

Technical Memorandum

To: Karl Beaster, Enbridge Energy
From: Ryan Erickson
Subject: Superior Terminal Line 6 Hydrotest Excavation - Historical Crude Oil Impacts
Date: January 27, 2014
WDNR BRRTS #: 02-16-558991
Barr Project: 49161092

This memorandum summarizes the field screening, analytical sampling and waste management assistance conducted by Barr Engineering (Barr) at the request of Enbridge Energy (Enbridge) in response to the discovery of crude oil impacted soil in the Line 6 hydrotest excavation at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1).

Background

In order to complete a hydrotest during the spring of 2012, Enbridge excavated soil around a section of the Line 6 pipeline within the Superior Terminal. The excavation was located to the south of the Line 6 pump house building (Figure 2). Soil was excavated using hydro-vacuum (hydrovac) trucks and excavators. The final excavation extent was approximately 275 feet long by up to 50 feet wide and up to 15 feet deep.

On May 8, 2012, the excavation contractor encountered crude oil impacted soil in the eastern half of the excavation near the Line 6 pipeline 6-BV-1 valve (Photos 1 and 2) and reported it to Enbridge Environment.

Enbridge requested that Barr complete the following activities during the Line 6 hydrotest excavation project:

- assess the environmental site conditions
- identify and segregate excavated crude oil impacted soil from non-impacted soil
- identify and segregate crude oil impacted excavation water from unimpacted water

- assist with waste characterization and offsite disposal of contaminated soil and water
- document the residual crude-oil impacts left in place, if applicable

Enbridge indicated that the crude oil impacts discovered during the hydrotest excavation were likely historical based on the location and characteristics of the contaminated soil. Barr checked the Wisconsin Department of Natural Resources (WDNR) Bureau for Remediation and Redevelopment Tracking System (BRRTS) database and identified a 1,200 barrel release located approximately 75 feet to the northwest that was opened on July 27, 2000 and closed on August 16, 2005 (WDNR BRRTS Activity #02-16-279246) (Figure 2).

Enbridge notified the WDNR about the discovered crude oil impacts on May 31, 2012 and BRRTS Activity # 02-16-558991 was assigned to the site (Attachment A).

Field Methods

Barr was on site as needed between May 8 and May 14, 2012 to complete Line 6 hydrotest excavation environmental field activities. Barr field screened soil that had been excavated from the Line 6 excavation for the presence of organic vapors with a photoionization detector (PID) using headspace procedures and documented other potential indicators of crude oil impacts such as odor, discoloration and sheen (Attachment B). Excavated soil with PID headspace readings greater than ten parts per million (ppm), or other evidence of crude oil impacts, was segregated and transported to the Superior Terminal Soil Management Area (SMA) (Figure 2) for storage until it could be characterized and approved for off-site disposal. Excavated soil that was not impacted by crude oil was transported to one of the two project-specific, clean soil stockpiles located within the terminal (Figure 2) for later onsite reuse as excavation backfill once the hydrotest was completed. Barr field screened the clean soil stockpiles to confirm that crude oil impacts were not present (Attachment B).

In addition to field screening soil, Barr field screened water present within the excavation for the presence of a sheen or free-product. If a petroleum sheen or free-product were observed on water within the excavation (Photos 3 and 4), the water was considered contaminated and it was containerized until it could be characterized and approved for off-site disposal.

After the hydrotest excavation activities were completed, Barr collected 32 field screening soil samples and 19 analytical soil samples from the sidewalls and base of the excavation to document soil quality at the limits of the excavation. The analytical soil samples were submitted to Pace Analytical for laboratory analysis of diesel range organics (DRO) and petroleum volatile organic compounds (PVOC), minus methyl tert-butyl ether (MTBE). Two of the soil samples (samples *Line 6-S7_6-6'* and *Line 6-S12_5-5'*) were also analyzed for polycyclic aromatic hydrocarbons (PAH). Analytical results from each sample were input into the WDNR Web Calculator to compare analyte detections to groundwater residual contaminant levels (RCL) and industrial direct contact RCL and determine whether the soil passes the Cumulative Hazard Index criteria described in WDNR guidance document PUB-RR-890 (Table 1). Soil sample locations are shown on Figure 2. Field screening and laboratory analytical sampling results are provided in Attachments B and C, respectively.

Results

Barr observed crude oil impacted soil containing free-product, a petroleum odor and dark discoloration in the eastern half of the hydrotest excavation. Barr field screened the sidewalls and base of excavation that were accessible to determine whether crude impacted soil was present. Crude oil impacts were focused around the Line 6 6-BV-1 valve, along a cement conduit located to the west of the 6-BV-1 valve and in a whistle located to the east of the 6-BV-1 valve (Photos 1 through 3; Figure 2). Excavation activities, field screening and analytical sampling results from the Line 6 hydrotest excavation are described below.

6-BV-1 Valve

Crude oil impacted soil containing free-product was encountered around the 6-BV-1 valve from between zero to fifteen feet below ground surface (bgs). The impacted soil was excavated, as feasible based on infrastructure, and stockpiled in the terminal SMA. A small amount of darkly discolored crude oil impacted soil with a hydrocarbon odor, but no observed residual free-product, was left in place beneath the 6-BV-1 valve from 12 to 15 feet bgs.

Analytical soil sample *Line 6-S7_6-6'* was collected from the excavation sidewall near the 6-BV-1 valve for laboratory analysis of PVOC, DRO and PAH to document residual soil impacts left in place (Figure 2). PVOC and naphthalene analyte concentrations from sample *Line 6-S7_6-6'* were above the

groundwater RCL (Table 1). All *Line 6-S7_6-6'* analyte concentrations were below the industrial direct contact RCL and passed the Cumulative Hazard Index criteria.

Cement Conduit

Crude oil impacted soil containing free-product was discovered along a cement electrical conduit (Figure 2; Photos 1, 2 and 5). Approximately 90 feet of the conduit was exposed at depths of between four to five feet bgs in the hydrotest excavation. The conduit was removed during the hydrotest project and adjacent impacted soil was excavated, as feasible, based on infrastructure, and stockpiled in the SMA (Photo 6). A small amount of crude impacted soil with no observed residual free-product was left in place at either end of the conduit. Residual crude oil impacted soil was defined by the presence of PID headspace detections exceeding 10 ppm headspace, dark discoloration and a hydrocarbon odor.

Analytical soil samples *Line 6-S7_6-6'*, *Line 6-S9_7-7'*, *Line 6-S10_12-12'* and *Line 6-S12_5-5'* were collected from the excavation sidewalls near the conduit location for laboratory analysis of PVOC, DRO and PAH (samples *Line 6-S7_6-6'* and *Line 6-S12_5-5'* only) to document residual soil impacts (Figure 2). PVOC and naphthalene analyte concentrations from sample *Line 6-S7_6-6'* and PVOC analyte concentrations from *Line 6-S12_5-5'* were above the groundwater RCL (Table 1). Analyte concentrations from the four soil samples collected adjacent to the cement conduit were below the industrial direct contact pathway RCL and passed the Cumulative Hazard Index criteria.

Whistle

Crude oil was observed on the surface of the water within a whistle to the east of the 6-BV-1 valve (Photo 3; Figure 2). Soil in the vicinity of the whistle structure was also impacted by the crude oil. The crude oil and the impacted water were removed with a vacuum truck, the whistle was removed during the hydrotest project and the impacted soil was excavated, as feasible, based on infrastructure, and was stockpiled in the SMA.

Analytical soil samples *Line 6-S4_2-2'*, *Line 6-B5_15-15'* and *Line 6-S7_6-6'* were collected from the excavation sidewall and bottom near the former whistle location for laboratory analysis of PVOC, DRO and PAH (sample *Line 6-S7_6-6'* only) to document residual soil impacts left in place (Figure 2). PVOC and naphthalene analyte concentrations from sample *Line 6-S7_6-6'* were above the groundwater RCL

(Table 1). Analyte concentrations from the three samples collected in the vicinity of the whistle were below the industrial direct contact pathway RCL and passed the Cumulative Hazard Index criteria.

Other Excavation Extent Analytical Soil Sample Results

Thirteen analytical soil samples that are not listed above were collected from the sidewalls and base of the hydrotest excavation for laboratory analysis of PVOC and DRO to document residual soil impacts (Figure 2). The only groundwater RCL exceedance was in soil sample *Line 6-S11_3-3'*, which had a benzene concentration of 0.18 mg/kg) (Table 1). Analyte concentrations from all thirteen samples were below the industrial direct contact RCL and passed the Cumulative Hazard Index criteria.

Discussion

Analyte concentrations detected in excavation extent soil samples located near the crude oil impacted Line 6 6-BV-1 valve (sample *Line 6-S7_6-6'*), the cement conduit (sample *Line 6-S12_5-5'*) and in between the 6-BV-1 valve and the 1,200 barrel historical release (BRRTS# 02-16-279246) (sample *Line 6-S11_3-3'*) were above the groundwater RCL but were below the industrial direct contact RCL and passed the Cumulative Hazard Index criteria (Figure 2; Table 1). The analyte concentrations in the remaining excavation extent soil samples were below the groundwater RCL and the industrial direct contact RCL and passed the Cumulative Hazard Index criteria.

Additional excavation of crude oil impacted soil from the Line 6 hydrotest excavation was not possible due to the presence of terminal infrastructure. Following the completion of the hydrotest, the excavation was backfilled with the clean fill that had been removed from the excavation, as well as additional, imported clean fill.

Waste Disposal Coordination and Documentation

Soil Management

Barr collected three analytical waste characterization samples from the crude oil impacted soil stockpile (samples *Line6-Stockpile-1*, *Line6-Stockpile-2*, *Line6-Stockpile-3*) for laboratory analysis at Legend Technical Services. The samples were analyzed for DRO and benzene, toluene, ethylbenzene and xylenes (BTEX). A waste profile application that included the waste characterization laboratory report was sent to the Shamrock Landfill near Cloquet, Minnesota and the soil was approved under waste profile #CL12-

0033. A total of 562.82 tons of soil were hauled to the landfill between May 16, 2012 and July 27, 2012. The Shamrock Landfill profile and approval documentation, the waste characterization laboratory report and the landfill soil disposal summary are included in Attachment D.

Barr field screened ten samples from each of the two Line 6 hydrotest clean soil stockpiles. No crude oil impacts were detected (Attachment B) and the soil was used to backfill the hydrotest excavation.

Water Management

Hydrotest excavation dewatering occurred throughout the duration of the project. No crude oil impacts were observed on the water in the western half of the excavation and the water was discharged in accordance with the Terminal National Pollutant and Discharge Elimination System plan

Crude oil impacted water with free-product and rainbow sheen was observed in the eastern half the excavation in the whistle (Photo 3) and near the 6-BV-1 valve (Photo 4). The crude oil and water in the whistle were removed with a vacuum truck and injected into the pipeline system. The impacted water in the eastern half of the excavation was segregated from the clean water in the western half of the excavation with clay berms and oil absorbent boom. Free-product on the surface of the excavation water was absorbed with oil absorbent pads and booms, and the impacted water was containerized in frac tanks until it could be approved for offsite disposal. Barr collected two waste characterization analytical water samples (*Line6-Frac-1* and *Line6-Frac-2*) from the frac tanks for laboratory analysis and submitted them to Legend Technical Services in St. Paul, MN for analysis of DRO and BTEX. The laboratory report was submitted as part of a water disposal request to the City of Superior Environmental Services Division of Public Works (ESDPW) treatment facility. The water was accepted at the treatment facility and approximately 226,000 gallons of water were transported to the treatment facility in June and July 2012. A summary of the volume of water transported off-site and the waste characterization laboratory report for the water samples are included in Attachment D.

Conclusions and Recommendations

Crude oil impacted soil and water was encountered during the Line 6 hydrotest excavation. The contaminated soil was excavated to the extent possible; however, impacted soil in the eastern half of the excavation near the 6-BV-1 valve and the former cement conduit was left in place in areas due to the

presence of infrastructure. Residual crude oil impacted soil analyte concentrations did not exceed industrial direct contact RCLs, passed the Cumulative Hazard Index Criteria and has been covered with clean backfill. The presence of backfill and employee awareness will prevent direct contact exposure.

The groundwater pathway for the Superior Terminal is currently being reviewed by the WDNR on a case by case site-wide basis. If the WDNR agrees that the risk to the groundwater pathway associated with this historical release can be addressed using the site-wide approach, no further response action for groundwater or documentation for the WDNR will be required. Assuming a site-wide GIS registry is established for the terminal, the figures and tables attached to this memo can be used to update the registry.

Attachments:

- Photos 1 through 6
- Figure 1 Site Location Map
- Figure 2 Site Layout Map
- Table 1 Soil Analytical Data Summary
- Attachment A WDNR Documents and Communications
- Attachment B Site Investigation Field Sampling and Screening Logs
- Attachment C Pace Analytical Laboratory Report for Excavation Soil Samples
- Attachment D Waste Disposal Documentation

PHOTOS:

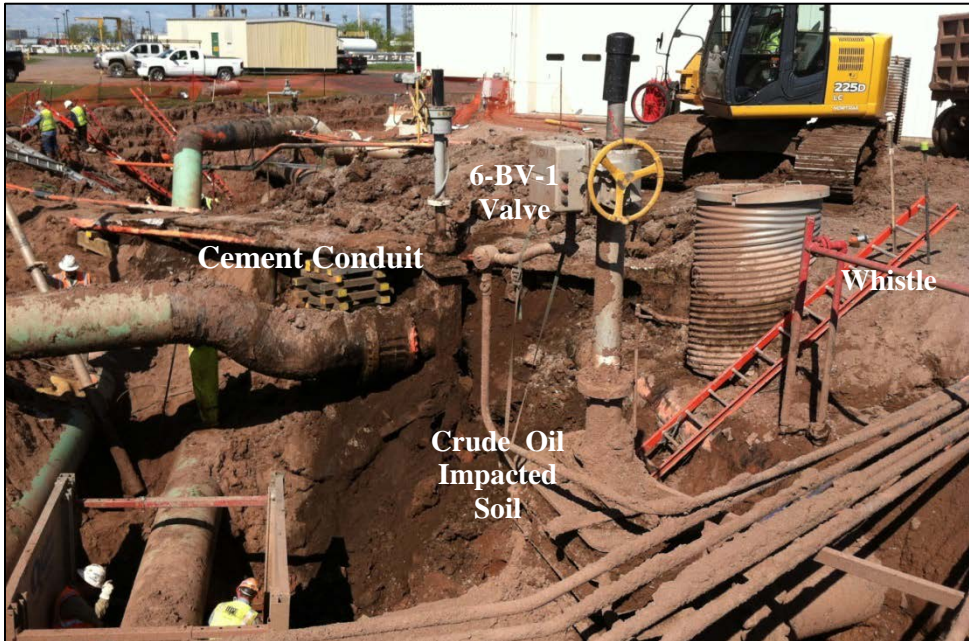


Photo 1: Line 6 hydrotest excavation facing west. Crude impacted soil was observed around the 6-BV-1 valve, the whistle and the the cement conduit as shown in the photo.

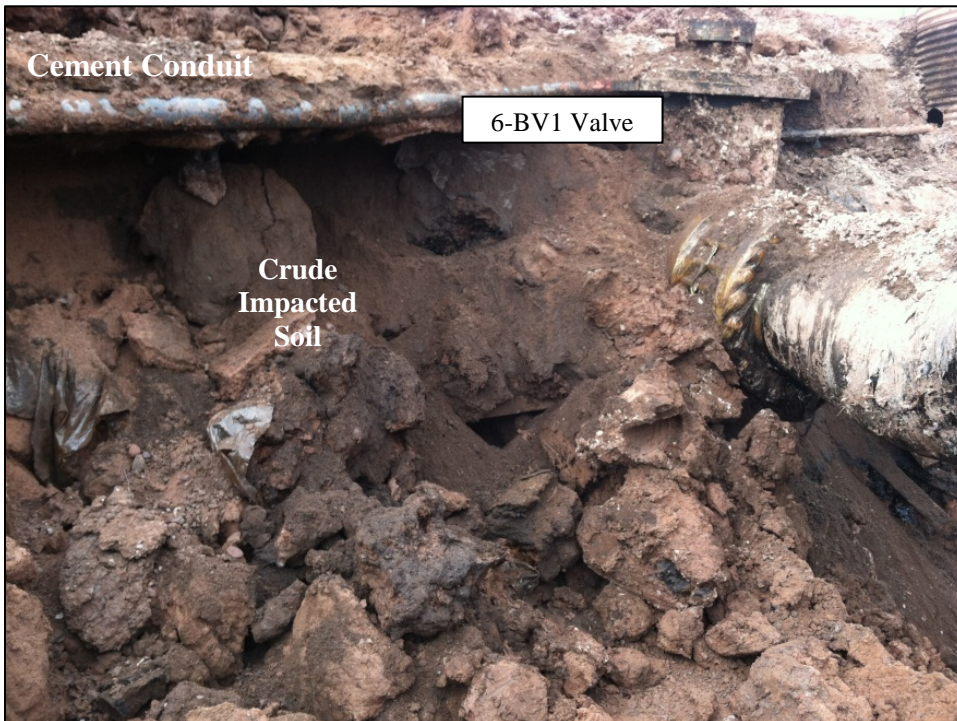


Photo 2: 6-BV-1 valve and cement conduit with crude oil impacted soil.



Photo 3: Whistle containing free product. The whistle was removed during hydrotest excavation activities.



