SAND CREEK CONSULTANTS, Inc. SM
Environmental and Geological Scientists and Engineers
108 E. Davenport Street • Rhinelander, WI 54501 • Tel. 715.365.1818

October 3, 2014

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

Via email only: john.sager@wisconsin.gov

Re: **Municipal Well and Pump Diesel Spill**
Near New Rhinelander City Well #8, North End of South Fox Ranch Road (no address)
WDNR Spills Database Number (SERTS) : 20140903NO44-1

Subject: **Narrative of Activities and Documentation of Remedial Actions Completed**

Dear John,

This letter provides a report of activities related to the above-referenced diesel spill near the new Rhinelander Municipal City Well #8 which occurred overnight between the evening of September 2, and the morning of September 3, 2014.

Parties Involved

The parties involved in the Municipal Well and Pump Diesel Spill are listed below.

Property Owner
Rhinelander/Oneida County Airport
Tax Parcel ID: RH 9010-0600
Attn: Tim Kingman, City Engineer
135 S. Stevens Street, Rhinelander, WI 54501
Email: tkingman@rhinelanderutilities.org

Environmental Consultant
Sand Creek Consultants, Inc.
108 E. Davenport Street
Rhinelander, WI 54501
Attn: Mr. Christopher Rog, Sr. Project Manager
Email: Christopher.rog@sand-creek.com

Responsible Party
Municipal Well and Pump
P.O. Box 311, Waupun, WI 53963
Attn: Patrick Harrington, Project Manager
Email: path@muinicipalwellandppump.com

Excavating Contractor
Musson Brothers, Inc.
909 Boyce Drive, Rhinelander, Wisconsin, 54501
Attn: Dean Schwab, Project Manager
Email: dschwab@mussonbrothers.com

Landfill Receiving Soils
Lincoln County Solid Waste Department
801 N. Sales Street, Suite 201, Merrill, WI 54452
Attn: Dan Miller, Solid Waste Manager
Email: DMiller@co.lincoln.wi.us

Analytical Laboratory
Pace Analytical Services, Inc.
1241 Bellevue Street, Green Bay, WI 54302
Attn: Dan Milewsky, Project Manager
Email: dan.milewsky@pacelabs.com

Location

Figure 1 shows the location of the incident on a Google Earth base photo. The coordinates of the incident are 45°37'39.24"N Latitude and 89°29'12.09"W Longitude. As shown on **Figure 1**, the incident location is along the dirt road that extends off the north end of South Fox Ranch Road just south of the Rhinelander/Oneida County Airport, roughly 12,400 feet west of the intersection of US 8 and STH 17 on Rhinelander's west side. This is the location of the new City Well #8, and the release occurred from a diesel tank on one of the drilling company's vehicles. As of September 2, City Well #8 had been completed and was undergoing well development but was not in operation.

Spill Discovery and Reporting

On the evening of September 2, 2014, around 7:30 p.m., representatives of the City of Rhinelander visited the drilling site and did not notice anything out of the ordinary: no evidence of diesel leakage was noted by those present.

At approximately 12:30 p.m. on September 3, 2014, Mr. Patrick Harrington of Municipal Well and Pump arrived at the drill site and immediately noticed the odor of diesel and the stained soil beneath the diesel tank on one of the drilling vehicles. He noted the leak was coming from the tank, placed a bucket to catch the oil, and called Sand Creek to assist in the evaluation and response activities.

At approximately 1 p.m. on September 3, 2014, Mr. Rog of Sand Creek went out to the site to evaluate the situation. My evaluation was that approximately 10 to 25 gallons had been released, and that this volume exceeded the *de minimus* reporting exemption, and would require reporting and remediation. The odor of diesel was very strong, even at more than 100 feet away from the release. Based on this, it seems that the release had not started the night before when the City employees were there, because they would have easily notice both the smell of diesel and the stained soil even at a distance from the spill. Therefore, the release must likely have started sometime between approximately 8 p.m. on September 2 (after the City employees left) and 12:30 p.m. on September 3 (when it was noticed by Mr. Harington).

