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BARR

Technical Memorandum

To: Karl Beaster, Enbridge Energy
From: Ryan Erickson and Chris Goscinak
Subject: Superior Terminal Tank 11 Historical Crude Oil Impacts – Ring Road Excavation
Date: October 14, 2013
Project: 49161092

This memorandum summarizes the field screening, analytical sampling and waste management assistance conducted by Barr Engineering (Barr) at the request of Enbridge Energy (Enbridge) in response to the discovery of historical, crude oil impacted soil during construction of the Tank 11 ring road at the Enbridge Superior Terminal in Superior, Wisconsin (Figure 1) in May of 2013.

Background and Response Activities

Enbridge replaced the road around the perimeter of Tank 11 at the Enbridge Superior Terminal in May of 2013 (Figure 2). The road around the tank is referred to as a ring road. Road construction activities consisted of first excavating the top two feet of the old roadbed gravel fill and clay soil to a width of approximately 30 feet from the tank (Photo 1). A geotechnical fabric was then installed in the bottom of the excavation (Photo 2) and approximately two feet of new gravel fill was placed on top.

Crude oil impacted soil was encountered by Enbridge contractors during Tank 11 road excavation activities between May 6 and May 19, 2013. Crude oil impacted soil was encountered in the following two locations associated with Tank 11 (Figure 2): the northwest mixer and the northern feeder pipe. Enbridge Environment was notified by the contractor whenever crude oil impacted soil was encountered.

Barr conducted the following activities at the request of Enbridge during the Tank 11 ring road project:

- assess the environmental site conditions;
- identify and segregate excavated crude oil impacted soil from unimpacted soil;
- assist with the off-site disposal coordination and documentation of the soil;
- document the residual crude-oil impacts left in place beneath the new Tank 11 ring road.

Barr was onsite multiple times during the road construction work to carry out the above tasks. Crude oil impacted soil was not typically excavated beyond the road construction excavation limits due to the presence of buried infrastructure.

Enbridge indicated that the crude oil impacts discovered in the ring road excavation were likely historical based on the location and characteristics of the contaminated soil. Barr checked the Wisconsin Department of Natural Resources (WDNR) Bureau for Remediation and Redevelopment Tracking System (BRRTS) database and no reported releases were identified in the Tank 11 location. Therefore, Enbridge submitted a Notification for Hazardous Substance Discharge to the WDNR on October 22, 2013 (Attachment A).

Field Methods

Barr was onsite at Tank 11 as needed during the ring road excavation activities between May 6 and May 19, 2013. Barr field screened excavated soil for the presence of organic vapors using a photoionization detector (PID) and documented other potential indicators of crude oil impacts such as odor, discoloration and sheen. Excavated soil with PID headspace readings greater than ten parts per million (ppm), or other evidence of crude oil impacts, was segregated and placed in temporary stockpiles near the construction area (Attachment B). Impacted soil stockpiles were staged on and covered with plastic. After construction activities were completed in an area, crude oil impacted soil was transported to the Superior Terminal Soil Management Area (SMA) (Figure 2) for storage until characterized and approved for off-site disposal.

After ring road excavation activities were completed, field screening soil samples were collected from the excavation to identify whether residual soil impacts were present. If residual impacts were identified during field screening and additional impacted soil could not be excavated, analytical samples were collected from the excavation extent and submitted to Pace Analytical for laboratory analyses of diesel range organic (DRO) and petroleum volatile organic carbons (PVOCs). Laboratory analytical results for excavation samples are included in Table 1 and Attachment C. Three analytical samples (TK 11 Road – Stockpile -1 through 3) were also collected from the SMA contaminated stockpiles for waste characterization purposes (Table 2; Attachment D).

Results

Field screening, analytical sampling and road construction remedial excavation activity results for the two crude oil impacted soil locations are described below:

Northwest Mixer

Crude oil impacted soil (Photo 3) was encountered near a tank mixer on the northwest side of Tank 11 (Photos 3-6; Figures 2 and 3; Attachment B). Impacted soil was excavated from the tank mixer area in an "L" shaped excavation that was approximately 5 feet wide by 35 feet long by 2 to 3 feet deep as shown in Figure 3 and Attachment B. The northwest mixer impacts included northeast trending impacts that were located approximately 20 feet out from the tank and appeared to be associated with contaminant migration in the sand fill around a buried cathodic protection line. The impacts did not appear to migrate out from the sand fill into the surrounding clay fill. Impacted soil was excavated as feasible based on infrastructure, sampled for waste characterization and stockpiled in in the terminal SMA (Attachment D). Additional impacted soil was excavated below the construction grade (Photos 4 - 6) for remedial purposes. However, complete contaminant removal was limited by terminal infrastructure. Field screening confirmed that residual crude-oil impacted soil was left in place immediately below the northwest mixer (headspace > 74 ppm) and in a small area 20 feet out from the mixer (headspace > 150 ppm) (Photo 5; Figure 3; Attachment B). Analytical sample TK 11Road -B-1 was collected from the impacted soil approximately twenty feet out from the mixer and three feet below ground surface (bgs) as shown in Figure 3 and Attachment B.

Analyte concentrations from TANK 11 ROAD-B-1 resulted in benzene, ethyl benzene, toluene, xylene, and both 1,2,4- and 1,3,5-trimethylbenzene detections that exceed US EPA Regional Screening Level Web Calculator Site Specific Residual Contaminant Levels (SSRCL) for the groundwater pathway(Table 1; Attachment C). The analyte detections did not exceed industrial direct contact SSRCL within four feet of the ground surface.

Northern Feeder Pipe

Crude oil impacted soil was encountered to the north of the Tank 11 northern feeder pipe (Photo 7 and 8; Figures 2 and 3; Attachment B). The impacted soil was encountered between approximately 0.5 to 2 feet bgs in an area approximately 10 feet wide by 10 feet long. Impacted soil was excavated as feasible based on infrastructure, sampled for waste characterization and disposed of offsite (Attachment D). Field screening from the excavation limits confirmed that a small area of residual crude oil impacted soil with dark staining and a headspace of up to 161 ppm was left in place near the northern feeder pipe (Attachment B). Analytical sample TK 11 Road-B-2 was collected from the impacted soil at approximately 0.8 feet bgs. Analyte concentrations in soil from TANK 11 ROAD-B-2 did not exceed SSRCLs for the groundwater or industrial direct contact pathway (Table 1; Attachment C).

Following completion of construction excavation and sampling activities, the excavation was covered with a geotechnical fabric and backfilled with approximately two feet of gravel fill (Photo 2).

Discussion

Analyte concentrations detected in TK 11 Road-B-1 exceeded groundwater SSRCLs for benzene (1.64 mg/kg), ethyl benzene (31.1 mg/kg), xylene (7.71 mg/kg), 1,2,4-trimethylbenzene (29.4 mg/kg) and 1,3,5-trimethylbenzene (9.68 mg/kg), but the concentrations did not exceed direct contact SSRCLs within four feet of the ground surface (Figure 3; Table 1; Attachment C). Analyte concentrations detected in TK 11 Road-B-2 did not exceed groundwater or industrial direct contact pathway SSRCLs within four feet of the ground surface. All Tank 11 analytical samples passed the hazard quotient criteria that are set in the US EPA Regional Screening Level Web Calculator (Table 1).

Both areas have been covered with a geotextile fabric and two feet of gravel fill.

Waste Disposal Coordination and Documentation

Barr collected three analytical waste characterization samples from the crude impacted soil stockpiles for laboratory analysis at either Pace Analytical or Legend Technical Services (Attachment D). Stockpile samples were analyzed for DRO and benzene, toluene, ethylbenzene, and xylenes (BTEX). Waste characterization analytical results are summarized in Table 2 and the laboratory reports are included in the Shamrock Landfill Waste Profile application in Attachment D. A waste profile application with the laboratory results was submitted to the Shamrock Landfill near Cloquet, Minnesota and the soil was accepted under waste profile #CL13-0023 (Attachment D). A total of 635.63 tons of crude oil impacted soil was hauled to the landfill in May 2013.

Barr field screened the Tank 11 clean soil stockpiles (Attachment B) prior to off-site soil reuse at the Udeen School Forest Road gravel pit located approximately 15 miles south of Superior, Wisconsin. Any soil in a stockpile with a headspace greater than ten ppm, or other evidence of crude oil impacts, was segregated for off-site disposal at an approved landfill facility. Confirmation soil sample TK 11 ROAD-UDEENS-1 was collected for laboratory analysis of DRO and PVOCs. The PVOC concentrations were below detection limits and a DRO concentration of 12.1 mg/kg was detected (Table 2; Attachment D).

Conclusions and Recommendations

Crude oil impacted soil encountered during construction of the Tank 11 ring road was excavated and disposed of at an approved landfill with the exception of two small impacted areas that were left in place along the northern edge of Tank 11. Analyte concentrations in residual soil impacts near the mixer exceed the groundwater pathway SSRCLs for benzene, ethyl benzene and xylene but do not exceed the industrial direct contact SSRCLs. Residual soil impacts near the northern feeder pipe do not exceed groundwater or industrial direct contact pathway SSRCLs.

Residual crude oil impacted soil analyte concentrations did not exceed industrial direct contact SSRCLs, passed the EPA Hazard Quotient calculation and have been covered with a geotechnical fabric and two feet of gravel. The geotechnical fabric, gravel and employee-awareness will also prevent direct contact exposure. The groundwater pathway for the terminal is currently being reviewed by the WDNR on a case by case site-wide basis. If the WDNR agrees that the risk to the groundwater pathway associated with this historical release can be addressed using the site-wide approach, no further response action for groundwater or documentation for the WDNR will be required. The WDNR will likely hold this memo until the site-wide GIS registry is established and at that time, will use the figures and tables attached to this memo for documentation purposes.

Attachments:

Site Photos: 1-8

Figure 1	Tank 11 Site Location
Figure 2	Tank 11 Site Layout Map
Figure 3	Tank 11 Sample Locations
Table 1	Soil Analytical Data Summary
Table 2	Waste Characterization - Soil Sampling Results Summary
Attachment A	WDNR Notification for Hazardous Substance Discharge
Attachment B	Enbridge Site Investigation Field Sampling and Screening Logs
Attachment C	Pace Analytical Laboratory Reports for Excavation Soil Samples
Attachment D	Waste Disposal Documentation

Site Photos:

Photo 1

Photo 2

Photo 1: Tank 11 ring road construction excavation on the east side of Tank 11. Excavated soil has been stockpiled outside the road boundaries.
Photo 4: The road construction excavation on the northeast side of Tank 11 looking east. Geotextile fabric is in the foreground, the excavation was backfilled with two feet of gravel.

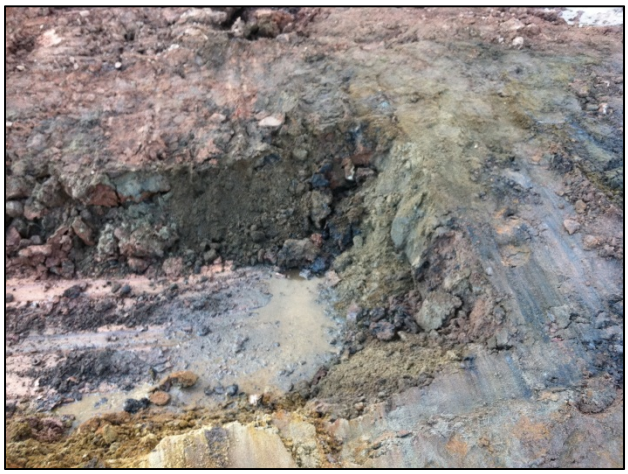


Photo 3

Photo 4

Photo 3: Crude oil impacted soil located approximately 20 feet to the northwest of the northwest mixer (Photo 4). Elevated headspace, discoloration and sheen were observed in the soil.
Photo 4: Northwest Tank 11 mixer shown at the top of the photo. The additional west end of the remedial excavation along the contaminated cathodic line fill is shown in the center of the photo.

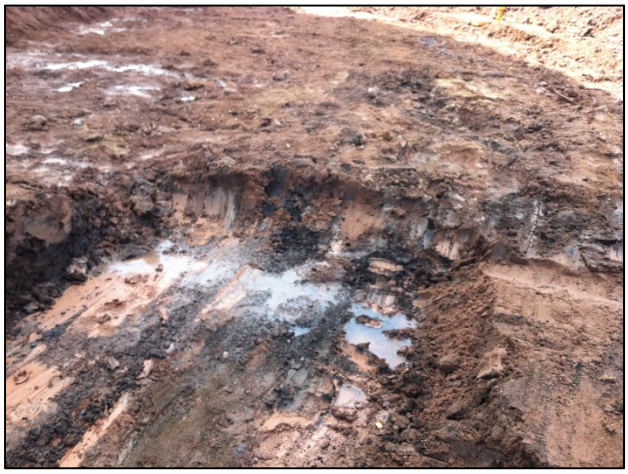


Photo 5

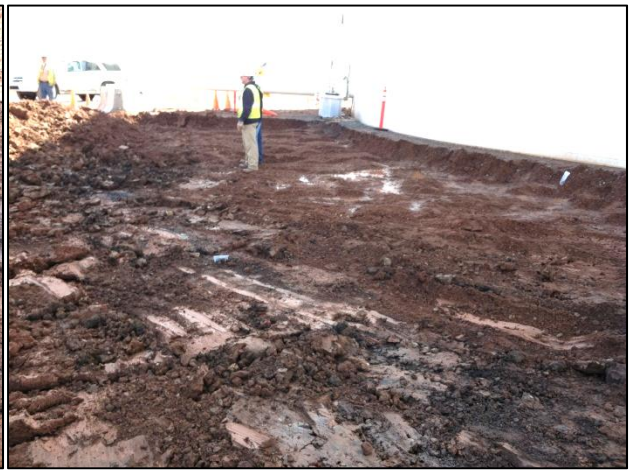


Photo 6

Photo 5: A close-up of the west end of the northwest mixer remedial excavation after the majority of the crude impacted soil had been removed. Crude oil impacted soil was left in place in this location due to buried terminal infrastructure.
Photo 6: The ring road excavation to the east of the crude oil impacted associated with the northwest mixer. Crude oil impacts were not detected in the soil through field screening after the road excavation was completed.

Photo 7

Photo 8

Photo 7: Tank 11 ring road excavation near the northern feeder pipe looking east. The northern feeder pipe is present on the right side of the photo.
Photo 8: Tank 11 ring road excavation near the northern feeder pipe looking west. The northern feeder pipe is present on the left side of the photo.

