

Technical Memorandum

To: Alex Smith, Enbridge Energy
From: Ryan Erickson and Noelle Scelina
Subject: Superior Terminal Field Booster 3 Historical Contamination
Date: September 10, 2015
WDNR BRRTS #: 04-16-561101
Barr Project #: 49161253.26

This memorandum summarizes the field screening, analytical sampling, and waste management activities provided by Barr Engineering (Barr) at the request of Enbridge Energy (Enbridge) in response to the discovery of petroleum impacted soil and water near Field Booster 3 at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1) in June 2015.

Background and Response Activities

On June 26, 2015, a rainbow sheen was observed by Enbridge contractors on water within a stormwater ditch near Field Booster Pump 3 at the Superior Terminal. It was determined that the sheen originated from a pipeline valve approximately 15 feet south of the Field Booster (Figure 2). Upon discovery of contamination, Enbridge Pipe Line Maintenance (PLM) personnel recovered impacted water with a vacuum truck, excavated contaminated soil around the valve with a hydrovacuum truck, and inspected pipeline infrastructure for potential leaks. No new pipeline leaks were identified. Enbridge Environment personnel were notified when the sheen was initially encountered.

Enbridge requested that Barr provide the following environmental assistance:

- assess and document environmental site conditions during remedial activities
- assist with the coordination of off-site contaminated soil management
- review historical release information for the location
- prepare a memorandum summarizing the extent of identified impacts and the response actions that were taken

Barr was onsite on June 26, 2015 and July 10, 2015 to carry out the above tasks.

Based on the location and characteristics of the contaminated soil, the results of the Enbridge inspection, and historical releases in the area, Enbridge indicated that the Field Booster 3 contamination was likely historical. Barr reviewed the Wisconsin Department of Natural Resources (WDNR) Bureau of Remediation and Redevelopment Tracking System (BRRTS) database to identify whether any historical releases had been reported at or near this location. A summary of the BRRTS site review is included in the *Results* section of this memo and associated historical documents are included in Attachment A.

Field Activities

Barr was onsite on June 26, 2015 and July 10, 2015 to document environmental field conditions in the Field Booster 3 excavation. Barr field staff screened soil from the excavation sidewalls for the presence of organic vapors using an 11.7eV photoionization detector (PID). PID readings and physical observations such as a rainbow sheen, discoloration, and odor were documented on screening logs (Attachment B).

Soil was classified as contaminated if PID headspace readings were greater than 10 parts per million (ppm), or if other evidence of crude oil contamination was identified as outlined in the pending WDNR *Enbridge Superior Terminal Site Investigation and Response Action Plan (SI/RAP)* (2014). Soil classified as contaminated was transported to the Terminal Soil Management Area (SMA) contaminated-soil staging area where it was stockpiled until off-site disposal could be arranged. Two samples of the stockpiled contaminated soil were collected and submitted to Legend Technical Services for characterization as described in the *Waste Disposal Coordination and Documentation* section below.

Contaminated soil remained in place following excavation activities due to access issues and existing terminal infrastructure. A representative soil sample (*FB3-S-1*) was collected and submitted to the laboratory for analysis of petroleum volatile organic compounds (PVOC) and naphthalene to document residual contaminant concentrations. Analyte detections were compared to WDNR Industrial Direct Contact Residual Concentration Limits (RCL's), WDNR Groundwater RCL's and Cumulative Hazard Index criteria. Analytical sample *FB3-S-1*, collected from the final excavation extent, is shown on Figure 2.

Results

Barr field screened the initial response excavation on June 26, 2015. Soil observed in the excavation sidewalls and bottom consisted of a reddish-brown fat clay with some sand fill located around buried infrastructure. Soil with headspace readings greater than 500 ppm was identified in the excavation sidewalls and a sheen and trace amounts of free product were observed on the surface of the water within the excavation (Photos 1 through 3; Attachment B). Enbridge scheduled additional remedial excavation activities based on these observations. Barr returned to the site on July 10, 2015 after additional remedial excavation took place (Photo 4). The excavation was approximately 18 feet long by 15 feet wide by 7 feet deep. Residual contaminated soil was identified in the southern sidewall as shown in Photo 5 and Figure 2. The contaminated soil had a slight sheen and headspace reading greater than 372 ppm. Additional remedial excavation could not be completed in this location without undermining a nearby telephone pole (Photos 4 and 5).

Analytical sample *FB3-S-1* was collected from the contaminated soil at 1.5 below ground surface (bgs) near field screening point S-9 on July 10, 2015. Field screening location S-9 had a headspace reading of 372 ppm. Analyte concentrations in *FB-S-1* were below the WDNR Industrial Direct Contact RCL's and passed the Cumulative Hazard Index criteria. The analyte concentrations were, however, above the WDNR Groundwater RCL's. The analytical results are presented in Table 1 below.

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	Xylene	Naphthalene
<i>Groundwater RCLs</i>			1.3793	1.3793	.0051	.785	.5536	1.97	.3294
<i>Industrial DC RCLs</i>			219	182	7.41	37	818	258	26
FB3-S-1	7/10/15		17	5.6	2.7	3.7	9.2	21	11

BOLD = Analyte detections exceeding WDNR Groundwater RCLs

The excavation was backfilled with clean fill upon completion of remedial activity.

The WDNR BRRTS site review identified historical release 04-16-561101 at this location. The historical release occurred in 2013 when 10 gallons of crude oil leaked from Field Booster 3. Most of the contaminated soil was removed; however, residual impacts were left in place due to the presence of pipeline infrastructure. The WDNR closed the site on October 14, 2013. Associated documents from the historical release memo are included in Attachment A. When comparing the figures from 2013 (Attachment A) and 2015 (Figure 2) responses, the remedial excavation extents are approximately 5 feet apart, and Field Booster 3 pipeline infrastructure, a potential preferential pathway, is shown intersecting both excavations.

Waste Disposal Coordination and Documentation

Barr collected analytical waste characterization samples *2015 FB3-Stockpile-1* and *2015 FB3-Stockpile-2* from the crude oil impacted soil stockpile for laboratory analysis at Legend Technical Services. The samples were analyzed for diesel range organics (DRO) and benzene, toluene, ethyl benzene, 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 on July 8, 2015 under the waste profile #CL15-0025. A total of 123.13 tons of crude oil impacted soil was hauled to the landfill. Waste profile documents, waste characterization laboratory reports, and a landfill disposal summary are included in Attachment D.

Conclusions and Recommendations

It is recommended that no further response action be taken at this site,. Crude oil contaminated soil excavated from the Field Booster 3 response site was managed at an approved landfill. Contaminated soil that could not be excavated due to the presence of terminal infrastructure had analyte concentrations

that did not exceed WDNR Industrial Direct Contact RCLs and passed the WDNR Cumulative Hazard Index criteria. The presence of clean fill, above ground infrastructure 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 SI/RAP (2014) and project specific monitoring is not required for this site. No potential vapor receptors were identified.

The crude oil contaminated soil encountered in the Field Booster 3 excavation is likely associated with the historical 2013 Field Booster 3 Release (WDNR BRRTS# 04-16-561101) based on the historical releases proximity, the presence of buried infrastructure that connect the 2013 and 2015 remedial excavations, and the fact that no new release source was identified. It is recommended that the th2015 Field Booster 3 response technical memo be added to the existing and closed historical release BRRTS project file and that no further response action be requested by the WDNR for this site at this time.

Attachments:

Photos 1 through 5

Figure 1 Site Location

Figure 2 Site Layout Map

Attachment A 2013 Field Booster 3 Release WDNR Documents

Attachment B Site Investigation Field Sampling and Screening Logs

Attachment C Legend Technical Services Laboratory Report for Excavation Samples

Attachment D Waste Disposal Documentation

Site Photos:



Photo 1



Photo 2

Photo 1: Initial Field Booster 3 excavation. Photo taken facing northwest on June 26, 2015.

Photo 2: Initial Field Booster 3 excavation. Photo taken facing northeast on June 26, 2015.