The tank seemed to be rusted and the leak was likely a failure of the tank due to age and condition of the tank. No evidence of vandalism was noted.

At approximately 2 p.m. on September 3, Sand Creek's Mr. Rog called the Wisconsin Department of Natural Resources (WDNR) Spill Coordinator for the Northern Region, John Sager in Superior to report the spill. We completed the notification process within a few minutes.

Remediation

At approximately 2:15 on September 3, Sand Creek contacted Musson Brothers of Rhinelander and found they were able to provide a backhoe and several dump trucks to excavate the impacted soils, and they would be there within an hour or so. The Lincoln County Landfill agreed to accept the soil without lab data providing we could confirm and assure them the soils contained only diesel fuel. Sand Creek provided this assurance to the landfill along with the Soil Profile Form for the Lincoln County Landfill, in **Attachment A**.

After lining up the remediation contractors, Mr. Rog returned to the site around 3 p.m. and the drilling equipment had been moved to expose the impacted area. The area of the spill was very obvious visually. There was a clearly oiled area which was outlined with orange paint by Sand Creek and photographed. The photolog in **Attachment B** shows selected photos of the area before and after excavation.

Mussons began excavating around 3:30 p.m. and proceeded based on our direction as to where to excavate. The horizontal extent of the excavation was based on the visual extent of the spill as marked by the orange painted line. The vertical depth of the excavation was based on field observations of diesel (mainly odor).

As shown on **Figure 2**, two distinct areas of the spill were noted. The area immediately beneath the tank received direct impacts of diesel fuel and was blackened soil (the Primary Spill Area on **Figure 2**). To the west, it appeared as if a light rainfall may have washed some of the fuel down a slight incline, leaving a very thin film of oil in the upper few inches of the soil (the Secondary Spill Area on **Figure 2**).

Therefore, as shown in **Figure 2**, these two areas were excavated differently. In the immediate spill area, excavation proceeded to 3 feet deep, where soils appeared to be free of oil. We then proceeded to excavate anther 1.5 feet to provide a (to a total depth of 4.5 feet) to provide a margin of safety.

In the secondary spill area, excavation depth was 10 inches, which field indications suggested was adequate.

Four soil samples were collected from the base of the excavation as shown on **Figure 2**. Samples were collected using standard protocols (25 grams of soil preserved in methanol) and sent to WDNR –Certified laboratory Pace Analytical Services in Green Bay for rush analysis for BTEX plus naphthalene.

The concern for this particular spill was not the horizontal extent of the spill: that was clearly obvious as was marked with paint. Therefore, the sampling focused on the horizontal extent, especially given the proximity to the new City well. All four samples were from the base of the excavation, and no sidewall samples were necessary.

A total of two truckloads, or roughly 38 cubic yards of soil, was hauled away be Mussons. Local soils were used to backfill the excavation, including sand and other material nearby which had been drill cuttings from the well, sand from the well development efforts, and small pile of topsoil from prior construction work on the site.

By approximately 4:30 p.m. on September 3, the hole had been backfilled and the covered Mussons trucks had left the site. Because the Lincoln County Landfill closed at 4 p.m., Mussons stored the trucks indoors in their shop overnight and then transported the soils to Lincoln County the following morning. Weigh tickets from the landfill are in **Attachment C**, and indicated a total of 41.92 tons of contaminated soil was received at the landfill.

Lab Results

Results were received on September 9, 2014. All four samples, collected from the base of the excavation, were non-detect for BTEX and naphthalene, with one minor exception. Sample #4, taken from the secondary spill area, yielded a naphthalene detection at 0.061 milligrams per kilogram, a result that was J-flagged, meaning it was above the detection limit but below the reporting limit. In any case, this results is well below applicable regulatory requirements. The area where #4 was taken was very muddy and had a strong swampy odor, and the naphthalene could be a low-level naturally-occurring polycyclic aromatic hydrocarbons (PAH). Detection limits were adequate, and lab Quality Assurance/Quality Control data was acceptable. The laboratory report is included in **Attachment D**.

