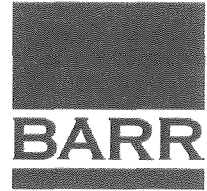


Rec'd 2/13/15

02-16-552992

resourceful. naturally.
engineering and environmental consultants



Technical Memorandum

To: Alex Smith, Enbridge Energy
From: Ryan Erickson
Subject: Superior Terminal Line 14 Historical Crude Oil Impacts
Date: January 7, 2014
Project: 49161092

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 impacted soil at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1) in October of 2013.

Background

Enbridge excavated a section of Line 14 for pipeline maintenance purposes at the Enbridge Superior Terminal in October of 2013 (Photo 1; Figure 2). The excavation was located southeast of the Tank 20 basin and was approximately six to ten feet deep. Soil was removed from the excavation with bucket excavators and hydro-vacuum (hydrovac) trucks.

Crude oil impacted soil and water with a petroleum sheen were encountered in the maintenance excavation (Figure 2) by Enbridge contractor's on October 24, 2012. Enbridge Environment was notified by the contractor when the impacts were discovered.

Enbridge requested that Barr complete the following activities during the Line 14 maintenance excavation project:

- assess the environmental site conditions
- review historical release information in this location
- identify and segregate excavated crude oil impacted soil from unimpacted soil
- assist with the off-site disposal coordination and documentation of contaminated soil

Enbridge indicated that the crude oil impacts discovered during the maintenance excavation were 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. A 2011 historical crude oil pipeline valve release (three to four gallons) (BRRTS #0216558992) was identified in the same location as the newly encountered impacts (Figure 2). The site was closed by the WDNR on September 4, 2012 under NR 708.09 and it was added to the WDNR BRRTS online database.

Field Methods and Results

Barr was onsite multiple times during the maintenance activities to assist with field screening, soil sampling and soil disposal coordination. Barr observed a crude oil sheen and trace amount of product in the maintenance excavation near the valves where the 2011 historical release occurred (Photo 2). Additional field screening of the excavation extents could not be completed due to excavation access safety limitations. Approximately twelve cubic yards of crude oil impacted soil was excavated with a hydrovac truck from near the historical release location and stockpiled at the Superior Terminal Soil Management Area (Figure 2) for storage until it could be characterized and approved for off-site disposal.

Additional, apparently unimpacted soil was segregated from the Line 14 maintenance excavation for field screening and potential reuse. Barr returned to the site on November 13, 2013 to field screen the Line 14 maintenance excavation clean soil stockpile for potential crude oil impacts. Fourteen soil stockpile samples were field screened for the presence of organic vapors using a photoionization detector (PID), and other potential indicators of crude oil impacts were documented, if present, such as odor, discoloration and sheen. No headspace readings were above background levels (0.0 parts per million) and no other evidence of contamination was observed in the stockpile (Attachment A). The majority of the clean soil stockpile was used to backfill the Line 14 excavation after maintenance activities were completed. The remaining clean soil was hauled to Udeen gravel pits located south of Superior, Wisconsin.

A new crude oil release source was not identified by Enbridge during the 2013 maintenance activities. No additional residual crude oil impacts were observed away from the historical release location by Barr or the maintenance contractors (Photo 1; Figure 2).

Discussion

No new analytical samples were collected from the 2013 excavation because the crude oil impacts were encountered within the footprint of the closed BRRTS site (#0216558992) and no residual impacts were observed in the final excavation extents. The excavation was backfilled with clean fill following the completion of the Line 14 maintenance activities.

Analyte concentrations in soil samples collected during the 2011 response activities and the associated 2012 Geoprobe borings (Figure 2) were below the WDNR Industrial Direct Contact Residual Contaminant Level (RCL) and the Cumulative Hazard Index criteria (Table 1), which is described in WDNR guidance document PUB-RR-890. Benzene concentrations in samples B-1b (0.088 mg/kg) and B-3c (0.057 mg/kg) collected 12 feet below ground surface, exceeded the WDNR groundwater RCL. Additional excavation of crude oil impacted soil during the 2011 remedial activities was limited due to the presence of terminal pipeline infrastructure.