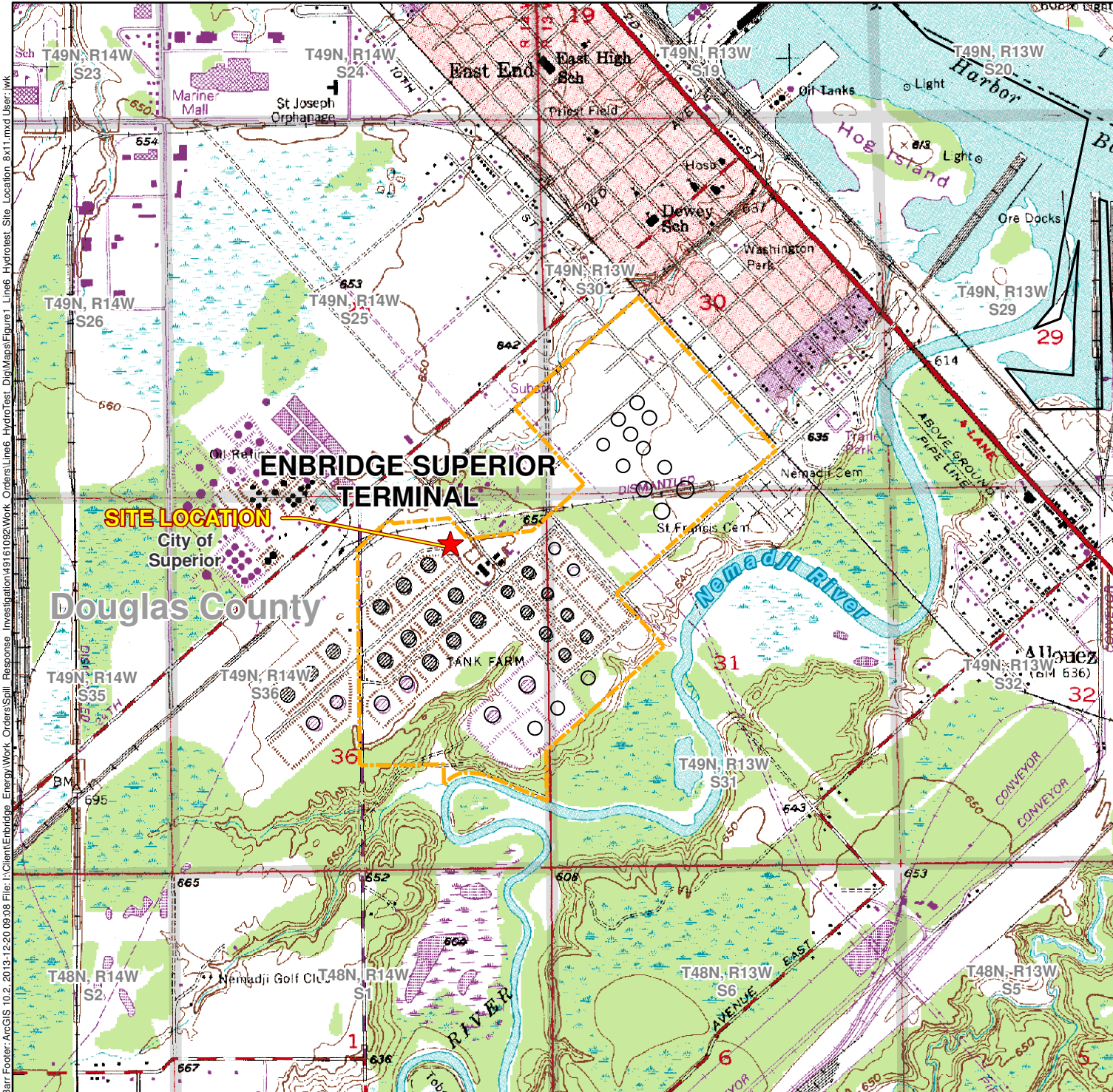
Photo 4: Water in the hydrotest excavation with crude oil on the surface. Crude oil impacted water was observed in the east end of the excavation near the 6-BV-1 valve. Water was containerized in frac tanks and treated at the City of Superior Environmental Services Division of Public Works (ESDPW) facility.



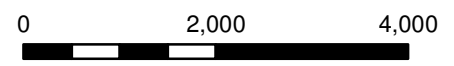
Photo 5: Cement conduit with crude oil impacted soil beneath it.



Photo 6: The cement conduit and impacted soil were removed during hydrotest excavation activities.



- ★ Site Location
- Terminal Property Boundary



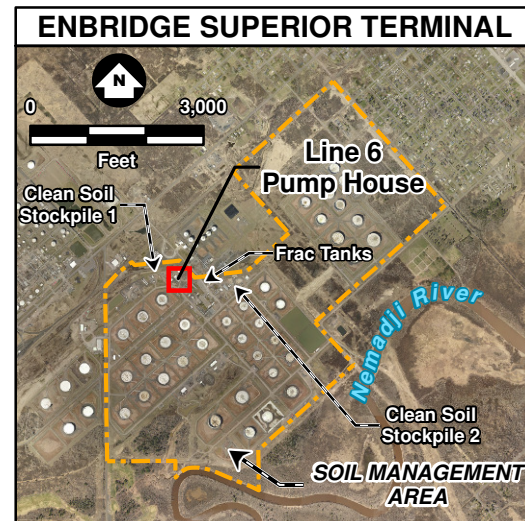
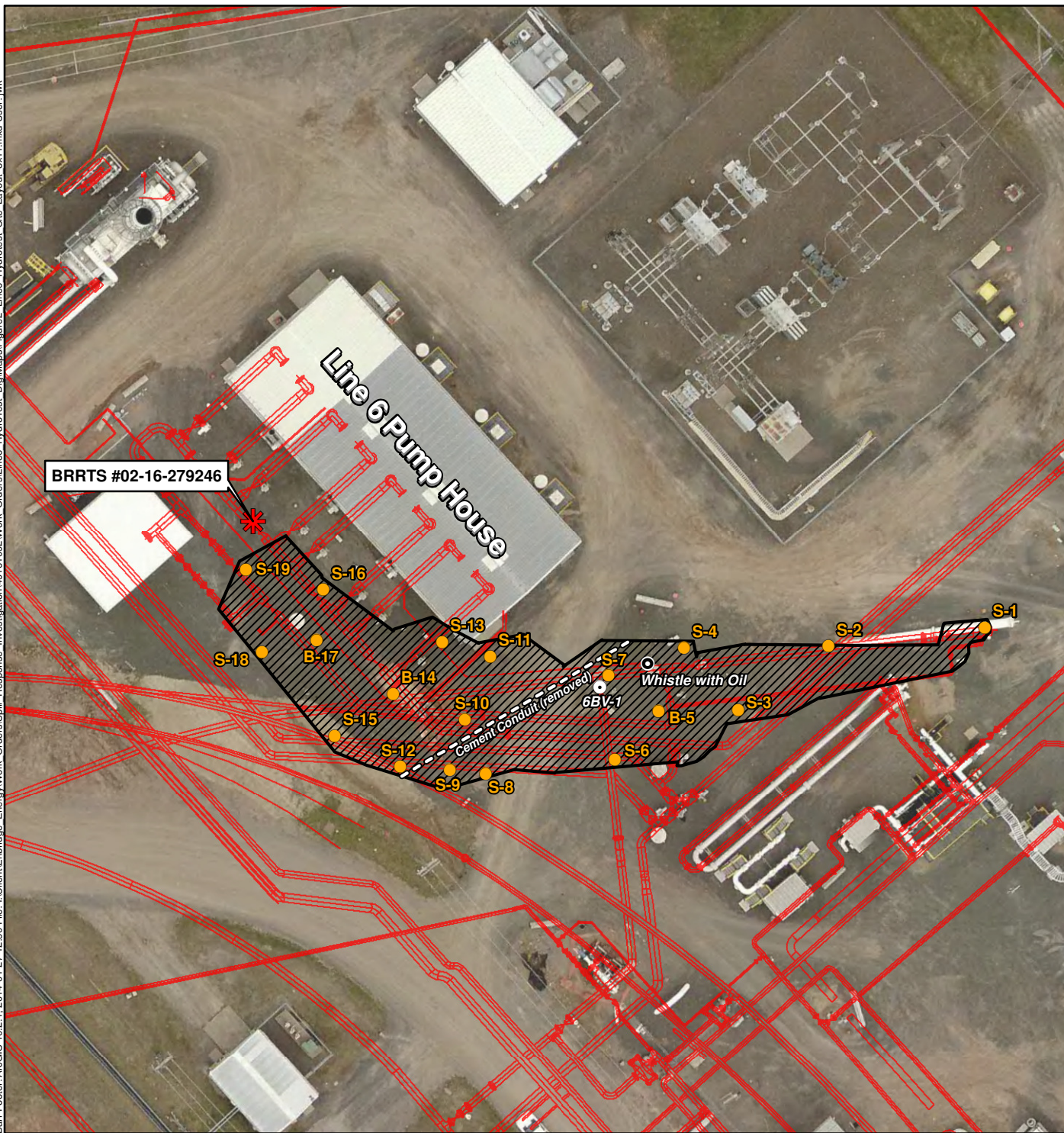
Feet
1 Inch = 2,000 Feet

Figure 1

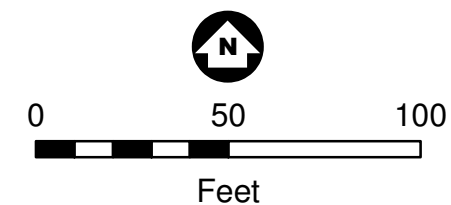
SITE LOCATION MAP
LINE 6 HYDROTEST EXCAVATION
SUPERIOR TERMINAL
 Enbridge Energy, L.P.
 Superior, Wisconsin



Barr Footer: ArcGIS 10.2, 2013-12-20 09:08 File: I:\Client\Enbridge Energy\Work Orders\Spill Response Investigation\49161082\Work Orders\Line6 HydroTest_Site_Location_8x11.mxd User: iwk



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



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

Figure 2

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



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

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

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

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

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

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

* Estimated value, QA/QC criteria not met.

Attachment A

WDNR Documents and Communications

Notification For Hazardous Substance Discharge (Non-Emergency Only)

Form 4400-225 (05/12) Page 1 of 2

Emergency Discharges / Spills should be reported via the 24-Hour Hotline: 1-800-943-0003

Notice: Hazardous substance discharges must be reported immediately according to s. 292.11 Wis. Stats. Non-emergency hazardous substance discharges may be reported by telefaxing or e-mailing a completed report to the Department, or calling or visiting a Department office in person. If you choose to notify the Department by telefax or by email, you should use this form to be sure that all necessary information is included. However, use of this form is not mandatory. Under s. 292.99, Wis. Stats., the penalty for violating the reporting requirements of ch. 292 Wis. Stats., shall be no less than \$10 nor more than \$5000 for each violation. Each day of continued violation is a separate offense. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than program administration. However, information submitted on this form may also be made available to requesters under Wisconsin's Open Records Law (ss. 19.31 – 19.39, Wis. Stats.).

Confirmatory laboratory data should be included with this form, to assist the DNR in processing this Hazardous Substance Release Notification.

Complete this form. **TYPE or PRINT LEGIBLY.** NOTIFY appropriate DNR region (see next page) **IMMEDIATELY** upon discovery of a potential release from (check one):

- Underground Petroleum Storage Tank System (additional information may be required for Item 6 below)
- Aboveground Petroleum Storage Tank System
- Dry Cleaner Facility
- Other - Describe: Enbridge Superior Terminal - Line 6 Hydrotest Excavation

ATTN DNR: **R & R Program Associate**

Date DNR Notified: **05/31/2012**

1. Discharge Reported By

Name Karl Beaster	Firm Enbridge Energy	Phone No. (include area code) (715) 398-4754
Mailing Address 1320 Grand Ave., Superior, WI 54880		Email Address karl.beaster@enbridge.com

2. Site Information

Name of site at which discharge occurred. Include local name of site/business, not responsible party name, unless a residence/vacant property. Enbridge Superior Terminal - Line 6 NW of Terminal Office

Location: Include street address, not PO Box. If no street address, describe as precisely as possible, i.e., 1/4 mile NW of CTHs 60 & 123 on E side of CTH 60. 2800 East 21st Street, Superior, WI 54880

Municipality: (City, Village, Township) Specify municipality in which the site is located, not mailing address/city.

Superior

County: <u>Douglas</u>	Legal Description: <u>NE</u> 1/4 <u>NE</u> 1/4 Sec <u>36</u> Tn <u>49N</u> Range <u>14</u> <input type="radio"/> E <input checked="" type="radio"/> W	WTM: <input checked="" type="checkbox"/> X <u>362408</u> <input type="checkbox"/> Y <u>692739</u>
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3. Responsible Party (RP) and/or RP Representative

Responsible Party Name: Business or owner name that is responsible for cleanup. If more than one, list all. Attach additional pages as necessary.

Enbridge Energy

- Reported in compliance with s. 292.11(2), Wis. Stats., by a local government exempt from liability under s. 292.11(9)(e), Wis. Stats.
- For more information see <http://dnr.wi.gov/org/aw/rr/lgu/liability.htm>.

Contact Person Name (if different) <u>Karl Beaster</u>	Phone Number <u>(715) 398-4757</u>	Email Address <u>karl.beaster@enbridge.com</u>	
Mailing Address <u>1320 Grand Ave., Superior, WI 54880</u>	City <u>Superior</u>	State <u>WI</u>	ZIP Code <u>54880</u>

Property owner if Different From RP: Business or owner name that is responsible for cleanup. If more than one, list all. Attach additional pages as necessary.

Contact Person Name (if different)	Phone Number	Email Address	
Mailing Address	City	State	ZIP Code

(continued)

4. Hazardous Substance Information

Identify hazardous substance discharged (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> VOC's | <input type="checkbox"/> Diesel | <input type="checkbox"/> PERC (Dry Cleaners) |
| <input type="checkbox"/> PAH's | <input type="checkbox"/> Fuel Oil | <input type="checkbox"/> RCRA Hazardous Waste |
| <input type="checkbox"/> Metals (specify): _____ | <input type="checkbox"/> Gasoline | <input type="checkbox"/> Leachate |
| <input type="checkbox"/> Arsenic | <input type="checkbox"/> Hydraulic Oil | <input type="checkbox"/> Fertilizer |
| <input type="checkbox"/> Chromium | <input type="checkbox"/> Jet Fuel | <input type="checkbox"/> Pesticide/Herbicide/Insecticide(s) |
| <input type="checkbox"/> Cyanide | <input type="checkbox"/> Mineral Oil | <input checked="" type="checkbox"/> Other (specify): <u>Crude oil</u> |
| <input type="checkbox"/> Lead | <input type="checkbox"/> Waste Oil | <input type="checkbox"/> Unknown |
| <input type="checkbox"/> PCB's | <input type="checkbox"/> Petroleum-Unknown Type | |

5. Impacts to the Environment Information

Enter "K" for known/confirmed or "P" for potential for all that apply.

- | | | |
|---|---|--|
| <input type="checkbox"/> Air Contamination | <input type="checkbox"/> Sanitary Sewer Contamination | <input checked="" type="checkbox"/> Soil Contamination |
| <input type="checkbox"/> Co-Contamination (Petroleum & Non-Petroleum) | <input type="checkbox"/> Contamination in Right of Way | <input type="checkbox"/> Storm Sewer Contamination |
| <input type="checkbox"/> Contamination Within 1 Meter of Bedrock | <input type="checkbox"/> Fire Explosion Threat | <input type="checkbox"/> Surface Water Contamination |
| <input type="checkbox"/> Contaminated Private Well | <input checked="" type="checkbox"/> Free Product | <input type="checkbox"/> Within 100 ft of Private Well |
| <input type="checkbox"/> Contaminated Public Well | <input checked="" type="checkbox"/> Groundwater Contamination | <input type="checkbox"/> Within 1000 ft of Public Well |
| <input type="checkbox"/> Contamination in Fractured Bedrock | <input type="checkbox"/> Off-Site Contamination | |
| | <input type="checkbox"/> Other (specify): _____ | |

Contamination was discovered as a result of:

- | | | |
|--|--|---|
| <input type="checkbox"/> Tank closure assessment | <input type="checkbox"/> Site assessment | <input checked="" type="checkbox"/> Other - Describe: <u>Hydrotest Dig Excavation</u> |
| Date <input type="text"/> | Date <input type="text"/> | Date <input type="text" value="05/08/2012"/> |

Lab results: Lab results will be faxed upon receipt Lab results are attached

Additional Comments: Include a brief description of immediate actions taken to halt the release and contain or cleanup hazardous substances that have been discharged.

Water with hydrocarbon contamination was pumped out of the excavation into a frac tank. Hydrocarbon contaminated soil removed from the excavation was segregated from clean soil and handled in accordance with WDNR regulations.

6. Federal Energy Act Requirements (Section 9002(d) of the Solid Waste Disposal Act (SWDA))

For all confirmed releases from UST's occurring after 9/30/2007 please provide the following information:

- | | Source | Cause |
|---|---|---|
| <input type="checkbox"/> Tank | <input type="checkbox"/> Tank | <input type="checkbox"/> Spill |
| <input checked="" type="checkbox"/> Piping | <input checked="" type="checkbox"/> Piping | <input type="checkbox"/> Overfill |
| <input type="checkbox"/> Dispenser | <input type="checkbox"/> Dispenser | <input type="checkbox"/> Corrosion |
| <input type="checkbox"/> Submersible Turbine Pump | <input type="checkbox"/> Submersible Turbine Pump | <input checked="" type="checkbox"/> Physical or Mechanical Damage |
| <input type="checkbox"/> Delivery Problem | <input type="checkbox"/> Delivery Problem | <input type="checkbox"/> Installation Problem |
| <input type="checkbox"/> Other (specify): _____ | | <input type="checkbox"/> Other (does not fit any of above) |
| | | <input type="checkbox"/> Unknown |

Contact information to report non-emergency releases in DNR's five regions are as follows:

Northeast Region (FAX: 920-662-5197); Attention -- R&R Program Associate: DNRRRNER@wisconsin.gov

Brown, Calumet, Door, Fond du Lac (except City of Waupun - see South Central Region), Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Sheboygan, Waupaca, Waushara, Winnebago counties

Northern Region (FAX: 715-623-6773); Attention -- R&R Program Associate: DNRRRNOR@wisconsin.gov

Ashland, Barron, Bayfield, Burnett, Douglas, Forest, Florence, Iron, Langlade, Lincoln, Oneida, Polk, Price, Rusk, Sawyer, Taylor, Vilas, Washburn counties

South Central Region (FAX: 608-273-5610); Attention -- R&R Program Associate: DNRRRSCR@wisconsin.gov

Columbia, Dane, Dodge, Fond du Lac (City of Waupun only), Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, Sauk, Walworth counties

Southeast Region (FAX: 414-263-8550); Attention -- R&R Program Associate: DNRRRSER@wisconsin.gov

Kenosha, Milwaukee, Ozaukee, Racine, Washington, Waukesha counties

West Central Region (FAX: 715-839-6076); Attention -- R&R Program Associate: DNRRRWCR@wisconsin.gov

Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, Juneau, LaCrosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood counties

Ryan E. Erickson

From: Karl Beaster <Karl.Beaster@enbridge.com>
Sent: Tuesday, December 11, 2012 3:25 PM
To: Ryan E. Erickson
Subject: FW: Enbridge Sites
Attachments: RP Letter Line 6.pdf; RP Letter Tank 5.pdf; RP Letter Tank 23.pdf

FYI

Karl F. Beaster, P.G.
Environmental Analyst, Liquids Pipelines Environment

Enbridge Energy
Central Square Office
1320 Grand Ave.
Superior, WI 54880
Office (715) 398-4754
Cell (715) 718-1040
karl.beaster@enbridge.com

From: Endsley, Erin A - DNR [<mailto:Erin.Endsley@wisconsin.gov>]
Sent: Tuesday, December 11, 2012 1:39 PM
To: Karl Beaster
Cc: Hans Wronka (hwronka@barr.com); Sager, John E - DNR
Subject: Enbridge Sites

Hello Karl –

I wanted to check in with you on the current status of open or pending sites at Enbridge. Here is what I have:

- **Product line near tank 8** – still listed as open in Spills database, waiting on closure report from Barr.
 - Need to submit report to John Sager
- **02-16-558649, Line 14 Booster Pump** –
 - Closure request will be submitted soon, with check for \$700 (to account for refunded amount from Tank 12 closure)
- **02-16-558991 – Line 6 NW of Terminal Office (Hydrotest)** – RP letter issued (attached)
 - Two options – 1) try to close now, will need additional borings to define degree and extent, and likely GIS for structural impediment; 2) wait for MOU and close out with soil < Ind DC, likely GIS for structural impediment, but no additional borings needed
- **02-16-558993 – Tank 5** – RP letter issued (attached)
 - Two options – 1) try to close now, will need to dig out or cap due to direct contact exceedances for benzene at 5-S-3 (1.4 ppm > DC value of 1.1 ppm); 2) wait for MOU and close out with soil < Ind DC, because new Ind DC level for benzene is 7.41 ppm
- **02-16-558989 – Tank 23** – RP letter issued (attached)
 - Will need to do additional sampling in the D-door and mixer areas

- **Pending – 01-16-559678 – DV 566 Valve** – notification received 12/3/12; historical release of crude oil, remedial excavation planned for week of Dec 3-7
 - Waiting on analytical results from soil sampling

If you have any questions, or if I am missing anything or appear to have an incorrect understanding of the status of a particular site, please let me know. Thanks!

