals (HNO <sub>3</sub> )	Total Metals (HNO <sub>3</sub> )	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H <sub>2</sub> SO <sub>4</sub> ) #4	VOCs (unpreserved) #2	GR0, BTEX (unpreserved) #1	DIR0 (unpreserved)	Metals (unpreserved)	SVOCS (unpreserved) #2	% Solids (plastic vial, unpres.)	<u>PVOC-MTBE, NAPHTHALENE</u>	Total Number Of Containers				
						Water	Soil	Grab	Comp.																OC			
<u>Line 1 Skid - S-1</u>	<u>25</u>	<u>25</u>	<u>ft</u>	<u>11/24/14</u>	<u>1500</u>		<u>X</u>	<u>X</u>															<u>1</u>	<u>2</u>	<u>3</u>	<u>PVOC-MTBE, NAPHTHALENE</u>	<u>DI PC</u>	
																											<u>% Solids</u>	
																												<u>Standard IAT</u>

**Common Parameter/Container - Preservation Key**  
 #1 - Volatile Organics = BTEX, GR0, TPH, 8260 Full List  
 #2 - Semivolatile Organics = PAHs, PCP, Dioxins, 8270 Full List, Herbicide/Pesticide/PCBs  
 #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate  
 #4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By: [Signature] On Ice? N Date: 11/24/14 Time: 1500 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished By: [Signature] On Ice? N Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: [Signature] Date: 11/25/14 Time: 945  
 Samples Shipped VIA:  Air Freight  Federal Express  Sampler Air Bill Number: 1722  
 Other: \_\_\_\_\_

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

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.



## **Attachment D**

### **Waste Management Documentation**

P.O. Number	Customer Code	SKB Representative	CL
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**I. Generator Information**

Generator Name: Enbridge Pipelines Limited Partnership, LLC		Generator EPA ID Number	SIC Code
Generator Location: Enbridge Superior Terminal - Line 1 Skid	County: Douglas	Generator Contact: Alex Smith	
		Phone: 715-398-4795	Fax: 832-325-5511
Generator Mailing Address (if different: 1320 Grand Ave, Superior, WI 54880)		Generator Email Address: alex.smith@enbridge.com	
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002		Bill To #:	Billing Contact: Alex Smith
		Phone: 715-398-4795	Fax: 832-325-5511
		Billing Email Address: alex.smith@enbridge.com	
Invoice Contact:			

**II. Waste Generation Information**

Waste Name: 141124 Line 1 Skid Soil	Estimated rate of waste generation: <u>30</u> <input type="checkbox"/> Lbs. <input type="checkbox"/> tons <input checked="" type="checkbox"/> cy <input type="checkbox"/> drums	<input checked="" type="checkbox"/> one time <input type="checkbox"/> yearly
Generator Facility Operations and/or Site History: Enbridge Pipeline Terminal		
Describe the generating process or source of contaminated soil/debris and/or waste: Pipeline Terminal Activities		

**III. Waste Composition and Constituents (list all known)**

	Actual Range	
	%	ppm
Crude contaminated soil	100	

**IV. Waste Properties**

Physical state: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Sludge <input type="checkbox"/> Gas	Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Content _____ %	pH Range: <input type="checkbox"/> <2 <input type="checkbox"/> 2-4 <input type="checkbox"/> 5-8 <input type="checkbox"/> 8-12.4 <input 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): petroleum odor
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**V. Waste Classification**

Waste stream properties (answer ALL questions)	Does this waste contain absorbents? <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 If yes, concentration: _____ ppm <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste recyclable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste stream contain fuming acids? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste explosive? <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 waste infectious? <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 putrescible waste? <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 demolition debris? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Is this waste sewer sludge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>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)</b>	

**VI. Shipping Information**

Proper DOT Shipping Name (per CFR 172.101) where applicable			
Reportable Quantity	DOT Hazard Class	UN/NA Number	Packing Group
Method of packaging: <input type="checkbox"/> drums (size _____) <input checked="" type="checkbox"/> Bulk Solids <input type="checkbox"/> boxes (size _____)		Method of shipment <input type="checkbox"/> Roll-off <input checked="" type="checkbox"/> End dump <input type="checkbox"/> Rail <input type="checkbox"/> Other (Specify) _____	

**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 nonhazardous 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, I or 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.