Photo 3



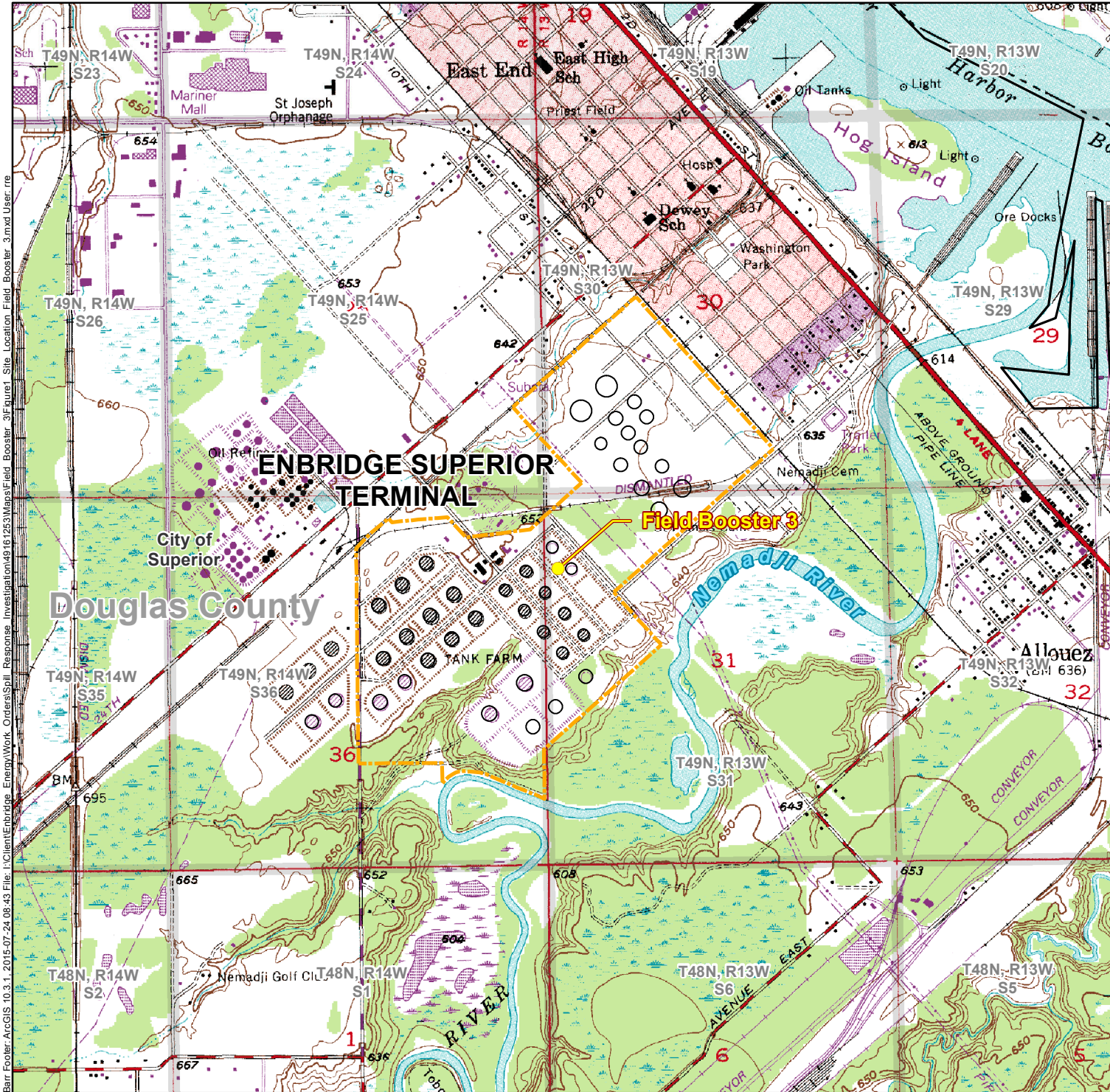
Photo 4

Photo 3: Initial Field Booster 3 excavation. Photo taken facing southwest on June 26, 2015.

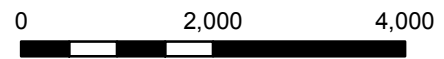
Photo 4: Final Field Booster 3 excavation. Note the proximity of the excavation to the telephone pole in the upper right corner of the photo. Photo taken facing south on July 10, 2015.



Photo 5: Southern sidewall of final excavation. Soil with residual contamination appears to be slumping in the center of the photo. The base of the telephone pole is visible in the top left corner of the photo. Photo taken facing southwest on July 10, 2015.



- Approximate Field Booster 3 Location
- Terminal Property Boundary



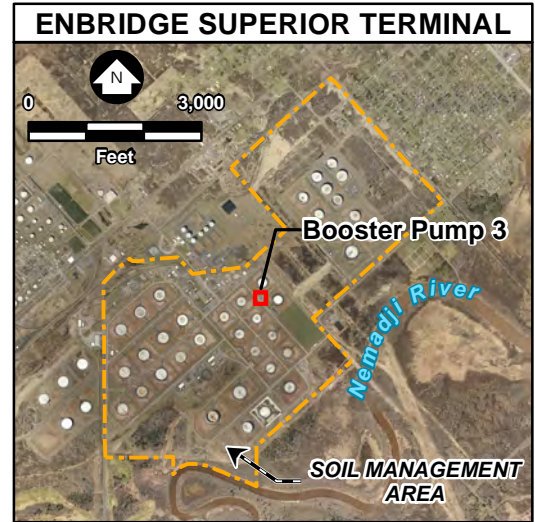
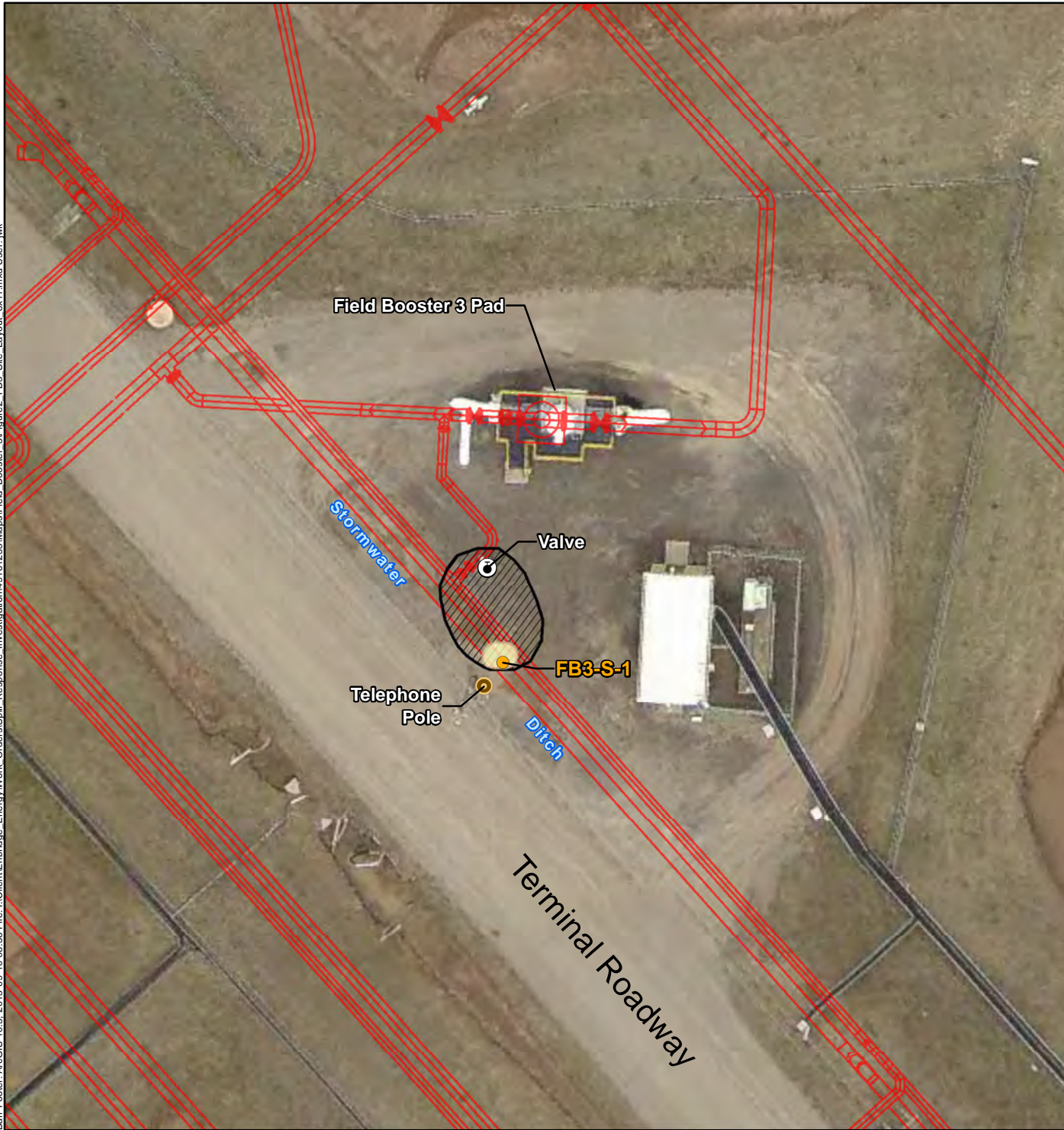
Feet
1 Inch = 2,000 Feet

Figure 1

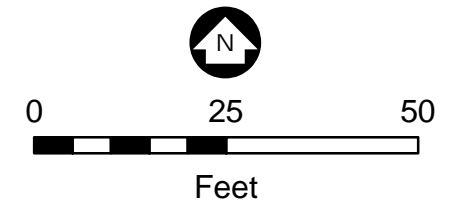
SITE LOCATION
FIELD BOOSTER 3
SUPERIOR TERMINAL
 Enbridge Energy, L.P.
 Superior, Wisconsin



Barr Footer: ArcGIS 10.3.1, 2015-07-24 08:43 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161253\Maps\Field_Booster_3\Figure1_Site_Location_Field_Booster_3.mxd User: rre



- Analytical Sample Locations
- ▨ Subsurface Excavation Extent
- Residual Crude Oil Contamination
- ⊙ Valve
- ⊙ Telephone Pole
- Pipeline Infrastructure
- - - Terminal Property Boundary



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

Figure 2

SITE LAYOUT
FIELD BOOSTER 3 RESPONSE
SUPERIOR TERMINAL
 Enbridge Energy, L.P.
 Superior, Wisconsin



Attachment A

2013 Field Booster 3 Release Documents

**State of Wisconsin - Department of Natural Resources
Substance Release Notification Report (SERTS)
Report created on 10/15/2013**

SPILL ID# 20130713NO16-1 BRRTS# 04-16-561101

Incident Date & Time: 07/13/2013 06:15	Reported Date & Time: 07/13/2013 10:37	BRRTS No: 04-16-561101	Spill ID: 20130713NO16-1
DATCP Reported? No DATCP Transferred? No	NFA Letter Sent? No	ERP Transferred? No	Incident Closed? Yes : 10/14/2013

Location		
Region: NO	County: Douglas	Municipality: SUPERIOR, CITY OF
Facility/Property Name and Street Address: ENBRIDGE TERMINAL 2800 E 21ST ST		Description: BOOSTER PUMP #3
Facility Type: Bulk Petroleum Storage (Tank Farm/Terminal/Refinery)		
Lat/Long:	PLSS:	WTM:
Weather Conditions:		

Responsible Parties			
Name/Address (1): ENBRIDGE ENERGY 2800 E 21ST ST SUPERIOR, WI 54880-	Contact: ALEX SMITH ENVIROMENTAL SPECIALIST (715) 817-8322 x primary	Other Contact:	Spill Packet:

Cause
PUMP SEAL FAILURE.

