February 25, 2016 File #34265.003

John Sager Wisconsin Department of Natural Resources Superior Service Center 1701 North 4th Street Superior, WI 54880

Re: Historical Contamination Response Action Report for the Tank 27 Basin

Calumet Superior LLC Refinery, Superior, WI

WDNR BRRTS# 02-16-559511

Facility ID: 816009590

Dear John:

On behalf of Calumet Superior LLC (Calumet), Gannett Fleming, Inc. (GF) is submitting this historical contamination response action report for the Tank 27 basin at the Calumet refinery in Superior. In May 2014, the Wisconsin Department of Natural Resources (WDNR) approved Calumet's April 2014 *Site Investigation and Remedial Action Plan* (SI/RAP) for the refinery. Section 3.1.3 on Page 13 of the April 2014 SI/RAP outlines the process to follow when historical contamination is identified. This report includes background information as to when the historical contamination in the Tank 27 basin was discovered and sections on the Geoprobe soil sampling and soil excavation and confirmation soil sampling that was conducted in response, as required by the SI/RAP. A completed certification page for the report is also attached.

Pertinent Background Information

Figure 1 is a location map showing the refinery, its approximate property boundary, and the area around the refinery and was prepared using the most recent USGS topographic map. The refinery occupies portions of Sections 25, 26, 35, and 36; Township 49 North; Range 14 West and Section 30; Township 49 North; Range 13 West; in Superior Township of Douglas County.

Figure 2 shows the locations of the Tank 27 basin, the 23 monitoring wells (MW-1, MW-1/T67, MW-2, MW-2/T66, MW-3/T50, MW-3D, MW-5/T40, MW-5/T70, MW-7, MW-8R, MW-9B, and MW-11

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through MW-22), and 8 piezometers (PZ-2/T66, PZ-3D, PZ-8R, PZ-11, PZ-13, PZ-16, PZ17, and PZ-21) of the facility-wide groundwater network established in conjunction with the SI/RAP.

Figure 3 is a Tank 27 basin site plan showing the estimated horizontal extent of the historical contamination, likely from a release of crude oil before the May 1978 Wisconsin spill laws, although the specifics are unknown. Currently, Tank 27 is being used to store ultra-low sulfur kerosene.

During a routine inspection on August 25, 2015, Calumet staff identified an area of black-stained, hydrocarbon-impacted soil near GP-2. Because of wet conditions at the time the release was identified, Calumet decided to wait for cold weather and frozen conditions to minimize the spread of contamination and for improved access to:

- Define the extent of the impacts, based on soil samples collected using a Geoprobe.
- Excavate the impacted soil to address the direct contact pathway.

All activities were conducted according to the WDNR-approved April 2014 SI/RAP, as described below.

Geoprobe Soil Sampling

On December 28 and 29, 2015, Calumet returned to the Tank 27 basin with Insight Environmental and GF field staff to define the horizontal and vertical extent of impacted soil based on visual observation and the use of a photo-ionization detector (PID) equipped with an 11.7 electron volt (eV) lamp. A 10 parts per million volume (ppmv) PID reading was used as a threshold to identify impacted soil, per Section 3.1.1 of the April 2014 SI/RAP.

As shown on Figure 3, starting directly in front of the service doors to Tank 27, a sample grid was established (approximately 25-foot on center), and a Geoprobe rig operated by Twin Ports Testing of Superior was used to collect 2.5- to 5-foot-long soil cores at 21 locations (GP-1 through GP-21). The 2-inch-diameter cores were split horizontally, and plugs from the center of the cores were placed in plastic Zip-Loc bags, sealed, and kneaded to break up soil clods. The bags were placed in the heated cab of a truck until the samples reached 40° F, while the remaining soil was kept unexposed outdoors (skies were overcast, and the maximum ambient air temperature was <30° F). The heated samples were then field screened for volatile organic vapors (VOCs) with the PID. If a sample from 0-2 feet or 2-4 feet exceeded the 10-ppmv threshold, then a separate plug was collected

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from the corresponding segment, placed in a laboratory-supplied vial, preserved with methanol, and stored in a cooler with ice in preparation for lab analysis. Additionally, if the 2- to 4-foot sample exceeded the 10-ppmv threshold, cores were collected below 4 feet and until the samples screened below 10 ppmv. Once the vertical extent was defined, the boring was plugged with bentonite chips, and sampling began at the next location. The horizontal extent was delineated by locations where the top 4 feet of soil screened below 10 ppmv. Location data were collected with a Trimble Yuma tablet and Trimble Pathfinder ProXH GPS receiver while confirming bentonite seal of the borings at the end of each day. Attachment A includes copies of the soil boring logs (with all of the PID data) and filling and sealing reports for GP-1 through GP-21.

Compounds of concern are the petroleum volatile organic compounds (PVOCs) and naphthalene. A total of 13 soil samples from 11 borings were submitted to Pace Analytical (Wisconsin Certification #405132750) of Green Bay for analysis.

Table 1 includes a summary of the analytical results from soil samples collected during the Geoprobe investigation. Attachment B includes copies of the laboratory report used to generate Table 1 and the chain of custody (COC) record. The results confirm that the concentrations of PVOCs and naphthalene in the soil were below applicable industrial direct contact residual concentration levels (RCLs), except for samples collected at GP-2. The sample from 0-2 feet at GP-2 exceeded the RCL for benzene, and the sample from 2-4 feet exceeded the RCL for benzene, ethylbenzene, naphthalene, and xylenes (o- and p-xylene combined).

The Wisconsin Transverse Mercator x,y coordinates of GP-2 (treating it as the spill/release location) are 361624.3, 692126.7 meters.

Soil Excavation and Confirmation Soil Sampling

On January 19, 21, and 22, 2016, Calumet excavated impacted soil and collected confirmation soil samples from the Tank 27 basin excavation with the assistance of Insight Environmental field staff. As show on Figure 3, soil was excavated from a 50-foot by 50-foot area centered on GP-2. Four soil samples were collected from the excavation sidewalls at 3 feet below ground surface. Sidewall samples SW-1 though SW-4 were field screened for VOCs with an 11.7eV PID and then submitted to ESC Lab Sciences (Wisconsin Certification #998093910) of Mt. Juliet, Tennessee, for PVOC-naphthalene analysis. As shown in Table 1, concentrations of PVOCs and naphthalene in all sidewall samples were below applicable industrial direct contact RCLs.

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Approximately 300 cubic yards of impacted soil were removed from Tank 27 basin during excavation, and clean material was used as backfill. The excavated soil is currently stockpiled at Calumet's on-site soil storage facility in preparation for transport to and proper disposal at a local landfill later this year.

In conclusion, the response action described in this report and the facility-wide ERP groundwater monitoring are appropriate remedial actions for the Tank 27 basin historical release. Calumet requests that the WDNR concur with this conclusion.

Feel free to call if you have any questions or need additional information.

Sincerely,

GANNETT FLEMING, INC.

Marcus C. Mussey

Staff Geologist

Clifford C. Wright, P.E., P.G.

Project Engineer

MCM/jec

Enc.

cc electronic only: Peter Fredman (Calumet)

CERTIFICATION

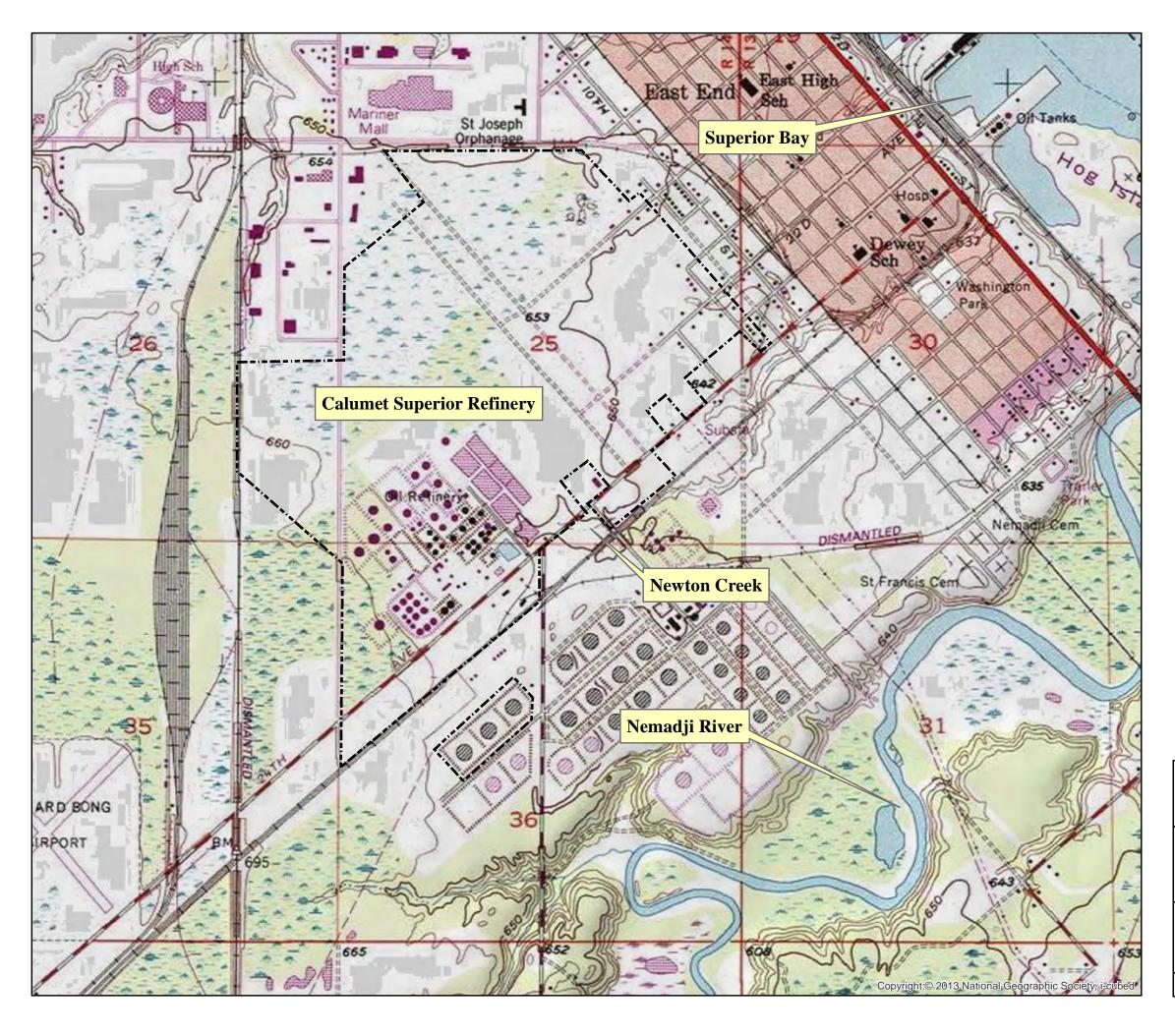
Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring, or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Olifford O. Wright	Title Project engineer
Signature C. Dight	Date 2/25/16

Professional Seal, if applicable:





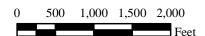


Legend

---- Approximate Calumet Superior Property Boundary

Notes:

- 1. Contour interval = 10ft.
- 2. Site datum = mean sea level (MSL).
- 3. Topographic map obtained from ArcGIS USA Topo Map Service. Service includes seamless, scanned image of USGS topographic maps.



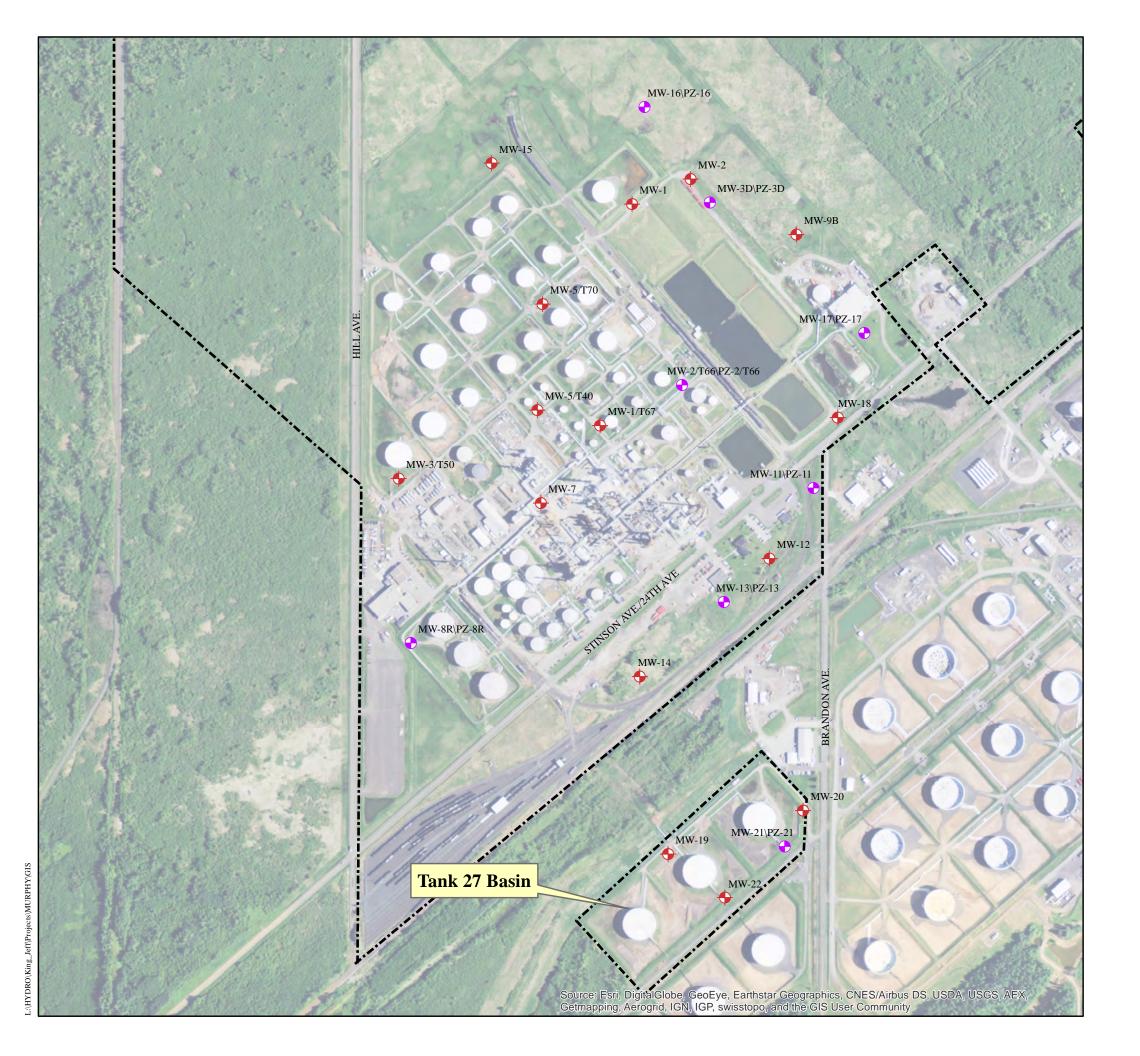
Site Location Map

CALUMET SUPERIOR, LLC SUPERIOR REFINERY SUPERIOR, WISCONSIN



Gannett Fleming, Inc. 8025 Excelsior Drive Madison WI 53717-1900 (608) 836-1500 www.gannettfleming.com

Project No. 34265.003 Date 02/16/16 Figure



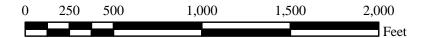


Legend

- Monitoring Well
- Monitoring Well\Piezometer Pair
- --- Approximate Calumet Property Boundary

Note:

Well\Piezometer locations based on 02/06/15 survey by TKDA using a Trimble GNSS RTK GPS R8 Model 3



Facility-Wide Groundwater Monitoring Network

CALUMET SUPERIOR, LLC SUPERIOR REFINERY SUPERIOR, WISCONSIN



Gannett Fleming, Inc. 8025 Excelsior Drive Madison WI 53717-1900 (608) 836-1500 www.gannettfleming.com