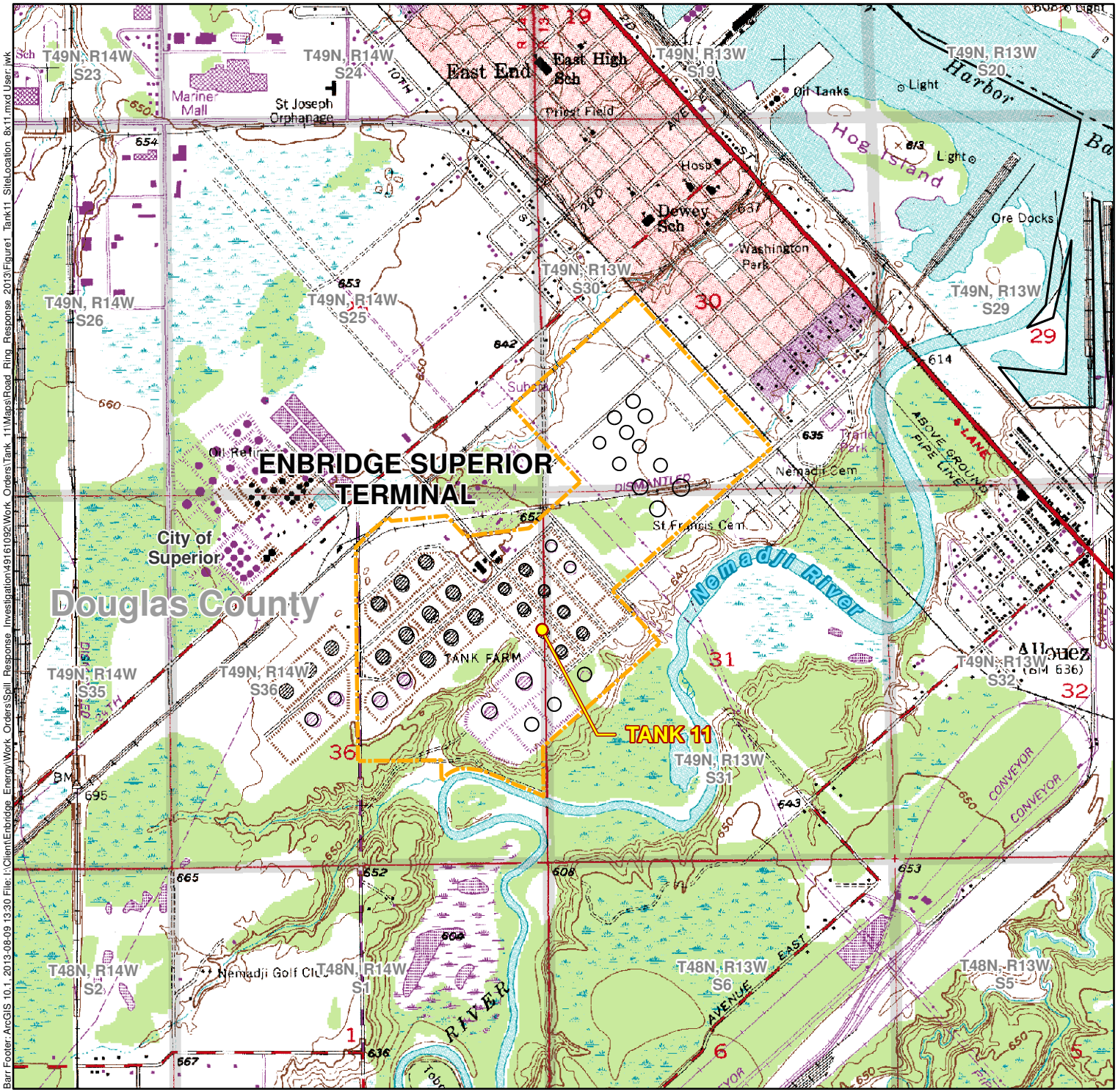
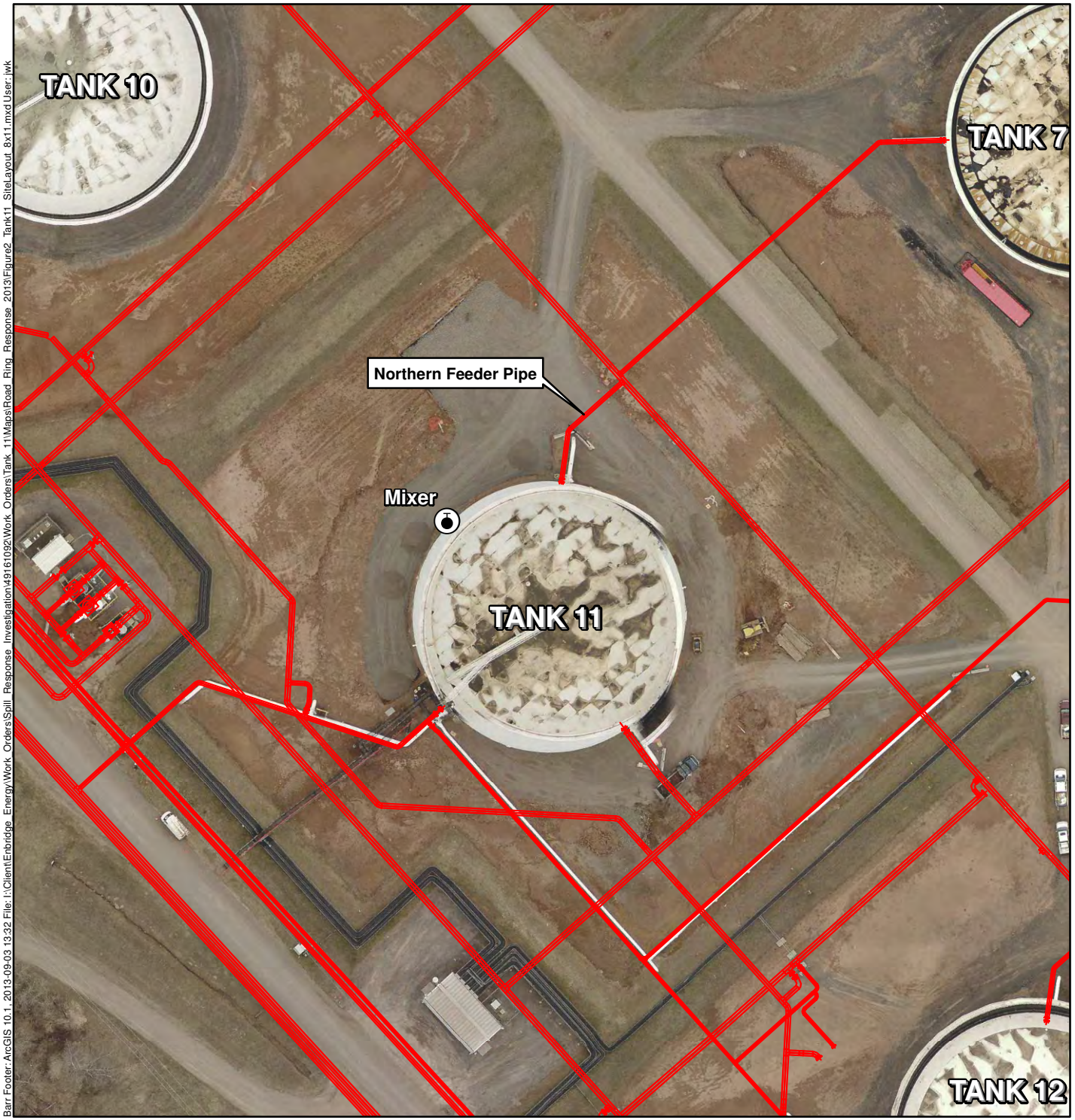


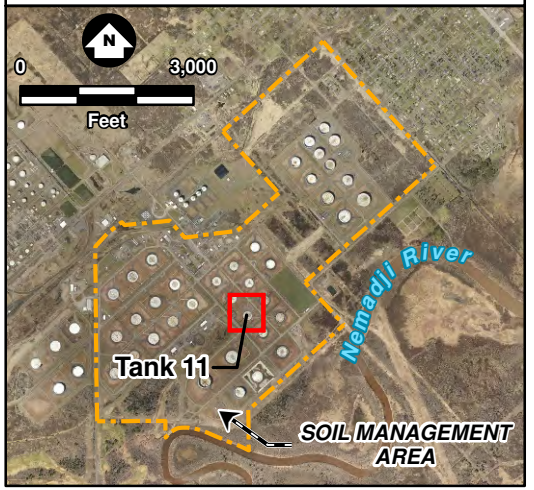
Figure 1

TANK 11 SITE LOCATION
SUPERIOR TERMINAL
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE



ENBRIDGE SUPERIOR TERMINAL



Mixer

Pipeline Infrastructure

Terminal Property Boundary

N

0 80 160

Feet

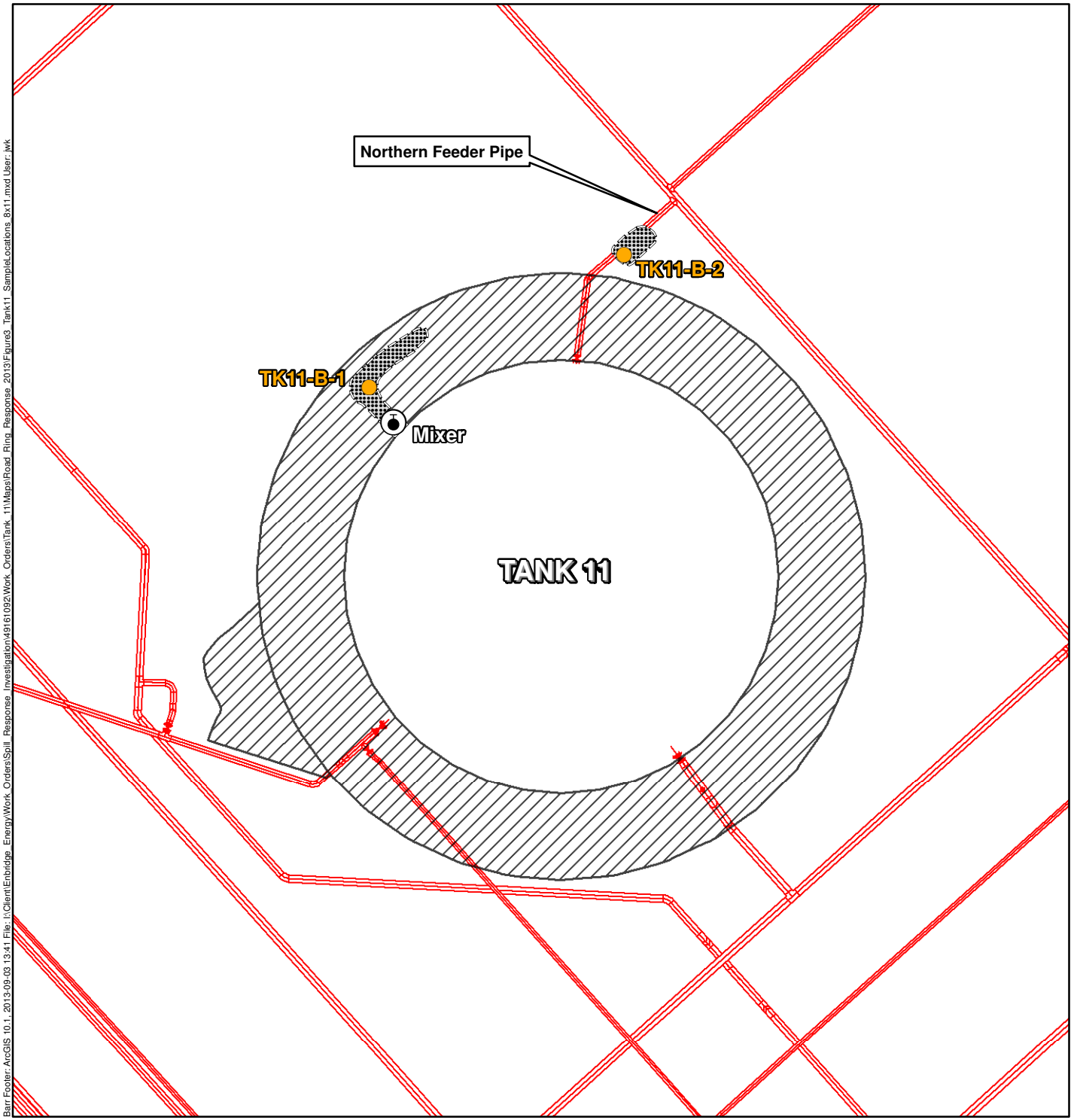
1 Inch = 80 Feet

Douglas County Aerial Photography Circa April/May, 2013

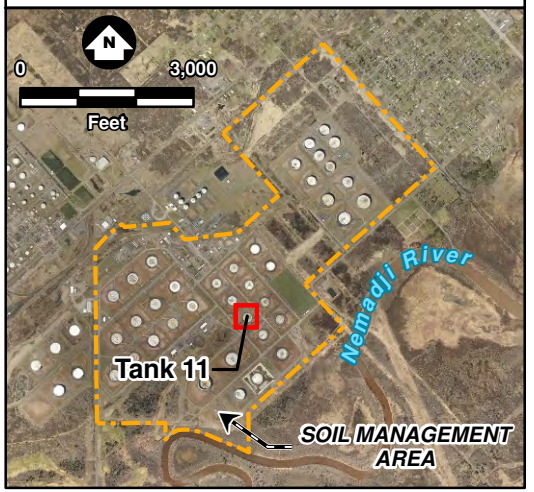
Figure 2

TANK 11 SITE LAYOUT MAP
SUPERIOR TERMINAL
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE



ENBRIDGE SUPERIOR TERMINAL



- Sample Locations
- Mixer
- Approximate Area with Observed Crude Oil Impacted Soil Prior to Ring Road Excavation Activity
- Excavation Extent
- Pipeline Infrastructure
- Terminal Property Boundary

N

0 50 100

Feet

1 Inch = 50 Feet

Figure 3

TANK 11 SAMPLE LOCATIONS
SUPERIOR TERMINAL
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Table 1
Soil Analytical Data Summary
Tank 11 Ring Road Excavation
Enbridge Energy Terminal - Superior, Wisconsin
Units, mg/kg (unless otherwise noted)

Parameter			Moisture	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylene, total	Diesel Range Organics	Exceedance Count	Hazard Quotient	Cumulative Cancer Risk	Pass or Fail
	Effective Date	**Exceedance Key**												
Industrial Groundwater SSRCLs		**Bold**		**1.3793 TR**	**1.3793 TR**	**0.0051**	**0.785**	**0.5536**	**1.97 XYL**					
Industrial Direct Contact SSRCLs	05/01/2012	No Exceed		219	182	7.41	37	818	258		0	1.0	0.00001	Pass
Location	**Date**	**Depth (ft)**												
TK 11 ROAD-B-1	5/07/2013	3	10.9 %	**29.4**	**9.68**	**1.64**	**31.1**	< 0.286	**7.71**	17400	0	0.0847	1.1E-06	Pass
TK 11 ROAD-B-2	5/08/2013	0.8	19.9 %	0.85 *	0.50 *	< 0.060 *	0.50 *	< 0.060 *	0.72 *	2380	0	0.0026	2.2E-08	Pass

TR - Based on 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene combined.

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

*Estimated value, QA/QC criteria not met.

Table 2
Waste Characterization - Soil Sampling Results Summary
Tank 11 Ring Road Excavation
(units, mg/kg - unless otherwise noted)

	Parameter	Moisture	Solids, percent	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Ethyl benzene	Toluene	Xylene, total	Diesel Range Organics
Location	Date									
TK 11 ROAD - UDEENS	5/06/2013	**8.3 %**	--	< 0.0615	< 0.0615	< 0.0246	< 0.0615	< 0.0615	< 0.185	**12.1**
TK 11 Road-Stock Pile-1	5/02/2013	**18.5 %**	--	--	--	< 0.0250	< 0.0625	< 0.0625	< 0.187	**6480**
TK 11Road-Stockpile-2	5/06/2013	**7.2 %**	--	--	--	< 0.0207	< 0.0517	< 0.0517	< 0.155	**298**
TK 11Road-Stockpile-3	5/09/2013	--	**83 %**	--	--	< 0.028	**0.061**	< 0.028	**0.11**	**320**

Detections are reported in **bold**

-- Not analyzed

Attachment A

WDNR Notification for Hazardous Substance Discharge

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Notification For Hazardous Substance Discharge (Non-Emergency Only)

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

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

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

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

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

- ☐ Underground Petroleum Storage Tank System (additional information may be required for Item 6 below)
- ☐ Aboveground Petroleum Storage Tank System
- ☐ Dry Cleaner Facility
- ☒ Other - Describe: Historical crude oil impacts discovered near an above ground petroleum storage tank during tank ring road construction.

ATTN DNR: **R & R Program Associate** Date DNR Notified: 08/05/2013

1. Discharge Reported By

Name	Firm	Phone No. (include area code)
Karl Beaster	Enbridge Energy	(715) 398-4754

Mailing Address	Email Address
1320 Grand Ave., Superior, WI 54880	karl.beaster@enbridge.com

2. Site Information

Name of site at which discharge occurred. Include local name of site/business, not responsible party name, unless a residence/vacant property. Enbridge Superior Terminal - Tank 11

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

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

County:	Legal Description:	WTM:
Douglas	SE 1/4 NE 1/4 Sec 36 Tn 49N Range 14 ○ E ◉ W	X Y

3. Responsible Party (RP) and/or RP Representative

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

Enbridge Energy

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

Contact Person Name (if different)	Phone Number	Email Address
Karl Beaster	(715) 398-4757	karl.beaster@enbridge.com

Mailing Address	City	State	ZIP Code
1320 Grand Ave., Superior, WI 54880	Superior	WI	54880

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

Contact Person Name (if different)	Phone Number	Email Address

Mailing Address	City	State	ZIP Code

(continued)

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Notification For Hazardous Substance Discharge (Non-Emergency Only)

4. Hazardous Substance Information

Identify hazardous substance discharged (check all that apply):

- [x] VOC's
- [ ] PAH's
- [ ] Metals (specify): _____
  - [ ] Arsenic
  - [ ] Chromium
  - [ ] Cyanide
  - [ ] Lead
  - [ ] PCB's
- [ ] Diesel
- [ ] Fuel Oil
- [ ] Gasoline
- [ ] Hydraulic Oil
- [ ] Jet Fuel
- [ ] Mineral Oil
- [ ] Waste Oil
- [ ] Petroleum-Unknown Type
- [ ] PERC (Dry Cleaners)
- [ ] RCRA Hazardous Waste
- [ ] Leachate
- [ ] Fertilizer
- [ ] Pesticide/Herbicide/Insecticide(s)
- [x] Other (specify): Crude oil
- [ ] Unknown

5. Impacts to the Environment Information

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

- ___ Air Contamination
- ___ Co-Contamination (Petroleum & Non-Petroleum)
- ___ Contamination Within 1 Meter of Bedrock
- ___ Contaminated Private Well
- ___ Contaminated Public Well
- ___ Contamination in Fractured Bedrock
- ___ Sanitary Sewer Contamination
- ___ Contamination in Right of Way
- ___ Fire Explosion Threat
- ___ Free Product
- P Groundwater Contamination
- ___ Off-Site Contamination
- ___ Other (specify): _____
- K Soil Contamination
- ___ Storm Sewer Contamination
- ___ Surface Water Contamination
- ___ Within 100 ft of Private Well
- ___ Within 1000 ft of Public Well

Contamination was discovered as a result of:

- [ ] Tank closure assessment — Date _____
- [ ] Site assessment — Date _____
- [x] Other - Describe: Excavation of soils around tank for construction — Date 05/02/2013

Lab results: [ ] Lab results will be faxed upon receipt [x] Lab results are attached

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

Impacts were from historical releases

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

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

- [x] Does not apply.