Based on the field indication and lab results, the spill is considered remediated and additional remedial efforts are not likely to be required.

Your call or email with questions on any part of this report will receive my prompt response. My direct phone line is 715.365.1828 and my email is christopher.rog@sand-creek.com.

Sincerely,
SAND CREEK CONSULTANTS, INC.

Christopher Rog, P.G.
Sr. Project Manager

Enclosures: Figures 1 and 2
Attachment A - Landfill Soil Profile Form
Attachment B - Photolog
Attachment C - Landfill Weigh Tickets
Attachment D - Lab Reports

cc/enc: Patrick Harrington/Municipal Well and Pump, path@municipalwellandpump.com
Tim Kingman/City of Rhinelander, City Engineer, tkingman@rhinelanderutilities.org
Blaine Oborn/City of Rhinelander Administrator, boborn@rhinelandercityhall.org
Carrie Miljevich/Rhinelander City Attorney, CMiljevich@rhinelandercityhall.org
Joseph Brauer/Rhinelander/Oneida County Airport Director, jbrauer@newnorth.net

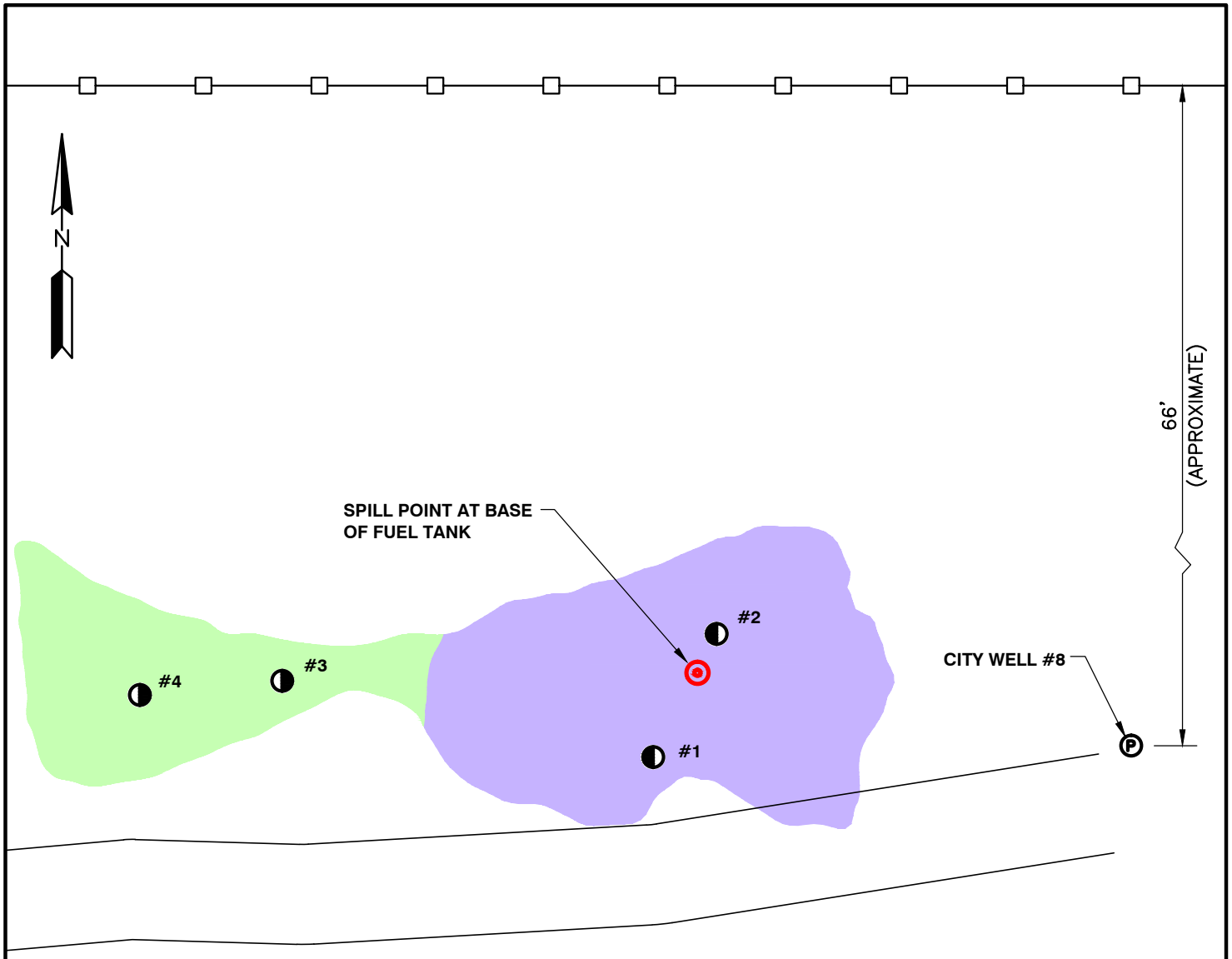
WISCONSIN
ONEIDA COUNTY

0 800 1600
SCALE IN FEET

PHOTOSOURCE: GOOGLE EARTH 2014.

SAND CREEK CONSULTANTS, Inc.
Environmental and Geological Scientists and Engineers

SITE LOCATION MAP	DATE: SEPTEMBER 2014	DRAWN BY: KAP
CITY OF RHINELANDER MUNICIPAL WELL AND PUMP SPILL SITE ONEIDA COUNTY, WISCONSIN	SCALE: 1"=1600'	APPROVED : CJR
	FIGURE 1	



LEGEND

- EDGE OF ROAD/TRAIL