Project No. 34265.003 Date 02/16/16 Figure 2



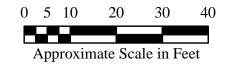


Legend

- Soil Sample Location With Detected Concentrations Above Applicable Direct Contact Limits (Dec. 2015)
- Soil Sample Location With Detected Concentrations Below Applicable Direct Contact Limits (Dec. 2015)
- Excavation Sidewall Soil Sample Location (Jan. 2016)
- Limits Of January 2016 Excavation Area
- Estimated Horizontal Extent Of The Historical Contamination

Note

Tank 27 is currently being used to store ultra-low sulfur kerosene



Tank 27 Historical Contamination Action (Dec. 2015/Jan. 2016)

CALUMET SUPERIOR, LLC SUPERIOR REFINERY SUPERIOR, WISCONSIN



Gannett Fleming, Inc. 8025 Excelsior Drive Madison WI 53717-1900 (608) 836-1500 www.gannettfleming.com

Project No. 34265.003 Date 2/16/16 Figure 3

CALUMET SUPERIOR, LLC SUPERIOR, WISCONSIN

TABLE 1

TANK 27 BASIN SOIL ANALYTICAL RESULTS

	Sa	mple	Excavated			Ethyl-		Naph-			1,2,4-	1,3,5-	TMBs
Boring	Interval		& Landfilled	PID	Benzene	benzene	MTBE	thalene	Toluene	Xylenes	TMB	TMB	combined
ID	(ft bgs)	Date	(Yes/No)	(ppmv)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
	NR	720 RCL sc	oil to groundwate	er pathway	<u>0.0051</u>	<u>1.57</u>	<u>0.027</u>	<u>0.6582</u>	<u>1.1072</u>	<u>3.96</u>	<u>NS</u>	<u>NS</u>	<u>1.3821</u>
	NI	R 720 RCL f	for industrial dire	ect contact	7.41	37	293	26	818	260	219	182	NS
GP-1	0-2	12/28/15	No	19	< 0.025	0.293	< 0.025	<u>0.87</u>	< 0.025	0.343	0.025 U	0.025 U	0.050 U
GP-2	0-2	"	Yes	442	16	<u>19.4</u>	<u>0.871</u>	<u>15.1</u>	< 0.125	<u>56.21</u>	43.6	14	<u>57.6</u>
	2-4	=	Yes	404	102	90.9	<u>4.38</u>	59	<u>153</u>	345.9	165	54	<u>219</u>
GP-3	2-4	"	No	137	<u>1.09</u>	0.382	< 0.025	0.442	< 0.025	0.717	0.762	0.21	0.972
GP-5	0-2	12/29/15	No	367	<u>5.26</u>	<u>10.1</u>	<u>0.42</u> J	<u>16.2</u>	< 0.025	<u>28.5</u>	29.2	12.2	<u>41.4</u>
	2-4	=	No	128	<u>0.841</u>	0.796	< 0.025	<u>1.03</u>	0.0757	2.52	2.06	0.792	<u>2.852</u>
GP-7	2-4	"	No	20	< 0.025	0.0723	< 0.025	0.509	< 0.025	0.173	0.478	0.179	0.657
GP-9	2-4	=	No	113	<u>0.795</u>	1.35	< 0.050	<u>2.38</u>	< 0.050	3.088	3.82	2.01	<u>5.83</u>
GP-11	0-2	:	No	79	<u>0.0824</u>	0.349	< 0.025	<u>0.879</u>	< 0.025	0.861	1.4	0.591	<u>1.991</u>
GP-12	2-4	"	No	53	<u>1.18</u>	1.35	< 0.050	<u>1.72</u>	< 0.050	3.791	3.86	1.46	<u>5.32</u>
GP-13	2-4	:	No	128	<u>0.963</u>	<u>2.15</u>	< 0.050	<u>3.63</u>	< 0.050	<u>4.993</u>	6.48	3.19	<u>9.67</u>
GP-16	2-4	"	No	35	<u>0.692</u>	<u>3.12</u>	< 0.0625	<u>4.72</u>	< 0.0625	<u>7.612</u>	12.2	4.4	<u>16.6</u>
GP-17	2-4	"	No	23	<u>0.102</u>	0.488	< 0.025	<u>1.05</u>	< 0.025	1.456	2.19	1.06	<u>3.25</u>
SW-1	3	01/19/16	No	145	<u>2.03</u>	0.888	<u>0.501</u>	< 0.317	0.804	3.04	0.801	5.14	<u>5.941</u>
SW-2	3	01/21/16	No	78	< 0.0326	0.0584	< 0.0652	0.455	< 0.326	0.1094	0.123	0.288	0.411
SW-3	3	:	No	23	<u>0.0384</u>	< 0.0322	< 0.0644	< 0.322	< 0.322	0.1153	0.159	0.239	0.398
SW-4	4	01/22/16	No	199	<u>0.173</u>	0.176	< 0.0682	< 0.341	< 0.341	0.2981	0.746	0.170	0.916

NOTES:

Concentrations are in units of milligrams per kilogram (mg/kg) on a dry weight basis.

Detected concentrations in bold are at or above an applicable NR 720 industrial direct contact RCL.

Detected concentrations underlined/italicized are at/above applicable NR 720 soil to groundwater pathway RCL.

NR 720 residual contaminant level (RCL) standards from WDNR's RR Program Soil RCL Excel workbook updated December 2015.

Samples analyzed for the petroleum volatile organic compounds and naphthalene.

Excavated & Landfilled = Indicates those sample intervals that are slated to be excavated and disposed of at a local landfill.

 $\label{eq:J} J = Estimated \ concentration \ above \ the \ adjusted \ method \ detection \ limit \ and \ below \ the \ adjusted \ reporting \ limit.$

MTBE = Methyl tert butyl ether.

NS = No standard.

PID = Photo-ionization detector reading (with an 11.7-eV lamp) in parts per million, volume (ppmv).

TMBs (combined) = Trimethylbenzenes (1,2,4- and 1,3,5- combined).

U = Compound not detected at or above the detection limit, which is the value shown.

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ATTACHMENT	A
SOIL BORING LOGS AND FILLING AND SEALING	<u> REPORTS FOR GP-1 THROUH GP-21</u>
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SOIL BORING LOGS AND FILLING AND SEALING	REPORTS FOR GP-1 THROUH GP-21

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SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

			Ca	lumet Superior		Lic	ense/Per	milivic	muorti	ig iamin	ber	1	Num	Der		
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Erik Last Name: Moe Firm: Twin Ports Testing				12	, 28				Date Drilling Comp $\frac{12}{m \ m} / \frac{28}{d \ d} / \frac{2016}{y \ y}$			Drillin Geo				
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)-Z				Gravel	Fill					H Z						
			-2	Brown, high P	moist a	clay				2.8						
			-6	nigh p	lastic	ity				16.3						
			-7 -8							220						
			-i0							0.8						
			-13	EO	В					0.0						
			-16 -17 -18													
			-19													

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			-11 -17 -13	sleeve & core from layer above					17.7						
			-14 -15 -16						54.6						
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Facilit	y/Proje	ct Na	me Calu	met Superior		1	License/Permit/Monitoring Number Boring Number 4											
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Sample	e		t rface)			n n	***			1					-	Prope	rties		
Number and Type Length Att.	Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)		And G	eologic	escription Origin For or Unit			uscs	Graphic	Well	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
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Department of Natural	Resources

acilit	y/Proje	ct Na	me Calu	met Superior		License/Per	mit/Mc	onitorin	g Num	ber	Boring Number 7					
First N	Drille ame: Er	d By: ik		f crew chief (first, last) a Last Name: Moe		Date Drillin	$\frac{201}{y}$	$\frac{6}{y} = \frac{12}{m} \frac{29}{m} \frac{20}{d} \frac{20}{d}$					Geoprobe			
	ique V			GP	-7	Final Static	ASL		554.84	4Feet 1		Borehole Diameter 2 inches				
				nated: D) or Boring L N, ection 36 , T 49 N		Long -92.071107076				I II N				Feet W		
acilit 3160	y ID 09590			County Douglas		unty Code 1 6	Civil Sup	Town/ erior	City/ or Fowns	Villa	ge					
Sam	ple & (ii	IS	surface)	Soil/Rock De	scription					υ		Prope	rties	-		
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geologic (Each Majo		USCS	Graphic	Well	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments	
			-1 -Z						15.8							
2-4			-3 -4 -5 -6 -7	Br. moist	clay				20.3							
			- 4 - - 10	EOB					5.2							
herei	ov cer	ify th	at the in	formation on this form	is true and corre	ct to the be	st of n	ny kno	wledg	e.						

State of Wisconsin	
Department of Natural	Resources

	y/Proje	ct Na	me Calu	ımet Superior		Licens	e/Per	mit/Mo	nitorir	g Num	ber	Boring 8	Page Num		_of_	
First N	ame: Er	ik	Name	of crew chief (first, last) and Firm Last Name: Moe						Date Drilling Completed $\frac{12}{m} \frac{29}{d} \frac{2016}{y y y}$				Drilling Method Geoprobe		
WI Ur	ique V	Vell N	0. 1	ONR Well ID No. Well Name GP-8				Water I Feet M	Level	Surfac	6 Elev	ation Feet l	MSL	Boreho 2		ameter nches
State F	lane _ 1/4 of	-2-	-	mated: N, Boring Location N, E Section 36 , T 49 N, R 14\6		Lon	g -92	68401 87122	568			eet 🗆	N			D E
	09590)		County Douglas	Co -	unty C	ode 3	Civil Sup	Town/ erior	City/ o Fowns	r Villaį ship					
Sam	ple & £	15	xel surface)	Soil/Rock Description							v	Soil I	Prope	rties		
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geologic Origin For Each Major Unit			uscs	Graphic	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid	Plasticity Index	P 200	RQD/ Comments
			-1 -2	Br. Moist C	la	1				0,4						
		-3			,				0.6							
		-5	EOB													
			1 1													
													H			

State of Wisconsin	
Department of Natural Resources	

Signature

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98 Watershed/Wastewater Waste Management Route To: Remediation/Revelopment ✓ Other Page 1 Facility/Project Name Calumet Superior License/Permit/Monitoring Number Boring Number Boring Drilled By: Name of crew chief (first, last) and Firm Date Drilling Started Date Drilling Completed | Drilling Method $\frac{12}{m m}, \frac{29}{d}, \frac{2016}{y y y y}$ First Name: Erik Last Name: Moe $\frac{12}{m} \frac{29}{m} \frac{2016}{\sqrt{y}} \frac{y}{y} \frac{y}{y}$ Geoprobe Firm: Twin Ports Testing WI Unique Well No. DNR Well ID No. Well Name Final Static Water Level Surface Elevation Borehole Diameter GP-9 Feet MSL 655.06 Feet MSL inches Boring Location V ocal Grid Location Local Grid Origin (estimated: 1) Lat 46.6838744130 ON DE Long -92.071025746 1/4 of SW 1/4 of Section 36 . T 49 Feet S Feet W County Code Facility ID Civil Town/City/ or Village County 816009590 Superior Township Douglas Sample Soil Properties Depth in Feet (Below ground surface) Length Att. & Recovered (in) Soil/Rock Description Blow Counts Compressive Strength And Geologic Origin For Number and Type USCS Graphic Log Well Diagram PID/FID Moisture Each Major Unit Liquid 31.1 - 7 GP-9/2-4 3 Br. moist clay 1 5 8 0.6 9 EOB -10

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Firm

Gannett Fleming

I hereby certify that the information on this form is true and correct to the best of my knowledge.

State of Wisconsin	
Department of Natural	Resources

Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Erik Last Name: Moe First Name: Erik Last Name: Moe First Name: Erik First Name: Erik First Name: Erik Last Name: Moe First Name: Erik First Name: Moe 12	Level Sur MSL 5280 Loc 38946 Loc Well Loc	Compressive division of Strength	/ 2016 y y y ration 7 Feet 1 cocation Seet cocation	MSL	Boreho 2	probe	
WI Unique Well No. DNR Well ID No. Well Name GP-10 Feet N Local Grid Origin Cestimated: One Boring Location No. E NE 1/4 of SW 1/4 of Section 36 , T 49 N, R 14 H Long 92.87103 Facility ID Sample Supply Soul/Rock Description And Geologic Origin For Each Major Unit Soul Rock Description And Geologic Origin For Each Major Unit Soul Rock Description Supply	Level Sur MSL 5280 iii Lox 3894 iii Lox	Compressive Compre	ration 7 Feet 1 .ocation	MSL n I N I S _	2 erties	i	E W
State Plane N, E Lat 46.683819 NE 1/4 of SW 1/4 of Section 36 , T 49 N, R 14 H Long 92.87103 Facility ID 816009590 County Douglas County Code 1 6 Sup Sample Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit Soil/Rock Description And Geologic Origin For Each Major Unit	Town/City perior Town Mell Maker Mell Mell Mell Mell Mell Mell Mell Me	Compressive division of Strength	Seet D	Prope		Feet	U W
Sample Sample Socil/Rock Description And Geologic Origin For Each Major Unit Oraphic Oraphi	Well Diagram	Compressive diyent	Soil 1			P 200	RQD/ Comments
Number and Type and Type Blow Counts Recovered (in) Blow Counts Recovered (0.	,5				P 200	RQD/ Comments
Br. Moist clay	0.	,5					Ī
602					1		

State of Wisconsin	
Department of Natural	Resources

	y/Proje		Call	umet Superior		Licen	se/Per	mit/Mo		Page 1 of 1 ng Number Boring Number 11						
First N	ame: Er	ik	Name	of crew chief (first, Last Name: Moe	last) and Firm	Date Drilling Started $\frac{12}{m \ m} / \frac{29}{d \ d} / \frac{2016}{y \ y \ y}$				Date D				Drilling Method Geoprobe		
WI Un	ique W	Vell N	o. I	DNR Well ID No.	Well Name GP-11	Final:	Static	Water Feet N	Level ISL	Surfac	e Elev 355.55	ation Feet	MSL	Boreho 2		ameter nches
State P	1/4 of			N,N,	9_N, R_14\a	Los	ng -92	68388 .87113	7276		F	eet 🗆	N			DE DW
35,550,000	09590			County Douglas		County C	ode 6	Civil Sup	Town/Gerior 1	City/or owns	r Villa hip					
Number and Type	Length Att. & © Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geo	ck Description logic Origin For Major Unit		uscs	raphic	Well Diagram	PID/FID	Compressive Strength		Limit ad	Plasticity and Index	P 200	RQD/ Comments
0-2			- 1		1 21			0.2		78.5	Oux					
			-2 -3 -4	Br. Mo	st clay					j,7						
			-5	EOR	3											

State of Wisconsin	
Department of Natural Resources	

Facilit	y/Proje	ct Na	me Cal	umet Superior		Licer	nse/Per	mit/Mo	mitorin	g Num	ber	Boring 12	Numl		of _				
First N	ame: Er	ik	Name	of crew chief (first, Last Name: Moe	last) and Firm		$\frac{12}{m \ m} / \frac{29}{d \ d}$		$\frac{12}{m} \frac{29}{d} \frac{2016}{\sqrt{y}} $			Date Drilling Complete 12 , 29 , 2016 m m / d d / y y y y				Geoprobe			
WI Ur	ique V	Vell N	lo.	DNR Well ID No.	Well Name GP-12		Final Static Water Leve Feet MSL					Feet 1	MSL	Boreho 2		amete nches			
State P	ocal Grid Origin (estimated:) or Boring Location late Plane N, E								683905639# 87122700#			Location N		Feet		O E			
Facilit	facility ID County 116009590 Douglas						Code 6	-92.07122709d de Civil Town/ Superior		City/ or Fowns	Villa		3 _	rectu y					
Sam		V	rfice)		122100				F				rope	rties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geo	ck Description logic Origin For Major Unit		uscs	Graphic	Well Diagram	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments			
			-1							57.2									
2-4			-2 -3 -4 -5 -6	Br. Moi	st cla	Y				53.L									
			-8 -9 -10	Eo	B					5.0									

