

Technical Memorandum – Sent Via Email

To: Paul Turner, Enbridge Energy
From: Ryan Erickson
Subject: Enbridge Superior Terminal Waterline Maintenance Excavations
Date: February 21, 2013
Project: 49161092

This memorandum summarizes the 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 and water in two waterline maintenance excavations in November 2012 at the Enbridge Superior Terminal (Terminal) in Superior, Wisconsin (Figure 1).

Background

Crude oil impacted soil and water was discovered by Four Star Construction and Northland Constructors in a fire hydrant replacement excavation on November 1, 2012 and in a water valve replacement excavation on November 5, 2012 at the Enbridge Superior Terminal (Figure 2). The crude impacts were reported to Enbridge and Enbridge requested that Barr document the environmental conditions and assist with onsite waste management and off-site disposal coordination. Barr was on site shortly after being notified about the two crude oil impacted sites. Contractor maintenance work on these projects was not finished until mid-November and Barr was involved as needed throughout that period of time.

Enbridge indicated that the crude oil impacts discovered in both excavations were likely historical. Barr checked the Enbridge Leak Reporting System (LRS) records and the Wisconsin Department of Natural Resources (WDNR) Bureau for Remediation and Redevelopment Tracking System (BRRTS) database and identified a 220 barrel release (LRS #338) 110 feet to the northeast of the fire hydrant excavation. The historical release in the vicinity of the fire hydrant excavation was opened by the WDNR on July 27, 2000 and closed on August 16, 2005 (WDNR BRRTS Activity #02-16-279246) (Figure 2). Enbridge LRS records identified multiple historical releases originating from Manifold 2 (LRS #'s: 37, 251, 328, 329) (Figure 2) located 100 feet to the south of the office water valve replacement excavation; however, there

was no WDNR BRTTS activity identified in the WDNR database associated with the water valve replacement.

Site Assessment

Fire Hydrant Replacement Excavation

Barr arrived on site on November 1, 2012 after being notified about the crude oil impacts in the fire hydrant replacement hydrovac excavation. The excavation was approximately 10 feet long by 8 feet wide by 7 feet deep (Figures 2 and 3; Photos 1 and 2) and was nearly complete when Barr arrived. Soil exposed in the excavation sidewalls consisted of red clay covered with approximately 6 inches of gravel fill in the west half of the excavation and red clay covered with approximately 6 inches of topsoil in the east half of the excavation. During the site assessment, Barr noted a petroleum odor and a rainbow sheen on water within the excavation (Photo 2). No soil samples were collected from the excavation on November 1 for field screening or laboratory analysis because the excavation box had not been installed and it was not safe to enter the excavation. All soil and water removed from this excavation with a hydrovac truck was identified as crude oil impacted, as indicated by petroleum odor, discoloration and sheen, and was stockpiled in a roll-off container located in the Terminal's soil management area (Figure 2) until it could be approved for off-site disposal.

Barr returned to the fire hydrant excavation on November 5 and 7 to field screen soil from the excavation sidewalls (Figure 3) for the presence of organic vapors with a photoionization detector (PID) using Barr's standard operating procedure (SOP) for field screening soil. Crude oil impacts such as odor, visual discoloration and sheen were also noted. Crude oil impacts identified in the excavation sidewalls were primarily between 3 and 5 feet below ground surface (bgs). Soil with a headspace reading of 203 parts per million (ppm), a light petroleum odor and discoloration was noted at this depth (Photo 3). Soil headspace readings from above 3 feet bgs were between 0.1 and 1.2 ppm and a soil headspace reading from 6 feet bgs was 15.8 ppm. No petroleum odor or discoloration was identified in these upper and lower soil intervals. The excavation was backfilled with clean fill after the maintenance work was completed.

Analytical soil samples were not collected from the sidewalls for laboratory analysis based on generator knowledge of a nearby historical release (LRS# 338). Since this historical release was previously documented, Enbridge determined that further documentation of the residual crude oil impacts would not

be necessary. Additionally, recent waste characterization analysis was completed on crude oil impacted soil generated from nearby soil borings (Pipe Rack Geotechnical Drilling – Historical Crude Oil Impacts; 11/27/2012 memo). Enbridge determined that the source of impacts to soil in both areas was characteristically similar and additional waste characterization testing would not be required. The proximity of these locations to the fire hydrant replacement excavation is shown on Figure 2.

Water Valve Replacement Excavation

Barr arrived on site November 5, 2012 after being notified about crude oil impacts in the water valve replacement hydrovac excavation near the terminal office building. The excavation was approximately 8 feet long by 8 feet wide by 6 feet deep (Figures 2 and 4; Photos 4 and 5) and was nearly complete when Barr arrived on site. Soil exposed in the excavation sidewalls consisted of red clay covered with approximately 6 inches topsoil. During the site assessment, Barr noted a light petroleum odor and a rainbow sheen on water within the excavation (Figure 4 and Photo 5). All soil and water removed from this excavation with a hydrovac truck was identified as crude oil impacted, as indicated by petroleum odor, discoloration and sheen, and was stockpiled in a roll-off container located in the Terminal's soil management area (Figure 2) until it could be properly characterized and approved for off-site disposal.

Soil from the excavation sidewalls was field screened by Barr for the presence of organic vapors with a PID using Barr's SOP for field screening soil (Figure 4). Crude oil impacts such as odor, visual discoloration and sheen were also noted. Crude oil impacts were not observed in soil from 0 to 4 feet bgs. Soil headspace PID readings from sidewall soil samples from this interval were between 0.6 and 1.1 ppm. Soil with headspace of >150 ppm, a petroleum sheen and strong petroleum odor was observed at approximately 6 feet bgs.

Two analytical soil samples were collected from the excavation sidewalls at 1 foot and 6 feet bgs and were submitted to Pace Analytical Services in Minneapolis, MN for analysis of diesel range organics (DRO) and petroleum volatile organic carbons (PVOC) (Table 1 below and Attachment A). Crude oil concentrations were not detected in the shallow Office Valve-S-1 soil sample and concentrations in the Office Valve-S-2 soil sample were below Wisconsin Generic Residual Contaminant Levels NR-720.09 (Table 1; Attachment A).

**Table 1
 Excavation Sidewall Results Summary
 Water Valve Replacement Excavation Assessment**

Sample ID	Sample Depth (feet)	Date Completed	Analytical Results (mg/kg)						
			DRO	PVOCs					
				Benzene	Ethyl Benzene	Toluene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Xylene
NR720.09 GRCL's		Effective date: 9/1/2007	250	0.0055	2.9	1.5			4.1
Office Valve-S-1	1	11/15/2012	<12.3	<0.067	<0.067	<0.067	<0.067	<0.067	<0.20
Office Valve-S-2	6	11/15/2012	222	<0.078	<0.078	<0.078	0.56	0.22	<0.23

Detections are reported in **Bold**

Waste Disposal Coordination

Soil

Soil excavated from the fire hydrant and water valve replacement excavations was determined to be crude oil impacted based on field screening activities. The impacted soil from both excavations was hauled to the terminal soil management area and was emptied into roll-off containers for storage until offsite disposal was coordinated (Figure 2).

Enbridge determined that soil from both excavations and from the November 2012 Line 5 Trap historical crude oil impacted soil excavation (Historical impacts from LRS #594; work detailed in separate memo in progress) could be added to an existing Pipe Rack Boring waste profile (profile number CL12-0067). The waste streams were combined under the existing profile due to the similarity of observed crude oil impacts and the proximity of the fire hydrant replacement excavation to the Pipe Rack Boring (approximately 100 feet away) and the large historical release LRS# 338 (approximately 110 feet away). The locations of the excavation areas and nearby historical releases are shown on Figure 2.

For additional confirmation and waste characterization purposes, Barr collected a stockpile sample from the water valve replacement stockpile for DRO and benzene, toluene, ethylbenzene, and xylenes (total) (BTEX) analysis (Office Water-Stockpile-1). This sample was submitted to Pace Analytical and a rush turnaround was requested. The laboratory results confirmed that the waste from the water valve

replacement excavation was similar to waste from the Line 5 trap stockpile (Line 5 Trap–Stockpile-1) and the Pipe Rack Boring (Pipe Rock). Laboratory results are summarized in Table 2 and included as part of Attachment B.

The laboratory results were submitted to the Shamrock Landfill near Cloquet, Minnesota as an amendment to the Pipe Rack Boring profile CL12-0067 and the soil was approved for disposal. The soil slurry was solidified with cement prior to hauling and approximately 46 tons of material from fire hydrant and water valve replacement excavations was disposed of at the landfill on December 4, 2012. The landfill hauling summary report, the landfill acceptance letter, and the waste profile with the waste characterization lab report are provided in Attachment B.

Table 2
Waste Characterization Soil Sampling Results Summary
Profile CL12-0067 Analytical Samples

Sample ID	Date Completed	Analytical Results (mg/kg)				
		DRO	BTEX			
			Benzene	Ethyl Benzene	Toluene	Xylene
Pipe Rock	8/9/2012	120	<0.036	<0.036	<0.036	<0.11
Office Water-Stockpile-1	11/5/2012	17.9	<0.0264	<0.066	<0.066	<0.198
Line 5 Trap – Stockpile -1	11/5/2012	179	<.0312	<0.0779	<0.0779	<0.234

Detections are reported in **Bold**

Water

No water removal or disposal was required as part of the fire hydrant replacement excavation activities. Crude oil impacted water was removed from the water valve replacement excavation with a vacuum truck to facilitate maintenance work. The water was stored in tanker trucks until an offsite disposal option was identified and approved. Barr collected a DRO, BTEX and Gasoline Range Organics (GRO) waste characterization water sample from the tanker and submitted it to Legend Technical Services in St. Paul, Minnesota for analysis (Table 3). The analytical report is provided in Attachment A.