Cause Type: OTHER

Substances						
Name	Other / Comments	Amt Released	Amt Recovered	Type	Color	Odor
Crude Oil		10.0 Gal	EST 10.0 Gal	LIQUID		

Environmental Impacts / Damages			
Environmental Impacts: SOIL	Resource Damages: No	Injuries: No	Evacuation: No

Cleanup Actions	
Method	Description
Excavation	

Cleanup Action Comments

Contractors Hired	
Name	Description
OTHER	BARR ENGINEERING

Waste Destinations	
Location	Description

Agencies Notified / On Scene		
Agency	Notified	On Scene
DNR	X	

**State of Wisconsin - Department of Natural Resources
 Substance Release Notification Report (SERTS)
 Report created on 10/15/2013**

SPILL ID# 20130713NO16-1 BRRTS# 04-16-561101

Additional Comments				
RICHARD CONTACTED ALEX SMITH ON 7/16/13 AT 0840. HE SAID FIELD SCREENING COMPLETED AFTER THE IMMEDIATE RESPONSE SHOWED ELEVATED READINGS. SMITH SAID THEY WOULD BE ASSESSING/REMOVING ADDITIONAL SOIL AND HE WOULD FOLLOW UP WITH A SUMMARY OF ACTIVITIES. SAGER SENT KARL BEASTER AND EMAIL ON 9/10/13 REQUESTING AN UPDATE. BEASTER REPLIED ON 9/10/13. THE EXCAVATION WORK AT THE SITE IS COMPLETE AND A REPORT IS PENDING FROM BARR. SAGER RECEIVED A RESPONSE REPORT FROM BARR ENGINEERING ON 9/30/13.				
Enforcement Action/Citation				
Enforcement Action/Citation? No				
Case Activity Reports:				
Person Reporting				
Name	Representing / Address	Primary Phone	Secondary Phone	
ALEX SMITH	ENBRIDGE	(715) 817-8322 x		
Contractors Hired				
Name / Address			Zone Contractor Hired by DNR?	
			No	
Contacts				
Role	Name	Office Phone	Date	Time
Prepared By:	JOHN SAGER	(715) 365-8959 x	10/14/2013	
Person Notified:	MEG GALLOWAY		07/13/2013	0830
Investigated By:	PHIL RICHARD & JOHN SAGER		07/16/2013	
Incident Commander:				
Spill Coordinator:	JOHN SAGER, NO Region	(715) 365-8959 x	10/14/2013	
Electronic Attachments (list)				
Name		Type		
20130713NO16-1_RP_Documentation_Response_Report.pdf		Portable Document Format		

Site Photos:



Photo 1

Photo 1: FB3 facing east towards Tank 4. (August 15, 2013)



Photo 2

Photo 2: FB3 after the July 12, 2013 crude oil release. Crude oil is visible on the outside of the pump casing. (July 13, 2013)



Photo 3

Photo 3: Water with a trace amount of free-product and a rainbow sheen on the surface in the FB3 remedial excavation. (July 31, 2013)



Photo 4

Photo 4: Final northern extent of the FB3 excavation extent facing south. (August 15, 2013)



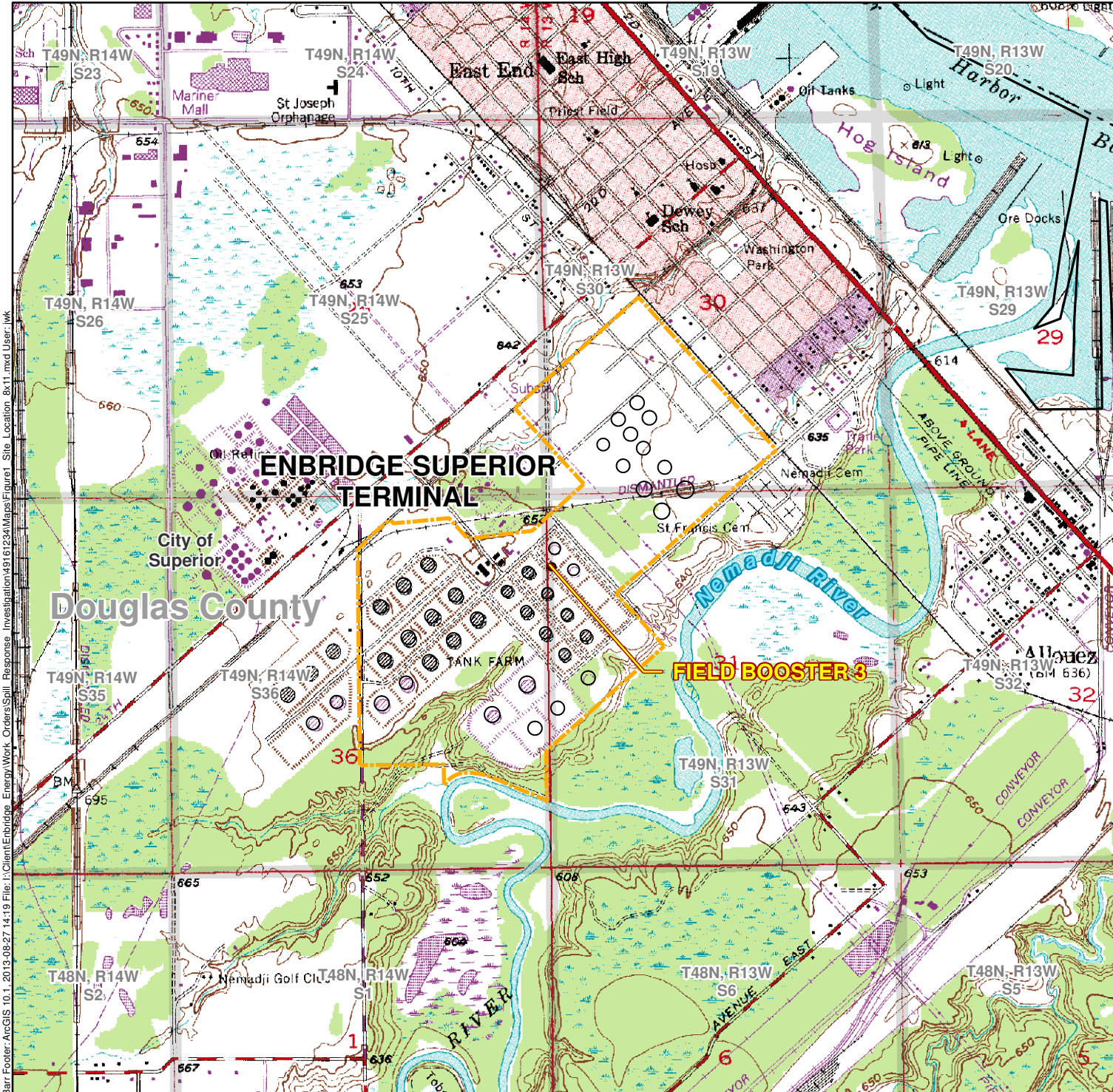
Photo 5

Photo 5: Final southern extent of the FB3 excavation extent facing north. (August 15, 2013)

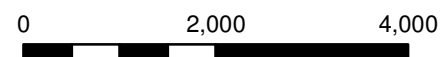


Photo 6

Photo 6: Backfilled FB3 excavation facing southeast. (September 17, 2013)



--- Terminal Property Boundary

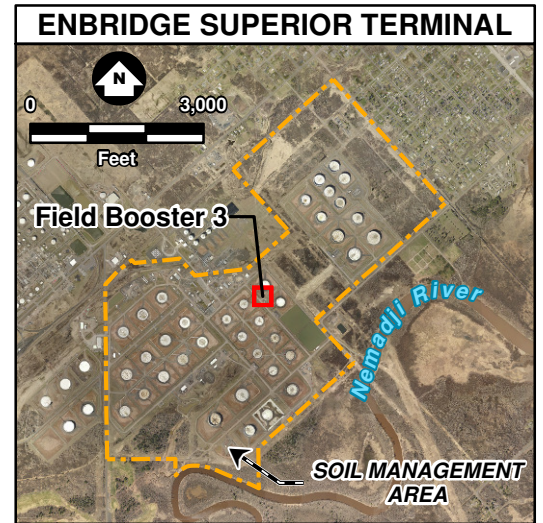





Feet
1 Inch = 2,000 Feet

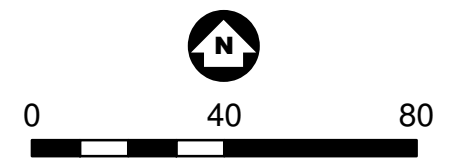
Figure 1
FIELD BOOSTER 3 SITE LOCATION
SUPERIOR TERMINAL
 Enbridge Energy, L.P.
 Superior, Wisconsin



