BARRETT LANDFILL
GROUNDWATER MONITORING
AND GAS PROBE REPORT

Barrett Landfill
New Berlin, Wisconsin
WDNR License #1940
FID# 268134130

Prepared for:
Jason Lowery, Project Manager
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Prepared by:
Tetra Tech
175 N. Corporate Drive, Suite 100
Brookfield, WI 53045

March 2018

CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY

The Barrett Landfill is located at 21001 Coffee Road in the NW 1/4 of the SE 1/4 of Sec 18, T6N, R20E in the western portion of the City of New Berlin, Waukesha County, Wisconsin (Figure 1). The site is associated with the following Wisconsin Department of Natural Resources (WDNR) identification numbers:

Facility Identification Number (FID): 268134130
Bureau of Remediation & Redevelopment Tracking System (BRRTS) Number: 09-68-534609
Solid Waste License Number: 1940

The landfill is reportedly filled with a variety of wastes including municipal, industrial, construction, and demolition waste. Contents are reported to have included ash, foundry sand, asbestos, vehicle shredding fluff, and tannery hides. Some waste was open burned. The final cover system meets the requirements of the Wisconsin Administrative Code (WAC) NR 504.07 regulations on cover systems for solid waste disposal facilities. A passive landfill gas vent system was installed to vent gas from beneath the cover.

Site access roads were constructed on the west, south and east perimeters of the site. Several areas formerly filled with waste are located between the roads and the property boundary; these reportedly have not had placement of a cover. A chain link fence surrounds the entire site with a gate at each of the access locations.

A leachate collection system has been installed in a portion of the filled area; the extent of this system was not documented nor was it constructed over an engineered liner, but likely over less permeable soils. Leachate from the system collects in a sump/lift station and is pumped to a collection tank near the main entrance on Swartz Road. Several years ago, the buried force main that carries leachate from the lift station to the collection tank broke at the connection to the lift station. A temporary pipe at the surface is now used in warmer months only. The temporary pipe is disconnected, drained and sealed each fall and reconnected each spring.

Groundwater and gas monitoring have been conducted. Results indicate that elevated levels of arsenic, chloride, and manganese are present in groundwater beneath the site in concentrations exceeding Enforcement Standards. Analyses of private water samples adjacent to the landfill indicate elevated levels of arsenic and chloride exceeding the Public Heath Enforcement Standard; compounds exceeding the Public Health Preventive Action Limit include arsenic, chloride, lead and manganese. Elevated methane levels were present in two gas probe locations, and elevated PID readings were present in one location.

1. INTRODUCTION

Operation and maintenance activities at the Site include biennial monitoring of groundwater from monitor wells at the perimeter of the landfill, in addition to private water supply wells associated with select residences located adjacent to the landfill. Landfill gas monitoring to determine the concentration of the landfill gases at the site boundary is conducted biennially to ensure that gas migration away from the site and towards nearby buildings does not pose a risk to human health or the environment.

Site Information

The Barrett Landfill is located at 21001 Coffee Road in the NW 1/4 of the SE 1/4 of Sec 18, T6N, R20E in the western portion of the City of New Berlin, Waukesha County, Wisconsin (Figure 1). The site is associated with the following Wisconsin Department of Natural Resources (WDNR) identification numbers:

Facility Identification Number (FID): 268134130
Bureau of Remediation & Redevelopment Tracking System (BRRTS) Number: 09-68-534609
Solid Waste License Number: 1940

The WDNR Solid and Hazardous Waste Information Management System (SHWIMS) provides waste activity details for solid waste sites. The SHWIMS Web Database indicates this landfill contains over 500,000 cubic yards of municipal, industrial, construction and demolition waste; contents are reported to have included asbestos, ash, foundry sand, non-combustibles, refuse, tannery hides, vehicle shredding fluff, and wood matter. Some waste was reported to have been open burned.

Existing buildings at the site have previously been demolished and placed in the fill area. A landfill multilayer composite soil cover system was constructed starting in May 1999 and completed in November 2000. Some minor grading and seeding was done in 2001. Based on documents from the WDNR, the final cover system meets the requirements of the Wisconsin Administrative Code (WAC) NR 504.07 regulations on cover systems for solid waste disposal facilities, and consists of a grading layer, a 2-foot clay barrier layer, a 40 mil HDPE membrane, a drainage layer, a 1.5-foot vegetative support and frost protection layer (in one phase this was reduced to 1 foot), and a 0.5-foot topsoil layer. A passive landfill gas vent system was installed to vent gas from beneath the cover.

Site access roads were constructed on the west, south and east perimeters of the site. Several areas formerly filled with waste are located between the roads and the property boundary; these reportedly have not had placement of a cover. A chain link fence surrounds the entire site with a gate at each of the access locations.

A leachate collection system has been installed in a portion of the filled area; the extent of this system was not documented nor was it constructed over an engineered liner, but likely over less permeable soils. Leachate from the system collects in a sump/lift station and is pumped to a collection tank near the main entrance on Swartz Road. Several years ago, the buried force main that carries leachate from the lift station to the collection tank broke at the connection to the lift station. A temporary pipe at the surface is now used in warmer months only. The temporary pipe is disconnected, drained and sealed each fall and reconnected each spring.

2. MONITORING NETWORK

Twenty-nine gas probes were monitoring at the Barrett Landfill during this reporting period. Seventeen monitor wells and piezometers were included in the groundwater monitoring program, in addition to fifteen private water supply wells. Gas probe and groundwater well locations are provided on Figure 1.

Groundwater Monitoring

Groundwater monitoring was conducted in November 2017. Sampling activities were completed in accordance with DNR Groundwater Sampling Field Manual (DG038) and the DNR Groundwater Sampling Desk Reference (DG037), utilizing Chapter NR 140 Level 2 methods. Analyses were completed by Pace Laboratories of Green Bay, Wisconsin. Sampling occurs on a biennial basis.

Monitoring of Groundwater Wells

Groundwater samples were collected from each of the seventeen monitor wells on the Site utilizing a bailer after purging of four casing volumes (Figure 1). Due to depth of water at several locations, low-flow sampling using a peristaltic pump could not be performed. Purge and development water was disposed of into the leachate collection system.

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor and turbidity. Temperature, pH, and conductivity were measured with a handheld Hanna Meter; turbidity measurements were screened using a Lamotte 2020. Color, odor, and clarity were determined by visual and olfactory examination. Depth to groundwater and total well depth were measured at all monitoring wells at the site during the sampling event.

Groundwater samples were filtered in the field and submitted to Pace Laboratories of Green Bay, Wisconsin for analyses of Dissolved Arsenic, Dissolved Chloride, Dissolved Chromium, Dissolved Total Kjeldahl Nitrogen, Dissolved Lead, Dissolved Nickel, Dissolved Magnesium, Dissolved Manganese, Dissolved Nitrate Plus Nitrite, and Dissolved Sulfate. Results are summarized in Table 1. Field forms are provided in Appendix I. Laboratory analytical results are provided in Appendix II.

Monitoring of Private Water Supply Wells

Samples were collected from 15 private water supply wells from November 2017 through January 2018 (Figure 1). Samples of the water supply were collected from a location as close as possible downstream of the well pump. All sampling procedures, including the amount of time to run water and flush the system, were completed in accordance with the DNR Groundwater Sampling Field Manual and DNR Groundwater Sampling Desk Reference, as listed above. Private water wells sampled, and the location and procedures utilized at each residence, are provided in Table 2.

Water well samples were screened in the field to determine the temperature, pH, conductivity, and turbidity. Temperature, pH and conductivity were measured with a Hanna Meter and recorded as numerical values. Turbidity was determined by field instrument and/or visual examination.

Water samples were collected and submitted to Pace Laboratories of Green Bay, Wisconsin for analyses of Arsenic, Chloride, Lead, Total Chromium, Manganese, Magnesium, and Total Nitrate Plus Nitrite. Results are summarized in Table 2. Field forms are provided in Appendix I. Laboratory analytical results are provided in Appendix II.