- AIRPORT FENCE
- SOIL SAMPLE (10" DEPTH)
- SOIL SAMPLE (4.5' DEPTH)
- PRIMARY SPILL AREA
- SECONDARY SPILL AREA

0 4 8

SCALE IN FEET

SAND CREEK CONSULTANTS, Inc.

Environmental and Geological Scientists and Engineers

CLEAN-UP LOCATION MAP	DATE: SEPTEMBER 2014	DRAWN BY: KAP
CITY OF RHINELANDER MUNICIPAL WELL AND PUMP SPILL SITE ONEIDA COUNTY, WISCONSIN	SCALE: 1"=8'	APPROVED : CJR
	FIGURE 2	

Lincoln County Solid Waste Facility
Petroleum Contaminated Soil Profile Form

Responsible Party
Name Municipal Well and Pump
Site Address City Well #8
City, State, Zip Rhinelander, WI 54501
Contact Patrick Harrington
Phone 920.324.3400
FAX 920.324.3431
E-mail path@municipalwellandpump.com

Billing Information
Name Sand Creek Consultants, Inc.
Address 108 E Davenport St
City, State, Zip Rhinelander, WI 54501
Contact Christopher Rog, P.G.
Phone 715.365.1828
FAX
E-mail Christopher.rog@sand-creek.com

Type of Contamination (Please circle all that apply)
Leaded Gasoline Gasoline (Diesel) Fuel Oil Waste Oil
Chlorinated Organics Other (Explain) _____

Soil Classification (Please circle the most representative soil type)
(Sand) Silty Sand Silty Clay Clay
Other (Explain)_____

Estimated volume of soil 38 Circle Cubic Yards or Tons
Circle Source of Contamination: Underground Storage Tank
Aboveground Storage Tank Spill
Other (explain) *Leak from the fuel tank for a truck*