State of Wisconsin	
Department of Natural	Resources

Watershed/Wastewater Waste Management Route To: Remediation/Revelopment / Other Page 1 Facility/Project Name Calumet Superior Boring Number License/Permit/Monitoring Number Boring Drilled By: Name of crew chief (first, last) and Firm Date Drilling Started Date Drilling Completed Drilling Method $\frac{12}{m m} / \frac{29}{d} / \frac{2016}{y y y y}$ First Name: Erik Last Name: Moe $\frac{12}{m \ m} / \frac{29}{d \ d} / \frac{2016}{y \ y \ y} = \frac{1}{y}$ Geoprobe Firm: Twin Ports Testing WI Unique Well No. DNR Well ID No. Well Name Final Static Water Level Surface Elevation Borehole Diameter 654.35 Feet MSL **GP-13** Feet MSL Boring Location 🗸 Local Grid Location Local Grid Origin (estimated:) Lat 46.683889274 ON DE Long -92.071313626 Feet W _ 1/4 of SW 1/4 of Section 36 . T 49 Feet D S County Code 1 6 Facility ID Civil Town/City/ or Village County 816009590 Superior Township Douglas Soil Properties Sample Depth in Feet (Below ground surface) Length Att. & Recovered (in) Soil/Rock Description Blow Counts Compressive Strength And Geologic Origin For Number and Type USCS Graphic Log Well Diagram PID/FID Moisture Plasticity Index Each Major Unit Liquid 64.3 2 GPB/Z-4 128 3 Br. moist clay 4 5 8 0.7 9 EOB -10 I hereby certify that the information on this form is true and correct to the best of my knowledge. Signature Firm Gannett Fleming

State of Wisconsin	
Department of Natural	Resources

acility/	Proje	ct Na	me Calu	met Superior	Lie	cense/Per	mit/Mo	nitorin	g Num	ber	Boring 14	Numl	1 ber		_
First Nam	e: Eri	k		f crew chief (first, last) and Firm Last Name: Moe		Date Drilling Started 12 / 29 / 2016 m m / d d / y y y y				Drilling	Comp 2010 y y	oleted 5 y y	Drillin Geop	-	
VI Uniq	ue W	ell N	o. D	NR Well ID No. Well Name GP-14		Final Static Water I			Surfac	Elev 554.20	ation Feet l	MSL	Borehole Diamete		
				nated: N, Boring Location N, E ection 36 , T 49 N, R 1416		Lat 46.			Local	Grid L		N	DE		
acility 1	D		174 01 30	County Douglas		y Code 6	ode Civil Town/			r Villa		3 _	Feet W		
Sampl		T	(rface)									Prope	rties		
and Type	Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit		uscs	Graphic	Well Diagram	PID/FID	Compressive Strength	Moisture	Liquid	Plasticity Index	P 200	RQD/ Comments
			-1 -2 -3	Br. Moist cla	7				0.9						
			-2	ЕОВ											
hereby		ify th	at the in	formation on this form is true and	correct [Fig		est of n	ny kno	owledg	e.					

State of Wisconsin	
Department of Natural	Resources

Facility/P	roje	ct Na	me Calu	met Superior		Lic	ense/Per	mit/Mo	mitorir	g Num	ber	Boring 15	Page Numi		_of _	
	rille: Eri	d By: k	Name o	of crew chief (first, Last Name: Moe						Orilling	Comp		Drilling Method Geoprobe			
WI Uniqu	ue W	ell N	o. I	ONR Well ID No.	Well Name GP-15		Final Static Water Level State Feet MSL			Surfac	e Elev 354.93	ation Feet l	Borehole Diamete			
State Plan	ne_	3		mated: □) or Bo N, ection 36 , T 4	E					Local	Grid L		N	□ E Feet□ W		
Facility I 816009	D		1/4 01 3	County Douglas	J. N. R. J. Hu		Code 6	Civil	Town/ erior	City/ o Towns	r Villa		3 _		100	_ "
Sample &		и	erface)	Soil/Re	ck Description								Prope	rties		
Number and Type Length Att. &	Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geo	ologic Origin For Major Unit		USCS	Graphic	Well	PID/FID	Compressive Strength	Moisture	Liquid	Plasticity Index	P 200	RQD/ Comments
	1		-1	Rr Mo	ist clo	LY				1.9						
			- Z - 3	pr.	60.5.	,				1.4						
			-5	E	ОВ											
I hereby Signature		ify th	nat the in	nformation on this	form is true and	Fir				owledg	ge.					

State of Wisconsin	
Department of Natural	Resources

acilit	y/Proje	ct Na	Calu	met Superior		Lice	ise/Per	mit/Mo	onitorin	g Num	ber	Boring 16	Numi	ber			
oring Drilled By: Name of crew chief (first, last) and Firm First Name: Erik Last Name: Moe Firm: Twin Ports Testing							Date Drilling Started $ \frac{12}{m} \frac{29}{d} \frac{2016}{y} \frac{9}{y} \frac{7}{y} $					2010 y y		Drilling Method Geoprobe			
VI Un	ique W	/ell N	o. I	ONR Well ID No.	Well Name GP-16			Water Feet N	Level ASL	Surface 6	Elev 54.28	ation Feet	MSL	Boreho 2		ameter nches	
tate P	lane _			nated:) or Bo N, ection 36 , T 4	E		Lat 46.683832380			Local (N			D E	
acilit			1/4 01 3	County Douglas	5 N, K 144	County (Civil	Town/	City/ or Fowns	Villa		3 _		Tacı	- W	
Sam	ple ⊗ ⊊	U)	et urface)	Soil/Ro	ck Description								rope	rties			
and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geo	logic Origin For Major Unit		uscs	Graphic	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments	
			- 1	1- F						234				11			
2-4			- 2	e- mo	ist cla	4				35.3							
			- Н - 5 - 6 -7	P1: 1.6													
			-3	EOB	2					1.6							
			- 10														

State of Wisconsin	
Department of Natural	Resources

		ect Na	Call	imet Superior		License/Permit/Monitoring Number Boring Number 17 Date Drilling Started Date Drilling Completed Drilling Method											
First N	lame: Er	ik	Testing	of crew chief (first, last) and Firr Last Name: Moe g	5						2010 y y	Geoprobe					
	Grid O		9.	ONR Well ID No. Well Name GP-17 mated: One Boring Location		inal Static	Feet M	MSL		55.4	4Feet		Boreho 2	ole Diameter inches			
State F NE	lane_ 1/4 of			N,I lection 36 , T 49 N, R 14	E 1\ <u>A</u>	Lat 46.	.8711	23696		F	eet 🗆	IN			O E		
	09590)		County Douglas	Cour 1	nty Code 6			City/ or Fowns		-						
Sam	ple (ii)	nts	Get d surface)	Soil/Rock Description						NG NG		Prope	rties				
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geologic Origin F Each Major Unit	For	USCS	Graphic	Well	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments		
			-1						15,6								
12-4			-2 -3	Br. moist o	clay				23.1								
			-4						0.0								
			-6														

State of Wisconsin
Department of Natural Resources

acility/F	Projec	t Nar	ne Calu	ımet Superior			Licens	e/Per	mit/Mo	nitorir	g Num	ber	Boring 18	Page Numl		_of _			
	rilled	By:		of crew chief (first, Last Name: Moe	last) and Fire	n	Date D		Starte		Date Drilling Completed 12 , 29 , 2016				The second second				
Firm: Tv VI Uniqu				ONR Well ID No.	Well Name		m m	d d	d y y y y			m m d d y y y y y Surface Elevation			Borehole Diameter				
ocal Gr	id Or	igin	(estin	mated: D) or Bo			1 1	46	Feet N	-		355.23 Grid L			2				
	4 of	sw	1/4 of S	N,N,Nection 36 , T 4			Lon	g -92	.87123	1146							Borehole Diameter 2 inches B E Feet W		
acility I 316009				County Douglas		Co	1 C	ode 3			City/ o Fowns		ge						
Sample	e T	50	it arface)	Soi1/Pe	ock Descriptio						1			Prope	rties				
and Type Length Att.	Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	And Geo	ologic Origin I h Major Unit			uscs	Graphic	Well	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments		
			-1 -2 -3	Br. mo	oist C	lay					0.1								
			-4 -5	E	Оβ														

State of Wisconsin	
Department of Natural	Resources

Facilit	y/Proje	ct Na	Calu	umet Superior		Lic	ense/Per	nit/Mo	nitorin	g Num	ber	Boring 19	Page 1 of 1 Boring Number				
First N	lame: Er	ik	Name	of crew chief (first,) Last Name: Moe	ast) and Firm	12	te Drillin	, 201	6	12	29	Comp. 2016	3	Drilling Method Geoprobe			
WI Ur	nique W	Vell N	_	DNR Well ID No.	Well Name GP-19	Fin	m m d d y y Final Static Water Feet N			Surface Elevation 655.11 Feet M			MSL	Borehole Diameter			
State F	lane _	2	-	mated: □) or Box N, Section 36 , T 49	E	- 1	Lat 46.			Local	Grid L		N	□ E Feet□ W			
Facili				County Douglas			y Code 6	Civil	Town/	City/ or Fowns	Villa				robe le DiameterinchesE		
Sam		10	of urface)	Soil/Po	ck Description								Prope	rties		to w	
Number and Type	==	Blow Counts	Depth in Feet (Below ground surface)	And Geol Each		uscs	Graphic Log	Well	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments		
			-1	Br. Moi	st cla	4		[]		0.0							
			-Z -3 -4	pr. rior		1				02							
			_5	EO	is .												
	1		1 1						1		1	1					

State of Wisconsin	
Department of Natural Resources	5

	y/Proje	ct Na	Calu	imet Superior		Lice	ense/Per	mit/Mo	mitorin	g Num	ber	Boring 20	y Numi	ber		
First N	lame: Er	ik	Name of	of crew chief (first, Last Name: Moe	last) and Firm		Drillin			Date I	Orilling	Comp	oleted 5 y y	Drillin Geo		
WI U	nique V	Vell N	o. I	ONR Well ID No.	Well Name GP-20		al Static		Level	Surfac	e Elev 357.18	ation Feet	MSL	Boreho 2		ameter nches
Local Grid Origin (estimated:) or Boring Location State Plane N, E 1/4 of SW 1/4 of Section 36, T 49, N, R 144						[,	Lat 46.			Local Grid Location			Feet W			
Facili			1/4 01 3	County Douglas	N, K 148	County 1		Civil	Town/	City/ o	r Villa		3_		100	- "
Sam	ple % (i	50	st urface)	Soil/Pe	ock Description								Prope	rties		-
Number and Type Length Att. & Recovered (in)		Blow Counts	Depth in Feet (Below ground surface)	And Geo		USCS	Graphic	Well Diagram	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments	
			-1		- Gravel	FILL				0.3	H					
			- Z - 3 - 4	Br. Moi	st clay					0.2						
			-5	EOE												

State of Wisconsin	
Department of Natural	Resources

Facility/Pro	ject Na	Calu	met Superior		Lice	nse/Per	mit/Mo	nitorir	g Num	ber	Boring 21	Page Num		of _	
First Name: E	Frik		f crew chief (first, Last Name: Moe	, 29	g Starte	6	12	, 29	Comp. 2016	3	Drilling Method Geoprobe				
Finn: Twir WI Unique	Well N	lo. D	NR Well ID No.	Well Name GP-21			Water Feet M	Level	00171				Geoprobe orehole Diamete 2 inches		
State Plane			nated: N, ction 36 , T 4	E	L	Lat 46.683998301# Long -92.87090996#			Local			N	□ E Feet□ W		
Facility ID 81600959			County Douglas		County 1		Civil	Town/	City/ or Towns	r Villa					
Sample		face)									1 6	Prope	rties		
Number and Type Length Att. &	Blow Counts	Depth in Feet (Below ground surface)	And Geo	ock Description ologic Origin For a Major Unit		uscs	Graphic	Well	PID/FID	Compressive Strength	Moisture	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
		-1-		-Gravel F	ill				0.4			-			
		-2	Br M	oist clas	1				2.4						
		-5	EO												
hereby co	rtify tl	hat the in	formation on this	s form is true and o	Fim	n	est of n		pwledg	ge.					

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

2/11/16

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between \$10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information. Route to DNR Bureau: **Drinking Water** Watershed/Wastewater Remediation/Redevelopment Verification Only of Fill and Seal Waste Management Other: 1. Well Location Information 2. Facility / Owner Information WI Unique Well # of Hicap # Facility Name County Removed Well Calumet-Superior Douglas Facility ID (FID or PWS) Latitude / Longitude (see instructions) Format Code Method Code 816009590 ✓ GPS008 46.683952365 **√** DD License/Permit/Monitoring # SCR002 92.070952189 W DDM OTH001 Section Township Range Original Well Owner 14/4 NW. NE 4 SW Calumet-Superior 36 49 or Gov't Lot# 14 W N Present Well Owner Well Street Address Calumet-Superior 2407 Stinson Ave. Mailing Address of Present Owner Well City, Village or Town Well ZIP Code 2407 Stinson Ave. Superior Township 54880 City of Present Owner State ZIP Code Subdivision Name Lot# Superior WI 54880 4. Pump, Liner, Screen, Casing & Sealing Material Reason for Removal from Service WI Unique Well # of Replacement Well Pump and piping removed? Soil Sample Boring Liner(s) removed? Yes No 3. Filled & Sealed Well / Drillhole / Borehole Information Liner(s) perforated? Yes Nο Original Construction Date (mm/dd/yyyy) Monitoring Well Screen removed? Yes No 12/28/2015 Water Well Casing left in place? No Yes If a Well Construction Report is available, ✓ Borehole / Drillhole Was casing cut off below surface? Yes please attach. Construction Type: Did sealing material rise to surface? Yes No N/A Did material settle after 24 hours? No N/A Yes ✓ Drilled Driven (Sandpoint) Dug If ves, was hole retopped? Yes Nο N/A Other (specify): DPT If bentonite chips were used, were they hydrated Formation Type: **√** Yes with water from a known safe source? ✓ Unconsolidated Formation Bedrock Required Method of Placing Sealing Material Total Well Depth From Ground Surface (ft.) Casing Diameter (in.) Conductor Pipe-Gravity Conductor Pipe-Pumped Screened & Poured N/A Other (Explain): (Bentonite Chips) Lower Drillhole Diameter (in.) Casing Depth (ft.) Sealing Materials Neat Cement Grout Concrete 2 N/A ✓ Bentonite Chips Sand-Cement (Concrete) Grout Was well annular space grouted? No Unknown Yes For Monitoring Wells and Monitoring Well Boreholes Only: If yes, to what depth (feet)? Depth to Water (feet) Bentonite Chips Bentonite - Cement Grout Granular Bentonite Bentonite - Sand Slurry No. Yards, Sacks Sealant or Mix Ratio or 5. Material Used to Fill Well / Drillhole From (ft.) To (ft.) Volume (circle one) Surface 12.5 31.25lbs Bentonite Chips 6. Comments **DNR Use Only** 7. Supervision of Work Name of Person or Firm Doing Filling & Sealing License # Date of Filling & Sealing or Verification Date Received Noted By (mm/dd/yyyy) 12/28/2015 Twin Ports Testing Street or Route Telephone Number Comments 1301 N. 3rd St. (715) 392-7114 City Signature of Person Doing Work ZIP Code Date Signed State