Source

- [ ] Tank
- [ ] Piping
- [ ] Dispenser
- [ ] Submersible Turbine Pump
- [ ] Delivery Problem
- [ ] Other (specify): _____

Cause

- [ ] Spill
- [ ] Overfill
- [ ] Corrosion
- [ ] Physical or Mechanical Damage
- [ ] Installation Problem
- [ ] Other (does not fit any of above)
- [ ] Unknown

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

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

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

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

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

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

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

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

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

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

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

Attachment B

Enbridge Site Investigation Field Sampling and Screening Logs

5/6/2013 and 5/7/2013 – Northwest mixer
5/8/2013 – Northern feeder pipe
5/8/2013 – Northern Stockpiles
5/9/2013 – Ring road excavation, north and south extents
5/10/13 – Ring road excavation, east extent
5/14/2013 – Ring road excavation, southwest extent

ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: *Milepost or Facility* Sup Terminal Tank 11

Equipment used: PID -*ionization detector with* 10.6 *eV lamp*

Background Headspace: .8 ppm

Date: 5/6, 5/7 2013

Sampler: BJLZ, ROE

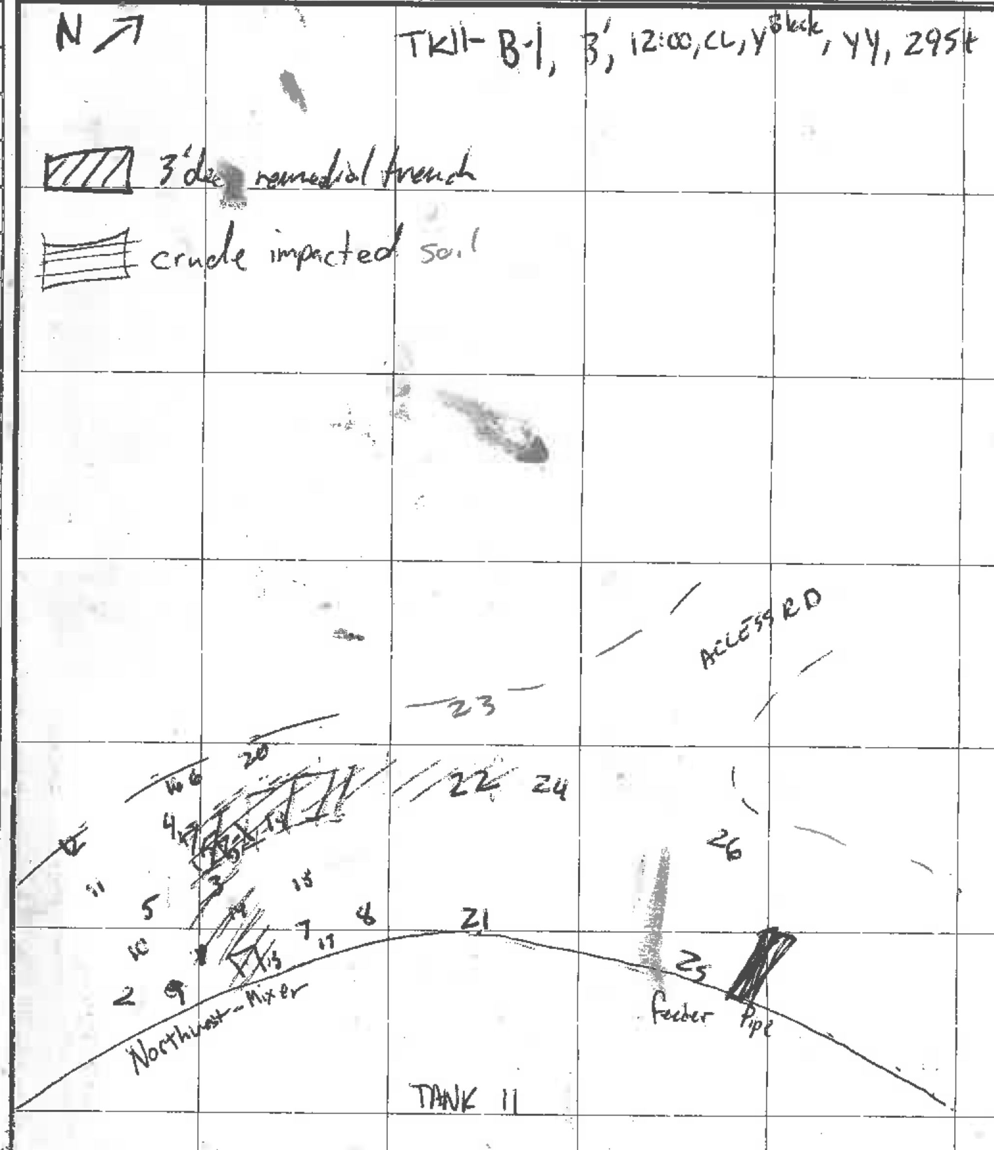
Calibration Time: 815

Sample Nomenclature *(Location - sample type - #):* Tk11

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

Sample ID	Depth *(ft)*	Time *(military)*	Soil Type *(USCS)*	Color/ Discolor	Odor/ Sheen	Headspace Reading *(ppm)*
Example: R-1	*4*	*16:30*	*CL*	*Reddish brown*	*Petroleum/ Rainbow*	*275*
R-1	1.8	5/6	SP fill	Y	N/N	5.5
2	1.8		SP fill	N	N N	.5
3	1'		CL	N	N N	9.4
4	1.8		CL	N	N N	1.5
5	1.8		SP fill	N	N N	1.0
6	1.8		CL	N	N N	4.6
7	1.8		SP fill	N	N N	17+
8	1.8	↓	SP fill	N	N N	2.8
9	1.8	5/7	SP fill	N	N N	.9
10	1.8		SP fill	N	N N	.9
11	1.8		SP fill	Y gray dis.	N N	1.0
12	1.8		CL	N	N N	.8
13	1.8		SP fill	Y Black dis.	Y Y	74+
14	1.8		SP fill	N	N N	2.4
15	1.8		SP fill	Y	Y Y	150+
16	1.8		CL	Y Black discolor	N N	2.9
17	1.8		SP fill	N	N N	.4
18	1.8		SP fill	N	N N	3.6
19	1.8		SP fill	Y Black	Y Y	25+
20	1.8		CL	N	N N	1.0
21	1.8		SP fill	N	N N	.8
22	1.8		CL	Y	Y N	28+
23	1.8		CL	N	N N	1.0
24	1.8		CL	N	N N	3.1
25	1.8		CL	N	N N	.8
26	1.8	↓	CL	N	N N	.8

SITE STETCH: ~~north is up~~; *excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features...* ***1 inch/grid =*** 25 **FEET**



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: *Milepost or Facility* Enbridge Tank 11, Stockpile #1 (E/NE), ~200 yds

Equipment used: Mini Rae *-ionization detector with* _____ *eV lamp* Background Headspace: 1.3 ppm

Date: 5/8/13

Sampler: LEN

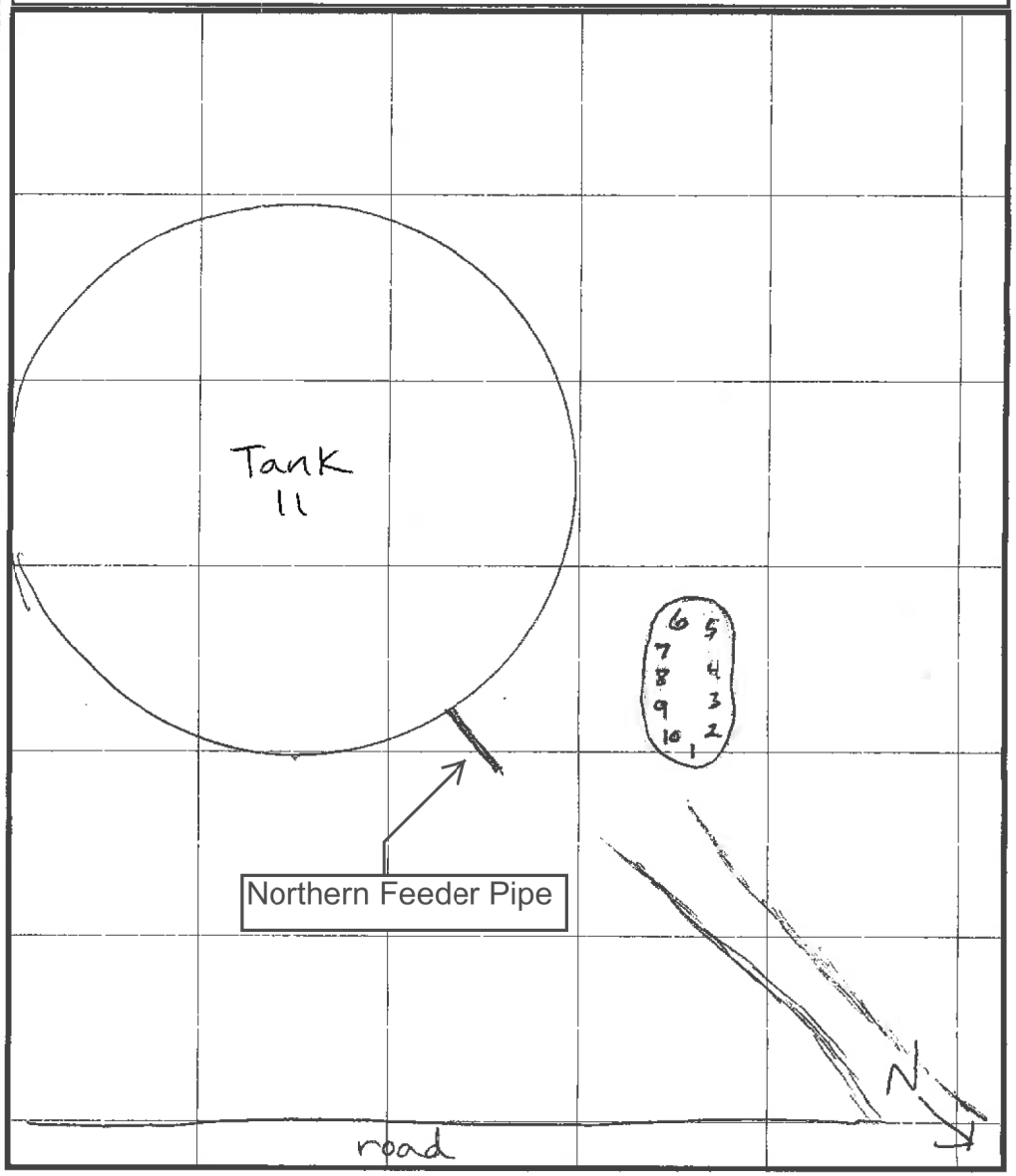
Calibration Time: 5/7/13 6p.m

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

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
1	just below surface	8:30	clay	reddish brown	–	6.5
2		8:33	clay/ gravel		–	4.4
3		8:36			petro odor	74.6
4		8:38			"	68.7
5		8:40			slight odor	28.6
6		8:42			"	33.1
7		8:44			"	20.3
8		8:46			–	5.5
9		8:47			–	4.5
10		8:48			–	7.7

SITE SKETCH: *north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features...* ***1 inch/grid =*** 50' ***FEET***



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: *Milepost or Facility* Enbridge Tank 11, Stockpile #2 (N/NE), ~200 yds

Equipment used: Mini Rae *-ionization detector with* _____ *eV lamp* Background Headspace: 0.0 ppm

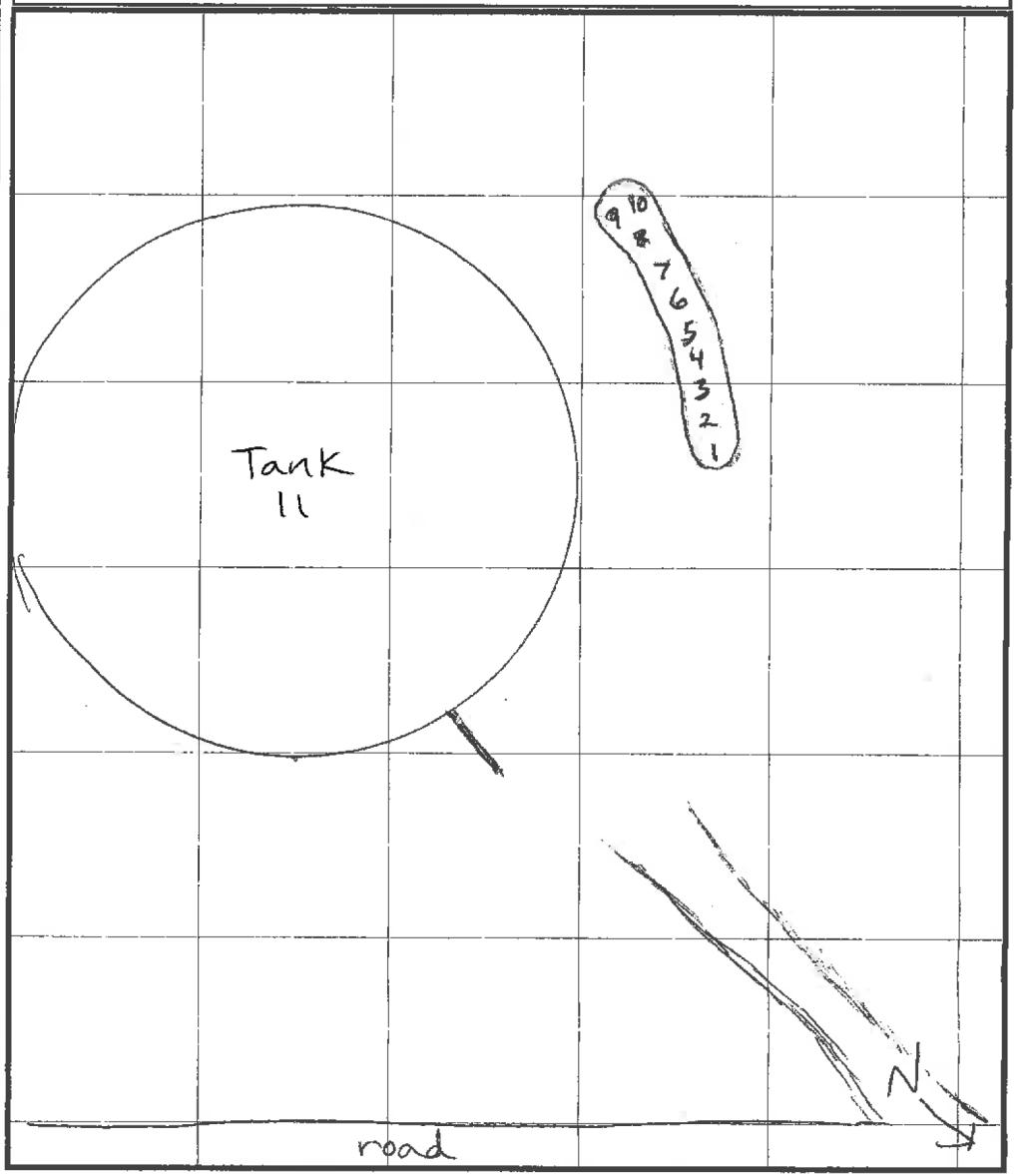
Date: 5/8/13
Sampler: LEN
Calibration Time: 5/7/13 6p.m.