	Alex Smith	Environmental Analyst	11/24/14
Signature	Printed Name	Title	Date



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

November 21, 2014

Mr. James E. Taraldsen  
Barr Engineering Co.  
4700 W 77th St  
Minneapolis, MN 55435

Work Order Number: 1405247  
RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 11/18/14. 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

A handwritten signature in black ink, appearing to read "Bach Pham", written over a horizontal line.

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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line 1 Quality Skid-Stockpile-1	1405247-01	Soil	11/14/14 10:30	11/18/14 12:00

**Shipping Container Information**

**Default Cooler**                      Temperature (°C): 0.7

Received on ice: Yes                      Temperature blank was present                      Received on ice pack: No  
 Received on melt water: No                      Ambient: No                      Acceptable (IH/ISO 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.

The DRO chromatogram for the sample is attached.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**DRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Line 1 Quality Skid-Stockpile-1 (1405247-01) Soil</b> <b>Sampled: 11/14/14 10:30</b> <b>Received: 11/18/14 12:00</b>										
<b>Diesel Range Organics</b>	<b>380</b>	16	2.6	mg/kg dry	1	B4K2012	11/20/14	11/20/14	WI(95) DRO	L1
<i>Surrogate: Triacontane (C-30)</i>	<i>91.0</i>			<i>70-130 %</i>		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**WI(95) GRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Line 1 Quality Skid-Stockpile-1 (1405247-01) Soil</b> <b>Sampled: 11/14/14 10:30</b> <b>Received: 11/18/14 12:00</b>										
Benzene	0.33	0.056	0.0064	mg/kg dry	1	B4K1907	11/19/14	11/19/14	WI(95) GRO	
Ethylbenzene	0.29	0.056	0.014	mg/kg dry	1	"	"	"	"	
Toluene	0.037	0.056	0.0091	mg/kg dry	1	"	"	"	"	J
Xylenes (total)	1.8	0.17	0.032	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	114			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line 1 Quality Skid-Stockpile-1 (1405247-01) Soil <b>Sampled: 11/14/14 10:30</b> <b>Received: 11/18/14 12:00</b>										
% Solids	45			%	1	B4K1908	11/19/14	11/20/14	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**DRO/8015D - Quality Control**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B4K2012 - Sonication (Wisc DRO)</b>											
<b>Blank (B4K2012-BLK1)</b>											
						Prepared & Analyzed: 11/20/14					
Diesel Range Organics	< 8.0	8.0	1.3	mg/kg wet							
Surrogate: <i>Triacontane (C-30)</i>	14.6			mg/kg wet	16.0		91.3	70-130			
<b>LCS (B4K2012-BS1)</b>											
						Prepared & Analyzed: 11/20/14					
Diesel Range Organics	62.8	8.0	1.3	mg/kg wet	64.0		98.1	70-120			
Surrogate: <i>Triacontane (C-30)</i>	16.4			mg/kg wet	16.0		103	70-130			
<b>LCS Dup (B4K2012-BSD1)</b>											
						Prepared: 11/20/14		Analyzed: 11/21/14			
Diesel Range Organics	56.8	8.0	1.3	mg/kg wet	64.0		88.7	70-120	10.0	20	
Surrogate: <i>Triacontane (C-30)</i>	15.7			mg/kg wet	16.0		98.0	70-130			



Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**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
<b>Batch B4K1907 - EPA 5035 Soil (Purge and Trap)</b>											
<b>Blank (B4K1907-BLK1)</b>						Prepared & Analyzed: 11/19/14					
Benzene	< 0.0029	0.025	0.0029	mg/kg wet							
Ethylbenzene	0.0102	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	23.7			ug/L	25.0		95.0	80-150			
<b>LCS (B4K1907-BS1)</b>						Prepared & Analyzed: 11/19/14					
Benzene	98.9			ug/L	100		98.9	80-120			
Ethylbenzene	99.4			ug/L	100		99.4	80-120			
Toluene	99.7			ug/L	100		99.7	80-120			
Xylenes (total)	301			ug/L	300		100	80-120			
Surrogate: 4-Fluorochlorobenzene	24.0			ug/L	25.0		96.0	80-150			
<b>LCS Dup (B4K1907-BSD1)</b>						Prepared: 11/19/14 Analyzed: 11/20/14					
Benzene	98.4			ug/L	100		98.4	80-120	0.564	20	
Ethylbenzene	97.1			ug/L	100		97.1	80-120	2.29	20	
Toluene	98.5			ug/L	100		98.5	80-120	1.25	20	
Xylenes (total)	294			ug/L	300		97.9	80-120	2.34	20	
Surrogate: 4-Fluorochlorobenzene	24.2			ug/L	25.0		96.6	80-150			
<b>Matrix Spike (B4K1907-MS1)</b>						Source: 1405248-01 Prepared: 11/19/14 Analyzed: 11/20/14					
Benzene	97.8			ug/L	100	<	97.8	80-120			
Ethylbenzene	98.2			ug/L	100	0.359	97.8	80-120			
Toluene	96.3			ug/L	100	<	96.3	80-120			
Xylenes (total)	299			ug/L	300	2.26	99.0	80-120			
Surrogate: 4-Fluorochlorobenzene	23.9			ug/L	25.0		95.8	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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**PERCENT SOLIDS - Quality Control**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B4K1908 - General Preparation</b>											
<b>Duplicate (B4K1908-DUP1)</b>											
Source: 1405212-01      Prepared: 11/19/14      Analyzed: 11/20/14											
% Solids	88.0			%		87.0			1.14	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.20 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1405247 Date Reported: 11/21/14
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### Notes and Definitions

L1 Results in the diesel organics range are primarily due to overlap from a heavy oil range product.  
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.  
< 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)  
MS Matrix Spike = Laboratory Fortified Matrix (LFM)

**Chain of Custody**  
 4700 West 77th Street  
 Minneapolis, MN 55435-4803  
 (952) 832-7600

MOSBY

Project Number: 49161253.20 001 001  
 Project Name: Embargo Line 1 Quality Stud Excavation  
 Sample Origination State: VI (use two letter postal state abbreviation)

CDC Number: NO 44742

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Type			OC
						Water	Soil	Other	
1. Line 1 Quality Stud - Stockpile-1	-	-	-	11/14/2014	1030	X	X		X
2. Temp Blank									X
3. Trip Blank									X
4.									
5.									
6.									
7.									
8.									
9.									
10.									

**Common Parameter/Container - Preservation Key**  
 #1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List  
 #2 - Semi-volatile Organics = PAHs, PCB Dioxins, R270 Full List, Herbicide/Peonide/PCP, TDS, TS, Sulfate  
 #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, Nitrogen, TKN  
 #4 - Nutrients = COD, TOC, Phosok, Ammonia

Number of Containers/Preservative		Total Number Of Containers	Date	Time
Water	Soil			
VOCS (HCl) #1				
VOCS (unpreserved) #1				
Dissolved Metals (HNO3)				
Total Metals (HNO3)				
General (unpreserved) #1				
Diesel Range Organics (HCl)				
Nutrients (H2SO4) #1				
VOCS (fired Meth) #1				
GRO (fired Meth) #1				
DRO (fired unpreserved)				
Metals (unpreserved)				
SVOC (unpreserved) #2				
% Solids (plastic vial, unpres.)				
Hold analysis				

CDC 1 of 2  
 Project Manager: JEE  
 Project QC Contact: JET  
 Sampled by: TTB  
 Laboratory: Legend