Erin

Erin Endsley
Hydrogeologist
Northern Region
Remediation and Redevelopment
1701 N 4th St, Superior, WI 54880
Wisconsin Department of Natural Resources
(☎) phone: (715) 392-3126
(✉) e-mail: erin.endsley@wisconsin.gov

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December 11, 2012

Karl Beaster
Enbridge Energy
1320 Grand Ave
Superior WI 54880

Subject: Reported Contamination at Enbridge Energy – Line 6, Superior, WI
WDNR BRRTS Activity # 02-16-558991
WDNR FID # 816010580

Dear Mr. Beaster:

On June 19, 2012, Enbridge Energy notified the Wisconsin Department of Natural Resources (“WDNR”) that crude oil had been detected at the site described above.

Based on the information that has been submitted to the WDNR regarding this site, we believe you are responsible for investigating and restoring the environment at the above-described site under Section 292.11, Wisconsin Statutes, known as the hazardous substances spills law.

This letter describes the legal responsibilities of a person who is responsible under section 292.11, Wis. Stats., explains what you need to do to investigate and clean up the contamination.

Legal Responsibilities:

Your legal responsibilities are defined both in statute and in administrative codes. The hazardous substances spill law, Section 292.11 (3) Wisconsin Statutes, states:

- **RESPONSIBILITY.** A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of the state.

Wisconsin Administrative Code chapters NR 700 through NR 749 establish requirements for emergency and interim actions, public information, site investigations, design and operation of remedial action systems, and case closure. Wisconsin Administrative Code chapter NR 140 establishes groundwater standards for contaminants that reach groundwater.

Steps to Take:

The longer contamination is left in the environment, the farther it can spread and the more it may cost to clean up. Quick action may lessen damage to your property and neighboring properties and reduce your

costs in investigating and cleaning up the contamination. To ensure that your cleanup complies with Wisconsin's laws and administrative codes, you should hire a professional environmental consultant who understands what needs to be done. These are the first steps to take:

1. Within the next **30 days**, by January 15, 2013, you should submit written verification (such as a letter from the consultant) that you have hired an environmental consultant. If you do not take action within this time frame, the WDNR may initiate enforcement action against you.
2. Within the next **60 days**, by February 15, 2013, your consultant should submit a work plan and schedule for the investigation. The consultant must comply with the requirements in the NR 700 Wis. Adm. Code rule series and should adhere to current WDNR technical guidance documents.

In addition, within 30 days of completion of the site investigation, your consultant should submit a Site Investigation Report to the WDNR or other agency with administrative authority.

Sites where discharges to the environment have been reported are entered into the Bureau for Remediation and Redevelopment Tracking System ("BRRTS"), a version of which appears on the WDNR's internet site. You may view the information related to your site at any time (<http://dnr.wi.gov/botw/SetUpBasicSearchForm.do>) and use the feedback system to alert us to any errors in the data.

If you want a formal written response from the department on a specific submittal, please be aware that a review fee is required in accordance with ch. NR 749, Wis. Adm. Code. If a fee is not submitted with your reports, you should proceed under the advice of your consultant to complete the site investigation and cleanup to maintain your compliance with the spills law and chapters NR 700 through NR 749. **Do not delay the investigation of your site by waiting for an agency response.** We have provided detailed technical guidance to environmental consultants. Your consultant is expected to know our technical procedures and administrative rules and should be able to answer your questions on meeting cleanup requirements.

All correspondence regarding this site should be sent to me at the Superior office. Unless otherwise requested, please send only one copy of plans and reports. In addition to the paper copy, an electronic copy may also be submitted. To speed processing, correspondence should reference the BRRTS and FID numbers (if assigned) shown at the top of this letter.

Site Investigation and Vapor Pathway Analysis

As you develop the site investigation work plan, we want to remind you to include an assessment of the vapor intrusion pathway. Chapter NR 716, Wisconsin Administrative Code outlines the requirements for investigation of contamination in the environment. Specifically, s. NR 716.11(3)(a) requires that the field investigation determine the "nature, degree and extent, both areal and vertical, of the hazardous substances or environmental pollution in all affected media". In addition, section NR 716.11(5) specifies that the field investigation include an evaluation of the "pathways for migration of the contamination, including drainage improvements, utility corridors, bedrock and permeable material or soil along which vapors, free product or contaminated water may flow".

You will need to include documentation with the Site Investigation Report that explains how the assessment was done. If the pathway is being ruled out, then the report needs to provide the appropriate justification for reaching this conclusion. If the pathway cannot be ruled out, then investigation and, if appropriate, remedial action must be taken to address the risk presented prior to submitting the site for closure. The WDNR has developed guidance to help responsible parties and their consultants comply with the requirements described above. The guidance includes a detailed explanation of how to assess the vapor intrusion pathway and provides criteria which identify when an investigation is necessary. The guidance is available at: <http://dnr.wi.gov/files/PDF/pubs/rr/RR800.pdf>.

Additional Information for Site Owners:

We encourage you to visit our website at <http://dnr.wi.gov/topic/Brownfields/>, where you can find information on selecting a consultant, financial assistance and understanding the cleanup process. You will also find information there about liability clarification letters, post-cleanup liability and more.

If you have questions, contact me at 715-392-3126 or via email at erin.endsley@wisconsin.gov for more information or visit the RR web site at the address above.

Thank you for your cooperation.

Sincerely,



Erin Endsley
Hydrogeologist
Remediation & Redevelopment Program

cc: Hans Wronka, Barr Engineering

Attachment B

Site Investigation Field Sampling and Screening Logs

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Facility or Milepost Enbridge Terminal Line 6 Hydrotest Excavation

Equipment used: PID -ionization detector with 10.6 eV lamp

Background Headspace: 0 ppm

Date: 5/9 - 5/11/12

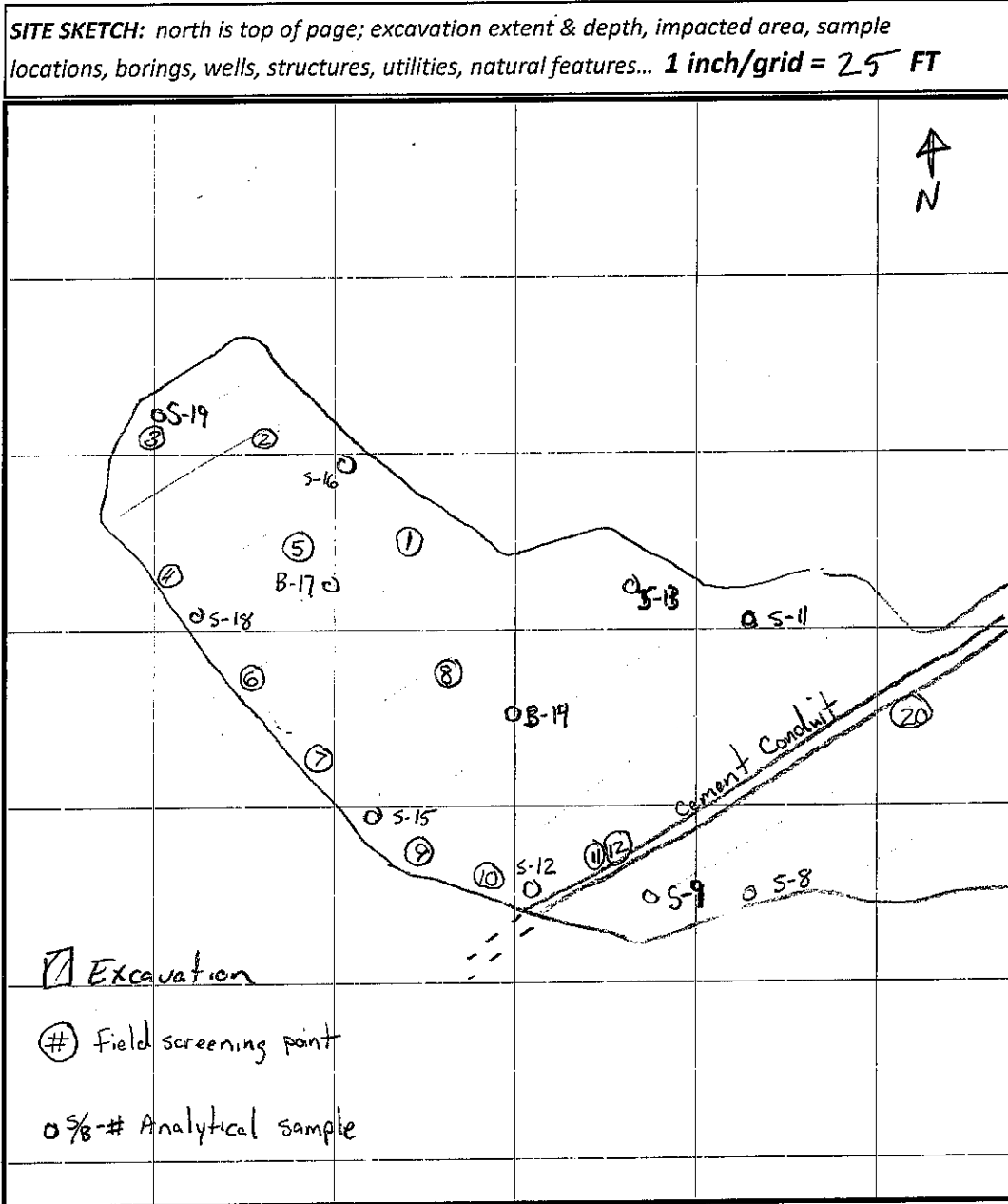
Sampler: REE/CTF/BLJZ

Calibration Time: —

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

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

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

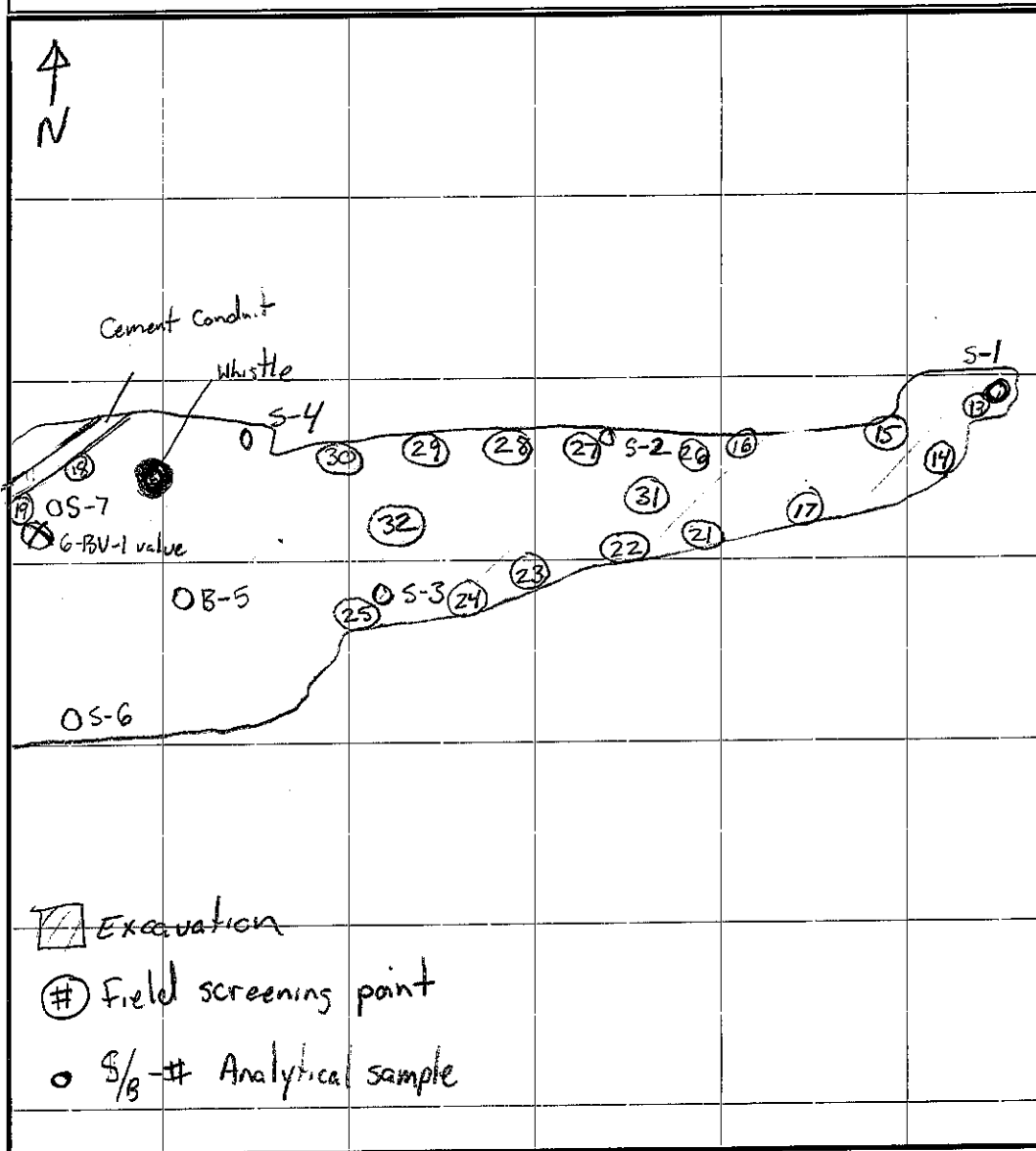


SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOGLocation: Facility or Milepost Enbridge Terminal Line 6 ExcavationEquipment used: PID -ionization detector with 10.6 eV lampBackground Headspace: 0.0 ppmDate: 5/9-5/11/12Sampler: REE/CTE/BIL2Calibration Time: —Sample Nomenclature (Location - sample type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

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

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

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



Additional Analytical results on Page 3

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Facility or Milepost Enbridge Terminal Line 6 Hydrotest Excavation

Date: 5/9-5/11/12

Equipment used: PID -ionization detector with 10.6 eV lamp

Background Headspace: 0.0 ppm

Sampler: RGE/CTE/BJLZ

Calibration Time: —

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

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

Sample ID	Depth (FT)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
<i>Example:</i> R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
B-5	15		Fill/	/N	N/-	3.0
S-6	5			/N	✓	0.3
S-7	6		✓ SP	Dark Brown/Y	Y/-	377

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

See page 2.

SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: Facility or Milepost Enbridge Terminal Line 6 Hydrotest Excavation Clean Stockpiles
 Equipment used: P10 -ionization detector with 10.6 eV lamp

Date: 5/9 + 5/10/12

Sampler: REE

Background Headspace: 0.0 ppm

Calibration Time: _____

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

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

Sample ID	Depth (FT)	Date Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/Rainbow	275
Clean Stockpile #1						
1		5/9	CL/SP	Reddish Brown/N	N/-	0.0
2					N/-	0.0
3					N/-	0.0
4					N/-	0.0
5					N/-	0.0
6					N/-	0.0
7					N/-	0.0
8					N/-	0.0
9					N/-	0.0
10					N/-	0.0
Clean Stockpile #2						
1		5/10	CL/SP		N/-	0.0
2					N/-	0.0
3					N/-	0.0
4					N/-	0.1
5					N/-	0.0
6					N/-	0.2
7					N/-	0.0
8					N/-	0.0
9					N/-	0.0
10					N/-	0.0

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

See Figure 2 for
Stockpile locations

Attachment C

Pace Analytical Laboratory Report for Excavation Soil Samples

May 31, 2012

Andrea Nord
Barr Engineering
4700 West 77th Street
Minneapolis, MN 55435

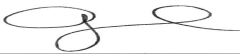
RE: Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Dear Andrea Nord:

Enclosed are the analytical results for sample(s) received by the laboratory on May 15, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Andrea Opland

andrea.opland@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Idaho Certification #: MN00064

Illinois Certification #: 200011

Iowa Certification #: 368

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New Mexico Certification #: Pace

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: D9921

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Washington Certification #: C754

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

Page 2 of 34

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SAMPLE SUMMARY

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10192287001	LINE 6 - S1_2-2'	Solid	05/11/12 12:08	05/15/12 10:17
10192287002	LINE 6 - S2_5-5'	Solid	05/11/12 12:25	05/15/12 10:17
10192287003	LINE 6 - S3_8-8'	Solid	05/11/12 12:47	05/15/12 10:17
10192287004	LINE 6 - S4_2-2'	Solid	05/11/12 13:03	05/15/12 10:17
10192287005	LINE 6 - B5_15-15'	Solid	05/11/12 13:19	05/15/12 10:17
10192287006	LINE 6 - S6_5-5'	Solid	05/11/12 13:33	05/15/12 10:17
10192287007	LINE 6 - S7_6-6'	Solid	05/11/12 13:47	05/15/12 10:17
10192287008	LINE 6 - S8_4-4'	Solid	05/11/12 14:00	05/15/12 10:17
10192287009	LINE 6 - S9_7-7'	Solid	05/11/12 14:16	05/15/12 10:17
10192287010	LINE 6 - S10_12-12'	Solid	05/14/12 12:31	05/15/12 10:17
10192287011	LINE 6 - S11_3-3'	Solid	05/14/12 12:13	05/15/12 10:17
10192287012	LINE 6 - S12_5-5'	Solid	05/14/12 12:00	05/15/12 10:17
10192287013	LINE 6 - S13_12-12'	Solid	05/14/12 11:17	05/15/12 10:17
10192287014	LINE 6 - B14_15-15'	Solid	05/14/12 11:08	05/15/12 10:17
10192287015	LINE 6 - S15_2-2'	Solid	05/14/12 10:56	05/15/12 10:17
10192287016	LINE 6 - S16_4-4'	Solid	05/14/12 11:42	05/15/12 10:17
10192287017	LINE 6 - B17_8-8'	Solid	05/14/12 11:23	05/15/12 10:17
10192287018	LINE 6 - S18_6-6'	Solid	05/14/12 11:34	05/15/12 10:17
10192287019	LINE 6 - S19_7-7'	Solid	05/14/12 11:50	05/15/12 10:17

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10192287001	LINE 6 - S1_2-2'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287002	LINE 6 - S2_5-5'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287003	LINE 6 - S3_8-8'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287004	LINE 6 - S4_2-2'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287005	LINE 6 - B5_15-15'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287006	LINE 6 - S6_5-5'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287007	LINE 6 - S7_6-6'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287008	LINE 6 - S8_4-4'	EPA 8270 by SIM	WJH	18	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287009	LINE 6 - S9_7-7'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287010	LINE 6 - S10_12-12'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287011	LINE 6 - S11_3-3'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287012	LINE 6 - S12_5-5'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M

REPORT OF LABORATORY ANALYSIS

Page 4 of 34

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SAMPLE ANALYTE COUNT

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10192287013	LINE 6 - S13_12-12'	EPA 8270 by SIM	WJH	18	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287014	LINE 6 - B14_15-15'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
10192287015	LINE 6 - S15_2-2'	WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287016	LINE 6 - S16_4-4'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10192287017	LINE 6 - B17_8-8'	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
10192287018	LINE 6 - S18_6-6'	WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
10192287019	LINE 6 - S19_7-7'	ASTM D2974	JDL	1	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Date: May 31, 2012

Case Narrative:

DRO samples Line 6-S9 6-6' and Line 6-S12 5-5' could not be concentrated to the normal final volume of 1 ml and were concentrated to a final volume of 5 ml due to sample matrix.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Method: WI MOD DRO
Description: WIDRO GCS Silica Gel
Client: Barr Engineering
Date: May 31, 2012

General Information:

19 samples were analyzed for WI MOD DRO. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with WI MOD DRO with any exceptions noted below.