Waste Disposal Coordination and Documentation

Barr collected an analytical waste characterization sample from the crude oil impacted soil stockpile (Line 14 Historical-Stockpile-1) on October 24, 2013 for laboratory analysis at Legend Technical Services. The stockpile sample was analyzed for diesel range organics (DRO) and benzene, toluene, ethylbenzene, and xylenes (BTEX). 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 #CL13-0058 (Attachment B). A total of 17.96 tons of crude oil impacted soil was hauled to the landfill on November 6, 2013. The waste characterization laboratory report, the Shamrock Landfill waste profile documentation and the landfill hauling summary are included in Attachment B.

Conclusions and Recommendations

The crude oil impacts that were encountered during the Line 14 maintenance excavation were limited to sheen and a trace amount of product near the closed BRRTS #0216558992 release site. No new crude oil source was identified. No residual crude oil impacts were observed at the excavation extents. The impacted material encountered in the 2013 excavation was removed and properly disposed of. The excavation has been backfilled with clean fill.

Analyte concentrations in the soil samples collected during the 2011 remedial activities did not exceed the industrial direct contact RCL and passed the Cumulative Hazard Index criteria. Two 2011 soil samples exceeded the groundwater RCL concentrations for benzene. The groundwater pathway for the Superior Terminal is currently being reviewed by the WDNR on a case by case site-wide basis. If the WDNR agrees that the risk to the groundwater pathway associated with this historical release can continue to be addressed using the site-wide approach, no further response action for groundwater or documentation for the WDNR will be required. The figures and tables attached to this memo can be used to update the existing BRRTS file.

Attachments:

- Photos 1 and 2
- Figure 1 Site Location
- Figure 2 Site Layout Map
- Table 1 Soil Analytical Data Summary
- Attachment A Enbridge Site Investigation Field Sampling and Screening Log
- Attachment B Waste Disposal Documentation

Photos:



Photo 1: Line 14 (center of photo) maintenance excavation, facing northeast. The valves with historical crude oil impacts soil are shown on the left side of Line 14. Photo taken on October 28, 2013.