Landfill Gas Monitoring

The objective of the landfill gas monitoring program is to monitor the concentration of the landfill gases at the site boundary to ensure that gas migration away from the site and towards nearby buildings does not pose a risk. Monitoring of the gas probes (GP-1 through GP-12) was completed in November 2017 and January 2018. Landfill gas was measured at gas vents and leachate head wells around the perimeter of the landfill. Twenty-nine measurements were collected from twelve gas probe locations. Several of the probes are installed in clusters to provide monitoring of gas measurements at multiple depths (S=Shallow, M=Medium, D=Deep). Information on each of the gas probes is provided in Table 3.

The gas probes are tested for percent LEL as methane, percent oxygen, percent carbon dioxide, air temperature and atmospheric pressure. Collection of measurements from the gas probes was conducted using a Landtec GEMS2000 landfill gas meter and a MiniRae 3000 photoionization detector (PID). Gas probe field monitoring forms are provided in Appendix III. Laboratory analytical results are provided in Appendix II.

3. FINDINGS

The current site remedy includes the landfill cap, site fencing with warning signs and the leachate and passive gas collection systems. The site fencing and signage discourages unauthorized site access and is protective of the remedy.

The Site is located on the WDNR GIS Registry of contaminated sites and is identified as having ongoing cleanup with continuing obligations.

Site Groundwater

Groundwater samples were analyzed from seventeen on-site monitor wells; results indicate that elevated levels of arsenic, chloride, and manganese are present in groundwater beneath the site in concentrations exceeding Enforcement Standards.

Arsenic

Arsenic was detected above the ES of 10 µg/L in one location:

- 24.6 µg/L (monitor well B-94-25A).

Levels of arsenic were detected above the NR140 Preventive Action Limit (PAL) of 1.0 µg/L in four additional locations:

- 1.1 µg/L (B-94-14R)
- 1.7 ug/L (B-96-17)
- 7.9 µg/L (B-94-25)
- 8.1 µg/L/8.1 µg/L (B-15/B-15 DUP)

Chloride

Chloride was detected above the ES of 250 mg/L in one location:

- 289 mg/L (W-24)

Levels of chloride were detected above the PAL of 125 mg/L in three additional locations:

- 128 mg/L/127 mg/L (B-15/B-15 DUP)
- 134 mg/L (B-94-25)
- 160 mg/L (B-94-25A)

Manganese

Manganese was detected above the ES of 300 µg/L in three locations:

- 370 µg/L (B-15A)
- 671 µg/L (B-21)
- 942 µg/L (B-94-25)

Levels of manganese were detected above the PAL of 60 µg/L in three additional locations:

- 63.7 µg/L (B-96-13A)
- 73.6 µg/L (B-96-17)
- 237 µg/L/241 µg/L (B-15/B15-DUP)

Nitrite/Nitrate

Nitrate/Nitrate was not detected above the ES of 10 mg/L in any of the on-site monitor well locations sampled.

Levels of nitrate/nitrate were detected above the PAL of 2.0 mg/L in two locations:

- 2.9 mg/L (B-96-18A)
- 5.8 mg/L (B-96-17)

These results are summarized in Table 1 and illustrated in Figures 2, 3, and 4, respectively.

Private Water Supply Wells

Fifteen private wells in vicinity of the landfill have been sampled during this reporting period; analyses indicate elevated levels of arsenic and chloride exceeding the Public Heath Enforcement Standard; compounds exceeding the Public Health Preventive Action Limit include arsenic, chloride, lead and manganese. A summary of the results is provided below.

Arsenic

Arsenic was detected above the ES of 10 µg/L in one location:

- 11.2 µg/L (GEMs 238)

Levels of arsenic were detected above the PAL of 1.0 µg/L in seven additional locations:

- 1.7 µg/L (GEMs 950)
- 1.7 µg/L (GEMs 237)
- 1.9 – 2.7 µg/L (GEMs 246/246 DUP)
- 3.7 µg/L (GEMs 951)
- 3.7 µg/L (GEMs 953)
- 3.8 µg/L (GEMs 236)

- 6.7 µg/L (GEMs 952)

Chloride

Chloride was detected above the ES of 250 mg/L in one location:

- 334 mg/L (GEMs 239)

Levels of chloride were detected above the PAL of 125 mg/L in two additional locations:

- 156 mg/L (GEMs 245)
- 174 mg/L (GEMS 950)

Lead

Lead was detected above the PAL of 1.5 µg/L in seven locations:

- 0.2 µg/L-23.7 µg/L (GEMs 246/246 DUP)
- 3.8 µg/L (GEMs 236)
- 1.8 µg/L (GEMs 242)
- 1.8 µg/L (GEMs 243)
- 2.5 µg/L (GEMs 238)
- 2.9 µg/L (GEMs 240)
- 13 µg/L (GEMs 245)

One of two samples collected at the location of GEMs ID 246 in November 2017 exceeded the ES of 15 µg/L. This sample was collected from an outside spigot. The residence was resampled in January 2018 from a location in the basement before the pressure tank, and neither the PAL or ES was exceeded in either of the two samples collected. It is believed that the exceedance of lead was likely an indicator of lead in the pipes.

Manganese

Manganese was not detected above the ES of 300 µg/L in any of the private well locations sampled.

Levels of manganese were detected above the PAL of 60 µg/L in three locations:

- 75.4 µg/L (GEMs 950)
- 108 µg/L (GEMs 236)
- 112/119 µg/L (GEMs 246/246 DUP)

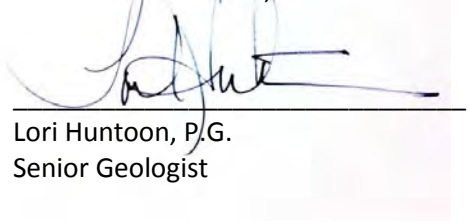
These results are summarized in Table 2 and illustrated in Figures 2, 3, and 4, respectively. Figure 5 illustrates the results of all parameters analyzed at the private water supply wells.

Landfill Gas

Results of the gas monitoring are in presented in Table 3. Methane (in % LEL) was detected at a concentration of 2% in GP-1 and 42% in GP-6M. Gas concentrations in all exterior wells and gas probes with exception of GP-6M have consistently been below the methane LEL (5%).

4. CERTIFICATIONS

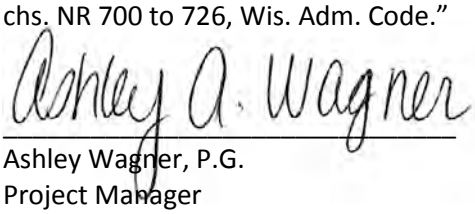
"I, Lori Huntoon, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."