WI

54880

State of Wis., Dept. of Natural Resources

Well / Drillhole / Borehole Filling & Sealing Report

3						Form 3300-0	05 (R 4/2015)		Р	age 1 of 2				
Notice: Completion of this															
accordance with chs. 281,															
for up to one year, depend purpose. Return form to the									intended to	be used for	any other				
		_			Bureau										
Verification Only	of Fill and Seal		D	rinking \	Nater		Watershed/V	Vastewater	Reme	diation/Redev	/elopment				
verification only	oi i ili aliu Seal		Πw	aste Ma	anageme	ent 🗍	Other:								
1. Well Location Inform	mation			doto me	anagon.		/ Owner Int	formation							
County	WI Unique Well # o	f H	icap#			Facility Nam		iormation							
Ť	Removed Well		ioap ii			1 '	t-Superio	nr							
Douglas						Facility ID (F	•	<u> </u>							
Latitude / Longitude (see in	structions)	ormat C	ode	Method											
46.683950928	N	√ DE)		PS008 CR002	816009590 License/Permit/Monitoring #									
92.071035204	w		M	_	TH001			, "							
		Town		Range	_	Original We	II Owner								
1/4 / 1/4 NW, NE 1/4 SW		-	∐E.	10-1		ır									
or Gov't Lot #	36	49	N	14	√ W	V Calumet-Superior Present Well Owner									
Well Street Address						1	t-Superio	ar.							
2407 Stinson Ave															
Well City, Village or Town				ZIP Cod	е	Mailing Address of Present Owner 2407 Stinson Ave.									
Superior Township	р		548	380		City of Pres		.	Ctoto	ZID Code					
Subdivision Name			Lot #			Superio		WI	State ZIP Code VI 54880						
								0: 8 0-							
Reason for Removal from S		ue Well#	f of Rep	olaceme	ent Well		d piping remo	en, Casing & Se		Yes N	o VN/A				
Soil Sample Borin					_	1		veu :		-	_				
3. Filled & Sealed Wel						Liner(s) re				Yes No	i iii				
Monitoring Well	Original Con		Date (mm/dd/	уууу)	'''	erforated?		⊢	Yes No					
Water Well	12/28	/2015				Screen re			F	Yes No	— —				
	If a Well Co	nstructio	n Repo	rt is ava	ailable,		ft in place?		<u> </u>	Yes No	-				
✓ Borehole / Drillhole	please attac		·			Was casi	ng cut off belo	w surface?	<u> </u>	Yes No	o √ N/A				
Construction Type:	•					Did sealir	ng material ris	e to surface?	✓	Yes No	o N/A				
Drilled 0	Priven (Sandpoint)	Γ	Dug			Did mater	rial settle after	· 24 hours?	L	_Yes _√No	o N/A				
Other (specify): DP	Т	_	_			If yes	, was hole ret	opped?	L	Yes No	o √ N/A				
Formation Type:								used, were they hy	drated [./	Yes No	o N/A				
	-4:	7 n	1.					n safe source?] . 00					
✓ Unconsolidated Forma		Bedroc				I —		ng Sealing Material							
Total Well Depth From Gro	I .		ameter	(in.)		Conductor Pipe-Gravity Conductor Pipe-Pumped Screened & Poured Cher (Explain):									
19		N/A				(Bento	nite Chips)	Other (Ex	plain):						
Lower Drillhole Diameter (in	n.)	Casing De	epth (ft.	.)		Sealing Mat	erials								
2	lı	N/A				Neat C	Cement Grout		Concret	е					
			_			⊢	Cement (Cond	crete) Grout	Bentonit	te Chips					
Was well annular space gro	uted?	Yes	No	∐∪	nknown	1 —	•	Monitoring Well Bo	ு reholes Or	nlv [.]					
If yes, to what depth (feet)?	Depth	to Water	(feet)			⊣ —	nite Chips			ment Grout					
			, ,			1=	lar Bentonite	=	tonite - Sar						
						Granu	lar bentonite	No. Yards, Sacks			atio or				
5. Material Used to Fil	I Well / Drillhole					From (ft.)	To (ft.)	Volume (circ		Mud V					
Bentonite Chips						Surface	19	47.5lbs							
6. Comments															
7 Cumamisis CM									DND	- 0- 1					
7. Supervision of Wor Name of Person or Firm Do		Licer	nse #	Ir)ate of 5	illing & Sealin	n or Verificatio	on Date Received	DNR Us	e Only Noted By					
Twin Ports Testing		, 100	100 H			yyy) 12/28 /	-	Date Received		Troice by					
Street or Route	<u> </u>					elephone Nur		Comments							
1301 N. 3rd St.						(715) 392		Comments							
City		State	7ID /	Code		` ,	Person Doing	n Work	In	ate Signed					
Superior		WI		880		Joignature Of	Person Doing	J VVOIR		2/11/16					
Caponon		1 4 4 1	∪-т	555		1	1/11		'	_, , , , , ,					

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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Well / Drillhole / Borehole Filling & Sealing Report

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Form 3300-005 (R 4/2015)

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Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between \$10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information. Route to DNR Bureau: **Drinking Water** Watershed/Wastewater Remediation/Redevelopment Verification Only of Fill and Seal Waste Management Other: 1. Well Location Information 2. Facility / Owner Information WI Unique Well # of Hicap # Facility Name County Removed Well Calumet-Superior Douglas Facility ID (FID or PWS) Latitude / Longitude (see instructions) Format Code Method Code 816009590 ✓ GPS008 46.683874413 **√** DD License/Permit/Monitoring # SCR002 92.071025740 W DDM OTH001 Section Township Original Well Owner $\frac{1}{4} \frac{1}{4}$ NW, NE $\frac{1}{4}$ SW Range Calumet-Superior 36 49 or Gov't Lot # 14 W N Present Well Owner Well Street Address Calumet-Superior 2407 Stinson Ave. Mailing Address of Present Owner Well City, Village or Town Well ZIP Code 2407 Stinson Ave. Superior Township 54880 City of Present Owner State ZIP Code Subdivision Name Lot# Superior WI 54880 4. Pump, Liner, Screen, Casing & Sealing Material Reason for Removal from Service WI Unique Well # of Replacement Well Pump and piping removed? Soil Sample Boring Liner(s) removed? No Yes 3. Filled & Sealed Well / Drillhole / Borehole Information Liner(s) perforated? Yes Nο Original Construction Date (mm/dd/yyyy) Monitoring Well Screen removed? Yes No 12/29/2015 Water Well Casing left in place? No Yes If a Well Construction Report is available, ✓ Borehole / Drillhole Was casing cut off below surface? Yes please attach. Construction Type: Did sealing material rise to surface? Yes No N/A Did material settle after 24 hours? No N/A Yes Drilled Driven (Sandpoint) Dug If ves, was hole retopped? Yes Nο N/A Other (specify): DPT If bentonite chips were used, were they hydrated Formation Type: **√** Yes with water from a known safe source? ✓ Unconsolidated Formation Bedrock Required Method of Placing Sealing Material Total Well Depth From Ground Surface (ft.) Casing Diameter (in.) Conductor Pipe-Gravity Conductor Pipe-Pumped Screened & Poured 9 N/A Other (Explain): (Bentonite Chips) Lower Drillhole Diameter (in.) Casing Depth (ft.) Sealing Materials Neat Cement Grout Concrete 2 N/A ✓ Bentonite Chips Sand-Cement (Concrete) Grout Was well annular space grouted? No Unknown Yes For Monitoring Wells and Monitoring Well Boreholes Only: If yes, to what depth (feet)? Depth to Water (feet) Bentonite Chips Bentonite - Cement Grout Granular Bentonite Bentonite - Sand Slurry No. Yards, Sacks Sealant or Mix Ratio or 5. Material Used to Fill Well / Drillhole From (ft.) To (ft.) Volume (circle one) 9 Bentonite Chips Surface 22.5lbs 6. Comments **DNR Use Only** 7. Supervision of Work Name of Person or Firm Doing Filling & Sealing License # Date of Filling & Sealing or Verification Date Received Noted By (mm/dd/yyyy) 12/29/2015 Twin Ports Testing Street or Route Telephone Number Comments 1301 N. 3rd St. (715) 392-7114 City Signature of Person Doing Work ZIP Code Date Signed State

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54880

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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2/11/16

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Well / Drillhole / Borehole Filling & Sealing Report Form 3300-005 (R 4/2015) Page 1 of 2

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Notice : Completion of this reaccordance with chs. 281, 28													
for up to one year, depending													
purpose. Return form to the	appropriate DNR						verse	e for more in	formation.				
			Route to			l: 	<u>.</u>						
Verification Only of	f Fill and Seal		∐ Dr	inking \	Nater	Į	<u></u>	Watershed/W	/astewater	Rem	ediation/	Redeve	lopment
			Wa	aste Ma	anagem	ent		Other:					
1. Well Location Informa						2. Facil	ity /	Owner Inf	formation				
	/I Unique Well # o	f Hi	cap#			Facility N							
Douglas	emoved Well							t-Superio	r				
Latitude / Longitude (see insti	ructions) [ormat C	odo T	Method	l Codo	1 '		ID or PWS)					
46.683883830	,	DD			PS008	81600	095	590					
	N				CR002	License/F	Perm	nit/Monitoring	ı #				
92.071137271	W		M		TH001								
^{1/4 / 1/4} NW, NE ^{1/4} SW	Section	Towns	ship	Range	ПЕ	Original \							
or Gov't Lot #	36	49	N	14	√ ∨			-Superio	r				
Well Street Address	<u> </u>					Present \							
2407 Stinson Ave.						Calumet-Superior							
Well City, Village or Town			Well Z	IP Cod	е	1 ~		ess of Preser					
Superior Township			548	80				nson Ave	e.				
Subdivision Name			Lot #			City of Pr				State	1	Code	
						Supe	rior	r		WI	54	880	
Reason for Removal from Se	rvice WI Uniqu	ue Well#	of Rep	laceme	ent Wel			•	en, Casing & S	Sealing M	aterial		
Soil Sample Boring					_	1		piping remov	ved?	ļ	Yes	∐No	✓ N/A
3. Filled & Sealed Well /	Drillhole / Bor	ehole Ir	nforma	ation				moved?		ļ	Yes	∐No	√ N/A
Monitoring Well	Original Con	struction	Date (r	nm/dd/	уууу)		, .	erforated?		ļ	Yes	∐ No	√ N/A
	12/29	/2015						moved?		Ţ	Yes	∐ No	V N/A
Water Well	If a Well Co	netruction	Reno	t ie ava	ماطواند	Casing	g left	t in place?		L	Yes	∐ No	✓ N/A
✓ Borehole / Drillhole	please attac		Поро	t is ave	illabio,	Was c	asin	g cut off belo	w surface?	[Yes	No	√ N/A
Construction Type:	<u> </u>					Did se	aling	g material rise	e to surface?		✓ Yes	No	□ N/A
Drilled Dri	ven (Sandpoint)	Г	Dug			Did ma	ateria	al settle after	24 hours?		Yes	√ No	□ N/A
Other (specify): DPT		_				lf y	yes,	was hole reto	opped?	[Yes	No	√ N/A
Formation Type:									used, were they	hydrated [✓ Yes	— ∏No	— □N/A
	_	15							n safe source?		V 163		
✓ Unconsolidated Formati		Bedroc				1 —			ng Sealing Mater				
Total Well Depth From Groun	` '	-	ameter	(in.)				ctor Pipe-Gra	· =	ctor Pipe-Pu	ımpea		
4		V/A				✓ Scr	entor	ed & Poured nite Chips)	Other (Explain):			
Lower Drillhole Diameter (in.)	C	asing De	epth (ft.))		Sealing N	Mate	rials					
2	lı lı	N/A				☐ Nea	at Ce	ement Grout		Concre	ete		
			_	_		⊢	nd-C	ement (Cond	crete) Grout	✓ Bentor	nite Chips	S	
Was well annular space groute	ed?`	res _	No	⊔∪	nknow	For Moni	itorin	na Wells and .	Monitoring Well	Boreholes C	Onlv:		
If yes, to what depth (feet)?	Depth	to Water	(feet)			⊣ —		ite Chips	<u> </u>	entonite - Co	•	out	
								ar Bentonite		entonite - Sa			
									No. Yards, Sad			y Mix Rati	io or
5. Material Used to Fill V	Well / Drillhole					From (f	t.)	To (ft.)	Volume (c			Mud We	
Bentonite Chips						Surfac	e	4	10lbs				
6. Comments													
7. Supervision of Work										DNRII	se Only	,	
Name of Person or Firm Doin	ıg Filling & Sealing	Licer	se#		Date of	illing & Sea	aling	or Verificatio	n Date Receive		Noted		
Twin Ports Testing	-					уууу) 12/2	_						
Street or Route						Telephone N			Comments				
1301 N. 3rd St.						(715)3							
City		State	ZIP (Signature	e of I	Person Doing	g Work		Date Sig		
Superior		WI	548	380				Pet C			2/11/	16	

Well / Drillhole / Borehole Filling & Sealing Report Form 3300-005 (R 4/2015) Page 1 of 2

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for up to one year, dependir												
purpose. Return form to the	appropriate DNR					ons on revers	e for more in	formation.				
		R		DNR Bur				-				
Verification Only of	of Fill and Sea	ı	Drini	king Wate	er		Watershed/W	/astewater	Reme	diation/Redeve	elopment	
			Was	ite Manag	gemer	nt 🗌	Other:					
1. Well Location Inform	nation					2. Facility	/ Owner Inf	formation				
County	WI Unique Well#	of Hi	сар #			Facility Nam						
Douglas	Removed Well					Calume	t-Superio	r				
						Facility ID (F	ID or PWS)					
Latitude / Longitude (see ins	tructions)	Format Co		ethod Co ✓ GPS0		816009	590					
46.683905639	N	✓DD		SCRO		License/Perr	mit/Monitoring	ı #				
92.071227091	W		м	ОТНО								
1/4 / 1/4 NW, NE 1/4 SW	Section	Towns	hip R	ange 🗀	1 _E	Original Wel	Owner					
or Gov't Lot #	36	49		14 7	=	1 -	t-Superio	r				
Well Street Address		+5	N 1	ı <u> </u>	<u> </u>	Present Wel						
						1	t-Superio	r				
2407 Stinson Ave.			l			Mailing Address of Present Owner						
Well City, Village or Town Superior Township Well ZIP Code 54880						ı ~	inson Av					
						City of Prese		<u>. </u>	State	ZIP Code		
Subdivision Name Lot #					Superio			WI	54880			
Reason for Removal from Service WI Unique Well # of Replacement W					<u> </u>		en, Casing & Sea					
Reason for Removal from S		que Well#	of Repla	cement V	Vel l		I piping remov		IIIIg Ma	Yes No	✓ N/A	
Soil Sample Boring	- 1					Liner(s) re		veu :	<u> </u>	Yes No		
3. Filled & Sealed Well					,	Liner(s) re			⊢	Yes No		
Monitoring Well	Original Co		Date (mr	n/dd/yyyy	/)	1			⊢	╡ ⊨╡		
Water Well	12/29	9/2015				Screen re			⊢	JYes ∐No	<u> </u>	
=	If a Well C	onstruction	Report i	is availab	le.	Casing let	t in place?			Yes No		
✓ Borehole / Drillhole	please atta		·			Was casir	ng cut off belo	w surface?	L	_Yes	✓ N/A	
Construction Type:						Did sealin	g material rise	e to surface?	\checkmark	Yes No	N/A	
Drilled Dr	riven (Sandpoint)	Г	Dug			Did mater	ial settle after	24 hours?		Yes ✓ No	N/A	
Other (specify): DP		_	_ `			If yes,	was hole ret	opped?		Yes No	✓ N/A	
Formation Type:					_	1		used, were they hyd	Irated 🔽	Yes No	— □N/A	
		-						n safe source?				
✓ Unconsolidated Forma		Bedrock				I —		ng Sealing Material				
Total Well Depth From Grou	nd Surface (ft.)	Casing Dia	ameter (ir	า.)		. —	ctor Pipe-Gra	vity Conductor	Pipe-Pun	nped		
9		N/A				Screen (Bento	ed & Poured nite Chips)	Other (Exp	ılain):			
Lower Drillhole Diameter (in.	.)	Casing De	pth (ft.)			Sealing Mate						
2		N/A				Neat C	ement Grout		Concrete	e		
		IN/A				I ⊟ _{Sand-} (Cement (Cond	crete) Grout	Bentonit			
Was well annular space grou	ted?	Yes	ີNo [Unkn	own	ı —	•	Monitoring Well Bore	_			
If yes, to what depth (feet)?	Denth	to Water ((feet)			1 —	0	ĭ—		,		
in yes, to what depth (leet):	Ворш	i to vvator i	(icct)				ite Chips	=		ment Grout		
						Granul	ar Bentonite		onite - San			
5. Material Used to Fill	Well / Drillhole					From (ft.)	To (ft.)	No. Yards, Sacks S Volume (circle		r Mix Ra Mud W		
Bentonite Chips						Surface	9	22.5lbs	, 0110)	, Ivida vv	Cigit	
Denternite Ompo						Sarrace	0	22.0103				
6. Comments												
7. Supervision of Work		1.							DNR Us			
Name of Person or Firm Doi		ig Licen	se#	- 1		ling & Sealing		n Date Received		Noted By		
Twin Ports Testing				(mm/		yy) 12/29/						
Street or Route 1301 N. 3rd St.						elephone Num 715) 39 2		Comments				
City		State	ZIP Co			Signature of	Person Doing	g Work		ate Signed		
Superior		WI	5488	80			Pet	_	2	2/11/16		