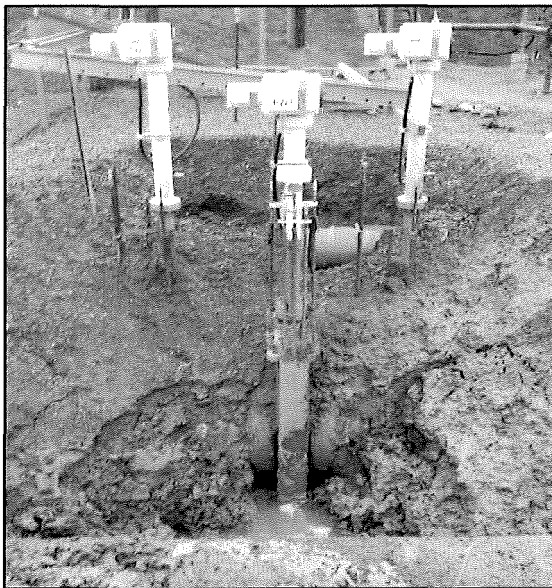
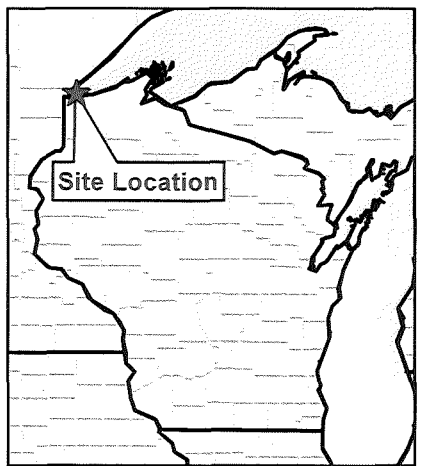
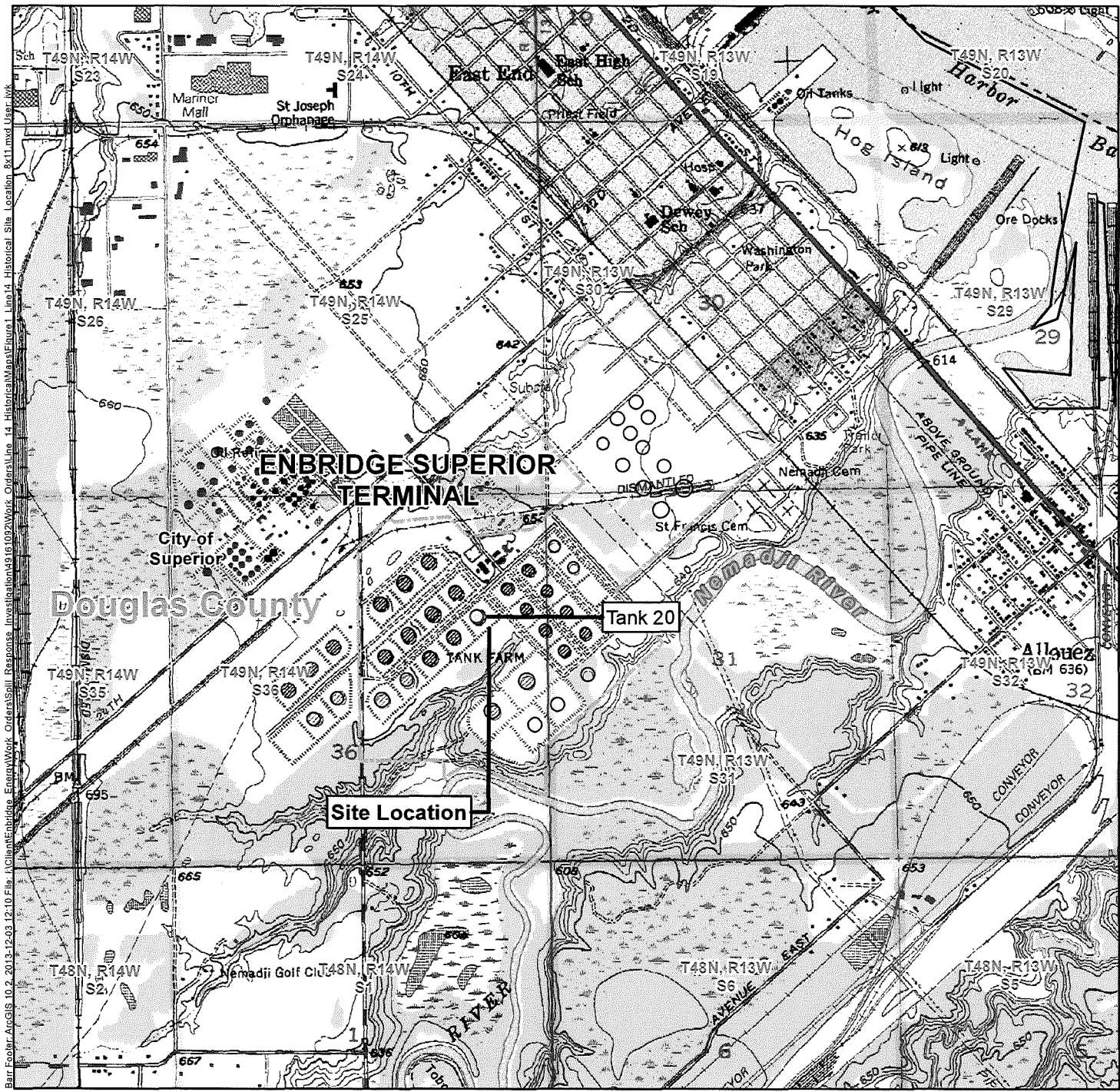


Photo 2: Water with sheen encountered in excavation during hydrovac excavation activities. These valves were the location of the 2011 crude oil release (BRRTS #0216558992) that was closed by the WDNR in 2012. Photo taken on October 23, 2013.