QC Batch: OEXT/18615

P3: Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/18615

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - n-Triacontane (S)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - n-Triacontane (S)

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Method: WI MOD DRO

Description: WIDRO GCS Silica Gel

Client: Barr Engineering

Date: May 31, 2012

Analyte Comments:

QC Batch: OEXT/18615

1M: Surrogate recovery outside laboratory control limits due to matrix interferences.

- LINE 6 - S16_4-4' (Lab ID: 10192287016)
 - n-Triacontane (S)

T6: High boiling point hydrocarbons are present in the sample.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - Diesel Range Organics
- LINE 6 - S16_4-4' (Lab ID: 10192287016)
 - Diesel Range Organics
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - Diesel Range Organics
- LINE 6 - S8_4-4' (Lab ID: 10192287008)
 - Diesel Range Organics

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Method: WI MOD GRO
Description: WIGRO GCV
Client: Barr Engineering
Date: May 31, 2012

General Information:

19 samples were analyzed for WI MOD GRO. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with TPH GRO/PVOC WI ext. with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: GCV/9291

S0: Surrogate recovery outside laboratory control limits.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - a,a,a-Trifluorotoluene (S)

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Method: WI MOD GRO

Description: WIGRO GCV

Client: Barr Engineering

Date: May 31, 2012

Analyte Comments:

QC Batch: GCV/9291

1M: Surrogate recovery outside laboratory control limits due to matrix interferences.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - a,a,a-Trifluorotoluene (S)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - a,a,a-Trifluorotoluene (S)

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - a,a,a-Trifluorotoluene (S)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - a,a,a-Trifluorotoluene (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Method: EPA 8270 by SIM
Description: 8270 MSSV PAH by SIM
Client: Barr Engineering
Date: May 31, 2012

General Information:

2 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3550 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/18606

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - 2-Fluorobiphenyl (S)
 - Terphenyl-d14 (S)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - 2-Fluorobiphenyl (S)
 - Terphenyl-d14 (S)

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Method: EPA 8270 by SIM

Description: 8270 MSSV PAH by SIM

Client: Barr Engineering

Date: May 31, 2012

Analyte Comments:

QC Batch: OEXT/18606

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- LINE 6 - S12_5-5' (Lab ID: 10192287012)
 - 2-Fluorobiphenyl (S)
- LINE 6 - S7_6-6' (Lab ID: 10192287007)
 - 2-Fluorobiphenyl (S)

This data package has been reviewed for quality and completeness and is approved for release.

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Sample: LINE 6 - S1_2-2' Lab ID: 10192287001 Collected: 05/11/12 12:08 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	10.6	1.2	1	05/16/12 12:38	05/20/12 17:55		
Surrogates									
n-Triacontane (S)	79	%	30-125		1	05/16/12 12:38	05/20/12 17:55		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.057	0.0069	1	05/16/12 10:17	05/17/12 19:33	71-43-2	
Ethylbenzene	ND	mg/kg	0.057	0.0091	1	05/16/12 10:17	05/17/12 19:33	100-41-4	
Toluene	ND	mg/kg	0.057	0.0069	1	05/16/12 10:17	05/17/12 19:33	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.057	0.0080	1	05/16/12 10:17	05/17/12 19:33	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.057	0.013	1	05/16/12 10:17	05/17/12 19:33	108-67-8	
Xylene (Total)	ND	mg/kg	0.17	0.018	1	05/16/12 10:17	05/17/12 19:33	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	80-125		1	05/16/12 10:17	05/17/12 19:33	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	13.7	%	0.10	0.10	1		05/16/12 00:00		

Sample: LINE 6 - S2_5-5' Lab ID: 10192287002 Collected: 05/11/12 12:25 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	9.4	1.0	1	05/16/12 12:38	05/20/12 17:48		
Surrogates									
n-Triacontane (S)	69	%	30-125		1	05/16/12 12:38	05/20/12 17:48		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.061	0.0073	1	05/16/12 10:17	05/17/12 19:52	71-43-2	
Ethylbenzene	ND	mg/kg	0.061	0.0097	1	05/16/12 10:17	05/17/12 19:52	100-41-4	
Toluene	ND	mg/kg	0.061	0.0073	1	05/16/12 10:17	05/17/12 19:52	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.061	0.0085	1	05/16/12 10:17	05/17/12 19:52	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.061	0.013	1	05/16/12 10:17	05/17/12 19:52	108-67-8	
Xylene (Total)	ND	mg/kg	0.18	0.019	1	05/16/12 10:17	05/17/12 19:52	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	05/16/12 10:17	05/17/12 19:52	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	7.4	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Sample: LINE 6 - S3_8-8' Lab ID: 10192287003 Collected: 05/11/12 12:47 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	13.8	1.5	1	05/16/12 12:38	05/20/12 17:32		
Surrogates									
n-Triacontane (S)	76	%	30-125		1	05/16/12 12:38	05/20/12 17:32		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.066	0.0079	1	05/16/12 10:17	05/17/12 20:12	71-43-2	
Ethylbenzene	ND	mg/kg	0.066	0.011	1	05/16/12 10:17	05/17/12 20:12	100-41-4	
Toluene	ND	mg/kg	0.066	0.0079	1	05/16/12 10:17	05/17/12 20:12	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.066	0.0092	1	05/16/12 10:17	05/17/12 20:12	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.066	0.015	1	05/16/12 10:17	05/17/12 20:12	108-67-8	
Xylene (Total)	ND	mg/kg	0.20	0.021	1	05/16/12 10:17	05/17/12 20:12	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	80-125		1	05/16/12 10:17	05/17/12 20:12	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	22.5	%	0.10	0.10	1		05/16/12 00:00		

Sample: LINE 6 - S4_2-2' Lab ID: 10192287004 Collected: 05/11/12 13:03 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	13.5	1.5	1	05/16/12 12:38	05/20/12 16:46		
Surrogates									
n-Triacontane (S)	71	%	30-125		1	05/16/12 12:38	05/20/12 16:46		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.064	0.0077	1	05/16/12 10:17	05/17/12 20:31	71-43-2	
Ethylbenzene	ND	mg/kg	0.064	0.010	1	05/16/12 10:17	05/17/12 20:31	100-41-4	
Toluene	ND	mg/kg	0.064	0.0077	1	05/16/12 10:17	05/17/12 20:31	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.064	0.0090	1	05/16/12 10:17	05/17/12 20:31	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.064	0.014	1	05/16/12 10:17	05/17/12 20:31	108-67-8	
Xylene (Total)	ND	mg/kg	0.19	0.021	1	05/16/12 10:17	05/17/12 20:31	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/16/12 10:17	05/17/12 20:31	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	21.8	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Sample: LINE 6 - B5_15-15' Lab ID: **10192287005** Collected: 05/11/12 13:19 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	12.8	1.4	1	05/16/12 12:38	05/20/12 16:54		
Surrogates									
n-Triacontane (S)	82	%	30-125		1	05/16/12 12:38	05/20/12 16:54		
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.071	0.0086	1	05/18/12 11:08	05/19/12 19:18	71-43-2	
Ethylbenzene	ND	mg/kg	0.071	0.011	1	05/18/12 11:08	05/19/12 19:18	100-41-4	
Toluene	ND	mg/kg	0.071	0.0086	1	05/18/12 11:08	05/19/12 19:18	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.071	0.010	1	05/18/12 11:08	05/19/12 19:18	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.071	0.016	1	05/18/12 11:08	05/19/12 19:18	108-67-8	
Xylene (Total)	ND	mg/kg	0.21	0.023	1	05/18/12 11:08	05/19/12 19:18	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	05/18/12 11:08	05/19/12 19:18	98-08-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	29.3	%	0.10	0.10	1		05/16/12 00:00		

Sample: LINE 6 - S6_5-5' Lab ID: **10192287006** Collected: 05/11/12 13:33 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	12.7	1.4	1	05/16/12 12:38	05/20/12 17:40		
Surrogates									
n-Triacontane (S)	77	%	30-125		1	05/16/12 12:38	05/20/12 17:40		
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.060	0.0071	1	05/18/12 11:08	05/19/12 19:38	71-43-2	
Ethylbenzene	ND	mg/kg	0.060	0.0095	1	05/18/12 11:08	05/19/12 19:38	100-41-4	
Toluene	ND	mg/kg	0.060	0.0071	1	05/18/12 11:08	05/19/12 19:38	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.060	0.0083	1	05/18/12 11:08	05/19/12 19:38	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.060	0.013	1	05/18/12 11:08	05/19/12 19:38	108-67-8	
Xylene (Total)	ND	mg/kg	0.18	0.019	1	05/18/12 11:08	05/19/12 19:38	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	80-125		1	05/18/12 11:08	05/19/12 19:38	98-08-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	19.4	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Sample Project No.: 10192287

Sample: LINE 6 - S7_6-6' Lab ID: 10192287007 Collected: 05/11/12 13:47 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	7960	mg/kg	583	64.1	10	05/16/12 12:38	05/20/12 19:58		T6
Surrogates									
n-Triacontane (S)	0 %		30-125		10	05/16/12 12:38	05/20/12 19:58		P3,S4
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	0.28	mg/kg	0.28	0.034	5	05/18/12 11:08	05/22/12 02:00	71-43-2	
Ethylbenzene	1.6	mg/kg	0.28	0.045	5	05/18/12 11:08	05/22/12 02:00	100-41-4	
Toluene	0.43	mg/kg	0.28	0.034	5	05/18/12 11:08	05/22/12 02:00	108-88-3	
1,2,4-Trimethylbenzene	10.6	mg/kg	0.28	0.039	5	05/18/12 11:08	05/22/12 02:00	95-63-6	
1,3,5-Trimethylbenzene	5.6	mg/kg	0.28	0.062	5	05/18/12 11:08	05/22/12 02:00	108-67-8	
Xylene (Total)	11.6	mg/kg	0.84	0.090	5	05/18/12 11:08	05/22/12 02:00	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	57 %		80-125		5	05/18/12 11:08	05/22/12 02:00	98-08-8	1M,D3
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	3.4	%	0.10	0.10	1		05/16/12 00:00		
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:30	83-32-9	
Acenaphthylene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:30	208-96-8	
Anthracene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:30	120-12-7	
Benzo(a)anthracene	ND	ug/kg	517	17.7	50	05/16/12 07:26	05/22/12 19:30	56-55-3	
Benzo(a)pyrene	ND	ug/kg	517	15.5	50	05/16/12 07:26	05/22/12 19:30	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	517	79.8	50	05/16/12 07:26	05/22/12 19:30	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	517	17.0	50	05/16/12 07:26	05/22/12 19:30	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	517	60.6	50	05/16/12 07:26	05/22/12 19:30	207-08-9	
Chrysene	ND	ug/kg	517	16.9	50	05/16/12 07:26	05/22/12 19:30	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	517	17.6	50	05/16/12 07:26	05/22/12 19:30	53-70-3	
Fluoranthene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:30	206-44-0	
Fluorene	794	ug/kg	517	19.3	50	05/16/12 07:26	05/22/12 19:30	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	517	14.8	50	05/16/12 07:26	05/22/12 19:30	193-39-5	
Naphthalene	2180	ug/kg	517	9.6	50	05/16/12 07:26	05/22/12 19:30	91-20-3	
Phenanthrene	1580	ug/kg	517	14.8	50	05/16/12 07:26	05/22/12 19:30	85-01-8	
Pyrene	571	ug/kg	517	19.5	50	05/16/12 07:26	05/22/12 19:30	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	0 %		30-125		50	05/16/12 07:26	05/22/12 19:30	321-60-8	D3,S4
Terphenyl-d14 (S)	0 %		30-146		50	05/16/12 07:26	05/22/12 19:30	1718-51-0	S4

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Sample: **LINE 6 - S8_4-4'** Lab ID: **10192287008** Collected: 05/11/12 14:00 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	46.5	mg/kg	11.4	1.3	1	05/16/12 12:38	05/20/12 18:26		T6
Surrogates									
n-Triacontane (S)	72	%	30-125		1	05/16/12 12:38	05/20/12 18:26		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.055	0.0066	1	05/18/12 11:08	05/22/12 01:21	71-43-2	
Ethylbenzene	ND	mg/kg	0.055	0.0089	1	05/18/12 11:08	05/22/12 01:21	100-41-4	
Toluene	ND	mg/kg	0.055	0.0066	1	05/18/12 11:08	05/22/12 01:21	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.055	0.0077	1	05/18/12 11:08	05/22/12 01:21	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.055	0.012	1	05/18/12 11:08	05/22/12 01:21	108-67-8	
Xylene (Total)	ND	mg/kg	0.17	0.018	1	05/18/12 11:08	05/22/12 01:21	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	80-125		1	05/18/12 11:08	05/22/12 01:21	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	6.0	%	0.10	0.10	1		05/16/12 00:00		

Sample: **LINE 6 - S9_7-7'** Lab ID: **10192287009** Collected: 05/11/12 14:16 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	12.1	1.3	1	05/16/12 12:38	05/20/12 18:34		
Surrogates									
n-Triacontane (S)	84	%	30-125		1	05/16/12 12:38	05/20/12 18:34		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.060	0.0072	1	05/18/12 11:08	05/22/12 01:41	71-43-2	
Ethylbenzene	ND	mg/kg	0.060	0.0096	1	05/18/12 11:08	05/22/12 01:41	100-41-4	
Toluene	ND	mg/kg	0.060	0.0072	1	05/18/12 11:08	05/22/12 01:41	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.060	0.0084	1	05/18/12 11:08	05/22/12 01:41	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.060	0.013	1	05/18/12 11:08	05/22/12 01:41	108-67-8	
Xylene (Total)	ND	mg/kg	0.18	0.019	1	05/18/12 11:08	05/22/12 01:41	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/18/12 11:08	05/22/12 01:41	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	20.8	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6
Pace Project No.: 10192287

Sample: **LINE 6 - S10_12-12'** Lab ID: **10192287010** Collected: 05/14/12 12:31 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	10.5	1.2	1	05/16/12 12:38	05/20/12 18:11		
Surrogates									
n-Triacontane (S)	80	%	30-125		1	05/16/12 12:38	05/20/12 18:11		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.074	0.0089	1	05/18/12 11:08	05/19/12 21:35	71-43-2	
Ethylbenzene	ND	mg/kg	0.074	0.012	1	05/18/12 11:08	05/19/12 21:35	100-41-4	
Toluene	ND	mg/kg	0.074	0.0089	1	05/18/12 11:08	05/19/12 21:35	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.074	0.010	1	05/18/12 11:08	05/19/12 21:35	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.074	0.016	1	05/18/12 11:08	05/19/12 21:35	108-67-8	
Xylene (Total)	ND	mg/kg	0.22	0.024	1	05/18/12 11:08	05/19/12 21:35	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/18/12 11:08	05/19/12 21:35	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	20.3	%	0.10	0.10	1		05/16/12 00:00		

Sample: **LINE 6 - S11_3-3'** Lab ID: **10192287011** Collected: 05/14/12 12:13 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	14.2	1.6	1	05/16/12 12:38	05/20/12 17:25		
Surrogates									
n-Triacontane (S)	86	%	30-125		1	05/16/12 12:38	05/20/12 17:25		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	0.18	mg/kg	0.063	0.0076	1	05/18/12 11:08	05/19/12 21:55	71-43-2	
Ethylbenzene	ND	mg/kg	0.063	0.010	1	05/18/12 11:08	05/19/12 21:55	100-41-4	
Toluene	ND	mg/kg	0.063	0.0076	1	05/18/12 11:08	05/19/12 21:55	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.063	0.0089	1	05/18/12 11:08	05/19/12 21:55	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.063	0.014	1	05/18/12 11:08	05/19/12 21:55	108-67-8	
Xylene (Total)	ND	mg/kg	0.19	0.020	1	05/18/12 11:08	05/19/12 21:55	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/18/12 11:08	05/19/12 21:55	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	22.8	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Project No.: 10192287