Lori Huntoon, P.G.
Senior Geologist

3/26/18
Date

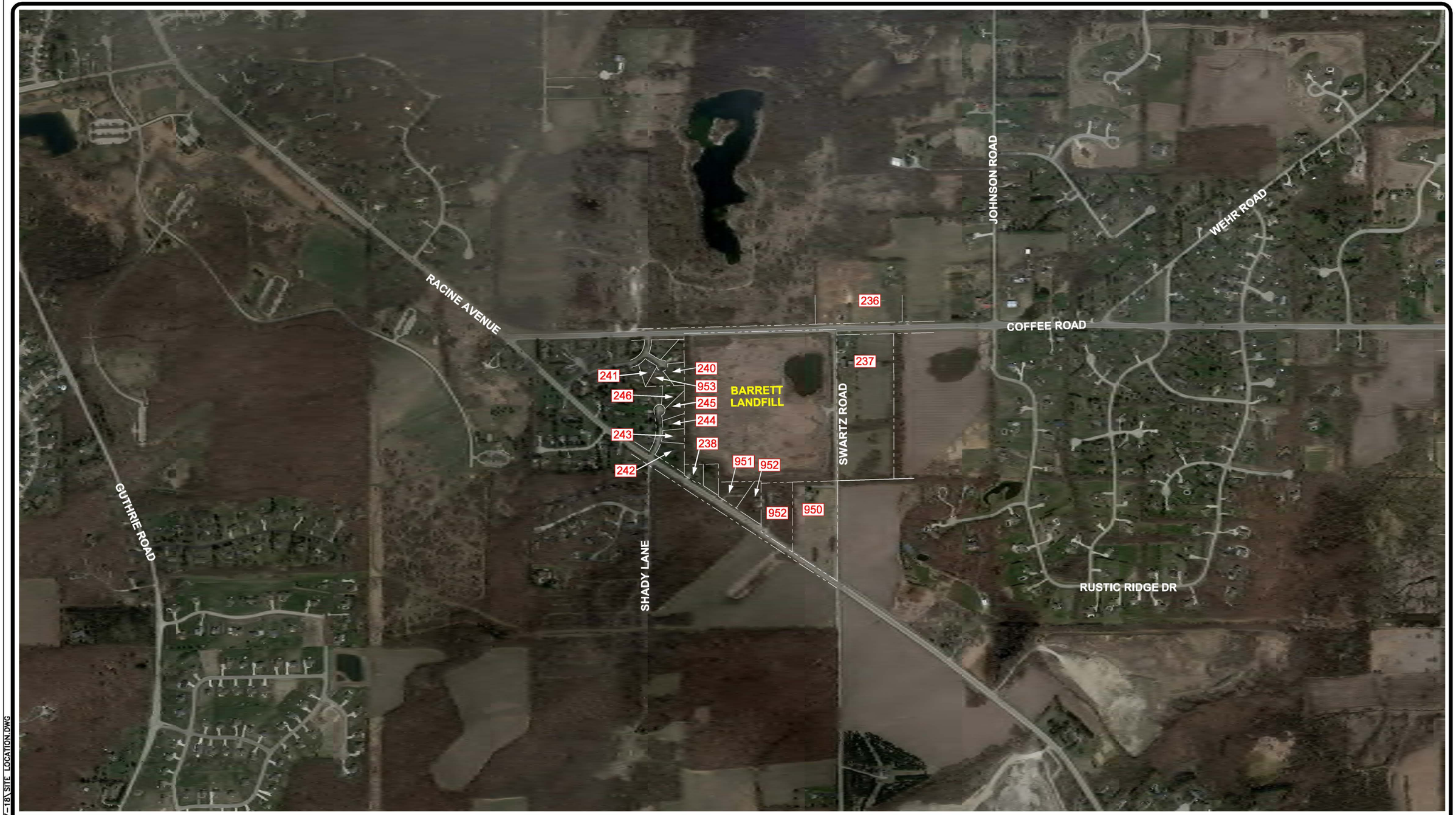
"I, Ashley Wagner, hereby certify that I am a hydrogeologist as that term is defined in s. NR712.03 (1), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."



Ashley Wagner, P.G.
Project Manager

3/26/18
Date

FIGURES



N

0 800 1600

SCALE IN FEET

TITLE: **SITE LOCATION**

LOCATION: **Barrett Landfill Project**
New Berlin, Wisconsin

TETRA TECH

APPROVED	AW
DRAFTED	CP
PROJECT#	117-7413003
DATE	3-26-18

FIGURE 1

S:\CAD\BARRETT LANDFILL\2-27-18\SITE LOCATION.DWG

S:\CAD\BARRETT LANDFILL\2-27-18\ARSENIC CONCENTRATION IN GROUNDWATER IN 2017.DWG

TITLE: **ARSENIC CONCENTRATION IN GROUNDWATER IN 2017**

LOCATION: **Barrett Landfill Project**
New Berlin, Wisconsin

TETRA TECH

APPROVED	AW
DRAFTED	CP
PROJECT#	117-7413003
DATE	3-26-18

FIGURE 2

N

LEGEND

GP-8 ●	GAS PROBE
W-23 ⊕	MONITORING WELL
B-21 ⊕	PIEZOMETER
117	CHLORIDE CONCENTRATION (mg/L)
134	EXCEEDS PREVENTATIVE ACTION LIMIT (PAL)
289	EXCEEDS ENFORCEMENT STANDARD (ES)
[ ]	DUPLICATE SAMPLE

0 200 400

SCALE IN FEET

TITLE: **CHLORIDE CONCENTRATION IN GROUNDWATER IN 2017**

LOCATION: **Barrett Landfill Project**
New Berlin, Wisconsin

TETRA TECH

APPROVED	AW
DRAFTED	CP
PROJECT#	117-7413003
DATE	3-26-18

FIGURE 3

S:\CAD\BARRETT LANDFILL\2-27-18\CHLORIDE CONCENTRATION IN GROUNDWATER IN 2017.DWG

S:\CAD\BARRETT LANDFILL\2-27-18\MANGANESE CONCENTRATION IN GROUNDWATER IN 2017.DWG

N

LEGEND

GP-8 ●	GAS PROBE
W-23 ⊕	MONITORING WELL
B-21 ⊕	PIEZOMETER
117	MANGANESE CONCENTRATION (ug/L)
134	EXCEEDS PREVENTATIVE ACTION LIMIT (PAL)
289	EXCEEDS ENFORCEMENT STANDARD (ES)
[ ]	DUPLICATE SAMPLE
ND	NOT DETECTED

0 200 400

SCALE IN FEET

TITLE: **MANGANESE CONCENTRATION IN GROUNDWATER IN 2017**

LOCATION: **Barrett Landfill Project**
New Berlin, Wisconsin

TETRA TECH

APPROVED	AW
DRAFTED	CP
PROJECT#	117-7413003
DATE	3-26-18

FIGURE 4

3561 S Woodland Ct		
GEMs ID 241		
Date Sampled	units	11/14/2017
NO2+NO3	mg/L	0.66
Magnesium	mg/L	47.9
Chloride	mg/L	118
Arsenic	ug/L	<0.18
Chrmomium	ug/L	0.73
Lead	ug/L	0.51
Manganese	ug/L	0.65 J

3540 S Woodland Ct		
GEMs ID 240		
Date Sampled	units	12/18/2017
NO2+NO3	mg/L	0.30
Magnesium	mg/L	46.0
Chloride	mg/L	43.4
Arsenic	ug/L	0.92
Chrmomium	ug/L	0.62 J
Lead	ug/L	2.9
Manganese	ug/L	29.7*

20770 W Coffee Rd		
GEMs ID 236		
Date Sampled	units	11/15/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	40.4
Chloride	mg/L	15.4
Arsenic	ug/L	3.8
Chrmomium	ug/L	0.54 J
Lead	ug/L	3.8
Manganese	ug/L	108**

20745 W Coffee Rd		
GEMs ID 237		
Date Sampled	units	12/1/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	42.0
Chloride	mg/L	17.2
Arsenic	ug/L	1.7
Chrmomium	ug/L	<0.38
Lead	ug/L	0.37
Manganese	ug/L	15.2

3540 S Canary Rd			
GEMs ID 246			
Date Sampled	units	11/17/2017	1/31/2018
NO2+NO3	mg/L	<0.095 [<0.095]	NA [NA]
Magnesium	mg/L	47.7 [47.8]	47.1 [47.2]
Chloride	mg/L	45.6 [42.7]	NA [NA]
Arsenic	ug/L	2.7 [2.6]	2.1 [1.9]
Chrmomium	ug/L	0.54 J [0.51 J]	<0.38 [<0.38]
Lead	ug/L	1.2 [23.7]	0.37 J [0.20 J]
Manganese	ug/L	112** [119**]	39.1 [41.5]

3551 S Woodland Ct		
GEMs ID 953		
Date Sampled	units	11/15/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	44.7
Chloride	mg/L	30.1
Arsenic	ug/L	3.7
Chrmomium	ug/L	0.76
Lead	ug/L	<0.12
Manganese	ug/L	18.7