Terminal Property Boundary



0 2,000 4,000
Feet
1 Inch = 2,000 Feet

Figure 1

SITE LOCATION
Line 14 Historical Impacted Soil
Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin



Barr, Fowler, ArcGIS 10.2, 2013-12-03 12:10 File: \\Client\enbridge\EnergyWork\Orders\Line 14 Historical\Mapst\Figure 1 Line 14 Historical Site Location_8x11.mxd User: jwk

Barr Footer: ArcGIS 10.2.1, 2014-01-06 08:54 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\4916102\Work_Orders\Line_14_Historical\Map\Figure2_Line14_Historical.mxd User: jvk

Tank 20

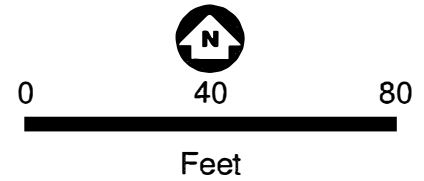
BRRTS #0216558992

S-1c S-2d S-3d
B-1b B-3c
SB-1 S-3a
S-3b

ENBRIDGE SUPERIOR TERMINAL



- Pipeline Infrastructure
- Terminal Property Boundary
- ✱ Historical Release Location
- 2013 Line 14 Maintenance Excavation**
- ▨ Maintenance Excavation
- Excavated Impacted Soil
- 2011 Remedial Activities**
- ▨ Remedial Excavation
- Excavation Sample Locations
- ⊙ Geoprobe Boring Location



1 Inch = 40 Feet
Douglas County Imagery Circa May, 2013
Figure 2

SITE LAYOUT MAP
Line 14 Historical Impacted Soil
Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin



Table 1
Soil Analytical Data Summary
Tank 20 Crude Oil Valve Release
(WDRR BRRS #0216558992)
Enbridge Energy Terminal - Superior, Wisconsin
Units, mg/kg (unless otherwise noted)

Parameter	Moisture	Solids, percent	Benzene	Ethyl benzene	Toluene	Xylene, total	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Diesel Range Organics	WDRR RCL Determinations ¹					
										Exceedance Count	Hazard Index	Cumulative Cancer Risk	Pass or Fail		
Effective Date	Exceedance Key														
Groundwater RCL		Bold													
Industrial Direct Contact RCL	05/01/2012	No Exceed									0	1.0	0.00001	Pass	
Location	Date	Depth													
B-1b	9/01/2011	12 ft	--	75 %	0.088	0.040	< 0.031	0.12	--	--	160	0	0.0002	1.3E-08	Pass
B-3c	9/01/2011	12 ft	--	75 %	0.057	< 0.033	0.033	< 0.10	--	--	< 8.7	0	0.0001	8.6E-09	Pass
S-1a	9/01/2011	8 ft	--	84 %	< 0.030	< 0.030	< 0.030	< 0.089	--	--	13	0	0.0001	4.9E-09	Pass
S-1c	9/01/2011	6 ft	--	78 %	< 0.032	< 0.032	< 0.032	< 0.096	--	--	< 8.2	0	0.0001	5.2E-09	Pass
S-1d	9/01/2011	2 ft	--	81 %	< 0.031	< 0.031	< 0.031	< 0.093	--	--	< 8.1	0	0.0001	5.0E-09	Pass
S-2d	9/01/2011	6 ft	--	83 %	< 0.030	0.033	0.030	0.10	--	--	28	0	0.0001	4.9E-09	Pass
S-3b	9/01/2011	10 ft	--	73 %	< 0.032	< 0.032	< 0.032	< 0.097	--	--	< 9.1	0	0.0001	5.2E-09	Pass
S-3d	9/01/2011	2 ft	--	78 %	< 0.032	< 0.032	< 0.032	< 0.096	--	--	< 8.0	0	0.0001	5.2E-09	Pass
TK20-SB-1	6/15/2012	3 - 4 ft	22.0 %	--	< 0.065	< 0.065	< 0.065	< 0.20	< 0.065	< 0.065	< 10.5	0	0.0003	1.1E-08	Pass
TK20-SB-1	6/15/2012	13 - 15 ft	27.0 %	--	< 0.070	< 0.070	< 0.070	< 0.21	< 0.070	< 0.070	< 11.1	0	0.0004	1.1E-08	Pass

¹WDRR RCL Determinations based on guidance criteria described in WDRR 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).

