



Final



2017 Site Monitoring Report

Former City of Rhinelander Landfill

BRRTS #: 02-44-200967

Rhinelander, Wisconsin

GHD | 1801 Old Highway 8 Northwest Suite 114 St. Paul Minnesota 55112 USA

11115796 | Report No 3 | January 24, 2018



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1. Introduction

This report presents the results of the surface water sampling program, along with the operation and maintenance activities, associated with former City of Rhinelander Landfill (Site). GHD Services Inc. (GHD) completed this report on behalf of the Rhinelander Landfill Group (RLG). The RLG retained GHD in June 2016 to perform the Site maintenance and monitoring activities.

1.1 Location

The former City of Rhinelander Landfill is located in the NE ¼ of Section 8 in Township 36 North, Range 9 East, Oneida County, Wisconsin. It is located at the confluence of Slaughterhouse Creek and the Pelican River along Old Highway 8. The landfill is shown on Figure 1.

1.2 Background

The City of Rhinelander Landfill was opened in 1939 and ceased accepting waste in 1979. The landfill was closed and capped in 1980. The landfill was owned and operated by the City of Rhinelander throughout the entire 40-year operational period. The landfill is still currently owned by the City of Rhinelander.

1.3 2017 Activities

The following activities associated with the Site were conducted in 2017:

- April 24-25: Semi-Annual groundwater sampling of 8 monitoring wells
- April 24: Semi-Annual surface water sampling at three locations in Slaughterhouse Creek
- August: City of Rhinelander mows the landfill cover
- May 31: GHD submits semi-annual groundwater monitoring report to Wisconsin Department of Natural Resources (WDNR)
- October 9-11: Annual groundwater sampling/monitoring of 23 monitoring wells
- October 10: Semi-Annual surface water sampling at three locations in Slaughterhouse Creek
- November 28: GHD submits semi-annual groundwater monitoring report to WDNR
- December 12: GHD notifies the WDNR of the upcoming tree coppicing work at the landfill

1.4 Groundwater Monitoring Results

Groundwater monitoring events take place in April and October of each year for the Site. Groundwater monitoring reports for each respective sampling round are submitted to the WDNR. Groundwater data or discussions are not included in this year-end report.



2. Landfill Inspections

A landfill inspection was completed during each of the two sampling rounds.

2.1 Grass Cover

The grass cover on the landfill is in good condition. Mowing was completed by the City of Rhinelander in August 2017.

2.2 Phytoremediation/Poplar Tree Cover

The hybrid poplar trees installed between 1999 and 2000 are periodically evaluated for overall health and survival. Several fallen trees were observed and end-of-life mortality was noted in a small percentage of the trees.

2.3 Trespassing and Site Security

The fence surrounding the landfill is currently in good condition. There are no trespassing issues for this reporting period.

2.4 Beavers – Area 2 Restoration

A small percentage of the Area 2 restoration willow trees have been harvested by beavers. This is especially noted along the waters' edge on the north side of the restoration. Harvested trees are noted to be re-sprouting and no additional effort is planned in this regard.

3. Surface Water Sampling

3.1 Sampling Dates and Methods

Two rounds of surface water sampling were conducted in Slaughterhouse Creek this year: one in April and one in October. Samples were collected from the following locations and are presented on Figure 1:

- Upstream of the Rhinelander Landfill near the old Slaughterhouse (sample point 10)
- Downstream of the landfill at the Newell Street Bridge (sample point 20).
- At the toe of the Area 2 Restoration project (sample point 28).

Sampling was accomplished by filling a 1 liter jar by dipping it into the creek. The creek water was used to rinse the jar several times before collecting the sample. Care was taken not to disturb sediments while rinsing or sampling the water.



3.2 Sample Results

Surface water results from this period are shown in Table 1. Most or all the results from this period are similar or within the normal range of variation when compared to prior sampling dates.

Surface water laboratory reports for this period are in Appendix A.

The two main water bodies adjacent to the Rhinelander Landfill – Slaughterhouse Creek and the Pelican River – have been sampled more or less constantly since at least 1982. Over that period, more than 14,500 individual sample records have been compiled covering more than 35 different sample points.

Samples analyzed for chloride, ammonia, copper, lead, and zinc have established surface water quality standards as enumerated in Chapter NR 105, Wisc. Admin Code. None of the results from 2017 indicated an exceedance of any applicable standard as expressed in NR 105. The discussion in this section compares the results to their codified (NR 105) standards. In order to do this, certain field parameters (pH and temperature for ammonia/ammonium and hardness for metals) need to be considered in making the comparison to the standards. Comparisons of values using straight concentration comparisons are not valid for NR 105 exceedance evaluation for certain substances.

The chloride concentrations had very little variation among the six samples analyzed in 2017, ranging from 31.9 mg/L to 42.2 mg/L. The acute toxicity surface water quality criteria as listed in Table 1 of NR 105 is 757 mg/L and the chronic standard for warm water sportfish as listed in Table 5 of NR 105 is 395 mg/L. Table 2 shows the chloride data relative to the applicable NR 105 standards.

None of the metals results relative to their applicable standard (analysis for zinc, copper, and lead) exceeded their respective standards listed in Table 2 and Table 6 of NR 105. Table 3 shows the lead, zinc, and copper data relative to the applicable NR 105 standards.

Ammonia is regulated in NR 105 under Table 2C (acute toxicity), Table 4B (30-day chronic), and Table 4B (4-day chronic toxicity). The applicable standard is based on the temperature and pH of the sample water, and thus results from point to point or round to round are not directly comparable based on total concentrations. No sample from any location had concentrations above the acute or chronic standards in the 2017 data. Table 4 shows the ammonia data relative to the applicable NR 105 standards. Due to an inadvertent laboratory error, the Ammonia samples collected in October 2017 were not analyzed.

4. 2018 Activities

4.1 Landfill Cover Maintenance

The landfill cover will be inspected for erosion at least twice in the coming summer. Repairs will be made, as necessary.

During a semi-annual landfill inspection, GHD noted that a small percentage of the hybrid poplar trees were starting to die off. The typical life expectancy of a hybrid poplar tree is 15 to 20 years long, and this forest will soon reach its end of life stage.