**Table 3
 Waste Characterization Water Sampling Results Summary
 Waterline Maintenance Excavations**

Sample ID	Date Completed	Analytical Results (ug/L)					
		DRO	GRO	BTEX			
				Benzene	Ethyl Benzene	Toluene	Xylene
Hydrant Water – Waste - 1	11/7/2012	15000	510	1.7	3.2	2.3	5.8

Detections are reported in **Bold**

The laboratory report was submitted to Western Lake Superior Sanitary District (WLSSD) to determine if the water could be disposed of at their water treatment facility in Duluth, Minnesota. On November 15, 2012, WLSSD approved the disposal of water generated during this project. The approval letter is provided in Attachment B to this memo. Enbridge subsequently coordinated the hauling and disposal of the waste at the WLSSD treatment facility.

Reporting

Fire Hydrant Replacement Excavation

As indicated in the background section above, the fire hydrant replacement excavation was located approximately 110 feet from a previously reported 220 barrel release (WDNR BRRTs -2-16-279246; LRS # 338). The historical BRRTS for the 220 barrel release was opened by the WDNR on July 27, 2000 and closed on August 16, 2005. A file review was not completed for this historical release to confirm whether the impacted soil discovered around the fire hydrant excavation was associated with that release.

Barr recommends that Enbridge work with the WDNR to determine if the impacted soil constitutes a new release, subject to the State of Wisconsin spill reporting requirements (S. 292.11), or whether it can be attributed to BRRTs 02-16-279246. If the soil is attributed to the BRRTs site, the WDNR will decide if this encounter will need to be re-reported or whether response actions documentation should be provided.

Water Valve Replacement Excavation

As indicated in the background section above, the water valve replacement excavation was located approximately 100 feet from multiple previously documented but unreported historical release (LRS #'s:

37, 251, 328, 329). Unless the historical release(s) was previously documented as de minimis (i.e. less than 5 gallons), the discovery of this previously unreported historical release is required to be reported to the WDNR in accordance with s. 292.11.

Barr recommends that Enbridge work with the WDNR to determine the proper reporting protocol (if any) for historical release sites at the Superior Terminal property. Depending on how the WDNR views previously unreported and recently rediscovered historical spills will determine if further action would be required to address this newly discovered historical release.

Conclusions

Crude oil impacted soil and water removed from the fire hydrant replacement and the water valve replacement excavations was characterized and disposed of offsite. Crude oil impacted soil was still present in the excavation sidewalls when construction activities were completed and the excavations were backfilled with clean fill. Depending on how the WDNR views previously unreported and/or recently rediscovered historical spills will determine if further action would be required to address the residual contamination that remains at these excavation sites.

Attachments:

Site Photos: 1-5

Figure 1 Site Location Map Waterline Maintenance Excavations

Figure 2 Site Layout Map Waterline Maintenance Excavations

Figure 3 Fire Hydrant Replacement Excavation Field Log

Figure 4 Water Valve Replacement Excavation Field Log

Attachment A: Water Valve Excavation Laboratory Report

Attachment B: Waste Disposal Documentation

- Shamrock Landfill Waste Profile Sheet and Pace Lab Report for Waste Characterization
- Shamrock Landfill Waste Acceptance Letter
- Shamrock Landfill Summary Report
- WLSSD Approval Letter and Legend Lab report for Waste Characterization

SITE PHOTOS:



Photo 1: Fire hydrant removal excavation on 11/1/2012. The photo was taken facing east.



Photo 2: Fire hydrant replacement excavation on 11/1/2012. Sheen was observed on the water and on the wet soil in the bottom of the excavation. The dark gray pipe is the hydrovac truck hose and the red pipe is the fire hydrant.



Photo 3: Fire hydrant replacement excavation on 11/7/2012. Soil with discoloration and a petroleum odor is visible on left side of the photo approximately three feet below ground surface.

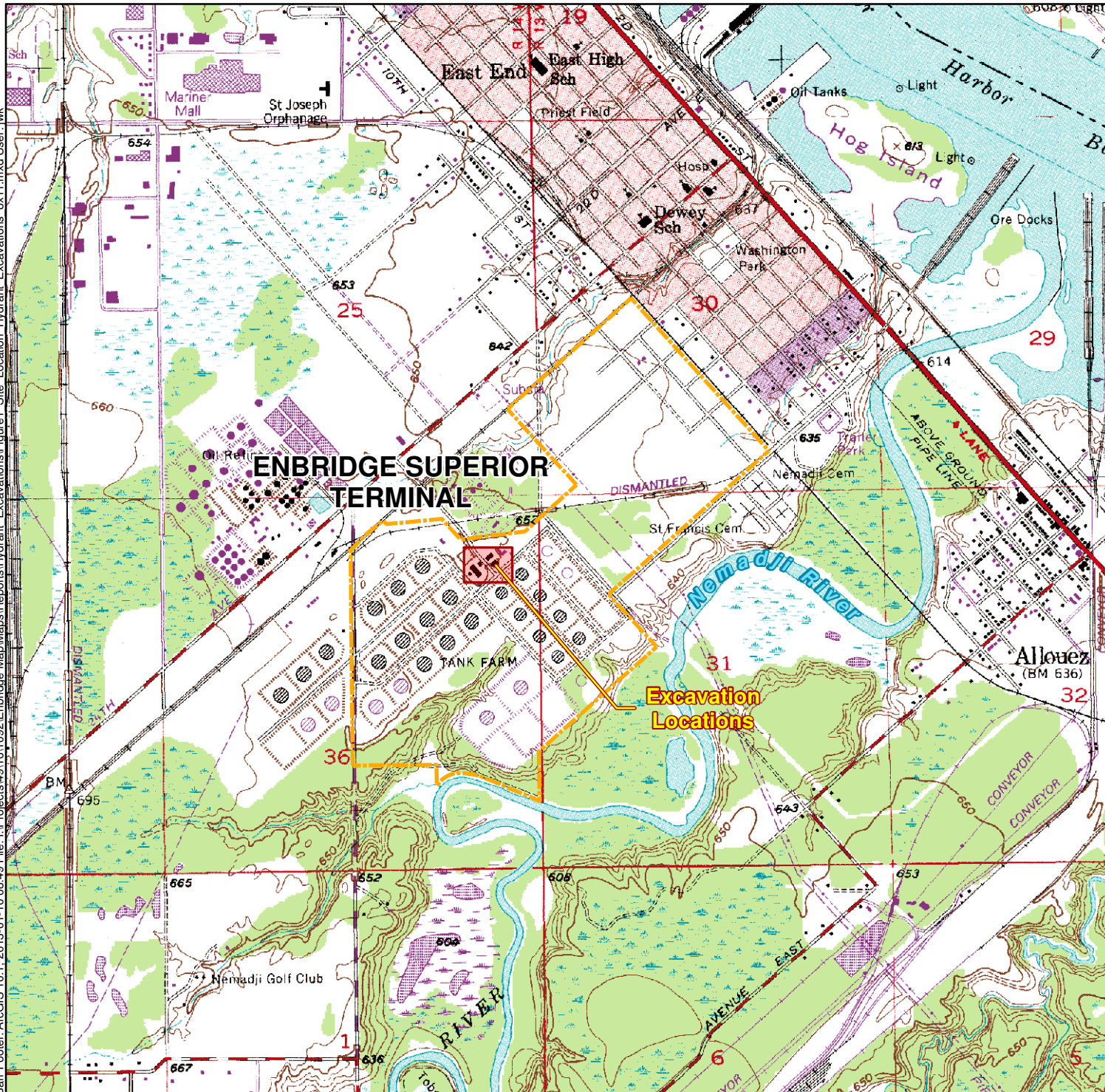


Photo 4: Office water valve removal excavation. The photo was taken facing west.



Photo 5: Office water valve excavation. A sheen was observed on the water surface and on wet soil. The pipe in the photo is the water valve that was being replaced.

Barr Footer: ArcGIS 10.1, 2013-01-10 08:49 File: I:\Projects\491161\1092\Enbridge Map\Reports\Hydrant Excavations\Figure1_Site_Location_Hydrant Excavations\Figure1.mxd User: iwk