Attachment A

Enbridge Site Investigation Field Sampling and Screening Logs

ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Milepost or Facility: ~~STEP Slurry SVA~~ Line 14 Excavation Stockpile Screening

Date: 11/13/13

Equipment used: PID -ionization detector with 10.6 eV lamp

Background Headspace: 0.0 ppm

Sampler: REE

Calibration Time: 1700

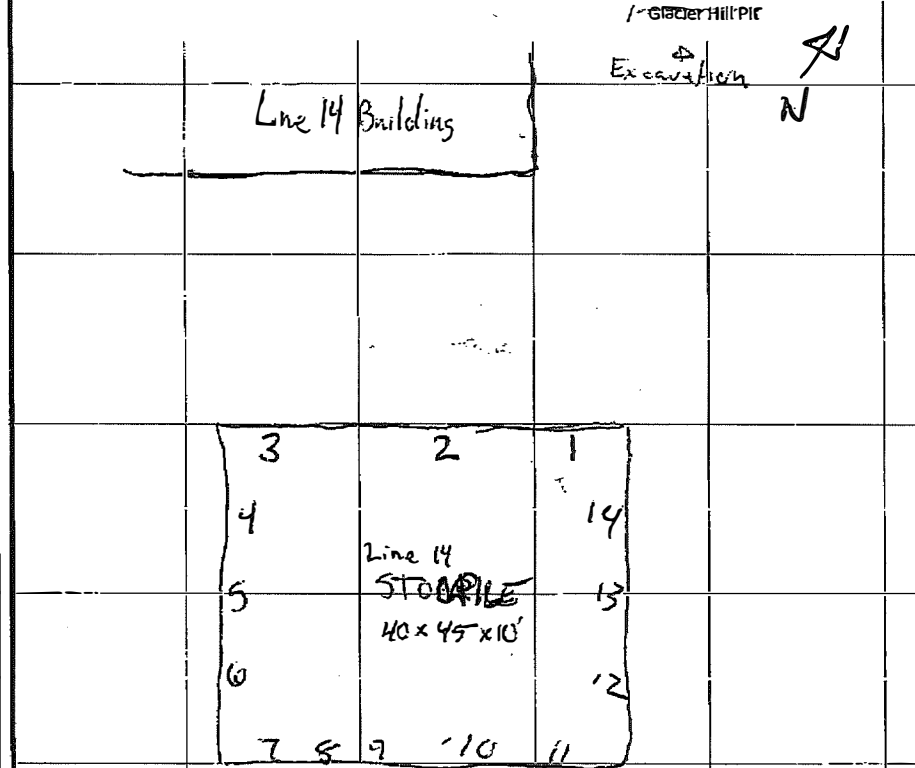
Sample Nomenclature (Location - sample type - #): ~~STEP Slurry Stockpile~~

Soil Sample Types: R = Removed 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
R-1	-	1400	CLGP	Red brown	N/N	0.0
R-2	-					0.0
R-3	-					0.0
R-4	-					0.0
R-5	-					0.0
R-6	-					0.0
R-7	-					0.0
R-8	-					0.0
R-9	-					0.0
R-10	-					0.0
R-11	-					0.0
R-12	-					0.0
R-13	-	↓				0.0
R-14	-	1430	↓	↓	↓	0.0
R-15	-					
R-16	-					
R-17	-					
R-18	-					
R-19	-					
R-20	-					

SITE SKETCH: north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features... 1 inch/grid = 20 FEET

*North / South Stockpile (1' 45' x W' 40' x H' 10') / 27 = 666 CY
 Soil from: Line 14 excavation Soil going to: School Forest Rd. Pit - Pattison Park, Co Rd B Pit



