

## Technical Memorandum

**To:** Alex Smith, Enbridge Energy  
**From:** Ryan Erickson  
**Subject:** Superior Terminal Booster Pump 62 Release  
**Date:** February 25, 2015  
**WDNR SERTS #:** 20150121N016-1  
**Barr Project #:** 49161307

This memorandum summarizes the field screening, analytical sampling, and waste management assistance provided by Barr Engineering (Barr) at the request of Enbridge Energy (Enbridge) in response to the Booster Pump 62 crude oil release at the Enbridge Superior Terminal in Superior, Wisconsin in January of 2015 (Figure 1).

### Background and Response Activities

On January 21, 2015 at approximately 6:45 AM, Enbridge discovered a Booster Pump 62 seal failure that released approximately 2 barrels of crude oil onto the booster pump foundation and infrastructure and the surrounding ground surface (Figure 2; Photos 1, 2, and 3). Enbridge Pipe Line Maintenance (PLM) personnel immediately responded to the release by shutting down the pump and initiating repair and remediation activities. Remedial activities included: recovering product with a vacuum truck; manually removing crude oil from the booster pump infrastructure with a biodegradable degreaser and pads; and excavating crude oil contaminated soil from the release area with hydrovacuum (hydrovac) trucks and hand tools (Photo 4). Enbridge Environment and the Wisconsin Department of Natural Resources (WDNR) were notified. The WDNR assigned Substance Release Notification Report (SERTS) number 20150121N016-1 to the release (Attachment A).

Enbridge Environment requested that Barr assist with the following activities:

- assess and document the environmental conditions during the response actions and in the final remedial excavation extents,
- assist with the coordination of the off-site management of contaminated soil,
- prepare a memorandum summarizing the release response activities and the site environmental conditions upon the completion of cleanup activities.

### Field Activities

Barr was onsite on January 21, 22, 23, and 28, 2015 to field screen soil, collect analytical samples, and assist with the contaminated soil management.

Soil samples were collected from the excavation extents and field screened by Barr for the presence of organic vapors using an 11.7 eV photoionization detector (PID). Samples were also physically inspected

for the presence of other potential indicators of crude oil impacts such as odor, discoloration and sheen. PID readings and physical observations 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 other physical observations of oil impacts were observed, as outlined in the pending WDNR Enbridge Superior Terminal *Site Investigation and Response Action Plan (SI/RAP)* (2014). If contaminated soil remains in place following remediation activities, soil samples are to be submitted to a laboratory for analyses of petroleum volatile organic compounds (PVOC) and naphthalene to document contaminant concentrations.

Barr collected 2 analytical samples (*FB62-B-1* and *FB62-B-2*) from the excavation base following the completion of remedial excavation activities to document residual contaminant concentrations. The samples were submitted to Legend Technical Services in St. Paul, Minnesota and analyzed for PVOC and naphthalene. Analyte detections were compared to WDNR industrial direct contact residual concentration limits (RCL's), WDNR groundwater RCL's and Cumulative Hazard Index criteria. Contaminated soil removal was performed to the extent practical, but above ground and below ground pipeline infrastructure prohibited complete remedial excavation in this location.

Excavated soil with evidence of contamination was transported to the Terminal Soil Management Area (SMA) (Figure 2) contaminated-soil staging area where it was stockpiled until off-site management at an approved disposal facility could be coordinated. One sample of the stockpiled soil was collected and submitted to Legend for characterization as described in the *Waste Disposal Coordination and Documentation* section below.

## Results

Barr was onsite during the Booster Pump 62 release remedial actions on January 21, 22, 23, and 28, 2015. Barr's analytical sampling locations are shown on Figure 2 and field screening data is provided in Attachment B. Laboratory results are summarized in Table 1 and laboratory reports are provided in Attachment C.

Soil excavated during the remedial response consisted of primarily gravel and sand fill. The frozen ground surface limited direct infiltration of the crude oil into the soil; however, booster pump infrastructure created preferential pathways that enabled some crude oil to infiltrate beneath the frost layer. Barr collected 30 field screening soil samples from the sidewalls and bottom during the remedial excavation activities. Contaminated soil samples had headspace readings up to 401 ppm, dark discoloration and a petroleum odor. Trace amounts of free-product and a rainbow sheen were observed on water within the remedial excavations (Photo 6).

The final remedial excavation footprint (including the pump pad) was approximately 8 feet (northwest-southeast) by 6 feet (southwest-northeast) by 0.2 to 3.2 feet deep bgs (below ground surface) (Photos 7 and 8). Field screening samples collected from the final excavation extents on January 28, 2015 had PID headspace readings between 0.1 and 118.8 ppm (Attachment B). No free-product was observed in the final excavation extents.

Barr collected analytical sample *FB62-B-1* (3 feet bgs) from the field screening location with the highest PID headspace reading (118.8) and sample *FB62-B-2* from a location where a small amount of residual crude oil contamination was present but could not be excavated due to the presence of pipeline infrastructure (Photo 5). Analyte concentrations in *FB62-B-1* and *FB62-B-2* were below WDNR Industrial Contact RCL's and passed the Cumulative Hazard Index criteria. WDNR Groundwater RCL's were exceeded in sample *FB62-B-1* for benzene and in sample *FB62-B-2* for 1,2,4-trimethyl benzene, benzene, xylenes and naphthalene.

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

Sample ID	Sample Date	Sample Depth (feet)	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylenes (total)	Naphthalene
Groundwater RCLs			<b>1.3793</b>	1.3793	<b>0.0051</b>	0.785	0.5536	<b>1.97</b>	<b>0.3294</b>
Industrial DC RCLs			219	182	7.41	37	818	258	26
<i>FB62-B-1</i>	1/28/15	3	0.65	0.088	<b>0.011</b>	0.050	0.042	0.11	<0.027
<i>FB62-B-2</i>	1/28/15	0	<b>2.5</b>	1.2	<b>0.044</b>	0.72	0.29	<b>2.3</b>	<b>3.5</b>

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

The release-point excavation was backfilled with clean fill upon completion of the remedial activities.

#### Discussion

No residual free-product was observed at the release site at the completion of the remedial excavation activities. PVOC and naphthalene concentrations in samples collected from the excavation extents were below WDNR Industrial Direct Contact RCL's and passed the Cumulative Hazard Index criteria. Analyte concentrations in *FB62-B-1* and *FB62-B-2* exceeded WDNR Groundwater RCL's; however, a facility-wide groundwater monitoring program is conducted at the Superior Terminal as part of the hydrogeologic performance standard established in the WDNR SI/RAP (2014), therefore, project specific monitoring is not required for this site. No potential vapor receptors were identified as defined in the WDNR SI/RAP (2014). No potential vapor receptors were identified as defined in the WDNR SI/RAP (2014).

#### Waste Disposal Coordination and Documentation

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Subject: Superior Terminal Booster Pump 62 Release  
Date: February 25, 2015  
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Barr collected one analytical waste characterization soil sample (*FB62-Stockpile-1*) from the crude oil impacted stockpile for laboratory analysis at Legend Technical Services. The sample was analyzed for diesel range organics (DRO) and benzene, toluene, ethyl benzene, and xylenes (BTEX). A waste profile application was submitted to the Shamrock Landfill located in Cloquet, Minnesota and the soil was accepted under waste profile #CL15-0005. Approximately 5 tons of crude oil impacted soil from the Booster Pump 62 release was hauled to the landfill along with 10 tons of soil from profile CL15-0004 on February 4, 2015. The waste profile documents, the waste characterization laboratory report, and the landfill summary are included in Attachment D.

### **Conclusions**

Crude oil contaminated soil excavated from the Booster Pump 62 release site was managed of 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* and project specific monitoring is not required for this site.

It is recommended that no further response action be requested of the WDNR for this site and that the release site be added to the WDNR GIS Registry Enbridge Superior Terminal Super ERP Site.

### **Attachments**

Site Photos 1 through 8

Figure 1 Site Location Map

Figure 2 Site Layout Map

Attachment A WDNR Release Reporting Communications

Attachment B Enbridge Site Investigation Field Sampling and Screening Logs

Attachment C Legend Technical Services Laboratory Reports for Excavation Soil Samples

Attachment D Waste Disposal Documentation

### Site Photos



**Photo 1**



**Photo 2**

**Photo 1:** Terminal infrastructure at Booster Pump 62 release location. Photo taken facing west on January 21, 2015.

**Photo 2:** Terminal infrastructure as shown in Photo 1. Booster Pump 62 is the black structure in the center of the photo. Photo taken facing west on January 21, 2015.