Barr Footer: ArcGIS 10.1, 2013-08-27 14:19 File: I:\Client\Enbridge Energy\Work Orders\Spill Response Investigation\49161234\Maps\Figure1_Site_Location_8x11.mxd User: jwk



-  Excavation Extent
-  Pipeline Infrastructure
-  Terminal Property Boundary



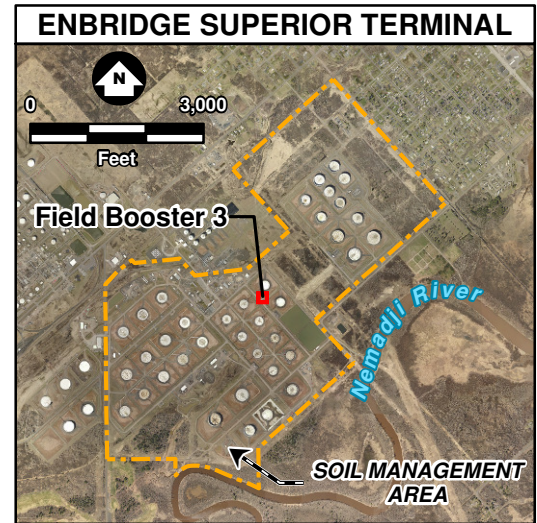
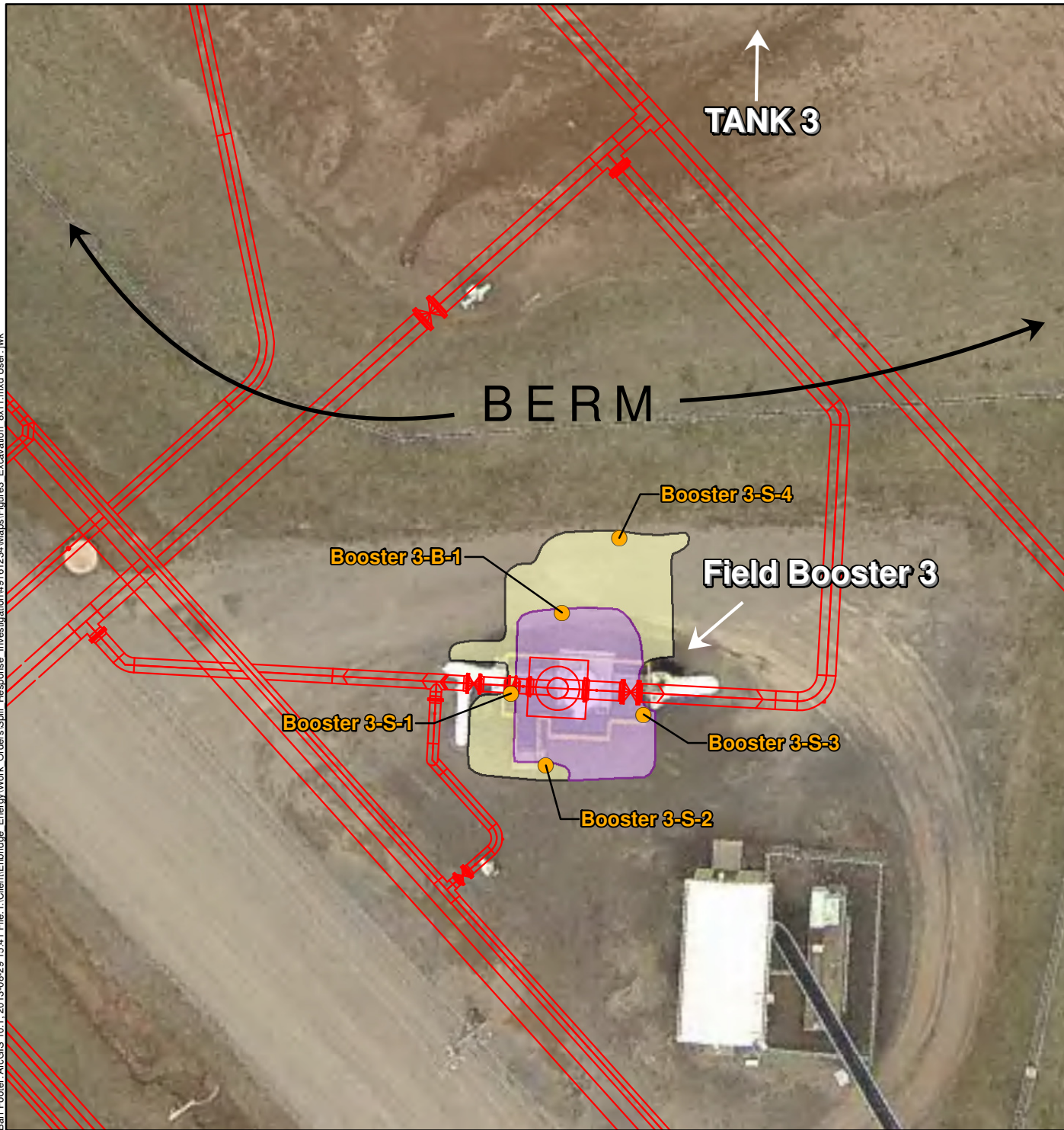
Feet
 1 Inch = 40 Feet
 Douglas County Imagery Circa May, 2013

Figure 2

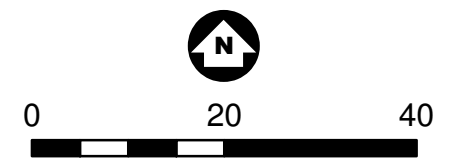
**FIELD BOOSTER 3 SITE LAYOUT MAP
 SUPERIOR TERMINAL**
 Enbridge Energy, L.P.
 Superior, Wisconsin



Barr Footer: ArcGIS 10.1, 2013-08-29 15:41 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161234\Maps\Figure3_Excavation_8x11.mxd User: jwk



- Sample Locations
- Excavation Extents**
- 1' - 3' Deep
- 3' - 6' Deep
- Pipeline Infrastructure
- - - Terminal Property Boundary



Feet
1 Inch = 20 Feet
Douglas County Imagery Circa May, 2013

Figure 3

FIELD BOOSTER 3 EXCAVATION MAP
SUPERIOR TERMINAL
Enbridge Energy, L.P.
Superior, Wisconsin



Table 1
Soil Analytical Data Summary
Enbridge Energy
Booster Pump 3 Release
Units, mg/kg (unless otherwise noted)

Parameter			1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylene, total	Moisture	Acenaphthene
Effective Date	Exceedance Key									
Wisconsin Direct Contact Levels NR 746.06	9/1/2007	No Exceed			1.10					
Wisconsin Generic Residual Contaminant Levels NR 720.09	4/1/1997	No Exceed			0.0055	2.9	1.5	4.1		
Location	Date	Depth (ft)								
BOOSTER 3-B-1	8/19/2013	4.5	< 0.0573	< 0.0573	< 0.0229	< 0.0573	< 0.0573	< 0.172	12.7 %	--
BOOSTER 3-S-1	8/19/2013	2	< 0.0504	< 0.0504	< 0.0202	< 0.0504	< 0.0504	< 0.151	0.30 %	--
BOOSTER 3-S-2	8/19/2013	3	< 0.0640	< 0.0640	< 0.0256	< 0.0640	< 0.0640	< 0.192	21.5 %	--
BOOSTER 3-S-3	8/19/2013	2	< 0.0537	< 0.0537	< 0.0215	< 0.0537	< 0.0537	< 0.161	6.0 %	--
BOOSTER 3-S-4	8/19/2013	2	< 0.0603	< 0.0603	< 0.0241	< 0.0603	< 0.0603	< 0.181	17.6 %	< 0.0121

-- Not analyzed/not available.

Table 1
Soil Analytical Data Summary
Enbridge Energy
Booster Pump 3 Release
Units, mg/kg (unless otherwise noted)

Parameter			Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene
Effective Date	Exceedance Key									
Wisconsin Direct Contact Levels NR 746.06	9/1/2007	No Exceed								
Wisconsin Generic Residual Contaminant Levels NR 720.09	4/1/1997	No Exceed								
Location	Date	Depth (ft)								
BOOSTER 3-B-1	8/19/2013	4.5	--	--	--	--	--	--	--	--
BOOSTER 3-S-1	8/19/2013	2	--	--	--	--	--	--	--	--
BOOSTER 3-S-2	8/19/2013	3	--	--	--	--	--	--	--	--
BOOSTER 3-S-3	8/19/2013	2	--	--	--	--	--	--	--	--
BOOSTER 3-S-4	8/19/2013	2	< 0.0121	< 0.0121	< 0.0121	< 0.0121	0.0170	< 0.0121	< 0.0121	0.0134

-- Not analyzed/not available.

Table 1
Soil Analytical Data Summary
Enbridge Energy
Booster Pump 3 Release
Units, mg/kg (unless otherwise noted)

	Effective Date	Parameter	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
		Exceedance Key							
Wisconsin Direct Contact Levels NR 746.06	9/1/2007	No Exceed							
Wisconsin Generic Residual Contaminant Levels NR 720.09	4/1/1997	No Exceed							
Location	Date	Depth (ft)							
BOOSTER 3-B-1	8/19/2013	4.5	--	--	--	--	--	--	--
BOOSTER 3-S-1	8/19/2013	2	--	--	--	--	--	--	--
BOOSTER 3-S-2	8/19/2013	3	--	--	--	--	--	--	--
BOOSTER 3-S-3	8/19/2013	2	--	--	--	--	--	--	--
BOOSTER 3-S-4	8/19/2013	2	< 0.0121	< 0.0121	< 0.0121	< 0.0121	< 0.0121	< 0.0121	0.0122

-- Not analyzed/not available.

