



**TRANSMITTAL LETTER**

**To:** Karl Beaster **Date:** 12/16/2011  
**c:** Hans Wronka  
**Project #:** 49161092 **Re:** Tank 16-17 Ditch Investigation Memo

**We are sending you:**

Correspondence       Reports       Plans  
 Copy of Letter       Specifications       Other:

No. of Copies	Description
1	Tank 16-17 Ditch Investigation, Superior Terminal, Superior, Wisconsin

**These are transmitted as checked below:**

For approval       As requested       Other:  
 For your use       For review and comment:

**Remarks:**  
**Sent by:** Ryan Erickson **Phone:** 612-418-0166

## Technical Memorandum

**To:** Karl Beaster, Enbridge Energy Limited Partnership  
**From:** Ryan Erickson  
**Subject:** Tank 16-17 Ditch Investigation, Superior Terminal, Superior, Wisconsin  
**Date:** December 16, 2011  
**Barr Project:** 49161092

This technical memorandum has been prepared by Barr Engineering Company for Enbridge Energy, Limited Partnership. The memorandum summarizes the response actions resulting from the discovery of crude oil in a ditch northwest of Tanks 16 and 17 on August 14, 2011 at the Enbridge Superior Terminal.

### Release and Response Information

Crude oil was discovered by Pipe Line Maintenance (PLM) personnel on terminal property northwest of the Tank 16 and 17 containment berm on August 14, 2011 (Figure 1). The crude oil was floating on surface water within ditch and the area of the oil was approximately 18-inches in diameter. PLM personnel estimated that less than two gallons of crude oil was present. The source of the crude oil was unknown.

Oil and water were removed from the ditch with a vacuum truck and that section of the ditch was isolated with earth berms. Oil was identified in the soil at depth in the vicinity of the nearby tank-fill pipelines. Approximately 40-feet of the tank-fill pipeline southeast of the ditch was excavated to remove petroleum impacted soil and to attempt to identify the crude oil source (Picture 1). Excavation depth varied from 5-foot to 8-feet based on surface topography. Petroleum impacts were identified in the soil around the pipeline but no source was identified. The excavation was left open for two weeks to determine whether additional crude oil would flow into the excavation from the area along the pipelines. No further crude oil accumulated in the excavation or the ditch. Soil from the excavation sidewalls and bottom were field screened by Barr for organic vapors with a photoionization detector using headspace procedures, and were examined for other indications of hydrocarbons such as odor, discoloration, and sheen. Soil with evidence of hydrocarbons based on the field screening was excavated and stockpiled for disposal. Some hydrocarbon impacted soil was left in place beneath the pipelines at concentrations and depths that were judged not to pose a risk to human health or migration. The excavation was backfilled with clean fill and the area was returned to its original condition (Picture 2).

Barr was also retained by Enbridge to assist with disposal of the soil. A total of 137 tons of hydrocarbon contaminated soil was hauled to the Waste Management Voyageur Landfill near Canyon, Minnesota in September of 2011. The Waste Management waste profile number is 103033MN. The lab reports for waste characterization are attached to this memo.