Average Soil Concentration GRO _____mg/kg DRO _____mg/kg
BTEX_____mg/kg Lead _____mg/kg Other _____mg/kg
Circle Analytical Attached Yes (No) ***Fresh (4 – 6 hours) surface diesel spill from right under tank***

Do you have an up-to-date charge account with Lincoln County Solid Waste Facility
Circle (Yes) or No or circle payment plan approved with Manager Yes No

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Waste Limitations, Lincoln County Solid Waste Facility will not accept any of the following:

1. This waste is not a hazardous waste as defined in Wisconsin Administrative Code NR 605 of 40 CFR 261.
2. This waste does not contain regulated quantities of PCB's.
3. This waste does not contain regulated quantities of herbicides or pesticides.
4. This waste does not contain regulated quantities of solvents as specified in Wisconsin Administrative Code NR 605.
5. This waste does not contain infectious waste as defined in Wisconsin Administrative Code NR 526.
6. All information submitted in this and all attached documents contains true and accurate descriptions of this waste. All relevant information regarding or suspect hazards in the possession of the generator has been disclosed.

Generators Signature _____ **Title** Consultant for MW&P
Print Name Christopher Rog (for MW&P) **Date** 9/4/2014

Lincoln County Solid Waste Facility • N4750 Landfill Lane • Merrill, WI 54452 •
Mailing Address: 801 N. Sales Street, Suite 201, Merrill, WI 54452-1632
Tel (715) 536-9636 • Fax (715) 536-6361

For office use only:
Bio pile Daily cover

Rhinelander City Well #8
Municipal Well and Pump Diesel Spill
Rhinelander, Wisconsin

Photo #1 Primary Spill Area, looking west. The small root in the ground is the leak location. Approximately 3:00 PM on September 3, 2014.

Photo #2 Primary Spill Area, looking northeast toward the Airport Fence. The new City Well is in the background.

Photo #3 South edge of the primary spill area.

Photo #4 Secondary spill area, looking west from the primary spill area.

Photo #5 Secondary spill area in the foreground. Primary spill area in the background. Looking east.

Photo #6 Primary Spill Area in the foreground and secondary spill area in the background. Looking Northwest.

Photo #7 Excavating in the primary spill area.

Photo #8 Excavating in the primary spill area.

Photo #9 Excavating in the secondary spill area.

Photo #10 Completed excavation in the primary spill area at 4.5 feet.

Photo #11 Completed excavation in the primary spill area at 4.5 feet.

Photo #12 Backfilling the primary spill area with sand recovered from the well development activities.

Photo #13 Backfilling of both primary and secondary areas is complete at 4:40 PM, September 3, 2014.

LINCOLN COUNTY LANDFILL 715-536-9636
Site: N4750 Landfill Lane, Merrill, WI 54452
Mailing: 801 N Sales St, Ste 201, Merrill, WI 54452
OPERATING HOURS:
Monday-Friday
SUMMER (May 1 - Sept. 30) 7:00 am - 4:00 pm
WINTER (Oct. 1 - Apr. 30) 8:00 am - 4:00 pm
1st and 3rd Sat. 8:00 am - Noon

DATE: 9/4/2014 TICKET #: 185653 Vehicle #:
Time In: 07:49 AM Time Out: 08:04 AM

BILL TO: Sand Creek Consultants
HAULER : Musson Bros. Inc.

JOB : 14 - 33 B - South Fox Road, Rhinelander
PO# :

$26 ton exempt (Con43) 20.99 tn
Gross: 69780 Tare: 27800 Net Weight: 41980

Scale Notes: Charge Transaction
SOUTH FOX RD, RHINELANDER
MUSSON TRUCK 20-130
DRILLING WELL IN RHINELANDER

HAVE A NICE DAY!

Customer Signature _____
Weighed By: Administrator

I certify that the waste in this vehicle complies with the Wisconsin Recycling law and the landfill bans. I also agree to pay 1.5% per month Late payment charge after 30 days.