Attachment B

Investigation Field Sampling and Screening Logs

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Milepost or Facility Tank 5/ FB3

Equipment used: Photo-ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 6-26-15

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

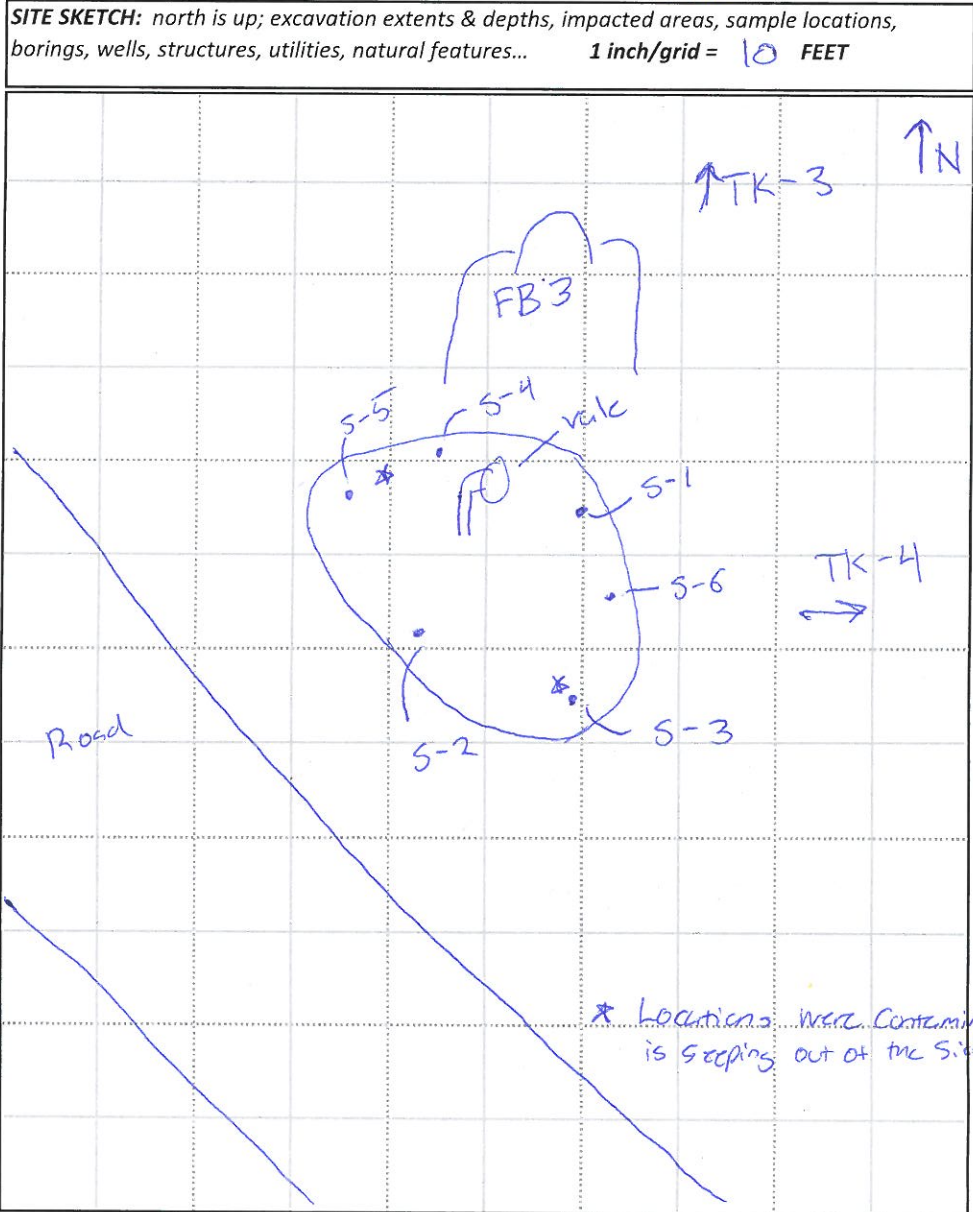
Sampler: NR52

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: TK99-S-1	4	16:30	CL	Reddish brown	Petroleum/Rainbow	275
S-1	2	0835	CL	Reddish Brown	none/nm	4.4
S-2	2.5	0835	CL	Brown	*/none	29.6
S-3	3	12:00	CL		Sheen color/Sheen	48.7
S-4	2		CL		*/none	6.9
S-5	3.5		CL		Sheen color/Sheen	500+
S-6	2		CL			3.3



* Slight petroleum odor

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Milepost or Facility FB3 Embargo Terminal Superior WI

Equipment used: Photo-ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 7-10-15

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

Sampler: NRS2

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

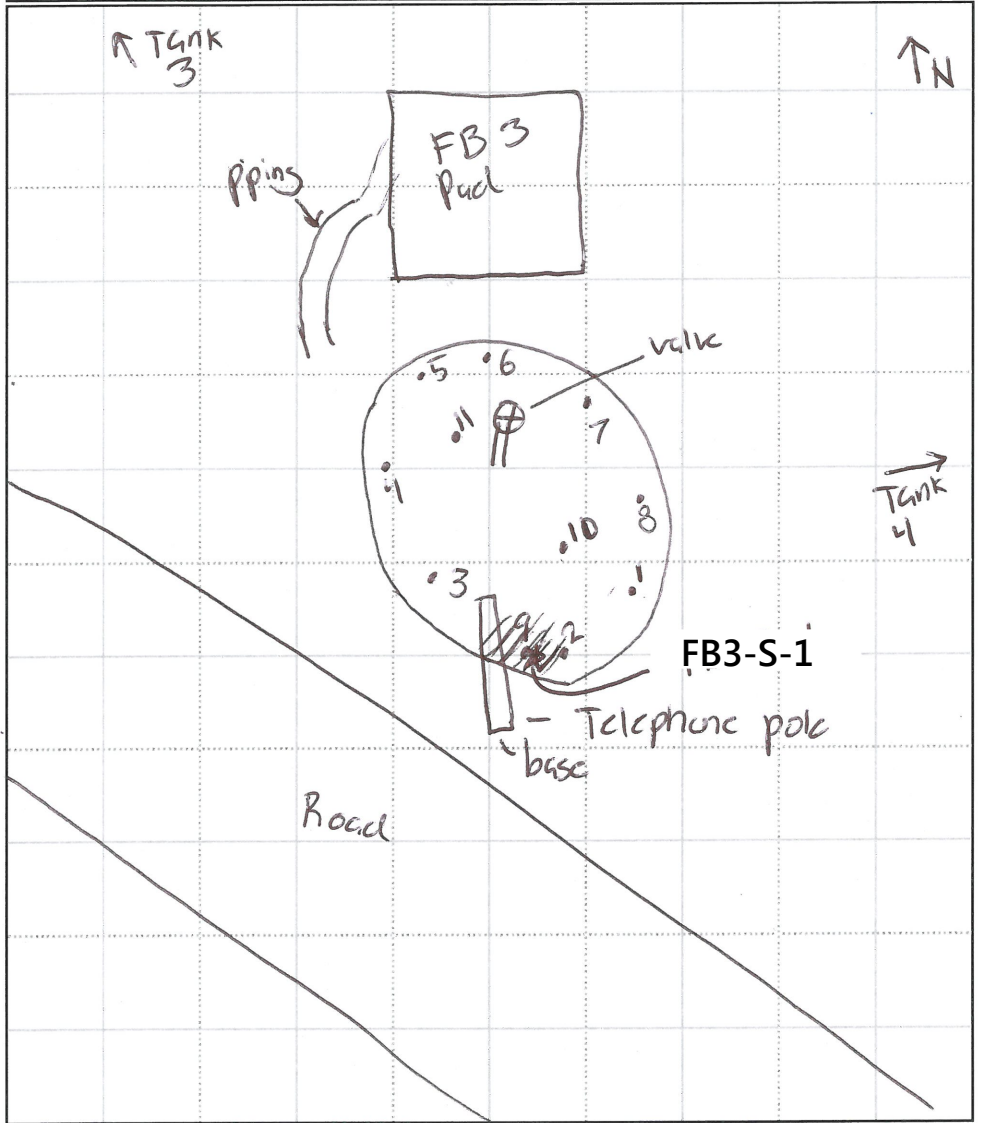
Calibration Time: 1030



Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/Discolor	Odor/Sheen	Headspace Reading (ppm)
Example: TK99-S-1	4	16:30	CL	Reddish brown	Petroleum/Rainbow	275
S-1	2'	1210	CL	Reddish brown	none/none	0.0
S-2	2.5'					0.0
S-3	3'				slight * Sheen	75.1
S-4	2'				none/none	0.0
S-5	3'					0.0
S-6	3'					0.0
S-7	2'					0.0
S-8	3'					0.0
S-9	2.5'	1220			sheen + odor*	372+
S-10	7'					0.8
S-11	7'					0.0
FB3-S-1	2.5'	1230	CL	Reddish brown	sheen + odor*	Location at S-9 372+

Analytical Sample

SITE SKETCH: north is up; excavation extents & depths, impacted areas, sample locations, borings, wells, structures, utilities, natural features... 1 inch/grid = 10 FEET



* Petroleum odor

Excavation ~ 15' x 15' 8' deep. Sides slope in.
 /// = visible contamination

Attachment C

Legend Technical Services Laboratory Report for Excavation Samples



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

July 17, 2015

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

Work Order Number: 1502785
RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 07/14/15. 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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FB3-S-1_1.5-1.5	1502785-01	Soil	07/10/15 13:00	07/14/15 09:45
Trip Blank	1502785-02	Methanol	07/10/15 00:00	07/14/15 09:45