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

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
1	just below surface	9:20	clay/ gravel	reddish brown	–	0.5
2		9:25	sandy clay		–	0.4
3		9:27	clay/ gravel		–	0.4
4		9:28	"		–	0.4
5		9:30	sandy clay		–	0.5
6		9:31			–	0.5
7		9:32			–	0.5
8		9:33			–	0.4
9		9:34			–	0.5
10		9:35			–	0.4

SITE SKETCH: *north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features...* ***1 inch/grid =*** 50' ***FEET***



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Date: 5/8/13

Location: *Milepost or Facility* Enbridge Tank 11; impacted soil near E/NE 24" diameter pipe Sampler: LEN

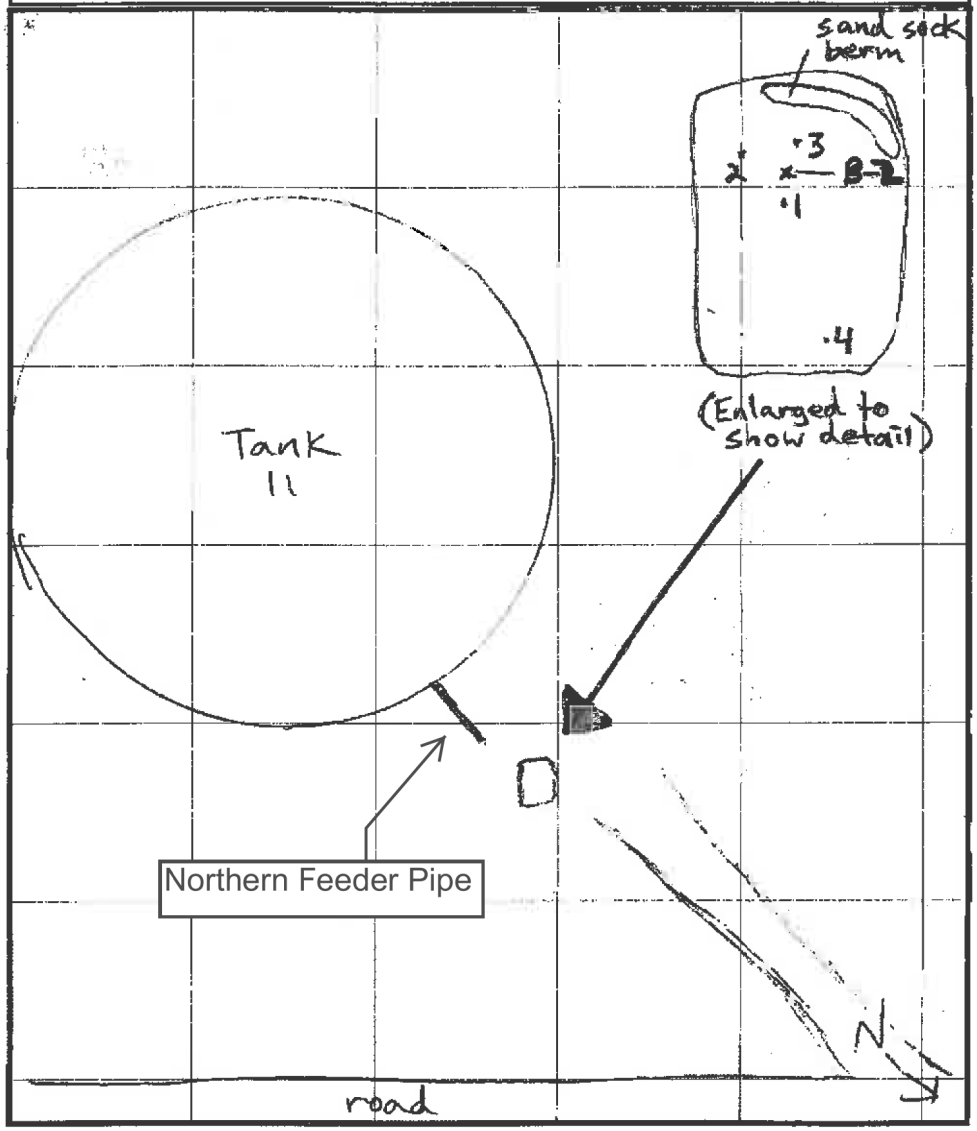
Equipment used: Mini Rae -*ionization detector with* 10.6 *eV lamp* Background Headspace: 1-3 ppm Calibration Time: 5/7/13 6p.m.

Sample Nomenclature *(Location - sample type - #)*: TK11 -

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example R-1	4	16.30	CL	Reddish brown	Petroleum/ Rainbow	275
1	8"	9:45	clay	grayish brown	petro odor	124
2	|	9:46	|	|	|	161
3	|	9:47	|	|	|	47
4	|	"	|	reddish brown	slight odor	12.2
	|		|	|	|	
sample	|		|	|	|	
B-2	|	10:05	|	|	|	

SITE SKETCH: north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features... ***1 inch/grid*** = 50' ***FEET***



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Date: 5/9/13

Location: *Milepost or Facility* Superior Terminal Tank 11 Road

Sampler: CSG2

Equipment used: Photo *-ionization detector with* 10.6 *eV lamp* Background Headspace: 0.0 ppm

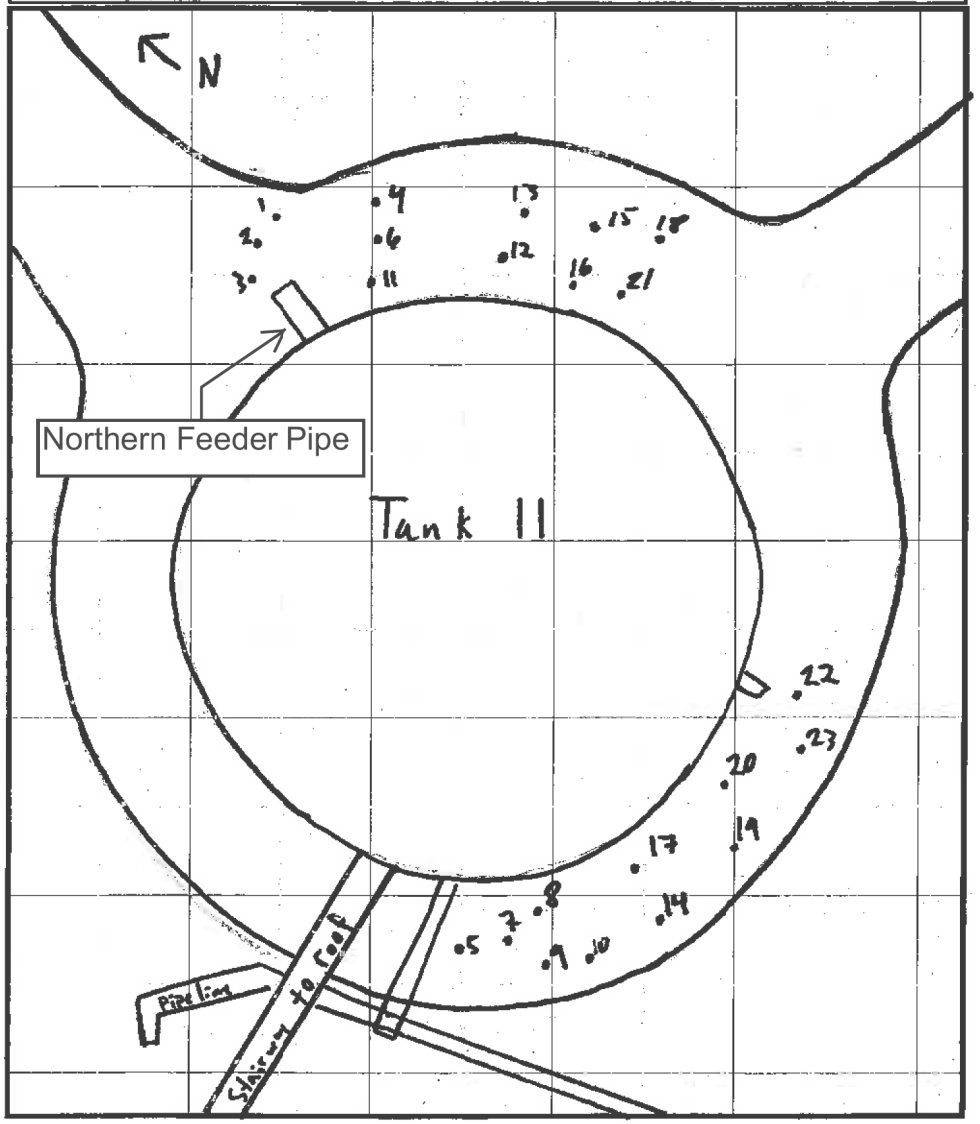
Calibration Time: 720

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

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
R-1	1.5	750	CL	Red brown	-/-	0.2
2	1.5	750	CL	Red brown	-/-	1.0
3	1.5	755	CL	Red brown	-/-	11.5
4	1.5	755	CL	Red brown	-/-	0.8
5	1.5	805	CL	Red brown	-/-	0.3
6	1.5	830	CL	black, disc.	Slight/Fishy	20.2
7	1.5	830	CL	Slight disc.	Slight/Fishy	9.3
8	1.5	840	CL	Red brown	-/-	7.6
9	1.5	840	CL	Red brown	-/-	1.0
10	1.5	905	CL	Red brown	Slight/Fishy	10.2
11	1.5	910	CL	Red brown	-/-	1.8
12	1.5	1005	CL	Red brown	-/-	0.2
13	1.5	1015	CL	Red brown	-/-	0.2
14	1.5	1015	CL	Red brown	-/-	0.2
15	1.5	1120	CL	Red brown	Slight/-	2.3
16	1.5	1100	CL	Red brown	-/-	0.8
17	1.5	1110	CL	Red brown	-/-	0.5
18	1.5	1200	CL	Red brown	-/-	0.3
19	1.5	1205	CL	Red brown	-/-	0.5
20	1.5	1205	CL	Red brown	-/-	0.2
21	1.5	1345	CL	Red brown	Slight/-	0.9
22	1.5	1530	CL	Red brown	-/-	0.3
23	1.5	1535	CL	Red brown	-/-	0.3
24	1.5	1535	SP/CL	Red/ black	Slight/Fishy	4.9

SITE SKETCH: north is up; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features... ***1 inch/grid = 30 FEET***



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Location: *Milepost or Facility* Superior Terminal Tank 11 Road

Equipment used: Photo *-ionization detector with* 10.6 *eV lamp* Background Headspace: 0.2 ppm

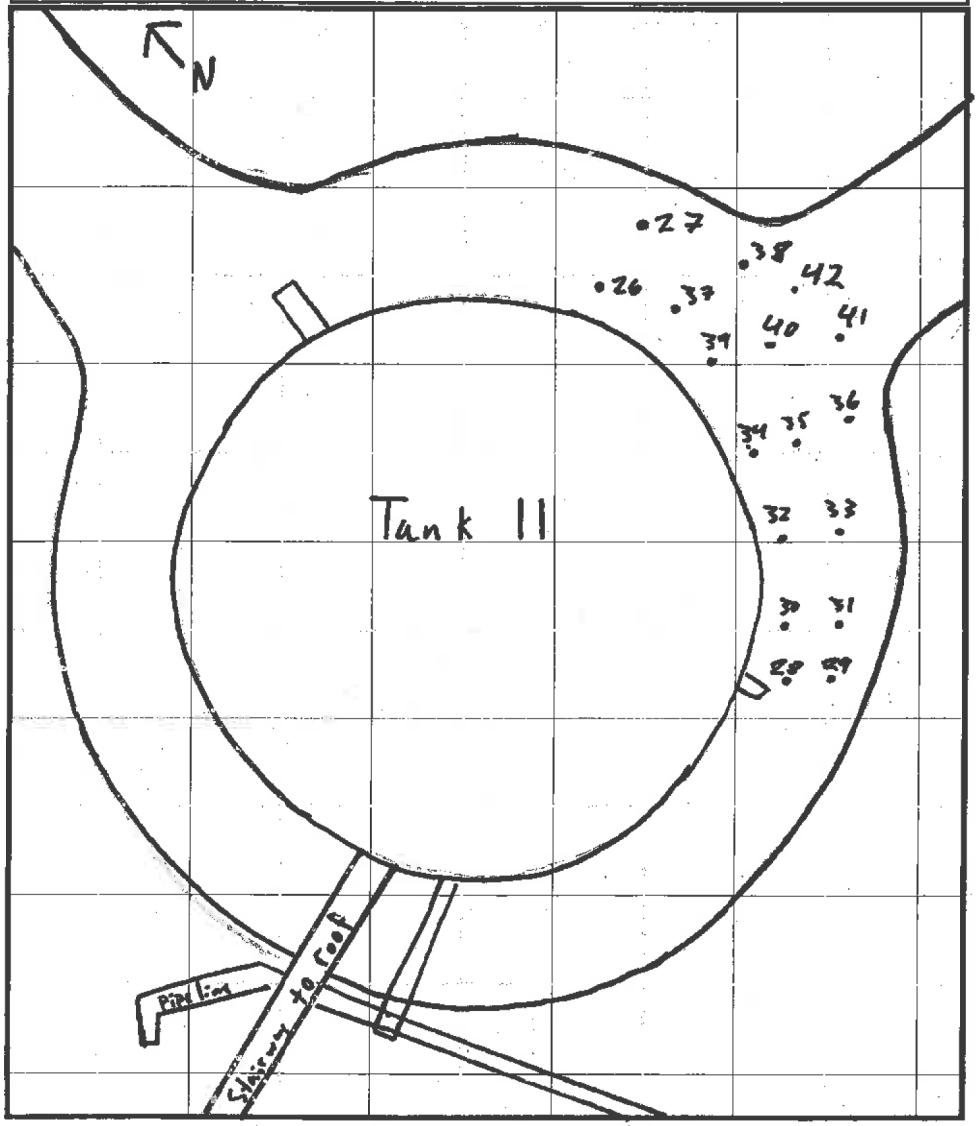
Date: 5/10/13
Sampler: CSG 2
Calibration Time: 715

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

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
5/9/13 R-25	1.5	1535	CL/SP	Red/black	Slight/none	5.3
5/10/13 26	1.5	750	CL/SP	Red brown	-/-	0.2
27	1.5	750	SP/CL	Red brown	-/-	0.2
28	1.5	755	CL	Red brown	-/-	0.2
29	1.5	755	CL	Red brown	-/-	0.2
30	1.5	915	CL	Red brown	-/-	0.3
31	1.5	915	CL	Red brown	-/-	0.5
32	1.5	1015	CL/SP	Red brown	-/-	0.4
33	1.5	1015	CL/SP	Red brown	-/-	0.5
34	1.5	1055	CL/SP	Red brown	-/-	0.5
35	1.5	1055	CL/SP	Red brown	-/-	0.4
36	1.5	1055	CL/SP	Red brown	-/-	1.0
37	1.5	1130	SP	Red brown	-/-	3.5
38	1.5	1130	CL	Red brown	-/-	0.6
39	1.5	1310	CL	Red brown	-/-	0.3
40	1.5	1310	CL	Red brown	-/-	0.4
41	1.5	1310	SP/CL	Red brown	-/-	0.2
42	1.5	1310	SP/CL	Red brown	-/-	0.2

SITE SKETCH: [illegible]; *excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features...* ***1 inch/grid = 30 FEET***



ENBRIDGE SITE INVESTIGATION FIELD SAMPLING AND SCREENING LOG

Date: 5/14/13

Location: *Milepost or Facility* Superior Terminal Tank 11 Road

Sampler: REE CJGZ

Equipment used: Photo *-ionization detector with* 10.6 *eV lamp* Mini RAE 3000 Background Headspace: 0.1 ppm