The RLG has hired firm with a WDNR-Certified Forestry Plan Writer on staff, to coordinate and oversee a logging contractor who will harvest the trees by standard coppice methods. The coppice work will include harvesting nearly all above-ground biomass, leaving only the stump and roots behind. In the coppiced hybrid poplar and willow trees, new tree growth will reemerge from the existing stump and roots. The work is scheduled to take place during the winter of 2018. Coppicing needs to take place once the trees have gone dormant and pushed most of their leaf nitrogen into their roots for the winter.

4.2 Surface Water Sampling

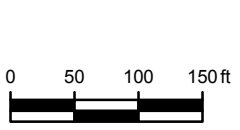
The same surface water sampling plan, as was in effect this year, is expected to be performed in 2018. Two rounds of samples, one in the spring and one in the fall, will be collected next year.

4.3 Reporting

It is anticipated that a report similar to this one will be prepared at year end, containing results and observations from the year.



Source: Sand Creek Consultants, Inc.; Oneida County GIS



LEGEND

- ❖ SURFACE WATER SAMPLING LOCATION
- ▭ APPROXIMATE EDGE OF WASTE
- - - SITE PROPERTY BOUNDARY



FORMER CITY OF RHINELANDER LANDFILL
 RHINELANDER, WISCONSIN
 ANNUAL REPORT

SURFACE WATER SAMPLING LOCATIONS

11115796-50

Dec 19, 2017

FIGURE 1

GIS File: I:\GIS\Projects\8-chars\11-1111-111157-11115796\11115796-REPORTS\11115796-50(003)\11115796-50(003)\GIS-SP001.mxd

**2017 Surface Water Sample Results
Former City of Rhinelander Landfill - Slaughterhouse Creek
Rhinelander, Wisconsin**

Sample Location: Sample Date:	Unit	Upstream		Downstream		Near Seep	
		SW-10 04/24/17	SW-10 10/10/17	SW-20 04/24/17	SW-20 10/10/17	SW-28 04/24/17	SW-28 10/10/17
Parameters	Unit						
Metals							
Hardness, calculation	mg/L	40	46.4	50.5	61.4	43.4	52.1
Copper	µg/L	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3
Iron	µg/L	2630	5020	2370	4370	2550	4120
Lead	µg/L	< 4.3	4.5 J	< 4.3	< 4.3	< 4.3	4.4 J
Sodium	µg/L	20500	17100	20300	19600	17500	14500
Zinc	µg/L	< 9.3	< 9.3	< 9.3	< 9.3	< 9.3	< 9.3
General Chemistry							
Fecal coliform bacteria	cfu/100mL	< 1.96	24.0	3.92	40.0	< 1.96	28.0
Ammonia	mg/L	< 0.25	NA	< 0.25	NA	< 0.25	NA
Chemical oxygen demand (COD)	mg/L	28.2 J	36.0 J	26.8 J	31.4 J	29.1 J	31.4 J
Chloride	mg/L	40.8	31.9	38.8	42.2	35.0	32.0
Nitrite/Nitrate	mg/L	0.12 J	0.15 J	0.14 J	0.17 J	0.15 J	0.22 J
Total kjeldahl nitrogen (TKN)	mg/L	0.39 J	0.62 J	0.81	0.99	1.0	1.2
Turbidity	NTU	0.0	14.9	0.0	10.1	0.0	13.1
Field Data							
Temperature	° C	11.7	11.17	11.5	12.62	10.6	10.62
pH	SU	7.31	7.15	8.29	7.17	7.40	7.30
Conductivity	µS	148	222	163	240	131	202
Dissolved Oxygen	mg/L	9.33	0.00	6.90	0.00	8.63	0.00
Oxidation Reduction Potential	mV	72	283	42	285	70	234
Turbidity	NTU	0.0	14.9	0.0	10.1	0.0	13.1
Salinity	ppt	NA	NA	NA	NA	NA	NA

**Chloride Results Relative to NR 105 Standards
Former City of Rhinelander Landfill - Slaughterhouse Creek
Rhinelander, Wisconsin**

Sample Location	Sample Date	Parameter	Units	Result	WWSF Table 1 Standard	WWSF Table 5 Standard
SW-10	4/24/2017	Chloride	mg/L	40.8	757	395
SW-10	10/10/2017	Chloride	mg/L	31.9	757	395
SW-20	4/24/2017	Chloride	mg/L	38.8	757	395
SW-20	10/10/2017	Chloride	mg/L	42.2	757	395
SW-28	4/24/2017	Chloride	mg/L	35.0	757	395
SW-28	10/10/2017	Chloride	mg/L	32.0	757	395

Notes:

mg/L - milligram per liter
WWSF - warm water sportfish

Table 3

**Metals Results Relative to NR 105 Standards
Former City of Rhinelander Landfill - Slaughterhouse Creek
Rhinelander, Wisconsin**

Sample Location	Sample Date	Parameter	Units	Result	WWSF Table 2 Calculated Standard	WWSF Table 6 Calculated Standard
SW-10	4/24/2017	Copper	µg/L	< 6.3	6.54	4.73
SW-10	4/24/2017	Lead	µg/L	< 4.3	44.11	11.55
SW-10	4/24/2017	Zinc	µg/L	< 9.3	54.02	54.02
SW-10	10/10/2017	Copper	µg/L	< 6.3	7.52	5.37
SW-10	10/10/2017	Lead	µg/L	4.5 J	50.92	13.34
SW-10	10/10/2017	Zinc	µg/L	< 9.3	61.50	61.50
SW-20	4/24/2017	Copper	µg/L	< 6.3	8.14	5.77
SW-20	4/24/2017	Lead	µg/L	< 4.3	55.26	14.47
SW-20	4/24/2017	Zinc	µg/L	< 9.3	66.23	66.23
SW-20	10/10/2017	Copper	µg/L	< 6.3	9.79	6.82
SW-20	10/10/2017	Lead	µg/L	< 4.3	66.74	17.48
SW-20	10/10/2017	Zinc	µg/L	< 9.3	78.58	78.58
SW-28	4/24/2017	Copper	µg/L	< 6.3	7.06	5.07
SW-28	4/24/2017	Lead	µg/L	< 4.3	47.73	12.50
SW-28	4/24/2017	Zinc	µg/L	< 9.3	58.01	58.01
SW-28	10/10/2017	Copper	µg/L	< 6.3	8.39	5.92
SW-28	10/10/2017	Lead	µg/L	4.4 J	56.95	14.92
SW-28	10/10/2017	Zinc	µg/L	< 9.3	68.06	68.06