Shipping Container Information

Default Cooler Temperature (°C): 3.7

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.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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WI(95) GRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
FB3-S-1_1.5-1.5 (1502785-01) Soil Sampled: 07/10/15 13:00 Received: 07/14/15 9:45										
1,2,4-Trimethylbenzene	17	0.030	0.0080	mg/kg dry	1	B5G1620	07/16/15	07/17/15	WI(95) GRO	
1,3,5-Trimethylbenzene	5.6	0.030	0.0063	mg/kg dry	1	"	"	"	"	
Benzene	2.7	0.030	0.00098	mg/kg dry	1	"	"	"	"	
Ethylbenzene	3.7	0.030	0.0042	mg/kg dry	1	"	"	"	"	
Naphthalene	11	6.0	0.27	mg/kg dry	10	"	"	07/17/15	"	T-1
Toluene	9.2	0.030	0.0048	mg/kg dry	1	"	"	07/17/15	"	
Xylenes (total)	21	0.089	0.017	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	111			80-150 %		"	"	07/17/15	"	
Trip Blank (1502785-02) Methanol Sampled: 07/10/15 00:00 Received: 07/14/15 9:45										
1,2,4-Trimethylbenzene	<0.0068	0.025	0.0068	mg/kg wet	1	B5G1620	07/16/15	07/16/15	WI(95) GRO	
1,3,5-Trimethylbenzene	<0.0053	0.025	0.0053	mg/kg wet	1	"	"	"	"	
Benzene	<0.00082	0.025	0.00082	mg/kg wet	1	"	"	"	"	
Ethylbenzene	0.0089	0.025	0.0035	mg/kg wet	1	"	"	"	"	B-01, J
Naphthalene	<0.022	0.50	0.022	mg/kg wet	1	"	"	"	"	T-1
Toluene	<0.0041	0.025	0.0041	mg/kg wet	1	"	"	"	"	
Xylenes (total)	<0.014	0.075	0.014	mg/kg wet	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	102			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
FB3-S-1_1.5-1.5 (1502785-01) Soil Sampled: 07/10/15 13:00 Received: 07/14/15 9:45										
% Solids	84			%	1	B5G1606	07/16/15	07/16/15	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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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 B5G1620 - EPA 5035 Soil (Purge and Trap)

Blank (B5G1620-BLK1)

Prepared & Analyzed: 07/16/15

1,2,4-Trimethylbenzene	< 0.0068	0.025	0.0068	mg/kg wet							
1,3,5-Trimethylbenzene	< 0.0053	0.025	0.0053	mg/kg wet							
Benzene	< 0.00082	0.025	0.00082	mg/kg wet							
Ethylbenzene	0.0131	0.025	0.0035	mg/kg wet							B-02, J
Naphthalene	< 0.022	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-Fluorochlorobenzene	20.2			ug/L	20.0		101	80-150			

LCS (B5G1620-BS1)

Prepared & Analyzed: 07/16/15

1,2,4-Trimethylbenzene	103			ug/L	100		103	80-120			
1,3,5-Trimethylbenzene	103			ug/L	100		103	80-120			
Benzene	106			ug/L	100		106	80-120			
Ethylbenzene	104			ug/L	100		104	80-120			
Naphthalene	104			ug/L	100		104	80-120			
Toluene	107			ug/L	100		107	80-120			
Xylenes (total)	322			ug/L	300		107	80-120			
Surrogate: 4-Fluorochlorobenzene	23.1			ug/L	20.0		116	80-150			

LCS Dup (B5G1620-BSD1)

Prepared: 07/16/15 Analyzed: 07/17/15

1,2,4-Trimethylbenzene	103			ug/L	100	0.104	103	80-120	0.220	20	
1,3,5-Trimethylbenzene	103			ug/L	100	<	103	80-120	0.687	20	
Benzene	104			ug/L	100	<	104	80-120	1.47	20	
Ethylbenzene	102			ug/L	100	0.240	102	80-120	2.51	20	
Naphthalene	110			ug/L	100	<	110	80-120	5.32	20	
Toluene	105			ug/L	100	<	105	80-120	1.63	20	
Xylenes (total)	316			ug/L	300	0.197	105	80-120	1.96	20	
Surrogate: 4-Fluorochlorobenzene	22.2			ug/L	20.0		111	80-150			

Matrix Spike (B5G1620-MS1)

Source: 1502772-03

Prepared: 07/16/15 Analyzed: 07/17/15

1,2,4-Trimethylbenzene	114			ug/L	100	0.104	114	80-120			
1,3,5-Trimethylbenzene	113			ug/L	100	<	113	80-120			
Benzene	103			ug/L	100	<	103	80-120			
Ethylbenzene	102			ug/L	100	0.240	102	80-120			
Naphthalene	119			ug/L	100	<	119	80-120			
Toluene	105			ug/L	100	<	105	80-120			
Xylenes (total)	317			ug/L	300	0.197	106	80-120			
Surrogate: 4-Fluorochlorobenzene	21.4			ug/L	20.0		107	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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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
Batch B5G1606 - General Preparation											
Duplicate (B5G1606-DUP1)			Source: 1502731-04		Prepared & Analyzed: 07/16/15						
% Solids	84.0			%		85.0			1.18	20	
Duplicate (B5G1606-DUP2)			Source: 1502837-02		Prepared & Analyzed: 07/16/15						
% Solids	84.0			%		85.0			1.18	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502785 Date Reported: 07/17/15
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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.
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)
MS Matrix Spike = Laboratory Fortified Matrix (LFM)

Chain of Custody

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

1502785

Project Number: 49161253.26

Project Name: Enbridge FB3

Sample Origination State: WI (use two letter postal state abbreviation)

COC Number: **No 35208**

Number of Containers/Preservative		COC 1 of 1	
Water	Soil	Project Manager: REE	Project QC Contact: JET
VOCs (HCl) #1	VOCs (stared MeOH) #1	Sampled by: NRS2	Laboratory: Legend
SVOCs (unpreserved) #2	GRO, BTEX (stared MeOH) #1	Total Number of Containers: 3 PVOC - MTBE + Napthalene 3day TAT	
Dissolved Metals (HNO3)	DRO (stared unpreserved)		
Total Metals (HNO3)	Metals (unpreserved)		
General (unpreserved) #3	SVOCs (unpreserved) #2		
Diesel Range Organics (HCl)	% Solids (plastic vial, unpres.)		
Nutrients (H2SO4) #4			

Location	Start Depth	Stop Depth	Depth Unit (m, ft, or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type		OC	VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO3)	Total Metals (HNO3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H2SO4) #4	VOCs (stared MeOH) #1	GRO, BTEX (stared MeOH) #1	DRO (stared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	PVOC - MTBE + Napthalene	Total Number of Containers	
						Water	Soil	Grab	Comp.																	
1. FB3-S-1			15'	07/14/2015	1300	X	X																		12	3
2. Trip Blank	-	-	-	-	-				X																1	1
3. Temp Blank	-	-	-	-	-				X																1	1
4.																										
5.																										
6.																										
7.																										
8.																										
9.																										
10.																										

Common Parameter/Container - Preservation Key

- #1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
- #2 - Semivolatile Organics = PAHs, PCB, Dioxins, 8270 Full List, Herbicide/Pesticide/PCB
- #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
- #4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TRN

Relinquished By: <i>[Signature]</i>	On Ice? <input checked="" type="checkbox"/> N	Date: 7/13/15	Time: 1545	Received by: <i>[Signature]</i>	Date: 7/14/15	Time: 945
Relinquished By: <i>[Signature]</i>	On Ice? <input checked="" type="checkbox"/> Y	Date:	Time:	Received by: <i>[Signature]</i>	Date:	Time:
Samples Shipped VIA: <input type="checkbox"/> Air Freight <input checked="" type="checkbox"/> Federal Express <input type="checkbox"/> Sampler				Air Bill Number: 572, cest		

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

14-RL-0511-03-08-05-Chain of Custody Form 2008 R.L.G. Rev. 09/01/09

Attachment D

Waste Disposal 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 - 2015 Field Booster 3	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: Crude contaminated soil - 2015 Field Booster 3	Estimated rate of waste generation: 100 <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
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 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, Unites 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	7-8-15
Signature	Printed Name	Title	Date



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

July 02, 2015

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

Work Order Number: 1502556
RE: 49161253

Enclosed are the results of analyses for samples received by the laboratory on 06/30/15. 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".

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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2015 FB3-Stockpile-1	1502556-01	Soil	06/26/15 13:45	06/30/15 08:45
2015 FB3-Stockpile-2	1502556-02	Soil	06/26/15 14:00	06/30/15 08:45

Shipping Container Information

Default Cooler Temperature (°C): 1.2

Received on ice: Yes Temperature blank was not present Received on ice pack: No
 Received on melt water: Yes 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.

Samples submitted for DRO analysis were weighed out in the lab. A sample weighed in the lab can no longer be reported as DRO per the Wisconsin Department of Natural Resources. Therefore, the results have been reported as C10-C28, the carbon range for the DRO analysis.

DRO was present in the method blank between the MDL and RL for the DRO analysis. The DRO chromatograms are attached for both samples.