**Photo 3**



**Photo 4**

**Photo 3:** Crude oil contaminated gravel beneath Booster Pump 62. Photo taken facing northwest on January 21, 2015.

**Photo 4:** Remedial hydrovac excavation activities. Photo taken facing west on January 22, 2015.



Photo 5



Photo 6

**Photo 5:** Crude oil contaminated soil on the ground surface 3 feet west of Booster Pump 62. Photo taken facing west on January 23, 2015.

**Photo 6:** Remedial excavation northwest of Booster Pump 62. A small amount of crude oil is visible on the water surface within the excavation. Photo taken facing northeast on January 23, 2015.



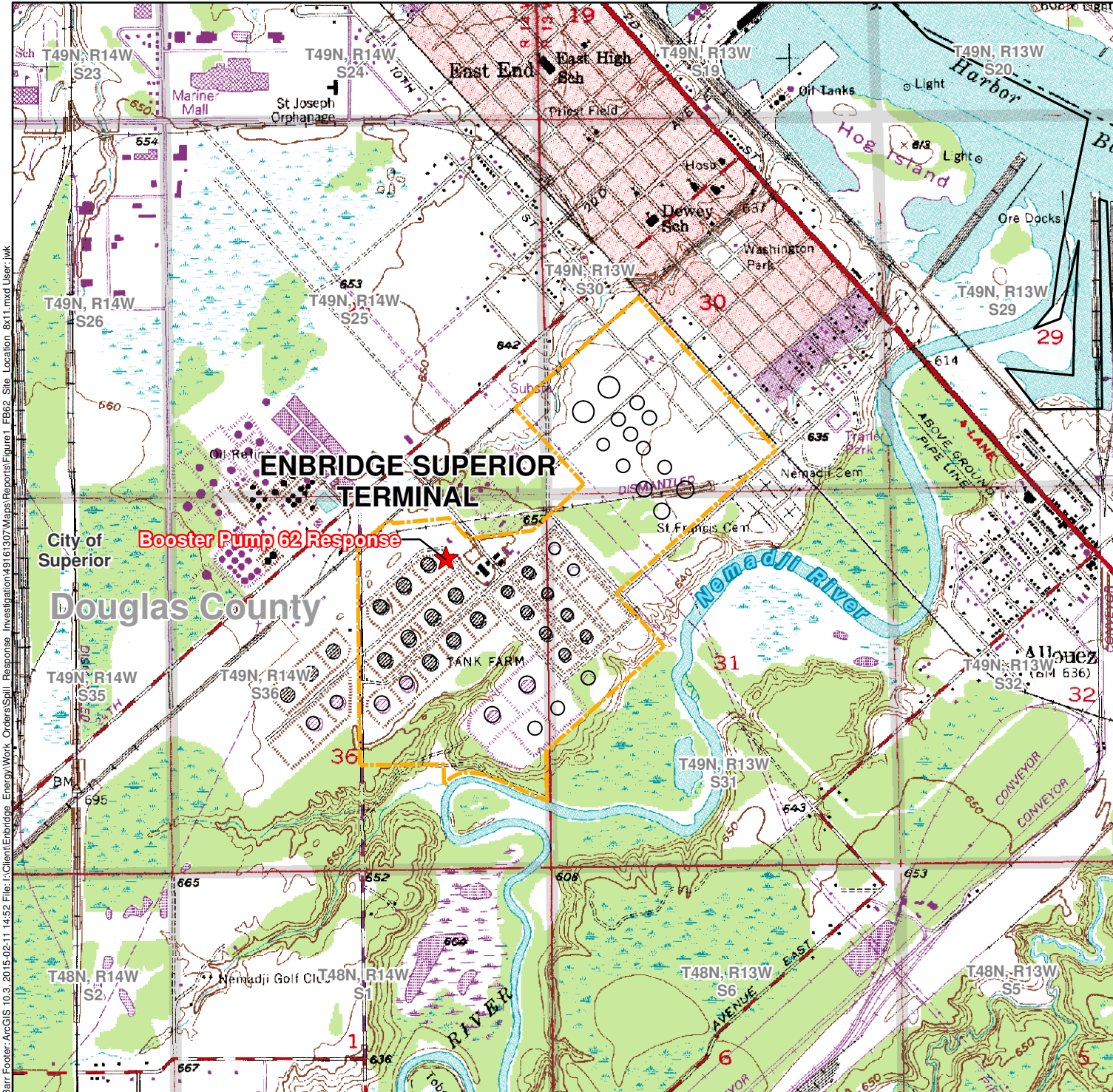
Photo 7



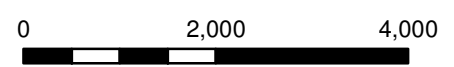
Photo 8

**Photo 7:** Final remedial excavation extents. Photo taken facing northwest on January 28, 2015.

**Photo 8:** Final remedial excavation extents. Photo taken facing southeast on January 28, 2015.



- ★ Site Location
- Terminal Property Boundary



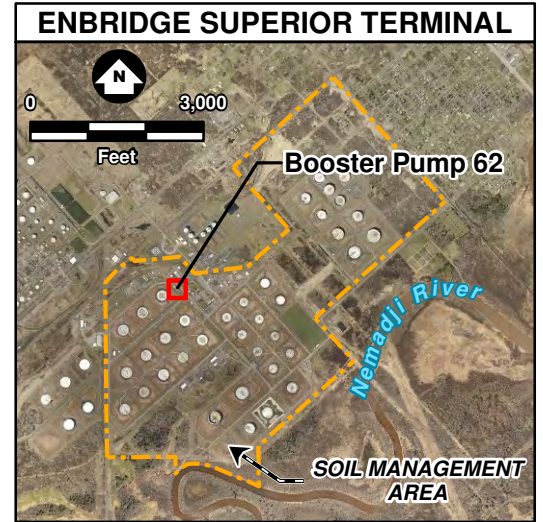
Feet  
1 Inch = 2,000 Feet

Figure 1

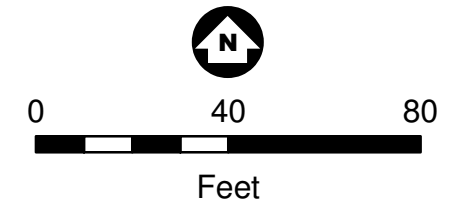
**SITE LOCATION**  
**BOOSTER PUMP 62 RESPONSE**  
**SUPERIOR TERMINAL**  
 Enbridge Energy, L.P.  
 Superior, Wisconsin



Barr Footer: ArcGIS 10.3, 2015-02-11 14:52 File: I:\Client\Enbridge\_Energy\Work\_Orders\Spill\_Response\_Investigation\49161307\Maps\Reports\Figure 1\_FB02\_Site\_Location\_8x11.mxd User: jwk



- Release Location
- Analytical Sample Location
- Excavation Extent
- Pipeline Infrastructure
- Terminal Property Boundary



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

Figure 2

**SITE LAYOUT**  
**BOOSTER PUMP 62 RESPONSE**  
**SUPERIOR TERMINAL**  
 Enbridge Energy, L.P.  
 Superior, Wisconsin





## **Attachment A**

### **WDNR Release Reporting Communications**

**From:** [Alex Smith](#)  
**To:** [Ryan E. Erickson](#)  
**Subject:** FW: BP 62 Leak - Superior Terminal  
**Date:** Wednesday, January 21, 2015 9:52:15 AM

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**From:** Shane Yokom  
**Sent:** Wednesday, January 21, 2015 8:31 AM  
**To:** Joseph Peterson; Alex Smith  
**Subject:** Fwd: BP 62 Leak - Superior Terminal

Sent from my iPhone

Begin forwarded message:

**From:** Kevin Underhill <[kevin.underhill@enbridge.com](mailto:kevin.underhill@enbridge.com)>  
**Date:** January 21, 2015 at 7:33:46 AM CST  
**To:** Shane Yokom <[Shane.Yokom@enbridge.com](mailto:Shane.Yokom@enbridge.com)>  
**Cc:** Shaun Kavajecz <[Shaun.Kavajecz@enbridge.com](mailto:Shaun.Kavajecz@enbridge.com)>  
**Subject:** **FW: BP 62 Leak - Superior Terminal**

FYI

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**From:** Tony Hommerding  
**Sent:** Wednesday, January 21, 2015 6:22 AM  
**To:** LP Significant Incident Notifications  
**Cc:** Mike Goman; David Stafford; Carl Larsen  
**Subject:** BP 62 Leak - Superior Terminal

Superior Terminal Operations reported a suspected seal failure on Booster Pump 62 this morning at 6:45am. Oil released is estimated at 2bbls and contained within the booster pump containment. Cleanup is currently underway.