Notes:

µg/L - milligram per liter
WWSF - warm water sportfish

Table 4

**Ammonia Results Relative to NR 105 Standards
Former City of Rhinelander Landfill - Slaughterhouse Creek
Rhinelander, Wisconsin**

Sample Location	Sample Date	Parameter	Units	Result	Temperature (°C)	pH	WWSF Table 2C Acute Calculated Standard	WWSF Table 4B 30-Day Calculated Standard	WWSF Table 4B Ammonia 4-Day Calculated Standard
SW-10	04/24/17	Ammonia	mg/L	< 0.25	11.7	7.31	25.88	6.05	15.12
SW-20	04/24/17	Ammonia	mg/L	< 0.25	11.5	8.29	4.81	1.88	4.71
SW-28	04/24/17	Ammonia	mg/L	< 0.25	10.6	7.40	22.97	6.09	10.26

Notes:

mg/L - milligram per liter

WWSF - warm water sportfish

Appendix A

Surface Water Sampling

Laboratory Reports

May 09, 2017

Grant Anderson
GHD Services; St. Paul
1801 Old Highway 8 Northwest
Suite 114
Saint Paul, MN 55112

RE: Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

Dear Grant Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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SAMPLE SUMMARY

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40148836001	SW-10	Water	04/24/17 14:45	04/25/17 09:17
40148836002	SW-28	Water	04/24/17 14:30	04/25/17 09:17
40148836003	SW-20	Water	04/24/17 14:20	04/25/17 09:17

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SAMPLE ANALYTE COUNT

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40148836001	SW-10	EPA 6010	DLB	6
		SM 9222D	DEY	1
			RMW	6
			HMB	1
		EPA 300.0	TMK	1
		EPA 350.1	TMK	1
		EPA 351.2	DAW	1
40148836002	SW-28	EPA 410.4	TJJ	1
		EPA 6010	DLB	6
			DEY	1
			RMW	6
		EPA 300.0	HMB	1
		EPA 350.1	TMK	1
		EPA 351.2	TMK	1
40148836003	SW-20	EPA 353.2	DAW	1
		EPA 410.4	TJJ	1
		EPA 6010	DLB	6
			DEY	1
			RMW	6
		EPA 300.0	HMB	1
		EPA 350.1	TMK	1
EPA 351.2	TMK	1		
EPA 353.2	DAW	1		
EPA 410.4	TJJ	1		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

Sample: SW-10 **Lab ID: 40148836001** Collected: 04/24/17 14:45 Received: 04/25/17 09:17 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	04/27/17 12:26	04/28/17 12:58	7440-50-8	
Iron	2630	ug/L	100	34.0	1	04/27/17 12:26	04/28/17 12:58	7439-89-6	
Lead	<4.3	ug/L	13.0	4.3	1	04/27/17 12:26	04/28/17 12:58	7439-92-1	
Sodium	20500	ug/L	500	98.9	1	04/27/17 12:26	04/28/17 12:58	7440-23-5	
Total Hardness by 2340B	40.0	mg/L	2.0	0.15	1	04/27/17 12:26	04/28/17 12:58		
Zinc	<9.3	ug/L	40.0	9.3	1	04/27/17 12:26	04/28/17 12:58	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	<1.96	CFU/100 mL	2.0	2.0	1.96	04/25/17 11:25	04/25/17 11:25		H3
Field Data		Analytical Method:							
Field pH	7.31	Std. Units			1		04/24/17 14:45		
Field Specific Conductance	148	umhos/cm			1		04/24/17 14:45		
Oxygen, Dissolved	9.33	mg/L			1		04/24/17 14:45	7782-44-7	
REDOX	72	mV			1		04/24/17 14:45		
Turbidity	0	NTU			1		04/24/17 14:45		
Temperature, Water (C)	11.7	deg C			1		04/24/17 14:45		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	40.8	mg/L	10.0	2.5	5		05/05/17 14:36	16887-00-6	
350.1 Ammonia		Analytical Method: EPA 350.1							
Nitrogen, Ammonia	<0.25	mg/L	0.50	0.25	1		05/05/17 17:39	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	0.39J	mg/L	0.73	0.22	1	04/26/17 13:05	04/26/17 17:35	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.12J	mg/L	0.25	0.095	1		04/28/17 13:15		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	28.2J	mg/L	47.2	14.2	1	05/03/17 10:18	05/03/17 13:19		

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

Sample: SW-28 **Lab ID: 40148836002** Collected: 04/24/17 14:30 Received: 04/25/17 09:17 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	04/27/17 12:26	04/28/17 13:06	7440-50-8	
Iron	2550	ug/L	100	34.0	1	04/27/17 12:26	04/28/17 13:06	7439-89-6	
Lead	<4.3	ug/L	13.0	4.3	1	04/27/17 12:26	04/28/17 13:06	7439-92-1	
Sodium	17500	ug/L	500	98.9	1	04/27/17 12:26	04/28/17 13:06	7440-23-5	
Total Hardness by 2340B	43.4	mg/L	2.0	0.15	1	04/27/17 12:26	04/28/17 13:06		
Zinc	<9.3	ug/L	40.0	9.3	1	04/27/17 12:26	04/28/17 13:06	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	<1.96	CFU/100 mL	2.0	2.0	1.96	04/25/17 11:25	04/25/17 11:25		H3
Field Data		Analytical Method:							
Field pH	7.4	Std. Units			1		04/24/17 14:30		
Field Specific Conductance	131	umhos/cm			1		04/24/17 14:30		
Oxygen, Dissolved	8.63	mg/L			1		04/24/17 14:30	7782-44-7	
REDOX	70	mV			1		04/24/17 14:30		
Turbidity	0	NTU			1		04/24/17 14:30		
Temperature, Water (C)	10.6	deg C			1		04/24/17 14:30		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	35.0	mg/L	10.0	2.5	5		05/05/17 15:41	16887-00-6	
350.1 Ammonia		Analytical Method: EPA 350.1							
Nitrogen, Ammonia	<0.25	mg/L	0.50	0.25	1		05/05/17 17:43	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	1.0	mg/L	0.73	0.22	1	05/02/17 13:22	05/02/17 17:50	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.15J	mg/L	0.25	0.095	1		04/28/17 13:16		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	29.1J	mg/L	44.8	13.4	1	05/03/17 10:18	05/03/17 13:20		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