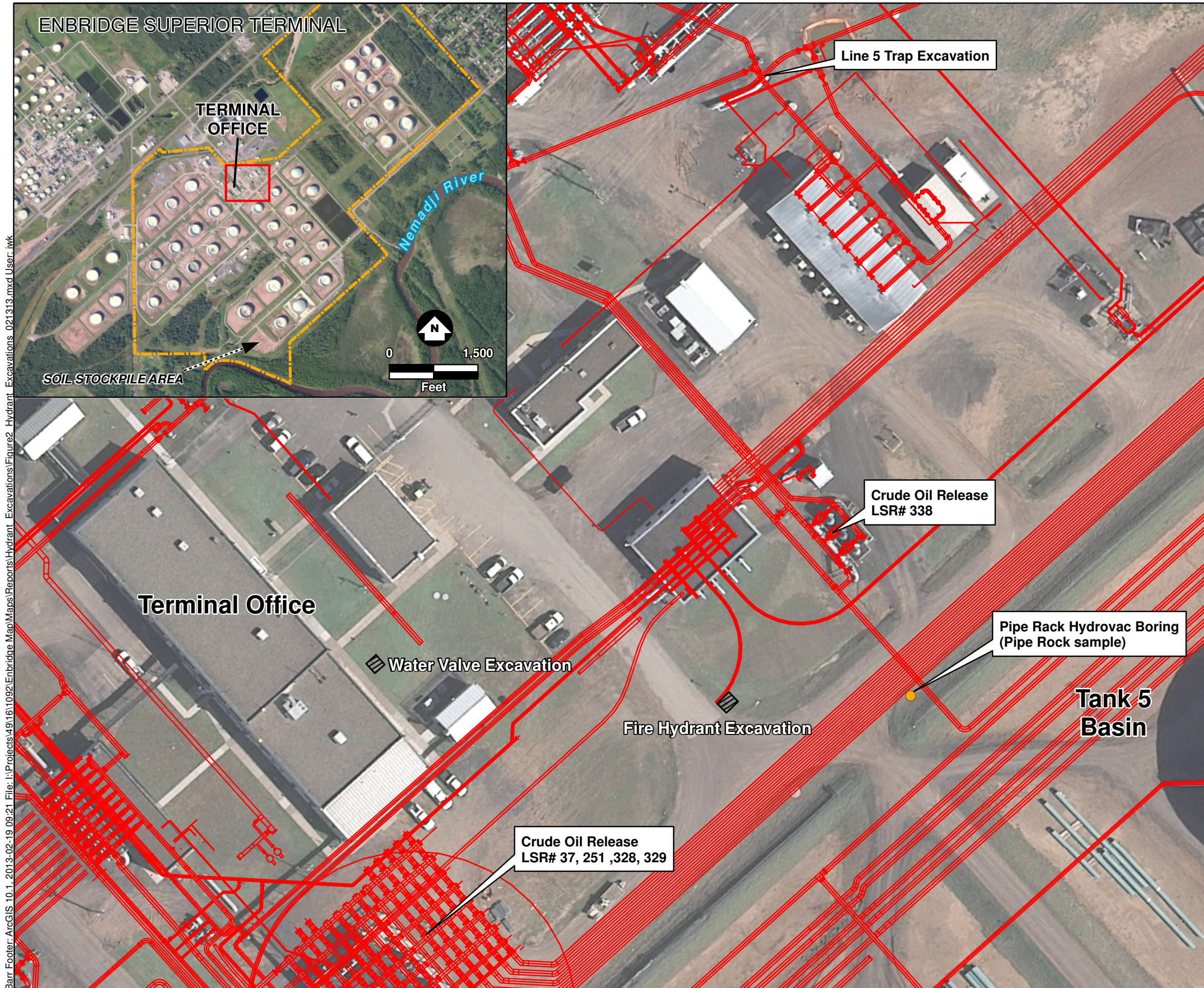
- Terminal Property Boundary
- Figure 2 Extent



Feet
1 Inch = 2,000 Feet
Figure 1

SITE LOCATION MAP
WATERLINE
MAINTENANCE EXCAVATIONS
SUPERIOR TERMINAL
Enbridge Energy, L.P.
Superior, Wisconsin





- Borings
- Approximate Excavation Extent
- Pipeline Infrastructure
- Terminal Property Boundary

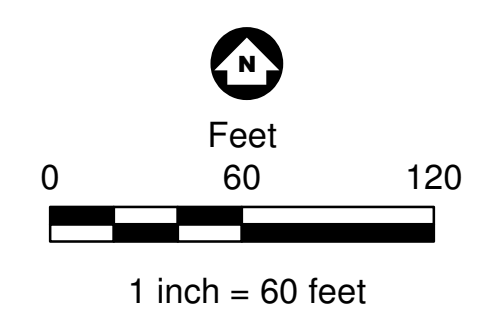


Figure 2

SITE LAYOUT MAP
WATERLINE MAINTENANCE EXCAVATIONS
SUPERIOR TERMINAL
 Enbridge Energy, L.P.
 Superior, Wisconsin



Barr Footer: ArcGIS 10.1.1.2013-02-19 09:21 File: I:\Projects\491611092\Enbridge Map\Reports\Hydrant Excavations\Figure2_Hydrant Excavations_021313.mxd User: iwk

Attachment A

Water Valve Replacement Excavation Laboratory Report

November 28, 2012

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

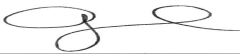
RE: Project: 49161092 Ebridge Water Hydrant
Pace Project No.: 10212795

Dear Andrea Nord:

Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Page 1 of 12

CERTIFICATIONS

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

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

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

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

Nebraska Certification #: Pace

Nevada Certification #: MN_00064

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

Page 2 of 12

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE SUMMARY

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10212795001	Office Valve-S-1	Solid	11/15/12 10:15	11/16/12 09:35
10212795002	Office Valve-S-2	Solid	11/15/12 10:30	11/16/12 09:35

REPORT OF LABORATORY ANALYSIS

Page 3 of 12

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10212795001	Office Valve-S-1	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M
10212795002	Office Valve-S-2	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Method: WI MOD DRO

Description: WIDRO GCS

Client: Barr Engineering

Date: November 28, 2012

General Information:

2 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.

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.

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.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/20308

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

- Office Valve-S-2 (Lab ID: 10212795002)
 - Diesel Range Organics

REPORT OF LABORATORY ANALYSIS

Page 5 of 12

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Method: WI MOD GRO

Description: WIGRO GCV

Client: Barr Engineering

Date: November 28, 2012

General Information:

2 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.

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.

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Sample: Office Valve-S-1 **Lab ID: 10212795001** Collected: 11/15/12 10:15 Received: 11/16/12 09:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	<12.3	mg/kg	12.3	1.4	1	11/19/12 13:33	11/20/12 09:12		
Surrogates									
n-Triacontane (S)	85	%	50-150		1	11/19/12 13:33	11/20/12 09:12		
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	<0.067	mg/kg	0.067	0.0080	1	11/18/12 20:51	11/19/12 08:50	71-43-2	
Ethylbenzene	<0.067	mg/kg	0.067	0.011	1	11/18/12 20:51	11/19/12 08:50	100-41-4	
Toluene	<0.067	mg/kg	0.067	0.0080	1	11/18/12 20:51	11/19/12 08:50	108-88-3	
1,2,4-Trimethylbenzene	<0.067	mg/kg	0.067	0.0094	1	11/18/12 20:51	11/19/12 08:50	95-63-6	
1,3,5-Trimethylbenzene	<0.067	mg/kg	0.067	0.015	1	11/18/12 20:51	11/19/12 08:50	108-67-8	
Xylene (Total)	<0.20	mg/kg	0.20	0.021	1	11/18/12 20:51	11/19/12 08:50	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	11/18/12 20:51	11/19/12 08:50	98-08-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	24.1	%	0.10	0.10	1		11/20/12 00:00		

Sample: Office Valve-S-2 **Lab ID: 10212795002** Collected: 11/15/12 10:30 Received: 11/16/12 09:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	222	mg/kg	13.9	1.5	1	11/19/12 13:33	11/20/12 09:19		T6
Surrogates									
n-Triacontane (S)	87	%	50-150		1	11/19/12 13:33	11/20/12 09:19		
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.									
Benzene	<0.078	mg/kg	0.078	0.0093	1	11/18/12 20:51	11/19/12 09:10	71-43-2	
Ethylbenzene	<0.078	mg/kg	0.078	0.012	1	11/18/12 20:51	11/19/12 09:10	100-41-4	
Toluene	<0.078	mg/kg	0.078	0.0093	1	11/18/12 20:51	11/19/12 09:10	108-88-3	
1,2,4-Trimethylbenzene	0.56	mg/kg	0.078	0.011	1	11/18/12 20:51	11/19/12 09:10	95-63-6	
1,3,5-Trimethylbenzene	0.22	mg/kg	0.078	0.017	1	11/18/12 20:51	11/19/12 09:10	108-67-8	
Xylene (Total)	<0.23	mg/kg	0.23	0.025	1	11/18/12 20:51	11/19/12 09:10	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	96	%	80-125		1	11/18/12 20:51	11/19/12 09:10	98-08-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	32.7	%	0.10	0.10	1		11/20/12 00:00		

QUALITY CONTROL DATA

Project: 49161092 Ebridge Water Hydrant
Project No.: 10212795

QC Batch: GCV/10047 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10212795001, 10212795002

METHOD BLANK: 1335984 Matrix: Solid
Associated Lab Samples: 10212795001, 10212795002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	<0.050	0.050	11/19/12 05:03	
1,3,5-Trimethylbenzene	mg/kg	<0.050	0.050	11/19/12 05:03	
Benzene	mg/kg	<0.050	0.050	11/19/12 05:03	
Ethylbenzene	mg/kg	<0.050	0.050	11/19/12 05:03	
Toluene	mg/kg	<0.050	0.050	11/19/12 05:03	
Xylene (Total)	mg/kg	<0.15	0.15	11/19/12 05:03	
a,a,a-Trifluorotoluene (S)	%	99	80-125	11/19/12 05:03	

LABORATORY CONTROL SAMPLE & LCSD: 1335985

1335986

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	4.2	4.7	84	95	80-120	12	20	
1,3,5-Trimethylbenzene	mg/kg	5	4.3	4.8	86	97	80-120	12	20	
Benzene	mg/kg	5	4.1	4.7	82	93	80-120	13	20	
Ethylbenzene	mg/kg	5	4.2	4.8	85	96	80-120	12	20	
Toluene	mg/kg	5	4.2	4.7	83	94	80-120	12	20	
Xylene (Total)	mg/kg	15	12.8	14.4	86	96	80-120	12	20	
a,a,a-Trifluorotoluene (S)	%				97	97	80-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1335987

1335988

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1214887001 Result	Spike Conc.	Spike Conc.	MS Result						
1,2,4-Trimethylbenzene	mg/kg	0.15	5.6	5.7	5.5	5.5	96	92	80-120	.6	20
1,3,5-Trimethylbenzene	mg/kg	0.094	5.6	5.7	5.6	5.6	99	95	80-120	.9	20
Benzene	mg/kg	ND	5.6	5.7	5.4	5.3	95	92	80-120	1	20
Ethylbenzene	mg/kg	0.072	5.6	5.7	5.6	5.5	98	95	80-120	.2	20
Toluene	mg/kg	0.077	5.6	5.7	5.5	5.4	96	93	80-120	.9	20
Xylene (Total)	mg/kg	0.41	16.8	17.3	16.6	16.8	97	95	80-120	.8	20
a,a,a-Trifluorotoluene (S)	%						96	95	80-125		