The Wisconsin DNR has been notified, but the National Response Center has not due to not meeting the reporting criteria. The WI DNR will be following up with a report number which I will get to Terri for inclusion in the PHMSA 7000 report.

Tony

**Tony Hommerding**

Sr. Manager, Pipeline and Regional Services  
Superior Region Office

—  
**ENBRIDGE**  
TEL: 715-394-1415 | CELL: 218-393-1308|  
1320 Grand Ave. #2 Superior, WI 54880

[enbridge.com](http://enbridge.com)

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**From:** [Alex Smith](#)  
**To:** [Ryan E. Erickson](#)  
**Subject:** RE: Terminal Release Maps  
**Date:** Wednesday, January 21, 2015 3:49:17 PM  
**Attachments:** [image001.png](#)

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Almost forgot one other note, here is what the WDNR is calling the leaks in their system.

**20150121NO16-1:** Field Booster 62

**20150113NO16-1:** Tank 5 basin

Thanks,  
Alex

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**From:** Ryan E. Erickson [mailto:[RErickson@barr.com](mailto:RErickson@barr.com)]  
**Sent:** Wednesday, January 21, 2015 3:24 PM  
**To:** Alex Smith  
**Subject:** Terminal Release Maps

Alex,  
Let me know if these maps will work for the WDNR.

Ryan E. Erickson, PG

Geologist  
Duluth office: 218.529.7112  
fax: 218.529.8202  
cell: 612.418.0166  
[rerickson@barr.com](mailto:rerickson@barr.com)  
[www.barr.com](http://www.barr.com)



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## **Attachment B**

### **Site Investigation Field Sampling and Screening Log**

**SITE LAYOUT**

Location: Milepost or Facility Booster Pump 62

Date: 1/21/15

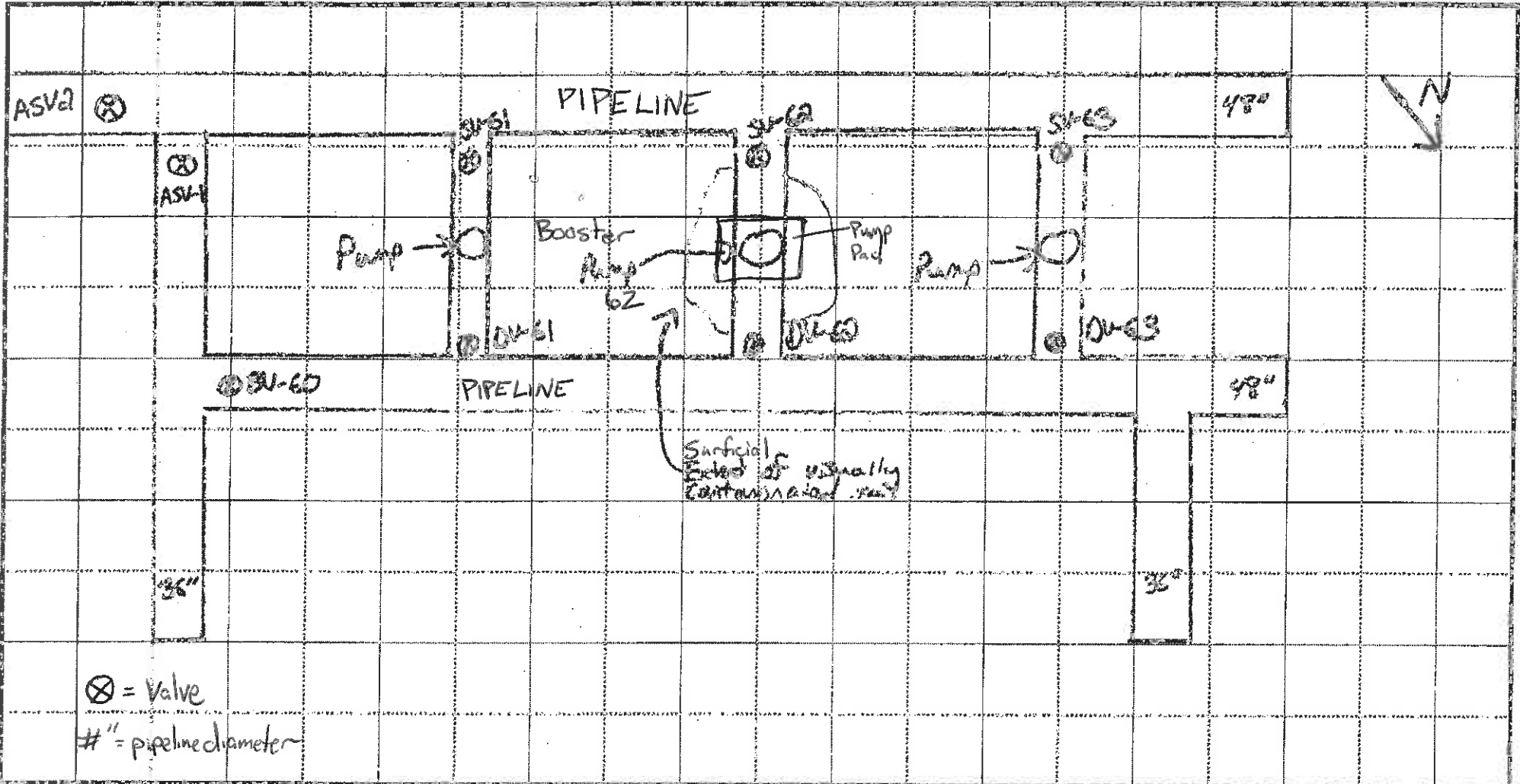
Barr Personnel: BTL2

Was a GPS used to document the location of site features? YES or NO

Identify the GPS unit: \_\_\_\_\_



**SITE SKETCH:** north is up, DRAW (to scale) AND LABEL THE LOCATION OF THE FOLLOWING SITE FEATURES, if applicable: release location, maximum extent of release impacts, roads, structures, pipelines and pipeline infrastructure, excavations, stockpiles, borings, wells, water tankers/frac tanks, roll-off containers, equipment staging areas, municipal utilities (electric, water, sewer...), culverts, natural features (water bodies, forested areas...), surface water drainage pathways/direction, other site features 1 inch/grid = ~ 6 FEET



⊗ = Valve  
# " = pipeline diameter

**SITE NOTES/LEGEND:** Leak around middle booster pump. Two hydrovacs onsite. One UPI, one Enbridge. Seven UPI Inbores are hydrovacing and jack hammering frozen soil. According to Enbridge employee on site, seal failed and 1-2 barrels were released. will likely be cleaning up tomorrow.

**SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG**

Location: Milepost or Facility Booster Pump G2 Enbridge Terminal Superior WI

Equipment used: Photo-ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 1-23-15