Ethylbenzene was 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: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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DRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2015 FB3-Stockpile-1 (1502556-01) Soil Sampled: 06/26/15 13:45 Received: 06/30/15 8:45										
C10-C28	260	11	2.3	mg/kg dry	1	B5F3002	06/30/15	06/30/15	WI(95) DRO	L1, W-09
<i>Surrogate: Triacontane (C-30)</i>	<i>88.1</i>			<i>70-130 %</i>		"	"	"	"	
2015 FB3-Stockpile-2 (1502556-02) Soil Sampled: 06/26/15 14:00 Received: 06/30/15 8:45										
C10-C28	370	11	2.4	mg/kg dry	1	B5F3002	06/30/15	06/30/15	WI(95) DRO	L1, W-09
<i>Surrogate: Triacontane (C-30)</i>	<i>108</i>			<i>70-130 %</i>		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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WI(95) GRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2015 FB3-Stockpile-1 (1502556-01) Soil Sampled: 06/26/15 13:45 Received: 06/30/15 8:45										
Benzene	0.083	0.033	0.0011	mg/kg dry	1	B5F3006	06/30/15	06/30/15	WI(95) GRO	
Ethylbenzene	0.091	0.033	0.0047	mg/kg dry	1	"	"	"	"	B-01
Toluene	0.21	0.033	0.0054	mg/kg dry	1	"	"	"	"	
Xylenes (total)	0.56	0.10	0.019	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	99.0			80-150 %		"	"	"	"	
2015 FB3-Stockpile-2 (1502556-02) Soil Sampled: 06/26/15 14:00 Received: 06/30/15 8:45										
Benzene	0.22	0.039	0.0013	mg/kg dry	1	B5F3006	06/30/15	06/30/15	WI(95) GRO	
Ethylbenzene	0.17	0.039	0.0055	mg/kg dry	1	"	"	"	"	B-01
Toluene	0.36	0.039	0.0064	mg/kg dry	1	"	"	"	"	
Xylenes (total)	0.93	0.12	0.022	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	96.0			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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PERCENT SOLIDS
 Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2015 FB3-Stockpile-1 (1502556-01) Soil Sampled: 06/26/15 13:45 Received: 06/30/15 8:45										
% Solids	75			%	1	B5F3030	06/30/15	07/01/15	% calculation	
2015 FB3-Stockpile-2 (1502556-02) Soil Sampled: 06/26/15 14:00 Received: 06/30/15 8:45										
% Solids	70			%	1	B5F3030	06/30/15	07/01/15	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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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
Batch B5F3002 - Sonication (Wisc DRO)											
Blank (B5F3002-BLK1)											
						Prepared & Analyzed: 06/30/15					
Diesel Range Organics	< 8.0	8.0	1.7	mg/kg wet							B-02
Surrogate: <i>Triacontane (C-30)</i>	16.9			mg/kg wet	16.0		106	70-130			
LCS (B5F3002-BS1)											
						Prepared & Analyzed: 06/30/15					
Diesel Range Organics	63.6	8.0	1.7	mg/kg wet	64.0		99.3	70-120			
Surrogate: <i>Triacontane (C-30)</i>	16.9			mg/kg wet	16.0		105	70-130			
LCS Dup (B5F3002-BSD1)											
						Prepared: 06/30/15 Analyzed: 07/01/15					
Diesel Range Organics	61.1	8.0	1.7	mg/kg wet	64.0		95.4	70-120	4.00	20	
Surrogate: <i>Triacontane (C-30)</i>	15.8			mg/kg wet	16.0		98.7	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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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
Batch B5F3006 - EPA 5035 Soil (Purge and Trap)											
Blank (B5F3006-BLK1)						Prepared & Analyzed: 06/30/15					
Benzene	< 0.00082	0.025	0.00082	mg/kg wet							
Ethylbenzene	0.0129	0.025	0.0035	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	22.5			ug/L	25.0		89.9	80-150			
LCS (B5F3006-BS1)						Prepared & Analyzed: 06/30/15					
Benzene	97.9			ug/L	100		97.9	80-120			
Ethylbenzene	98.6			ug/L	100		98.6	80-120			
Toluene	99.8			ug/L	100		99.8	80-120			
Xylenes (total)	302			ug/L	300		101	80-120			
Surrogate: 4-Fluorochlorobenzene	25.1			ug/L	25.0		101	80-150			
LCS (B5F3006-BS2)						Prepared: 06/30/15 Analyzed: 07/01/15					
Benzene	97.2			ug/L	100		97.2	80-120			
Ethylbenzene	97.1			ug/L	100		97.1	80-120			
Toluene	100			ug/L	100		100	80-120			
Xylenes (total)	304			ug/L	300		101	80-120			
Surrogate: 4-Fluorochlorobenzene	25.0			ug/L	25.0		99.9	80-150			
LCS Dup (B5F3006-BSD1)						Prepared: 06/30/15 Analyzed: 07/01/15					
Benzene	98.9			ug/L	100		98.9	80-120	1.04	20	
Ethylbenzene	99.1			ug/L	100		99.1	80-120	0.451	20	
Toluene	102			ug/L	100		102	80-120	1.95	20	
Xylenes (total)	306			ug/L	300		102	80-120	1.45	20	
Surrogate: 4-Fluorochlorobenzene	25.0			ug/L	25.0		100	80-150			
Matrix Spike (B5F3006-MS1)						Source: 1502549-01 Prepared: 06/30/15 Analyzed: 07/01/15					
Benzene	96.7			ug/L	100	<	96.7	80-120			
Ethylbenzene	98.5			ug/L	100	0.320	98.2	80-120			
Toluene	100			ug/L	100	0.434	99.9	80-120			
Xylenes (total)	308			ug/L	300	0.719	103	80-120			
Surrogate: 4-Fluorochlorobenzene	25.1			ug/L	25.0		100	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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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
Batch B5F3030 - General Preparation											
Duplicate (B5F3030-DUP1)						Source: 1502558-02	Prepared: 06/30/15 Analyzed: 07/01/15				
% Solids	85.0			%		84.0			1.18	20	
Duplicate (B5F3030-DUP2)						Source: 1502567-01	Prepared: 06/30/15 Analyzed: 07/01/15				
% Solids	89.0			%		88.0			1.13	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161253 Project Number: 49161253.26 100 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1502556 Date Reported: 07/02/15
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Notes and Definitions

W-09	The sample was weighed and preserved in the laboratory.
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.
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)
MS	Matrix Spike = Laboratory Fortified Matrix (LFM)

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

1902554

Project Number: 49161253.26 100 001
 Project Name: Embury - Field Booster 3 valve ^{Response} Valve Repair
 Sample Origination State: WI (use two letter postal state abbreviation)
 COC Number: **NO 44723**

Number of Containers/Preservative		COC 1 of 1	
Water	Soil	Project Manager: REE	Project QC Contact: JET
		Sampled by: NRS2	Laboratory: Legend
		Total Number of Containers	

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 (HNO3)	Total Metals (HNO3)	General (unpreserved) #3	Pesticide Range Organics (HCl)	Nutrients (H2SO4) #4	VOCs (aged MeOH) #1	BTEX (aged MeOH) #1	DRO (aged unpreserved)	Metals (unpreserved)	SVOCS (unpreserved) #2	% Solids (plastic vial unpres.)	Hold 35.05 (4.0.2) unpreserved	Total Number of Containers
						Water	Soil	Grab	Comp.															
1. 2015 FB3 - Stockpile -1	-	-	-	06/26/2015			X	X																6
2. 2015 FB - Stockpile -2	-	-	-	06/26/2015			X	X																6
3. Temp Blank				-	-																			
4. Trip Blank				-	-																			
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								

Common Parameter/Container - Preservation Key
 #1 - Volatile Organics = BTEX, GRO, 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: <i>Beard Seals</i>	On Ice? <input checked="" type="checkbox"/>	Date: 6/29/15	Time: 1200	Received by:	Date:	Time:
Relinquished By:	On Ice? <input checked="" type="checkbox"/>	Date:	Time:	Received by: <i>JK</i>	Date: 6/30/15	Time: 845
Samples Shipped VIA: <input type="checkbox"/> Air Freight <input checked="" type="checkbox"/> Federal Express <input type="checkbox"/> Sampler <input type="checkbox"/> Other:				Air Bill Number: <i>NO Temp, MULTINATEX 1.20</i>		