LINCOLN COUNTY LANDFILL 715-536-9636
Site: N4750 Landfill Lane, Merrill, WI 54452
Mailing: 801 N Sales St, Ste 201, Merrill, WI 54452
OPERATING HOURS:
Monday-Friday
SUMMER (May 1 - Sept. 30) 7:00 am - 4:00 pm
WINTER (Oct. 1 - Apr. 30) 8:00 am - 4:00 pm
1st and 3rd Sat. 8:00 am - Noon

DATE: 9/4/2014 TICKET #: 185654 Vehicle #:
Time In: 07:51 AM Time Out: 08:08 AM

BILL TO: Sand Creek Consultants
HAULER : Musson Bros. Inc.

JOB : 14 - 33 B - South Fox Road, Rhinelander
PO# :

$26 ton exempt (Con43) 20.93 tn
Gross: 71300 Tare: 29440 Net Weight: 41860

Scale Notes: Charge Transaction
SOUTH FOX ROAD, RHINELANDER
MUSSON 20-124
DRILLING A WELL IN RHINELANDER

HAVE A NICE DAY!

Customer Signature _____
Weighed By: Administrator

I certify that the waste in this vehicle complies with the Wisconsin Recycling law and the landfill bans. I also agree to pay 1.5% per month Late payment charge after 30 days.

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

September 09, 2014

Christopher Rog
SAND CREEK CONSULTANTS, INC.
108 E. Davenport Street
Rhinelander, WI 54501

RE: Project: RHI CITY WELL
Pace Project No.: 40102734

Dear Christopher Rog:
Enclosed are the analytical results for sample(s) received by the laboratory on September 05, 2014. 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
dan.milewsky@pacelabs.com
Project Manager

Enclosures

cc: Hollie DePuydt, SAND CREEK CONSULTANTS, INC.

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: RHI CITY WELL
Pace Project No.: 40102734

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
New York Certification #: 11888
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: RHI CITY WELL
Pace Project No.: 40102734

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40102734001	**#1 4.5'**	Solid	09/03/14 16:00	09/05/14 08:05
40102734002	**#2 4.5'**	Solid	09/03/14 16:00	09/05/14 08:05
40102734003	**#3 10''**	Solid	09/03/14 16:05	09/05/14 08:05
40102734004	**#4 10''**	Solid	09/03/14 16:05	09/05/14 08:05

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

SAMPLE ANALYTE COUNT

Project: RHI CITY WELL
Pace Project No.: 40102734

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40102734001	**#1 4.5'**	WI MOD GRO	MRS	10
		ASTM D2974-87	SKW	1
40102734002	**#2 4.5'**	WI MOD GRO	MRS	10
		ASTM D2974-87	SKW	1
40102734003	**#3 10''**	WI MOD GRO	MRS	10
		ASTM D2974-87	SKW	1
40102734004	**#4 10''**	WI MOD GRO	MRS	10
		ASTM D2974-87	SKW	1

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: RHI CITY WELL
Pace Project No.: 40102734

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40102734001	**#1 4.5'**					
ASTM D2974-87	Percent Moisture	7.2	%	0.10	09/08/14 10:31	
40102734002	**#2 4.5'**					
ASTM D2974-87	Percent Moisture	5.7	%	0.10	09/08/14 10:31	
40102734003	**#3 10''**					
ASTM D2974-87	Percent Moisture	12.8	%	0.10	09/08/14 10:31	
40102734004	**#4 10''**					
WI MOD GRO	Naphthalene	61.0J	ug/kg	74.0	09/08/14 17:07	
ASTM D2974-87	Percent Moisture	18.9	%	0.10	09/08/14 10:32	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: RHI CITY WELL
Pace Project No.: 40102734