3600 S Canary Rd		
GEMs ID 245		
Date Sampled	units	12/14/2017
NO2+NO3	mg/L	1.9
Magnesium	mg/L	41.0
Chloride	mg/L	156
Arsenic	ug/L	<0.18
Chrmomium	ug/L	0.87
Lead	ug/L	13
Manganese	ug/L	1.0

3620 S Canary Rd		
GEMs ID 244		
Date Sampled	units	11/17/2017
NO2+NO3	mg/L	0.31
Magnesium	mg/L	39.0
Chloride	mg/L	53.5
Arsenic	ug/L	<0.18
Chrmomium	ug/L	0.56 J
Lead	ug/L	1.3
Manganese	ug/L	<0.44

3630 S Canary Rd		
GEMs ID 243		
Date Sampled	units	11/17/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	44.2
Chloride	mg/L	33.4
Arsenic	ug/L	<0.18
Chrmomium	ug/L	0.41 J
Lead	ug/L	1.8
Manganese	ug/L	11.7

3730 S Racine Ave		
GEMs ID 239		
Date Sampled	units	11/14/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	59.8
Chloride	mg/L	334
Arsenic	ug/L	0.32 J
Chrmomium	ug/L	0.86
Lead	ug/L	0.41
Manganese	ug/L	34.2*

3770 S Racine Ave		
GEMs ID 952		
Date Sampled	units	11/14/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	44.9
Chloride	mg/L	39.7
Arsenic	ug/L	6.7
Chrmomium	ug/L	0.81
Lead	ug/L	0.38
Manganese	ug/L	19.2

3640 S Canary Rd		
GEMs ID 242		
Date Sampled	units	11/17/2017
NO2+NO3	mg/L	0.49
Magnesium	mg/L	41.9
Chloride	mg/L	95.0
Arsenic	ug/L	<0.18
Chrmomium	ug/L	0.71
Lead	ug/L	1.8
Manganese	ug/L	4.0

3690 S Racine Ave		
GEMs ID 238		
Date Sampled	units	11/17/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	4.4
Chloride	mg/L	29.8
Arsenic	ug/L	11.2
Chrmomium	ug/L	6.7
Lead	ug/L	2.5
Manganese	ug/L	9.5

3720 S Racine Ave		
GEMs ID 951		
Date Sampled	units	11/13/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	46.6
Chloride	mg/L	38.9
Arsenic	ug/L	3.7
Chrmomium	ug/L	0.6 J
Lead	ug/L	0.3
Manganese	ug/L	51.6**

3705 S Swartz Rd		
GEMs ID 950		
Date Sampled	units	11/17/2017
NO2+NO3	mg/L	<0.095
Magnesium	mg/L	51.0
Chloride	mg/L	174
Arsenic	ug/L	1.7
Chrmomium	ug/L	<0.38
Lead	ug/L	0.95
Manganese	ug/L	75.4**

COFFEE ROAD
WOODLAND CT
CANARY DR
RACINE AVENUE
SWARTZ ROAD

GEMs ID 236
GEMs ID 237
GEMs ID 241
GEMs ID 240
GEMs ID 953
GEMs ID 246
GEMs ID 245
GEMs ID 244
GEMs ID 243
GEMs ID 242
GEMs ID 238
GEMs ID 951
GEMs ID 239
GEMs ID 952
GEMs ID 950

B-94-14A
B-94-14R
GP-5
B-94-25
B-94-25A
GP-4
B-19
B-94-19A
B-96-13
B-96-13A
GP-3
B-13
B-13A
B-15
B-15A
GP-1
GP-6
GP-2
B-21A
B-21
GP-7
B-96-17
GP-12
B-96-17A
B-17
W-24
W-23A
W-23
GP-8
GP-9
B-18
B-18A
B-96-18B
B-96-18A
B-94-26
GP-11
GP-10

N

LEGEND

- GP-8 ● GAS PROBE
- W-23 ⊕ MONITORING WELL
- B-21 ⊕ PIEZOMETER
- 15.4 ARSENIC CONCENTRATION (ug/L)
- 134 EXCEEDS PREVENTATIVE ACTION LIMIT (PAL)
- 289 EXCEEDS ENFORCEMENT STANDARD (ES)
- [ ] DUPLICATE SAMPLE

0 200 400
SCALE IN FEET

TITLE:
PRIVATE WELL MONITORING DATA IN 2017

LOCATION:
Barrett Landfill Project
New Berlin, Wisconsin

TETRA TECH

APPROVED	AW
DRAFTED	CP
PROJECT#	117-7413003
DATE	3-26-18

FIGURE 5

S:\CAD\BARRETT LANDFILL\2-27-18\GAS PROBE MONITORING DATA IN 2018.DWG

TABLES

Barrett Landfill
New Berlin, Wisconsin
Table 1 - Groundwater Sampling Data

Well ID	GEMS ID		LAB DATA									
		Date Sampled	Nitrogen, Kjeldahl, Total	NO2+NO3	Magnesium	Chloride	Sulfate	Arsenic	Chromium	Lead	Manganese	Nickel
		Units	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L
		PAL	NS	2	NS	125	125	1	10	1.5	60	20
		ES	**NS**	**10**	**NS**	**250**	**250**	**10**	**100**	**15**	**300**	**100**
B-15	225	11/17/17	1.1	<0.095	62.5	**128**	56.9	**8.1**	4.9	1.0	**237**	5.7
B-15 Dup	225	11/17/17	1.1	<0.095	63.6	**127**	63.5	**8.1**	4.4	0.99 J	**241**	5.6
B-15A	251	11/17/17	0.27 J	<0.095	48.6	117	71	0.76 J	3.7	0.2 J	**370**	3.4
B-21	252	11/17/17	0.52 J	0.9	51.9	93.4	82.4	0.57 J	<1.0	<0.20	**671**	12.5
B-21A	253	11/15/17	0.25 J	0.1 J	42.2	66.1	36.4	0.35 J	<1.0	<0.20	13.3	1.5
W-23	259	11/16/17	<0.22	0.69	48.3	18.1	**147**	0.28 J	<1.0	<0.20	8.3 J	1.2 J
W-23A	260	11/16/17	<0.22	<0.095	43.7	19.1	**132**	0.48 J	<1.0	0.23 J	13.2	1.7
W-24	263	11/17/17	0.35 J	1.8	49.8	**289**	47.9	<0.28	<1.0	<0.20	<2.7	2.0
B-94-14R	902	11/15/17	0.4 J	0.61	48.3	47.0	56.7	**1.1**	<1.0	<0.20	3.3 J	1.8
B-94-14A	903	11/15/17	0.37 J	<0.095	66.1	53.6	165	0.91 J	<1.0	<0.20	48.6	2.4
B-94-19A	904	11/17/17	0.81	0.21 J	42.6	96.6	16.9	0.42 J	<1.0	<0.20	9.8	0.76 J
B-94-25	905	11/15/17	2	<0.095	65.3	**134**	11.1 J	**7.9**	10.0	**6.3**	**942**	14.1
B-94-25A	906	11/16/17	2.3	0.14 J	59.5	**160**	9.0	**24.6**	<1.0	<0.20	8.1 J	0.83 J
B-96-13A	911	11/16/17	<0.22	<0.095	53.4	50.2	**132**	0.29 J	<1.0	<0.20	**63.7**	2.0
B-96-17	913	11/15/17	0.34 J	**5.8**	47.0	85.3	51.9	**1.7**	1.7 J	**2.1**	**73.6**	3.2
B-96-17A	914	11/15/17	<0.22	0.71	45.8	14.3	47.9	<0.28	<1.0	<0.20	16.4	0.84 J
B-96-18A	915	11/17/17	0.32 J	**2.9**	51.8	120	54.3	<0.28	<1.0	<0.20	<2.7	<0.40
B-96-18B	916	11/17/17	<0.22	1.3	37.8	61.3	50.3	<0.28	<1.0	<0.20	41.0	5.5
EB	995	11/16/17	<0.22	<0.095	0.0538 J	<0.50	<1.0	<0.28	5.7	<0.20	<2.7	2.6