Sample: LINE 6 - S12_5-5' **Lab ID:** 10192287012 **Collected:** 05/14/12 12:00 **Received:** 05/15/12 10:17 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	5500	mg/kg	277	30.5	5	05/16/12 12:38	05/20/12 19:04		T6
Surrogates									
n-Triacontane (S)	0 %		30-125		5	05/16/12 12:38	05/20/12 19:04		P3,S4
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	1.1	0.13	20	05/18/12 11:08	05/25/12 03:13	71-43-2	
Ethylbenzene	1.3	mg/kg	1.1	0.17	20	05/18/12 11:08	05/25/12 03:13	100-41-4	
Toluene	1.8	mg/kg	1.1	0.13	20	05/18/12 11:08	05/25/12 03:13	108-88-3	
1,2,4-Trimethylbenzene	18.2	mg/kg	1.1	0.15	20	05/18/12 11:08	05/25/12 03:13	95-63-6	
1,3,5-Trimethylbenzene	11.4	mg/kg	1.1	0.24	20	05/18/12 11:08	05/25/12 03:13	108-67-8	
Xylene (Total)	32.6	mg/kg	3.2	0.34	20	05/18/12 11:08	05/25/12 03:13	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	74 %		80-125		20	05/18/12 11:08	05/25/12 03:13	98-08-8	1M,D3, S0
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	3.6 %		0.10	0.10	1		05/16/12 00:00		
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:50	83-32-9	
Acenaphthylene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:50	208-96-8	
Anthracene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:50	120-12-7	
Benzo(a)anthracene	ND	ug/kg	517	17.7	50	05/16/12 07:26	05/22/12 19:50	56-55-3	
Benzo(a)pyrene	ND	ug/kg	517	15.5	50	05/16/12 07:26	05/22/12 19:50	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	517	79.7	50	05/16/12 07:26	05/22/12 19:50	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	517	17.0	50	05/16/12 07:26	05/22/12 19:50	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	517	60.5	50	05/16/12 07:26	05/22/12 19:50	207-08-9	
Chrysene	ND	ug/kg	517	16.9	50	05/16/12 07:26	05/22/12 19:50	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	517	17.6	50	05/16/12 07:26	05/22/12 19:50	53-70-3	
Fluoranthene	ND	ug/kg	517	259	50	05/16/12 07:26	05/22/12 19:50	206-44-0	
Fluorene	ND	ug/kg	517	19.3	50	05/16/12 07:26	05/22/12 19:50	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	517	14.8	50	05/16/12 07:26	05/22/12 19:50	193-39-5	
Naphthalene	ND	ug/kg	517	9.6	50	05/16/12 07:26	05/22/12 19:50	91-20-3	
Phenanthrene	752	ug/kg	517	14.8	50	05/16/12 07:26	05/22/12 19:50	85-01-8	
Pyrene	ND	ug/kg	517	19.4	50	05/16/12 07:26	05/22/12 19:50	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	0 %		30-125		50	05/16/12 07:26	05/22/12 19:50	321-60-8	D3,S4
Terphenyl-d14 (S)	0 %		30-146		50	05/16/12 07:26	05/22/12 19:50	1718-51-0	S4

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Sample Project No.: 10192287

Sample: LINE 6 - S13_12-12' Lab ID: 10192287013 Collected: 05/14/12 11:17 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	13.3	1.5	1	05/16/12 12:38	05/20/12 17:09		
Surrogates									
n-Triacontane (S)	78	%	30-125		1	05/16/12 12:38	05/20/12 17:09		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.076	0.0091	1	05/18/12 11:08	05/19/12 22:14	71-43-2	
Ethylbenzene	ND	mg/kg	0.076	0.012	1	05/18/12 11:08	05/19/12 22:14	100-41-4	
Toluene	ND	mg/kg	0.076	0.0091	1	05/18/12 11:08	05/19/12 22:14	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.076	0.011	1	05/18/12 11:08	05/19/12 22:14	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.076	0.017	1	05/18/12 11:08	05/19/12 22:14	108-67-8	
Xylene (Total)	ND	mg/kg	0.23	0.024	1	05/18/12 11:08	05/19/12 22:14	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-125		1	05/18/12 11:08	05/19/12 22:14	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	26.8	%	0.10	0.10	1		05/16/12 00:00		

Sample: LINE 6 - B14_15-15' Lab ID: 10192287014 Collected: 05/14/12 11:08 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	12.8	1.4	1	05/16/12 12:38	05/20/12 18:03		
Surrogates									
n-Triacontane (S)	75	%	30-125		1	05/16/12 12:38	05/20/12 18:03		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.060	0.0071	1	05/18/12 11:08	05/19/12 22:34	71-43-2	
Ethylbenzene	ND	mg/kg	0.060	0.0095	1	05/18/12 11:08	05/19/12 22:34	100-41-4	
Toluene	ND	mg/kg	0.060	0.0071	1	05/18/12 11:08	05/19/12 22:34	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.060	0.0083	1	05/18/12 11:08	05/19/12 22:34	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.060	0.013	1	05/18/12 11:08	05/19/12 22:34	108-67-8	
Xylene (Total)	ND	mg/kg	0.18	0.019	1	05/18/12 11:08	05/19/12 22:34	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	05/18/12 11:08	05/19/12 22:34	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	18.4	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Sample Project No.: 10192287

Sample: LINE 6 - S15_2-2' Lab ID: 10192287015 Collected: 05/14/12 10:56 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	13.4	1.5	1	05/16/12 12:38	05/20/12 17:01		
Surrogates									
n-Triacontane (S)	82	%	30-125		1	05/16/12 12:38	05/20/12 17:01		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.067	0.0080	1	05/18/12 11:08	05/19/12 22:54	71-43-2	
Ethylbenzene	ND	mg/kg	0.067	0.011	1	05/18/12 11:08	05/19/12 22:54	100-41-4	
Toluene	ND	mg/kg	0.067	0.0080	1	05/18/12 11:08	05/19/12 22:54	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.067	0.0093	1	05/18/12 11:08	05/19/12 22:54	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.067	0.015	1	05/18/12 11:08	05/19/12 22:54	108-67-8	
Xylene (Total)	ND	mg/kg	0.20	0.021	1	05/18/12 11:08	05/19/12 22:54	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-125		1	05/18/12 11:08	05/19/12 22:54	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	23.5	%	0.10	0.10	1		05/16/12 00:00		

Sample: LINE 6 - S16_4-4' Lab ID: 10192287016 Collected: 05/14/12 11:42 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	40.9	mg/kg	10.3	1.1	1	05/16/12 12:38	05/20/12 18:41		T6
Surrogates									
n-Triacontane (S)	148	%	30-125		1	05/16/12 12:38	05/20/12 18:41		1M
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.055	0.0066	1	05/18/12 11:08	05/19/12 23:13	71-43-2	
Ethylbenzene	ND	mg/kg	0.055	0.0089	1	05/18/12 11:08	05/19/12 23:13	100-41-4	
Toluene	ND	mg/kg	0.055	0.0066	1	05/18/12 11:08	05/19/12 23:13	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.055	0.0078	1	05/18/12 11:08	05/19/12 23:13	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.055	0.012	1	05/18/12 11:08	05/19/12 23:13	108-67-8	
Xylene (Total)	ND	mg/kg	0.17	0.018	1	05/18/12 11:08	05/19/12 23:13	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/18/12 11:08	05/19/12 23:13	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	12.5	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Project No.: 10192287

Sample: **LINE 6 - B17_8-8'** Lab ID: **10192287017** Collected: 05/14/12 11:23 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	9.7	1.1	1	05/16/12 12:38	05/20/12 17:17		
Surrogates									
n-Triacontane (S)	74	%	30-125		1	05/16/12 12:38	05/20/12 17:17		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.062	0.0074	1	05/18/12 11:08	05/19/12 23:33	71-43-2	
Ethylbenzene	ND	mg/kg	0.062	0.0099	1	05/18/12 11:08	05/19/12 23:33	100-41-4	
Toluene	ND	mg/kg	0.062	0.0074	1	05/18/12 11:08	05/19/12 23:33	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.062	0.0087	1	05/18/12 11:08	05/19/12 23:33	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.062	0.014	1	05/18/12 11:08	05/19/12 23:33	108-67-8	
Xylene (Total)	ND	mg/kg	0.19	0.020	1	05/18/12 11:08	05/19/12 23:33	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	80-125		1	05/18/12 11:08	05/19/12 23:33	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	18.0	%	0.10	0.10	1		05/16/12 00:00		

Sample: **LINE 6 - S18_6-6'** Lab ID: **10192287018** Collected: 05/14/12 11:34 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	11.8	1.3	1	05/16/12 12:38	05/20/12 18:18		
Surrogates									
n-Triacontane (S)	77	%	30-125		1	05/16/12 12:38	05/20/12 18:18		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.060	0.0072	1	05/18/12 11:08	05/19/12 23:52	71-43-2	
Ethylbenzene	ND	mg/kg	0.060	0.0097	1	05/18/12 11:08	05/19/12 23:52	100-41-4	
Toluene	ND	mg/kg	0.060	0.0072	1	05/18/12 11:08	05/19/12 23:52	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.060	0.0085	1	05/18/12 11:08	05/19/12 23:52	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.060	0.013	1	05/18/12 11:08	05/19/12 23:52	108-67-8	
Xylene (Total)	ND	mg/kg	0.18	0.019	1	05/18/12 11:08	05/19/12 23:52	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	05/18/12 11:08	05/19/12 23:52	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	15.1	%	0.10	0.10	1		05/16/12 00:00		

ANALYTICAL RESULTS

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Sample: LINE 6 - S19_7-7' Lab ID: 10192287019 Collected: 05/14/12 11:50 Received: 05/15/12 10:17 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	11.3	1.2	1	05/16/12 12:38	05/20/12 18:49		
Surrogates									
n-Triacontane (S)	84	%	30-125		1	05/16/12 12:38	05/20/12 18:49		
WIGRO GCV									
Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	ND	mg/kg	0.062	0.0075	1	05/18/12 11:08	05/20/12 00:12	71-43-2	
Ethylbenzene	ND	mg/kg	0.062	0.010	1	05/18/12 11:08	05/20/12 00:12	100-41-4	
Toluene	ND	mg/kg	0.062	0.0075	1	05/18/12 11:08	05/20/12 00:12	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.062	0.0087	1	05/18/12 11:08	05/20/12 00:12	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.062	0.014	1	05/18/12 11:08	05/20/12 00:12	108-67-8	
Xylene (Total)	ND	mg/kg	0.19	0.020	1	05/18/12 11:08	05/20/12 00:12	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-125		1	05/18/12 11:08	05/20/12 00:12	98-08-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	16.5	%	0.10	0.10	1		05/16/12 00:00		

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Project No.: 10192287

QC Batch: GCV/9283 Analysis Method: WI MOD GRO
 QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
 Associated Lab Samples: 10192287001, 10192287002, 10192287003, 10192287004

METHOD BLANK: 1197985 Matrix: Solid
 Associated Lab Samples: 10192287001, 10192287002, 10192287003, 10192287004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	0.050	05/17/12 11:58	
1,3,5-Trimethylbenzene	mg/kg	ND	0.050	05/17/12 11:58	
Benzene	mg/kg	ND	0.050	05/17/12 11:58	
Ethylbenzene	mg/kg	ND	0.050	05/17/12 11:58	
Toluene	mg/kg	ND	0.050	05/17/12 11:58	
Xylene (Total)	mg/kg	ND	0.15	05/17/12 11:58	
a,a,a-Trifluorotoluene (S)	%	100	80-125	05/17/12 11:58	

LABORATORY CONTROL SAMPLE & LCSD: 1197986 1197987

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	5	5.3	4.8	107	96	80-120	10	20	
1,3,5-Trimethylbenzene	mg/kg	5	5.4	4.9	108	98	80-120	9	20	
Benzene	mg/kg	5	5.3	5.0	105	100	80-120	5	20	
Ethylbenzene	mg/kg	5	5.5	5.1	110	102	80-120	8	20	
Toluene	mg/kg	5	5.3	5.0	107	100	80-120	6	20	
Xylene (Total)	mg/kg	15	16.8	15.3	112	102	80-120	9	20	
a,a,a-Trifluorotoluene (S)	%				95	99	80-125			

MATRIX SPIKE SAMPLE: 1197988

Parameter	Units	10191924001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	5.1	5.2	103	80-120	
1,3,5-Trimethylbenzene	mg/kg	ND	5.1	5.4	106	80-120	
Benzene	mg/kg	ND	5.1	5.2	103	80-120	
Ethylbenzene	mg/kg	ND	5.1	5.5	108	80-120	
Toluene	mg/kg	ND	5.1	5.3	105	80-120	
Xylene (Total)	mg/kg	ND	15.3	16.5	109	80-120	
a,a,a-Trifluorotoluene (S)	%				99	80-125	

SAMPLE DUPLICATE: 1197989

Parameter	Units	10191924002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	ND		20	
1,3,5-Trimethylbenzene	mg/kg	ND	ND		20	
Benzene	mg/kg	ND	ND		20	
Ethylbenzene	mg/kg	ND	ND		20	
Toluene	mg/kg	ND	ND		20	

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

SAMPLE DUPLICATE: 1197989

Parameter	Units	10191924002 Result	Dup Result	RPD	Max RPD	Qualifiers
Xylene (Total)	mg/kg	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%	101	98	4		

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

QC Batch: GCV/9291 Analysis Method: WI MOD GRO
 QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
 Associated Lab Samples: 10192287005, 10192287006, 10192287007, 10192287008, 10192287009, 10192287010, 10192287011, 10192287012, 10192287013, 10192287014, 10192287015, 10192287016, 10192287017, 10192287018, 10192287019

METHOD BLANK: 1199908 Matrix: Solid

Associated Lab Samples: 10192287005, 10192287006, 10192287007, 10192287008, 10192287009, 10192287010, 10192287011, 10192287012, 10192287013, 10192287014, 10192287015, 10192287016, 10192287017, 10192287018, 10192287019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	0.050	05/19/12 17:20	
1,3,5-Trimethylbenzene	mg/kg	ND	0.050	05/19/12 17:20	
Benzene	mg/kg	ND	0.050	05/19/12 17:20	
Ethylbenzene	mg/kg	ND	0.050	05/19/12 17:20	
Toluene	mg/kg	ND	0.050	05/19/12 17:20	
Xylene (Total)	mg/kg	ND	0.15	05/19/12 17:20	
a,a,a-Trifluorotoluene (S)	%	100	80-125	05/19/12 17:20	

LABORATORY CONTROL SAMPLE & LCSD: 1199909 1199910

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	5	5.5	5.3	109	106	80-120	3	20	
1,3,5-Trimethylbenzene	mg/kg	5	5.6	5.4	111	108	80-120	4	20	
Benzene	mg/kg	5	5.1	4.8	102	97	80-120	5	20	
Ethylbenzene	mg/kg	5	5.4	5.2	108	103	80-120	5	20	
Toluene	mg/kg	5	5.2	4.9	104	99	80-120	5	20	
Xylene (Total)	mg/kg	15	16.5	15.8	110	106	80-120	4	20	
a,a,a-Trifluorotoluene (S)	%				97	98	80-125			

MATRIX SPIKE SAMPLE: 1199911

Parameter	Units	10192404001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	5.1	5.3	103	80-120	
1,3,5-Trimethylbenzene	mg/kg	ND	5.1	5.3	104	80-120	
Benzene	mg/kg	ND	5.1	4.7	92	80-120	
Ethylbenzene	mg/kg	ND	5.1	5.1	99	80-120	
Toluene	mg/kg	ND	5.1	4.8	94	80-120	
Xylene (Total)	mg/kg	ND	15.4	15.7	102	80-120	
a,a,a-Trifluorotoluene (S)	%				97	80-125	

SAMPLE DUPLICATE: 1199912

Parameter	Units	10192404002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	ND		20	
1,3,5-Trimethylbenzene	mg/kg	ND	ND		20	

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

SAMPLE DUPLICATE: 1199912

Parameter	Units	10192404002 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	mg/kg	ND	ND		20	
Ethylbenzene	mg/kg	ND	ND		20	
Toluene	mg/kg	ND	ND		20	
Xylene (Total)	mg/kg	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%	99	100	3		

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

QC Batch: MPRP/32471 Analysis Method: ASTM D2974
 QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
 Associated Lab Samples: 10192287001, 10192287002, 10192287003, 10192287004, 10192287005, 10192287006, 10192287007,
 10192287008, 10192287009, 10192287010, 10192287011, 10192287012, 10192287013, 10192287014,
 10192287015, 10192287016, 10192287017, 10192287018, 10192287019

SAMPLE DUPLICATE: 1198262

Parameter	Units	10192287001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	13.7	17.5	25	30	

SAMPLE DUPLICATE: 1198263

Parameter	Units	10192287019 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.5	19.0	14	30	

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

QC Batch: OEXT/18606 Analysis Method: EPA 8270 by SIM
 QC Batch Method: EPA 3550 Analysis Description: 8270 Solid PAH by SIM MSSV
 Associated Lab Samples: 10192287007, 10192287012

METHOD BLANK: 1197856 Matrix: Solid

Associated Lab Samples: 10192287007, 10192287012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/kg	ND	10.0	05/21/12 10:13	
Acenaphthylene	ug/kg	ND	10.0	05/21/12 10:13	
Anthracene	ug/kg	ND	10.0	05/21/12 10:13	
Benzo(a)anthracene	ug/kg	ND	10.0	05/21/12 10:13	
Benzo(a)pyrene	ug/kg	ND	10.0	05/21/12 10:13	
Benzo(b)fluoranthene	ug/kg	ND	10.0	05/21/12 10:13	
Benzo(g,h,i)perylene	ug/kg	ND	10.0	05/21/12 10:13	
Benzo(k)fluoranthene	ug/kg	ND	10.0	05/21/12 10:13	
Chrysene	ug/kg	ND	10.0	05/21/12 10:13	
Dibenz(a,h)anthracene	ug/kg	ND	10.0	05/21/12 10:13	
Fluoranthene	ug/kg	ND	10.0	05/21/12 10:13	
Fluorene	ug/kg	ND	10.0	05/21/12 10:13	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	10.0	05/21/12 10:13	
Naphthalene	ug/kg	ND	10.0	05/21/12 10:13	
Phenanthrene	ug/kg	ND	10.0	05/21/12 10:13	
Pyrene	ug/kg	ND	10.0	05/21/12 10:13	
2-Fluorobiphenyl (S)	%	62	30-125	05/21/12 10:13	
Terphenyl-d14 (S)	%	67	30-146	05/21/12 10:13	

LABORATORY CONTROL SAMPLE: 1197857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/kg	33.3	20.3	61	48-125	
Acenaphthylene	ug/kg	33.3	19.6	59	47-125	
Anthracene	ug/kg	33.3	23.5	70	55-125	
Benzo(a)anthracene	ug/kg	33.3	23.6	71	57-125	
Benzo(a)pyrene	ug/kg	33.3	21.8	66	63-125	
Benzo(b)fluoranthene	ug/kg	33.3	27.5	83	52-125	
Benzo(g,h,i)perylene	ug/kg	33.3	24.4	73	59-125	
Benzo(k)fluoranthene	ug/kg	33.3	23.6	71	60-125	
Chrysene	ug/kg	33.3	22.2	67	62-125	
Dibenz(a,h)anthracene	ug/kg	33.3	25.8	77	60-125	
Fluoranthene	ug/kg	33.3	24.7	74	63-125	
Fluorene	ug/kg	33.3	22.8	68	54-125	
Indeno(1,2,3-cd)pyrene	ug/kg	33.3	25.4	76	57-125	
Naphthalene	ug/kg	33.3	17.9	54	46-125	
Phenanthrene	ug/kg	33.3	23.2	70	53-125	
Pyrene	ug/kg	33.3	24.9	75	63-125	
2-Fluorobiphenyl (S)	%			55	30-125	
Terphenyl-d14 (S)	%			65	30-146	