Sample: #1 4.5' **Lab ID: 40102734001** Collected: 09/03/14 16:00 Received: 09/05/14 08:05 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	71-43-2	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	100-41-4	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	1634-04-4	W
Naphthalene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	91-20-3	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	108-88-3	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	108-67-8	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	09/08/14 08:25	09/08/14 15:41	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 15:41	95-47-6	W
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1	09/08/14 08:25	09/08/14 15:41	98-08-8	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.2**	%	0.10	0.10	1		09/08/14 10:31		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: RHI CITY WELL
Pace Project No.: 40102734

Sample: #2 4.5' **Lab ID: 40102734002** Collected: 09/03/14 16:00 Received: 09/05/14 08:05 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	71-43-2	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	100-41-4	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	1634-04-4	W
Naphthalene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	91-20-3	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	108-88-3	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	108-67-8	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	09/08/14 08:25	09/08/14 16:09	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:09	95-47-6	W
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		1	09/08/14 08:25	09/08/14 16:09	98-08-8	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**5.7**	%	0.10	0.10	1		09/08/14 10:31		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: RHI CITY WELL
Pace Project No.: 40102734

Sample: #3 10" **Lab ID: 40102734003** Collected: 09/03/14 16:05 Received: 09/05/14 08:05 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	71-43-2	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	100-41-4	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	1634-04-4	W
Naphthalene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	91-20-3	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	108-88-3	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	108-67-8	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	09/08/14 08:25	09/08/14 16:38	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 16:38	95-47-6	W
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		1	09/08/14 08:25	09/08/14 16:38	98-08-8	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**12.8**	%	0.10	0.10	1		09/08/14 10:31		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: RHI CITY WELL
Pace Project No.: 40102734

Sample: #4 10" **Lab ID: 40102734004** Collected: 09/03/14 16:05 Received: 09/05/14 08:05 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	71-43-2	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	100-41-4	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	1634-04-4	W
Naphthalene	**61.0J**	ug/kg	74.0	30.8	1	09/08/14 08:25	09/08/14 17:07	91-20-3	
Toluene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	108-88-3	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	108-67-8	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	09/08/14 08:25	09/08/14 17:07	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	09/08/14 08:25	09/08/14 17:07	95-47-6	W
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1	09/08/14 08:25	09/08/14 17:07	98-08-8	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.9**	%	0.10	0.10	1		09/08/14 10:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: RHI CITY WELL
Pace Project No.: 40102734

QC Batch: GCV/13117 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 40102734001, 40102734002, 40102734003, 40102734004

METHOD BLANK: 1039140 Matrix: Solid
Associated Lab Samples: 40102734001, 40102734002, 40102734003, 40102734004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	<25.0	50.0	09/08/14 11:51	
1,3,5-Trimethylbenzene	ug/kg	<25.0	50.0	09/08/14 11:51	
Benzene	ug/kg	<25.0	50.0	09/08/14 11:51	
Ethylbenzene	ug/kg	<25.0	50.0	09/08/14 11:51	
m&p-Xylene	ug/kg	<50.0	100	09/08/14 11:51	
Methyl-tert-butyl ether	ug/kg	<25.0	50.0	09/08/14 11:51	
Naphthalene	ug/kg	<25.0	50.0	09/08/14 11:51	
o-Xylene	ug/kg	<25.0	50.0	09/08/14 11:51	
Toluene	ug/kg	<25.0	50.0	09/08/14 11:51	
a,a,a-Trifluorotoluene (S)	%	104	80-120	09/08/14 11:51	

LABORATORY CONTROL SAMPLE & LCSD: 1039141 1039142

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1050	1070	105	107	80-120	1	20	
1,3,5-Trimethylbenzene	ug/kg	1000	1040	1050	104	105	80-120	1	20	
Benzene	ug/kg	1000	1130	1140	113	114	80-120	1	20	
Ethylbenzene	ug/kg	1000	1060	1070	106	107	80-120	1	20	
m&p-Xylene	ug/kg	2000	2110	2130	105	107	80-120	1	20	
Methyl-tert-butyl ether	ug/kg	1000	1180	1190	118	119	80-120	1	20	
Naphthalene	ug/kg	1000	995	1040	99	104	80-120	4	20	
o-Xylene	ug/kg	1000	1060	1060	106	106	80-120	1	20	
Toluene	ug/kg	1000	1080	1090	108	109	80-120	1	20	
a,a,a-Trifluorotoluene (S)	%				102	103	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: RHI CITY WELL
Pace Project No.: 40102734