Sample Nomenclature (Location - sample type - #): \_\_\_\_\_

Sampler: NBS2

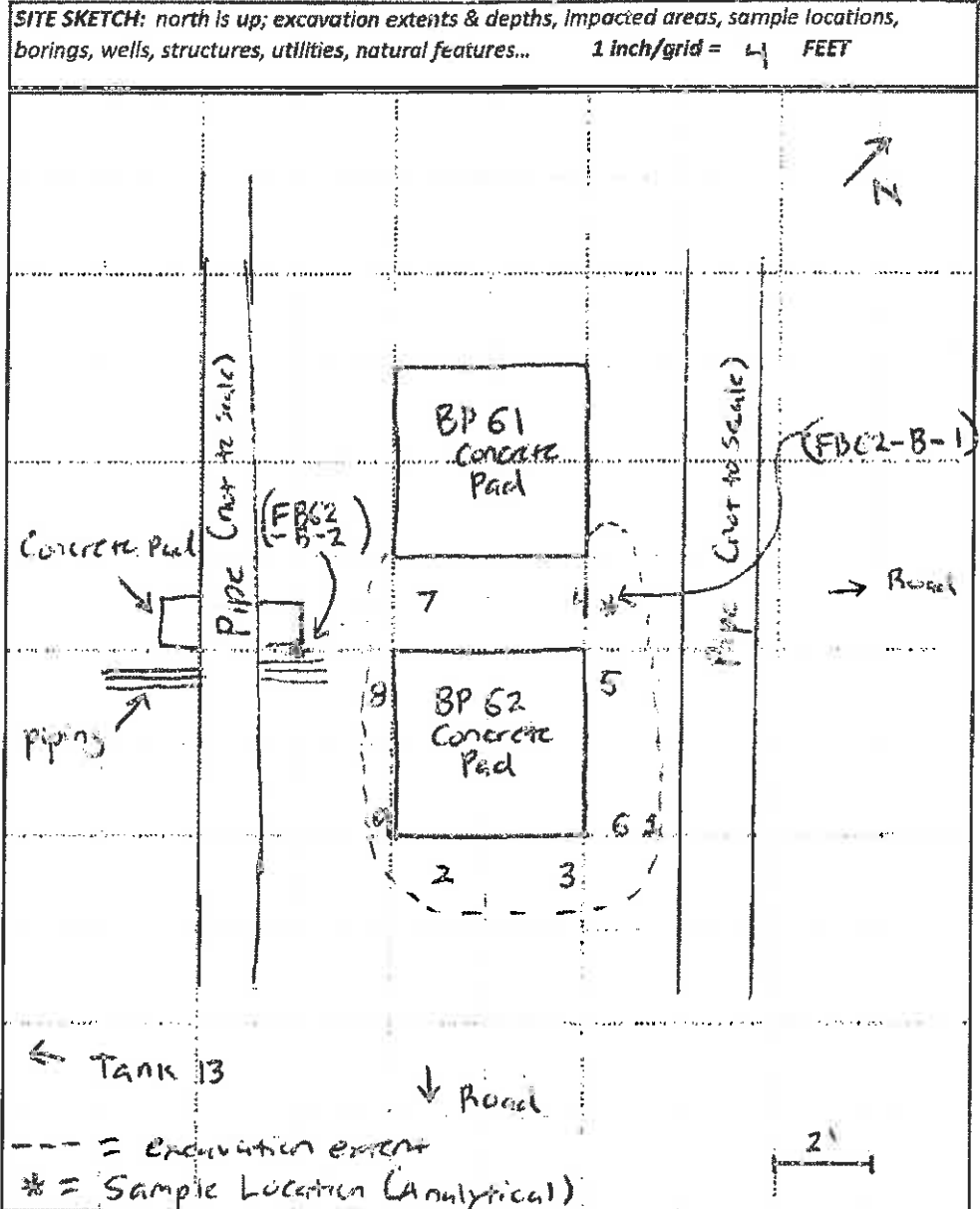
Soil Sample Types: R = Removed Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Calibration Time: 0700



Source Analytical Samples

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/Discolor	Odor/Sheen	Headspace Reading (ppm)
Example TK99-S-1	4	1630	Cl	Reddish brown	Petroleum/Rainbow	275
FB-G2-B-1	3'	1210	Sand	Brown	Mild odor	—
FB-G2-B-2	0'	0815	Sand + Gravel	"	" + Black discoloration	—
S-1	2"	0845	Sand + Gravel	Brown	none/none	0.1
B-2	2.8'	1140	Sand	"	Slight odor	25.4
B-3	"	"	"	"	none/none	3.9
B-4	3.2'	"	"	"	Strong odor + #	118.8
B-5	2.8'	"	"	"	none/none	4.0
B-6	2.8'	"	"	"	"	8.1
B-7	3.2'	"	"	"	mild odor + #	45.1
B-8	1'	"	"	"	none/none	0.4
B-9	1'	"	"	"	none/none	1.7



\* and Rainbow Sheen  
 Note: All odors were Petroleum odors

**SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG**

Location: Milepost or Facility Field Booster 62 Embankment Terminal Superior WI

Equipment used: Pro -ionization detector with 11.7 eV lamp

Background Headspace: \_\_\_ ppm

Date: 1-22-15

Sample Nomenclature (Location - sample type - #): \_\_\_\_\_

Sampler: NRJ2

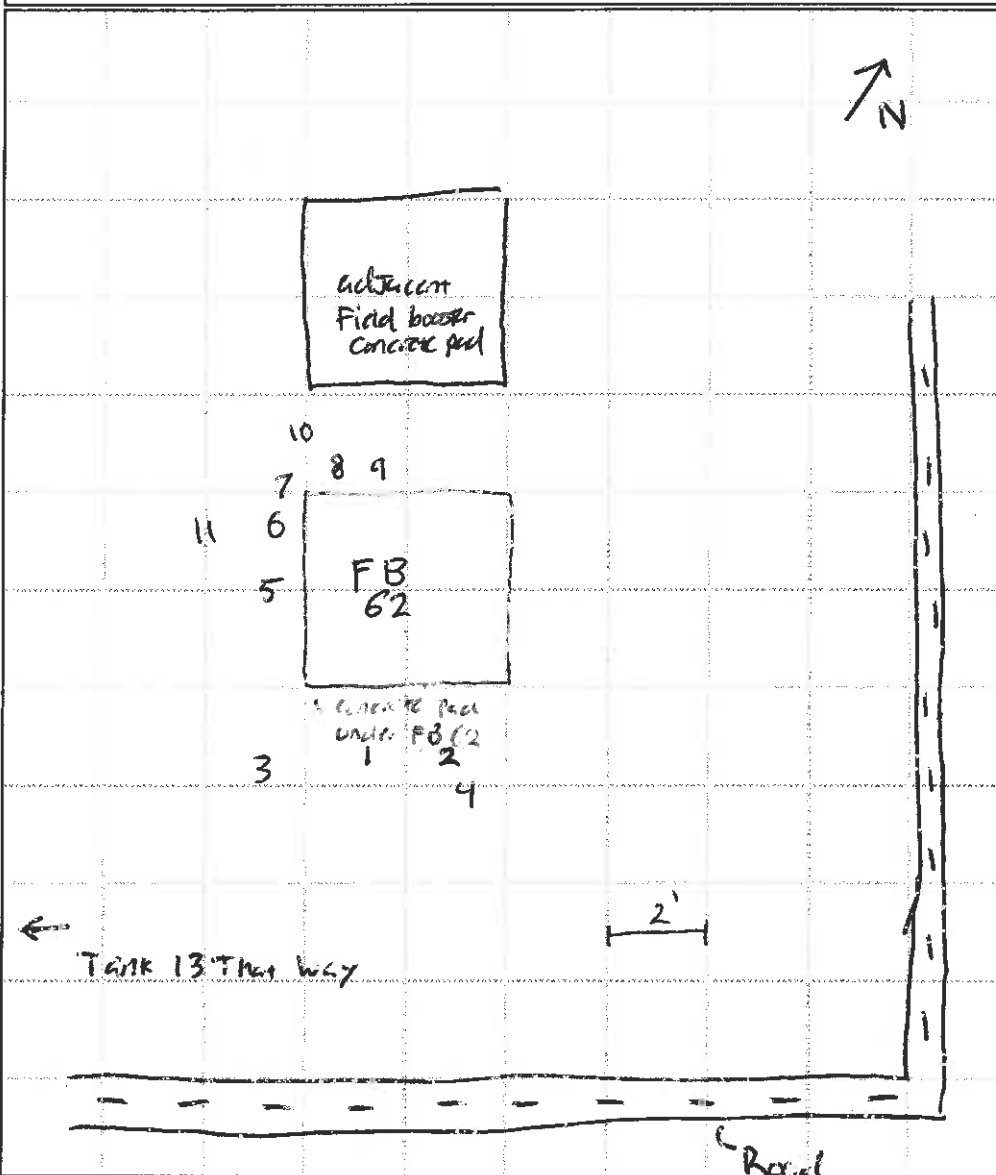
Soil Sample Types: R = Removed Sample ; S = Sidewall Sample ; B = Bottom Sample ; Stockpile = Stockpile Sample

Calibration Time: 0320



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	1	1530	EE Sand	Reddish brown	Slight odor	50
S-2	1.3		Sand			184
B-3	.1	1535	Gravel	Gray	none/none	1.3
B-4	.1			Reddish brown + Green	Slight odor	26.5
S-5	1	1540	Sand	Reddish brown	none/none	2.4
S-6	.5'		Sand			0.7
S-7	.6	1555			moderate odor	401
B-8	2				none/none	1.6
B-9	1'					50.5
B-10	2					70
B-11	Surface		Gravel	Gray		6.0

**SITE SKETCH:** north is up; excavation extents & depths, impacted areas, sample locations, borings, wells, structures, utilities, natural features... 1 inch/grid = 24 FEET





### SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Milepost or Facility Booster Pump 62 Embankment Terminal Superior WI