**PICTURES:**

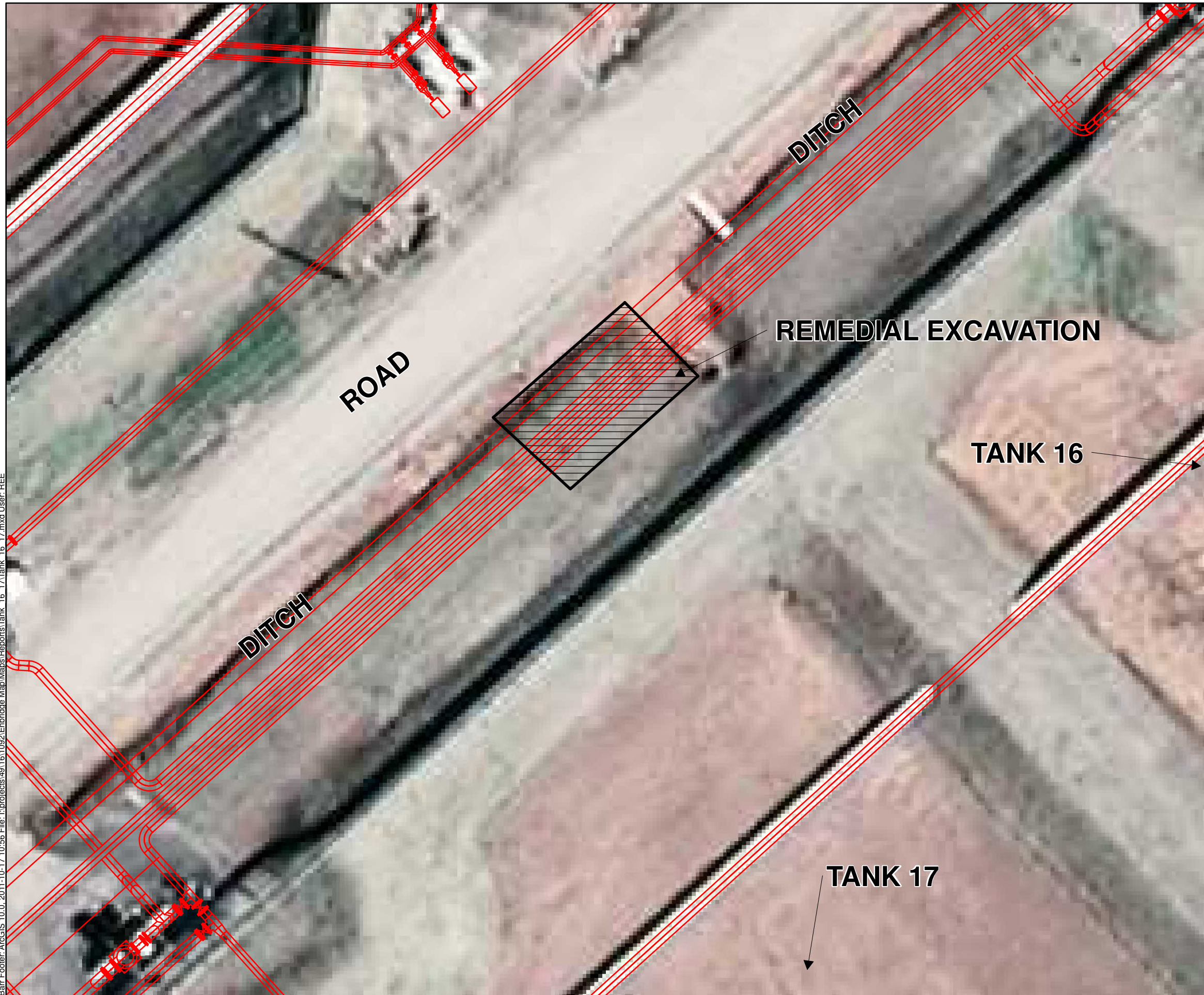




**Picture 1: Tank 16-17 excavation on August 15, 2011.**



**Picture 2: Backfilled and restored excavation on September 28, 2011.**

Barr Footer: ArcGIS 10.0, 2011-10-17 10:56 File: I:\projects\49161092\Enbridge Map\Reports\Tank 16 17\Tank 16 17.mxd User: REE



-  Excavation Extent
-  Terminal Pipeline Infrastructure

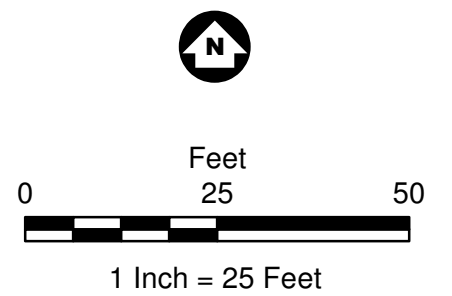


Figure 1  
**TANK 16-17 SITE MAP**  
Enbridge Superior Terminal  
Superior, Wisconsin





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

September 02, 2011

## REVISION

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

Work Order Number: 1103853  
RE: 49161092

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 08/17/11. 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 the original 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 Triet Le in black ink.

Triet Le  
Chemist II  
trietle@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stockpile 1	1103853-01	Soil	08/15/11 15:40	08/17/11 10:55

**Shipping Container Information**

**Default Cooler**                      Temperature (°C): 8.9

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:**

Recovery for the BTEX surrogate was above laboratory limits for sample Stockpile 1 due to matrix interferences. All surrogates were within laboratory limits in the batch B1H1805 QC

This report was revised on September 2, 2011 to correct the state certification reference.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile 1 (1103853-01) Soil</b> <b>Sampled: 08/15/11 15:40</b> <b>Received: 08/17/11 10:55</b>										
<b>Diesel Range Organics</b>	<b>5500</b>	750	120	mg/kg dry	100	B1H1804	08/18/11	08/19/11	WI(95) DRO	
<i>Surrogate: C-30</i>				70-130 %		"	"	"	"	D-1