Sample: SW-20 **Lab ID: 40148836003** Collected: 04/24/17 14:20 Received: 04/25/17 09:17 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	04/27/17 12:26	04/28/17 13:09	7440-50-8	
Iron	2370	ug/L	100	34.0	1	04/27/17 12:26	04/28/17 13:09	7439-89-6	
Lead	<4.3	ug/L	13.0	4.3	1	04/27/17 12:26	04/28/17 13:09	7439-92-1	
Sodium	20300	ug/L	500	98.9	1	04/27/17 12:26	04/28/17 13:09	7440-23-5	
Total Hardness by 2340B	50.5	mg/L	2.0	0.15	1	04/27/17 12:26	04/28/17 13:09		
Zinc	<9.3	ug/L	40.0	9.3	1	04/27/17 12:26	04/28/17 13:09	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	3.92	CFU/100 mL	2.0	2.0	1.96	04/25/17 11:25	04/25/17 11:25		H3
Field Data		Analytical Method:							
Field pH	8.29	Std. Units			1		04/24/17 14:20		
Field Specific Conductance	163	umhos/cm			1		04/24/17 14:20		
Oxygen, Dissolved	6.9	mg/L			1		04/24/17 14:20	7782-44-7	
REDOX	42	mV			1		04/24/17 14:20		
Turbidity	0	NTU			1		04/24/17 14:20		
Temperature, Water (C)	11.5	deg C			1		04/24/17 14:20		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	38.8	mg/L	10.0	2.5	5		05/05/17 15:52	16887-00-6	
350.1 Ammonia		Analytical Method: EPA 350.1							
Nitrogen, Ammonia	<0.25	mg/L	0.50	0.25	1		05/05/17 17:44	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	0.81	mg/L	0.73	0.22	1	05/02/17 13:22	05/02/17 17:53	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.14J	mg/L	0.25	0.095	1		04/28/17 13:17		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	26.8J	mg/L	44.8	13.4	1	05/03/17 10:18	05/03/17 13:21		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

QC Batch: 253948

Analysis Method: SM 9222D

QC Batch Method: SM 9222D

Analysis Description: 9222D MICRO Fecal Coliform by MF

Associated Lab Samples: 40148836001, 40148836002, 40148836003

METHOD BLANK: 1497643

Matrix: Water

Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1	1.0	04/25/17 11:25	

METHOD BLANK: 1497645

Matrix: Water

Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1.0	1.0	04/25/17 11:25	

METHOD BLANK: 1497646

Matrix: Water

Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1	1.0	04/25/17 17:05	

SAMPLE DUPLICATE: 1497644

Parameter	Units	40148836001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fecal Coliforms	CFU/100 mL	<1.96	<1.96			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

QC Batch: 254031 Analysis Method: EPA 6010
 QC Batch Method: EPA 3010 Analysis Description: 6010 MET
 Associated Lab Samples: 40148836001, 40148836002, 40148836003

METHOD BLANK: 1497970 Matrix: Water

Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<6.3	20.0	04/28/17 12:53	
Iron	ug/L	<34.0	100	04/28/17 12:53	
Lead	ug/L	<4.3	13.0	04/28/17 12:53	
Sodium	ug/L	<98.9	500	04/28/17 12:53	
Total Hardness by 2340B	mg/L	0.35J	2.0	04/28/17 12:53	
Zinc	ug/L	<9.3	40.0	04/28/17 12:53	

LABORATORY CONTROL SAMPLE: 1497971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	497	99	80-120	
Iron	ug/L	5000	4820	96	80-120	
Lead	ug/L	500	483	97	80-120	
Sodium	ug/L	5000	4840	97	80-120	
Total Hardness by 2340B	mg/L		31.5			
Zinc	ug/L	500	498	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497972 1497973

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40148836001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	<6.3	500	500	514	511	102	102	75-125	1	20
Iron	ug/L	2630	5000	5000	7490	7540	97	98	75-125	1	20
Lead	ug/L	<4.3	500	500	496	488	99	98	75-125	2	20
Sodium	ug/L	20500	5000	5000	25200	24900	94	87	75-125	1	20
Total Hardness by 2340B	mg/L	40.0			71.1	71.5				1	20
Zinc	ug/L	<9.3	500	500	519	511	104	102	75-125	1	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

QC Batch: 254397 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40148836001, 40148836002, 40148836003

METHOD BLANK: 1500088 Matrix: Water
Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	05/05/17 13:20	

LABORATORY CONTROL SAMPLE: 1500089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.1	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500090 1500091

Parameter	Units	40148836001		1500090		1500091		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chloride	mg/L	40.8	100	100	140	146	100	106	90-110	4	15

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500092 1500093

Parameter	Units	40148921005		1500092		1500093		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chloride	mg/L	24.6	20	20	44.8	44.8	101	101	90-110	0	15

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

QC Batch: 253902 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 40148836001

METHOD BLANK: 1497275 Matrix: Water
Associated Lab Samples: 40148836001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.22	0.73	04/26/17 17:04	

LABORATORY CONTROL SAMPLE: 1497276

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	4.6	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497277 1497278

Parameter	Units	40148541001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Nitrogen, Kjeldahl, Total	mg/L	5.7J	50	50	53.3	51.4	95	92	90-110	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497279 1497280

Parameter	Units	40148806001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Nitrogen, Kjeldahl, Total	mg/L	38.2	20	20	58.6	57.7	102	98	90-110	2	20	

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

QC Batch: 254423 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 40148836002, 40148836003

METHOD BLANK: 1500190 Matrix: Water
Associated Lab Samples: 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.22	0.73	05/02/17 17:46	

LABORATORY CONTROL SAMPLE: 1500191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500192 1500193