21 126  
 BTEX, DRO,  
 % Solids, Hold (2)  
 ASAP JAT

Relinquished By: [Signature] Date: 11/17/14 Time: 1530  
 Relinquished By: [Signature] Date: 11/18/14 Time: 1200  
 Samples Shipped VIA:  Air Freight  Federal Express  Sampler  Other:  
 Air Bill Number: [Signature]

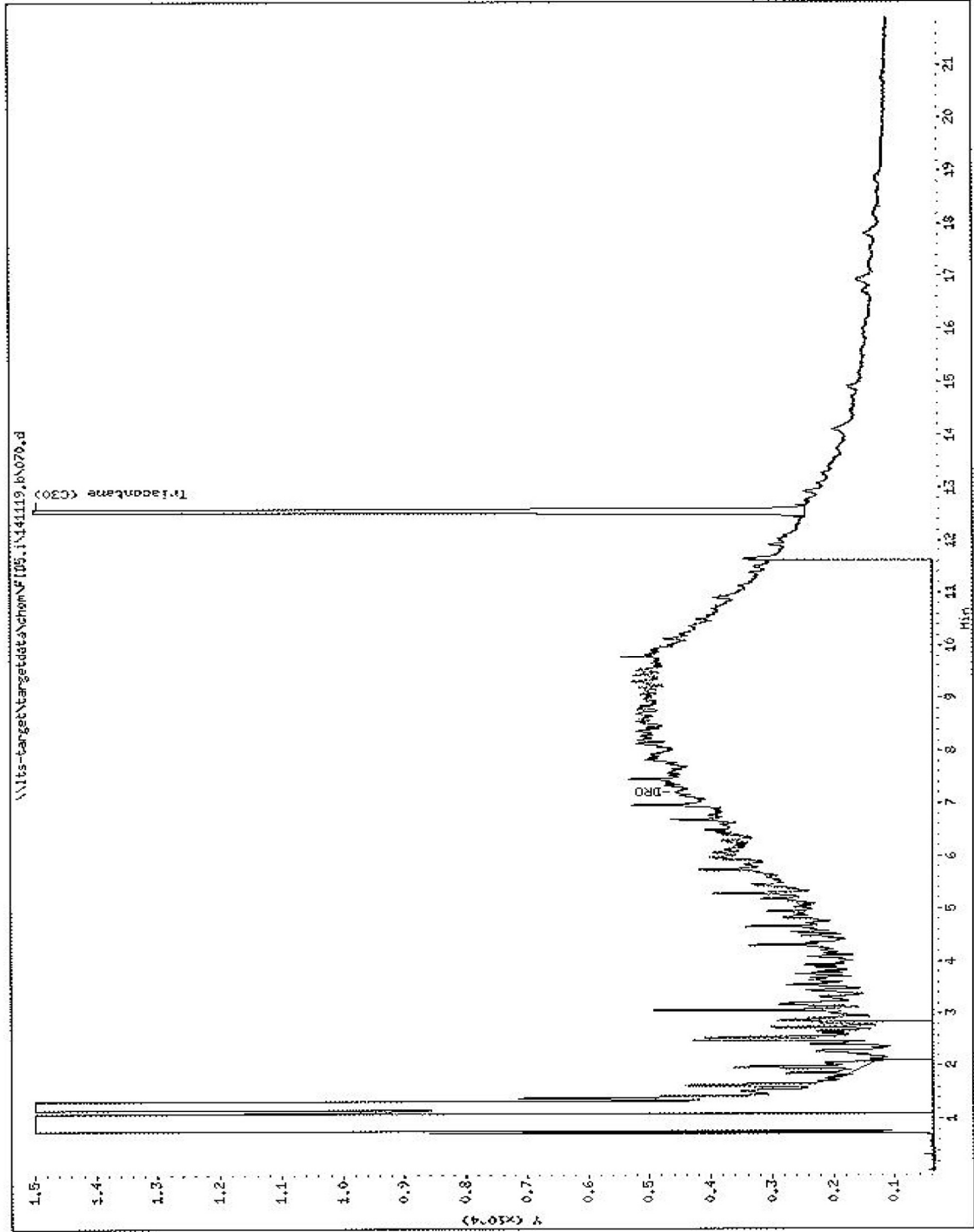
Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Page 1