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile 1 (1103853-01) Soil    Sampled: 08/15/11 15:40    Received: 08/17/11 10:55</b>										
Benzene	3.6	0.17	0.026	mg/kg dry	5	B1H1805	08/18/11	08/18/11	WI(95) GRO	
Ethylbenzene	6.8	0.17	0.033	mg/kg dry	5	"	"	"	"	
Toluene	1.8	0.17	0.017	mg/kg dry	5	"	"	"	"	
Xylenes (total)	13	0.52	0.083	mg/kg dry	5	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	155			80-150 %		"	"	"	"	S-04



Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile 1 (1103853-01) Soil</b> <b>Sampled: 08/15/11 15:40</b> <b>Received: 08/17/11 10:55</b>										
% Solids	72			%	1	B1H1713	08/17/11	08/18/11	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B1H1804 - Sonication (Wisc DRO)</b>											
<b>Blank (B1H1804-BLK1)</b>											
						Prepared & Analyzed: 08/18/11					
Diesel Range Organics	< 8.0	8.0	1.3	mg/kg wet							
Surrogate: C-30	14.4			mg/kg wet	16.0		90.1	70-130			
<b>LCS (B1H1804-BS1)</b>											
						Prepared & Analyzed: 08/18/11					
Diesel Range Organics	60.6	8.0	1.3	mg/kg wet	64.0		94.7	70-120			
Surrogate: C-30	14.0			mg/kg wet	16.0		87.4	70-130			
<b>LCS Dup (B1H1804-BSD1)</b>											
						Prepared: 08/18/11 Analyzed: 08/19/11					
Diesel Range Organics	62.9	8.0	1.3	mg/kg wet	64.0		98.3	70-120	3.73	20	
Surrogate: C-30	14.8			mg/kg wet	16.0		92.2	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

**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 B1H1805 - EPA 5035 Soil (Purge and Trap)**

**Blank (B1H1805-BLK1)**

Prepared & Analyzed: 08/18/11

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							

**LCS (B1H1805-BS1)**

Prepared & Analyzed: 08/18/11

Benzene	89.3			ug/L	100		89.3	80-120			
Ethylbenzene	96.9			ug/L	100		96.9	80-120			
Toluene	96.9			ug/L	100		96.9	80-120			
Xylenes (total)	292			ug/L	300		97.4	80-120			

**LCS Dup (B1H1805-BSD1)**

Prepared: 08/18/11 Analyzed: 08/19/11

Benzene	91.8			ug/L	100		91.8	80-120	2.67	20	
Ethylbenzene	95.7			ug/L	100		95.7	80-120	1.19	20	
Toluene	98.3			ug/L	100		98.3	80-120	1.49	20	
Xylenes (total)	289			ug/L	300		96.2	80-120	1.21	20	

**Matrix Spike (B1H1805-MS1)**

Source: 1103855-02

Prepared & Analyzed: 08/18/11

Benzene	91.9			ug/L	100	3.07	88.8	80-120			
Ethylbenzene	101			ug/L	100	2.70	98.8	80-120			
Toluene	98.8			ug/L	100	5.28	93.5	80-120			
Xylenes (total)	312			ug/L	300	15.6	98.7	80-120			
Surrogate: 4-Fluorochlorobenzene	27.6			ug/L	25.0		110	80-150			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

**PERCENT SOLIDS - Quality Control**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B1H1713 - General Preparation</b>											
<b>Duplicate (B1H1713-DUP1)</b>			<b>Source: 1103754-10</b>		Prepared: 08/17/11		Analyzed: 08/18/11				
% Solids	77.0			%		77.0			0.00	20	
<b>Duplicate (B1H1713-DUP2)</b>			<b>Source: 1103816-05</b>		Prepared: 08/17/11		Analyzed: 08/18/11				
% Solids	97.0			%		97.0			0.00	20	
<b>Duplicate (B1H1713-DUP3)</b>			<b>Source: 1103855-02</b>		Prepared: 08/17/11		Analyzed: 08/18/11				
% Solids	81.0			%		78.0			3.77	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1103853 Date Reported: 09/02/11
---	---	--

### Notes and Definitions

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

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)

# LEGEND

Technical Services, Inc.

www.legend-group.com

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

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

1103883  
1103835  
8/18/11

Project Number: 49161092  
Project Name: Tank 16/17  
Sample Origin/State: IA (see two letter postal state abbreviation)