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1197858												1197859											
Parameter	Units	10192106003		MS	MSD	MS		MSD		% Rec		Max		Qual									
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD											
Acenaphthene	ug/kg	ND	154	154	154	102	118	66	77	30-150	15	30											
Acenaphthylene	ug/kg	ND	154	154	154	99.1	113	64	73	30-127	13	30											
Anthracene	ug/kg	ND	154	154	154	105	125	68	81	30-150	17	30											
Benzo(a)anthracene	ug/kg	ND	154	154	154	109	127	70	82	30-128	15	30											
Benzo(a)pyrene	ug/kg	ND	154	154	154	120	137	78	89	30-130	13	30											
Benzo(b)fluoranthene	ug/kg	ND	154	154	154	120	145	77	94	30-131	19	30											
Benzo(g,h,i)perylene	ug/kg	ND	154	154	154	95.1	103	62	66	30-149	7	30											
Benzo(k)fluoranthene	ug/kg	ND	154	154	154	111	119	72	77	30-149	7	30											
Chrysene	ug/kg	ND	154	154	154	104	112	67	72	30-150	8	30											
Dibenz(a,h)anthracene	ug/kg	ND	154	154	154	110	123	71	80	30-150	11	30											
Fluoranthene	ug/kg	ND	154	154	154	113	131	73	85	30-150	14	30											
Fluorene	ug/kg	ND	154	154	154	108	122	70	79	40-125	12	30											
Indeno(1,2,3-cd)pyrene	ug/kg	ND	154	154	154	106	122	69	79	30-150	13	30											
Naphthalene	ug/kg	ND	154	154	154	94.9	101	61	65	32-125	6	30											
Phenanthrene	ug/kg	ND	154	154	154	108	125	70	81	30-134	14	30											
Pyrene	ug/kg	ND	154	154	154	112	127	72	82	30-150	12	30											
2-Fluorobiphenyl (S)	%							55	64	30-125													
Terphenyl-d14 (S)	%							63	73	30-146													

QUALITY CONTROL DATA

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

QC Batch: OEXT/18615 Analysis Method: WI MOD DRO
 QC Batch Method: WI MOD DRO Analysis Description: WIDRO Solid GCV
 Associated Lab Samples: 10192287001, 10192287002, 10192287003, 10192287004, 10192287005, 10192287006, 10192287007,
 10192287008, 10192287009, 10192287010, 10192287011, 10192287012, 10192287013, 10192287014,
 10192287015, 10192287016, 10192287017, 10192287018, 10192287019

METHOD BLANK: 1198142 Matrix: Solid

Associated Lab Samples: 10192287001, 10192287002, 10192287003, 10192287004, 10192287005, 10192287006, 10192287007,
 10192287008, 10192287009, 10192287010, 10192287011, 10192287012, 10192287013, 10192287014,
 10192287015, 10192287016, 10192287017, 10192287018, 10192287019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	05/20/12 16:30	
n-Triacontane (S)	%	78	30-125	05/20/12 16:30	

LABORATORY CONTROL SAMPLE & LCSD: 1198143 1198144

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	58.4	63.9	73	80	61-125	9	20	
n-Triacontane (S)	%				74	82	30-125			

QUALIFIERS

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

1M Surrogate recovery outside laboratory control limits due to matrix interferences.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

P3 Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.

S0 Surrogate recovery outside laboratory control limits.

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

T6 High boiling point hydrocarbons are present in the sample.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10192287001	LINE 6 - S1_2-2'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287002	LINE 6 - S2_5-5'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287003	LINE 6 - S3_8-8'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287004	LINE 6 - S4_2-2'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287005	LINE 6 - B5_15-15'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287006	LINE 6 - S6_5-5'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287007	LINE 6 - S7_6-6'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287008	LINE 6 - S8_4-4'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287009	LINE 6 - S9_7-7'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287010	LINE 6 - S10_12-12'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287011	LINE 6 - S11_3-3'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287012	LINE 6 - S12_5-5'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287013	LINE 6 - S13_12-12'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287014	LINE 6 - B14_15-15'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287015	LINE 6 - S15_2-2'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287016	LINE 6 - S16_4-4'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287017	LINE 6 - B17_8-8'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287018	LINE 6 - S18_6-6'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287019	LINE 6 - S19_7-7'	WI MOD DRO	OEXT/18615	WI MOD DRO	GCSV/9563
10192287001	LINE 6 - S1_2-2'	TPH GRO/PVOC WI ext.	GCV/9283	WI MOD GRO	GCV/9284
10192287002	LINE 6 - S2_5-5'	TPH GRO/PVOC WI ext.	GCV/9283	WI MOD GRO	GCV/9284
10192287003	LINE 6 - S3_8-8'	TPH GRO/PVOC WI ext.	GCV/9283	WI MOD GRO	GCV/9284
10192287004	LINE 6 - S4_2-2'	TPH GRO/PVOC WI ext.	GCV/9283	WI MOD GRO	GCV/9284
10192287005	LINE 6 - B5_15-15'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287006	LINE 6 - S6_5-5'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287007	LINE 6 - S7_6-6'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287008	LINE 6 - S8_4-4'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287009	LINE 6 - S9_7-7'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287010	LINE 6 - S10_12-12'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287011	LINE 6 - S11_3-3'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287012	LINE 6 - S12_5-5'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287013	LINE 6 - S13_12-12'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287014	LINE 6 - B14_15-15'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287015	LINE 6 - S15_2-2'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287016	LINE 6 - S16_4-4'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287017	LINE 6 - B17_8-8'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287018	LINE 6 - S18_6-6'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287019	LINE 6 - S19_7-7'	TPH GRO/PVOC WI ext.	GCV/9291	WI MOD GRO	GCV/9292
10192287001	LINE 6 - S1_2-2'	ASTM D2974	MPRP/32471		
10192287002	LINE 6 - S2_5-5'	ASTM D2974	MPRP/32471		
10192287003	LINE 6 - S3_8-8'	ASTM D2974	MPRP/32471		
10192287004	LINE 6 - S4_2-2'	ASTM D2974	MPRP/32471		
10192287005	LINE 6 - B5_15-15'	ASTM D2974	MPRP/32471		
10192287006	LINE 6 - S6_5-5'	ASTM D2974	MPRP/32471		
10192287007	LINE 6 - S7_6-6'	ASTM D2974	MPRP/32471		
10192287008	LINE 6 - S8_4-4'	ASTM D2974	MPRP/32471		
10192287009	LINE 6 - S9_7-7'	ASTM D2974	MPRP/32471		

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161092.01 RESP 007 LINE 6

Pace Project No.: 10192287

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10192287010	LINE 6 - S10_12-12'	ASTM D2974	MPRP/32471		
10192287011	LINE 6 - S11_3-3'	ASTM D2974	MPRP/32471		
10192287012	LINE 6 - S12_5-5'	ASTM D2974	MPRP/32471		
10192287013	LINE 6 - S13_12-12'	ASTM D2974	MPRP/32471		
10192287014	LINE 6 - B14_15-15'	ASTM D2974	MPRP/32471		
10192287015	LINE 6 - S15_2-2'	ASTM D2974	MPRP/32471		
10192287016	LINE 6 - S16_4-4'	ASTM D2974	MPRP/32471		
10192287017	LINE 6 - B17_8-8'	ASTM D2974	MPRP/32471		
10192287018	LINE 6 - S18_6-6'	ASTM D2974	MPRP/32471		
10192287019	LINE 6 - S19_7-7'	ASTM D2974	MPRP/32471		
10192287007	LINE 6 - S7_6-6'	EPA 3550	OEXT/18606	EPA 8270 by SIM	MSSV/8094
10192287012	LINE 6 - S12_5-5'	EPA 3550	OEXT/18606	EPA 8270 by SIM	MSSV/8094



Chain of Custody

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

Enbridge 1130

10192287

Project Number: 49161072.01 RESP 007

Project Name: Line 6 Dig

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

COC Number: **No 35272**

Number of Containers/Preservative		Water										Soil										Total Number of Containers	
Water	Soil	VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H ₂ SO ₄) #4	VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	PAHs	Other	Total						
																	3						
																	3						
																	3						
																	3						
																	3						
																	3						
																	3						
																	3						
																	3						
																	3						

COC 1 of 2

Project Manager: REE

Project QC Contact: AAN

Sampled by: BJZ

Laboratory: Pace

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type		
						Water	Soil	Grab	Comp.	QC
1. Line 6-S1	2	2	ft	5/11/12	1208	+	+			
2. Line 6-S2	5	5	ft	5/11/12	1225	+	+			
3. Line 6-S3	8	8	ft	5/11/12	1247	+	+			
4. Line 6-S4	2	2	ft	5/11/12	1303	+	+			
5. Line 6-B5	15	15	ft	5/11/12	1319	+	+			
6. Line 6-S6	5	5	ft	5/11/12	1333	+	+			
7. Line 6-S7	6	6	ft	5/11/12	1347	+	+			
8. Line 6-S8	4	4	ft	5/11/12	1400	+	+			
9. Line 6-S9	7	7	ft	5/11/12	1416	+	+			
10. Line 6-S10	12	12	ft	5/14/12	1231	+	+			

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: <u>[Signature]</u>	On Ice? <input checked="" type="radio"/> N	Date: 5/14/12	Time: 1500	Received by: <u>[Signature]</u>	Date: 5/14/12	Time: 1500
Relinquished By: <u>[Signature]</u>	On Ice? <input checked="" type="radio"/> N	Date: 5/14/12	Time: 1530	Received by: <u>[Signature]</u> PACE	Date: 5/15/12	Time: 1017

Samples Shipped VIA: Air Freight Federal Express Sampler Other: _____

Air Bill Number: _____

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

T=19

10192287

Chain of Custody

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

Enbridge



Number of Containers/Preservative		Water	Soil	Total Number of Containers										
Water	Soil													
VOCs (HCl) #1	VOCs (unpreserved) #2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H ₂ SO ₄) #4	VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCS (unpreserved) #2	% Solids (plastic vial, unpres.)	PDOC, MMS, MTBE (MeOH)	PAH

COC 2 of 2

Project Manager: REF

Project QC Contact: AAN

Sampled by: BJZ

Laboratory: Pace

Project Number: 49161092.01 RESP 007

Project Name: Line 6 Dig

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

COC Number: No 35271

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type			VOCs (HCl) #1	SVOCS (unpreserved) #2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H ₂ SO ₄) #4	VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCS (unpreserved) #2	% Solids (plastic vial, unpres.)	PDOC, MMS, MTBE (MeOH)	PAH	Total Number of Containers	
						Water	Soil	Grab	Comp.	QC																	
1. <u>Line 6-S11</u>	<u>3</u>	<u>3</u>	<u>ft</u>	<u>5/14/12</u>	<u>1213</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
2. <u>Line 6-S12</u>	<u>5</u>	<u>5</u>	<u>ft</u>	<u>5/14/12</u>	<u>1200</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>4</u>
3. <u>Line 6-S13</u>	<u>12</u>	<u>12</u>	<u>ft</u>	<u>5/14/12</u>	<u>1117</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
4. <u>Line 6-B14</u>	<u>15</u>	<u>15</u>	<u>ft</u>	<u>5/14/12</u>	<u>1108</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
5. <u>Line 6-S15</u>	<u>2</u>	<u>2</u>	<u>ft</u>	<u>5/14/12</u>	<u>1056</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
6. <u>Line 6-S16</u>	<u>4</u>	<u>4</u>	<u>ft</u>	<u>5/14/12</u>	<u>1142</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
7. <u>Line 6-B17</u>	<u>8</u>	<u>8</u>	<u>ft</u>	<u>5/14/12</u>	<u>1123</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
8. <u>Line 6-S18</u>	<u>6</u>	<u>6</u>	<u>ft</u>	<u>5/14/12</u>	<u>1134</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
9. <u>Line 6-S19</u>	<u>7</u>	<u>7</u>	<u>ft</u>	<u>5/14/12</u>	<u>1150</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>3</u>
10.		<u>BJZ</u>	<u>REF</u>																								

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: <u>[Signature]</u>	On Ice? <input checked="" type="checkbox"/> N	Date <u>5/14/12</u>	Time <u>1500</u>	Received by: <u>[Signature]</u>	Date <u>5/14/12</u>	Time <u>1500</u>
Relinquished By: <u>[Signature]</u>	On Ice? <input checked="" type="checkbox"/> N	Date <u>5/14/12</u>	Time <u>1530</u>	Received by: <u>[Signature]</u>	Date <u>5/15/12</u>	Time <u>10:17</u>
Samples Shipped VIA: <input type="checkbox"/> Air Freight <input type="checkbox"/> Federal Express <input type="checkbox"/> Sampler			Air Bill Number:			
<input type="checkbox"/> Other: _____						

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

T-19

H:\RLG\STDFORMS\Chain of Custody Form 2009 RLG Rev. 0910-109



Document Name:
Sample Condition Upon Receipt Form
 Document Number:
F-MN-L-213-rev.02

Revised Date: 15Feb2012
 Page 1 of 1
 Issuing Authority:
 Pace Minnesota Quality Office

**Sample Condition
 Upon Receipt**

Client Name: BARR

Project # 10192287

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 793564336684

Optional:
 Proj. Due Date:
 Proj. Name:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____ Temp Blank: Yes No

Thermometer Used 80344042 or 80512447 Type of Ice Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 1.9 Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: AL 5/15/12

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr): <u>AL 5/15/12</u>	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4, HCL<2; NaOH >12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Samp #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 5/11/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Attachment D

Waste Disposal Documentation

Waste Profile Sheet



P.O. Number	Customer Code	SKB Representative Jon Penheiter	CL
-------------	---------------	----------------------------------	----

I. Generator Information

Generator Name: Enbridge Pipelines Limited Partnership, LLC		Generator EPA ID Number	SIC Code
Generator Location: Enbridge Superior Terminal - Line 6 Hydrotest Excavation	County: Douglas	Generator Contact: Karl Beaster	
Generator Mailing Address (if different): 1320 Grand Ave, Superior, WI 54880		Phone: 715-398-4754	Fax: 715-398-3223
Generator Email Address: karl.beaster@enbridge.com		Billing Contact: Karl Beaster	
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002	Bill To #:	Phone: 715-398-4754	Fax: 715-398-3223
Billing Email Address: karl.beaster@enbridge.com		Invoice Contact:	

II. Waste Generation Information

Waste Name: Crude contaminated soil - Line 6 Hydrotest Excavation	Estimated rate of waste generation: <u>250</u> <input type="checkbox"/> Lbs. <input type="checkbox"/> tons <input checked="" type="checkbox"/> cy <input type="checkbox"/> drums	<input checked="" type="checkbox"/> one time <input type="checkbox"/> yearly
Generator Facility Operations and/or Site History: Enbridge Pipeline Terminal		
Describe the generating process or source of contaminated soil/debris and/or waste: Pipeline Terminal Activities		

III. Waste Composition and Constituents (list all known)

	Actual Range	
	%	ppm
Crude contaminated soil	100	

IV. Waste Properties

Physical state: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Sludge <input type="checkbox"/> Gas	Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	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): weak petroleum odor
--	--	---	---	--------------	--------------------------------------

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

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.

 Paul Turner	Environmental Analyst	5/15/2012
Printed Name	Title	Date



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

May 14, 2012

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

Work Order Number: 1202137
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 05/10/12. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of this report and then discarded unless other arrangements are made.

WI Certification #998022410

Prepared by,
LEGEND TECHNICAL SERVICES, INC

Handwritten signature of Bach Pham in black ink.

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

Handwritten signature of Tyler Jones in black ink.