QC Batch: PMST/10218 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40102734001, 40102734002, 40102734003, 40102734004

SAMPLE DUPLICATE: 1039240

Parameter	Units	40102712041 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.0	18.3	7	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(920)469-2436

QUALIFIERS

Project: RHI CITY WELL
Pace Project No.: 40102734

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

LOD - Limit of Detection.

LOQ - Limit of Quantitation.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RHI CITY WELL
Pace Project No.: 40102734

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40102734001	**#1 4.5'**	TPH GRO/PVOC WI ext.	GCV/13117	WI MOD GRO	GCV/13118
40102734002	**#2 4.5'**	TPH GRO/PVOC WI ext.	GCV/13117	WI MOD GRO	GCV/13118
40102734003	**#3 10''**	TPH GRO/PVOC WI ext.	GCV/13117	WI MOD GRO	GCV/13118
40102734004	**#4 10''**	TPH GRO/PVOC WI ext.	GCV/13117	WI MOD GRO	GCV/13118
40102734001	**#1 4.5'**	ASTM D2974-87	PMST/10218		
40102734002	**#2 4.5'**	ASTM D2974-87	PMST/10218		
40102734003	**#3 10''**	ASTM D2974-87	PMST/10218		
40102734004	**#4 10''**	ASTM D2974-87	PMST/10218		

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UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Page 1 of

40102734

CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)	
Company Name:	SAND Creek
Branch/Location:	Rhinelander
Project Contact:	Chris Roy
Phone:	715 365 1828
Project Number:	Rhi City Well
Project Name:	
Project State:	WI
Sampled By (Print):	Chris Roy
Sampled By (Sign):	Chris Roy
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Same
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes

A = Air	W = Water
B = Biota	DW = Drinking Water
C = Charcoal	GW = Ground Water
O = Oil	SW = Surface Water
S = Soil	WW = Waste Water
SI = Sludge	WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested: PVOC+Naph	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	#1 4.5'	9/3/14	4 pm	S		M	1	RUSH	1-40ml VF 1-4oz PA	
002	#2 4.5'		4 pm	S			1			
003	#3 10"		4:25	S			1			
004	#4 10"		4:05pm	S			1	ASAP		

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):
Email #1: Christopher.Roy@SAND-Creek.com
Email #2:
Telephone:
Fax:

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Roy	9/4/14 9AM		
Dunham	9/5/14 0805	Sbauer	9/5/14 0805

PACE Project No.: 40102734
Receipt Temp = R∅I °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

Sample Condition Upon Receipt

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

Pace Analytical™

Project # **WO# : 40102734**

40102734

Client Name: Sand Creek

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: Dunham

Tracking #: 641622

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

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Thermometer Used NA **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: RoL /Corr: **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 9/5/14
Initials: SB

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☑Yes ☐No ☐N/A	7. ASAP SB 9/5/14
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☑No ☐N/A	11.
Sample Labels match COC:	☐Yes ☑No ☐N/A	12. No date or time on any vol - no depth SB 9/5/14 sample SB 9/5/14
-Includes date/time/ID/Analysis Matrix: S		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH +ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☐Yes ☑No	Initial when completed / Lab Std #ID of preservative / Date/ Time:
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	14.
Trip Blank Present:	☐Yes ☑No ☐N/A	15.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMH for DM **Date:** 9/5/14

F-GB-C-031-Rev.02 (28Oct2013) SCUR Form