Notes:
PAL: Preventive Action Limit
ES: Enforcement Standard
Bold: Exceeds PAL
Bold/shaded: Exceeds ES
EB - Equipment Blank
NS - No Standard

Barrett Landfill
New Berlin, Wisconsin
Table 1 - Groundwater Sampling Data

Well ID	GEMS ID	Date Sampled	FIELD DATA					
			Depth to Water	Depth to Bottom	pH	Temperature	Conductivity	Turbidity
		Units	Feet From Top of Casing	Feet From Top of Casing	Units	°C	us/cm	NTU
		PAL						
		ES						
B-15	225	11/17/17	33.10	61.50	7.29	8.7	1067	16.20
B-15 Dup	225	11/17/17	NA	NA	NA	NA	NA	NA
B-15A	251	11/17/17	38.20	84.80	7.40	7.9	883	10.26
B-21	252	11/17/17	37.00	54.13	7.36	8.0	986	15.80
B-21A	253	11/15/17	37.64	84.96	7.28	9.1	739	11.90
W-23	259	11/16/17	59.93	67.40	7.32	6.3	804	19.00
W-23A	260	11/16/17	63.91	101.21	7.29	6.0	733	0.97
W-24	263	11/17/17	85.34	93.49	7.56	7.6	1320	18.40
B-94-14R	902	11/15/17	31.65	42.23	7.12	9.9	972	0.42
B-94-14A	903	11/15/17	32.03	63.28	7.19	9.4	969	1.73
B-94-19A	904	11/17/17	46.81	81.43	7.86	7.0	198	37.10
B-94-25	905	11/15/17	27.89	39.63	7.12	12.7	976	0.06
B-94-25A	906	11/16/17	28.73	60.76	7.59	9.7	1030	27.40
B-96-13A	911	11/16/17	65.29	100.44	7.20	6.8	866	1.23
B-96-17	913	11/15/17	47.74	61.80	7.25	8.0	954	7.28
B-96-17A	914	11/15/17	47.89	92.42	7.36	8.5	672	2.43
B-96-18A	915	11/17/17	46.31	59.15	7.37	7.2	936	14.80
B-96-18B	916	11/17/17	47.10	85.73	7.48	6.8	737	9.42
EB	995	11/16/17	NA	NA	NA	NA	NA	NA

Notes:
PAL: Preventive Action Limit
ES: Enforcement Standard
Bold: Exceeds PAL
Bold/shaded: Exceeds ES
EB - Equipment Blank
NS - No Standard

Barrett Landfill
New Berlin, Wisconsin
Table 2 - Private Well Sampling Data

Property Owner	Address	GEMs ID	Date Sampled	NO2+NO3	Magnesium	Chloride	Arsenic	Chrmomium	Lead	Manganese	Temperature	pH	Conductivity	Turbidity
			units	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	°c	units	us/cm	NTU
			Public Welfare PAL	NA	NA	NA	NA	NA	NA	25*				
			Public Welfare ES	NA	NA	NA	NA	NA	NA	50**				
			Public Health PAL	2	NS	125	1.0	10	1.5	60				
			Public Health ES	**10**	**NS**	**250**	**10**	**100**	**15**	**300**				
Sanfelippo	20770 W Coffee Rd	236	11/15/2017	<0.095	40.4	15.4	**3.8**	0.54 J	**3.8**	**108****	12.6	6.9	396	38.8
Hanke	20745 W Coffee Rd	237	12/1/2017	<0.095	42.0	17.2	**1.7**	<0.38	0.37	15.2	11.8	7.02	645	NM
Meyer	3690 S Racine Ave	238	11/17/2017	<0.095	4.4	29.8	**11.2**	6.7	**2.5**	9.5	7.7	7.41	734	12.7
Servi	3730 S Racine Ave	239	11/14/2017	<0.095	59.8	**334**	0.32 J	0.86	0.41	34.2*	9.7	6.33	1504	0.44
Rhyner	3540 S Woodland Ct	240	12/18/2017	0.30	46.0	43.4	0.92	0.62 J	**2.9**	29.7*	11.7	7.43	888	NM
Huen	3561 S Woodland Ct	241	11/14/2017	0.66	47.9	118	<0.18	0.73	0.51	0.65 J	13.1	6.02	985	0.08
Whitehaus	3640 S Canary Rd	242	11/17/2017	0.49	41.9	95.0	<0.18	0.71	**1.8**	4.0	8.4	7.4	858	0.03
Wyszkowski	3630 S Canary Rd	243	11/17/2017	<0.095	44.2	33.4	<0.18	0.41 J	**1.8**	11.7	8.7	7.53	708	0.17
Werning	3620 S Canary Rd	244	11/17/2017	0.31	39.0	53.5	<0.18	0.56 J	1.3	<0.44	8.1	7.52	726	0.1
Holbrook	3600 S Canary Rd	245	12/14/2017	1.9	41.0	**156**	<0.18	0.87	**13**	1.0	13.5	9.24	1030	NM
Kowis	3540 S Canary Rd	246	11/17/2017	<0.095	47.7	45.6	**2.7**	0.54 J	1.2	**112****	7.4	7.54	766	11.1
			11/17/2017 Dup	<0.095	47.8	42.7	**2.6**	0.51 J	**23.7**	**119****				
			1/31/2018	NA	47.1	NA	**2.1**	<0.38	0.37 J	39.1	12.4	7.71	881	NM
			1/31/2018 Dup	NA	47.2	NA	**1.9**	<0.38	0.20 J	41.5				
Sri Lakshmi Temple	3705 S Swartz Rd	950	11/17/2017	<0.095	51.0	**174**	**1.7**	<0.38	0.95	**75.4****	10	7.44	1025	6.08
Sanchez	3720 S Racine Ave	951	11/13/2017	<0.095	46.6	38.9	**3.7**	0.6 J	0.3	51.6**	19.5	7.46	799	20.2
Schmidt	3770 S Racine Ave	952	11/14/2017	<0.095	44.9	39.7	**6.7**	0.81	0.38	19.2	10.1	5.89	821	1.78
Christiansen	3551 S Woodland Ct	953	11/15/2017	<0.095	44.7	30.1	**3.7**	0.76	<0.12	18.7	11.9	7.06	765	1.1

Notes:
PAL: Preventive Action Limit
ES: Enforcement Standard
Bold: Exceeds PAL (Public Health Table 1)
Bold/shaded: Exceeds ES (Public Health Table 1)
*: Exceeds ES (Public Welfare Table 2)
**: Exceeds ES (Public Welfare Table 2)
NS - No Standard