QUALITY CONTROL DATA

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

QC Batch: MPRP/36530

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10212795001, 10212795002

SAMPLE DUPLICATE: 1337110

Parameter	Units	10212530007 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.5	8.5	.6	30	

SAMPLE DUPLICATE: 1337301

Parameter	Units	10212794005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	23.4	23.9	2	30	

QUALITY CONTROL DATA

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

QC Batch: OEXT/20308 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10212795001, 10212795002

METHOD BLANK: 1336473 Matrix: Solid

Associated Lab Samples: 10212795001, 10212795002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	11/20/12 06:50	
n-Triacontane (S)	%	74	50-150	11/20/12 06:50	

LABORATORY CONTROL SAMPLE & LCSD: 1336474 1336475

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	68.7	75.4	86	94	70-120	9	20	
n-Triacontane (S)	%				80	82	50-150			

QUALIFIERS

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

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

T6 High boiling point hydrocarbons are present in the sample.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161092 Ebridge Water Hydrant

Pace Project No.: 10212795

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10212795001	Office Valve-S-1	WI MOD DRO	OEXT/20308	WI MOD DRO	GCSV/10471
10212795002	Office Valve-S-2	WI MOD DRO	OEXT/20308	WI MOD DRO	GCSV/10471
10212795001	Office Valve-S-1	TPH GRO/PVOC WI ext.	GCV/10047	WI MOD GRO	GCV/10052
10212795002	Office Valve-S-2	TPH GRO/PVOC WI ext.	GCV/10047	WI MOD GRO	GCV/10052
10212795001	Office Valve-S-1	ASTM D2974	MPRP/36530		
10212795002	Office Valve-S-2	ASTM D2974	MPRP/36530		

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

BARR

1130 10212795

Project Number: 49161092
 Project Name: Fennel Enbridge Water Hydrant + Valves
 Sample Origination State WI (use two letter postal state abbreviation)
 COC Number: **N^o 40043**

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

Project Manager: REE
 Project QC Contact: ADN
 Sampled by: REE
PACET
 Laboratory: ~~_____~~

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 <u>PVOC</u>	DRO (Tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	Total Number Of Containers	
						Water	Soil	Grab	Comp.	QC	Grab															Comp.
1. Office Valve - S-1	1	1	ft	11/15/12	1015																					3
2. Office Valve - S-2	6	6		↓	1030																					3
3.																										
4.																										
5.																										
6.																										
7.																										
8.																										
9.																										
10.																										

DRO, ~~BTEX~~, Moisture
 PVOC-MTBE
 ↓
 TAT by
 11/27/12

- 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: [Signature] On Ice? Y N Date: 11/15/12 Time: 1130 Received by: TN/Pce Date: 11/16/12 Time: 935

Relinquished By: _____ On Ice? Y N Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

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

1 of 1



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.05


Document Revised: 13Nov2012
Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Berry

Project #: **WO# : 10212795**



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: 7990 8673 3444

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

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

Thermometer Used: B88A912167504 80512447 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read (°C): 1.9 Cooler Temp Corrected (°C): 2.1 Biological Tissue Frozen? Yes No
 Temp should be above freezing to 6°C Date and Initials of Person Examining Contents: 11/16/12

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 and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input 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 (<72 hr)?	<input 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 type="checkbox"/> Yes <input checked="" 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>52</u>		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Clad Date: 11-19-12

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 B

Waste Disposal Documentation



REPORT NAME: **Tons Each Load By WSID**
DESCRIPTION: **Tonnage for EACH LOAD, grouped by customer**
DATE RANGE: **01/01/2012 to 12/05/2012**
PRINTED ON (DATE): **Wednesday, December 05, 2012**

ENBS1

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

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT.	LIFT	TONS
5762 (A)	10873	11/12/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	1A	T34	1170	12.24
5765 (A)	10874	11/12/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	1A	T34	1170	14.56
5766 (A)	10875	11/12/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	1A	T34	1170	9.93
6189 (A)	5298	12/4/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	2A	Y41	1160	13.92
6190 (A)	5297	12/4/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	2A	Y41	1160	13.60
6194 (A)	5299	12/4/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	2A	Y41	1160	15.43
6198 (A)	5296	12/4/2012	CL12-0067	Crude Contaminated Soil (Pipe Rac	2A	Y41	1160	13.41

Total # of Loads: 7 **Total Tons: 93.09**

Grand Total (Tons): 93.09
Grand Total (Loads): 7



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 -Pipe Rack Boring	County: Douglas	Generator Contact: Paul Turner	
Generator Mailing Address (if different: 1320 Grand Ave, Superior, WI 54880)		Phone: 715-398-4752	Fax: 715-398-3223
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002		Bill To #:	Billing Contact: Paul Turner
Invoice Contact:		Phone: 715-398-9192	Fax: 715-398-3223
		Billing Email Address: paul.turner@enbridge.com	

II. Waste Generation Information

Waste Name: Pipe Rack Boring	Estimated rate of waste generation: 10 <input type="checkbox"/> Lbs. <input type="checkbox"/> tons <input checked="" type="checkbox"/> cy <input type="checkbox"/> drums	<input checked="" type="checkbox"/> one time <input type="checkbox"/> yearly
Generator Facility Operations and/or Site History: Enbridge Pipeline Terminal		
Describe the generating process or source of contaminated soil/debris and/or waste: Pipeline Terminal Activities		

III. Waste Composition and Constituents (list all known)

	Actual Range	
	%	ppm
Crude contaminated soil	100	

IV. Waste Properties

Physical state: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Sludge <input type="checkbox"/> Gas	Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Content _____ %	pH Range: <input type="checkbox"/> <2 <input type="checkbox"/> 2-4 <input type="checkbox"/> 5-8 <input type="checkbox"/> 8-12.4 <input type="checkbox"/> >12.5	Flash point: <input type="checkbox"/> ≤ 140°F <input type="checkbox"/> > 140°F to < 200°F <input type="checkbox"/> > 200°F	Color: Brown	Odor (describe): petroleum odor
--------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------------------------------

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 contain lethal (by Minn. Rules 7045.0131 Subp. 6)? <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	Does this waste stream contain PCB material If yes, concentration: _____ppm <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this waste recyclable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does this waste stream contain fuming acids? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Does this waste contain asbestos? <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 oxidizers? <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 infectious? <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)		Is this waste putrescible waste? <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

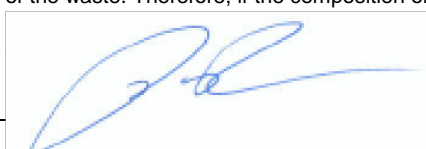
VI. Shipping Information

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 generator, hereby agree to fully indemnify SKB Environmental for any damages and/or costs incurred as a result



_____ Paul Turner Environmental Analyst _____
Printed Name Title Date



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

August 15, 2012

REVISION

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

Work Order Number: 1203709
RE: 49161172

This is a revised report. The details of the revision are listed in the case narrative on the following page.

Enclosed are the results of analyses for samples received by the laboratory on 08/10/12. 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: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pipe Rock	1203709-01	Soil	08/09/12 14:00	08/10/12 08:45
Trip Blank	1203709-02	Methanol	08/09/12 00:00	08/10/12 08:45

Shipping Container Information

Default Cooler Temperature (°C): 6.8

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

Case Narrative:

This report was revised on August 15, 2012 to attach the DRO chromatogram for the sample. This report supercedes the report dated August 14, 2012.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

DRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pipe Rock (1203709-01) Soil Sampled: 08/09/12 14:00 Received: 08/10/12 8:45										
Diesel Range Organics	120	14	2.3	mg/kg dry	1	B2H1312	08/13/12	08/13/12	WI(95) DRO	L1
Surrogate: <i>Triacontane (C-30)</i>	86.5			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

WI(95) GRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pipe Rock (1203709-01) Soil Sampled: 08/09/12 14:00 Received: 08/10/12 8:45										
Benzene	<0.036	0.036	0.0054	mg/kg dry	1	B2H1306	08/13/12	08/13/12	WI(95) GRO	
Ethylbenzene	<0.036	0.036	0.0067	mg/kg dry	1	"	"	"	"	
Toluene	<0.036	0.036	0.0034	mg/kg dry	1	"	"	"	"	
Xylenes (total)	<0.11	0.11	0.017	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	98.2			80-150 %		"	"	"	"	
Trip Blank (1203709-02) Methanol Sampled: 08/09/12 00:00 Received: 08/10/12 8:45										
Benzene	<0.025	0.025	0.0038	mg/kg wet	1	B2H1306	08/13/12	08/13/12	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	94.3			80-150 %		"	"	"	"	



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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pipe Rock (1203709-01) Soil Sampled: 08/09/12 14:00 Received: 08/10/12 8:45										
% Solids	65			%	1	B2H1408	08/14/12	08/14/12	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

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 B2H1312 - Sonication (Wisc DRO)											
Blank (B2H1312-BLK1)											
						Prepared & Analyzed: 08/13/12					
Diesel Range Organics	< 8.0	8.0	1.3	mg/kg wet							
Surrogate: <i>Triacontane (C-30)</i>	11.6			mg/kg wet	16.0		72.7	70-130			
LCS (B2H1312-BS1)											
						Prepared & Analyzed: 08/13/12					
Diesel Range Organics	50.7	8.0	1.3	mg/kg wet	64.0		79.2	70-120			
Surrogate: <i>Triacontane (C-30)</i>	12.4			mg/kg wet	16.0		77.8	70-130			
LCS Dup (B2H1312-BSD1)											
						Prepared: 08/13/12 Analyzed: 08/14/12					
Diesel Range Organics	51.5	8.0	1.3	mg/kg wet	64.0		80.4	70-120	1.59	20	
Surrogate: <i>Triacontane (C-30)</i>	13.6			mg/kg wet	16.0		85.3	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