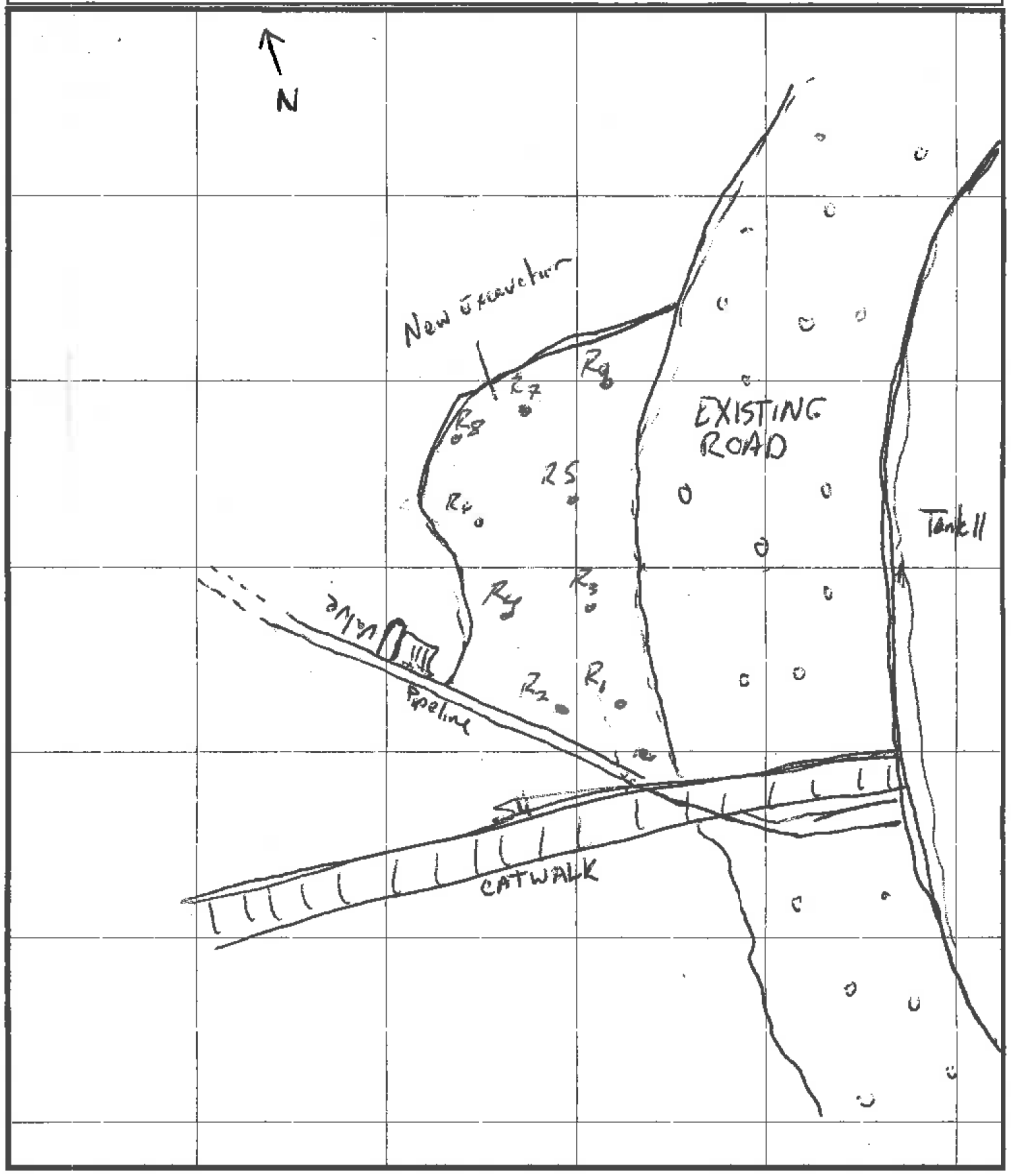
Calibration Time: 8405

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

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

Sample ID	Depth (ft)	Time (military)	Soil Type (USCS)	Color/ Discolor	Odor/ Sheen	Headspace Reading (ppm)
Example: R-1	4	16:30	CL	Reddish brown	Petroleum/ Rainbow	275
R-1	0.5	915	CL	Red brown	-/-	0.1
R-2	1.0	930	CL/GL	Red/black	-/-	0.3
R-3	1.0	935	CL	Red brown	-/-	0.2
R-4	1.0	935	CL	Red brown	-/-	0.2
R-5	1.0	1000	CL	Red brown	-/-	0.5
R-6	1.0	1000	CL	Red brown	-/-	0.2
R-7	1.0	1015	CL	Red brown	-/-	0.1
R-8	1.0	1015	CL	Red brown	-/-	0.1
R-9	1.0	1015	CL	Red brown	-/-	0.1

SITE SKETCH: *~~northeis up~~; excavation extents and depths, sample locations, structures, utilities, boring locations, wells, natural features...* ***1 inch/grid = 25 FEET***



Attachment C

Pace Analytical Laboratory Reports for Excavation Soil Samples

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 21, 2013

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

RE: Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Dear Andrea Nord:
Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2013. 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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

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

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SAMPLE SUMMARY

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10227937001	**TK 11 ROAD-B-1_3-3'**	Solid	05/07/13 12:00	05/08/13 08:54

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SAMPLE ANALYTE COUNT

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10227937001	**TK 11 ROAD-B-1_3-3'**	WI MOD DRO	JRH	2	PASI-M
		ASTM D2974	SH1	1	PASI-M
		EPA 8260	CNC	9	PASI-M

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PROJECT NARRATIVE

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Method: **WI MOD DRO**
Description: WIDRO GCS
Client: Barr Engineering
Date: May 21, 2013

General Information:
1 sample was analyzed for WI MOD DRO. All samples were received in acceptable condition with any exceptions noted below.

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

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

QC Batch: OEXT/21691

P3: Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
- TK 11 ROAD-B-1_3-3' (Lab ID: 10227937001)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

QC Batch: OEXT/21691

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- TK 11 ROAD-B-1_3-3' (Lab ID: 10227937001)
  - n-Triacontane (S)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Analyte Comments:

QC Batch: OEXT/21691

T6: High boiling point hydrocarbons are present in the sample.
- TK 11 ROAD-B-1_3-3' (Lab ID: 10227937001)
  - Diesel Range Organics

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PROJECT NARRATIVE

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Method: **EPA 8260**
Description: 8260 MSV UST
Client: Barr Engineering
Date: May 21, 2013

General Information:
1 sample was 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.

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Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Sample: TK 11 ROAD-B-1_3-3' **Lab ID: 10227937001** Collected: 05/07/13 12:00 Received: 05/08/13 08:54 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	**17400**	mg/kg	1000	10	05/16/13 12:15	05/18/13 17:59		T6
Surrogates								
n-Triacontane (S)	0	%	50-150	10	05/16/13 12:15	05/18/13 17:59	638-68-6	P3,S4
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**10.9**	%	0.10	1		05/13/13 00:00		
8260 MSV UST	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	**1640**	ug/kg	114	5	05/14/13 16:54	05/16/13 14:25	71-43-2	
Ethylbenzene	**31100**	ug/kg	286	5	05/14/13 16:54	05/16/13 14:25	100-41-4	
Toluene	**<286**	ug/kg	286	5	05/14/13 16:54	05/16/13 14:25	108-88-3	
1,2,4-Trimethylbenzene	**29400**	ug/kg	286	5	05/14/13 16:54	05/16/13 14:25	95-63-6	
1,3,5-Trimethylbenzene	**9680**	ug/kg	286	5	05/14/13 16:54	05/16/13 14:25	108-67-8	
Xylene (Total)	**7710**	ug/kg	858	5	05/14/13 16:54	05/16/13 14:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%	57-150	5	05/14/13 16:54	05/16/13 14:25	17060-07-0	
Toluene-d8 (S)	101	%	70-136	5	05/14/13 16:54	05/16/13 14:25	2037-26-5	
4-Bromofluorobenzene (S)	104	%	67-138	5	05/14/13 16:54	05/16/13 14:25	460-00-4	

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QUALITY CONTROL DATA

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

QC Batch: MPRP/39152
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10227937001

SAMPLE DUPLICATE: 1430235

Parameter	Units	10227975022 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.3	20.6	6	30	

SAMPLE DUPLICATE: 1430236

Parameter	Units	10228063002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.1	8.6	6	30	

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QUALITY CONTROL DATA

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

QC Batch: MSV/23656
QC Batch Method: EPA 5035/5030B
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST
Associated Lab Samples: 10227937001

METHOD BLANK: 1431527 Matrix: Solid
Associated Lab Samples: 10227937001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
1,3,5-Trimethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
Benzene	ug/kg	<20.0	20.0	05/15/13 18:48	
Ethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
Toluene	ug/kg	<50.0	50.0	05/15/13 18:48	
Xylene (Total)	ug/kg	<150	150	05/15/13 18:48	
1,2-Dichloroethane-d4 (S)	%	92	57-150	05/15/13 18:48	
4-Bromofluorobenzene (S)	%	99	67-138	05/15/13 18:48	
Toluene-d8 (S)	%	96	70-136	05/15/13 18:48	

LABORATORY CONTROL SAMPLE: 1431528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	838	84	74-125	
1,3,5-Trimethylbenzene	ug/kg	1000	847	85	73-125	
Benzene	ug/kg	1000	807	81	72-125	
Ethylbenzene	ug/kg	1000	862	86	75-125	
Toluene	ug/kg	1000	878	88	75-125	
Xylene (Total)	ug/kg	3000	2660	89	75-125	
1,2-Dichloroethane-d4 (S)	%			89	57-150	
4-Bromofluorobenzene (S)	%			95	67-138	
Toluene-d8 (S)	%			99	70-136	

MATRIX SPIKE SAMPLE: 1431529

Parameter	Units	10227891001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	1310	1610	122	74-135	
1,3,5-Trimethylbenzene	ug/kg	ND	1310	1620	123	71-137	
Benzene	ug/kg	ND	1310	1490	113	71-137	
Ethylbenzene	ug/kg	ND	1310	1580	120	75-134	
Toluene	ug/kg	ND	1310	1610	122	74-133	
Xylene (Total)	ug/kg	ND	3930	4890	124	75-135	
1,2-Dichloroethane-d4 (S)	%				89	57-150	
4-Bromofluorobenzene (S)	%				97	67-138	
Toluene-d8 (S)	%				99	70-136	

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QUALITY CONTROL DATA

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

SAMPLE DUPLICATE: 1431530

Parameter	Units	10228422001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	<58.5		30	
1,3,5-Trimethylbenzene	ug/kg	ND	<58.5		30	
Benzene	ug/kg	ND	<23.4		30	
Ethylbenzene	ug/kg	ND	<58.5		30	
Toluene	ug/kg	ND	<58.5		30	
Xylene (Total)	ug/kg	ND	<175		30	
1,2-Dichloroethane-d4 (S)	%	91	91	.7		
4-Bromofluorobenzene (S)	%	100	101	2		
Toluene-d8 (S)	%	97	96	.2		

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QUALITY CONTROL DATA

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

QC Batch: OEXT/21691 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10227937001

METHOD BLANK: 1433254 Matrix: Solid
Associated Lab Samples: 10227937001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	05/18/13 17:13	
n-Triacontane (S)	%	96	50-150	05/18/13 17:13	

LABORATORY CONTROL SAMPLE & LCSD: 1433255 1433256

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	81.1	76.8	101	96	70-120	5	20	
n-Triacontane (S)	%				100	93	50-150			

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

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

P3	Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
T6	High boiling point hydrocarbons are present in the sample.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49116-1092 300 ENBRIDGE TK 11
Pace Project No.: 10227937

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10227937001	**TK 11 ROAD-B-1_3-3'**	WI MOD DRO	OEXT/21691	WI MOD DRO	GCSV/11326
10227937001	**TK 11 ROAD-B-1_3-3'**	ASTM D2974	MPRP/39152		
10227937001	**TK 11 ROAD-B-1_3-3'**	EPA 5035/5030B	MSV/23656	EPA 8260	MSV/23657

10227937

Chain of Custody

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

RUSH! 5/8/13

COC 1 of 1

Project Number: 49161092 300

Project Name: ~~PDC~~ Enbridge Tank #1 Road

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

COC Number: № 40059

Project Manager: REE

Project QC Contact: ADN

Sampled by: REE

Laboratory: Pace

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Matrix:	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative — Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H_2SO_4) #4	Soil: VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	PVOC-MTBE	Total Number Of Containers	
1. TK#1 Road-B-1	3	3	Ft	5/7/13	1200		X		X												X			X	X	3	PVOC-MTBE, DRO.
2.																											
3.																											~~RUSH~~ Normal TAT
4.																											
5.																											
6.																											
7.																											
8.																											
9.																											
10.																											

Common Parameter/Container - Preservation Key

- #1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
- #2 - Semivolatile Organics = PAHs, 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:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	5/7/13	1530	[signature] PACE	5/8/13	0854
Relinquished By:	On Ice? Y N	Date	Time	Received by:	Date	Time

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

Air Bill Number: T=4.5

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

H:\RLG\STDFORMS\Chain Of Custody Form 2009 RLG Rev. 09\01109

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: BARR

Project #: WO# : 10227937

10227937

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace ☐ Other:

Tracking Number: 7977 0590 9328

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

Thermom. Used: ☐ B88A912167504 ☑ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 4.1 **Cooler Temp Corrected (°C):** 4.5 **Biological Tissue Frozen?** ☐ Yes ☑ No

Temp should be above freezing to 6°C **Correction Factor:** +0.4 **Date and Initials of Person Examining Contents:** JK 5/8/13

Comments:

Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7. 5 DAY
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: SL	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ 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: Date: 5/9/13

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)

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

May 21, 2013

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

RE: Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Dear Andrea Nord:
Enclosed are the analytical results for sample(s) received by the laboratory on May 10, 2013. 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

Pace Analytical Services, Inc.
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(612)607-1700

CERTIFICATIONS

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

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

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SAMPLE SUMMARY

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10228260001	**TK11 Road-B-2_0.8-0.8'**	Solid	05/08/13 10:05	05/10/13 10:21

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SAMPLE ANALYTE COUNT

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10228260001	**TK11 Road-B-2_0.8-0.8'**	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	KT1	7	PASI-M
		ASTM D2974	JDL	1	PASI-M

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PROJECT NARRATIVE

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Method: **WI MOD DRO**
Description: WIDRO GCS
Client: Barr Engineering
Date: May 21, 2013

General Information:
1 sample was 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.

QC Batch: OEXT/21708

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

- TK11 Road-B-2_0.8-0.8' (Lab ID: 10228260001)
  - n-Triacontane (S)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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PROJECT NARRATIVE

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Method: **WI MOD GRO**
Description: WIGRO GCV
Client: Barr Engineering
Date: May 21, 2013

General Information:
1 sample was 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:

Analyte Comments:

QC Batch: GCV/10732

1M: Preserved from a non-method compliant container (plastic bag) with headspace; data being reported per client's request. Results should be considered an estimation.

- MS (Lab ID: 1429716)
  - a,a,a-Trifluorotoluene (S)
- MSD (Lab ID: 1429717)
  - a,a,a-Trifluorotoluene (S)

2M: Surrogate recovery outside laboratory control limits due to matrix interferences.