11/18/14 BP

Data File: \\lts-target\targetdata\ches\FID5.1\141119.6\070.d  
 Date: 20-NOV-2014 23:35  
 Client ID:  
 Sample Info: 1408247-01  
 Instrument: FID5.1  
 Operator: JP  
 Column diameter: 0.53  
 WME | Quality Stud-Size Spike-1

Column phase:



November 24, 2014

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

RE: CL14-0062 14112 Line 1 Skid Soil

Dear Mr. Smith,

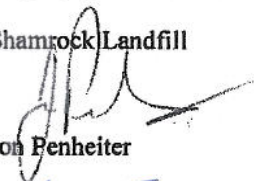
This agreement will confirm the price and length of service for disposal and /or transportation of your non-hazardous industrial material at our facility. This agreement is for the term of the Waste Approval granted by Shamrock Landfill and is for all services ordered and performance initiated within 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 ½% 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 jonp@shamrocklandfill.com.

Shamrock Landfill

  
Jon Penheiter

Customer ACCEPTED BY: (name, position)

DATE:

WASTE APPROVAL Period: 11-24-14   
11/24/2014 to 11/24/2014

**Bill To Customer**

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

**Service For Generator**

Enbridge Pipelines LLP  
1320 Grand Ave  
Superior, WI 54880

**Disposal**

Waste Description: 14112 Line 1 Skid Soil

Estimated Volume: 30 YARDS / ONE TIME ONLY

Disposal Method: Secure Non-Hazardous Landfill

Treatment Method: None Expected For Conforming Waste

**Pricing**

Disposal	\$16.00	Per Ton	14112 Line 1 Skid Soil
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## Notification of Waste Acceptance

11/24/2014

### CUSTOMER INFORMATION

EPA ID#:  
Enbridge Pipelines LLP  
Superior Terminal -Line 1 Skid

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

### 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

Profile Sheet #:  
Waste Stream #: CL14-0062  
Waste Name: 14112 Line 1 Skid Soil

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.

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### ACCEPTANCE INFORMATION

The waste stream identified by the reference above is acceptable for disposal.  
The anticipated frequency of shipment is 30 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 11/24/2014 thru 11/24/2014 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.

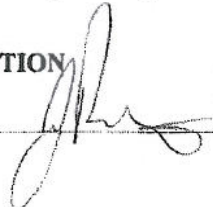
**Empty Container Statement:** Each shipment containing empty containers must be accompanied with a completed 'EMPTY CONTAINER CERTIFICATION FORM'.

**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.

### AUTHORIZATION

Approval: \_\_\_\_\_



Date: \_\_\_\_\_

11/24/14





REPORT NAME: **Tons Each Load By WSID**  
DESCRIPTION: **Tonnage for EACH LOAD, grouped by customer**  
DATE RANGE: **01/01/2014 to 12/30/2014**  
PRINTED ON (DATE): **Tuesday, December 30, 2014**

**ENB23**

Enbridge Pipelines LLP  
1320 Grand Ave  
Superior WI 54880

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT.	LIFT	TONS
26352 (A)	7714	11/26/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	20.26
26358 (A)	7713	11/26/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	21.29
26363 (A)	7712	11/26/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	17.90
26369 (A)	7711	11/26/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	17.12
26482 (A)	7710	12/1/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	12.27
26865 (A)	7755	12/12/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	10.80
26878 (A)	7756	12/12/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	12.74
26886 (A)	7757	12/12/2014	CL14-0062	14112 Line 1 Skid Soil	2A	Y43	1190	11.56

**Total # of Loads: 8** **Total Tons: 123.94**

**Grand Total (Tons): 123.94**  
**Grand Total (Loads): 8**