Parameter	Units	40148931001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Nitrogen, Kjeldahl, Total	mg/L	43.9	20	20	64.0	64.9	101	105	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500194 1500195

Parameter	Units	50169605001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Nitrogen, Kjeldahl, Total	mg/L	127	20	20	154	150	134	116	90-110	2	20	P6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

QC Batch: 254062 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40148836001, 40148836002, 40148836003

METHOD BLANK: 1498207 Matrix: Water
Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	04/28/17 12:16	

LABORATORY CONTROL SAMPLE: 1498208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1498209 1498210

Parameter	Units	40148781003		40148781003		40148781003		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	2.5	2.5	5.0	5.0	100	100	90-110	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1498211 1498212

Parameter	Units	40148812001		40148812001		40148812001		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.4	2.4	96	96	90-110	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40148836

QC Batch: 254498 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 40148836001, 40148836002, 40148836003

METHOD BLANK: 1500544 Matrix: Water
Associated Lab Samples: 40148836001, 40148836002, 40148836003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<13.4	44.8	05/03/17 13:19	

LABORATORY CONTROL SAMPLE: 1500545

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	500	513	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500546 1500547

Parameter	Units	40148836001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Chemical Oxygen Demand	mg/L	28.2J	526	526	576	569	104	103	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1500548 1500549

Parameter	Units	40148927002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Chemical Oxygen Demand	mg/L	101	526	526	627	620	100	99	90-110	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

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.

ANALYTE QUALIFIERS

H3 Sample was received or analysis requested beyond the recognized method holding time.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 11115796 RHINELANDER LF

Pace Project No.: 40148836

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148836001	SW-10	EPA 3010	254031	EPA 6010	254111
40148836002	SW-28	EPA 3010	254031	EPA 6010	254111
40148836003	SW-20	EPA 3010	254031	EPA 6010	254111
40148836001	SW-10	SM 9222D	253947	SM 9222D	253948
40148836002	SW-28	SM 9222D	253947	SM 9222D	253948
40148836003	SW-20	SM 9222D	253947	SM 9222D	253948
40148836001	SW-10				
40148836002	SW-28				
40148836003	SW-20				
40148836001	SW-10	EPA 300.0	254397		
40148836002	SW-28	EPA 300.0	254397		
40148836003	SW-20	EPA 300.0	254397		
40148836001	SW-10	EPA 350.1	254787		
40148836002	SW-28	EPA 350.1	254787		
40148836003	SW-20	EPA 350.1	254787		
40148836001	SW-10	EPA 351.2	253902	EPA 351.2	253951
40148836002	SW-28	EPA 351.2	254423	EPA 351.2	254476
40148836003	SW-20	EPA 351.2	254423	EPA 351.2	254476
40148836001	SW-10	EPA 353.2	254062		
40148836002	SW-28	EPA 353.2	254062		
40148836003	SW-20	EPA 353.2	254062		
40148836001	SW-10	EPA 410.4	254498	EPA 410.4	254559
40148836002	SW-28	EPA 410.4	254498	EPA 410.4	254559
40148836003	SW-20	EPA 410.4	254498	EPA 410.4	254559

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **GetD**

Branch/Location: **St. Paul**

Project Contact: **G. Anderson**

Phone: **651-639-0913**

Project Number: **1115796**

Project Name: **Rhinelanders LF**

Project State: **WI**

Sampled By (Print): **Ryan Arnold**

Sampled By (Sign): *[Signature]*

PO #:

Regulatory Program:

Data Package Options

- EPA Level III
- EPA Level IV
- On your sample (billable)
- NOT needed on your sample

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

PAGE LAB #

CLIENT FIELD ID

Analyses Requested

- Fecal Coliform
- Metals / Hardness
- Ammonia, N+N
- TKN, COD
- Chloride

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Profile #

DATE	TIME	MATRIX
4/24	1415	SW
002	SW-28	
003	SW-20	

CHAIN OF CUSTODY

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



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UPPER MIDWEST REGION

MN: 612-607-1700 WI: 920-469-2436

Quote #:

Mail To Contact:

Mail To Company:

Mail To Address:

Invoice To Contact:

Invoice To Company:

Invoice To Address:

Invoice To Phone:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Profile #

4-25D w/p Add'l, 1-10 tabs
 ↓

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

Date Needed:

Transmit Prelim Rush Results By (complete what you want):

Email #1:

Email #2:

Telephone:

Fax:

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

Relinquished By:

[Signature]

Date/Time: 4/24/17 1600

Received By:

[Signature]

Date/Time:

Relinquished By:

[Signature]

Date/Time: 4-25-17 0917

Received By:

[Signature]

Date/Time:

Relinquished By:

[Signature]

Date/Time:

Received By:

[Signature]

Date/Time:

Relinquished By:

[Signature]

Date/Time:

Received By:

[Signature]

Date/Time:

Relinquished By:

[Signature]

Date/Time:

Received By:

[Signature]

Date/Time:

PAGE Project No. 401488316

Receipt Temp = ROT °C

Sample Receipt pH OK/Adjusted

Cooler Custody Seal Present / Not Present Intact / Not Intact

Sample Condition Upon Receipt

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



Client Name: GHD

Project #: WO# : 40148836

Courier: Fed Ex UPS Client Pace Other:

Tracking #: 810023723460



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: N/A Type of Ice: Wet Blue Dry None

Cooler Temperature: Uncorr: ROI / Corr:

Samples on ice, cooling process has begun

Temp Blank Present: yes no

Biological Tissue is Frozen: yes no

Temp should be above freezing to 6°C for all sample except Biota.

Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:

Date: 4-25-17
Initials: SKW

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	<u>12. 001 - 1-750mlp 0 only 10 on bottle packaged with other bottles also 002 + 003 - just #.</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
(HNO3, H2SO4 ≥ 2, NaOH+ZnAct ≥ 9, NaOH ≥ 12)		<input checked="" type="checkbox"/> HNO3 <input checked="" type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>SKW</u> Lab Std #ID of preservative: Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: Client wrote over collect dates on all samples. 4-25-17 SKW

Project Manager Review:

SKW for DM

Date:

4/25/17

December 15, 2017

Grant Anderson
GHD Services; St. Paul
1801 Old Highway 8 Northwest
Suite 114
Saint Paul, MN 55112

RE: Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

Dear Grant Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised Report: The sample ID has been changed for 40158377001, and field data is included for all samples.