- TK11 Road-B-2_0.8-0.8' (Lab ID: 10228260001)
  - a,a,a-Trifluorotoluene (S)

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PROJECT NARRATIVE

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Method: **WI MOD GRO**
Description: WIGRO GCV
Client: Barr Engineering
Date: May 21, 2013

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

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ANALYTICAL RESULTS

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Sample: TK11 Road-B-2_0.8-0.8' **Lab ID: 10228260001** Collected: 05/08/13 10:05 Received: 05/10/13 10:21 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	**2380**	mg/kg	232	25.5	20	05/17/13 13:07	05/20/13 11:19		
Surrogates									
n-Triacontane (S)	0	%	50-150		20	05/17/13 13:07	05/20/13 11:19	638-68-6	S4
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	**<0.060**	mg/kg	0.060		1	05/12/13 21:05	05/13/13 13:01	71-43-2	
Ethylbenzene	**0.50**	mg/kg	0.060		1	05/12/13 21:05	05/13/13 13:01	100-41-4	
Toluene	**<0.060**	mg/kg	0.060		1	05/12/13 21:05	05/13/13 13:01	108-88-3	
1,2,4-Trimethylbenzene	**0.85**	mg/kg	0.060		1	05/12/13 21:05	05/13/13 13:01	95-63-6	
1,3,5-Trimethylbenzene	**0.50**	mg/kg	0.060		1	05/12/13 21:05	05/13/13 13:01	108-67-8	
Xylene (Total)	**0.72**	mg/kg	0.18		1	05/12/13 21:05	05/13/13 13:01	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	45	%	80-125		1	05/12/13 21:05	05/13/13 13:01	98-08-8	2M
Dry Weight	Analytical Method: ASTM D2974								
Percent Moisture	**19.9**	%	0.10	0.10	1		05/15/13 00:00		

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QUALITY CONTROL DATA

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

QC Batch: GCV/10732 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10228260001

METHOD BLANK: 1429713 Matrix: Solid
Associated Lab Samples: 10228260001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	<0.050	0.050	05/13/13 11:03	
1,3,5-Trimethylbenzene	mg/kg	<0.050	0.050	05/13/13 11:03	
Benzene	mg/kg	<0.050	0.050	05/13/13 11:03	
Ethylbenzene	mg/kg	<0.050	0.050	05/13/13 11:03	
Toluene	mg/kg	<0.050	0.050	05/13/13 11:03	
Xylene (Total)	mg/kg	<0.15	0.15	05/13/13 11:03	
a,a,a-Trifluorotoluene (S)	%	100	80-125	05/13/13 11:03	

LABORATORY CONTROL SAMPLE & LCSD: 1429714 1429715

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	4.8	5.1	96	103	80-120	7	20	
1,3,5-Trimethylbenzene	mg/kg	5	4.8	5.2	97	104	80-120	7	20	
Benzene	mg/kg	5	4.8	4.8	97	97	80-120	.2	20	
Ethylbenzene	mg/kg	5	4.9	5.1	98	103	80-120	5	20	
Toluene	mg/kg	5	4.9	5.0	98	100	80-120	2	20	
Xylene (Total)	mg/kg	15	14.6	15.4	97	103	80-120	6	20	
a,a,a-Trifluorotoluene (S)	%				98	97	80-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1429716 1429717

Parameter	Units	10227749003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	mg/kg	ND	5.6	5.7	6.0	6.2	106	110	80-120	5	20	
1,3,5-Trimethylbenzene	mg/kg	ND	5.6	5.7	6.1	6.3	108	111	80-120	3	20	
Benzene	mg/kg	ND	5.6	5.7	6.0	6.1	107	107	80-120	.5	20	
Ethylbenzene	mg/kg	ND	5.6	5.7	6.2	6.3	109	110	80-120	2	20	
Toluene	mg/kg	ND	5.6	5.7	6.1	6.1	108	108	80-120	.5	20	
Xylene (Total)	mg/kg	ND	16.9	17	18.2	18.5	108	109	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%						98	98	80-125			1M

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QUALITY CONTROL DATA

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

QC Batch: MPRP/39207
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10228260001

SAMPLE DUPLICATE: 1431978

Parameter	Units	10228342001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	21.3	20.8	3	30	

SAMPLE DUPLICATE: 1432208

Parameter	Units	10228646001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.0	7.1	2	30	

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QUALITY CONTROL DATA

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

QC Batch: OEXT/21708 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10228260001

METHOD BLANK: 1434598 Matrix: Solid
Associated Lab Samples: 10228260001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	05/19/13 19:48	
n-Triacontane (S)	%	90	50-150	05/19/13 19:48	

LABORATORY CONTROL SAMPLE & LCSD: 1434599 1434600

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	71.0	69.7	89	87	70-120	2	20	
n-Triacontane (S)	%				96	85	50-150			

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QUALIFIERS

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

1M	Preserved from a non-method compliant container (plastic bag) with headspace; data being reported per client's request. Results should be considered an estimation.
2M	Surrogate recovery outside laboratory control limits due to matrix interferences.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161092-300-016 Enbridge
Pace Project No.: 10228260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10228260001	**TK11 Road-B-2_0.8-0.8'**	WI MOD DRO	OEXT/21708	WI MOD DRO	GCSV/11336
10228260001	**TK11 Road-B-2_0.8-0.8'**	TPH GRO/PVOC WI ext.	GCV/10732	WI MOD GRO	GCV/10735
10228260001	**TK11 Road-B-2_0.8-0.8'**	ASTM D2974	MPRP/39207		

10228260

Chain of Custody

BARR

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

151

Project Number: 49161092-300-016

Project Name: Enbridge Tank 11 Road Installation

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

COC Number: Nº 40060

COC 1 of 1

Project Manager: Ryan Erickson

Project QC Contact: AAN

Sampled by: LEN

Laboratory: Pace

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Matrix:	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative — Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H_2SO_4) #4			Soil: VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	PVOC minus MTBE	Total Number Of Containers	
1. ~~SB12~~ SP113 S + TK11Road-B-2	1	2	in	05/08/2013	10:05		X		X								~~~~						X			X	X	3	PVOC-MTBE, DRO, % solids 001
2.																													
3.																													Normal TAT
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Common Parameter/Container - Preservation Key

#1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
#2 - Semivolatile Organics = PAHs, 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:	On Ice?	Date	Time	Received by:	Date	Time
	(Y) N	5/9/13	1245		5/9/13	1245
Relinquished By:	On Ice?	Date	Time	Received by:	Date	Time
	(Y) N	5/9/13	1700	T=4.0	5-10-13	10:21

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

H:RLG\STDFORMS\Chain Of Custody Form 2009 RLG Rev. 09\01\09

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Barr

Project #: WO#: 10228260

10228260

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other: ____

Tracking Number: (9612422) 9490855 15000507

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: P.B **Temp Blank?** ☑ Yes ☐ No

Thermom. Used: ☑ B88A912167504 ☐ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.2 **Cooler Temp Corrected (°C):** 4.0 **Biological Tissue Frozen?** ☐ Yes ☑ No

Temp should be above freezing to 6°C **Correction Factor:** +.8 **Date and Initials of Person Examining Contents:** CW 5-10-13

	Yes	No	N/A	Comments:
Chain of Custody Present?	☑	☐	☐	1.
Chain of Custody Filled Out?	☑	☐	☐	2.
Chain of Custody Relinquished?	☑	☐	☐	3.
Sampler Name and/or Signature on COC?	☑	☐	☐	4.
Samples Arrived within Hold Time?	☑	☐	☐	5.
Short Hold Time Analysis (<72 hr)?	☐	☑	☐	6.
Rush Turn Around Time Requested?	☐	☑	☐	7.
Sufficient Volume?	☑	☐	☐	8.
Correct Containers Used?	☑	☐	☐	9.
-Pace Containers Used?	☐	☑	☐	
Containers Intact?	☑	☐	☐	10.
Filtered Volume Received for Dissolved Tests?	☒	☐	☑	11. CW 5-10-13
Sample Labels Match COC?	☑	☐	☐	12.
-Includes Date/Time/ID/Analysis Matrix: SL				
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐	☐	☑	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐	☐	☑	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐	☑		Initial when completed: ____ Lot # of added preservative: ____
Headspace in VOA Vials (>6mm)?	☐	☐	☑	14.
Trip Blank Present?	☐	☐	☑	15.
Trip Blank Custody Seals Present?	☐	☐	☑	
Pace Trip Blank Lot # (if purchased): ____				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Andrea Nord Date/Time: 5/9/13 1708

Comments/Resolution: Change depth to 0.8-0.8 Ft

Project Manager Review: [signature] **Date:** 5/13/13

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

Attachment D

Waste Disposal Documentation

Shamrock Landfill

Waste Profile Sheet

Shamrock Landfill

P.O. Number	Customer Code	SKB Representative	CL

I. Generator Information

Generator Name: Enbridge Pipelines Limited Partnership, LLC		Generator EPA ID Number	SIC Code
Generator Location: Enbridge Superior Terminal -Tank 11 Road	County: Douglas	Generator Contact: Alex Smith	
		Phone: 715-398-4795	Fax: 832-325-5511
Generator Mailing Address (if different: 1320 Grand Ave, Superior, WI 54880		Generator Email Address: alex.smith@enbridge.com	
Bill To Name & Address: Enbridge Energy, 1100 Louisiana Ave, STE. 3300, Houston, TX 77002	Bill To #:	Billing Contact: Alex Smith	
		Phone: 715-398-4795	Fax: 832-325-5511
Invoice Contact:		Billing Email Address: alex.smith@enbridge.com	

II. Waste Generation Information

Waste Name: Crude contaminated soil - Tank 11 Road	Estimated rate of waste generation: 500 ☐ Lbs. ☐ tons ☒ cy ☐ drums	☒ one time ☐ 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:	Free Liquids:	pH Range:	Flash point:	Color:	Odor (describe):
☒ Solid ☐ Liquid ☐ Sludge ☐ Gas	☐ Yes ☒ No Content _____%	☐ <2 ☐ 2-4 ☐ 5-8 ☐ 8-12.4 ☐ >12.5	☐ ≤ 140°F ☐ > 140°F to < 200°F ☐ > 200°F	Brown	petroleum odor

V. Waste Classification

Waste stream properties (answer ALL questions)			Does this waste contain absorbents?	☐ Yes	☒ 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?	☐ Yes	☒ No	Is this waste lethal (by Minn. Rules 7045.0131 Subp. 6)?	☐ Yes	☒ No
Does this waste stream contain PCB material	☐ Yes	☒ No	Is this waste recyclable?	☐ Yes	☒ No
If yes, concentration: _____ppm			Is this waste explosive?	☐ Yes	☒ No
Does this waste stream contain fuming acids?	☐ Yes	☒ No	Is this waste infectious?	☐ Yes	☒ No
Does this waste contain asbestos?	☐ Yes	☒ No	Is this putrescible waste?	☐ Yes	☒ No
Does this waste contain oxidizers?	☐ Yes	☒ No	Is this waste demolition debris?	☐ Yes	☒ No
Does this waste contain radioactive material?	☐ Yes	☒ No	Is this waste sewer sludge?	☐ Yes	☒ No

Please attach any available information or analytical test results that have previously been performed on this waste that substantiates these determinations. Include MSDS's and any information from other agencies (i.e., MPCA, USEPA)

VI. Shipping Information

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

VII. Certification of Non Hazardous Waste & Approval Conditions

I hereby certify and warrant, on behalf of the generator and myself that, to the best of my knowledge and belief, the information contained herein is accurate, and true and that the waste is nonhazardous as defined in Title 42, Unites States Code Section 6903, Minnesota Statute Section 116.06, Subdivision 13, and/or any rules adopted by the Minnesota Pollution Control Agency under Minnesota Statute Section 116.07.

I understand that any approval is no longer valid if there are any changes in the process generating the waste or there have been changes in the composition of the waste. Therefore, if the composition of the waste stream changes or potentially changes, I or someone representing the generator, will immediately notify SKB Environmental. I, on behalf of the generator, hereby agree to fully indemnify SKB Environmental for any damages and/or costs incurred as a result of this certification being inaccurate or untrue.

Signature	Printed Name	Title	Date
	Alex Smith	Environmental Analyst	5/15/2013

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 07, 2013

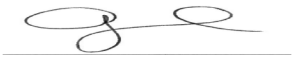
Andrea Nord
Barr Engineering
4700 West 77th Street
Minneapolis, MN 55435

RE: Project: 49161092 TK11 Road
Pace Project No.: 10227373

Dear Andrea Nord:
Enclosed are the analytical results for sample(s) received by the laboratory on May 03, 2013. 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

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CERTIFICATIONS

Project: 49161092 TK11 Road
Pace Project No.: 10227373

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

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SAMPLE SUMMARY

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10227373001	**TK11 Road-Stock Pile-1**	Solid	05/02/13 13:30	05/03/13 09:50

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SAMPLE ANALYTE COUNT

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10227373001	**TK11 Road-Stock Pile-1**	WI MOD DRO	JRH	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8260	DJT	7	PASI-M

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PROJECT NARRATIVE

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Method: **WI MOD DRO**
Description: WIDRO GCS
Client: Barr Engineering
Date: May 07, 2013

General Information:
1 sample was analyzed for WI MOD DRO. All samples were received in acceptable condition with any exceptions noted below.

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

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

QC Batch: OEXT/21548

P3: Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
- TK11 Road-Stock Pile-1 (Lab ID: 10227373001)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

QC Batch: OEXT/21548

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- TK11 Road-Stock Pile-1 (Lab ID: 10227373001)
  - n-Triacontane (S)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Analyte Comments:

QC Batch: OEXT/21548

T6: High boiling point hydrocarbons are present in the sample.
- TK11 Road-Stock Pile-1 (Lab ID: 10227373001)
  - Diesel Range Organics

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PROJECT NARRATIVE

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Method: **EPA 8260**
Description: 8260 MSV 5030 Med Level
Client: Barr Engineering
Date: May 07, 2013

General Information:
1 sample was 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.

QC Batch: MSV/23543

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1422867)
  - Benzene
  - Ethylbenzene
  - Toluene

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Sample: TK11 Road-Stock Pile-1 **Lab ID: 10227373001** Collected: 05/02/13 13:30 Received: 05/03/13 09:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	**6480**	mg/kg	485	10	05/03/13 12:16	05/05/13 16:37		T6
Surrogates								
n-Triacontane (S)	0	%	50-150	10	05/03/13 12:16	05/05/13 16:37	638-68-6	P3,S4
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**18.5**	%	0.10	1		05/03/13 00:00		
8260 MSV 5030 Med Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	**<25.0**	ug/kg	25.0	1	05/04/13 09:35	05/06/13 17:09	71-43-2	
Ethylbenzene	**<62.5**	ug/kg	62.5	1	05/04/13 09:35	05/06/13 17:09	100-41-4	
Toluene	**<62.5**	ug/kg	62.5	1	05/04/13 09:35	05/06/13 17:09	108-88-3	
Xylene (Total)	**<187**	ug/kg	187	1	05/04/13 09:35	05/06/13 17:09	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	57-150	1	05/04/13 09:35	05/06/13 17:09	17060-07-0	
Toluene-d8 (S)	99	%	70-136	1	05/04/13 09:35	05/06/13 17:09	2037-26-5	
4-Bromofluorobenzene (S)	114	%	67-138	1	05/04/13 09:35	05/06/13 17:09	460-00-4	

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QUALITY CONTROL DATA

Project: 49161092 TK11 Road
Pace Project No.: 10227373

QC Batch: MPRP/38905
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10227373001

SAMPLE DUPLICATE: 1422371

Parameter	Units	10227373001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.5	17.6	5	30	

SAMPLE DUPLICATE: 1422372

Parameter	Units	10227046003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.3	5.4	.7	30	

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QUALITY CONTROL DATA

Project: 49161092 TK11 Road
Pace Project No.: 10227373

QC Batch: MSV/23543
QC Batch Method: EPA 5035/5030B
Associated Lab Samples: 10227373001

Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5030 Med Level

METHOD BLANK: 1422863 Matrix: Solid
Associated Lab Samples: 10227373001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	<20.0	20.0	05/05/13 15:59	
Ethylbenzene	ug/kg	<50.0	50.0	05/05/13 15:59	
Toluene	ug/kg	<50.0	50.0	05/05/13 15:59	
Xylene (Total)	ug/kg	<150	150	05/05/13 15:59	
1,2-Dichloroethane-d4 (S)	%	106	57-150	05/05/13 15:59	
4-Bromofluorobenzene (S)	%	105	67-138	05/05/13 15:59	
Toluene-d8 (S)	%	98	70-136	05/05/13 15:59	

LABORATORY CONTROL SAMPLE & LCSD: 1422864 1422865

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/kg	1000	949	942	95	94	72-125	.7	20	
Ethylbenzene	ug/kg	1000	983	959	98	96	75-125	3	20	
Toluene	ug/kg	1000	972	938	97	94	75-125	4	20	
Xylene (Total)	ug/kg	3000	2960	2900	99	97	75-125	2	20	
1,2-Dichloroethane-d4 (S)	%				99	100	57-150			
4-Bromofluorobenzene (S)	%				98	96	67-138			
Toluene-d8 (S)	%				100	99	70-136			

MATRIX SPIKE SAMPLE: 1422866

Parameter	Units	10227160001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	ND	1070	1180	110	71-137	
Ethylbenzene	ug/kg	ND	1070	1130	105	75-134	
Toluene	ug/kg	ND	1070	1120	104	74-133	
Xylene (Total)	ug/kg	ND	3220	3400	105	75-135	
1,2-Dichloroethane-d4 (S)	%				105	57-150	
4-Bromofluorobenzene (S)	%				103	67-138	
Toluene-d8 (S)	%				101	70-136	

SAMPLE DUPLICATE: 1422867

Parameter	Units	10227160002 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/kg	48400	29200	50	30	D6
Ethylbenzene	ug/kg	11600	6190	61	30	D6
Toluene	ug/kg	83100	45900	58	30	D6
Xylene (Total)	ug/kg	112000	60000	61	30	
1,2-Dichloroethane-d4 (S)	%	95	98	7		

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QUALITY CONTROL DATA

Project: 49161092 TK11 Road
Pace Project No.: 10227373

SAMPLE DUPLICATE: 1422867

Parameter	Units	10227160002 Result	Dup Result	RPD	Max RPD	Qualifiers
4-Bromofluorobenzene (S)	%	101	101	4		
Toluene-d8 (S)	%	99	98	3		

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QUALITY CONTROL DATA

Project: 49161092 TK11 Road
Pace Project No.: 10227373

QC Batch: OEXT/21548
QC Batch Method: WI MOD DRO
Analysis Method: WI MOD DRO
Analysis Description: WIDRO GCS
Associated Lab Samples: 10227373001

METHOD BLANK: 1422198 Matrix: Solid
Associated Lab Samples: 10227373001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	05/05/13 13:22	
n-Triacontane (S)	%	85	50-150	05/05/13 13:22	

LABORATORY CONTROL SAMPLE & LCSD: 1422199 1422250

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	67.1	72.5	84	91	70-120	8	20	
n-Triacontane (S)	%				87	92	50-150			

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Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 49161092 TK11 Road
Pace Project No.: 10227373

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

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
P3	Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
T6	High boiling point hydrocarbons are present in the sample.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161092 TK11 Road
Pace Project No.: 10227373

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10227373001	**TK11 Road-Stock Pile-1**	WI MOD DRO	OEXT/21548	WI MOD DRO	GCSV/11247
10227373001	**TK11 Road-Stock Pile-1**	ASTM D2974	MPRP/38905		
10227373001	**TK11 Road-Stock Pile-1**	EPA 5035/5030B	MSV/23543	EPA 8260	MSV/23544

10227373

Chain of Custody

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

RUSH

5312

COC 1 of 1

Project Number: 49161092

Project Name: Tk 11 Road

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

COC Number: Nº 40055

Project Manager: HAW

Project QC Contact: AAN

Sampled by: CJG2

Laboratory: Pace

	Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative — Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H_2SO_4) #4	Soil: VOCs (tared MeOH) #1 BETX	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	Total Number Of Containers	
1.	TK11 Road-Stockpile-1	—	—	—	5/2/2013	1330		X	X										X		X			X	6	DRO, BETX ,001
2.																										% solids
3.																										
4.																										3 extra Jars - Hold
5.																										
6.																										ASAP TAT
7.																										
8.																										
9.																										
10.																										