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 B2H1306 - EPA 5035 Soil (Purge and Trap)

Blank (B2H1306-BLK1)

Prepared & Analyzed: 08/13/12

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	23.0			ug/L	25.0		91.9	80-150			

LCS (B2H1306-BS1)

Prepared & Analyzed: 08/13/12

Benzene	92.6			ug/L	100		92.6	80-120			
Ethylbenzene	95.9			ug/L	100		95.9	80-120			
Toluene	93.1			ug/L	100		93.1	80-120			
Xylenes (total)	288			ug/L	300		95.9	80-120			
Surrogate: 4-Fluorochlorobenzene	24.0			ug/L	25.0		96.1	80-150			

LCS Dup (B2H1306-BSD1)

Prepared & Analyzed: 08/13/12

Benzene	95.1			ug/L	100		95.1	80-120	2.72	20	
Ethylbenzene	98.5			ug/L	100		98.5	80-120	2.77	20	
Toluene	96.1			ug/L	100		96.1	80-120	3.17	20	
Xylenes (total)	301			ug/L	300		100	80-120	4.59	20	
Surrogate: 4-Fluorochlorobenzene	25.0			ug/L	25.0		100	80-150			

Matrix Spike (B2H1306-MS1)

Source: 1203710-01

Prepared & Analyzed: 08/13/12

Benzene	94.1			ug/L	100	<	94.1	80-120			
Ethylbenzene	97.7			ug/L	100	0.134	97.5	80-120			
Toluene	95.5			ug/L	100	0.139	95.4	80-120			
Xylenes (total)	293			ug/L	300	<	97.7	80-120			
Surrogate: 4-Fluorochlorobenzene	23.7			ug/L	25.0		94.7	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

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 B2H1408 - General Preparation											
Duplicate (B2H1408-DUP1)											
	Source: 1203714-02		Prepared & Analyzed: 08/14/12								
% Solids	91.0			%		91.0			0.00	20	
Duplicate (B2H1408-DUP2)											
	Source: 1203714-04		Prepared & Analyzed: 08/14/12								
% Solids	93.0			%		94.0			1.07	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161172 Project Number: 49161172 Pipe Rock Project Manager: Ms. Andrea Nord	Work Order #: 1203709 Date Reported: 08/15/12
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------

Notes and Definitions

L1	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
<	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

1203709
 Enbridge

Project Number: 4916-1172
 Project Name: Pipe Rack Geotechnical
 Sample Origination State WI (use two letter postal state abbreviation)
 COC Number: **No 35266**

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.	QC	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	GRX, BTEX (tared MeOH) #1	DRCO (tared unpreserved)	Metals (unpreserved)	SVOCS (unpreserved) #2	% Solids (plastic vial, unpres.)	BTEX	
1. Pipe Rack	-	-	-	8/19/12	1400		X		X									X				X	X	3
2. Trip Blank																								3
3. 8/19/12 #																								
4.																								
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								

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

Relinquished By: [Signature] On Ice? No Date: 8/19/12 Time: 1430
 Relinquished By: _____ On Ice? Yes Date: _____ Time: _____
 Received by: [Signature] Date: 8/19/12 Time: 8:45
 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
 Fedex 6.8⁰⁰

Data File: \\lts-target\targetdata\chem\FID6.i\Aug13.b\009.d

Date : 13-AUG-2012 17:48

Client ID:

Sample Info: 1203709-01

Pipe Rock

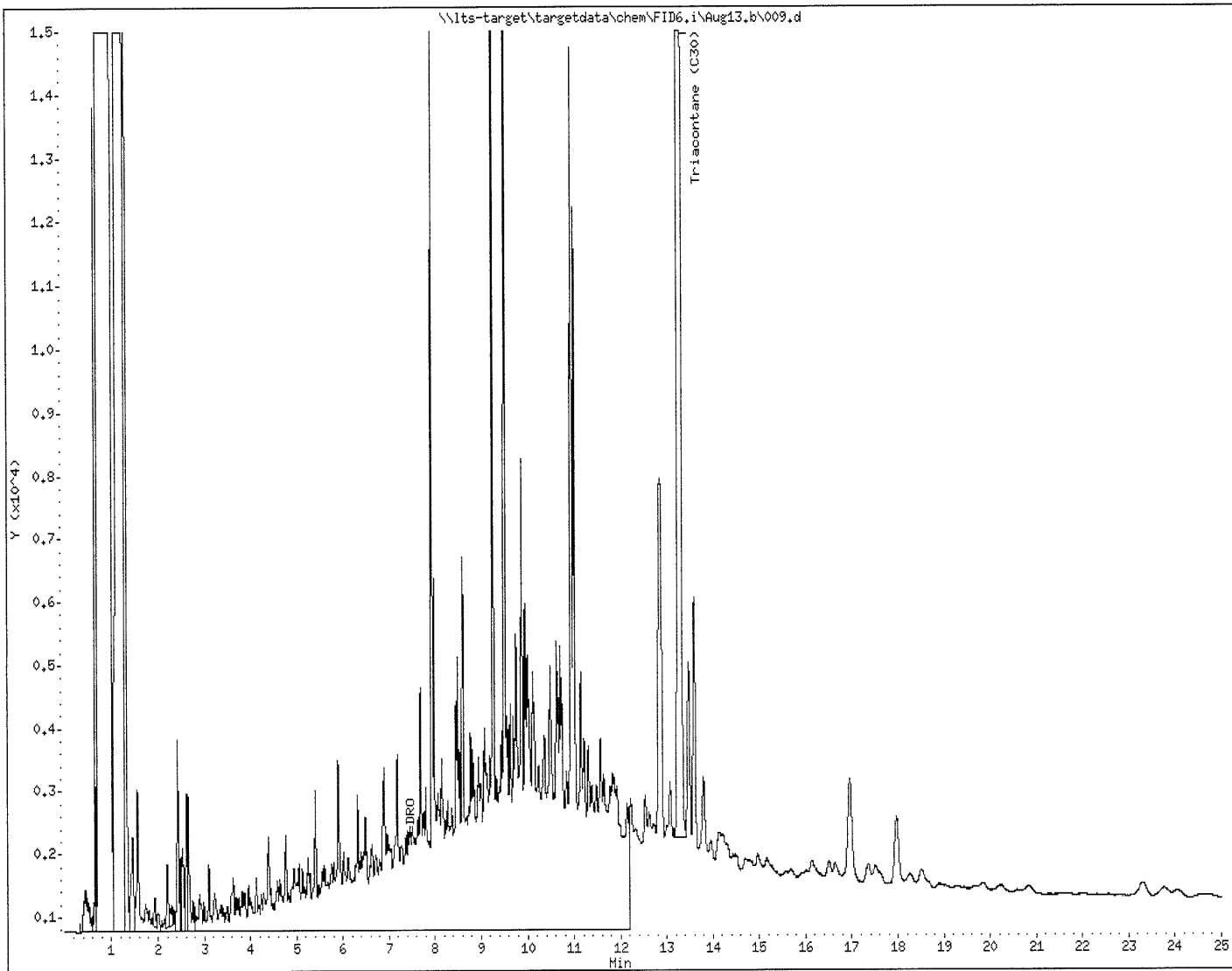
Instrument: FID6.i

Operator: TL

Column diameter: 0.53

Column phase:

VF 6141e



November 08, 2012

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

RE: Project: Enbridge Terminal Hydrant Exca
Pace Project No.: 10211407

Dear Andrea Nord:

Enclosed are the analytical results for sample(s) received by the laboratory on November 06, 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,



Carol Davy for
Andrea Opland
andrea.opland@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

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

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

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 York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

Page 2 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE SUMMARY

Project: Enbridge Terminal Hydrant Exca
Pace Project No.: 10211407

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10211407001	Office Water- Stockpile-1	Solid	11/05/12 13:30	11/06/12 09:00
10211407002	Line 5 Trap- Stockpile-1	Solid	11/05/12 09:30	11/06/12 09:00

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10211407001	Office Water- Stockpile-1	WI MOD DRO	MT	2	PASI-M
		ASTM D2974	LLC	1	PASI-M
		EPA 8260	CNC	8	PASI-M
10211407002	Line 5 Trap- Stockpile-1	WI MOD DRO	MT	2	PASI-M
		ASTM D2974	LLC	1	PASI-M
		EPA 8260	CNC	8	PASI-M

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

Method: WI MOD DRO

Description: WIDRO GCS

Client: Barr Engineering

Date: November 08, 2012

General Information:

2 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.

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.

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.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/20186

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

- Line 5 Trap- Stockpile-1 (Lab ID: 10211407002)
 - Diesel Range Organics
- Office Water- Stockpile-1 (Lab ID: 10211407001)
 - Diesel Range Organics

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Enbridge Terminal Hydrant Exca
Pace Project No.: 10211407

Method: EPA 8260
Description: 8260 MSV UST
Client: Barr Engineering
Date: November 08, 2012

General Information:

2 samples were analyzed for EPA 8260. 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 5035/5030B 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.