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40158377001	SW-20	Water	10/10/17 14:05	10/11/17 09:55
40158377002	SW-28	Water	10/10/17 14:20	10/11/17 09:55
40158377003	SW-10	Water	10/10/17 14:40	10/11/17 09:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40158377001	SW-20	EPA 6010	JLD	6
		SM 9222D	DEY	1
			CDH	5
			HMB	1
		EPA 300.0	TMK	1
		EPA 351.2	DAW	1
40158377002	SW-28	EPA 353.2	TJJ	1
		EPA 410.4	JLD	6
		SM 9222D	DEY	1
			CDH	5
			HMB	1
		EPA 300.0	TMK	1
EPA 351.2	DAW	1		
40158377003	SW-10	EPA 353.2	TJJ	1
		EPA 410.4	JLD	6
		SM 9222D	DEY	1
			CDH	5
			HMB	1
		EPA 300.0	TMK	1
EPA 351.2	DAW	1		
EPA 353.2	TJJ	1		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

Sample: SW-20 **Lab ID: 40158377001** Collected: 10/10/17 14:05 Received: 10/11/17 09:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	10/16/17 15:45	10/17/17 13:43	7440-50-8	
Iron	4370	ug/L	100	34.0	1	10/16/17 15:45	10/17/17 13:43	7439-89-6	
Lead	<4.3	ug/L	13.0	4.3	1	10/16/17 15:45	10/17/17 13:43	7439-92-1	
Sodium	19600	ug/L	500	98.9	1	10/16/17 15:45	10/17/17 13:43	7440-23-5	
Total Hardness by 2340B	61.4	mg/L	2.0	0.15	1	10/16/17 15:45	10/17/17 13:43		
Zinc	<9.3	ug/L	40.0	9.3	1	10/16/17 15:45	10/17/17 13:43	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	40.0	CFU/100 mL	2.0	2.0	2	10/11/17 16:10	10/11/17 16:10		H3
Field Data		Analytical Method:							
Field pH	7.17	Std. Units			1		10/10/17 14:05		
Field Specific Conductance	240	umhos/cm			1		10/10/17 14:05		
REDOX	285	mV			1		10/10/17 14:05		
Turbidity	0	NTU			1		10/10/17 14:05		
Temperature, Water (C)	12.62	deg C			1		10/10/17 14:05		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	42.2	mg/L	10.0	2.5	5		10/18/17 12:35	16887-00-6	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	0.99	mg/L	0.73	0.22	1	10/19/17 14:25	10/20/17 14:43	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.17J	mg/L	0.25	0.095	1		10/17/17 10:52		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	31.4J	mg/L	44.8	13.4	1	10/19/17 07:58	10/19/17 11:32		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

Sample: SW-28 **Lab ID: 40158377002** Collected: 10/10/17 14:20 Received: 10/11/17 09:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	10/16/17 15:45	10/17/17 13:46	7440-50-8	
Iron	4120	ug/L	100	34.0	1	10/16/17 15:45	10/17/17 13:46	7439-89-6	
Lead	4.4J	ug/L	13.0	4.3	1	10/16/17 15:45	10/17/17 13:46	7439-92-1	
Sodium	14500	ug/L	500	98.9	1	10/16/17 15:45	10/17/17 13:46	7440-23-5	
Total Hardness by 2340B	52.1	mg/L	2.0	0.15	1	10/16/17 15:45	10/17/17 13:46		
Zinc	<9.3	ug/L	40.0	9.3	1	10/16/17 15:45	10/17/17 13:46	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	28	CFU/100 mL	2.0	2.0	2	10/11/17 16:10	10/11/17 16:10		H3
Field Data		Analytical Method:							
Field pH	7.30	Std. Units			1		10/10/17 14:20		
Field Specific Conductance	202	umhos/cm			1		10/10/17 14:20		
REDOX	234	mV			1		10/10/17 14:20		
Turbidity	0	NTU			1		10/10/17 14:20		
Temperature, Water (C)	10.62	deg C			1		10/10/17 14:20		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	32.0	mg/L	10.0	2.5	5		10/18/17 12:46	16887-00-6	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	1.2	mg/L	0.73	0.22	1	10/19/17 14:25	10/20/17 14:44	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.22J	mg/L	0.25	0.095	1		10/17/17 10:53		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	31.4J	mg/L	44.8	13.4	1	10/19/17 07:58	10/19/17 11:33		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

Sample: SW-10 **Lab ID: 40158377003** Collected: 10/10/17 14:40 Received: 10/11/17 09:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Copper	<6.3	ug/L	20.0	6.3	1	10/16/17 15:45	10/17/17 13:48	7440-50-8	
Iron	5020	ug/L	100	34.0	1	10/16/17 15:45	10/17/17 13:48	7439-89-6	
Lead	4.5J	ug/L	13.0	4.3	1	10/16/17 15:45	10/17/17 13:48	7439-92-1	
Sodium	17100	ug/L	500	98.9	1	10/16/17 15:45	10/17/17 13:48	7440-23-5	
Total Hardness by 2340B	46.4	mg/L	2.0	0.15	1	10/16/17 15:45	10/17/17 13:48		
Zinc	<9.3	ug/L	40.0	9.3	1	10/16/17 15:45	10/17/17 13:48	7440-66-6	
9222D MICRO Fecal Coli by MF		Analytical Method: SM 9222D Preparation Method: SM 9222D							
Fecal Coliforms	24.0	CFU/100 mL	2.0	2.0	2	10/11/17 16:10	10/11/17 16:10		H3
Field Data		Analytical Method:							
Field pH	7.15	Std. Units			1		10/10/17 14:40		
Field Specific Conductance	222	umhos/cm			1		10/10/17 14:40		
REDOX	283	mV			1		10/10/17 14:40		
Turbidity	0	NTU			1		10/10/17 14:40		
Temperature, Water (C)	11.17	deg C			1		10/10/17 14:40		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	31.9	mg/L	10.0	2.5	5		10/18/17 12:57	16887-00-6	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	0.62J	mg/L	0.73	0.22	1	10/19/17 14:25	10/20/17 14:45	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.15J	mg/L	0.25	0.095	1		10/17/17 10:54		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	36.0J	mg/L	44.8	13.4	1	10/19/17 07:58	10/19/17 11:33		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