Equipment used: Photo-ionization detector with 11.7 eV lamp

Background Headspace: 0.0 ppm

Date: 1-23-15

Sample Nomenclature (Location - sample type - #): \_\_\_\_\_

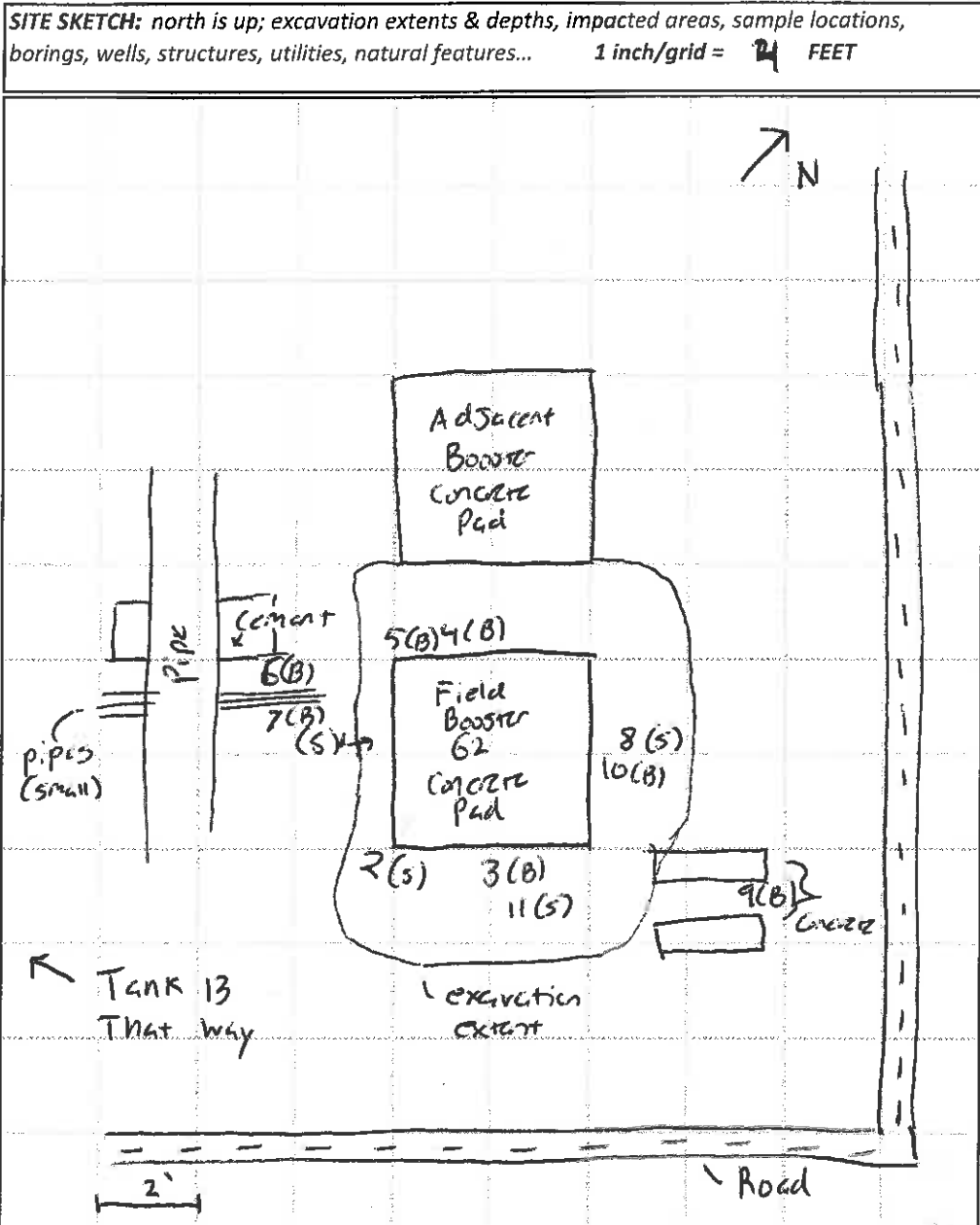
Sampler: NA52

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

Calibration Time: 6820



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	5	1240	Sand	Reddish Brown	none/none	2.4
S-2	1.5	1240				0.5
B-3	3				none/none	53.6
B-4	2.5				moderate odor	48.3
B-5	2					308+
B-6 (Source) 0		1245	Gravel	Black Gravel	Strong odor	77.0
B-7 (Source) 0					Slight odor	3.8
S-8	0-1'		Sand	Reddish brown*	moderate odor	92.5
B-9 (Source) 0			Gravel	Black	Strong odor	6.3
B-10	3	1255	Sand	Reddish Brown	moderate odor	26.9
S-11	3-1				none	4.4



\* with black specs

## **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

February 09, 2015

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

Work Order Number: 1500341  
RE: 49161307

Enclosed are the results of analyses for samples received by the laboratory on 01/29/15. 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: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FB62-B-2_0-0	1500341-01	Soil	01/28/15 08:15	01/29/15 08:45
FB62-B-1_3-3	1500341-02	Soil	01/28/15 12:10	01/29/15 08:45
Trip Blank	1500341-03	Methanol	01/28/15 00:00	01/29/15 08:45

**Shipping Container Information**

**Default Cooler**                      Temperature (°C): 0.8

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

**Case Narrative:**

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

Ethylbenzene was present in the method blank between the MDL and RL for the BTEX analysis.

The Naphthalene % RPDs in the PVOC analysis batch LCS/LCSD exceeded the method limit. However, both percent recoveries were within limits.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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**WI(95) GRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>FB62-B-2_0-0 (1500341-01) Soil</b> <b>Sampled: 01/28/15 08:15</b> <b>Received: 01/29/15 8:45</b>										
1,2,4-Trimethylbenzene	2.5	0.027	0.0030	mg/kg dry	1	B5A2908	01/29/15	01/30/15	WI(95) GRO	
1,3,5-Trimethylbenzene	1.2	0.027	0.0068	mg/kg dry	1	"	"	"	"	
Benzene	0.044	0.027	0.0032	mg/kg dry	1	"	"	"	"	
Ethylbenzene	0.72	0.027	0.0070	mg/kg dry	1	"	"	"	"	
Naphthalene	3.5	0.55	0.024	mg/kg dry	1	"	"	"	"	R6, T-1
Toluene	0.29	0.027	0.0045	mg/kg dry	1	"	"	"	"	
Xylenes (total)	2.3	0.082	0.016	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	97.9			80-150 %		"	"	"	"	
<b>FB62-B-1_3-3 (1500341-02) Soil</b> <b>Sampled: 01/28/15 12:10</b> <b>Received: 01/29/15 8:45</b>										
1,2,4-Trimethylbenzene	0.65	0.030	0.0033	mg/kg dry	1	B5A2908	01/29/15	01/30/15	WI(95) GRO	
1,3,5-Trimethylbenzene	0.088	0.030	0.0075	mg/kg dry	1	"	"	"	"	
Benzene	0.011	0.030	0.0035	mg/kg dry	1	"	"	"	"	J
Ethylbenzene	0.050	0.030	0.0077	mg/kg dry	1	"	"	"	"	B-01
Naphthalene	<0.027	0.60	0.027	mg/kg dry	1	"	"	"	"	R6, T-1
Toluene	0.042	0.030	0.0049	mg/kg dry	1	"	"	"	"	
Xylenes (total)	0.11	0.090	0.017	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	104			80-150 %		"	"	"	"	
<b>Trip Blank (1500341-03) Methanol</b> <b>Sampled: 01/28/15 00:00</b> <b>Received: 01/29/15 8:45</b>										
1,2,4-Trimethylbenzene	<0.0027	0.025	0.0027	mg/kg wet	1	B5A2908	01/29/15	01/30/15	WI(95) GRO	
1,3,5-Trimethylbenzene	<0.0062	0.025	0.0062	mg/kg wet	1	"	"	"	"	
Benzene	<0.0029	0.025	0.0029	mg/kg wet	1	"	"	"	"	
Ethylbenzene	0.020	0.025	0.0064	mg/kg wet	1	"	"	"	"	B-01, J
Naphthalene	<0.022	0.50	0.022	mg/kg wet	1	"	"	"	"	R6, 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	89.7			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>FB62-B-2_0-0 (1500341-01) Soil</b> <b>Sampled: 01/28/15 08:15</b> <b>Received: 01/29/15 8:45</b>										
% Solids	85			%	1	B5B0306	02/03/15	02/03/15	% calculation	
<b>FB62-B-1_3-3 (1500341-02) Soil</b> <b>Sampled: 01/28/15 12:10</b> <b>Received: 01/29/15 8:45</b>										
% Solids	83			%	1	B5B0306	02/03/15	02/03/15	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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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 B5A2908 - EPA 5035 Soil (Purge and Trap)**