Barrett Landfill
New Berlin, Wisconsin
Table 3 - Gas Probe Monitoring Report

Date	Time	Probe	GEMS ID	%LEL (as methane)	% Oxygen	%CO2	Balance	PID (ppm)	Barometric Pressure (inches Hg)	Relative Pressure (inches of water)
1/31/2018	12:44	GP-1	280	2%	13.2	1.6	85.1	0	28.79	+0.05
1/31/2018	12:18	GP-2S	284	0	19.1	1.2	79.7	0	28.79	+0.04
1/31/2018	12:20	GP-2D	286	0	21.4	0.1	78.5	0	28.79	+0.04
1/31/2018	13:05	GP-3S	287	0	9.3	5.8	84.9	0	28.79	+0.05
1/31/2018	13:07	GP-3M	288	0	4.6	7.3	88.1	0	28.79	+0.06
1/31/2018	13:09	GP-3D	289	0	3.8	7.6	88.6	0	28.79	+0.07
1/31/2018	---	GP-4	290	ABANDONED/OR LOST						
1/31/2018	12:52	GP-5S	294	0	16.9	3.4	79.7	0	28.79	+0.06
1/31/2018	12:54	GP-5M	295	0	20	3	77	0	28.79	+0.06
1/31/2018	12:56	GP-5D	296	0	17.7	3.7	78.6	0	28.79	+0.06
1/31/2018	12:33	GP-6S	297	0	18	1.1	80.9	0	28.79	+0.03
1/31/2018	12:35	GP-6M	298	42%	15.1	2.1	80.7	0.3	28.79	+0.05
1/31/2018	12:37	GP-6D	299	0	21.6	0.2	78.2	0	28.79	+0.05
1/31/2018	---	GP-7	300	ABANDONED/OR LOST						
1/31/2018	10:50	GP-8S	264	0	19.9	2	78.1	0	28.78	+0.01
1/31/2018	10:53	GP-8M	265	0	5.5	12	82.5	0	28.78	+0.01
1/31/2018	10:56	GP-8D	266	0	5.7	11.2	83.1	0	28.78	+0.01
1/31/2018	11:18	GP-9S	267	0	20.2	1.2	78.6	0	28.78	+0.01
1/31/2018	11:20	GP-9M	268	0	10.4	8.7	80.9	0	28.78	+0.01
1/31/2018	11:22	GP-9D	269	0	21	0.4	78.6	0	28.77	+0.03
1/31/2018	11:30	GP-10S	270	0	20.2	0.2	79	0.1*	28.78	+0.03
1/31/2018	11:32	GP-10M	271	0	20.4	0.4	79.2	0.1*	28.78	+0.03
1/31/2018	11:34	GP-10D	272	0	9.2	13.6	77.2	0.1*	28.77	+0.03
1/31/2018	11:46	GP-11S	273	0	15.2	3.7	81.1	0.1	28.77	+0.03
1/31/2018	11:48	GP-11M	274	0	14.3	3.3	82.4	0	28.77	+0.02
1/31/2018	11:50	GP-11D	275	0	13.8	4	82.2	0	28.77	+0.02
1/31/2018	12:08	GP-12S	276	0	18	2	80	0	28.79	+0.03
1/31/2018	12:10	GP-12M	277	0	17.1	3	79.9	0	28.79	+0.03
1/31/2018	12:12	GP-12D	278	0	21.2	0.1	78.7	0	28.79	+0.03

Instruments Used: Mini Rae 3000 PID, Landtec GEM 2000
Operator: Ashley A. Wagner Date: 1/31/2018
Weather Conditions:
Barometric Pressure (inches of H 28.78 Temperature (Degrees F): 35
Relative Humidity (%):
Dewpoint (Degrees F): 19
Wind: ~12 MPH west to east
Sky Conditions: Cloudy
Ground Conditions: _____ Snow _____No Snow _____Frozen Ground/Frost X Some Snow X

* = Background PID measurement was 0.1 ppm

APPENDICES

APPENDIX I

FIELD FORMS

TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		B-96-17A	B-21A	B-94-14R	B-94-25	
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)		11-15-17	11-15-17	11-15-17	11-15-17	
CLOCK TIME (Military)		15:55	15:30	14:50	14:05	
DEPTH TO WATER (ft)*		47.89	37.64	31.65	27.89	
MEASURED WELL DEPTH (ft)*		92.42	84.96	42.23	39.63	
CASING VOLUME (gallons)		7.26	7.70	1.72	1.91	
PURGE VOLUME (gallons)		30	31	7	8	
DEPTH SAMPLE TAKEN (ft)*		90	81	40	38	
SAMPLING DEVICE		Bailer	Bailer	Bailer	Bailer	
FIELD TEMPERATURE (^{o}C)		8.5	9.1	9.9	12.7	
pH		7.36	7.28	7.12	7.12	
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM	
	At 25^{o} C	672	739	972	976	
TURBIDITY (NTU)		2.43	11.9	0.42	0.006	
COLOR		Clear	Clear	Clear	Light Brown	
ODOR		None	None	None	None	
CLARITY		Clear	Clear	Clear	Cloudy	
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
Notes		Used a pump to purge well	Used a pump to purge well			
Dissolved As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	
Dissolved Sulfate and Chloride		1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	
Dissolved TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical	
DATE SENT TO LAB		11-16-17	11-17-17	11-16-17	11-17-17	
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner	

***Measured from top of well casing.**

TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		B-96-14A	B-96-17	W-24	B-94-19A	
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)		11-15-17	11-15-17	11-17-17	11-17-17	
CLOCK TIME (Military)		15:05	16:10	10:45	15:10	
DEPTH TO WATER (ft)*		32.03	47.74	85.34	46.81	
MEASURED WELL DEPTH (ft)*		63.28	61.80	93.49	81.43	
CASING VOLUME (gallons)		5.09	2.30	1.33	5.64	
PURGE VOLUME (gallons)		5.0 Dry	9.5	5.5	23	
DEPTH SAMPLE TAKEN (ft)*		60	59	90	79	
SAMPLING DEVICE		Bailer	Bailer	Bailer	Bailer	
FIELD TEMPERATURE (^{o}C)		9.4	8.0	7.3	7.0	
pH		7.19	7.25	7.56	7.86	
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM	
	At 25^{o} C	969	954	1320	198	
TURBIDITY (NTU)		1.73	7.28	18.4	37.1	
COLOR		Clear	Very Light Tan	Clear	Clear	
ODOR		None	None	None	None	
CLARITY		Clear	Very Slightly Cloudy	Clear	Clear	
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
Notes					Used a pump to purge well	
Dissolved As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	
Dissolved Sulfate and Chloride		1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	
Dissolved TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical	
DATE SENT TO LAB		11-16-17	11-17-17	11-17-17	11-21-17	
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner	

***Measured from top of well casing.**

TETRA TECH

TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		B-96-13A	B-94-25A	W-23A	W-23	
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)		11-16-17	11-16-17	11-16-17	11-16-17	
CLOCK TIME (Military)		16:20	16:40	16:00	15:35	
DEPTH TO WATER (ft)*		62.29	28.73	63.91	58.93	
MEASURED WELL DEPTH (ft)*		100.44	60.76	101.21	67.40	
CASING VOLUME (gallons)		5.73	5.22	6.08	1.38	
PURGE VOLUME (gallons)		25	23	6.0 Dry	5.5	
DEPTH SAMPLE TAKEN (ft)*		100	60	100.5	67	
SAMPLING DEVICE		Bailer	Bailer	Bailer	Bailer	
FIELD TEMPERATURE (^{o}C)		6.8	NM*	6.0	6.3	
pH		7.20	NM*	7.29	7.32	
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM	
	At 25^{o} C	866	NM*	733	804	
TURBIDITY (NTU)		1.23	27.4	0.97	19.0	
COLOR		Clear	Clear	Clear	Clear	
ODOR		None	None	None	None	
CLARITY		Clear	Clear	Clear	Clear	
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
Notes		Used a pump to purge well	Used a pump to purge well		Collected MS/MSD samples	
			*Sample cup spilled while taking parameters after equipment had been put away			
Dissolved As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	
Dissolved Sulfate and Chloride		1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	
Dissolved TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical	
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	11-21-17	
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner	

***Measured from top of well casing.**

TETRA TECH

TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		B-96-18A	B-96-18B	B-15A	B-15/Dup	B-21
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)		11-17-17	11-17-17	11-17-17	11-17-17	11-17-17
CLOCK TIME (Military)		14:30	14:45	15:40	15:50/15:55	16:15
DEPTH TO WATER (ft)*		46.31	47.10	38.20	33.10	37.00
MEASURED WELL DEPTH (ft)*		59.15	85.73	84.80	61.50	54.13
CASING VOLUME (gallons)		2.09	6.30	7.59	4.63	2.79
PURGE VOLUME (gallons)		8.5	25	7.0 Dry	20	15
DEPTH SAMPLE TAKEN (ft)*		57	82	82	59	52
SAMPLING DEVICE		Bailer	Bailer	Bailer	Bailer	Bailer
FIELD TEMPERATURE (^{o}C)		7.2	6.8	7.9	8.7	8.0
pH		7.37	7.48	7.40	7.29	7.36
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM	NM
	At 25^{o} C	936	737	883	1067	986
TURBIDITY (NTU)		14.8	9.42	10.26	16.2	15.8
COLOR		Clear	Clear	Clear	Clear	Clear
ODOR		None	None	None	None	None
CLARITY		Clear	Clear	Clear	Clear	Clear
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
Notes			Used a pump to purge well	Used a pump to purge well	Used a pump to purge well	Used a pump to purge well
					Well bottom was very sandy during purging	**EB-GF (Grundfos Equip. Blank) at 10:15 on 11-17-17**
Dissolved As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes	1-250 mL; P; HNO_3; L; Yes
Dissolved Sulfate and Chloride		1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes	1-250 mL; P; None; Neutral; Yes
Dissolved TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes	1-250 mL; P; H_2SO_4; L; Yes
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	11-21-17	11-21-17
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner

***Measured from top of well casing.**

TETRA TECH

TETRA TECH PRIVATE WELL FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		SANCHEZ	SCHMIDT	HEUN	SERVI
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)		11-13-17	11-14-17	11-14-17	11-14-17
CLOCK TIME (Military)		16:00	8:55	9:25	9:55
PROPERTY ADDRESS		3720 S. Racine Ave	3770 S. Racine Ave	3561 S. Woodland Ct	3730 S. Racine Ave
GEMS ID		951	952	241	239
SAMPLING DEVICE		Spigot	Spigot after Pressure Tank	Spigot after Pressure Tank	Spigot
SAMPLING DEVICE LOCATION		Inside Garage	Basement	Basement	Outside - east
PURGE RATE (gpm)		NM	NM	NM	5.0
PURGE VOLUME (gallons)		NM	NM	NM	75
FIELD TEMPERATURE (^{o}C)		19.5	10.1	13.1	9.7
pH		7.46	5.89	6.02	6.33
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM
	at 25^{o} C	799	821	985	1504
TURBIDITY (NTU)		20.2	1.78	0.08	0.44
COLOR		Clear	Clear	Clear	Clear
ODOR		None	None	None	None
CLARITY		Clear	Clear	Clear	Clear
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
Notes		Property owner turned on spigot for about 40 minutes prior to my arrival	Purged water from a different faucet in house for 15 minutes	Purged water from a different faucet in house for 15 minutes	
			Pressure tank kicked on 3 times	Pressure tank kicked on 4 times	
Total As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No
Total Sulfate and Chloride		1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No
Total TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	11-21-17
SAMPLER ' S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner

***Measured from top of well casing.**

TETRA TECH

TETRA TECH PRIVATE WELL FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		SANFELIPPO	CHRISTIANSEN	WHITEHAUS	MEYER
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)		11-15-17	11-15-17	11-17-17	11-17-17
CLOCK TIME (Military)		9:25	13:25	12:50	13:50
PROPERTY ADDRESS		20770 W. Coffee Rd	3551 S. Woodland Ct	3640 S. Canary Rd	3690 S. Racine Ave
GEMS ID		236	953	242	238
SAMPLING DEVICE		Spigot after Pressure Tank	Spigot	Spigot	Spigot
SAMPLING DEVICE LOCATION		Basement	Outside - Front	Outside - Back	Outside - Back
PURGE RATE (gpm)		NM	3.0	5.0	7.5
PURGE VOLUME (gallons)		NM	50	75	75
FIELD TEMPERATURE (^{o}C)		12.6	11.9	8.4	7.7
pH		6.90	7.06	7.40	7.41
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM
	at 25^{o} C	696	765	858	734
TURBIDITY (NTU)		38.8	1.10	0.03	12.7
COLOR		Clear	Clear	Clear	Gray
ODOR		None	None	None	None
CLARITY		Clear	Clear	Clear	Very Slightly Cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
Notes		Purged water from a different faucet in house for 15 minutes			
		Pressure tank kicked on 4 times			
Total As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No
Total Sulfate and Chloride		1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No
Total TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	11-21-17
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner

***Measured from top of well casing.**

TETRA TECH

TETRA TECH PRIVATE WELL FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		SRI LAKSHMI TEMPLE	KOWIS	WERNING	WYSZKOWSKI
WATER TYPE		Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)		11-17-17	11-17-17	11-17-17	11-17-17
CLOCK TIME (Military)		14:15	11:45	12:20	13:00
PROPERTY ADDRESS		3705 S. Swartz Rd	3540 S. Canary Rd	3620 S. Canary Rd	3630 S. Canary Rd
GEMS ID		950	246	244	243
SAMPLING DEVICE		Faucet	Spigot	Spigot	Spigot
SAMPLING DEVICE LOCATION		Hallway	Outside – Side of house	Outside – Side of house	Outside - Back
PURGE RATE (gpm)		~2.0	2.5	4.0	3.75
PURGE VOLUME (gallons)		~30	37.5	60	80
FIELD TEMPERATURE (^{o}C)		10.0	7.4	8.1	8.7
pH		7.44	7.54	7.52	7.53
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	NM
	at 25^{o} C	1025	766	726	708
TURBIDITY (NTU)		6.08	11.1	0.10	0.17
COLOR		Clear	Clear	Clear	Clear
ODOR		None	None	None	None
CLARITY		Clear	Clear	Clear	Clear
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
Notes			Collected duplicate sample at 11:50		
Total As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No
Total Sulfate and Chloride		1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No
Total TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	Pace Analytical
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	11-21-17
SAMPLER'S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	Ashley Wagner

***Measured from top of well casing.**

TETRA TECH

TETRA TECH PRIVATE WELL FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Lamotte 2020

SAMPLE POINT ID		HANKE	HOLBROOK	RHYNER	
WATER TYPE		Groundwater	Groundwater	Groundwater	
DATE (month/day/year)		12-1-17	12-14-17	12-18-17	
CLOCK TIME (Military)		16:00	10:30	12:30	
PROPERTY ADDRESS		20745 W. Coffee Rd	3600 S. Canary Rd	3540 S. Woodland Ct	
GEMS ID		237	245	240	
SAMPLING DEVICE		Faucet	Spigot	Spigot	
SAMPLING DEVICE LOCATION		Kitchen Sink	Basement – before Pressure Tank	Basement – before Pressure Tank	
PURGE RATE (gpm)		NM	NM	NM	
PURGE VOLUME (gallons)		NM	NM	NM	
FIELD TEMPERATURE (^{o}C)		11.8	13.5	11.7	
pH		7.02	9.24	7.43	
ELEC. COND. (uS/cm)	Measured	NM	NM	NM	
	at 25^{o} C	645	1473	888	
TURBIDITY (NTU)		NM	NM	NM	
COLOR		Clear	Clear	Clear	
ODOR		None	None	None	
CLARITY		Clear	Clear	Clear	
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
Notes			Purged water from a faucet in basement for 15 minutes	Purged water from a different faucet in house for 15 minutes	
				Pressure tank kicked on 4 times	
Total As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	1-250 mL; P; HNO_3; L; No	
Total Sulfate and Chloride		1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	1-250 mL; P; None; Neutral; No	
Total TKN and Nitrate Plus Nitrite		1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	1-250 mL; P; H_2SO_4; L; No	
NAME OF LABORATORY		Pace Analytical	Pace Analytical	Pace Analytical	
DATE SENT TO LAB		11-21-17	11-21-17	11-21-17	
SAMPLER ' S NAME		Ashley Wagner	Ashley Wagner	Ashley Wagner	

***Measured from top of well casing.**

TETRA TECH

TETRA TECH PRIVATE WELL FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Barrett Landfill	Temp. & pH	Hanna
PROJECT NO.	117-7143003.01	Conductivity	Hanna
LOCATION	New Berlin, Wisconsin	ORP/DO	Not Measured
PERSONNEL	Ashley A. Wagner	Turbidity	Not Measured