COC Number: NO 31545

Project Manager: HMW  
Project OC Contact:  
Sampled by: ARP2  
Laboratory: Legend

COC 1 of 1

Location	Start Depth (Depth)	Stop Depth (Depth)	Depth Unit (m, ft, or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix		Collection Time (hh:mm)	Number of Containers/Preservative		Total Number of Containers	
						#1	#2		Water	Soil		
1. Stockpile 1	-	-	-	08/15/2011	15:40	X	X		X	X	X	3
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

01

\* RUSH\*

Received by: Kelly Forde  
Date: 8/17/11 10:55  
Air Bill Number: 8.900

Requisitioned By: [Signature]  
Date: 8/16/11 10:00  
On lot? N  
Requisitioned by: [Signature]  
Date: [ ]  
On lot? Y N  
Samples Shipped VIA:  Air Freight  Federal Express  Sampler  Other: [ ]

Common Parameters/Container - Preservation Key  
#1 - Volatile Organics = BTEX, GRG TPH, E600 PAH List  
#2 - Semivolatile Organics = PAHs, PCB, Dioxins, B270  
Full List, Herbicide/Pesticide/PCBs  
#3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Solids  
#4 - Nutrients = COD, TOC, Phosphorus, Ammonia Nitrogen, TKN

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



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

September 06, 2011

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

Work Order Number: 1104176  
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 09/01/11. If you have any questions concerning this report, please feel free to contact me.

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

WI Certification #998022410

Prepared by,  
LEGEND TECHNICAL SERVICES, INC

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

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

A handwritten signature in black ink, appearing to read "TRIE T L", written over a horizontal line.

Triet Le  
Chemist II  
trietle@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stockpile-2	1104176-01	Soil	08/31/11 12:15	09/01/11 08:35

**Shipping Container Information**

**Default Cooler**                      Temperature (°C): 1.7

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

**Case Narrative:**

Recoveries for the BTEX surrogate were above laboratory limits for sample Stockpile-2 and B110123-MS1 due to matrix interferences. All surrogates were within laboratory limits in the batch method blank, LCS, and LCSD. The DRO chromatogram is attached for the sample.



Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile-2 (1104176-01) Soil</b> <b>Sampled: 08/31/11 12:15</b> <b>Received: 09/01/11 8:35</b>										
<b>Diesel Range Organics</b>	<b>950</b>	67	11	mg/kg dry	5	B110201	09/02/11	09/06/11	WI(95) DRO	D-04
Surrogate: C-30	76.8			70-130 %		"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile-2 (1104176-01) Soil    Sampled: 08/31/11 12:15    Received: 09/01/11 8:35</b>										
<b>Benzene</b>	<b>0.32</b>	0.037	0.0056	mg/kg dry	1	B110123	09/01/11	09/01/11	WI(95) GRO	
<b>Ethylbenzene</b>	<b>0.69</b>	0.037	0.0069	mg/kg dry	1	"	"	"	"	
Toluene	<0.037	0.037	0.0035	mg/kg dry	1	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.35</b>	0.11	0.018	mg/kg dry	1	"	"	"	"	
<i>Surrogate: 4-Fluorochlorobenzene</i>	<i>160</i>			<i>80-150 %</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>S-04</i>



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

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

**PERCENT SOLIDS**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stockpile-2 (1104176-01) Soil</b> <b>Sampled: 08/31/11 12:15</b> <b>Received: 09/01/11 8:35</b>										
<b>% Solids</b>	<b>68</b>			%	1	B110614	09/06/11	09/06/11	% calculation	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

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

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B110201 - Sonication (Wisc DRO)</b>											
<b>Blank (B110201-BLK1)</b>											
						Prepared: 09/02/11 Analyzed: 09/06/11					
Diesel Range Organics	< 8.0	8.0	1.3	mg/kg wet							
Surrogate: C-30	12.8			mg/kg wet	16.0		79.8	70-130			
<b>LCS (B110201-BS1)</b>											
						Prepared: 09/02/11 Analyzed: 09/06/11					
Diesel Range Organics	54.8	8.0	1.3	mg/kg wet	64.0		85.6	70-120			
Surrogate: C-30	12.5			mg/kg wet	16.0		77.8	70-130			
<b>LCS Dup (B110201-BSD1)</b>											
						Prepared: 09/02/11 Analyzed: 09/06/11					
Diesel Range Organics	65.5	8.0	1.3	mg/kg wet	64.0		102	70-120	17.8	20	
Surrogate: C-30	13.7			mg/kg wet	16.0		85.9	70-130			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