Tyler Jones
Chemist I
tjones@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line6-Stockpile-1	1202137-01	Soil	05/08/12 16:35	05/10/12 08:55
Line6-Stockpile-2	1202137-02	Soil	05/08/12 16:40	05/10/12 08:55
Line6-Stockpile-3	1202137-03	Soil	05/08/12 16:45	05/10/12 08:55
Trip Blank	1202137-04	Methanol	05/08/12 00:00	05/10/12 08:55

Shipping Container Information

Default Cooler Temperature (°C): 12.3

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 DRO chromatograms are attached for all the samples.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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DRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Stockpile-1 (1202137-01) Soil Sampled: 05/08/12 16:35 Received: 05/10/12 8:55										
Diesel Range Organics	340	11	1.8	mg/kg dry	1	B2E1103	05/11/12	05/12/12	WI(95) DRO	D-04
Surrogate: C-30	78.7			70-130 %		"	"	"	"	
Line6-Stockpile-2 (1202137-02) Soil Sampled: 05/08/12 16:40 Received: 05/10/12 8:55										
Diesel Range Organics	500	12	1.9	mg/kg dry	1	B2E1103	05/11/12	05/12/12	WI(95) DRO	D-04
Surrogate: C-30	87.6			70-130 %		"	"	"	"	
Line6-Stockpile-3 (1202137-03) Soil Sampled: 05/08/12 16:45 Received: 05/10/12 8:55										
Diesel Range Organics	250	8.3	1.3	mg/kg dry	1	B2E1103	05/11/12	05/12/12	WI(95) DRO	D-04
Surrogate: C-30	88.5			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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WI(95) GRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Stockpile-1 (1202137-01) Soil Sampled: 05/08/12 16:35 Received: 05/10/12 8:55										
Benzene	2.1	0.030	0.0045	mg/kg dry	1	B2E1010	05/10/12	05/10/12	WI(95) GRO	
Ethylbenzene	1.2	0.030	0.0056	mg/kg dry	1	"	"	"	"	
Toluene	2.6	0.030	0.0029	mg/kg dry	1	"	"	"	"	
Xylenes (total)	5.5	0.089	0.014	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	140			80-150 %		"	"	"	"	
Line6-Stockpile-2 (1202137-02) Soil Sampled: 05/08/12 16:40 Received: 05/10/12 8:55										
Benzene	2.9	0.036	0.0055	mg/kg dry	1	B2E1010	05/10/12	05/10/12	WI(95) GRO	
Ethylbenzene	0.33	0.036	0.0068	mg/kg dry	1	"	"	"	"	
Toluene	1.1	0.036	0.0035	mg/kg dry	1	"	"	"	"	
Xylenes (total)	1.3	0.11	0.017	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	105			80-150 %		"	"	"	"	
Line6-Stockpile-3 (1202137-03) Soil Sampled: 05/08/12 16:45 Received: 05/10/12 8:55										
Benzene	1.9	0.031	0.0047	mg/kg dry	1	B2E1010	05/10/12	05/10/12	WI(95) GRO	
Ethylbenzene	0.28	0.031	0.0058	mg/kg dry	1	"	"	"	"	
Toluene	0.10	0.031	0.0030	mg/kg dry	1	"	"	"	"	
Xylenes (total)	1.3	0.093	0.015	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	99.2			80-150 %		"	"	"	"	
Trip Blank (1202137-04) Methanol Sampled: 05/08/12 00:00 Received: 05/10/12 8:55										
Benzene	<0.025	0.025	0.0038	mg/kg wet	1	B2E1010	05/10/12	05/10/12	WI(95) GRO	
Ethylbenzene	<0.025	0.025	0.0047	mg/kg wet	1	"	"	"	"	
Toluene	<0.025	0.025	0.0024	mg/kg wet	1	"	"	"	"	
Xylenes (total)	<0.075	0.075	0.012	mg/kg wet	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	97.7			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Stockpile-1 (1202137-01) Soil Sampled: 05/08/12 16:35 Received: 05/10/12 8:55										
% Solids	78			%	1	B2E1108	05/11/12	05/11/12	% calculation	
Line6-Stockpile-2 (1202137-02) Soil Sampled: 05/08/12 16:40 Received: 05/10/12 8:55										
% Solids	69			%	1	B2E1108	05/11/12	05/11/12	% calculation	
Line6-Stockpile-3 (1202137-03) Soil Sampled: 05/08/12 16:45 Received: 05/10/12 8:55										
% Solids	81			%	1	B2E1108	05/11/12	05/11/12	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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DRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1103 - Sonication (Wisc DRO)											
Blank (B2E1103-BLK1)											
						Prepared: 05/11/12 Analyzed: 05/12/12					
Diesel Range Organics	< 8.0	8.0	1.3	mg/kg wet							
Surrogate: C-30	12.9			mg/kg wet	16.0		80.9	70-130			
LCS (B2E1103-BS1)											
						Prepared: 05/11/12 Analyzed: 05/12/12					
Diesel Range Organics	46.2	8.0	1.3	mg/kg wet	64.0		72.2	70-120			
Surrogate: C-30	13.0			mg/kg wet	16.0		81.3	70-130			
LCS Dup (B2E1103-BSD1)											
						Prepared: 05/11/12 Analyzed: 05/12/12					
Diesel Range Organics	47.7	8.0	1.3	mg/kg wet	64.0		74.6	70-120	3.18	20	
Surrogate: C-30	12.9			mg/kg wet	16.0		80.3	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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WI(95) GRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1010 - EPA 5035 Soil (Purge and Trap)											
Blank (B2E1010-BLK1)						Prepared & Analyzed: 05/10/12					
Benzene	< 0.025	0.025	0.0038	mg/kg wet							
Ethylbenzene	< 0.025	0.025	0.0047	mg/kg wet							
Toluene	< 0.025	0.025	0.0024	mg/kg wet							
Xylenes (total)	< 0.075	0.075	0.012	mg/kg wet							
Surrogate: 4-Fluorochlorobenzene	23.4			ug/L	25.0		93.7	80-150			
LCS (B2E1010-BS1)						Prepared & Analyzed: 05/10/12					
Benzene	92.6			ug/L	100		92.6	80-120			
Ethylbenzene	102			ug/L	100		102	80-120			
Toluene	96.3			ug/L	100		96.3	80-120			
Xylenes (total)	312			ug/L	300		104	80-120			
Surrogate: 4-Fluorochlorobenzene	25.4			ug/L	25.0		102	80-150			
LCS Dup (B2E1010-BSD1)						Prepared & Analyzed: 05/10/12					
Benzene	93.6			ug/L	100		93.6	80-120	0.992	20	
Ethylbenzene	100			ug/L	100		100	80-120	1.23	20	
Toluene	96.9			ug/L	100		96.9	80-120	0.606	20	
Xylenes (total)	315			ug/L	300		105	80-120	0.894	20	
Surrogate: 4-Fluorochlorobenzene	26.5			ug/L	25.0		106	80-150			
Matrix Spike (B2E1010-MS1)						Source: 1202137-02 Prepared & Analyzed: 05/10/12					
Benzene	130			ug/L	100	38.8	91.5	80-120			
Ethylbenzene	104			ug/L	100	4.42	99.9	80-120			
Toluene	110			ug/L	100	14.3	95.8	80-120			
Xylenes (total)	331			ug/L	300	17.5	104	80-120			
Surrogate: 4-Fluorochlorobenzene	26.8			ug/L	25.0		107	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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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 B2E1108 - General Preparation											
Duplicate (B2E1108-DUP1)	Source: 1202140-06		Prepared & Analyzed: 05/11/12								
% Solids	73.0			%		71.0			2.78	20	
Duplicate (B2E1108-DUP2)	Source: 1202154-01		Prepared & Analyzed: 05/11/12								
% Solids	89.0			%		90.0			1.12	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotect Stockpile Project Manager: Ms. Andrea Nord	Work Order #: 1202137 Date Reported: 05/14/12
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Notes and Definitions

D-04	The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
<	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

120437

Project Number: 49161092
 Project Name: Embargo Line 6 Hydrotest Dig - Stockpile
 Sample Origination State: WI (use two letter postal state abbreviation)
 COC Number: NO 32248

Number of Containers/Preservative		COC: <u>1</u> of <u>1</u>	
Water	Soil	Project Manager:	Total Number of Containers
VOCs (unpreserved) #1		<u>HAW, REE</u>	3
SVOCs (unpreserved) #2			
Dissolved Metals (HNO ₃)			
Total Metals (HNO ₃)			
General (unpreserved) #3			
Diesel Range Organics (HCl)			
Nutrients (H ₂ SO ₄) #4			
VOCs (aged MeOH) #1			
GRQ BTEX (aged MeOH) #1			
DRO (aged unpreserved)			
Metals (unpreserved)		Project OC Contact: <u>ANORD</u>	
SVOCs (unpreserved) #2		Sampled by: <u>REE</u>	
% Solids (plastic vial, unpres.)		Laboratory: <u>Legend</u>	

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Type	
						Water	Soil	Grab	Compos.
01 Line 6 - stockpile - 1				5/8/12	1635	X	X		
02 Line 6 - stockpile - 2				↓	1640				
03 Line 6 - stockpile - 3				↓	1645				
04 Trip Blank				5/8/12					
5.									
6.									
7.									
8.									
9.									
10.									

BTEX, DRO, Moisture

ASAP TAT

Common Parameter/Container - Preservation Key
 #1 - Volatile Organics = BTEX, GRQ TPH, 8260 Full List
 #2 - Semivolatile Organics = PAHs, PCB, Dioxins, 8270 Full List, Herbicide/Pesticide/PCBs
 #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, EDS, TS, Sulfate
 #4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN
 PCEX 12.3°C

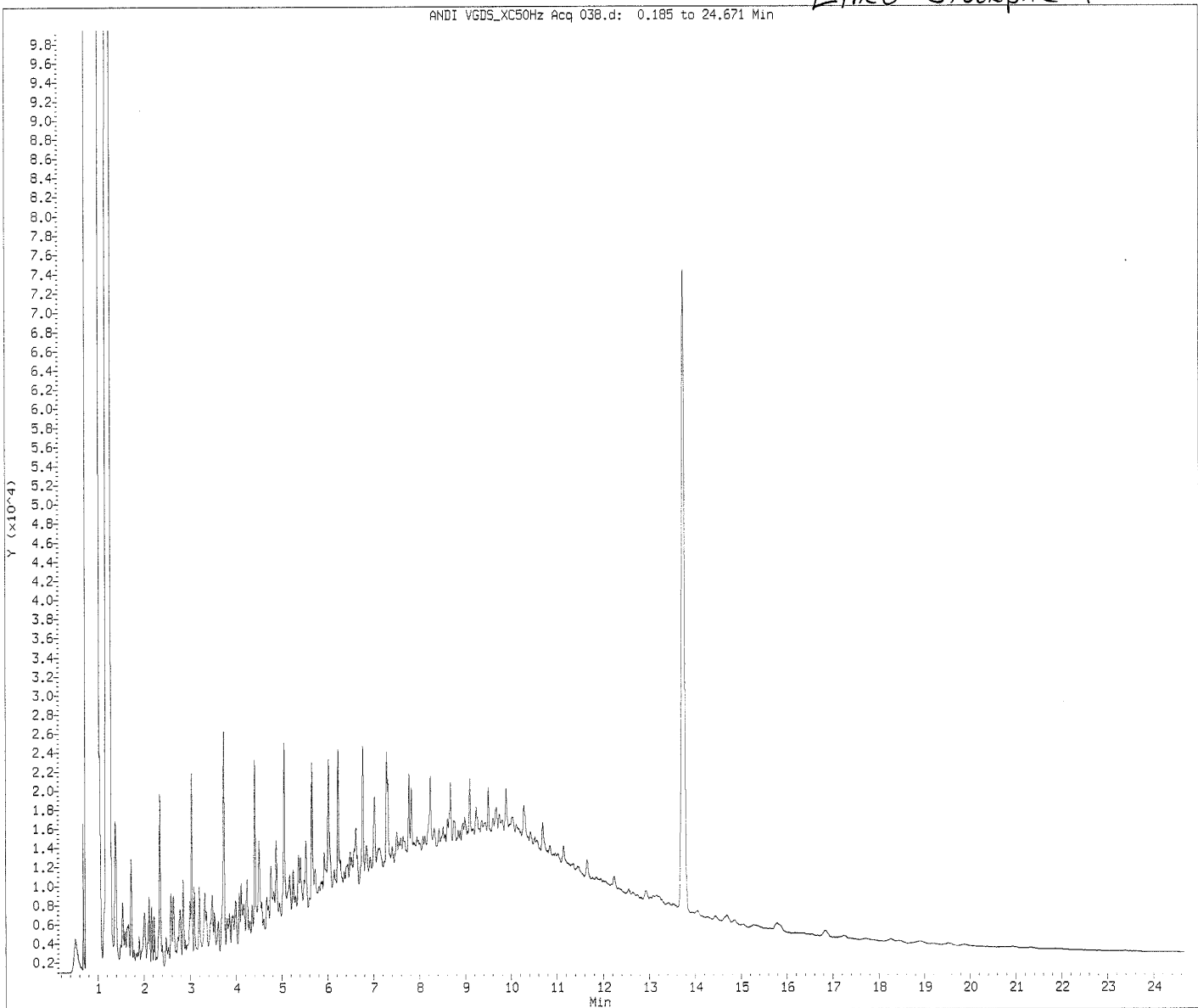
Relinquished By: [Signature] On Ice? Y N Date: 5/9/12 Time: 1530 Received by: _____ Date: _____ Time: _____
 Relinquished By: _____ On Ice? Y N Date: _____ Time: _____ Received by: Kelly Forber Date: 5/10/12 Time: 8:15ST
 Samples Shipped Via: Air Freight Federal Express Sampler Other: _____ Air Bill Number: _____

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.

Line6-Stockpile-1

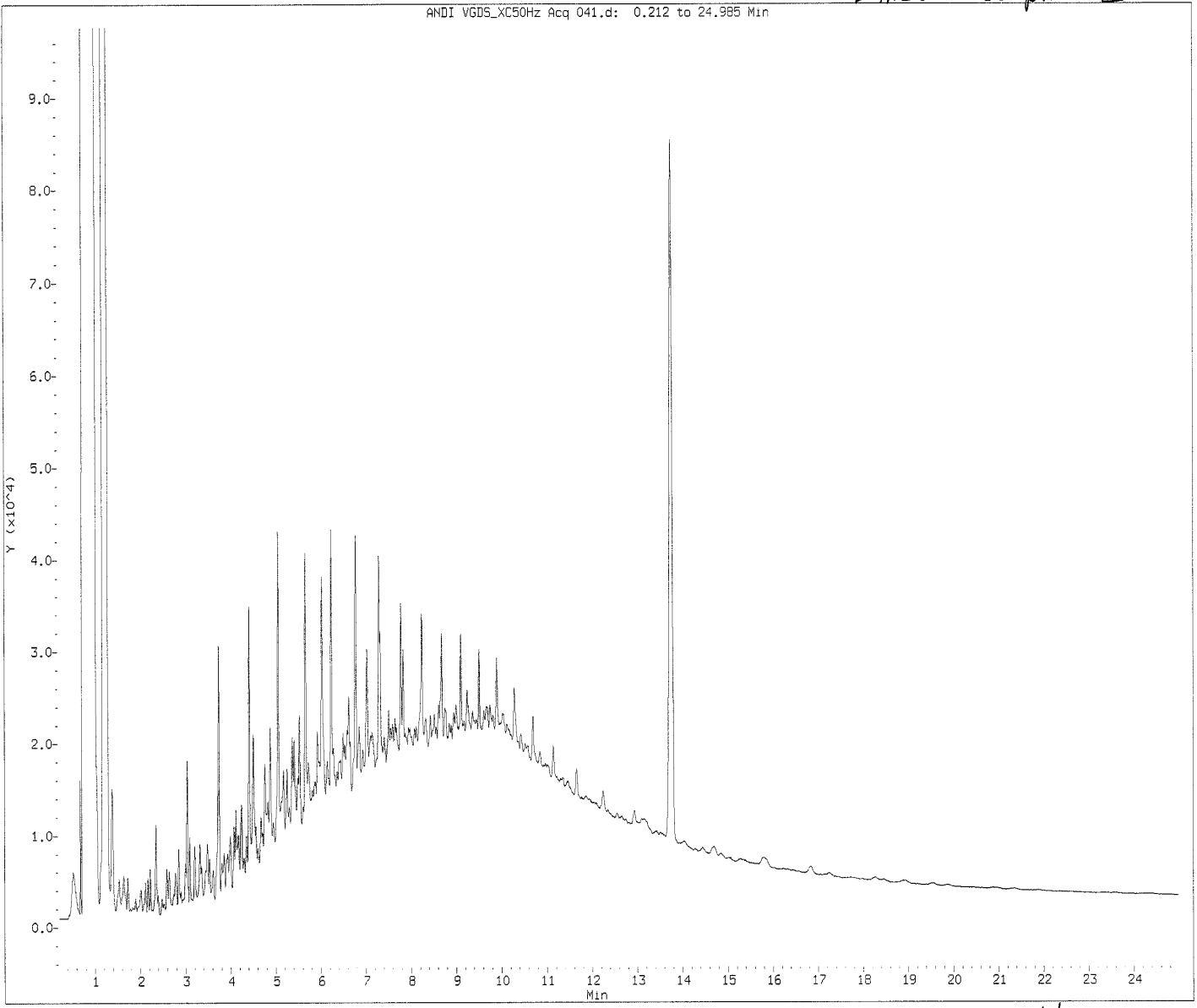
Data File: \\target2005\targetdata\chem\FID6.i\May11.b\038.d
 Injection Date: 12-MAY-2012 06:56



205/1/12

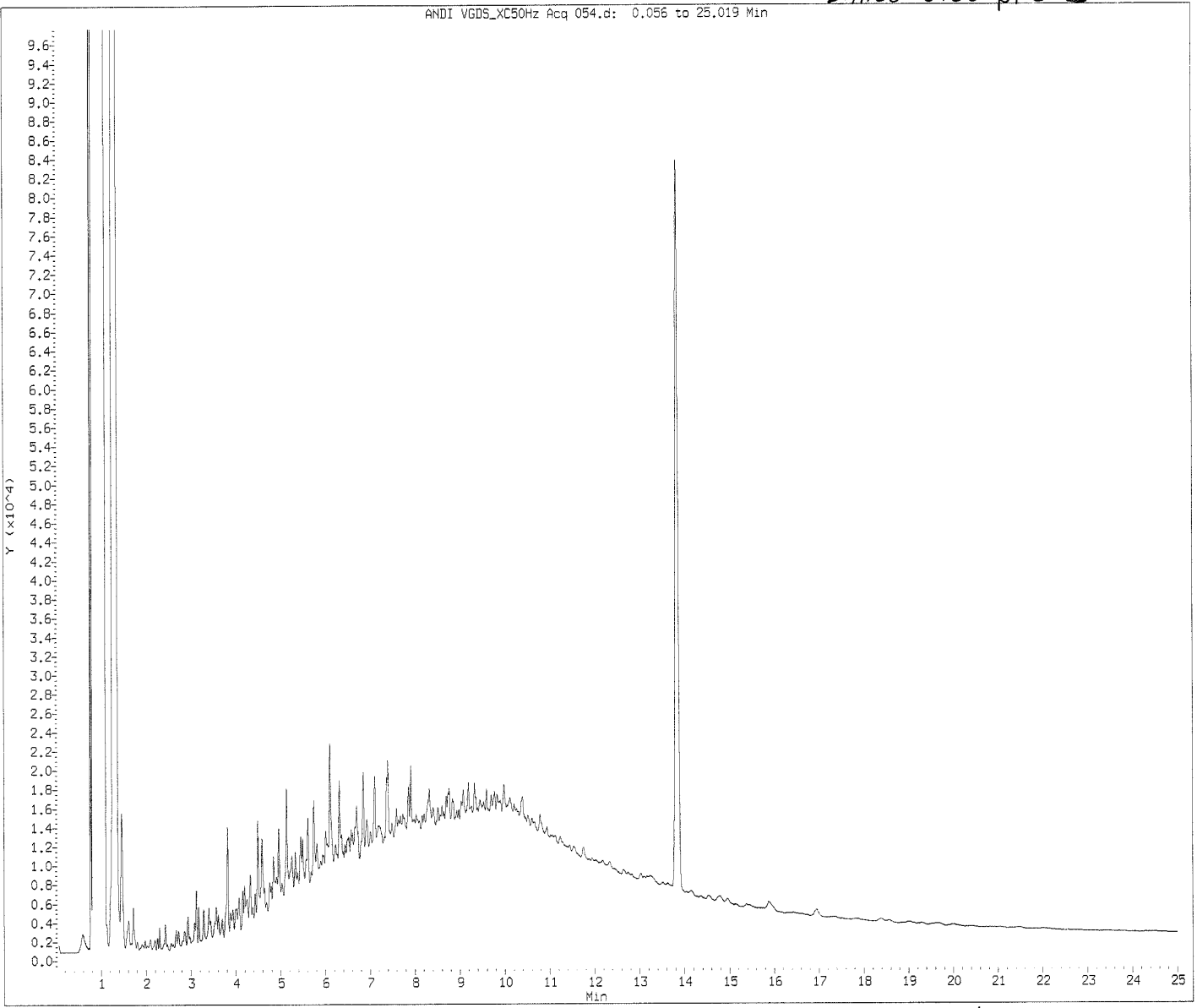
Line 6- Stockpile-2

Data File: \\target2005\targetdata\chem\FID6.1\May11.6\041.d
Injection Date: 12-MAY-2012 08:30



Line6-Stockpile-3

Data File: \\target2005\targetdata\chem\FID6.i\May11.b\054.d
 Injection Date: 12-MAY-2012 15:19



5/11/12



May 15, 2012

Paul Turner
Enbridge Pipelines Limited Partnership, LLC
Central Square Office
1320 Grand Ave
Superior, WI 54880

RE: CL12-0033 Crude Contaminated Soil (Line 6 Hydrotest Exc.)