**Blank (B5A2908-BLK1)**

Prepared & Analyzed: 01/29/15

1,2,4-Trimethylbenzene	< 0.0027	0.025	0.0027	mg/kg wet							
1,3,5-Trimethylbenzene	< 0.0062	0.025	0.0062	mg/kg wet							
Benzene	< 0.0029	0.025	0.0029	mg/kg wet							
Ethylbenzene	0.0174	0.025	0.0064	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	22.2			ug/L	25.0		88.9	80-150			

**LCS (B5A2908-BS1)**

Prepared & Analyzed: 01/29/15

1,2,4-Trimethylbenzene	113			ug/L	100		113	80-120			
1,3,5-Trimethylbenzene	113			ug/L	100		113	80-120			
Benzene	107			ug/L	100		107	80-120			
Ethylbenzene	115			ug/L	100		115	80-120			
Naphthalene	113			ug/L	100		113	80-120			
Toluene	110			ug/L	100		110	80-120			
Xylenes (total)	344			ug/L	300		115	80-120			
Surrogate: 4-Fluorochlorobenzene	25.3			ug/L	25.0		101	80-150			

**LCS Dup (B5A2908-BSD1)**

Prepared: 01/29/15 Analyzed: 01/30/15

1,2,4-Trimethylbenzene	105			ug/L	100		105	80-120	7.35	20	
1,3,5-Trimethylbenzene	107			ug/L	100		107	80-120	6.15	20	
Benzene	107			ug/L	100		107	80-120	0.616	20	
Ethylbenzene	110			ug/L	100		110	80-120	4.72	20	
Naphthalene	87.7			ug/L	100		87.7	80-120	25.1	20	R6
Toluene	108			ug/L	100		108	80-120	2.15	20	
Xylenes (total)	330			ug/L	300		110	80-120	4.01	20	
Surrogate: 4-Fluorochlorobenzene	24.4			ug/L	25.0		97.5	80-150			

**Matrix Spike (B5A2908-MS1)**

Source: 1500282-01

Prepared: 01/29/15 Analyzed: 01/30/15

1,2,4-Trimethylbenzene	99.6			ug/L	100	<	99.6	80-120			
1,3,5-Trimethylbenzene	102			ug/L	100	<	102	80-120			
Benzene	107			ug/L	100	<	107	80-120			
Ethylbenzene	109			ug/L	100	0.368	108	80-120			
Naphthalene	81.1			ug/L	100	<	81.1	80-120			
Toluene	107			ug/L	100	<	107	80-120			
Xylenes (total)	327			ug/L	300	0.260	109	80-120			
Surrogate: 4-Fluorochlorobenzene	24.6			ug/L	25.0		98.3	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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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
<b>Batch B5B0306 - General Preparation</b>											
<b>Duplicate (B5B0306-DUP1)</b>		<b>Source: 1500379-04</b>				<b>Prepared &amp; Analyzed: 02/03/15</b>					
% Solids	94.0			%		94.0			0.00	20	



Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 001 001 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500341 Date Reported: 02/09/15
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### Notes and Definitions

T-1	MDH does not offer certification for this parameter.
R6	LFB/LFBD (LCS/LCSD) RPD exceeded the method acceptance limit. Recoveries met acceptance criteria.
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)

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

1500341

Project Number: 49161307 001 001  
 Project Name: Booster Pump 62  
 Sample Origination State WI (use two letter postal state abbreviation)  
 COC Number: **No 44718**

Location		Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type		Number of Containers/Preservative		Total Number Of Containers	COC <u>1</u> of <u>1</u>	
							Water	Soil	Crab	Comp	OC	Water			Soil
1.	FB62-B-2	-	-	0	01/28/2015	0815	X	X					12	3	PVOC-MTBE + Naphthalene
2.	FB62-B-1	-	-	3	01/23/2015	1210	X	X					12	3	11
3.	Temp Blank								X					1	
4.	Trip Blank								X					1	
5.															
6.															
7.															
8.															Standard TAT
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/PCBs  
 #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate  
 #4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By: Michele Nelson On Ice?  Date: 1-15-15 Time: 0530 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished By: [Signature] On Ice?  Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: [Signature] Date: 1/29/15 Time: 8:45  
 Samples Shipped VIA:  Air Freight  Federal Express  Sampler Air Bill Number: 0802 MPT  
 Other: \_\_\_\_\_

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

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

## **Attachment D**

### **Waste Disposal Documentation**

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

Generator Name: <b>Enbridge Pipelines Limited Partnership, LLC</b>		Generator EPA ID Number	SIC Code
Generator Location: <b>Enbridge Superior Terminal -150121 Booster Pump 62 Release</b>	County: <b>Douglas</b>	Generator Contact: <b>Alex Smith</b>	
		Phone: <b>715-398-4795</b>	Fax: <b>832-325-5511</b>
Generator Mailing Address (if different): <b>1320 Grand Ave, Superior, WI 54880</b>		Generator Email Address: <b>alex.smith@enbridge.com</b>	
Bill To Name & Address: <b>Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002</b>	Bill To #:	Billing Contact: <b>Alex Smith</b>	
		Phone: <b>715-398-4795</b>	Fax: <b>832-325-5511</b>
		Billing Email Address: <b>alex.smith@enbridge.com</b>	
Invoice Contact:			

**II. Waste Generation Information**

Waste Name: <b>150121 Booster Pump 62 Response Contaminated Soil</b>	Estimated rate of waste generation: <b>50</b> <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: <b>Enbridge Pipeline Terminal</b>		
Describe the generating process or source of contaminated soil/debris and/or waste: <b>Release Response</b>		

**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	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: <b>Brown</b>	Odor (describe): <b>petroleum odor</b>
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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 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, concentration: _____ ppm	Is this waste recyclable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste stream contain fuming acids? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste explosive? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste contain asbestos? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste infectious? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste contain oxidizers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this putrescible waste? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste contain radioactive material? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste demolition debris? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Is this waste sewer sludge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Please attach any available information or analytical test results that have previously been performed on this waste that substantiates these determinations. Include MSDS's and any information from other agencies (i.e., MPCA, USEPA)</b>	

**VI. Shipping Information**

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

**VII. Certification of Non Hazardous Waste & Approval Conditions**

I hereby certify and warrant, on behalf of the generator and myself that, to the best of my knowledge and belief, the information contained herein is accurate, and true and that the waste is nonhazardous as defined in Title 42, 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.

 Signature	Alex Smith Printed Name	Environmental Analyst Title	1/30/15 Date
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88 Empire Drive  
St Paul, MN 55103  
Tel: 651-642-1150  
Fax: 651-642-1239

January 30, 2015

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

Work Order Number: 1500309  
RE: 49161307

Enclosed are the results of analyses for samples received by the laboratory on 01/27/15. 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 that reads "BACH PHAM".

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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FB62-Stockpile-1	1500309-01	Soil	01/26/15 12:15	01/27/15 09:15

**Shipping Container Information**

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

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

**Case Narrative:**

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

Ethylbenzene was present in the method blank between the MDL and RL for the BTEX analysis.

The DRO chromatogram for the sample is attached.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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**DRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>FB62-Stockpile-1 (1500309-01) Soil</b> <b>Sampled: 01/26/15 12:15</b> <b>Received: 01/27/15 9:15</b>										
<b>Diesel Range Organics</b>	<b>2600</b>	440	94	mg/kg dry	20	B5A2801	01/28/15	01/29/15	WI(95) DRO	D-04
Surrogate: <i>Triacotane (C-30)</i>	90.0			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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**WI(95) GRO/8015D**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>FB62-Stockpile-1 (1500309-01) Soil</b>										W-03
<b>Sampled: 01/26/15 12:15 Received: 01/27/15 9:15</b>										
Benzene	<0.061	0.061	0.0071	mg/kg dry	1	B5A2822	01/28/15	01/29/15	WI(95) GRO	
Ethylbenzene	<b>0.36</b>	0.061	0.016	mg/kg dry	1	"	"	"	"	
Toluene	<b>0.16</b>	0.061	0.010	mg/kg dry	1	"	"	"	"	
Xylenes (total)	<b>1.3</b>	0.18	0.035	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	104			80-150 %		"	"	"	"	