Common Parameter/Container - Preservation Key

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

		On Ice?	Date	Time		Date	Time
Relinquished By:	CJG2	(Y) N	5/2/13	300 PM	Received by:	5/2/13	1500
Relinquished By:		(Y) N	5/3/13	1700	Received by: Pace	5/3/13	0450

Samples Shipped VIA: ☐ Air Freight ☒ Federal Express ☐ Sampler ☐ Other: dropped off @ Pace Duluth

Air Bill Number:

T=4.2

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

H:\RLG\STDFORMS\Chain Of Custody Form 2009 RLG Rev. 09001109

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Barr

Project #: WO# : 10227373

10227373

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 947085551000433

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

Thermom. Used: ☒ 888A912167504 ☐ 80512447 ☐ 72337080 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

5360

Cooler Temp Read (°C): 3.4 **Cooler Temp Corrected (°C):** 4.2

Biological Tissue Frozen? ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** +.8 **Date and Initials of Person Examining Contents:** 5/3/13

				Comments:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☒ Yes	☐ No	☐ N/A	7. ASAP
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☐ Yes	☒ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: SL	☒ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☒ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☒ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☐ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ 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: Date: 5/3/13

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)

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 13, 2013

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

RE: Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Dear Andrea Nord:
Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2013. 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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

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

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SAMPLE SUMMARY

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10227904001	**TKIIRoad-Stockpile-2**	Solid	05/06/13 16:30	05/08/13 08:54

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SAMPLE ANALYTE COUNT

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10227904001	**TKIIRoad-Stockpile-2**	WI MOD DRO	JRH	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8260	CNC	7	PASI-M

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PROJECT NARRATIVE

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Method: **WI MOD DRO**
Description: WIDRO GCS
Client: Barr Engineering
Date: May 13, 2013

General Information:
1 sample was 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/21624

T6: High boiling point hydrocarbons are present in the sample.
- TKIIRoad-Stockpile-2 (Lab ID: 10227904001)
  - Diesel Range Organics

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PROJECT NARRATIVE

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Method: **EPA 8260**
Description: 8260 MSV UST
Client: Barr Engineering
Date: May 13, 2013

General Information:
1 sample was 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.

QC Batch: MSV/23584

R1: RPD value was outside control limits.
- LCSD (Lab ID: 1426202)
  - Benzene

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

QC Batch: MSV/23585

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Sample: TKIIRoad-Stockpile-2 **Lab ID: 10227904001** Collected: 05/06/13 16:30 Received: 05/08/13 08:54 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	**298**	mg/kg	50.8	5.6	5	05/10/13 15:01	05/12/13 21:37		T6
Surrogates									
n-Triacontane (S)	90	%	50-150		5	05/10/13 15:01	05/12/13 21:37	638-68-6	
Dry Weight	Analytical Method: ASTM D2974								
Percent Moisture	**7.2**	%	0.10	0.10	1		05/09/13 00:00		
8260 MSV UST	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<20.7**	ug/kg	20.7	4.9	1	05/09/13 14:00	05/10/13 14:02	71-43-2	
Ethylbenzene	**<51.7**	ug/kg	51.7	4.3	1	05/09/13 14:00	05/10/13 14:02	100-41-4	
Toluene	**<51.7**	ug/kg	51.7	7.8	1	05/09/13 14:00	05/10/13 14:02	108-88-3	
Xylene (Total)	**<155**	ug/kg	155	17.2	1	05/09/13 14:00	05/10/13 14:02	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	57-150		1	05/09/13 14:00	05/10/13 14:02	17060-07-0	
Toluene-d8 (S)	100	%	70-136		1	05/09/13 14:00	05/10/13 14:02	2037-26-5	
4-Bromofluorobenzene (S)	93	%	67-138		1	05/09/13 14:00	05/10/13 14:02	460-00-4	

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QUALITY CONTROL DATA

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

QC Batch: MPRP/39046
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10227904001

SAMPLE DUPLICATE: 1426555

Parameter	Units	10227902001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.3	13.0	9	30	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

QC Batch: MSV/23584 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV UST
Associated Lab Samples: 10227904001

METHOD BLANK: 1426200 Matrix: Solid
Associated Lab Samples: 10227904001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	<20.0	20.0	05/10/13 13:27	
Ethylbenzene	ug/kg	<50.0	50.0	05/10/13 13:27	
Toluene	ug/kg	<50.0	50.0	05/10/13 13:27	
Xylene (Total)	ug/kg	<150	150	05/10/13 13:27	
1,2-Dichloroethane-d4 (S)	%	100	57-150	05/10/13 13:27	
4-Bromofluorobenzene (S)	%	100	67-138	05/10/13 13:27	
Toluene-d8 (S)	%	95	70-136	05/10/13 13:27	

LABORATORY CONTROL SAMPLE & LCSD: 1426201 1426202

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/kg	1000	816	1050	82	105	72-125	25	20	R1
Ethylbenzene	ug/kg	1000	885	1040	89	104	75-125	16	20	
Toluene	ug/kg	1000	1040	1050	104	105	75-125	1	20	
Xylene (Total)	ug/kg	3000	2700	3220	90	107	75-125	18	20	
1,2-Dichloroethane-d4 (S)	%				81	100	57-150			
4-Bromofluorobenzene (S)	%				111	97	67-138			
Toluene-d8 (S)	%				110	102	70-136			

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QUALITY CONTROL DATA

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

QC Batch: OEXT/21624
QC Batch Method: WI MOD DRO
Analysis Method: WI MOD DRO
Analysis Description: WIDRO GCS
Associated Lab Samples: 10227904001

METHOD BLANK: 1428169 Matrix: Solid
Associated Lab Samples: 10227904001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	05/12/13 19:26	
n-Triacontane (S)	%	97	50-150	05/12/13 19:26	

LABORATORY CONTROL SAMPLE & LCSD: 1428170 1428171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	78.1	80.6	98	101	70-120	3	20	
n-Triacontane (S)	%				99	97	50-150			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

QUALIFIERS

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

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

BATCH QUALIFIERS

Batch: MSV/23584

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

R1	RPD value was outside control limits.
T6	High boiling point hydrocarbons are present in the sample.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49/16-1092 Tank 11 Road-Enbrid
Pace Project No.: 10227904

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10227904001	**TKIIRoad-Stockpile-2**	WI MOD DRO	OEXT/21624	WI MOD DRO	GCSV/11288
10227904001	**TKIIRoad-Stockpile-2**	ASTM D2974	MPRP/39046		
10227904001	**TKIIRoad-Stockpile-2**	EPA 5035/5030B	MSV/23584	EPA 8260	MSV/23585

Chain of Custody

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

RUSH! 5/8/13

10227904

COC 1 of 1

Project Number: 49116-1092

Project Name: Tank 11 Road - Enbridge

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

COC Number: № 40057

Project Manager: REE

Project QC Contact: AAN

Sampled by: BJR2

Laboratory: Pace

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative — Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H_2SO_4) #4	Soil: 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	
1. TK11Road-Stockpile-2	—	—	—	5/6/13	1630		X	X											X	X			X	3	BTEX, DRO, % solids 001
2.																									ASAP TAT
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									

Common Parameter/Container - Preservation Key

- #1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
- #2 - Semivolatile Organics = PAHs, 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:	On Ice? Y N	Date	Time	Received by:	Date	Time
[signature]	Y N	5/7/13	1530	[signature] PACE	5/8/13	0854
Relinquished By:	On Ice? Y N	Date	Time	Received by:	Date	Time

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

Air Bill Number: T=4.5

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

H:RLG\STDFORMS\Chain Of Custodv Form 2009 RLG Rev. 09\01\09

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: PARR

Project #: WO#: 10227904

10227904

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 7999 0596 9328

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

Thermom. Used: ☐ B88A912167504 ☑ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 4.1 **Cooler Temp Corrected (°C):** 4.5

Temp should be above freezing to 6°C **Correction Factor:** +0.4 **Date and Initials of Person Examining Contents:** 5/8/13

Comments:

Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7. 5 DAY
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: SL	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ 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: Date: 5/9/13

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)

LEGEND
Technical Services, Inc.
www.legend-group.com

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

May 14, 2013

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

Work Order Number: 1302101
RE: 49161092

Enclosed are the results of analyses for samples received by the laboratory on 05/10/13. 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

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

Tyler Jones
Chemist I
tjones@legend-group.com

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Fax: 651-642-1239

Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TK11Road-Stockpile-3	1302101-01	Soil	05/09/13 09:35	05/10/13 09:35

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:

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

DRO/8015D
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TK11Road-Stockpile-3 (1302101-01) Soil	**Sampled: 05/09/13 09:35**			**Received: 05/10/13 9:35**						
Diesel Range Organics	**320**	9.6	1.1	mg/kg dry	1	B3E1306	05/13/13	05/13/13	WI(95) DRO	
Surrogate: Triacontane (C-30)	*94.8*			*70-130 %*		"	"	"	"	

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

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

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TK11Road-Stockpile-3 (1302101-01) Soil	**Sampled: 05/09/13 09:35**			**Received: 05/10/13 9:35**						
Benzene	<0.028	0.028	0.00096	mg/kg dry	1	B3E1015	05/10/13	05/10/13	WI(95) GRO	
Ethylbenzene	**0.061**	0.028	0.0031	mg/kg dry	1	"	"	"	"	
Toluene	<0.028	0.028	0.0010	mg/kg dry	1	"	"	"	"	
Xylenes (total)	**0.11**	0.085	0.0057	mg/kg dry	1	"	"	"	"	
Surrogate: 4-Fluorochlorobenzene	*116*			*80-150 %*		"	"	"	"	

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

PERCENT SOLIDS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TK11Road-Stockpile-3 (1302101-01) Soil	**Sampled: 05/09/13 09:35**			**Received: 05/10/13 9:35**						
% Solids	**83**			%	1	B3E1411	05/14/13	05/14/13	% calculation	

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

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

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B3E1306 - Sonication (Wisc DRO)											
Blank (B3E1306-BLK1)					Prepared & Analyzed: 05/13/13						
Diesel Range Organics	< 8.0	8.0	0.93	mg/kg wet							
Surrogate: Triacontane (C-30)	*14.8*			*mg/kg wet*	*16.0*		*92.4*	*70-130*			
LCS (B3E1306-BS1)					Prepared & Analyzed: 05/13/13						
Diesel Range Organics	60.7	8.0	0.93	mg/kg wet	64.0		94.9	70-120			
Surrogate: Triacontane (C-30)	*15.2*			*mg/kg wet*	*16.0*		*95.1*	*70-130*			
LCS Dup (B3E1306-BSD1)					Prepared & Analyzed: 05/13/13						
Diesel Range Organics	58.6	8.0	0.93	mg/kg wet	64.0		91.6	70-120	3.56	20	
Surrogate: Triacontane (C-30)	*14.7*			*mg/kg wet*	*16.0*		*91.7*	*70-130*			

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

WI(95) GRO/8015D - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B3E1015 - EPA 5035 Soil (Purge and Trap)											
Blank (B3E1015-BLK1)					Prepared & Analyzed: 05/10/13						
Benzene	< 0.025	0.025	0.00085	mg/kg wet							
Ethylbenzene	< 0.025	0.025	0.0027	mg/kg wet							
Toluene	< 0.025	0.025	0.00090	mg/kg wet							
Xylenes (total)	< 0.075	0.075	0.0050	mg/kg wet							
Surrogate: 4-Fluorochlorobenzene	*24.5*			*ug/L*	*25.0*		*97.8*	*80-150*			
LCS (B3E1015-BS1)					Prepared & Analyzed: 05/10/13						
Benzene	103			ug/L	100		103	80-120			
Ethylbenzene	106			ug/L	100		106	80-120			
Toluene	105			ug/L	100		105	80-120			
Xylenes (total)	328			ug/L	300		109	80-120			
Surrogate: 4-Fluorochlorobenzene	*26.0*			*ug/L*	*25.0*		*104*	*80-150*			
LCS Dup (B3E1015-BSD1)					Prepared & Analyzed: 05/10/13						
Benzene	103			ug/L	100		103	80-120	0.180	20	
Ethylbenzene	107			ug/L	100		107	80-120	0.893	20	
Toluene	105			ug/L	100		105	80-120	0.307	20	
Xylenes (total)	331			ug/L	300		110	80-120	0.909	20	
Surrogate: 4-Fluorochlorobenzene	*25.9*			*ug/L*	*25.0*		*104*	*80-150*			
Matrix Spike (B3E1015-MS1)		**Source: 1302101-01**			Prepared & Analyzed: 05/10/13						
Benzene	104			ug/L	100	<	104	80-120			
Ethylbenzene	107			ug/L	100	1.07	106	80-120			
Toluene	105			ug/L	100	0.307	104	80-120			
Xylenes (total)	323			ug/L	300	1.99	107	80-120			
Surrogate: 4-Fluorochlorobenzene	*29.9*			*ug/L*	*25.0*		*120*	*80-150*			

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Barr Engineering Co.	Project:	49161092	
4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

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 B3E1411 - General Preparation											
Duplicate (B3E1411-DUP1)		**Source: 1302101-01**			Prepared & Analyzed: 05/14/13						
% Solids	83.0			%		83.0			0.00	20	

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4700 W 77th St	Project Number:	49161092 TK11	Work Order #: 1302101
Minneapolis, MN 55435	Project Manager:	Ms. Andrea Nord	Date Reported: 05/14/13

Notes and Definitions

<	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)