**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
<b>Batch B110123 - EPA 5035 Soil (Purge and Trap)</b>											
<b>Blank (B110123-BLK1)</b>											
Prepared & Analyzed: 09/01/11											
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	23.9			ug/L	25.0		95.5	80-150			
<b>LCS (B110123-BS1)</b>											
Prepared & Analyzed: 09/01/11											
Benzene	91.9			ug/L	100		91.9	80-120			
Ethylbenzene	90.6			ug/L	100		90.6	80-120			
Toluene	91.1			ug/L	100		91.1	80-120			
Xylenes (total)	273			ug/L	300		91.1	80-120			
Surrogate: 4-Fluorochlorobenzene	23.6			ug/L	25.0		94.5	80-150			
<b>LCS Dup (B110123-BSD1)</b>											
Prepared & Analyzed: 09/01/11											
Benzene	93.5			ug/L	100		93.5	80-120	1.70	20	
Ethylbenzene	92.5			ug/L	100		92.5	80-120	2.06	20	
Toluene	93.1			ug/L	100		93.1	80-120	2.20	20	
Xylenes (total)	278			ug/L	300		92.7	80-120	1.68	20	
Surrogate: 4-Fluorochlorobenzene	24.1			ug/L	25.0		96.6	80-150			
<b>Matrix Spike (B110123-MS1)</b>											
Source: 1104176-01 Prepared & Analyzed: 09/01/11											
Benzene	98.0			ug/L	100	4.28	93.7	80-120			
Ethylbenzene	108			ug/L	100	9.06	98.6	80-120			
Toluene	94.3			ug/L	100	<	94.3	80-120			
Xylenes (total)	283			ug/L	300	4.55	92.8	80-120			
Surrogate: 4-Fluorochlorobenzene	39.8			ug/L	25.0		159	80-150			S-04

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

**PERCENT SOLIDS - Quality Control**  
**Legend Technical Services, Inc.**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
<b>Batch B110614 - General Preparation</b>											
<b>Duplicate (B110614-DUP1)</b>											
	<b>Source: 1104219-09</b>		<b>Prepared &amp; Analyzed: 09/06/11</b>								
% Solids	79.0			%		79.0			0.00	20	
<b>Duplicate (B110614-DUP2)</b>											
	<b>Source: 1104222-01</b>		<b>Prepared &amp; Analyzed: 09/06/11</b>								
% Solids	96.0			%		97.0			1.04	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 49161092 Project Number: 49161092 Project Manager: Ms. Andrea Nord	Work Order #: 1104176 Date Reported: 09/06/11
---	---	--

### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
D-04	The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
<	Less than value listed
dry	Sample results reported on a dry weight basis
NA	Not applicable. The %RPD is not calculated from values less than the reporting limit.
MDL	Method Detection Limit
RL	Reporting Limit
RPD	Relative Percent Difference
LCS	Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)
MS	Matrix Spike = Laboratory Fortified Matrix (LFM)

# LEGEND

Technical Services, Inc.

www.legend-group.com

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

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

**BARR**

Project Number: 1916109Z  
Project Name: Tank 16/17 Superior Terminal  
Sample Origin: State NJ (use two letter postal state abbreviation)  
COC Number: NO 31052

COC 1 of 1  
Project Manager: HAW  
Project OC Contact: AAN  
Sampled by: RBE  
Laboratory: Legend  
0100 BTEX Machine  
ASAP TAT

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	
1. STOCKPILE - Z				8/31/11	1245	Water	VOCS (unpreserved) #2		3
2.						Water	VOCS (unpreserved) #1		
3.						Water	DRO (unpreserved) #2		
4.						Water	DRO (unpreserved) #1		
5.						Water	Metals (unpreserved)		
6.						Water	SVOCS (unpreserved) #2		
7.						Water	SVOCS (unpreserved) #1		
8.						Water	% Solids (plastic vial, unpres.)		
9.						Water	Nutrients (H2SO4) #2		
10.						Water	Nutrients (H2SO4) #1		

Requisitioned By: [Signature]

Requisitioned Date: 8/31/11

Received by: [Signature]

Received Date: 9/1/11

Time: 1400

Time: 8:35

Common Parameters/Container - Preservation Key

- #1 - Volatile Organics = BTEX, GRQ, TPH, RSO, Full List
- #2 - Semivolatile Organics = PAHs, PCB, Dioxins, BZD, Full List, Herbicide/Pesticide/PCBs
- #3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TX, Sulfate
- #4 - Nutrients = COD, TOC, Phosphorus, Ammonia Nitrogen, TKN