-Pile Total is 650 cubic yards
 -UPI vans most for backfill, in 100 cubic yards will be left and will go to Udeens
 -Gave inspector approval for Udeens disposal based on screenings

Attachment B

Waste Disposal Documentation

P.O. Number	Customer Code	SKB Representative	CL
I. Generator Information			
Generator Name: Enbridge Pipelines Limited Partnership, LLC		Generator EPA ID Number	SIC Code
Generator Location: Enbridge Superior Terminal - Line 14 Historically impacted soil		Generator Contact: Alex Smith	
Generator Mailing Address (if different): 1320 Grand Ave, Superior, WI 54880		Phone: 715-398-4795	Fax: 832-325-5511
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002		Generator Email Address: alex.smith@enbridge.com	
Billing Contact: Alex Smith		Phone: 715-398-4795	Fax: 832-325-5511
Billing Email Address: alex.smith@enbridge.com			
II. Waste Generation Information			
Waste Name: Crude contaminated soil - Line 14 Historically Impacted soil		Estimated rate of waste generation: 10	<input checked="" type="checkbox"/> onetime <input type="checkbox"/> yearly
		<input type="checkbox"/> lbs <input type="checkbox"/> tons <input checked="" type="checkbox"/> cy <input type="checkbox"/> drums	
Generator Facility Operations and/or Site History: Enbridge Pipeline Terminal			
Describe the generating process or source of contaminated soil/debris and/or waste: Historical crude oil release			
III. Waste Composition and Constituents (list all known)			
Crude oil impacted soil			Actual Range % ppm
			100
IV. Waste Properties			
Physical state: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Sludge	Liquid: <input type="checkbox"/> Yes <input type="checkbox"/> No	Free Liquids: <input type="checkbox"/> Yes <input type="checkbox"/> No	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"/> >12.6
Flash point: <input type="checkbox"/> ≤ 140°F <input type="checkbox"/> > 140°F to < 200°F <input type="checkbox"/> > 200°F	Color: Brown	Odor (describe)	
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. 8)? <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 waste radioactive? <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			
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 but, 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 polarity 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 involved as a result of this certification being inaccurate or untrue.			
Signature: <u>Alex Smith</u>		Title: Environmental Analyst	
Printed Name: Alex Smith		Date: 11/4/2014	



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

October 29, 2013

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

Work Order Number: 1305313
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 10/25/13. 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

Bech Pham

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

Samantha Javoriski

Samantha Javoriski
Manager, Organics
sjavoriski@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: 49161092
Project Number: 49161092
Project Manager: Ms. Andrea Nord

Work Order #: 1305313
Data Reported: 10/26/13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line 14 Historical-Stockpile-1	1305313-01	Soil	10/24/13 10:45	10/25/13 09:55

Shipping Container Information

Default Cooler Temperature (°C): 4.7

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

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.



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Barr Engineering Co.
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Project Number: 49161092
Project Manager: Ms. Andrea Nord

Work Order #: 1305313
Date Reported: 10/26/13

**DRO/8015D
Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line 14 Historical-Stockpile-1 (1305313-01) Soil Sampled: 10/24/13 10:45 Received: 10/25/13 9:55										
Dioxin Range Organics	160	11	1.3	ng/kg dry	1	832655	10/25/13	10/25/13	WH(6)DRO	L1
Surrogate: Tricloroethane (C-29)	83.3			76.129 %						

Bar Engineering Co. Project: 49161092
 4700 W 77th St Project Number: 49161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

WI(65) GRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line 14 Historical-Stockpile-1 (1305313-01) Soil Sampled: 10/24/13 10:45 Received: 10/25/13 9:55										
Benzene	<0.0341	0.033	0.0341	mg/kg dry	1	B3J2505	10/25/13	10/25/13	WI(65) GRO	
Ethylbenzene	0.816	0.033	0.0329	mg/kg dry	1	-	-	-	-	J
Toluene	0.8089	0.033	0.0309	mg/kg dry	1	-	-	-	-	J
Xylenes (total)	<0.011	0.10	0.011	mg/kg dry	1	-	-	-	-	
Surrogate: 4-Fluorochlorobenzene	69.8		60-169	%						