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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>FB62-Stockpile-1 (1500309-01) Soil</b> <b>Sampled: 01/26/15 12:15</b> <b>Received: 01/27/15 9:15</b>										
<b>% Solids</b>	<b>69</b>			%	1	B5A2809	01/28/15	01/28/15	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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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
<b>Batch B5A2801 - Sonication (Wisc DRO)</b>											
<b>Blank (B5A2801-BLK1)</b>											
						Prepared & Analyzed: 01/28/15					
Diesel Range Organics	< 8.0	8.0	1.7	mg/kg wet							
Surrogate: <i>Triacontane (C-30)</i>	13.2			mg/kg wet	16.0		82.6	70-130			
<b>LCS (B5A2801-BS1)</b>											
						Prepared & Analyzed: 01/28/15					
Diesel Range Organics	60.4	8.0	1.7	mg/kg wet	64.0		94.4	70-120			
Surrogate: <i>Triacontane (C-30)</i>	13.0			mg/kg wet	16.0		81.3	70-130			
<b>LCS Dup (B5A2801-BSD1)</b>											
						Prepared: 01/28/15 Analyzed: 01/29/15					
Diesel Range Organics	61.1	8.0	1.7	mg/kg wet	64.0		95.5	70-120	1.14	20	
Surrogate: <i>Triacontane (C-30)</i>	11.6			mg/kg wet	16.0		72.6	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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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
<b>Batch B5A2822 - EPA 5035 Soil (Purge and Trap)</b>											
<b>Blank (B5A2822-BLK1)</b>						Prepared & Analyzed: 01/28/15					
Benzene	< 0.025	0.025	0.0029	mg/kg wet							
Ethylbenzene	< 0.025	0.025	0.0064	mg/kg wet							B-02
Toluene	< 0.025	0.025	0.0041	mg/kg wet							
Xylenes (total)	< 0.075	0.075	0.014	mg/kg wet							
Surrogate: 4-Fluorochlorobenzene	23.0			ug/L	25.0		92.1	80-150			
<b>LCS (B5A2822-BS1)</b>						Prepared & Analyzed: 01/28/15					
Benzene	99.0			ug/L	100		99.0	80-120			
Ethylbenzene	106			ug/L	100		106	80-120			
Toluene	101			ug/L	100		101	80-120			
Xylenes (total)	316			ug/L	300		105	80-120			
Surrogate: 4-Fluorochlorobenzene	25.5			ug/L	25.0		102	80-150			
<b>LCS Dup (B5A2822-BSD1)</b>						Prepared: 01/28/15 Analyzed: 01/29/15					
Benzene	103			ug/L	100		103	80-120	3.87	20	
Ethylbenzene	106			ug/L	100		106	80-120	0.00	20	
Toluene	104			ug/L	100		104	80-120	2.44	20	
Xylenes (total)	317			ug/L	300		106	80-120	0.376	20	
Surrogate: 4-Fluorochlorobenzene	25.8			ug/L	25.0		103	80-150			
<b>Matrix Spike (B5A2822-MS1)</b>						Source: 1500310-01 Prepared: 01/28/15 Analyzed: 01/29/15					
Benzene	98.8			ug/L	100	<	98.8	80-120			
Ethylbenzene	102			ug/L	100	0.384	101	80-120			
Toluene	99.2			ug/L	100	<	99.2	80-120			
Xylenes (total)	301			ug/L	300	0.143	100	80-120			
Surrogate: 4-Fluorochlorobenzene	26.1			ug/L	25.0		105	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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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
<b>Batch B5A2809 - General Preparation</b>											
<b>Duplicate (B5A2809-DUP1)</b>											
	<b>Source: 1500277-01</b>		<b>Prepared &amp; Analyzed: 01/28/15</b>								
% Solids	84.0			%		84.0			0.00	20	
<b>Duplicate (B5A2809-DUP2)</b>											
	<b>Source: 1500309-01</b>		<b>Prepared &amp; Analyzed: 01/28/15</b>								
% Solids	71.0			%		69.0			2.86	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161307 Project Number: 49161307 Project Manager: Mr. James E. Taraldsen	Work Order #: 1500309 Date Reported: 01/30/15
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### Notes and Definitions

W-03	The initial sample weight was less than 8.0 grams.
D-04	The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
B-02	Target analyte was present in the method blank between the MDL and RL.
<	Less than value listed
dry	Sample results reported on a dry weight basis
NA	Not applicable. The %RPD is not calculated from values less than the reporting limit.
MDL	Method Detection Limit
RL	Reporting Limit
RPD	Relative Percent Difference
LCS	Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)
MS	Matrix Spike = Laboratory Fortified Matrix (LFM)



**Chain of Custody**

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

1500309

Project Number: 4916 1307  
 Project Name: Enbridge Field Booster 6Z Stockpile  
 Sample Origination State: WI (use two letter postal state abbreviation)  
 COC Number: **No 44763**

Number of Containers/Preservative		COC <u>1</u> of <u>1</u>
Water	Soil	
VOCs (unpreserved) #2	VOCs (stared, MeOH) #7	Total Number Of Containers
Dissolved Metals (HNO3)	GRQ/BTEX (stared MeOH) #1	
Total Metals (HNO3)	DRO (stared unpreserved)	
General (unpreserved) #3	Metals (unpreserved)	
Diesel Range Organics (HCl)	SVOCS (unpreserved) #2	
Nutrients (H2SO4) #4	5 Solids (plastic vial, unpres.)	

Project Manager: REE  
 Project QC Contact: JET  
 Sampled by: REE  
 Laboratory: Legend

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type		Total Number Of Containers
						Water	Soil	Grab	Comp.	
1. FB6Z-STOCKPILE-1				01/24/2015	1215	X	X			5
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

DRO, BTEX, Monitoring  
 \*ASAP TAT\*  
 [held jar]

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

Relinquished By: [Signature] On Ice?  Y  N Date: 1/26/15 Time: 1500 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished By: [Signature] On Ice?  Y  N Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: [Signature] Date: 1/22/15 Time: 9:05

Samples Shipped VIA:  Air Freight  Federal Express  Sampler Air Bill Number: 122

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

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

Data File: \\lts-target\targetdata\chem\FID5.i\150128,b\057,d

Date : 29-JUN-2015 11:17

Client ID:

Sample Info: 15W309-01rr x20

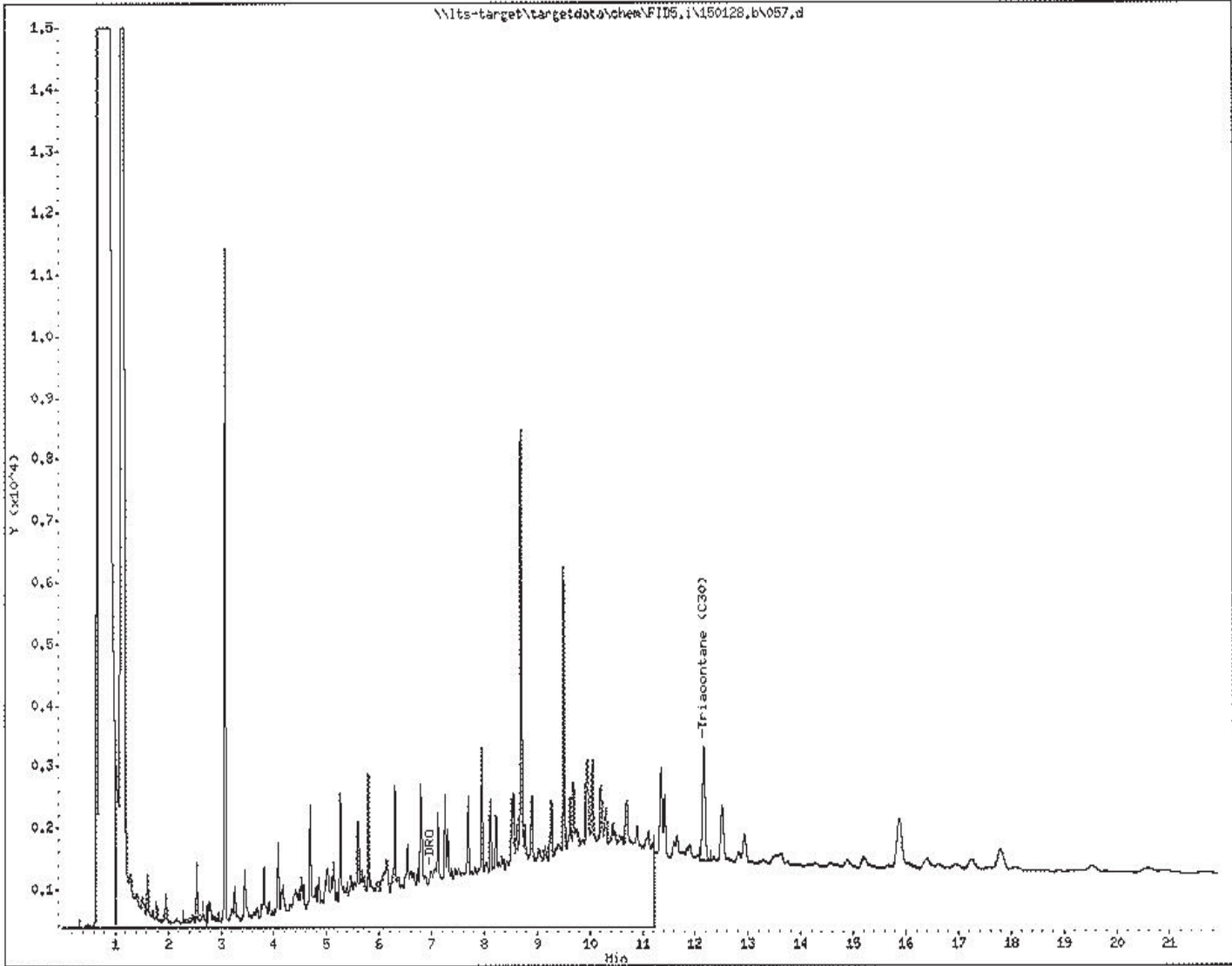
FB - Stockpile -1

Instrument: FID5.i

Operator: yp

Column diameter: 0.53

Column phase:



**Notification of Waste Acceptance**

1/30/2015

**CUSTOMER INFORMATION**

EPA ID#:  
Enbridge Superior Terminal  
150121 Booster Pump 62 Release

Superior Terminal 150121 Booster Pu  
1320 Grand Ave  
Superior, WI 54880  
Contact: Alex Smith  
Phone: (715) 398-4795

Profile Sheet #:  
Waste Stream #: CL15-0005  
Waste Name: 150121 Booster Pump 62 Response Contaminated

**INVOICE INFORMATION**

Bill #: 2133  
Enbridge Pipelines Limited Partnership,  
Accounts Payable

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

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

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

**ACCEPTANCE INFORMATION**

The waste stream identified by the reference above is acceptable for disposal.  
The anticipated frequency of shipment is 50 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 1/30/2015 thru 1/30/2017 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:

1/30/15



January 30, 2015

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

RE: CL15-0005 150121 Booster Pump 62 Response Contaminated

Dear Mr. Smith,

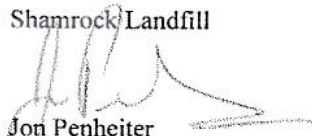
This agreement will confirm the price and length of service for disposal and /or transportation of your non-hazardous industrial material at our facility. This agreement is for the term of the Waste Approval granted by Shamrock Landfill and is for all services ordered and performance initiated within such period and does include the disposal surcharge fees which you are obligated to pay as of the date of this agreement. Shamrock Landfill may incur additional costs including but not limited to increases in state and local taxes. Shamrock Landfill may pass these costs on to the customer only after notification to the Customer. This agreement grants Shamrock Landfill the exclusive right to dispose of the referenced waste for the term of this agreement. This agreement shall automatically renew thereafter for an additional term of 24 months "Renewal Term" unless either party gives the other party written notification of termination at least 90 days prior to the termination of the then-existing term. Shamrock Landfill will notify the customer prior to the expiration of the agreement of any rate changes prior to the start of the Renewal Term

Payment and terms are net thirty (30) days. Interest will be charged at a rate of 1 1/2% per month (18% annually) on any unpaid balance 30 days after the date of the invoice. In the event Customer terminates this Agreement prior to its expiration other than as a result of a breach by Shamrock Landfill or Shamrock Landfill terminates this agreement for Customer's breach (including nonpayment) Customer agrees to pay to Shamrock Landfill as liquidated damages a sum calculated as follows: (1) if the remaining term under this agreement is six or more months Customer shall pay its average monthly charges multiplied by six; or (2) if the remaining term under this agreement is less than six months Customer shall pay its average monthly charge multiplied by the number of months remaining in the term. Customer expressly acknowledges that in the event of an unauthorized termination of this agreement the anticipated loss to Shamrock Landfill in such event is estimated to be the amount set forth in the foregoing liquidated damages provision and such estimated value is reasonable and is not imposed as a penalty.

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

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

Shamrock Landfill

  
Jon Penheiter

Customer ACCEPTED BY: (name, position)

DATE:

WASTE APPROVAL Period: 1/30/2015 to 1/30/2017

*Alex Smith Environmental Analyst*  
*2-2-15* 

**Bill To Customer**

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

**Service For Generator**

Enbridge Superior Terminal  
Superior Terminal 150121 Booster Pump 62 Releas  
1320 Grand Ave  
Superior, WI 54880

**Disposal**

Waste Description: 150121 Booster Pump 62 Response Contaminated

Estimated Volume: 50 YARDS / ONE TIME ONLY

Disposal Method: Secure Non-Hazardous Landfill

Treatment Method: None Expected For Conforming Waste

**Pricing**

Disposal	\$16.00	Per Ton	150121 Booster Pump 62 Response
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## Ryan E. Erickson

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**From:** Jon Penheiter <jonp@shamrocklandfill.com>  
**Sent:** Monday, February 09, 2015 7:03 PM  
**To:** Ryan E. Erickson  
**Subject:** RE: Enbridge waste srtreams CL15-00004 & CL15-0005  
**Attachments:** cl150004Tons Each Load by WSID.pdf

Ryan,  
CL15-0005 was mixed with a load of CL15-004 on 2/4/15. You can see the two manifests on the report. Call if you have questions. Jon

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**From:** Ryan E. Erickson [<mailto:RErickson@barr.com>]  
**Sent:** Monday, February 09, 2015 4:54 PM  
**To:** Jon Penheiter  
**Subject:** RE: Enbridge waste srtreams CL15-00004 & CL15-0005

Jon,  
Can you send me landfill summaries for CL15-0004 and 0005? The last of the waste was delivered today.

Thank you,

Ryan E. Erickson, PG

Geologist  
Duluth office: 218.529.7112  
fax: 218.529.8202  
cell: 612.418.0166  
[rerickson@barr.com](mailto:rerickson@barr.com)  
[www.barr.com](http://www.barr.com)

resourceful. naturally.



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**From:** Jon Penheiter [<mailto:jonp@shamrocklandfill.com>]  
**Sent:** Friday, January 30, 2015 4:32 PM  
**To:** Ryan E. Erickson  
**Subject:** FW: Enbridge waste srtreams CL15-00004 & CL15-0005

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**From:** Cloquet  
**Sent:** Friday, January 30, 2015 3:43 PM  
**To:** Jon Penheiter  
**Subject:** Enbridge waste srtreams CL15-00004 & CL15-0005

Jon,  
Not sure if these two completed waste steam profiles transmitted to your computer so I've attached them for you.  
Janet

**REPORT NAME:** Tons Each Load By WSID  
**DESCRIPTION:** Tonnage for EACH LOAD, grouped by customer  
**DATE RANGE:** 01/01/2015 to 02/09/2015  
**PRINTED ON (DATE):** Monday, February 09, 2015

**ENB26**

Enbridge Superior Terminal  
 Enbridge Superior Terminal  
 Superior WI 54880

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT.	LIFT	TONS
28484 (A)	7748	2/4/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	12.49
28493 (A)	7762&7763	2/4/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.02
28505 (A)	007761	2/4/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.87
28511 (A)	7760	2/4/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.11
28551 (A)	50925	2/5/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	8.29
28558 (A)	50926	2/5/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	7.38
28567 (A)	50927	2/5/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	8.04
28585 (A)	50928	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	12.60
28591 (A)	50930	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	11.30
28592 (A)	50929	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	9.63
28596 (A)	50933	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.01
28599 (A)	50934	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	17.66
28602 (A)	50932	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	17.41
28608 (A)	50938	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	16.38
28611 (A)	50937	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	17.88
28612 (A)	50935	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	14.88
28619 (A)	50942	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	13.54
28620 (A)	50943	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.31
28621 (A)	50940	2/6/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	15.59
28640 (A)	50939	2/9/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	13.70
28645 (A)	50931	2/9/2015	CL15-0004	150113 Tank 5 Valve Release Cont	2A	Y44	1190	16.55

**Total # of Loads: 21** **Total Tons: 289.64**

**Grand Total (Tons): 289.64**  
**Grand Total (Loads): 21**