Dear Mr. Turner,

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 SKB 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. SKB may incur additional costs including but not limited to increases in state and local taxes. SKB may pass these costs on to the customer only after notification to the Customer. This agreement grants SKB 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. SKB 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 SKB or SKB terminates this agreement for Customer's breach (including nonpayment) Customer agrees to pay to SKB 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 SKB 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 Rosemount, MN office at SKB Rosemount, 13425 Courthouse Blvd, Rosemount, MN 55068 or Via Fax at 651/438-1549 or email to jonp@skbinc.com.

SKB Shamrock Landfill


John Penheiter

Paul Turner, Environmental
Analyst

Customer ACCEPTED BY: (name,) 

DATE: 5/15/2012

WASTE APPROVAL Period: 5/15/2012 to 5/15/2014



Bill To Customer

Enbridge Pipelines Limited Partnership, LLC
Central Square Office
1320 Grand Ave
Superior, WI 54880

Service For Generator

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

Disposal

Waste Description: Crude Contaminated Soil (Line 6 Hydrotest Exc.)

Estimated Volume: 250 YARDS / ONE TIME ONLY

Disposal Method: Secure Non-Hazardous Landfill

Treatment Method: None Expected For Conforming Waste

Pricing

Disposal	\$19.00	Per Ton	Crude Contaminated Soil (Line 6 Hydrotest
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Notification of Waste Acceptance

PAGE 1 of 2
5/15/2012

CUSTOMER INFORMATION

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

1320 Grand Ave
Superior, WI 54880
Contact: Paul Turner
Phone: (715) 398-4752

INVOICE INFORMATION

Bill #: 2133
Enbridge Pipelines Limited Partnership,
Central Square Office

1320 Grand Ave
Superior, WI 54880
Contact: Paul Turner
Phone: (715) 398-4752

Profile Sheet #:
Waste Stream #: CL12-0033
Waste Name: Crude Contaminated Soil (Line 6 Hydrotest Exc.)

Thank you for selecting SKB 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 250 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 5/15/2012 thru 5/15/2014 at which time the material will need to be reanalyzed and recertified.

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

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

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

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

WASTE STREAM ANALYSIS INFORMATION

Waste Name: Crude Contaminated Soil (Line 6 Hydrotest Exc.)
Physical State: Solid
Process Producing Waste: pipeline terminal activities

PRE-ACCEPTANCE SAMPLE RESULTS

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

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

COMMENTS

AUTHORIZATION

Approval: _____ Date: _____



CLLOQUET

REPORT NAME: **Tons Each Load By WSID**
 DESCRIPTION: **Tonnage for EACH LOAD, grouped by customer**
 DATE RANGE: **01/01/2012 to 11/01/2012**
 PRINTED ON (DATE): **Thursday, November 01, 2012**

ENBS1

Enbridge Pipelines Limited Partnership,
 2800 East 21st St
 Superior WI 54880

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT.	LIFT	TONS
1725 (A)	1075	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	14.70
1726 (A)	1081	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	17.33
1727 (A)	1082	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	18.10
1728 (A)	1083	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	18.01
1729 (A)	1084	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	18.03
1732 (A)	1080	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	13.70
1733 (A)	1079	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	16.08
1734 (A)	1078	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	16.71
1736 (A)	1076	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	21.09
1737 (A)	1077	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	22.81
1738 (A)	4091	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	18.37
1740 (A)	4092	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	24.37
1741 (A)	4089	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	14.08
1742 (A)	4090	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	23.62
1743 (A)	4088	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	14.66
1745 (A)	4087	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	13.63
1746 (A)	4086	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	22.17
1747 (A)	4085	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	V39	1170	15.94
1749 (A)	4084	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	18.89
1750 (A)	4078	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	14.14
1754 (A)	4079	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	15.33
1755 (A)	4080	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	20.01
1757 (A)	4081	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	16.02
1758 (A)	4082	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	13.58
1759 (A)	4083	5/16/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	W39	1170	18.68
1852 (A)	5208	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	16.58
1853 (A)	5207	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	13.35
1854 (A)	5205	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	15.24
1855 (A)	5206	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	14.13
1858 (A)	5203	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	14.85
1859 (A)	5204	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	12.95
1860 (A)	5268	5/25/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Y39	1170	13.50
2091 (A)	3577	6/11/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	Z36	1170	13.07
3151 (A)	4102	7/27/2012	CL12-0033	Crude Contaminated Soil (Line 6 Hy	1A	R34	1170	9.10

Total # of Loads: 34 **Total Tons: 562.82**

Grand Total (Tons): 562.82
Grand Total (Loads): 34

OSI Environmental Inc.
ridgeBr60 - Waste Activity Report
June 1, 2012 - October 31, 2012

Filters: Item: Reports (equal to True), Company Name (equal to Enbridge Energy Prt. - Superior 10 Bardon)

Ship To	Item: Name	Quantity	Name	Unit of Measure: Units	Date	FOB	Service Document #	Date of Service
98 ENBRIDGE ENERGY PRT. - Group								
904 Enbridge Energy Prt. - Superior 10 Bardon								
Accounts Payable Enbride Energy Prt. - Superior 10 Bardon 10 Bardon Ave Superior WI 54880								
	Absorbent - Pads/Rags Disposal - Drum	4	DR		6/29/2012		19378	6/8/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	3,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,200		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	3,500		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,400		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	3,500		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,500		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,200		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,200		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,200		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012

Subtotal 101700

Ship To	Item: Name	Quantity	Name	Unit of Measure: Units	Date	FOB	Service Document #	Date of Service
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	4,800		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	4,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291	5/10/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,200		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	6/29/2012		19291B	6/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	4,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	4,500		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291C	7/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	2,800		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291D	8/1/2012
	Water - Petroleum Impacted - Gallon	5,000		GALS	8/31/2012		19291D	8/1/2012

Karl Beaster Enbride
 Energy Prt. - Superior 10
 Bardon 10 Bardon Ave
 Superior WI 54880

Sub total 124,300

Total 226,000

~~NH - Contaminated Soil 4 DR 10/25/2012 19686 9/11/2012~~



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

May 14, 2012

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

Work Order Number: 1202138
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 05/10/12. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of this report and then discarded unless other arrangements are made.

WI Certification #998022410

Prepared by,
LEGEND TECHNICAL SERVICES, INC

Handwritten signature of Bach Pham in black ink.

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

Handwritten signature of Tyler Jones in black ink.

Tyler Jones
Chemist I
tjones@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Frac Project Manager: Ms. Andrea Nord	Work Order #: 1202138 Date Reported: 05/14/12
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line6-Frac-1	1202138-01	Water	05/09/12 10:30	05/10/12 08:55

Shipping Container Information

Default Cooler Temperature (°C): 12.3

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:

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Frac Project Manager: Ms. Andrea Nord	Work Order #: 1202138 Date Reported: 05/14/12
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DRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Frac-1 (1202138-01) Water Sampled: 05/09/12 10:30 Received: 05/10/12 8:55										
Diesel Range Organics	3600	93	19	ug/L	1	B2E1007	05/10/12	05/13/12	WI(95) DRO	M
Surrogate: C-30	89.5			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Frac Project Manager: Ms. Andrea Nord	Work Order #: 1202138 Date Reported: 05/14/12
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WI(95) GRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Frac-1 (1202138-01) Water Sampled: 05/09/12 10:30 Received: 05/10/12 8:55										
Benzene	110	1.0	0.11	ug/L	1	B2E1004	05/10/12	05/10/12	WI(95) GRO	
Ethylbenzene	19	1.0	0.095	ug/L	1	"	"	"	"	
Toluene	72	1.0	0.16	ug/L	1	"	"	"	"	
Xylenes (total)	100	3.0	0.19	ug/L	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	117			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Frac Project Manager: Ms. Andrea Nord	Work Order #: 1202138 Date Reported: 05/14/12
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DRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1007 - EPA 3510C (Sep Funnel)											
Blank (B2E1007-BLK1)											
						Prepared: 05/10/12 Analyzed: 05/12/12					
Diesel Range Organics	< 100	100	20	ug/L							
Surrogate: C-30	327			ug/L	400		81.7	70-130			
LCS (B2E1007-BS1)											
						Prepared: 05/10/12 Analyzed: 05/12/12					
Diesel Range Organics	1210	100	20	ug/L	1600		75.8	75-115			
Surrogate: C-30	334			ug/L	400		83.5	70-130			
LCS Dup (B2E1007-BSD1)											
						Prepared: 05/10/12 Analyzed: 05/13/12					
Diesel Range Organics	1370	100	20	ug/L	1600		85.8	75-115	12.4	20	
Surrogate: C-30	380			ug/L	400		94.9	70-130			
Duplicate (B2E1007-DUP1)											
						Source: 1202109-01 Prepared: 05/10/12 Analyzed: 05/12/12					
Diesel Range Organics	< 110	110	21	ug/L		<110			NA	20	
Surrogate: C-30	348			ug/L	426		81.7	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Hydrotest Frac Project Manager: Ms. Andrea Nord	Work Order #: 1202138 Date Reported: 05/14/12
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WI(95) GRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1004 - EPA 5030 Water (Purge and Trap)											
Blank (B2E1004-BLK1)						Prepared & Analyzed: 05/10/12					
Benzene	< 1.0	1.0	0.11	ug/L							
Ethylbenzene	< 1.0	1.0	0.095	ug/L							
Toluene	< 1.0	1.0	0.16	ug/L							
Xylenes (total)	< 3.0	3.0	0.19	ug/L							
Surrogate: 4-Fluorochlorobenzene	24.8			ug/L	25.0		99.0	80-150			
LCS (B2E1004-BS1)						Prepared & Analyzed: 05/10/12					
Benzene	94.1	1.0	0.11	ug/L	100		94.1	80-120			
Ethylbenzene	94.2	1.0	0.095	ug/L	100		94.2	80-120			
Toluene	94.0	1.0	0.16	ug/L	100		94.0	80-120			
Xylenes (total)	284	3.0	0.19	ug/L	300		94.6	80-120			
Surrogate: 4-Fluorochlorobenzene	24.2			ug/L	25.0		96.9	80-150			
LCS Dup (B2E1004-BSD1)						Prepared & Analyzed: 05/10/12					
Benzene	93.9	1.0	0.11	ug/L	100		93.9	80-120	0.210	20	
Ethylbenzene	91.7	1.0	0.095	ug/L	100		91.7	80-120	2.74	20	
Toluene	92.4	1.0	0.16	ug/L	100		92.4	80-120	1.77	20	
Xylenes (total)	271	3.0	0.19	ug/L	300		90.4	80-120	4.62	20	
Surrogate: 4-Fluorochlorobenzene	23.8			ug/L	25.0		95.2	80-150			
Matrix Spike (B2E1004-MS1)						Prepared & Analyzed: 05/10/12					
Source: 1202126-05											
Benzene	94.0	1.0	0.11	ug/L	100	<1.0	94.0	80-120			
Ethylbenzene	93.7	1.0	0.095	ug/L	100	<1.0	93.5	80-120			
Toluene	96.3	1.0	0.16	ug/L	100	<1.0	96.3	80-120			
Xylenes (total)	277	3.0	0.19	ug/L	300	<3.0	92.4	80-120			
Surrogate: 4-Fluorochlorobenzene	24.5			ug/L	25.0		98.0	80-150			

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

Project: 49161092
Project Number: 49161092 LN6 Hydrotest Frac
Project Manager: Ms. Andrea Nord

Work Order #: 1202138
Date Reported: 05/14/12

Notes and Definitions

M Results in the diesel organics range contain hydrocarbons more volatile than DRO.
< 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)



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

May 17, 2012

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

Work Order Number: 1202210
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 05/15/12. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of this report and then discarded unless other arrangements are made.

WI Certification #998022410

Prepared by,
LEGEND TECHNICAL SERVICES, INC

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

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

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

Tyler Jones
Chemist I
tjones@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Frac 2 Project Manager: Ms. Andrea Nord	Work Order #: 1202210 Date Reported: 05/17/12
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Line6-Frac-2	1202210-01	Water	05/11/12 10:40	05/15/12 09:00

Shipping Container Information

Default Cooler	Temperature (°C): 6.4	
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:

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Frac 2 Project Manager: Ms. Andrea Nord	Work Order #: 1202210 Date Reported: 05/17/12
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DRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Frac-2 (1202210-01) Water Sampled: 05/11/12 10:40 Received: 05/15/12 9:00										
Diesel Range Organics	2100	100	20	ug/L	1	B2E1605	05/16/12	05/17/12	WI(95) DRO	
Surrogate: C-30	81.0			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Frac 2 Project Manager: Ms. Andrea Nord	Work Order #: 1202210 Date Reported: 05/17/12
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WI(95) GRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Line6-Frac-2 (1202210-01) Water Sampled: 05/11/12 10:40 Received: 05/15/12 9:00										
Benzene	47	1.0	0.11	ug/L	1	B2E1520	05/15/12	05/15/12	WI(95) GRO	
Ethylbenzene	<1.0	1.0	0.095	ug/L	1	"	"	"	"	
Toluene	23	1.0	0.16	ug/L	1	"	"	"	"	
Xylenes (total)	26	3.0	0.19	ug/L	1	"	"	"	"	
<i>Surrogate: 4-Fluorochlorobenzene</i>	98.7									
				80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Frac 2 Project Manager: Ms. Andrea Nord	Work Order #: 1202210 Date Reported: 05/17/12
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DRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1605 - EPA 3510C (Sep Funnel)											
Blank (B2E1605-BLK1)											
						Prepared: 05/16/12 Analyzed: 05/17/12					
Diesel Range Organics	< 100	100	20	ug/L							
Surrogate: C-30	321			ug/L	400		80.1	70-130			
LCS (B2E1605-BS1)											
						Prepared: 05/16/12 Analyzed: 05/17/12					
Diesel Range Organics	1320	100	20	ug/L	1600		82.4	75-115			
Surrogate: C-30	359			ug/L	400		89.8	70-130			
LCS Dup (B2E1605-BSD1)											
						Prepared: 05/16/12 Analyzed: 05/17/12					
Diesel Range Organics	1350	100	20	ug/L	1600		84.4	75-115	2.42	20	
Surrogate: C-30	361			ug/L	400		90.3	70-130			
Duplicate (B2E1605-DUP1)											
						Source: 1202225-01 Prepared: 05/16/12 Analyzed: 05/17/12					
Diesel Range Organics	173	100	20	ug/L		163			5.65	20	M
Surrogate: C-30	343			ug/L	400		85.7	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 LN6 Frac 2 Project Manager: Ms. Andrea Nord	Work Order #: 1202210 Date Reported: 05/17/12
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WI(95) GRO/8015B - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B2E1520 - EPA 5030 Water (Purge and Trap)											
Blank (B2E1520-BLK1)						Prepared & Analyzed: 05/15/12					
Benzene	< 1.0	1.0	0.11	ug/L							
Ethylbenzene	< 1.0	1.0	0.095	ug/L							
Toluene	< 1.0	1.0	0.16	ug/L							
Xylenes (total)	< 3.0	3.0	0.19	ug/L							
Surrogate: 4-Fluorochlorobenzene	23.1			ug/L	25.0		92.3	80-150			
LCS (B2E1520-BS1)						Prepared & Analyzed: 05/15/12					
Benzene	92.5	1.0	0.11	ug/L	100		92.5	80-120			
Ethylbenzene	99.7	1.0	0.095	ug/L	100		99.7	80-120			
Toluene	95.7	1.0	0.16	ug/L	100		95.7	80-120			
Xylenes (total)	307	3.0	0.19	ug/L	300		102	80-120			
Surrogate: 4-Fluorochlorobenzene	26.9			ug/L	25.0		108	80-150			
LCS Dup (B2E1520-BSD1)						Prepared & Analyzed: 05/15/12					
Benzene	95.5	1.0	0.11	ug/L	100		95.5	80-120	3.23	20	
Ethylbenzene	100	1.0	0.095	ug/L	100		100	80-120	0.332	20	
Toluene	96.9	1.0	0.16	ug/L	100		96.9	80-120	1.32	20	
Xylenes (total)	313	3.0	0.19	ug/L	300		104	80-120	2.03	20	
Surrogate: 4-Fluorochlorobenzene	25.9			ug/L	25.0		104	80-150			
Matrix Spike (B2E1520-MS1)						Source: 1202225-01 Prepared & Analyzed: 05/15/12					
Benzene	113	1.0	0.11	ug/L	100	15.9	97.2	80-120			
Ethylbenzene	110	1.0	0.095	ug/L	100	10.3	99.5	80-120			
Toluene	105	1.0	0.16	ug/L	100	5.17	100	80-120			
Xylenes (total)	346	3.0	0.19	ug/L	300	27.9	106	80-120			
Surrogate: 4-Fluorochlorobenzene	26.8			ug/L	25.0		107	80-150			

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

Project: 49161092
Project Number: 49161092 LN6 Frac 2
Project Manager: Ms. Andrea Nord

Work Order #: 1202210
Date Reported: 05/17/12

Notes and Definitions

M Results in the diesel organics range contain hydrocarbons more volatile than DRO.
< 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

1202210

Project Number: 49161092
Project Name: Enbridge Line 6 Response - Frac 2
Sample Origination State: IL (use two letter postal state abbreviation)
COC Number: **NO 35273**

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																	
						Water	Soil	Grab	Comp.	OC	Water						Soil																							
1. <u>Line 6 - Frac - 2</u>				5/11/12	1040		X	X																														4		
2.																																								
3.																																								
4.																																								
5.																																								
6.																																								
7.																																								
8.																																								
9.																																								
10.																																								

Common Parameter/Container - Preservation Key
 #1 - Volatile Organics = BTEX, GRQ, 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: [Signature] On Ice? N Date: 5/11/12 Time: 1300
 Received by: _____ Date: _____ Time: _____
 Relinquished By: _____ On Ice? Y N Date: _____ Time: _____
 Received by: Kelley Poehner Date: 5/15/12 Time: 9:00
 Samples Shipped VIA: Air Freight Federal Express Sampler Other: carrier Air Bill Number: _____

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.

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