Bar Engineering Co. Project: 49161092
 4700 W 77th St Project Number: 49161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line 14 Historical-Stockpile-1 (1305313-01) Soil Sampled: 10/24/13 10:45 Received: 10/25/13 9:55										
% Solids	76			%	1	B3J2505	10/25/13	10/25/13	% calculation	

Bar Engineering Co. Project: 49161092
 4700 W 77th St Project Number: 49161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

DRO/8015D - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPO	%RPO Limit	Notes
Batch B3J2505 - Sonication (Wise DRO)											
Blank (B3J2505-BLK1) Prepared & Analyzed: 10/25/13											
Diesel Range Organics	<0.59	8.0	0.59	mg/kg wet				70-130			
Surrogate: Tricetane (C-30)	13.6			mg/kg wet	16.0		84.1	70-130			
LCS (B3J2505-B51) Prepared & Analyzed: 10/25/13											
Diesel Range Organics	63.0	8.0	0.59	mg/kg wet	64.0		99.0	70-120			
Surrogate: Tricetane (C-30)	14.6			mg/kg wet	16.0		90.8	70-120			
LCS Dup (B3J2505-B5D1) Prepared: 10/25/13 Analyzed: 10/29/13											
Diesel Range Organics	70.6	8.0	0.59	mg/kg wet	64.0		111	70-120	10.2	20	
Surrogate: Tricetane (C-30)	15.4			mg/kg wet	16.0		102	70-120			

Bar Engineering Co. Project: 49161092
 4700 W 77th St Project Number: 49161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

WI(65) GRO/8015D - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPO	%RPO Limit	Notes
Batch B3J2508 - EPA 5035 Soil (Purge and Trap)											
Blank (B3J2508-BLK1) Prepared & Analyzed: 10/25/13											
Benzene	<0.0031	0.025	0.0031	mg/kg wet							
Ethylbenzene	0.0132	0.025	0.0022	mg/kg wet							B-02.4
Toluene	<0.0027	0.025	0.0027	mg/kg wet							
Xylenes (total)	<0.0000	0.076	0.0000	mg/kg wet							
Surrogate: 4-Fluorochlorobenzene	22.8			ug/L	25.0		91.8	60-169			
LCS (B3J2508-B51) Prepared & Analyzed: 10/25/13											
Benzene	97.9			ug/L	100		97.9	60-120			
Ethylbenzene	100			ug/L	100		100	60-120			
Toluene	100			ug/L	100		100	60-120			
Xylenes (total)	289			ug/L	300		99.2	60-120			
Surrogate: 4-Fluorochlorobenzene	24.4			ug/L	25.0		97.7	60-169			
LCS Dup (B3J2508-B5D1) Prepared & Analyzed: 10/25/13											
Benzene	99.7			ug/L	100		99.7	60-120	1.23	20	
Ethylbenzene	95.6			ug/L	100		95.6	60-120	4.69	20	
Toluene	97.8			ug/L	100		97.8	60-120	2.37	20	
Xylenes (total)	284			ug/L	300		94.6	60-120	4.78	20	
Surrogate: 4-Fluorochlorobenzene	22.2			ug/L	25.0		88.9	60-169			
Matrix Spike (B3J2508-MS1) Source: 1305313-01 Prepared & Analyzed: 10/25/13											
Benzene	97.4			ug/L	100		97.4	60-120			
Ethylbenzene	101			ug/L	100	0.260	101	60-120			
Toluene	101			ug/L	100	0.120	100	60-120			
Xylenes (total)	300			ug/L	300	0.122	100	60-120			
Surrogate: 4-Fluorochlorobenzene	22.6			ug/L	25.0		90.4	60-169			

Bar Engineering Co. Project: 40161092
 4700 W 77th St Project Number: 40161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

PERCENT SOLIDS - Quality Control
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spk'n Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B3J2906 - General Preparation											
Duplicate (B3J2906-DUP1)											
% Solids	63.0			%		Source: 1305312-01 Prepared & Analyzed: 10/29/13	64.0		6.09	20	
Duplicate (B3J2906-DUP2)											
% Solids	65.0			%		Source: 1305323-03 Prepared & Analyzed: 10/29/13	65.0		6.00	20	

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: 40161092
 4700 W 77th St Project Number: 40161092 Work Order #: 1305313
 Minneapolis, MN 55435 Project Manager: Ms. Andrea Nord Date Reported: 10/29/13

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)

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.