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:

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: Enbridge Terminal Hydrant Exca

Sample Project No.: 10211407

Sample: Office Water- Stockpile-1 **Lab ID: 10211407001** Collected: 11/05/12 13:30 Received: 11/06/12 09:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	17.9	mg/kg	13.3	1.5	1	11/06/12 13:37	11/08/12 12:29		T6
Surrogates									
n-Triacontane (S)	93	%	50-150		1	11/06/12 13:37	11/08/12 12:29		
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	27.7	%	0.10	0.10	1		11/07/12 00:00		
8260 MSV UST									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<26.4	ug/kg	26.4	6.2	1	11/06/12 13:49	11/07/12 11:33	71-43-2	
Ethylbenzene	<66.0	ug/kg	66.0	5.5	1	11/06/12 13:49	11/07/12 11:33	100-41-4	
Toluene	<66.0	ug/kg	66.0	10	1	11/06/12 13:49	11/07/12 11:33	108-88-3	
Xylene (Total)	<198	ug/kg	198	21.9	1	11/06/12 13:49	11/07/12 11:33	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	55-127		1	11/06/12 13:49	11/07/12 11:33	1868-53-7	
1,2-Dichloroethane-d4 (S)	94	%	49-125		1	11/06/12 13:49	11/07/12 11:33	17060-07-0	
Toluene-d8 (S)	100	%	56-131		1	11/06/12 13:49	11/07/12 11:33	2037-26-5	
4-Bromofluorobenzene (S)	104	%	53-128		1	11/06/12 13:49	11/07/12 11:33	460-00-4	

Sample: Line 5 Trap- Stockpile-1 **Lab ID: 10211407002** Collected: 11/05/12 09:30 Received: 11/06/12 09:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	179	mg/kg	72.6	8.0	5	11/06/12 13:37	11/08/12 11:53		T6
Surrogates									
n-Triacontane (S)	90	%	50-150		5	11/06/12 13:37	11/08/12 11:53		
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	38.0	%	0.10	0.10	1		11/07/12 00:00		
8260 MSV UST									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<31.2	ug/kg	31.2	7.3	1	11/06/12 13:49	11/07/12 11:49	71-43-2	
Ethylbenzene	<77.9	ug/kg	77.9	6.5	1	11/06/12 13:49	11/07/12 11:49	100-41-4	
Toluene	<77.9	ug/kg	77.9	11.8	1	11/06/12 13:49	11/07/12 11:49	108-88-3	
Xylene (Total)	<234	ug/kg	234	25.9	1	11/06/12 13:49	11/07/12 11:49	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	55-127		1	11/06/12 13:49	11/07/12 11:49	1868-53-7	
1,2-Dichloroethane-d4 (S)	97	%	49-125		1	11/06/12 13:49	11/07/12 11:49	17060-07-0	
Toluene-d8 (S)	101	%	56-131		1	11/06/12 13:49	11/07/12 11:49	2037-26-5	
4-Bromofluorobenzene (S)	105	%	53-128		1	11/06/12 13:49	11/07/12 11:49	460-00-4	

QUALITY CONTROL DATA

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

QC Batch: MPRP/36281

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10211407001, 10211407002

SAMPLE DUPLICATE: 1327715

Parameter	Units	10211304001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	83.1	82.9	.3	30	

QUALITY CONTROL DATA

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

QC Batch: MSV/22006 Analysis Method: EPA 8260
 QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV UST
 Associated Lab Samples: 10211407001, 10211407002

METHOD BLANK: 1327485 Matrix: Solid

Associated Lab Samples: 10211407001, 10211407002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	<20.0	20.0	11/07/12 10:59	
Ethylbenzene	ug/kg	<50.0	50.0	11/07/12 10:59	
Toluene	ug/kg	<50.0	50.0	11/07/12 10:59	
Xylene (Total)	ug/kg	<150	150	11/07/12 10:59	
1,2-Dichloroethane-d4 (S)	%	97	49-125	11/07/12 10:59	
4-Bromofluorobenzene (S)	%	103	53-128	11/07/12 10:59	
Dibromofluoromethane (S)	%	99	55-127	11/07/12 10:59	
Toluene-d8 (S)	%	100	56-131	11/07/12 10:59	

LABORATORY CONTROL SAMPLE: 1327486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	1000	773	77	74-126	
Ethylbenzene	ug/kg	1000	795	80	74-127	
Toluene	ug/kg	1000	796	80	75-125	
Xylene (Total)	ug/kg	3000	2440	81	75-126	
1,2-Dichloroethane-d4 (S)	%			96	49-125	
4-Bromofluorobenzene (S)	%			100	53-128	
Dibromofluoromethane (S)	%			96	55-127	
Toluene-d8 (S)	%			101	56-131	

MATRIX SPIKE SAMPLE: 1327487

Parameter	Units	10211407001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	<26.4	1380	1210	88	62-144	
Ethylbenzene	ug/kg	<66.0	1380	1260	92	65-146	
Toluene	ug/kg	<66.0	1380	1270	92	59-145	
Xylene (Total)	ug/kg	<198	4130	3870	94	65-146	
1,2-Dichloroethane-d4 (S)	%				93	49-125	
4-Bromofluorobenzene (S)	%				102	53-128	
Dibromofluoromethane (S)	%				98	55-127	
Toluene-d8 (S)	%				102	56-131	

SAMPLE DUPLICATE: 1327488

Parameter	Units	10211407002 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/kg	<31.2	<32.1		30	
Ethylbenzene	ug/kg	<77.9	<80.2		30	

QUALITY CONTROL DATA

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

SAMPLE DUPLICATE: 1327488

Parameter	Units	10211407002 Result	Dup Result	RPD	Max RPD	Qualifiers
Toluene	ug/kg	<77.9	<80.2		30	
Xylene (Total)	ug/kg	<234	<241		30	
1,2-Dichloroethane-d4 (S)	%	97	96	.9		
4-Bromofluorobenzene (S)	%	105	104	3		
Dibromofluoromethane (S)	%	98	98	3		
Toluene-d8 (S)	%	101	100	2		

QUALITY CONTROL DATA

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

QC Batch: OEXT/20186 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10211407001, 10211407002

METHOD BLANK: 1327464 Matrix: Solid

Associated Lab Samples: 10211407001, 10211407002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	11/08/12 09:28	
n-Triacontane (S)	%	80	50-150	11/08/12 09:28	

LABORATORY CONTROL SAMPLE & LCSD: 1327465 1327466

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	63.7	64.9	80	81	70-120	2	20	
n-Triacontane (S)	%				81	81	50-150			

QUALIFIERS

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

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

T6 High boiling point hydrocarbons are present in the sample.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Enbridge Terminal Hydrant Exca

Pace Project No.: 10211407

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10211407001	Office Water- Stockpile-1	WI MOD DRO	OEXT/20186	WI MOD DRO	GCSV/10406
10211407002	Line 5 Trap- Stockpile-1	WI MOD DRO	OEXT/20186	WI MOD DRO	GCSV/10406
10211407001	Office Water- Stockpile-1	ASTM D2974	MPRP/36281		
10211407002	Line 5 Trap- Stockpile-1	ASTM D2974	MPRP/36281		
10211407001	Office Water- Stockpile-1	EPA 5035/5030B	MSV/22006	EPA 8260	MSV/22007
10211407002	Line 5 Trap- Stockpile-1	EPA 5035/5030B	MSV/22006	EPA 8260	MSV/22007

Report Date: 08-Nov-2012 12:46

Pace Analytical Services

WI Dept of Nat. Resources- WIDRO

Data file : \\192.168.10.12\chem\10gcs5.i\110812dro.b\313F0038.D

Lab Smp Id: 10211407001

Inj Date : 08-NOV-2012 12:29

Operator : MT Inst ID: 10gcs5.i

Smp Info : 10211407001

Misc Info : 10406

Comment : C10-C28 DRO

Method : \\192.168.10.12\chem\10gcs5.i\110812dro.b\WDRO5-102312.m

Meth Date : 08-Nov-2012 12:21 mthao Quant Type: ESTD

Cal Date : 23-OCT-2012 11:08 Cal File: 297F0018.D

Als bottle: 31

Dil Factor: 1.00000

Integrator: HP Genie Compound Sublist: all.sub

Target Version: 4.14

Processing Host: 10VOA3

Concentration Formula: Amt * DF * Uf * Vt / (Ws * Vi * (100-M) / 100) * CpndVariable

Name	Value	Description
------	-------	-------------

Data File: \\192.168.10.12\chem\10gcs5.i\110812dro.b\313F0038.D

Report Date: 11/08/2012

Sample ID: 10211407001

Client ID:

Instrument: 10gcs5.i

HP5890 GC Data, FID1A.CH

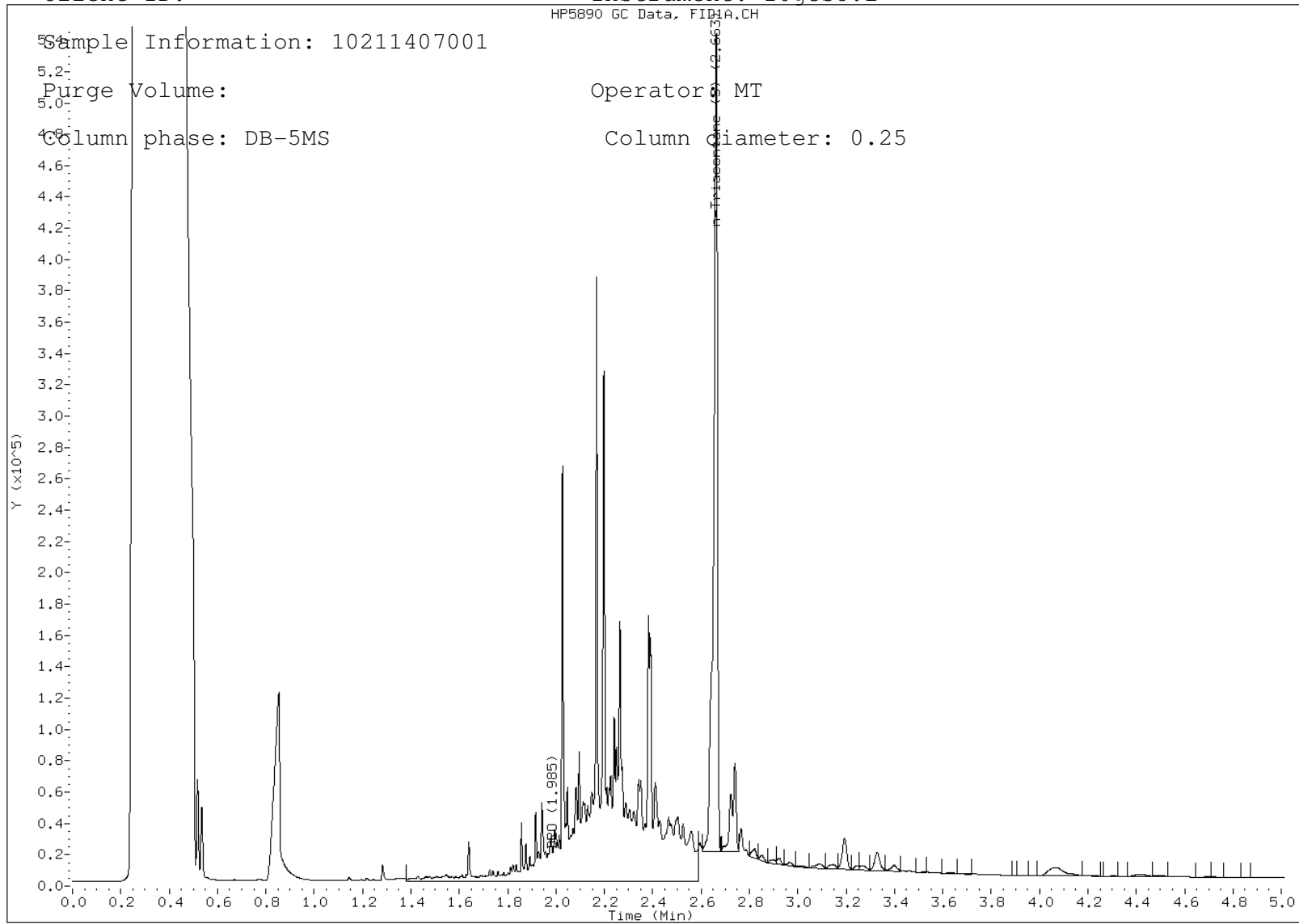
Sample Information: 10211407001

Purge Volume:
5.2
5.0

Operator: MT

Column phase: DB-5MS

Column Diameter: 0.25



Report Date: 08-Nov-2012 12:08

Pace Analytical Services

WI Dept of Nat. Resources- WIDRO

Data file : \\192.168.10.12\chem\10gcs5.i\110812dro.b\313F0033.D

Lab Smp Id: 10211407002

Inj Date : 08-NOV-2012 11:53

Operator : MT

Inst ID: 10gcs5.i

Smp Info : 10211407002,5

Misc Info : 10406

Comment : C10-C28 DRO

Method : \\192.168.10.12\chem\10gcs5.i\110812dro.b\WDRO5-102312.m

Meth Date : 08-Nov-2012 09:45 mthao

Quant Type: ESTD

Cal Date : 23-OCT-2012 11:08

Cal File: 297F0018.D

Als bottle: 30

Dil Factor: 5.00000

Integrator: HP Genie

Compound Sublist: all.sub

Target Version: 4.14

Processing Host: 10VOA3

Concentration Formula: Amt * DF * Uf * Vt / (Ws * Vi * (100-M) / 100) * CpndVariable

Name	Value	Description
------	-------	-------------

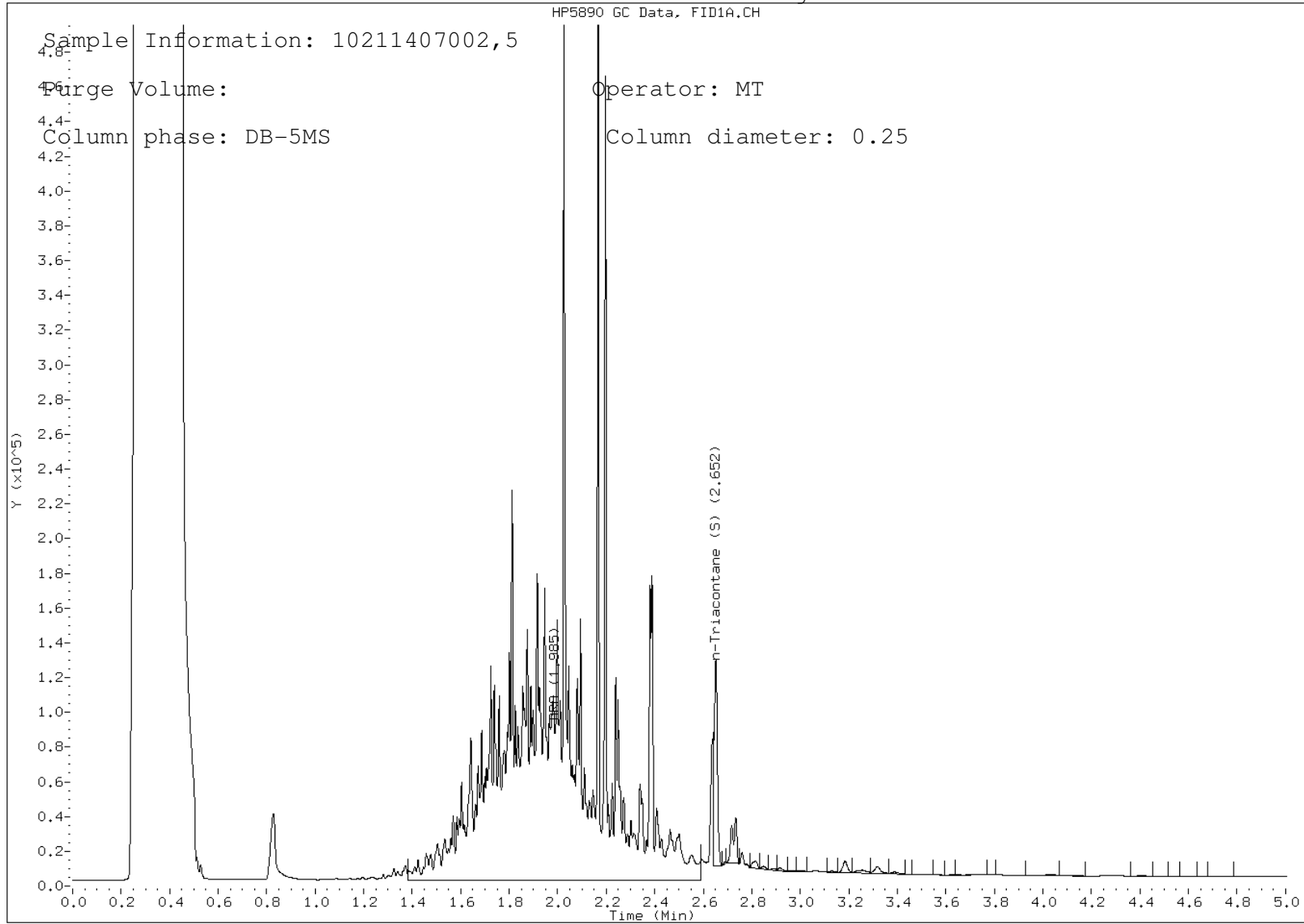
Data File: \\192.168.10.12\chem\10gcs5.i\110812dro.b\313F0033.D

Report Date: 11/08/2012

Sample ID: 10211407002

Client ID:

Instrument: 10gcs5.i



11-6-12-01 1132
RUSH

10211407

Project Number: 4916109Z RESP 017

Project Name: Enbridge Terminal Hydrant Excavations

Sample Origination State W I (use two letter postal state abbreviation)

COC Number: No 35329

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

COC 1 of 1

Project Manager: Ryan Erickson
REE@barr.com

Andrea Nord
 Project QC Contact: ADN@barr.com

Sampled by: REG
Pace

Laboratory: REG

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.)	Total Number Of Containers
						Water	Soil	Grab	Comp.	QC														
1. Office Water - Stockpile - 1				11/5/12	1330	X	X												XX	X				4
2. Line 5 Trap - Stockpile - 1				4/5/12	930	X	X												XX	X				4
3.																								
4.																								
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								

BTEX, DRO, moisture

ASAP TAT

Common Parameter/Container - Preservation Key

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

Relinquished By: [Signature] On Ice? Y N Date 4/5/12 Time 1430 Received by: [Signature] Date 11-6-12 Time 900

Relinquished By: On Ice? Y N Date Time Received by: Date Time

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

2100Z

H:\RLG\STD\FORMS\Chain Of Custody Form 2009 RLG Rev. 09/01/09

Sample Condition
Upon Receipt

Client Name:

Bair

Project #:

WO#: 10211407



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other:

Tracking Number: 7940 0376 611A

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: Proj. Name:

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

Thermometer Used: 888A912167504 80512447 Type of Ice: Wet Blue None Samples on ice, cooling process has beg

Cooler Temperature: 2.3 Biological Tissue Frozen? Yes No Date and Initials of Person Examining Contents: CS 11-6-12
 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 and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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? Noncompliances are noted in 13.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Sample #
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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No
 Comments/Resolution: _____

Project Manager Review:

CSO

Date: 11-6-12

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)



August 27, 2012

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

RE: CL12-0067 Crude Contaminated Soil (Pipe Rack Boring)