Well / Drillhole / Borehole Filling & Sealing Report

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54880

Well / Drillhole / Borehole Filling & Sealing Report Form 3300-005 (R 4/2015) Page 1 of 2

Notice: Completion of this re accordance with chs. 281, 28 for up to one year, depending	39, 291-293, 295,	and 299,	Wis. Sta	its., failure to	I-293, 295, o fi l e this fo	and rm n	nay result in	, tats., and a forfeitui	re of betw	een \$10	-25,000,	, or impr	isonment
purpose. Return form to the	appropriate DNR			See instruc		verse	e for more in	formation	١.				
	: E::!! ! C!	l r		king Water	·	\Box	Watershed/W	Vastewate	er	Ren	nediation	ı/Redeve	elopment
Verification Only of	Fill and Seal			te Managem	ent	H	Other:	vaciowaic			Todiation	71 (000)	моритоги
1. Well Location Informa	ation	L		io Managom			Owner Inf	formatio	n .				
	/I Unique Well # o	f Hic	ap#		Facility N			lormatic	/II				
Douglas	emoved Well						-Superio	r					
Latitude / Longitude (see insti	ructions)	ormat Co	de Me	ethod Code	1 '	,	D or PWS)						
46.683832380	N	√ DD		√ GPS008	8160			. 41					
92.071121472	W		и	SCR002 OTH001	License/Permit/Monitoring #								
1/4 / 1/4 NW, NE 1/4 SW	Section	Townsh	nip Ra	ange E	Original	Well	Owner						
or Gov't Lot #	36	49	N 1	4 √ v			-Superio	r					
Well Street Address	I				Present								
2407 Stinson Ave.		Calumet-Superior Mailing Address of Present Owner											
Well City, Village or Town			Well ZIP		1 ~		ess of Preser nson Ave						
Superior Township			5488	0			nt Owner	.		State	7IP	Code	
Subdivision Name Lot #					Supe					WI		4880	
Reason for Removal from Service WI Unique Well # of Replacement W					4 D		iner, Scree	en, Casi	ng & Se	aling N	laterial		
Soil Sample Boring		uo vvoii ii v	or replac	oomone won	Pump	and	piping remov	ved?			Yes	No	✓ N/A
3. Filled & Sealed Well /		ehole In	formati	on	Liner(s) rei	moved?				Yes	No	<u> </u>
Monitoring Well	Original Cor		Date (mn	n/dd/yyyy)	· ` `	<i>,</i> .	erforated?				Yes	H _N ∘	
12/29/2015				1		noved? t in place?				Yes Yes	H _{No}	V N/A V N/A	
	If a Well Co		Report is	s available,	I					<u> </u>	=		-
Borehole / Drillhole	please attac	:h.					g cut off belo g material rise				Yes Yes	No No	<u></u>
Construction Type:	(0 1 1 1)	_	٦,		1	•	al settle after				Yes	V No	\blacksquare
	ven (Sandpoint)		Dug				was hole ret		•		Yes	No	N/A
Other (specify): DPT							e chips were			drated	✓ Yes		
Formation Type:	. <u> </u>	Bedrock					from a know			l	▼ 165		
Unconsolidated Formation	_ _			. \			thod of Placir ctor Pipe-Gra	_	g iviaterial Conductoi	r Pine_Pi	ımned		
Total Well Depth From Groun	` '	asing Diai	meter (in	.)		reen	ed & Poured	· =	Other (Ex	-	umpeu		
Lower Drillhole Diameter (in.)		asing Dep	oth (ft)		Sealing		nite Chips)		Other (LX)	Plaii 1)			
)(II.)				ement Grout		Г	Concr	ete		
2		V/A					ement (Cond	crete) Gro	ut [./	≓	nite Chip	ns	
Was well annular space groute	ed?	res 🗌] No [Unknowr	, I 🖳		ig Wells and	•		_			
If yes, to what depth (feet)?	Depth	to Water (t	feet)		⊣		ite Chips	ormorni,	<u> </u>		ement G	irout	
							ar Bentonite		Bente	onite - S	and Slur	ry	
5. Material Used to Fill V	Well / Drillhole				From (ft.)	To (ft.)		ds, Sacks		or	Mix Ra	
Bentonite Chips					Surfac		9	22.5lb	ume (circl	e one)		Mud W	eigni
Bontonito Ompo								22.010	,,,				
6. Comments													
7. Supervision of Work										DNR U	lse Onl		
Name of Person or Firm Doin Twin Ports Testing	g Filling & Sealing	Licens	se #		Filling & Sea yyyy) 12/2		or Verificatio	on Date I	Received		Note	d By	
Street or Route 1301 N. 3rd St.					Telephone (715)	Num	ber	Comn	nents				
City		State	ZIP Cod	de			Person Doing	g Work			Date Sig	ned	
Superior		WI	5488			_	Pet !	/			2/11/		

Well / Drillhole / Borehole Filling & Sealing Report Form 3300-005 (R 4/2015) Page 1 of 2

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Notice: Completion of this													
accordance with chs. 281, 2 for up to one year, dependi													
purpose. Return form to the													,
		F	Route to	o DNR	Bureau								
Verification Only	of Fill and Sea	ı l	Dr	inking \	Vater		V	Vatershed/W	Vastewater	Rem	ediation/	Redeve	lopment
		-	☐ Wa	aste Ma	anageme	ent [Other:					
1. Well Location Inform	nation					2. Facili	itv /	Owner Inf	formation				
	WI Unique Well#	of Hi	cap#			Facility N			iormation				
Douglas	Removed Well		•			Calun	net-	-Superio	or				
								O or PWS)	<u></u>				
Latitude / Longitude (see ins	structions)	Format C		Method	d Code PS008	81600	,						
46.683761506	N	√ DD)	<u> </u>	CR002			it/Monitoring	1 #				
92.071123692	W		м		TH001		0		,				
1// 1// NIM/ NIE 1// CIM/	Section	Towns		Range		Original V	ا اام/۸	Owner					
1/4 / 1/4 NW, NE 1/4 SW	- 1		·	_	ш-	1 -		-Superio	ır				
or Gov't Lot #	36	49	N	14	√ W	Present V			'1				
Well Street Address						1			r				
2407 Stinson Ave.						Calumet-Superior Mailing Address of Present Owner							
Well City, Village or Town			1	IP Cod	le	ı ~							
Superior Township)		548	380				nson Ave	e.	1	1		
Subdivision Name			Lot #			City of Pr				State	1	Code	
						Super				WI		880	
Reason for Removal from S	ervice WI Uni	que Well#	of Rep	olaceme	ent Well				en, Casing & Se	ealing Ma	aterial		
Soil Sample Boring	g					1	-	piping remov	ved?	Ĺ	Yes	No	√ N/A
3. Filled & Sealed Well	_	rehole li	nforma	ation	_	Liner(s	s) ren	noved?		Ĺ	Yes	No	√ N/A
	Original Co				уууу)	Liner(s	s) per	forated?		L	Yes	No	√ N/A
Monitoring Well 12/29/2015				Screer	n rem	noved?			Yes	No	√ N/A		
Water Well					Casing	g left	in place?			Yes	No	√ N/A	
✓ Borehole / Drillhole	If a Well C		n Repoi	rt is ava	allable,	Was ca	asino	cut off belo	w surface?	Ī	Yes	— ∏No	V/A
Construction Type:	piodoo ditt					_			e to surface?	Ī.	7 Yes	HNo	H _{N/A}
	. (0 1)		\neg				•	l settle after		Ľ	Yes	No.	H _{N/A}
	riven (Sandpoint)	L	Dug			1 .		was hole ret		<u> </u>	Yes	No	N/A
✓ Other (specify): DP						1 '			used, were thev h	L drated –			▼ IN/A
Formation Type:									n safe source?	yurateu [✓ Yes	No	□ N/A
✓ Unconsolidated Forma	ition [Bedroc	k			Required	Meth	hod of Placir	ng Sealing Materia	ı			
Total Well Depth From Grou	ınd Surface (ft.)	─ Casing Dia	ameter	(in)				tor Pipe-Gra	_	or Pipe-Pu	mped		
·		N/A	amotor	()			eene	d & Poured	Other (E:		•		
9						I ▼ (Be	ntoni	ite Chips)		хріаіт)			
Lower Drillhole Diameter (in	l.)	Casing De	epth (ft.))		Sealing M			-	_			
2		N/A				☐ Nea	at Ce	ment Grout	L	Concre	ete		
							nd-Ce	ement (Cond	crete) Grout	✓ Bentor	ite Chips	;	
Was well annular space grou	uted?	Yes	No	Шυ	Inknown	For Monit	toring	g Wells and	Monitoring Well Bo	oreholes C	nly:		
If yes, to what depth (feet)?	Depth	to Water	(feet)			│	ntonit	e Chips	Ber	tonite - Ce	ement Gr	out	
						$\perp =$		r Bentonite	=	tonite - Sa			
									No. Yards, Sack			y Mix Rat	io or
5. Material Used to Fill	Well / Drillhole)				From (ft	t.)	To (ft.)	Volume (cire			Mud We	
Bentonite Chips						Surfac	e (9	22.5lbs				
•													
6. Comments													
7. Supervision of Work									D. (D.)	DNR U			
Name of Person or Firm Do		ng Licer	ise#			-	_	or Verificatio	on Date Received		Noted	Ву	
Twin Ports Testing]			(ууу) 12/2							
Street or Route						elephone N			Comments				
1301 N. 3rd St.					(715)3							
City		State	ZIP C			Signature	of P	Person Doing	g Work		Date Sigi		
Superior		WI	548	880				Pet 1			2/11/	16	

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Page 1 of 2

2/11/16

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WI

54880

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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Well / Drillhole / Borehole Filling & Sealing Report

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Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Page 1 of 2

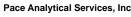
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WI

54880

Gannett Fleming		
	ATTACHMENT B	
LABORATORY REPORTS AND C	HAIN-OF-CUSTODY RECORDS FOR SOIL SAMPL	<u>ES</u>
LABORATORY REPORTS AND C	HAIN-OF-CUSTODY RECORDS FOR SOIL SAMPL	<u>ES</u>
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LABORATORY REPORTS AND C	HAIN-OF-CUSTODY RECORDS FOR SOIL SAMPL	ES
LABORATORY REPORTS AND C	HAIN-OF-CUSTODY RECORDS FOR SOIL SAMPL	ES



Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436



January 06, 2016

Project #34265.003 Calumet Superior T27 Reviewed by CCW 1/6/16

Clifford Wright Gannett Fleming 8025 Excelsior Drive Madison, WI 53717

RE: Project: 34265.003 CS-T27

Pace Project No.: 40126700

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on December 31, 2015. 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,

Dan Milewsky

Lan Miland

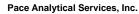
dan.milewsky@pacelabs.com

Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming





Pace Analytical www.pacelabs.com

1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

CERTIFICATIONS

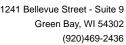
Project: 34265.003 CS-T27

Pace Project No.: 40126700

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302 Florida/NELAP Certification #: E87948 Illinois Certification #: 200050 Kentucky Certification #: 82 Louisiana Certification #: 04168 Minnesota Certification #: 055-999-334 Virginia VELAP ID: 460263

North Dakota Certification #: R-150 South Carolina Certification #: 83006001 Texas Certification #: T104704529-14-1 US Dept of Agriculture #: S-76505 Virginia VELAP ID: 460263 Virginia VELAP Certification ID: 460263 Wisconsin Certification #: 405132750





SAMPLE SUMMARY

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40126700001	GP-1 0-2	Solid	12/28/15 11:05	12/31/15 09:25
40126700002	GP-2 0-2	Solid	12/28/15 11:55	12/31/15 09:25
40126700003	GP-2 2-4	Solid	12/28/15 11:55	12/31/15 09:25
40126700004	GP-3 2-4	Solid	12/28/15 14:15	12/31/15 09:25
40126700005	GP-5 0-2	Solid	12/29/15 08:25	12/31/15 09:25
40126700006	GP-5 2-4	Solid	12/29/15 08:25	12/31/15 09:25
40126700007	GP-7 2-4	Solid	12/29/15 09:30	12/31/15 09:25
40126700008	GP-9 2-4	Solid	12/29/15 10:35	12/31/15 09:25
40126700009	GP-11 0-2	Solid	12/29/15 11:20	12/31/15 09:25
40126700010	GP-12 2-4	Solid	12/29/15 11:40	12/31/15 09:25
40126700011	GP-13 2-4	Solid	12/29/15 13:15	12/31/15 09:25
40126700012	GP-16 2-4	Solid	12/29/15 14:45	12/31/15 09:25
40126700013	GP-17 2-4	Solid	12/29/15 15:15	12/31/15 09:25
40126700014	TRIP BLANK	Solid	12/29/15 00:00	12/31/15 09:25

(920)469-2436



SAMPLE ANALYTE COUNT

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40126700001	GP-1 0-2	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700002	GP-2 0-2	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700003	GP-2 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700004	GP-3 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700005	GP-5 0-2	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700006	GP-5 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
10126700007	GP-7 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700008	GP-9 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700009	GP-11 0-2	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700010	GP-12 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700011	GP-13 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
10126700012	GP-16 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700013	GP-17 2-4	WI MOD GRO	LCF	10	PASI-G
		ASTM D2974-87	KTS	1	PASI-G
40126700014	TRIP BLANK	WI MOD GRO	LCF	10	PASI-G