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

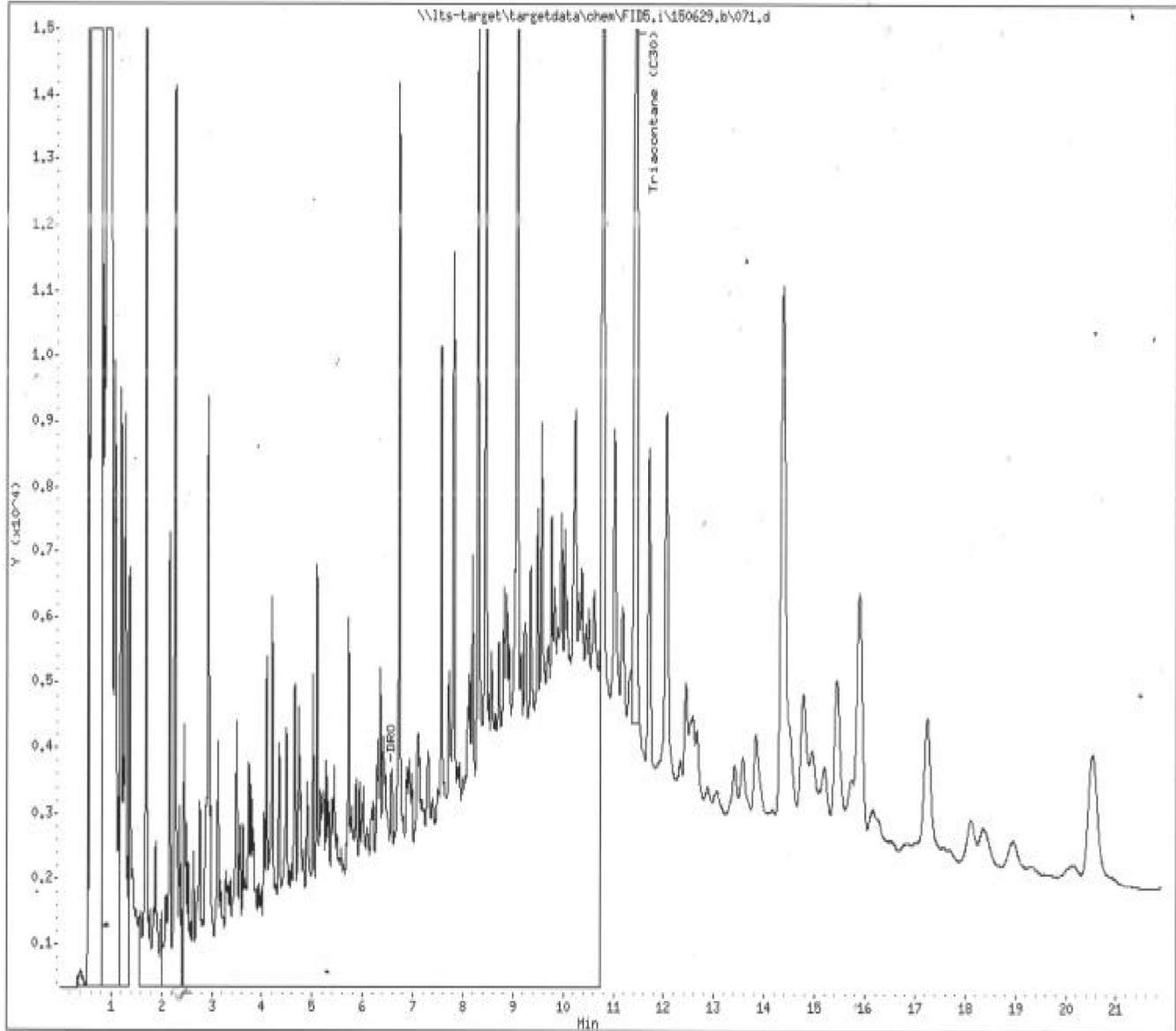
11/11/05 12:00 PM CHAIN OF CUSTODY FORM 2008 RLG Rev. 09/01/09

Data File: \\its-target\targetdata\chem\FID5,1\150629,b\071,d
Date: 30-JUN-2015 21:50
Client ID:
Sample Info: 1502556-01
Column phase:

7/15 RP
2015 FB3 stockpile - 1

Instrument: FID5,1
Operator: yp
Column diameter: 0,53

Page 2



Data File: \\lts-target\targetdata\chen\FID5,1\150629,b\073.d

Date : 30-JUN-2015 22:04

Client ID:

Sample Info: 1502556-02

7/2/15 BP
 2015 FB3 Stockpile -2

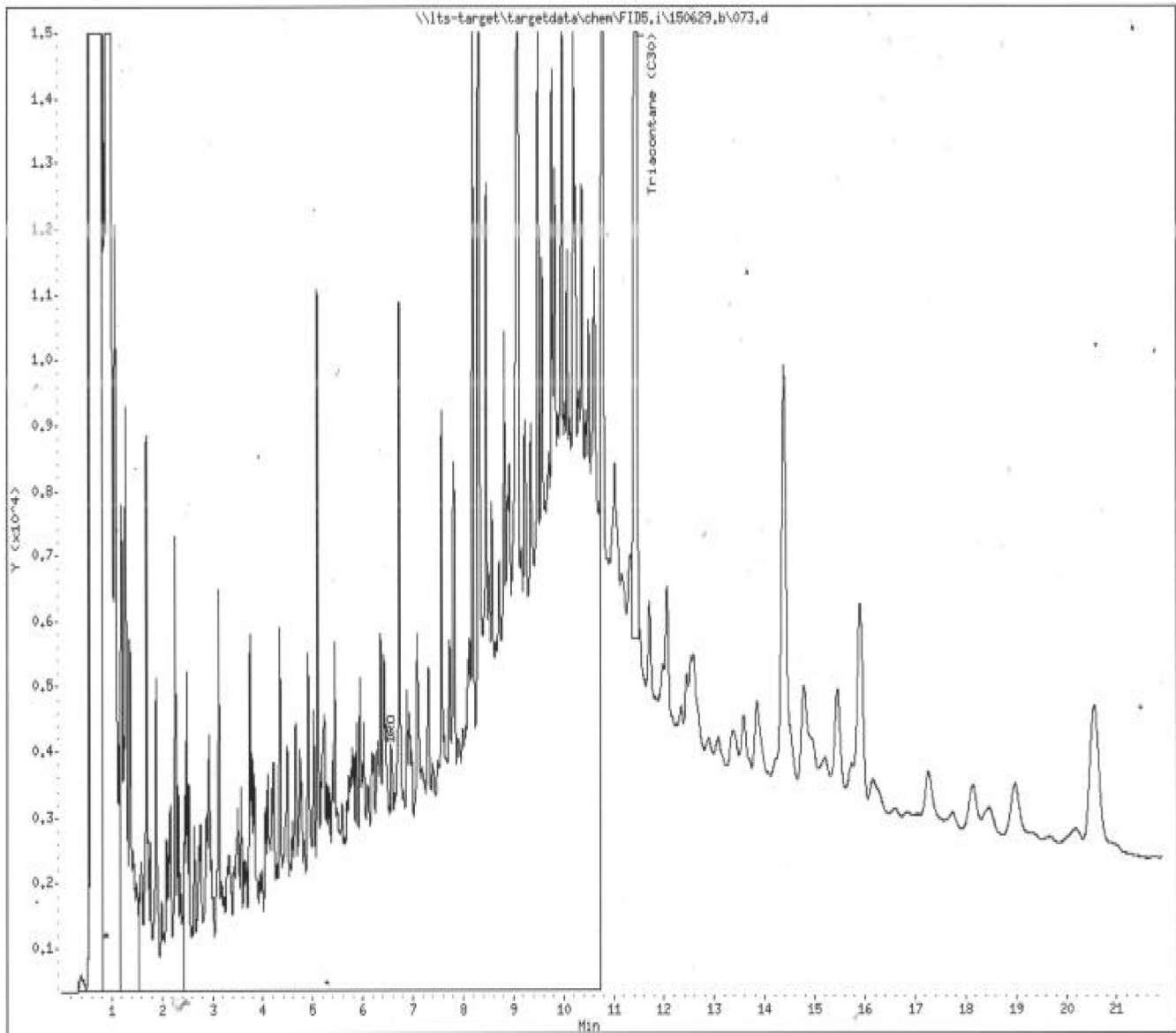
Page 2

Instrument: FID5,1

Operator: ye

Column diameter: 0,53

Column phase:



Notification of Waste Acceptance

7/8/2015

CUSTOMER INFORMATION

EPA ID#:
Enbridge Pipelines Limited
Enbridge Superior Terminal

2015 Field Booster 3
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 #: CL15-0025
Waste Name: crude contaminated soil 2015 Field Booster 3

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 TONS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 7/8/2015 thru 7/8/2020 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.

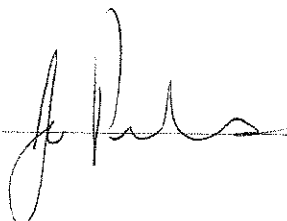
Empty Container Statement: Each shipment containing empty containers must be accompanied with a completed 'EMPTY CONTAINER CERTIFICATION FORM'.

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: _____

7/8/15

July 08, 2015

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

RE: CL15-0025 crude contaminated soil 2015 Field Booster 3

Dear Mr. Smith,

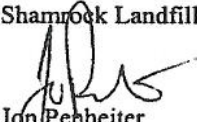
This agreement will confirm the price and length of service for disposal and /or transportation of your non-hazardous industrial material at our facility. This agreement is for the term of the Waste Approval granted by Shamrock Landfill and is for all services ordered and performance initiated within 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) Alex Smith Environmental Analyst
DATE: 7-8-15
WASTE APPROVAL Period: 7/8/2015 to 7/8/2020

Bill To Customer

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

Service For Generator

Enbridge Pipelines Limited
2015 Field Booster 3
Superior, WI 54880

Disposal

Waste Description: crude contaminated soil 2015 Field Booster 3

Estimated Volume: 100 TONS / 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 2015 Field Booster 3
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REPORT NAME: **Tons Each Load By WSID**
DESCRIPTION: **Tonnage for EACH LOAD, grouped by customer**
DATE RANGE: **01/01/2015 to 09/09/2015**
PRINTED ON (DATE): **Wednesday, September 09, 2015**

ENB34

Enbridge Pipelines Limited
2015 Field Booster 3
Superior WI 54880

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT.	LIFT	TONS
31344 (A)	160149	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	19.79
31347 (A)	160148	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	22.87
31351 (A)	160132	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	18.70
31352 (A)	160147	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	25.14
31355 (A)	160131	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	15.25
31357 (A)	160150	7/15/2015	CL15-0025	crude contaminated soil 2015 Field	2A	R42	1190	21.38
Total # of Loads: 6							Total Tons:	123.13
Grand Total (Tons):							123.13	
Grand Total (Loads):							6	