Dear Mr. Turner,

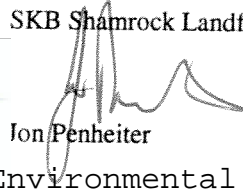
This agreement will confirm the price and length of service for disposal and /or transportation of your non-hazardous industrial material at our facility. This agreement is for the term of the Waste Approval granted by SKB and is for all services ordered and performance initiated within such period and 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


Jon Penheiter
Environmental Analyst

Customer ACCEPTED

DATE: 8/28/2012

WASTE APPROVAL Period: 8/27/2012 to 8/9/2014



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
2800 East 21st St
Superior, WI 54880

Disposal

Waste Description: Crude Contaminated Soil (Pipe Rack Boring)

Estimated Volume: 10 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 (Pipe Rack Boring)
----------	---------	---------	--------------------------------------------



Notification of Waste Acceptance

PAGE 1 of 2
8/27/2012

CUSTOMER INFORMATION

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

2800 East 21st St
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 #: CL12-0067
Waste Name: Crude Contaminated Soil (Pipe Rack Boring)

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 10 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 8/27/2012 thru 8/9/2014 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 (Pipe Rack Boring)
Physical State: Solid
Process Producing Waste: pipeline terminal activities

PRE-ACCEPTANCE SAMPLE RESULTS

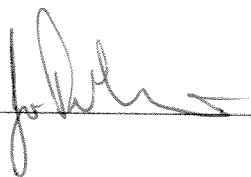
Color:		Physical State:	
Dust Present:	0	Free Liquids:	0
Paint Filter Test:	0	Odor:	
Flash Point Range:		Density:	
Radioactive?:	0	Water Reactivity:	0
pH Range:		React to Acid:	0
React to Base:	0	% Moisture:	
OVM Sniff:		Sulfide:	
Oxidizers:	0	Cyanide:	
Reacts with Air:	0		

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: _____

8/28/12



2626 Courtland Street
Duluth, MN 55806-1894
phone 218.722.3336
fax 218.727.7471
www.wlssd.com

Western Lake Superior Sanitary District

November 15, 2012

Ryan Erickson
Barr Engineering
332 W. Superior Street, Suite 600
Duluth, MN 55802

Re: WLSSD Discharge Approval (Enbridge Groundwater Clean-up)

Dear Mr. Erickson:

Based on the analytical information provided on 11/15/2012, the WLSSD approves the discharge of **approximately 6000 gallons of contaminated water from an Enbridge pipeline ground water clean-up site** provided there is no visual sign of the petroleum oil, grease or other petroleum related products. This contaminated water is to be disposed of at the WLSSD's main treatment facility, which is located at 2626 Courtland in Duluth.

This is a one time only approval for the waste described. It does not release **Barr Engineering or Enbridge Pipeline** from any conditions/regulations set forth by the MPCA and/or any other agency that regulates the waste being discharged. In addition, this approval does not release **Barr Engineering or Enbridge Pipeline or any consultant/contractor** involved from any subsequent liabilities associated with conducting this discharge.

Disposal during a significant rainstorm may be denied because of high flows. A copy of this letter of approval is to accompany each load and is to be disposed of and given to the process control operator. **Please attempt to discharge at our facility between 7:00 a.m. and 5:00 p.m. If you are unable to discharge at that time please call the process control operator (218) 722-3336 ext. 301 with you estimated time of arrival.**

If there are any questions, please contact me at (218) 740-4815.

Sincerely,

Tim Tuominen
Chemist



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

November 12, 2012

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

Work Order Number: 1205308
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 11/08/12. 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 that reads "BACH PHAM".

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

A handwritten signature in black ink that reads "Tyler Jones".

Tyler Jones
Chemist I
tjones@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Hydrant Water-Waste-1	1205308-01	Water	11/07/12 10:00	11/08/12 10:05
Trip Blank	1205308-02	Water	11/07/12 00:00	11/08/12 10:05

Shipping Container Information

Default Cooler Temperature (°C):

Received on ice: Yes Temperature blank was not present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (IH/ISO only): No
 Custody seals: No

Case Narrative:

Recovery of the DRO surrogate for the sample was not available due to sample dilution required from high analyte concentration.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

DRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Hydrant Water-Waste-1 (1205308-01) Water Sampled: 11/07/12 10:00 Received: 11/08/12 10:05										
Diesel Range Organics	15000	1100	220	ug/L	10	B2K0803	11/08/12	11/09/12	WI(95) DRO	PH2
<i>Surrogate: Triacontane (C-30)</i>				70-130 %		"	"	"	"	D-1

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

WI(95) GRO/8015B
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Hydrant Water-Waste-1 (1205308-01) Water Sampled: 11/07/12 10:00 Received: 11/08/12 10:05										
Benzene	1.7	1.0	0.11	ug/L	1	B2K0811	11/08/12	11/09/12	WI(95) GRO	
Ethylbenzene	3.2	1.0	0.095	ug/L	1	"	"	"	"	
Gasoline range organics	510	100	11	ug/L	1	"	"	"	"	H
Toluene	2.3	1.0	0.16	ug/L	1	"	"	"	"	
Xylenes (total)	5.8	3.0	0.19	ug/L	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	97.2			80-150 %		"	"	"	"	
Trip Blank (1205308-02) Water Sampled: 11/07/12 00:00 Received: 11/08/12 10:05										
Benzene	<1.0	1.0	0.11	ug/L	1	B2K0811	11/08/12	11/08/12	WI(95) GRO	
Ethylbenzene	<1.0	1.0	0.095	ug/L	1	"	"	"	"	
Gasoline range organics	<100	100	11	ug/L	1	"	"	"	"	
Toluene	<1.0	1.0	0.16	ug/L	1	"	"	"	"	
Xylenes (total)	<3.0	3.0	0.19	ug/L	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	97.7			80-150 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

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 B2K0803 - EPA 3510C (Sep Funnel)											
Blank (B2K0803-BLK1)											
						Prepared: 11/08/12 Analyzed: 11/09/12					
Diesel Range Organics	< 100	100	20	ug/L							
Surrogate: <i>Triacontane (C-30)</i>	364			ug/L	400		90.9	70-130			
LCS (B2K0803-BS1)											
						Prepared: 11/08/12 Analyzed: 11/09/12					
Diesel Range Organics	1620	100	20	ug/L	1600		101	75-115			
Surrogate: <i>Triacontane (C-30)</i>	383			ug/L	400		95.6	70-130			
LCS Dup (B2K0803-BSD1)											
						Prepared: 11/08/12 Analyzed: 11/09/12					
Diesel Range Organics	1610	100	20	ug/L	1600		100	75-115	0.643	20	
Surrogate: <i>Triacontane (C-30)</i>	379			ug/L	400		94.8	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

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 B2K0811 - EPA 5030 Water (Purge and Trap)											
Blank (B2K0811-BLK1)						Prepared & Analyzed: 11/08/12					
Benzene	< 1.0	1.0	0.11	ug/L							
Ethylbenzene	< 1.0	1.0	0.095	ug/L							
Gasoline range organics	< 100	100	11	ug/L							
Toluene	< 1.0	1.0	0.16	ug/L							
Xylenes (total)	< 3.0	3.0	0.19	ug/L							
Surrogate: 4-Fluorochlorobenzene	26.7			ug/L	25.0		107	80-150			
LCS (B2K0811-BS1)						Prepared & Analyzed: 11/08/12					
Benzene	99.4	1.0	0.11	ug/L	100		99.4	80-120			
Ethylbenzene	92.9	1.0	0.095	ug/L	100		92.9	80-120			
Gasoline range organics	852	100	11	ug/L	1000		85.2	80-120			
Toluene	93.1	1.0	0.16	ug/L	100		93.1	80-120			
Xylenes (total)	287	3.0	0.19	ug/L	300		95.7	80-120			
Surrogate: 4-Fluorochlorobenzene	23.6			ug/L	25.0		94.2	80-150			
LCS Dup (B2K0811-BSD1)						Prepared: 11/08/12 Analyzed: 11/09/12					
Benzene	107	1.0	0.11	ug/L	100		107	80-120	7.08	20	
Ethylbenzene	105	1.0	0.095	ug/L	100		105	80-120	12.7	20	
Gasoline range organics	918	100	11	ug/L	1000		91.8	80-120	7.48	20	
Toluene	106	1.0	0.16	ug/L	100		106	80-120	12.9	20	
Xylenes (total)	321	3.0	0.19	ug/L	300		107	80-120	11.3	20	
Surrogate: 4-Fluorochlorobenzene	25.8			ug/L	25.0		103	80-150			
Duplicate (B2K0811-DUP1)						Source: 1205320-02 Prepared & Analyzed: 11/08/12					
Gasoline range organics	< 100	100	11	ug/L		<100			NA	20	
Surrogate: 4-Fluorochlorobenzene	25.6			ug/L	25.0		102	80-150			
Matrix Spike (B2K0811-MS1)						Source: 1205320-01 Prepared: 11/08/12 Analyzed: 11/09/12					
Benzene	107	1.0	0.11	ug/L	100	<1.0	107	80-120			
Ethylbenzene	103	1.0	0.095	ug/L	100	<1.0	103	80-120			
Toluene	103	1.0	0.16	ug/L	100	<1.0	103	80-120			
Xylenes (total)	314	3.0	0.19	ug/L	300	<3.0	105	80-120			
Surrogate: 4-Fluorochlorobenzene	25.4			ug/L	25.0		101	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092.01 RESP 017 Project Manager: Ms. Andrea Nord	Work Order #: 1205308 Date Reported: 11/12/12
-----------------------------------------------------------------	-----------------------------------------------------------------------------------------------	--------------------------------------------------

Notes and Definitions

PH2	Insufficient preservative to reduce the sample pH to less than 2.
H	Results in the gasoline range contain hydrocarbons less volatile than GRO.
D-1	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
<	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)