SUMMARY OF DETECTION

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
0126700001	GP-1 0-2					
WI MOD GRO	Ethylbenzene	293	ug/kg	64.7	01/04/16 16:51	
WI MOD GRO	Naphthalene	870	ug/kg	64.7	01/04/16 16:51	
NI MOD GRO	m&p-Xylene	318	ug/kg	129	01/04/16 16:51	
ASTM D2974-87	Percent Moisture	22.8	%	0.10	01/05/16 15:02	
0126700002	GP-2 0-2					
WI MOD GRO	1,2,4-Trimethylbenzene	43600	ug/kg	363	01/05/16 00:07	
WI MOD GRO	1,3,5-Trimethylbenzene	14000	ug/kg	363	01/05/16 00:07	
WI MOD GRO	Benzene	16000	ug/kg	363	01/05/16 00:07	
WI MOD GRO	Ethylbenzene	19400	ug/kg	363	01/05/16 00:07	
WI MOD GRO	Methyl-tert-butyl ether	871	ug/kg	363	01/05/16 00:07	
NI MOD GRO	Naphthalene	15100	ug/kg	363	01/05/16 00:07	
WI MOD GRO	m&p-Xylene	54400	ug/kg	725	01/05/16 00:07	
NI MOD GRO	o-Xylene	1810	ug/kg	363	01/05/16 00:07	
ASTM D2974-87	Percent Moisture	31.1	%	0.10	01/05/16 15:02	
0126700003	GP-2 2-4					
VI MOD GRO	1,2,4-Trimethylbenzene	165000	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	1,3,5-Trimethylbenzene	54000	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	Benzene	102000	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	Ethylbenzene	90900	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	Methyl-tert-butyl ether	4380	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	Naphthalene	59000	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	Toluene	153000	ug/kg	1780	01/04/16 23:42	
VI MOD GRO	m&p-Xylene	254000	ug/kg	3550	01/04/16 23:42	
VI MOD GRO	o-Xylene	91900	ug/kg	1780	01/04/16 23:42	
ASTM D2974-87	Percent Moisture	29.6	%	0.10	01/05/16 15:03	
0126700004	GP-3 2-4					
VI MOD GRO	1,2,4-Trimethylbenzene	762	ug/kg	71.8	01/04/16 15:34	
VI MOD GRO	1,3,5-Trimethylbenzene	210	ug/kg	71.8	01/04/16 15:34	
VI MOD GRO	Benzene	1090	ug/kg	71.8	01/04/16 15:34	
VI MOD GRO	Ethylbenzene	382	ug/kg	71.8	01/04/16 15:34	
VI MOD GRO	Naphthalene	442	ug/kg	71.8	01/04/16 15:34	
VI MOD GRO	m&p-Xylene	692	ug/kg	144	01/04/16 15:34	
ASTM D2974-87	Percent Moisture	30.3	%	0.10	01/05/16 15:54	
0126700005	GP-5 0-2					
VI MOD GRO	1,2,4-Trimethylbenzene	29200	ug/kg	641	01/04/16 22:50	
VI MOD GRO	1,3,5-Trimethylbenzene	12200	ug/kg	641	01/04/16 22:50	
VI MOD GRO	Benzene	5260	ug/kg	641	01/04/16 22:50	
VI MOD GRO	Ethylbenzene	10100	ug/kg	641	01/04/16 22:50	
VI MOD GRO	Methyl-tert-butyl ether	420J	ug/kg	641	01/04/16 22:50	
VI MOD GRO	Naphthalene	16200	ug/kg	641	01/04/16 22:50	
VI MOD GRO	m&p-Xylene	27100	ug/kg	1280	01/04/16 22:50	
VI MOD GRO	o-Xylene	1400	ug/kg	641	01/04/16 22:50	
STM D2974-87	Percent Moisture	22.0	%	0.10	01/05/16 15:54	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Lab Sample ID	Client Sample ID	Popult	Lloito	Donort Limit	Applyzod	Qualifica
Method	Parameters	Result	Units	Report Limit	Analyzed .	Qualifiers
0126700006	GP-5 2-4					
NI MOD GRO	1,2,4-Trimethylbenzene	2060	ug/kg	65.2	01/04/16 17:42	
NI MOD GRO	1,3,5-Trimethylbenzene	792	ug/kg	65.2	01/04/16 17:42	
NI MOD GRO	Benzene	841	ug/kg	65.2	01/04/16 17:42	
WI MOD GRO	Ethylbenzene	796	ug/kg	65.2	01/04/16 17:42	
WI MOD GRO	Naphthalene	1030	ug/kg	65.2	01/04/16 17:42	
WI MOD GRO	Toluene	75.7	ug/kg	65.2	01/04/16 17:42	
NI MOD GRO	m&p-Xylene	2230	ug/kg	130	01/04/16 17:42	
WI MOD GRO	o-Xylene	290	ug/kg	65.2	01/04/16 17:42	
ASTM D2974-87	Percent Moisture	23.3	%	0.10	01/05/16 15:54	
0126700007	GP-7 2-4					
WI MOD GRO	1,2,4-Trimethylbenzene	478	ug/kg	69.5	01/04/16 15:59	
WI MOD GRO	1,3,5-Trimethylbenzene	179	ug/kg	69.5	01/04/16 15:59	
WI MOD GRO	Ethylbenzene	72.3	ug/kg	69.5	01/04/16 15:59	
WI MOD GRO	Naphthalene	509	ug/kg	69.5	01/04/16 15:59	
WI MOD GRO	m&p-Xylene	148	ug/kg	139	01/04/16 15:59	
ASTM D2974-87	Percent Moisture	28.1	%	0.10	01/05/16 15:55	
0126700008	GP-9 2-4					
NI MOD GRO	1,2,4-Trimethylbenzene	3820	ug/kg	139	01/04/16 21:59	
WI MOD GRO	1,3,5-Trimethylbenzene	2010	ug/kg	139	01/04/16 21:59	
WI MOD GRO	Benzene	795	ug/kg	139	01/04/16 21:59	
WI MOD GRO	Ethylbenzene	1350	ug/kg	139	01/04/16 21:59	
WI MOD GRO	Naphthalene	2380	ug/kg	139	01/04/16 21:59	
WI MOD GRO	m&p-Xylene	2670	ug/kg	277	01/04/16 21:59	
WI MOD GRO	o-Xylene	418	ug/kg	139	01/04/16 21:59	
ASTM D2974-87	Percent Moisture	27.9	%	0.10	01/05/16 15:55	
0126700009	GP-11 0-2					
WI MOD GRO	1,2,4-Trimethylbenzene	1400	ug/kg	69.9	01/04/16 16:25	
WI MOD GRO	1,3,5-Trimethylbenzene	591	ug/kg	69.9	01/04/16 16:25	
WI MOD GRO	Benzene	82.4	ug/kg	69.9	01/04/16 16:25	
NI MOD GRO	Ethylbenzene	349	ug/kg	69.9	01/04/16 16:25	
NI MOD GRO	Naphthalene	879	ug/kg	69.9	01/04/16 16:25	
NI MOD GRO	m&p-Xylene	695	ug/kg	140	01/04/16 16:25	
WI MOD GRO	o-Xylene	166	ug/kg	69.9	01/04/16 16:25	
ASTM D2974-87	Percent Moisture	28.5	%	0.10	01/05/16 15:55	
0126700010	GP-12 2-4					
WI MOD GRO	1,2,4-Trimethylbenzene	3860	ug/kg	142	01/04/16 21:33	
NI MOD GRO	1,3,5-Trimethylbenzene	1460	ug/kg	142	01/04/16 21:33	
WI MOD GRO	Benzene	1180	ug/kg	142	01/04/16 21:33	
WI MOD GRO	Ethylbenzene	1350	ug/kg	142	01/04/16 21:33	
WI MOD GRO	Naphthalene	1720	ug/kg	142	01/04/16 21:33	
WI MOD GRO	m&p-Xylene	3570	ug/kg	284	01/04/16 21:33	
NI MOD GRO	o-Xylene	221	ug/kg	142	01/04/16 21:33	
ASTM D2974-87	Percent Moisture	29.6	%	0.10	01/05/16 15:55	

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SUMMARY OF DETECTION

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
0126700011	GP-13 2-4					
WI MOD GRO	1,2,4-Trimethylbenzene	6480	ug/kg	144	01/04/16 22:25	
WI MOD GRO	1,3,5-Trimethylbenzene	3190	ug/kg	144	01/04/16 22:25	
NI MOD GRO	Benzene	963	ug/kg	144	01/04/16 22:25	
WI MOD GRO	Ethylbenzene	2150	ug/kg	144	01/04/16 22:25	
WI MOD GRO	Naphthalene	3630	ug/kg	144	01/04/16 22:25	
WI MOD GRO	m&p-Xylene	4400	ug/kg	289	01/04/16 22:25	
WI MOD GRO	o-Xylene	593	ug/kg	144	01/04/16 22:25	
ASTM D2974-87	Percent Moisture	30.8	%	0.10	01/05/16 15:55	
0126700012	GP-16 2-4					
VI MOD GRO	1,2,4-Trimethylbenzene	12200	ug/kg	186	01/04/16 23:16	
WI MOD GRO	1,3,5-Trimethylbenzene	4400	ug/kg	186	01/04/16 23:16	
VI MOD GRO	Benzene	692	ug/kg	186	01/04/16 23:16	
VI MOD GRO	Ethylbenzene	3120	ug/kg	186	01/04/16 23:16	
VI MOD GRO	Naphthalene	4720	ug/kg	186	01/04/16 23:16	
VI MOD GRO	m&p-Xylene	6960	ug/kg	372	01/04/16 23:16	
WI MOD GRO	o-Xylene	652	ug/kg	186	01/04/16 23:16	
ASTM D2974-87	Percent Moisture	32.7	%	0.10	01/05/16 15:55	
0126700013	GP-17 2-4					
VI MOD GRO	1,2,4-Trimethylbenzene	2190	ug/kg	70.3	01/04/16 17:17	
VI MOD GRO	1,3,5-Trimethylbenzene	1060	ug/kg	70.3	01/04/16 17:17	
VI MOD GRO	Benzene	102	ug/kg	70.3	01/04/16 17:17	
VI MOD GRO	Ethylbenzene	488	ug/kg	70.3	01/04/16 17:17	
VI MOD GRO	Naphthalene	1050	ug/kg	70.3	01/04/16 17:17	
VI MOD GRO	m&p-Xylene	1250	ug/kg	141	01/04/16 17:17	
VI MOD GRO	o-Xylene	206	ug/kg	70.3	01/04/16 17:17	
STM D2974-87	Percent Moisture	28.9	%	0.10	01/05/16 15:55	



1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

PROJECT NARRATIVE

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Method: WI MOD GRO
Description: WIGRO GCV
Client: Gannett Fleming Inc.
Date: January 06, 2016

General Information:

14 samples were analyzed for WI MOD GRO. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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, where applicable, 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.

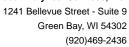
Additional Comments:

Analyte Comments:

QC Batch: GCV/15552

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

- GP-12 2-4 (Lab ID: 40126700010)
 - a,a,a-Trifluorotoluene (S)
- GP-13 2-4 (Lab ID: 40126700011)
 - a.a.a-Trifluorotoluene (S)
- GP-5 0-2 (Lab ID: 40126700005)
 - a,a,a-Trifluorotoluene (S)





PROJECT NARRATIVE

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Method:WI MOD GRODescription:WIGRO GCVClient:Gannett Fleming Inc.Date:January 06, 2016

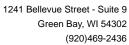
Analyte Comments:

QC Batch: GCV/15552

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

• GP-9 2-4 (Lab ID: 40126700008) • a,a,a-Trifluorotoluene (S)

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





Project: 34265.003 CS-T27

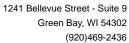
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-1 0-2 Lab ID: 40126700001 Collected: 12/28/15 11:05 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO Pi	eparation N	∕lethod	I: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	108-67-8	W
Benzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	71-43-2	W
Ethylbenzene	293	ug/kg	64.7	32.4	1	01/04/16 07:05	01/04/16 16:51	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	1634-04-4	W
Naphthalene	870	ug/kg	64.7	32.4	1	01/04/16 07:05	01/04/16 16:51	91-20-3	
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	108-88-3	W
m&p-Xylene	318	ug/kg	129	64.7	1	01/04/16 07:05	01/04/16 16:51	179601-23-1	
o-Xylene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:51	95-47-6	W
Surrogates a,a,a-Trifluorotoluene (S)	105	%	80-120		1	01/04/16 07:05	01/04/16 16:51	98-08-8	
Percent Moisture	Analytical	Method: AS	ΓM D2974-87						
Percent Moisture	22.8	%	0.10	0.10	1		01/05/16 15:02		





Project: 34265.003 CS-T27

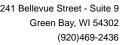
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-2 0-2 Lab ID: 40126700002 Collected: 12/28/15 11:55 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO Pi	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	43600	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	95-63-6	
1,3,5-Trimethylbenzene	14000	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	108-67-8	
Benzene	16000	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	71-43-2	
Ethylbenzene	19400	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	100-41-4	
Methyl-tert-butyl ether	871	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	1634-04-4	
Naphthalene	15100	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	91-20-3	
Toluene	<125	ug/kg	250	125	5	01/04/16 07:05	01/05/16 00:07	108-88-3	W
m&p-Xylene	54400	ug/kg	725	363	5	01/04/16 07:05	01/05/16 00:07	179601-23-1	
o-Xylene	1810	ug/kg	363	181	5	01/04/16 07:05	01/05/16 00:07	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	105	%	80-120		5	01/04/16 07:05	01/05/16 00:07	98-08-8	
Percent Moisture	Analytical	Method: AST	M D2974-87						
Percent Moisture	31.1	%	0.10	0.10	1		01/05/16 15:02		





Project: 34265.003 CS-T27

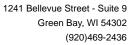
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-2 2-4 Lab ID: 40126700003 Collected: 12/28/15 11:55 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO Pr	eparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	165000	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	95-63-6	
1,3,5-Trimethylbenzene	54000	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	108-67-8	
Benzene	102000	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	71-43-2	
Ethylbenzene	90900	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	100-41-4	
Methyl-tert-butyl ether	4380	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	1634-04-4	
Naphthalene	59000	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	91-20-3	
Toluene	153000	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	108-88-3	
m&p-Xylene	254000	ug/kg	3550	1780	25	01/04/16 07:05	01/04/16 23:42	179601-23-1	
o-Xylene	91900	ug/kg	1780	888	25	01/04/16 07:05	01/04/16 23:42	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	104	%	80-120		25	01/04/16 07:05	01/04/16 23:42	98-08-8	
Percent Moisture	Analytical	Method: AST	M D2974-87						
Percent Moisture	29.6	%	0.10	0.10	1		01/05/16 15:03		





Project: 34265.003 CS-T27

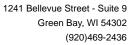
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-3 2-4 Lab ID: 40126700004 Collected: 12/28/15 14:15 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO PI	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	762	ug/kg	71.8	35.9	1	01/04/16 07:05	01/04/16 15:34	95-63-6	
1,3,5-Trimethylbenzene	210	ug/kg	71.8	35.9	1	01/04/16 07:05	01/04/16 15:34	108-67-8	
Benzene	1090	ug/kg	71.8	35.9	1	01/04/16 07:05	01/04/16 15:34	71-43-2	
Ethylbenzene	382	ug/kg	71.8	35.9	1	01/04/16 07:05	01/04/16 15:34	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:34	1634-04-4	W
Naphthalene	442	ug/kg	71.8	35.9	1	01/04/16 07:05	01/04/16 15:34	91-20-3	
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:34	108-88-3	W
m&p-Xylene	692	ug/kg	144	71.8	1	01/04/16 07:05	01/04/16 15:34	179601-23-1	
o-Xylene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:34	95-47-6	W
Surrogates a,a,a-Trifluorotoluene (S)	103	%	80-120		1	01/04/16 07:05	01/04/16 15:34	98-08-8	
Percent Moisture	Analytical	Method: AST	ΓM D2974-87						
Percent Moisture	30.3	%	0.10	0.10	1		01/05/16 15:54		





Project: 34265.003 CS-T27

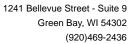
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-5 0-2 Lab ID: 40126700005 Collected: 12/29/15 08:25 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO PI	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	29200	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	95-63-6	
1,3,5-Trimethylbenzene	12200	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	108-67-8	
Benzene	5260	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	71-43-2	
Ethylbenzene	10100	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	100-41-4	
Methyl-tert-butyl ether	420J	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	1634-04-4	
Naphthalene	16200	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	91-20-3	
Toluene	<250	ug/kg	500	250	10	01/04/16 07:05	01/04/16 22:50	108-88-3	W
m&p-Xylene	27100	ug/kg	1280	641	10	01/04/16 07:05	01/04/16 22:50	179601-23-1	
o-Xylene	1400	ug/kg	641	320	10	01/04/16 07:05	01/04/16 22:50	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	108	%	80-120		10	01/04/16 07:05	01/04/16 22:50	98-08-8	D3
Percent Moisture	Analytical	Method: AST	ΓM D2974-87						
Percent Moisture	22.0	%	0.10	0.10	1		01/05/16 15:54		





Project: 34265.003 CS-T27

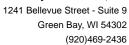
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-5 2-4 Lab ID: 40126700006 Collected: 12/29/15 08:25 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO Pr	eparation N	/lethod	I: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	2060	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	95-63-6	
1,3,5-Trimethylbenzene	792	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	108-67-8	
Benzene	841	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	71-43-2	
Ethylbenzene	796	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 17:42	1634-04-4	W
Naphthalene	1030	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	91-20-3	
Toluene	75.7	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	108-88-3	
m&p-Xylene	2230	ug/kg	130	65.2	1	01/04/16 07:05	01/04/16 17:42	179601-23-1	
o-Xylene Surrogates	290	ug/kg	65.2	32.6	1	01/04/16 07:05	01/04/16 17:42	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120		1	01/04/16 07:05	01/04/16 17:42	98-08-8	
Percent Moisture	Analytical	Method: AST	ΓM D2974-87						
Percent Moisture	23.3	%	0.10	0.10	1		01/05/16 15:54		





Project: 34265.003 CS-T27

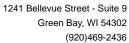
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-7 2-4 Lab ID: 40126700007 Collected: 12/29/15 09:30 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO Pr	eparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	478	ug/kg	69.5	34.8	1	01/04/16 07:05	01/04/16 15:59	95-63-6	
1,3,5-Trimethylbenzene	179	ug/kg	69.5	34.8	1	01/04/16 07:05	01/04/16 15:59	108-67-8	
Benzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:59	71-43-2	W
Ethylbenzene	72.3	ug/kg	69.5	34.8	1	01/04/16 07:05	01/04/16 15:59	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:59	1634-04-4	W
Naphthalene	509	ug/kg	69.5	34.8	1	01/04/16 07:05	01/04/16 15:59	91-20-3	
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:59	108-88-3	W
m&p-Xylene	148	ug/kg	139	69.5	1	01/04/16 07:05	01/04/16 15:59	179601-23-1	
o-Xylene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 15:59	95-47-6	W
Surrogates a,a,a-Trifluorotoluene (S)	100	%	80-120		1	01/04/16 07:05	01/04/16 15:59	98-08-8	
Percent Moisture	Analytical	Method: AST	M D2974-87						
Percent Moisture	28.1	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