1.700

Distribution: White-Original Accessions Held in Lab; Yellow - Field Copy; Pink - Lab Coordinator

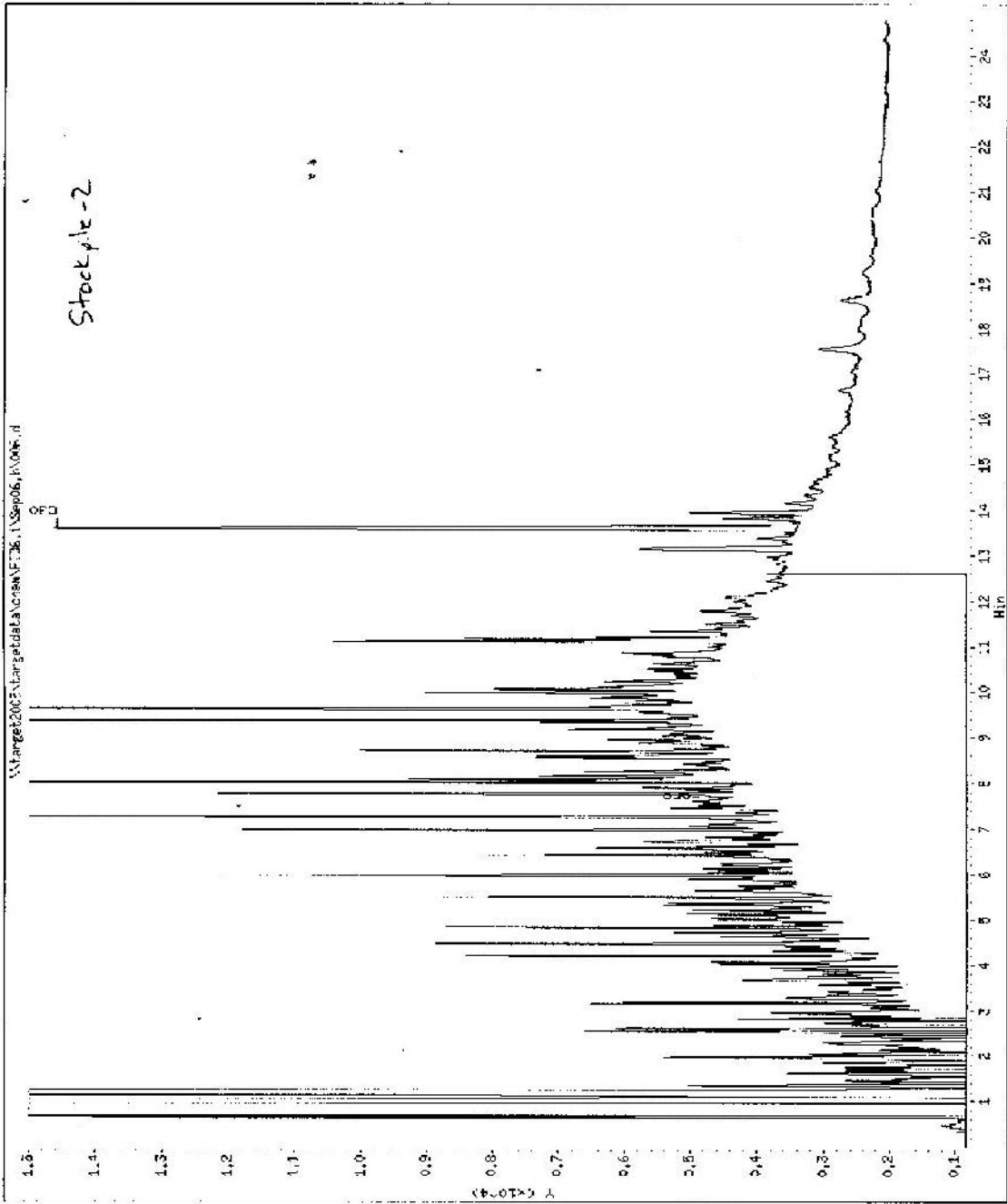


Page 1

Data File: \\target2003\target\data\chem\F106\_1\Sample\_1\006.d  
 Date: 05-SEP-2011 12:16  
 Client: IC  
 Sample ID: 104178-01

Instrument: F106.1  
 Operator: TL  
 Column diameter: 2.03

Column Name:



05/06/11