QC Batch: 270581

Analysis Method: SM 9222D

QC Batch Method: SM 9222D

Analysis Description: 9222D MICRO Fecal Coliform by MF

Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1590481

Matrix: Water

Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1.00	1.0	10/11/17 16:10	

METHOD BLANK: 1590483

Matrix: Water

Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1.00	1.0	10/11/17 16:10	

SAMPLE DUPLICATE: 1590482

Parameter	Units	40158377001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fecal Coliforms	CFU/100 mL	40.0	57.8			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

QC Batch: 270772 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1591861 Matrix: Water
Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<6.3	20.0	10/17/17 13:15	
Iron	ug/L	<34.0	100	10/17/17 13:15	
Lead	ug/L	<4.3	13.0	10/17/17 13:15	
Sodium	ug/L	<98.9	500	10/17/17 13:15	
Total Hardness by 2340B	mg/L	<0.15	2.0	10/17/17 13:15	
Zinc	ug/L	<9.3	40.0	10/17/17 13:15	

LABORATORY CONTROL SAMPLE: 1591862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	500	535	107	80-120	
Iron	ug/L	5000	4980	100	80-120	
Lead	ug/L	500	484	97	80-120	
Sodium	ug/L	5000	5120	102	80-120	
Total Hardness by 2340B	mg/L		31.3			
Zinc	ug/L	500	495	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591863 1591864

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40158361001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	13.2J	500	500	553	551	108	108	75-125	0	20
Iron	ug/L	8770	5000	5000	13700	13200	99	90	75-125	4	20
Lead	ug/L	7.8J	500	500	483	488	95	96	75-125	1	20
Sodium	ug/L	102000	5000	5000	105000	104000	60	48	75-125	1	20 P6
Total Hardness by 2340B	mg/L	641000			674	640				5	20
Zinc	ug/L	110	500	500	599	598	98	98	75-125	0	20

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

QC Batch: 270584 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1590528 Matrix: Water
Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	10/18/17 10:00	

LABORATORY CONTROL SAMPLE: 1590529

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.9	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1590530 1590531

Parameter	Units	40158532003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Chloride	mg/L	348	200	200	535	529	94	91	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1590532 1590533

Parameter	Units	40158450004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Chloride	mg/L	157	100	100	257	255	100	98	90-110	1	15	

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

QC Batch: 271207 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1594286 Matrix: Water
Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.22	0.73	10/20/17 14:29	

LABORATORY CONTROL SAMPLE: 1594287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1594288 1594289

Parameter	Units	40158333072		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Nitrogen, Kjeldahl, Total	mg/L	40.3	50	50	50	92.0	90.8	103	101	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1594290 1594291

Parameter	Units	40158364002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Nitrogen, Kjeldahl, Total	mg/L	0.28J	5	5	5	5.3	5.0	100	95	90-110	4	20	

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

QC Batch: 270752 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1591722 Matrix: Water
Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	10/17/17 10:32	

LABORATORY CONTROL SAMPLE: 1591723

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591724 1591725

Parameter	Units	40158569001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Nitrogen, NO2 plus NO3	mg/L	20.9	25	25	44.9	45.3	96	97	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591726 1591727

Parameter	Units	40158624001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	97	96	90-110	1	20	

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QUALITY CONTROL DATA

Project: 11115796 RHINELANDER LF
Pace Project No.: 40158377

QC Batch: 271067 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 40158377001, 40158377002, 40158377003

METHOD BLANK: 1593538 Matrix: Water
Associated Lab Samples: 40158377001, 40158377002, 40158377003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<13.4	44.8	10/19/17 11:32	

LABORATORY CONTROL SAMPLE: 1593539

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	500	511	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1593540 1593541

Parameter	Units	40158364001		40158364002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chemical Oxygen Demand	mg/L	134	526	526	671	678	102	103	90-110	1	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1593542 1593543

Parameter	Units	40158364002		40158364001		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chemical Oxygen Demand	mg/L	<14.2	526	526	557	562	106	106	90-110	1	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

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QUALIFIERS

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

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.

ANALYTE QUALIFIERS

H3 Sample was received or analysis requested beyond the recognized method holding time.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 11115796 RHINELANDER LF

Pace Project No.: 40158377

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40158377001	SW-20	EPA 3010	270772	EPA 6010	270804
40158377002	SW-28	EPA 3010	270772	EPA 6010	270804
40158377003	SW-10	EPA 3010	270772	EPA 6010	270804
40158377001	SW-20	SM 9222D	270580	SM 9222D	270581
40158377002	SW-28	SM 9222D	270580	SM 9222D	270581
40158377003	SW-10	SM 9222D	270580	SM 9222D	270581
40158377001	SW-20				
40158377002	SW-28				
40158377003	SW-10				
40158377001	SW-20	EPA 300.0	270584		
40158377002	SW-28	EPA 300.0	270584		
40158377003	SW-10	EPA 300.0	270584		
40158377001	SW-20	EPA 351.2	271207	EPA 351.2	271261
40158377002	SW-28	EPA 351.2	271207	EPA 351.2	271261
40158377003	SW-10	EPA 351.2	271207	EPA 351.2	271261
40158377001	SW-20	EPA 353.2	270752		
40158377002	SW-28	EPA 353.2	270752		
40158377003	SW-10	EPA 353.2	270752		
40158377001	SW-20	EPA 410.4	271067	EPA 410.4	271199
40158377002	SW-28	EPA 410.4	271067	EPA 410.4	271199
40158377003	SW-10	EPA 410.4	271067	EPA 410.4	271199

REPORT OF LABORATORY ANALYSIS

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CONESTOGA-ROVERS & ASSOCIATES

CHAIN OF CUSTODY RECORD

COC NO.: **SP-02502**

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

40158377

PAGE 1 OF 9
(See Reverse Side for Instructions)

Project No/Phase/Task Code: **1115796**

Project Name: **Phineland LP**

Lab Contact:

Lab Quote No:

Cooler No:

Laboratory Name: **Pace**

Lab Location:

SSOW ID:

Project Location: **Phineland**

Chemistry Contact: **G. Anderson**

Sampler(s): **Against M. Barnes**

SAMPLE TYPE CONTAINER QUANTITY & PRESERVATION

ANALYSIS REQUESTED (See Back of COC for Definitions)

Carrier:

Airbill No:

Date Shipped:

COMMENTS/SPECIAL INSTRUCTIONS:

Item SAMPLE IDENTIFICATION DATE TIME

Matrix Code (see back of COC) Grab (G) or Comp (C) Unpreserved Hydrochloric Acid (HCl) Nitric Acid (HNO3) Sulfuric Acid (H2SO4) Sodium Hydroxide (NaOH) Methanol/Water (Soil VOC) EnCores 3x5-g, 1x25-g Other: Total Containers/Sample

MS/MSD Request

Item	SAMPLE IDENTIFICATION	DATE (mm/dd/yyyy)	TIME (h:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO ₃)	Sulfuric Acid (H ₂ SO ₄)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	ANALYSIS REQUESTED (See Back of COC for Definitions)	MS/MSD Request	COMMENTS/SPECIAL INSTRUCTIONS:	
1	W-171010-R4-100 3-250mg	10/19/17	1450	SW	G	X								1	Fecal Coliform		SW-30 001	
2	W-171010-R4-101	10/19/17	1420	G	G	2								1	Metals: H ₂ O ₂		SW-28 002	
3	W-171010-R4-102	10/19/17	1440	G	G	2								1	THN CO ₂ , NH ₃ /N ₂		SW-10 003	
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

TAT Required in business days (use separate COCs for different TATs):

1 Day 2 Days 3 Days 1 Week 2 Week Other:

Total Number of Containers: **12**
All Samples in Cooler must be on COC

Notes/Special Requirements:
Metals were NOT field filtered

RELINQUISHED BY

COMPANY

DATE

TIME

RECEIVED BY

COMPANY

DATE

TIME

1. **GHD**

GHD

10/19/17

1420

Pace

Pace

10/19/17

0955

2. **Fed Ex**

Fed Ex

10/11/17

0955

Pace

Pace

10/11/17

0955

3.

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT - ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE - Fully Executed Copy (CRA)

YELLOW - Receiving Laboratory Copy

PINK - Shipper

GOLDENROD - Sampling Crew

CRA Form: COC-10A (20110804)

Pace Container Order #281594

40158377

Addresses

Order By :	Ship To :	Return To:
Company <u>GHD SERVICES</u>	Company <u>GHD SERVICES</u>	Company <u>Pace Analytical Green Bay</u>
Contact <u>Anderson, Grant</u>	Contact <u>Anderson, Grant</u>	Contact <u>Milewsky, Dan</u>
Email <u>grant.anderson@ghd.com</u>	Email <u>grant.anderson@ghd.com</u>	Email <u>dan.milewsky@pacelabs.com</u>
Address <u>1801 Old Highway 8 Northwest</u>	Address <u>1801 Old Highway 8 Northwest</u>	Address <u>1241 Bellevue Street</u>
Address 2 <u>Suite 114</u>	Address 2 <u>Suite 114</u>	Address 2 <u>Suite 9</u>
City <u>Saint Paul</u>	City <u>Saint Paul</u>	City <u>Green Bay</u>
State <u>MN</u> Zip <u>55112</u>	State <u>MN</u> Zip <u>55112</u>	State <u>WI</u> Zip <u>54302</u>
Phone <u>(651) 639-0913</u>	Phone <u>(651) 639-0913</u>	Phone <u>(920)469-2436</u>

Info

Project Name <u>1115796-25 Rhineland LF (water + fecal)</u>	Due Date <u>10/03/2017</u>	Profile _____	Quote _____
Project Manager <u>Milewsky, Dan</u>	Return _____	Carrier <u>Most Economical</u>	Location _____

Trip Blanks

Include Trip Blanks

Bottle Labels

- Blank
- Pre-Printed No Sample IDs
- Pre-Printed With Sample IDs

Bottles

- Boxed Cases
- Individually Wrapped
- Grouped By Sample

Return Shipping Labels

- No Shipper Number
- With Shipper Number

Misc

- Sampling Instructions
- Extra Bubble Wrap
- Custody Seal
- Short Hold/Rush Stickers
- Temp. Blanks
- DI Water
- Coolers
- USDA Regulated Soils
- Syringes

COC Options

- Number of Blanks
- Pre-Printed

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
5	WT	Fecal Coliform MF	120 ml sterile	5	0	25516009	
5	WT	Chloride	250mL plastic unpres	5	0	M-7-123-07BB	
5	WT	Metals and Hardness	250mL plastic w/HNO3	5	0	M-7-240-03BB	
5	WT	TKN, COD, NH3, N+N	250mL plastic H2SO4-sulfuric acid	5	0	M-7-170-05BB	

Hazard Shipping Placard In Place : NA

*Sample receiving hours are Monday through Friday 8:00 am to 6:00 pm and Saturday from 9:00 am to 12:00 pm unless special arrangements are made with your project manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage and disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

Sample Notes

Ship Date :

Prepared By:

Verified By:



Sample Condition Upon Receipt

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

Client Name: CRA

Project #: WO#: 40158377

Courier: [X] Fed Ex [] UPS [] Client [] Pace Other: []

Tracking #: 8100 2372 3552



Custody Seal on Cooler/Box Present: [X] yes [] no Seals intact: [X] yes [] no

Custody Seal on Samples Present: [] yes [X] no Seals intact: [] yes [] no

Packing Material: [] Bubble Wrap [X] Bubble Bags [] None [] Other

Thermometer Used SR-71 Type of Ice: [X] Wet [] Blue [] Dry [] None [X] Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 0 / Corr: 0 Biological Tissue is Frozen: [] yes [] no

Temp Blank Present: [] yes [X] no

Person examining contents:
Date: 10-11-17
Initials: KR

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Comments:

Table with 15 rows of custody and sample condition checks. Includes items like Chain of Custody Present, Samples Arrived within Hold Time, Short Hold Time Analysis, Rush Turn Around Time Requested, Sufficient Volume, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, Headspace in VOA Vials, Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot #.

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: AL for DM Date: 10-11-17

www.ghd.com