Chain of Custody

BAR Engineering Co. 4700 W 77th St, Minneapolis, MN 55435, Tel: 651-642-1150, Fax: 651-642-1230

Project Number: 1305313

Project Name: Lehigh - Super Terminal L-14

Sample Description: Lehigh - Super Terminal L-14

Sample ID: NO 40824

Number of Containers Received: 1 of 1

Container ID: REE/NAW

Client: AAU

Analyst: CSGZ

Method: ASAP TORU

Product	Spk'n	MDL	RL	Units	Spk'n Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
1	10/29/13	bars	X	X							

Legend Technical Services, Inc. 88 Empire Drive, St Paul, MN 55103, Tel: 651-642-1150, Fax: 651-642-1230

Legend Technical Services, Inc.

Chromatogram

Sample ID: Line 14 Historical - Stockpile - 1

Legend Technical Services, Inc. 88 Empire Drive, St Paul, MN 55103, Tel: 651-642-1150, Fax: 651-642-1230



November 05, 2013

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

RE: CL13-0058 Crude Contaminated Soil - Line 14 Historically Impacted

Dear Mr. Beaster,

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.

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.

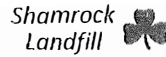
These prices are based on an approved waste stream composition. In the event that a non-conforming waste is received, you will be notified of additional charges, when applicable.

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 sopstad@skblinc.com.

Shamrock Landfill
Steve Opstad
Steve Opstad

Customer ACCEPTED BY: (name, position) Max Smith, Environmental Analyst
DATE: 11-5-2013
WASTE APPROVAL Period: 11/5/2013 to 10/28/2015

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
2800 East 21st St
Superior, WI 54880

Disposal

Waste Description: Crude Contaminated Soil - Line 14 Historically Impacted

Estimated Volume: 10 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 - Line 14



Notification of Waste Acceptance

PAGE 1 of 2
11/05/2013

CUSTOMER INFORMATION

EPA ID#: WID981092133
Enbridge Pipelines Limited Partnership,
Enbridge Superior Terminal

2800 East 21st St
Superior, WI 54880
Contact: Karl Beaster
Phone: (715) 398-4795

Profile Sheet #:

Waste Stream #: CL13-0058

Waste Name: Crude Contaminated Soil - Line 14 Historically I

INVOICE INFORMATION

Bill #: 2133
Enbridge Pipelines Limited Partnership,
LLC/Accounts Payable

1100 Louisiana Ave, Ste 3300
Houston, TX 77002
Contact: Karl Beaster
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 10 YARDS / ONE TIME ONLY.

This waste is acceptable for delivery beginning on 11/5/2013 thru 10/28/2015 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



WASTE STREAM ANALYSIS INFORMATION

PAGE 2 of 2
11/5/2013

Waste Name: Crude Contaminated Soil - Line 14 Historically Impacted
Physical State: Solid
Process Producing Waste: Tank 118 mixer release

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: Steve Opstad Date: 11/5/13

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



REPORT
REPORT NAME: Tons Each Load By WSD
DESCRIPTION: Tonnage for EACH LOAD, Grouped by customer
DATE RANGE: 01/01/2013 to 11/12/2013
PRINTED ON (DATE): Tuesday, November 12, 2013

ENBSI
 Enbridge Pipelines Limited Partnership
 2800 East 21st St
 Superior WI 54660

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	DATE	TONS	TONS
15419 (A)	15905	11/02/2013	CL13-0059	Crude Contaminated Sol - Line 14	2A	238	1175	17.96
Total # of Loads: 1							Total Tons:	17.96
Grand Total (Tons):							17.96	
Grand Total (Loads):							1	