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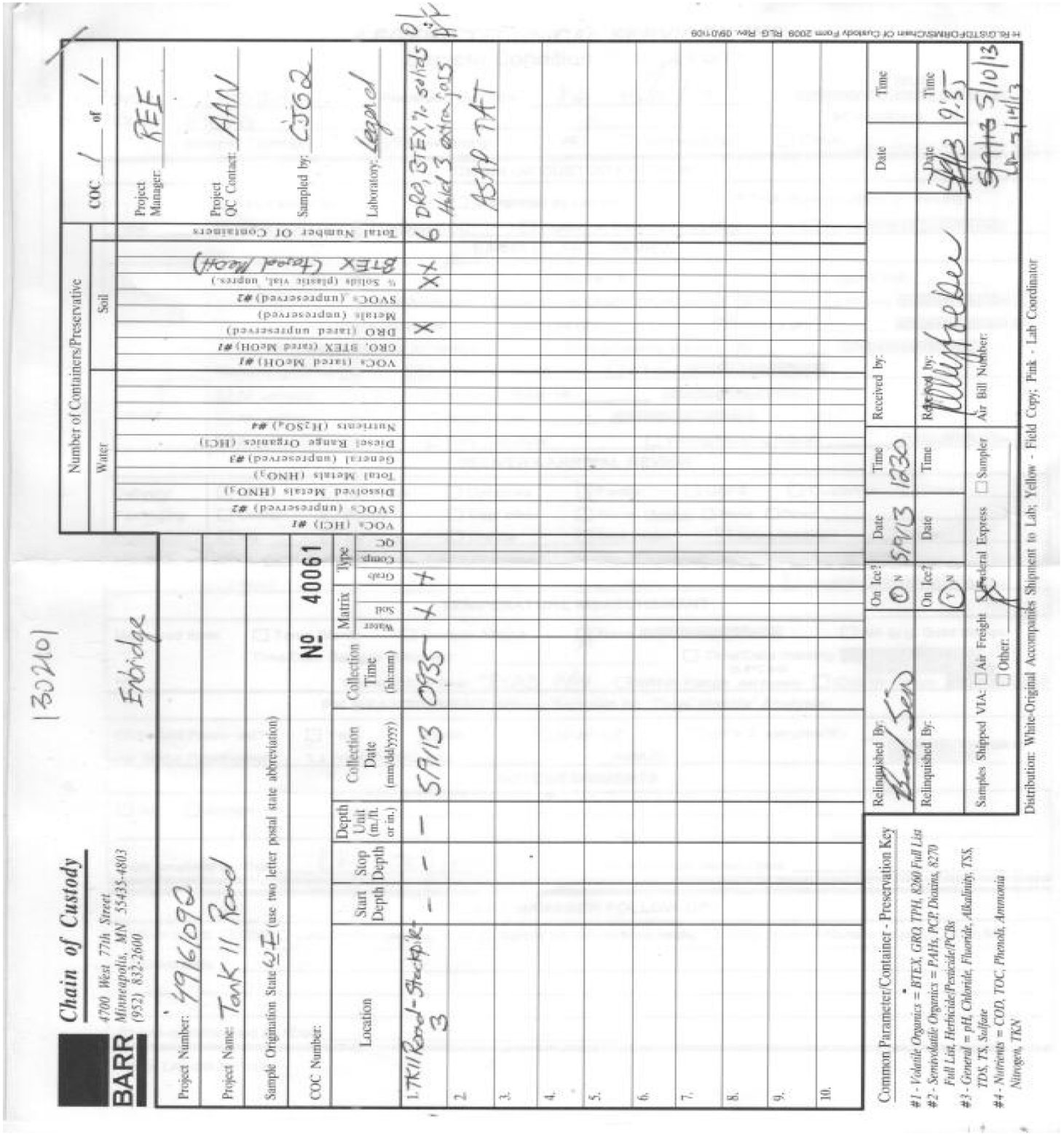

Chain of Custody

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

130210

Project Number: 49161092
Project Name: Tank 11 Road
Sample Origination State: WI (use two letter postal state abbreviation)
COC Number: Nº 40061

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative: Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	Diesel Range Organics (HCl)	General (unpreserved) #3	Nutrients (H_2SO_4) #4	Number of Containers/Preservative: Soil: VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	BTEX (Total Month)	Total Number Of Containers
1. TR11 Road-Stockpile 3	-	-	-	5/9/13	0935		X	X											X				XX	6
2.																									
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									

Relinquished By: [signature] On Ice? Y N Date 5/9/13 Time 1230 Received by: Date Time

Relinquished By: On Ice? Y N Date Time Received by: [signature] Date 5/9/13 Time 9:35

Samples Shipped VIA: ☐ Air Freight ☒ Federal Express ☐ Sampler Air Bill Number:

☐ Other:

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

Project Manager: REE
Project QC Contact: AAN
Sampled by: CJG2
Laboratory: Legend

COC 1 of 1

DRO, BTEX, % solids
Hold 3 extra jars
ASAP TAT

5/9/13 5/10/13

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

H:\LG\STDFORMS\Chain Of Custody Form 2009 RLG Rev 090109

Shamrock Landfill

May 16, 2013

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

RE: CL13-0023 Crude Contaminated Soil - Tank 11 Road

Dear Smith,

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

Payment and terms are net thirty (30) days. Interest will be charged at a rate of 1 ½% per month (18% annually) on any unpaid balance 30 days after the date of the invoice. In the event Customer terminates this Agreement prior to its expiration other than as a result of a breach by Shamrock Landfill or Shamrock Landfill terminates this agreement for Customer's breach (including nonpayment) Customer agrees to pay to Shamrock Landfill as liquidated damages a sum calculated as follows: (1) if the remaining term under this agreement is six or more months Customer shall pay its average monthly charges multiplied by six: or (2) if the remaining term under this agreement is less than six months Customer shall pay its average monthly charge multiplied by the number of months remaining in the term. Customer expressly acknowledges that in the event of an unauthorized termination of this agreement the anticipated loss to Shamrock Landfill in such event is estimated to be the amount set forth in the foregoing liquidated damages provision and such estimated value is reasonable and is not imposed as a penalty.

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

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

Shamrock Landfill

Steve Opstad

Customer ACCEPTED BY: (name, position) Alex Smith, Environmental Analyst

DATE: 16 May 2013

WASTE APPROVAL Period: 5/16/2013 to 5/2/2015

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120

Shamrock Landfill

Bill To Customer

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

Service For Generator

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

Disposal

Waste Description: Crude Contaminated Soil - Tank 11 Road

Estimated Volume: 500 YARDS / ONE TIME ONLY

Disposal Method: Secure Non-Hazardous Landfill

Treatment Method: None Expected For Conforming Waste

Pricing

Disposal	$16.00	Per Ton	Crude Contaminated Soil - Tank 11 Road

Shamrock Landfill

Notification of Waste Acceptance

CUSTOMER INFORMATION

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

2800 East 21st St
Superior, WI 54880
Contact: Alex Smith
Phone: (715) 398-4795

INVOICE INFORMATION

Bill #: 2133
Enbridge Pipelines Limited Partnership,
Accounts Payable

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

Profile Sheet #:
Waste Stream #: CL13-0023
Waste Name: Crude Contaminated Soil - Tank 11 Road

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

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

ACCEPTANCE INFORMATION

The waste stream identified by the reference above is acceptable for disposal.
The anticipated frequency of shipment is 500 YARDS / ONE TIME ONLY

This waste is acceptable for delivery beginning on 5/16/2013 thru 5/2/2015 at which time the material will need to be reanalyzed and recertified.

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

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

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

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

Shipping Requirements A NON-HAZARDOUS certificate is required to be on file, certifying the waste is non-hazardous as specified per 40 CFR 261.4. The shipment must be accompanied with an Shamrock Landfill manifest.

Shamrock Landfill

WASTE STREAM ANALYSIS INFORMATION

Waste Name:	Crude Contaminated Soil - Tank 11 Road
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 Shamrock Landfill employees for the purpose of determining waste acceptability. No other claims are made or implied.

COMMENTS

AUTHORIZATION

Approval: _____ Date: 5/16/13

P.O. Box 338 • Esko, MN 55733-0338
Main: 218.878.0112 • Fax: 218.879.2120

SKB CLOQUET

REPORT NAME: **Tons Each Load By WSID**
DESCRIPTION: **Tonnage for EACH LOAD, grouped by customer**
DATE RANGE: **01/01/2013 to 06/05/2013**
PRINTED ON (DATE): **Wednesday, June 05, 2013**

ENBS1

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

LOAD #	MANIFEST	ARRIVED	WASTE STREAM	WASTE NAME	CELL	SPOT	LIFT	TONS
10092 (A)	10461	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	24.91
10095 (A)	10462	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	22.49
10096 (A)	10463	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	22.96
10097 (A)	10464	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	25.06
10099 (A)	10452	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	25.06
10101 (A)	10451	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	25.11
10104 (A)	10450	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	16.66
10105 (A)	10449	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	17.40
10106 (A)	10448	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	19.70
10107 (A)	10447	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	24.96
10108 (A)	10446	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	25.42
10109 (A)	10445	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	21.36
10111 (A)	10443	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	0.00
10112 (A)	10442	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	23.70
10113 (A)	10441	5/24/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	Q43	1160	21.76
10170 (A)	10440	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	18.57
10171 (A)	10438	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	18.76
10172 (A)	10439	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	17.74
10174 (A)	10437	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	17.76
10175 (A)	10436	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	19.93
10176 (A)	10435	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	21.07
10183 (A)	10434	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	25.60
10184 (A)	10433	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	19.38
10185 (A)	10432	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	16.09
10186 (A)	10431	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	16.65
10187 (A)	10430	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	18.15
10191 (A)	10429	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	20.25
10192 (A)	10428	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	18.53
10193 (A)	10427	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	19.77
10194 (A)	10426	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	19.71
10195 (A)	10425	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	20.32
10198 (A)	10424	5/29/2013	CL13-0023	Crude Contaminated Soil - Tank 11	2A	R43	1160	10.80

Total # of Loads: 32 **Total Tons: 635.63**

Grand Total (Tons): 635.63
Grand Total (Loads): 32

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

September 28, 2013

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

RE: Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Dear Andrea Nord:
Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2013. 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.

This report was revised on September 28, 2013 to correct the sample and project IDs.

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

Sincerely,

Andrea Opland

andrea.opland@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

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
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

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Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10227936001	**TK 11 ROAD - UDEENS - 1**	Solid	05/06/13 16:15	05/08/13 08:54

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10227936001	**TK 11 ROAD - UDEENS - 1**	WI MOD DRO	JRH	2	PASI-M
		ASTM D2974	SH1	1	PASI-M
		EPA 8260	CNC	9	PASI-M

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Method: **WI MOD DRO**
Description: WIDRO GCS
Client: Barr Engineering
Date: September 28, 2013

General Information:
1 sample was 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:

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Method: **EPA 8260**
Description: 8260 MSV UST
Client: Barr Engineering
Date: September 28, 2013

General Information:
1 sample was 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.

Pace Analytical Services, Inc.
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(612)607-1700

ANALYTICAL RESULTS

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Sample: TK 11 ROAD - UDEENS - 1 **Lab ID: 10227936001** Collected: 05/06/13 16:15 Received: 05/08/13 08:54 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	**12.1**	mg/kg	11.9	1	05/16/13 12:15	05/18/13 18:30		
Surrogates								
n-Triacontane (S)	93	%	50-150	1	05/16/13 12:15	05/18/13 18:30	638-68-6	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**8.3**	%	0.10	1		05/13/13 00:00		
8260 MSV UST	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	**<24.6**	ug/kg	24.6	1	05/14/13 16:54	05/15/13 22:58	71-43-2	
Ethylbenzene	**<61.5**	ug/kg	61.5	1	05/14/13 16:54	05/15/13 22:58	100-41-4	
Toluene	**<61.5**	ug/kg	61.5	1	05/14/13 16:54	05/15/13 22:58	108-88-3	
1,2,4-Trimethylbenzene	**<61.5**	ug/kg	61.5	1	05/14/13 16:54	05/15/13 22:58	95-63-6	
1,3,5-Trimethylbenzene	**<61.5**	ug/kg	61.5	1	05/14/13 16:54	05/15/13 22:58	108-67-8	
Xylene (Total)	**<185**	ug/kg	185	1	05/14/13 16:54	05/15/13 22:58	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	92	%	57-150	1	05/14/13 16:54	05/15/13 22:58	17060-07-0	
Toluene-d8 (S)	95	%	70-136	1	05/14/13 16:54	05/15/13 22:58	2037-26-5	
4-Bromofluorobenzene (S)	98	%	67-138	1	05/14/13 16:54	05/15/13 22:58	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

QC Batch: MPRP/39152
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10227936001

SAMPLE DUPLICATE: 1430235

Parameter	Units	10227975022 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.3	20.6	6	30	

SAMPLE DUPLICATE: 1430236

Parameter	Units	10228063002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.1	8.6	6	30	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

QC Batch: MSV/23656
QC Batch Method: EPA 5035/5030B
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST
Associated Lab Samples: 10227936001

METHOD BLANK: 1431527 Matrix: Solid
Associated Lab Samples: 10227936001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
1,3,5-Trimethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
Benzene	ug/kg	<20.0	20.0	05/15/13 18:48	
Ethylbenzene	ug/kg	<50.0	50.0	05/15/13 18:48	
Toluene	ug/kg	<50.0	50.0	05/15/13 18:48	
Xylene (Total)	ug/kg	<150	150	05/15/13 18:48	
1,2-Dichloroethane-d4 (S)	%	92	57-150	05/15/13 18:48	
4-Bromofluorobenzene (S)	%	99	67-138	05/15/13 18:48	
Toluene-d8 (S)	%	96	70-136	05/15/13 18:48	

LABORATORY CONTROL SAMPLE: 1431528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	838	84	74-125	
1,3,5-Trimethylbenzene	ug/kg	1000	847	85	73-125	
Benzene	ug/kg	1000	807	81	72-125	
Ethylbenzene	ug/kg	1000	862	86	75-125	
Toluene	ug/kg	1000	878	88	75-125	
Xylene (Total)	ug/kg	3000	2660	89	75-125	
1,2-Dichloroethane-d4 (S)	%			89	57-150	
4-Bromofluorobenzene (S)	%			95	67-138	
Toluene-d8 (S)	%			99	70-136	

MATRIX SPIKE SAMPLE: 1431529

Parameter	Units	10227891001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	1310	1610	122	74-135	
1,3,5-Trimethylbenzene	ug/kg	ND	1310	1620	123	71-137	
Benzene	ug/kg	ND	1310	1490	113	71-137	
Ethylbenzene	ug/kg	ND	1310	1580	120	75-134	
Toluene	ug/kg	ND	1310	1610	122	74-133	
Xylene (Total)	ug/kg	ND	3930	4890	124	75-135	
1,2-Dichloroethane-d4 (S)	%				89	57-150	
4-Bromofluorobenzene (S)	%				97	67-138	
Toluene-d8 (S)	%				99	70-136	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

SAMPLE DUPLICATE: 1431530

Parameter	Units	10228422001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	<58.5		30	
1,3,5-Trimethylbenzene	ug/kg	ND	<58.5		30	
Benzene	ug/kg	ND	<23.4		30	
Ethylbenzene	ug/kg	ND	<58.5		30	
Toluene	ug/kg	ND	<58.5		30	
Xylene (Total)	ug/kg	ND	<175		30	
1,2-Dichloroethane-d4 (S)	%	91	91	.7		
4-Bromofluorobenzene (S)	%	100	101	2		
Toluene-d8 (S)	%	97	96	.2		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

QC Batch: OEXT/21691 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10227936001

METHOD BLANK: 1433254 Matrix: Solid
Associated Lab Samples: 10227936001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	<10.0	10.0	05/18/13 17:13	
n-Triacontane (S)	%	96	50-150	05/18/13 17:13	

LABORATORY CONTROL SAMPLE & LCSD: 1433255 1433256

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	81.1	76.8	101	96	70-120	5	20	
n-Triacontane (S)	%				100	93	50-150			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49/16-1092 TANK 11 ROAD
Pace Project No.: 10227936

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10227936001	**TK 11 ROAD - UDEENS - 1**	WI MOD DRO	OEXT/21691	WI MOD DRO	GCSV/11326
10227936001	**TK 11 ROAD - UDEENS - 1**	ASTM D2974	MPRP/39152		
10227936001	**TK 11 ROAD - UDEENS - 1**	EPA 5035/5030B	MSV/23656	EPA 8260	MSV/23657

10227956

Chain of Custody

BARR

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

1122 PUSH 5/8/13

COC 1 of 1

Project Number: 49/16-1092

Project Name: Tank 11 Road

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

COC Number: № 40056

Project Manager: REE

Project QC Contact: AAN

Sampled by: BJZ

Laboratory: Pace

	Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative — Water: VOCs (HCl) #1	SVOCs (unpreserved) #2	Dissolved Metals (HNO_3)	Total Metals (HNO_3)	General (unpreserved) #3	Diesel Range Organics (HCl)	Nutrients (H_2SO_4) #4			Soil: VOCs (tared MeOH) #1	GRO, BTEX (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	PVOC-MTBE		Total Number Of Containers	
1.	TK11Road-Udocs-1	-	-	-	5/6/13	1615		+		+													+			+	+	3	PVOC, MTBE, DRO 001
2.																													
3.																													Normal TAT
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Common Parameter/Container - Preservation Key

#1 Volatile Organics = BTEX, GRO, TPH, 8260 Full List
#2 Semivolatile Organics = PAHs, 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:	On Ice?	Date	Time	Received by:	Date	Time
Brad Lee	(Y) N	5/7/13	1530	PACE	5/8/13	0854
Relinquished By:	On Ice? Y N	Date	Time	Received by:	Date	Time

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

Air Bill Number: T=4.5

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

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: BARR

Project #: WO# : 10227936

10227936

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 7947 0590 9328

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

Thermom. Used: ☐ B88A912167504 ☑ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 4.1 **Cooler Temp Corrected (°C):** 4.5 **Biological Tissue Frozen?** ☐ Yes ☑ No

Temp should be above freezing to 6°C **Correction Factor:** +0.4 **Date and Initials of Person Examining Contents:** 5/9/13

Comments:

Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7. 5 DAY
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: SL	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ 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: Date: 5/9/13

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)