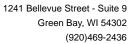
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-9 2-4 Lab ID: 40126700008 Collected: 12/29/15 10:35 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO Pi	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	3820	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	95-63-6	
1,3,5-Trimethylbenzene	2010	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	108-67-8	
Benzene	795	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	71-43-2	
Ethylbenzene	1350	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	100-41-4	
Methyl-tert-butyl ether	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 21:59	1634-04-4	W
Naphthalene	2380	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	91-20-3	
Toluene	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 21:59	108-88-3	W
m&p-Xylene	2670	ug/kg	277	139	2	01/04/16 07:05	01/04/16 21:59	179601-23-1	
o-Xylene	418	ug/kg	139	69.4	2	01/04/16 07:05	01/04/16 21:59	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	107	%	80-120		2	01/04/16 07:05	01/04/16 21:59	98-08-8	D3
Percent Moisture	Analytical	Method: AST	TM D2974-87						
Percent Moisture	27.9	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

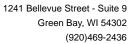
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-11 0-2 Lab ID: 40126700009 Collected: 12/29/15 11:20 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO PI	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	1400	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	95-63-6	
1,3,5-Trimethylbenzene	591	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	108-67-8	
Benzene	82.4	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	71-43-2	
Ethylbenzene	349	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:25	1634-04-4	W
Naphthalene	879	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	91-20-3	
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 16:25	108-88-3	W
m&p-Xylene	695	ug/kg	140	69.9	1	01/04/16 07:05	01/04/16 16:25	179601-23-1	
o-Xylene	166	ug/kg	69.9	34.9	1	01/04/16 07:05	01/04/16 16:25	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	107	%	80-120		1	01/04/16 07:05	01/04/16 16:25	98-08-8	
Percent Moisture	Analytical	Method: AST	ΓM D2974-87						
Percent Moisture	28.5	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

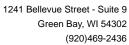
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-12 2-4 Lab ID: 40126700010 Collected: 12/29/15 11:40 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO PI	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	3860	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	95-63-6	
1,3,5-Trimethylbenzene	1460	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	108-67-8	
Benzene	1180	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	71-43-2	
Ethylbenzene	1350	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	100-41-4	
Methyl-tert-butyl ether	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 21:33	1634-04-4	W
Naphthalene	1720	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	91-20-3	
Toluene	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 21:33	108-88-3	W
m&p-Xylene	3570	ug/kg	284	142	2	01/04/16 07:05	01/04/16 21:33	179601-23-1	
o-Xylene	221	ug/kg	142	71.1	2	01/04/16 07:05	01/04/16 21:33	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	104	%	80-120		2	01/04/16 07:05	01/04/16 21:33	98-08-8	D3
Percent Moisture	Analytical	Method: AST	M D2974-87						
Percent Moisture	29.6	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

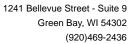
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-13 2-4 Lab ID: 40126700011 Collected: 12/29/15 13:15 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO Pr	eparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	6480	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	95-63-6	
1,3,5-Trimethylbenzene	3190	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	108-67-8	
Benzene	963	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	71-43-2	
Ethylbenzene	2150	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	100-41-4	
Methyl-tert-butyl ether	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 22:25	1634-04-4	W
Naphthalene	3630	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	91-20-3	
Toluene	<50.0	ug/kg	100	50.0	2	01/04/16 07:05	01/04/16 22:25	108-88-3	W
m&p-Xylene	4400	ug/kg	289	144	2	01/04/16 07:05	01/04/16 22:25	179601-23-1	
o-Xylene	593	ug/kg	144	72.2	2	01/04/16 07:05	01/04/16 22:25	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	107	%	80-120		2	01/04/16 07:05	01/04/16 22:25	98-08-8	D3
Percent Moisture	Analytical	Method: AST	TM D2974-87						
Percent Moisture	30.8	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

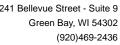
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-16 2-4 Lab ID: 40126700012 Collected: 12/29/15 14:45 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO Pr	eparation N	Method	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	12200	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	95-63-6	
1,3,5-Trimethylbenzene	4400	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	108-67-8	
Benzene	692	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	71-43-2	
Ethylbenzene	3120	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	100-41-4	
Methyl-tert-butyl ether	<62.5	ug/kg	125	62.5	2.5	01/04/16 07:05	01/04/16 23:16	1634-04-4	W
Naphthalene	4720	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	91-20-3	
Toluene	<62.5	ug/kg	125	62.5	2.5	01/04/16 07:05	01/04/16 23:16	108-88-3	W
m&p-Xylene	6960	ug/kg	372	186	2.5	01/04/16 07:05	01/04/16 23:16	179601-23-1	
o-Xylene	652	ug/kg	186	92.9	2.5	01/04/16 07:05	01/04/16 23:16	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	108	%	80-120		2.5	01/04/16 07:05	01/04/16 23:16	98-08-8	
Percent Moisture	Analytical	Method: AST	ΓM D2974-87						
Percent Moisture	32.7	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

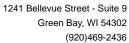
Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: GP-17 2-4 Lab ID: 40126700013 Collected: 12/29/15 15:15 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI I	MOD GRO PI	reparation N	/lethod	: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	2190	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	95-63-6	
1,3,5-Trimethylbenzene	1060	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	108-67-8	
Benzene	102	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	71-43-2	
Ethylbenzene	488	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	100-41-4	
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 17:17	1634-04-4	W
Naphthalene	1050	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	91-20-3	
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 17:17	108-88-3	W
m&p-Xylene	1250	ug/kg	141	70.3	1	01/04/16 07:05	01/04/16 17:17	179601-23-1	
o-Xylene	206	ug/kg	70.3	35.2	1	01/04/16 07:05	01/04/16 17:17	95-47-6	
Surrogates a,a,a-Trifluorotoluene (S)	109	%	80-120		1	01/04/16 07:05	01/04/16 17:17	98-08-8	
Percent Moisture	Analytical	Method: AST	M D2974-87						
Percent Moisture	28.9	%	0.10	0.10	1		01/05/16 15:55		





Project: 34265.003 CS-T27

Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Sample: TRIP BLANK Lab ID: 40126700014 Collected: 12/29/15 00:00 Received: 12/31/15 09:25 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI	MOD GRO PI	reparation N	/lethod	I: TPH GRO/PVO	C WI ext.		
1,2,4-Trimethylbenzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	108-67-8	W
Benzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	71-43-2	W
Ethylbenzene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	100-41-4	W
Methyl-tert-butyl ether	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	1634-04-4	W
Naphthalene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	91-20-3	W
Toluene	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	108-88-3	W
m&p-Xylene	<50.0	ug/kg	100	50.0	1	01/04/16 07:05	01/04/16 20:16	179601-23-1	W
o-Xylene Surrogates	<25.0	ug/kg	50.0	25.0	1	01/04/16 07:05	01/04/16 20:16	95-47-6	W
a,a,a-Trifluorotoluene (S)	101	%	80-120		1	01/04/16 07:05	01/04/16 20:16	98-08-8	



QUALITY CONTROL DATA

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

QC Batch: GCV/15552 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV

Associated Lab Samples: 40126700001, 40126700002, 40126700003, 40126700004, 40126700005, 40126700006, 40126700007,

40126700008, 40126700009, 40126700010, 40126700011, 40126700012, 40126700013, 40126700014

METHOD BLANK: 1280101 Matrix: Solid

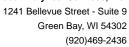
Associated Lab Samples: 40126700001, 40126700002, 40126700003, 40126700004, 40126700005, 40126700006, 40126700007,

40126700008, 40126700009, 40126700010, 40126700011, 40126700012, 40126700013, 40126700014

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	<25.0	50.0	01/04/16 13:51	
1,3,5-Trimethylbenzene	ug/kg	<25.0	50.0	01/04/16 13:51	
Benzene	ug/kg	<25.0	50.0	01/04/16 13:51	
Ethylbenzene	ug/kg	<25.0	50.0	01/04/16 13:51	
m&p-Xylene	ug/kg	<50.0	100	01/04/16 13:51	
Methyl-tert-butyl ether	ug/kg	<25.0	50.0	01/04/16 13:51	
Naphthalene	ug/kg	<25.0	50.0	01/04/16 13:51	
o-Xylene	ug/kg	<25.0	50.0	01/04/16 13:51	
Toluene	ug/kg	<25.0	50.0	01/04/16 13:51	
a,a,a-Trifluorotoluene (S)	%	101	80-120	01/04/16 13:51	

LABORATORY CONTROL SAMPLE &	LCSD: 1280102		12	80103						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1000	1010	100	101	80-120	1	20	
1,3,5-Trimethylbenzene	ug/kg	1000	991	1000	99	100	80-120	1	20	
Benzene	ug/kg	1000	1040	1040	104	104	80-120	0	20	
Ethylbenzene	ug/kg	1000	1020	1030	102	103	80-120	1	20	
m&p-Xylene	ug/kg	2000	2020	2030	101	101	80-120	0	20	
Methyl-tert-butyl ether	ug/kg	1000	997	1040	100	104	80-120	4	20	
Naphthalene	ug/kg	1000	945	1010	94	101	80-120	7	20	
o-Xylene	ug/kg	1000	1030	1030	103	103	80-120	1	20	
Toluene	ug/kg	1000	1030	1040	103	104	80-120	1	20	
a,a,a-Trifluorotoluene (S)	%				102	102	80-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.





QUALITY CONTROL DATA

Project:

34265.003 CS-T27

Pace Project No.:

40126700

QC Batch:

PMST/12300

Analysis Method:

ASTM D2974-87

QC Batch Method:

ASTM D2974-87

Analysis Description:

Dry Weight/Percent Moisture

Associated Lab Samples:

Date: 01/06/2016 08:59 AM

: 40126700001, 40126700002, 40126700003

SAMPLE DUPLICATE: 1280660

Parameter

40126748002 Result Dup Result

Max RPD RPD

Qualifiers

Percent Moisture

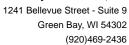
Units %

7.8

7.6

3 10

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.





QUALITY CONTROL DATA

Project: 34265.003 CS-T27

Pace Project No.: 40126700

QC Batch: PMST/12301 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40126700004, 40126700005, 40126700006, 40126700007, 40126700008, 40126700009, 40126700010,

40126700011, 40126700012, 40126700013

SAMPLE DUPLICATE: 1280670

Date: 01/06/2016 08:59 AM

		40126748001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture	%	7.0	7.0	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALIFIERS

Project: 34265.003 CS-T27

Pace Project No.: 40126700

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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 at or above the adjusted LOD.

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-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

Date: 01/06/2016 08:59 AM

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

W Non-detect results are reported on a wet weight basis.

(920)469-2436



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CS-T27

Pace Project No.: 40126700

Date: 01/06/2016 08:59 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40126700001	GP-1 0-2	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700002	GP-2 0-2	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700003	GP-2 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700004	GP-3 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700005	GP-5 0-2	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700006	GP-5 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700007	GP-7 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700008	GP-9 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700009	GP-11 0-2	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700010	GP-12 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700011	GP-13 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700012	GP-16 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700013	GP-17 2-4	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700014	TRIP BLANK	TPH GRO/PVOC WI ext.	GCV/15552	WI MOD GRO	GCV/15555
40126700001	GP-1 0-2	ASTM D2974-87	PMST/12300		
40126700002	GP-2 0-2	ASTM D2974-87	PMST/12300		
40126700003	GP-2 2-4	ASTM D2974-87	PMST/12300		
40126700004	GP-3 2-4	ASTM D2974-87	PMST/12301		
40126700005	GP-5 0-2	ASTM D2974-87	PMST/12301		
40126700006	GP-5 2-4	ASTM D2974-87	PMST/12301		
40126700007	GP-7 2-4	ASTM D2974-87	PMST/12301		
40126700008	GP-9 2-4	ASTM D2974-87	PMST/12301		
40126700009	GP-11 0-2	ASTM D2974-87	PMST/12301		
40126700010	GP-12 2-4	ASTM D2974-87	PMST/12301		
40126700011	GP-13 2-4	ASTM D2974-87	PMST/12301		
40126700012	GP-16 2-4	ASTM D2974-87	PMST/12301		
40126700013	GP-17 2-4	ASTM D2974-87	PMST/12301		

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OCC	6P-2	0-2	200	1	155	5		2	<u> </u>									<u> </u>	`	\perp		
003	GP-Z	7-4		3	:22	5		2														
COH	6P-3	2-4		10	1:15	5		7														
00c	GP-5	0-2	12	298	:75	S		2									П					
dal	6P-5	2-4		8	: 25	S		7_									П					
007	6P-#	Z-4/6P-	7)	9	30	5		2														
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Sample Condition Upon Receipt

Pace Analytical Services, Inc. 1241 Bellevue Street, Suite 9 Green Bay, WI 54302



/			Project #:	MO# :	401	L26700
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racking #: 8094 6558 2056	Was Sools	intent.		40126700	1 18 88 8 8	,
custody Seal on Cooler/Box Present: 「 yes custody Seal on Samples Present: 「 yes)	^		- '			
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emp Blank Present: yes X no				☐ no	Perso	n examining contents:
emp should be above freezing to 6°C for all sample ex	cept Biota.				Date: _	1431115
ozen Biota Samples should be received ≤ 0°C.			Comments:		Initials	:MH
hain of Custody Present:	ŽKyes ⊡No	□n/a	1.			
hain of Custody Filled Out:	XiYes □No	□N/A	2. Only First pa	se of (oc 1	NH 1431	lir
hain of Custody Relinquished:	.			,		
ampler Name & Signature on COC:	Yes □No	□n/a	4.			
amples Arrived within Hold Time:	XYes □No	□n/a	5.			
- VOA Samples frozen upon receipt	□Yes □No		Date/Time:			
hort Hold Time Analysis (<72hr):	∐Yes ⊠No	□n/a	6.			
ush Turn Around Time Requested:	□Yes DANo	□n/a	7.			
ufficient Volume:)Xves □No	□n/a	8.			
orrect Containers Used:	Xi Yes ⊡No	□n/a	9.			
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ontainers Intact:	Yes □No	□n/a	10.			
Itered volume received for Dissolved tests	□Yes DiNo	□n/a	11.			
ample Labels match COC:	□Yes INo	□n/a	12. NO time			Maple
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I containers needing preservation have been checked. lon-Compliance noted in 13.)	□Yes □No	XIN/A	13 F HNO3	B H2SO4	- NaOH	
containers needing preservation are found to be in		<u> </u>	, TO. ,			
ompliance with EPA recommendation.	□Yes □No	X N/A				
INO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12) ceptions: VOA, coliform, TOC, TOX, TOH,	·		Initial when	Lab Std #ID of		Date/
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eadspace in VOA Vials (>6mm):	□Yes □No	X N/A	14.			
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Project Description: Tank 27			City/Sa Collecte	Superior, Wi	scens in		E	2			Phone: (61	0) 767-5859 5) 758-5858
Phone: (715) 398-8455 FAX: (715) 398-8209	Client Project	#:	ESC	Key:			09	-11			D14	5) 758-5859
Collected by: (print)	Site/Facility ID	# :	P.O.	# 2215	71	3.17	0					Total Control
Collected by (signature): Immediately Packed on Ice N	S N	ame Day ext Day	50%	1		No. of Cntrs	OC GR	707			CoCode MUROI Template/Prelogin Shipped Via: Fe	LSW (lab use only) LSN 3 248 LEX
Sample ID	Comp/Grab	Matrix		th Date	Time	Chas	2	K			Remarks/Contaminant	Sample # (lab only)
sw-1	Grab	55	3'	1/19/2016	15:09	2	X	X				-01
SW-3	Grab	55	3'	1/21/206	11:06	2	×	X				-07
SW-2	Grab	55	3'	1/21/2016	11:35	2	×	*				-0}
5W-4	Grab	55	4	1/22/2016	10:61	2	×	×				-04
The Royal Control of the	57							3		7		
A CONTRACTOR OF THE CONTRACTOR	Man		Name of	C-16	SQ.						7514	
					3 - 3/1			. 75				
*Matrix: SS - Soil/Solid GW - Grou	indwater WW -	WasteWat	er DW - Dr	nking Water OT -	Other	-				pH	Ter	np
Remarks:										Flo	w Oth	ner
Relinquished by (Signature)	Date: \/22		me: R	eceived by: (Signa	sture)				Samples return FedEx	ned via: UPS	Condition	(lab use only)
Relinquished by: (Signature)	Date	Tie	me: R	eceived by: (Signa	iture)			13	Temp: 0	Bottles Rece	CoC Seals Intact	Y_N_NAK
Relinquished by: (Signature)	Date	Ti	me:	Received for lab by	Signature)			, he	Date:	Time 1:5)	pH Checked:	NCF:

1 100

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Peter Fredman Calumet Specialty Products 2407 Stinson Avenue Superior, WI 54880

Report Summary

Friday January 29, 2016

Report Number: L813248 Samples Received: 01/23/16 Client Project:

Description: Tank 27

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jason Rorler , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01,1461-02, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

January 29,2016

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Peter Fredman Calumet Specialty Products 2407 Stinson Avenue Superior, WI 54880

ESC Sample # : L813248-01

Date Received : 23, 2016 January

Description Tank 27

Site ID : Sample ID SW-1 3FT Project # :

Josh V

Collected By : Collection Date : 01/19/16 15:09

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	73.4		%	2540 G-2011	01/25/16	1
PVOCGRO						
Benzene	2.03	0.0317	mg/kg	8021	01/28/16	46.5
Toluene	0.804	0.317	mg/kg	8021	01/28/16	46.5
Ethylbenzene	0.888	0.0317	mg/kg	8021	01/28/16	46.5
m&p-Xylene	1.92	0.0634	mg/kg	8021	01/28/16	46.5
o-Xylene	1.12	0.0317	mg/kg	8021	01/28/16	46.5
Methyl tert-butyl ether	0.501	0.0634	mg/kg	8021	01/28/16	46.5
Naphthalene	BDL	0.317	mg/kg	8021	01/28/16	46.5
1,3,5-Trimethylbenzene	5.14	0.0634	mg/kg	8021	01/28/16	46.5
1,2,4-Trimethylbenzene	0.801	0.0634	mg/kg	8021	01/28/16	46.5
TPH (GC/FID) Low Fraction	386.	63.4	mg/kg	8015	01/29/16	465
Surrogate recovery-%						
a,a,a-Trifluorotoluene(PID)	99.0		% Rec.	8021	01/28/16	1

Results listed are dry weight basis. BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Note:



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REPORT OF ANALYSIS

January 29,2016

Peter Fredman Calumet Specialty Products 2407 Stinson Avenue Superior, WI 54880

ESC Sample # : L813248-02

Date Received : 23, 2016 January

Description Tank 27

Site ID : Project # :

Sample ID SW-3 3FT

Collected By : Collection Date : Josh V 01/21/16 11:06

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	75.3		%	2540 G-2011	01/25/16	1
PVOCGRO						
Benzene	0.0384	0.0322	mg/kg	8021	01/28/16	48.5
Toluene	BDL	0.322	mg/kg	8021	01/28/16	48.5
Ethylbenzene	BDL	0.0322	mg/kg	8021	01/28/16	48.5
m&p-Xylene	BDL	0.0644	mg/kg	8021	01/28/16	48.5
o-Xylene	0.0509	0.0322	mg/kg	8021	01/28/16	48.5
Methyl tert-butyl ether	BDL	0.0644	mg/kg	8021	01/28/16	48.5
Naphthalene	BDL	0.322	mg/kg	8021	01/28/16	48.5
1,3,5-Trimethylbenzene	0.239	0.0644	mg/kg	8021	01/28/16	48.5
1,2,4-Trimethylbenzene	0.159	0.0644	mg/kg	8021	01/28/16	48.5
TPH (GC/FID) Low Fraction	16.7	6.44	mg/kg	8015	01/28/16	48.5
Surrogate recovery-%						
a,a,a-Trifluorotoluene(PID)	98.8		% Rec.	8021	01/28/16	1

Results listed are dry weight basis. BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Note:



Sample ID

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REPORT OF ANALYSIS

January 29,2016

Peter Fredman Calumet Specialty Products 2407 Stinson Avenue Superior, WI 54880

ESC Sample # : L813248-03

Date Received : 23, 2016 January

SW-2 3FT

Description Tank 27

Site ID : Project # :

Josh V

Collected By : Collection Date : 01/21/16 11:35

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	77.4		8	2540 G-2011	01/25/16	1
PVOCGRO						
Benzene	BDL	0.0326	mg/kg	8021	01/28/16	50.5
Toluene	BDL	0.326	mg/kg	8021	01/28/16	50.5
Ethylbenzene	0.0584	0.0326	mg/kg	8021	01/28/16	50.5
m&p-Xylene	BDL	0.0652	mg/kg	8021	01/28/16	50.5
o-Xylene	0.0442	0.0326	mg/kg	8021	01/28/16	50.5
Methyl tert-butyl ether	BDL	0.0652	mg/kg	8021	01/28/16	50.5
Naphthalene	0.455	0.326	mg/kg	8021	01/28/16	50.5
1,3,5-Trimethylbenzene	0.288	0.0652	mg/kg	8021	01/28/16	50.5
1,2,4-Trimethylbenzene	0.123	0.0652	mg/kg	8021	01/28/16	50.5
TPH (GC/FID) Low Fraction	31.4	6.52	mg/kg	8015	01/28/16	50.5
Surrogate recovery-%						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021	01/28/16	1

Results listed are dry weight basis. BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Note:



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REPORT OF ANALYSIS

January 29,2016

Peter Fredman Calumet Specialty Products 2407 Stinson Avenue Superior, WI 54880

ESC Sample # : L813248-04

Date Received : 23, 2016 January

Description Tank 27

Site ID : Sample ID SW-4 4FT Project # :

Josh V

Collected By : Collection Date : 01/22/16 10:51

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	68.2		%	2540 G-2011	01/25/16	1
PVOCGRO						
Benzene	0.173	0.0341	mg/kg	8021	01/28/16	46.5
Toluene	BDL	0.341	mg/kg	8021	01/28/16	46.5
Ethylbenzene	0.176	0.0341	mg/kg	8021	01/28/16	46.5
m&p-Xylene	0.264	0.0682	mg/kg	8021	01/28/16	46.5
o-Xylene	BDL	0.0341	mg/kg	8021	01/28/16	46.5
Methyl tert-butyl ether	BDL	0.0682	mg/kg	8021	01/28/16	46.5
Naphthalene	BDL	0.341	mg/kg	8021	01/28/16	46.5
1,3,5-Trimethylbenzene	0.170	0.0682	mg/kg	8021	01/28/16	46.5
1,2,4-Trimethylbenzene	0.746	0.0682	mg/kg	8021	01/28/16	46.5
TPH (GC/FID) Low Fraction Surrogate recovery-%	34.8	6.82	mg/kg	8015	01/28/16	46.5
a,a,a-Trifluorotoluene(PID)	99.7		% Rec.	8021	01/28/16	1

Results listed are dry weight basis. BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Note:

Attachment A List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L813248-01	WG844869 WG844869	SAMP SAMP	Naphthalene 1,3,5-Trimethylbenzene	 R3109776 R3109776	J6J3 J6

Attachment B Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
Ј6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision The agreement between a set of samples or between duplicate samples.

 Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Quality Assurance Report Level II

L813248

January 29, 2016

		Labora	atory Blank					
Analyte	Result	Units	8 % F	Rec	Limit		Batch	Date Analyz
Total Solids	< .1	%					WG844218	01/25/16 14
1,2,4-Trimethylbenzene	< .001		_				T/100 4 4 0 C 0	01/28/16 10
1,3,5-Trimethylbenzene	< .001	mg/kg mg/kg						01/28/16 10
Benzene	< .001	mg/kg	•					01/28/16 10
Ethylbenzene	< .0005	mg/kg						01/28/16 10
m&p-Xylene	< .0003	mg/kg						01/28/16 10
Methyl tert-butyl ether	< .001	mg/kg						01/28/16 10
Naphthalene	< .005	mg/kg						01/28/16 10
o-Xylene	< .0005	mg/kg						01/28/16 10
Toluene	< .005	mg/kg						01/28/16 10
TPH (GC/FID) Low Fraction	< .1	mg/kg						01/28/16 10
a,a,a-Trifluorotoluene(PID)	`	% Rec		5 0	80-200			01/28/16 10
a,a,a iiiiiaoioeoiaene(iib)		0 1000	. 10.		00 200		WG011003	01/20/10 10
TPH (GC/FID) Low Fraction	< .1	mg/kg	ı				WG845202	01/29/16 08
a,a,a-Trifluorotoluene(PID)	` . ±	% Rec		5 0	80-200			01/29/16 08
a,a,a iiiiiaoiocoiache(iib)		0 1000	. 100	J. 0	00 200		WG0 13202	01/23/10 00
		Du	uplicate					
Analyte	Units	Result	Duplicate	RPD	Limit		Ref Sam	p Batch
Total Solids	%	68.6	68.2	0.512	5		L813248	-04 WG844
	<u> </u>							
		Laboratory	Control Sa	ample				
Analyte	Units	Known Val	I	Result	% Rec		Limit	Batch
Total Solids	%	50	50.	. 0	100.		85-115	WG844
1,2,4-Trimethylbenzene	mg/kg	.05	0 (0467	93.4		80-120	WG844
1,3,5-Trimethylbenzene	mg/kg	.05		0452	90.4		80-120	WG844
Benzene	mg/kg	.05		0445	88.9		80-120	WG844
Ethylbenzene	mg/kg	.05		0455	90.9		80-120	WG844
m&p-Xylene	mg/kg	.1		0959	95.9		80-120	WG844
Methyl tert-butyl ether		.05		0506	101.		80-120	WG844
	mg/kg	.05		0506	101.		80-120	
Naphthalene o-Xylene	mg/kg mg/kg	.05		0454	90.7		80-120	WG844 WG844
Toluene		.05)434	87.0		80-120	WG844
a,a,a-Trifluorotoluene(PID)	mg/kg	.05	0.0	1435	112.0		80-120	WG844
TPH (GC/FID) Low Fraction	ma /lea	.5	0 /	147	89.4		80-200	WG844
a,a,a-Trifluorotoluene(PID)	mg/kg	. 5	0.4	±4 /	112.0		80-120	WG844
a,a,a-IIIIIuorocoluene(PID)					112.0		80-200	WG044
TPH (GC/FID) Low Fraction	mg/kg	.5	0 4	128	85.7		80-120	WG845
a,a,a-Trifluorotoluene(PID)	ilig / kg	. 3	0.	120	110.0		80-200	WG845
a,a,a ililiaolocolache(FID)					110.0		00 200	WGO45
	Lal	boratory Cont	rol Sample	Duplicate				
Analyte	Units Re				Limit	RPD	Lir	mit Batch
•	2 2.00							
1,2,4-Trimethylbenzene	mg/kg 0	.0434 0.0)467 87.	. 0	80-120	7.30	20	WG844
1,3,5-Trimethylbenzene			1452 85	. 0	80-120	6.37	20	WG844
Benzene)445 84	. 0	80-120	5.86	20	WG844
Ethylbenzene)455 86		80-120	5.36	20	WG844
m&p-Xylene			959 90		80-120	6.33	20	WG844
Methyl tert-butyl ether			0506 92		80-120	9.31	20	WG844
Naphthalene			0506 92		80-120	9.94	20	WG844
o-Xylene)454 86		80-120	4.96	20	WG844
Toluene)435 82		80-120	5.38	20	WG844
* Performance of this Analyte								

^{*} Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Quality Assurance Report Level II

L813248

January 29, 2016

		Laboratory							
Analyte	Units	Result	Ref	%Rec	Li	imit	RPD	Limit	Batch
a,a,a-Trifluorotoluene(PID)				105.0	80	0-200			
TPH (GC/FID) Low Fraction	ma/ka	0.447	0.447	89.0		0-120	0.060	0 20	WG844
a,a,a-Trifluorotoluene(PID)	9/129	0.117	0.117	105.0		0-200	0.000	0 20	WG844
u,u,u 11111101000110110(112)				103.0		200			
TPH (GC/FID) Low Fraction	mg/kg	0.424	0.428	85.0		0-120	1.02	20	WG845
a,a,a-Trifluorotoluene(PID)				103.0	80	0-200			WG845
			Matrix Sp	ike					
Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit		Ref Samp	Batch
1 0 4 majorathallana		2.63	0.588	0.5	87.9	80-12	2	L813248-01	WG844
1,2,4-Trimethylbenzene	mg/kg			.05					
1,3,5-Trimethylbenzene	mg/kg	5.19	3.77	.05	60.9*	80-120		L813248-01	WG844
Benzene	mg/kg	3.16	1.49	.05	71.6	32-13		L813248-01	WG844
Ethylbenzene	mg/kg	2.48	0.652		78.7	10-150		L813248-01	WG844
m&p-Xylene	mg/kg	6.62	1.41	.1	112.	14-14		L813248-01	WG844
Methyl tert-butyl ether	mg/kg	1.95 0.496	0.369	.05	68.2 21.2*	24-15 80-12		L813248-01 L813248-01	WG844 WG844
Naphthalene	mg/kg		0.00169	.05	74.5	10-15			
o-Xylene Toluene	mg/kg	2.55			60.8			L813248-01	WG844
	mg/kg	2.00	0.590	.05		20-14:		L813248-01	WG844
a,a,a-Trifluorotoluene(PID)		0.01	0772	-	94.50	80-20		T 01 2040 01	WG844
TPH (GC/FID) Low Fraction	mg/kg	281.	273.	. 5	36.3*	80-12		L813248-01	WG844
a,a,a-Trifluorotoluene(PID)					94.50	80-20	J		WG844
TPH (GC/FID) Low Fraction	mg/kg	22.1	0.609	. 5	85.9	80-12	0	L813660-08	WG845
a,a,a-Trifluorotoluene(PID)	5. 5				104.0	80-20	0		WG845
, , , , , , , , , , , , , , , , , , , ,									
Dece Took o	77 \$ to		rix Spike D	_	* 1 1 to	222	+ 1 1 m	D - f . G	Data da
Analyte	Units	MSD	Ref %	Rec	Limit	RPD	Limit	Ref Samp	Batch
1,2,4-Trimethylbenzene	mg/kg	2.90	2.63 9	9.4	80-120	9.66	20	L813248-01	WG844
1,3,5-Trimethylbenzene	mg/kg	5.68	5.19 8	1.8	80-120	8.94	20	L813248-01	WG844
Benzene	mg/kg	3.43	3.16 8	3.5	32-137	8.36	39	L813248-01	WG844
Ethylbenzene	mq/kq	2.74	2.48 8	9.9	10-150	9.98	44	L813248-01	WG844
m&p-Xylene	mg/kg	7.27		26.	14-141	9.39	44	L813248-01	WG844
Methyl tert-butyl ether	mg/kg	2.13	1.95 7	5.7	24-151	8.53	37	L813248-01	WG844
Naphthalene	mg/kg	0.623	0.496 2	6.7*	80-120	22.7*	20	L813248-01	WG844
o-Xylene	mg/kg	2.82	2.55 8	5.8	10-157	9.81	44	L813248-01	WG844
Toluene	mg/kg	2.21	2.00 6	9.8	20-142	9.91	42	L813248-01	WG844
a,a,a-Trifluorotoluene(PID)				92.90	80-200				WG844
TPH (GC/FID) Low Fraction	mg/kg	279.	281. 2	6.5*	80-120	0.810	20	L813248-01	WG844
a,a,a-Trifluorotoluene(PID)	J. J			92.90	80-200				WG844
TPH (GC/FID) Low Fraction	mq/kq	22.2	22.1 8	6.4	80-120	0.580	20	L813660-08	WG845
a.a.a-Trifluorotoluene(PID)	ilig / Kg	44.4		04.0	80-120	0.560	∠∪	T013000-08	WG845
a,a,a-iiiiiuoiototuene(PID)			1	07.0	00-200				WG045

Batch number /Run number / Sample number cross reference

WG844218: R3108704: L813248-01 02 03 04 WG844869: R3109776: L813248-01 02 03 04 WG845202: R3109917: L813248-01

 $^{^{\}star}$ * Calculations are performed prior to rounding of reported values.

^{*} Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



Calumet Specialty Products Peter Fredman 2407 Stinson Avenue

Superior, WI 54880

Quality Assurance Report Level II

L813248

January 29, 2016

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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.