SAMPLE POINT ID		KOWIS/Dup			
WATER TYPE		Groundwater			
DATE (month/day/year)		1-31-18			
CLOCK TIME (Military)		10:00/10:05			
PROPERTY ADDRESS		3540 S. Canary Rd			
GEMS ID		246			
SAMPLING DEVICE		Spigot			
SAMPLING DEVICE LOCATION		At pressure tank			
PURGE RATE (gpm)		3.33			
PURGE VOLUME (gallons)		60			
FIELD TEMPERATURE (°C)		12.4			
pH		7.71			
ELEC. COND. (uS/cm)	Measured	NM			
	at 25° C	881			
TURBIDITY (NTU)		NM			
COLOR		Clear			
ODOR		None			
CLARITY		Clear			
SAMPLING PARAMETERS		# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
Notes		Collected duplicate sample at 10:05			
			Pressure tank kicked on 4 times during purge. Water was purged at sink in basement.	There was a rotten egg smell while purging, but gone when sample was collected.	
Total As, Pb, Ni, Cr, Mn, Mg		1-250 mL; P; HNO_3; L; No	Sample collected at pressure tank, pressure tank was new.	Homeowner noted smell is a common occurrence and he uses chlorine tabs in well.	
		*Resample to confirm results from November 2017 with elevated lead in duplicate sample	Property owner said new PVC well casing (~180ft) and new pump installed		
		Sample in November was collected from outside spigot; homeowner was not home at the time of sampling			
NAME OF LABORATORY		Pace Analytical			
DATE SENT TO LAB		2-1-18			
SAMPLER'S NAME		Ashley Wagner			

***Measured from top of well casing.**

TETRA TECH

APPENDIX II

LABORATORY ANANLYTICAL RESULTS

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

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

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161045001	**B-94-25**	Water	11/15/17 14:05	11/17/17 07:15
40161045002	**B-94-14R**	Water	11/15/17 14:50	11/17/17 07:15
40161045003	**B-94-14A**	Water	11/15/17 15:05	11/17/17 07:15
40161045004	**B-21A**	Water	11/15/17 15:30	11/17/17 07:15
40161045005	**B-96-17A**	Water	11/15/17 15:55	11/17/17 07:15
40161045006	**B-96-17**	Water	11/15/17 16:10	11/17/17 07:15

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40161045001	**B-94-25**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1
40161045002	**B-94-14R**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1
40161045003	**B-94-14A**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1
40161045004	**B-21A**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1
40161045005	**B-96-17A**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1
40161045006	**B-96-17**	EPA 6020	DS1	6
		EPA 300.0	HMB	2
		EPA 351.2	TMK	1
		EPA 353.2	DAW	1

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Sample: B-94-25 **Lab ID: 40161045001** Collected: 11/15/17 14:05 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**7.9**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 15:40	7440-38-2	
Chromium, Dissolved	**10.0**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 15:40	7440-47-3	
Lead, Dissolved	**6.3**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 15:40	7439-92-1	
Magnesium, Dissolved	**65300**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 15:40	7439-95-4	
Manganese, Dissolved	**942**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 15:40	7439-96-5	
Nickel, Dissolved	**14.1**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 15:40	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**134**	mg/L	10.0	2.5	5		12/02/17 00:02	16887-00-6	
Sulfate, Dissolved	**11.1J**	mg/L	15.0	5.0	5		12/02/17 00:02	14808-79-8	D3
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**2.0**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:52	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 10:36		

Sample: B-94-14R **Lab ID: 40161045002** Collected: 11/15/17 14:50 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**1.1**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 15:48	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 15:48	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 15:48	7439-92-1	
Magnesium, Dissolved	**48300**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 15:48	7439-95-4	
Manganese, Dissolved	**3.3J**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 15:48	7439-96-5	
Nickel, Dissolved	**1.8**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 15:48	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**47.0**	mg/L	2.0	0.50	1		12/02/17 00:12	16887-00-6	
Sulfate, Dissolved	**56.7**	mg/L	3.0	1.0	1		12/02/17 00:12	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.40J**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:53	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.61**	mg/L	0.25	0.095	1		11/30/17 10:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Sample: B-94-14A **Lab ID: 40161045003** Collected: 11/15/17 15:05 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.91J**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 15:55	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 15:55	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 15:55	7439-92-1	
Magnesium, Dissolved	**66100**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 15:55	7439-95-4	
Manganese, Dissolved	**48.6**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 15:55	7439-96-5	
Nickel, Dissolved	**2.4**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 15:55	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**53.6**	mg/L	2.0	0.50	1		12/02/17 00:23	16887-00-6	
Sulfate, Dissolved	**165**	mg/L	30.0	10.0	10		12/02/17 21:03	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.37J**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:53	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 10:38		

Sample: B-21A **Lab ID: 40161045004** Collected: 11/15/17 15:30 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.35J**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 16:03	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 16:03	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 16:03	7439-92-1	
Magnesium, Dissolved	**42200**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 16:03	7439-95-4	
Manganese, Dissolved	**13.3**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 16:03	7439-96-5	
Nickel, Dissolved	**1.5**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 16:03	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**66.1**	mg/L	10.0	2.5	5		12/02/17 21:14	16887-00-6	
Sulfate, Dissolved	**36.4**	mg/L	3.0	1.0	1		12/02/17 00:33	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.25J**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:56	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.10J**	mg/L	0.25	0.095	1		11/30/17 10:39		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Sample: B-96-17A **Lab ID: 40161045005** Collected: 11/15/17 15:55 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**<0.28**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 16:10	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 16:10	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 16:10	7439-92-1	
Magnesium, Dissolved	**45800**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 16:10	7439-95-4	
Manganese, Dissolved	**16.4**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 16:10	7439-96-5	
Nickel, Dissolved	**0.84J**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 16:10	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**14.3**	mg/L	2.0	0.50	1		12/02/17 01:16	16887-00-6	
Sulfate, Dissolved	**47.9**	mg/L	3.0	1.0	1		12/02/17 01:16	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:57	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.71**	mg/L	0.25	0.095	1		11/30/17 10:40		

Sample: B-96-17 **Lab ID: 40161045006** Collected: 11/15/17 16:10 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**1.7**	ug/L	1.0	0.28	1	11/30/17 07:17	12/02/17 16:18	7440-38-2	
Chromium, Dissolved	**1.7J**	ug/L	3.4	1.0	1	11/30/17 07:17	12/02/17 16:18	7440-47-3	
Lead, Dissolved	**2.1**	ug/L	1.0	0.20	1	11/30/17 07:17	12/02/17 16:18	7439-92-1	
Magnesium, Dissolved	**47000**	ug/L	250	29.7	1	11/30/17 07:17	12/02/17 16:18	7439-95-4	
Manganese, Dissolved	**73.6**	ug/L	9.0	2.7	1	11/30/17 07:17	12/02/17 16:18	7439-96-5	
Nickel, Dissolved	**3.2**	ug/L	1.3	0.40	1	11/30/17 07:17	12/02/17 16:18	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**85.3**	mg/L	10.0	2.5	5		12/02/17 01:26	16887-00-6	
Sulfate, Dissolved	**51.9**	mg/L	15.0	5.0	5		12/02/17 01:26	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.34J**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:58	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**5.8**	mg/L	0.25	0.095	1		11/30/17 10:41		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

QC Batch: 275662 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

METHOD BLANK: 1621281 Matrix: Water
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.28	1.0	12/02/17 12:11	
Chromium, Dissolved	ug/L	<1.0	3.4	12/02/17 12:11	
Lead, Dissolved	ug/L	<0.20	1.0	12/02/17 12:11	
Magnesium, Dissolved	ug/L	<29.7	250	12/02/17 12:11	
Manganese, Dissolved	ug/L	<2.7	9.0	12/02/17 12:11	
Nickel, Dissolved	ug/L	<0.40	1.3	12/02/17 12:11	

LABORATORY CONTROL SAMPLE: 1621282

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	448	90	80-120	
Chromium, Dissolved	ug/L	500	454	91	80-120	
Lead, Dissolved	ug/L	500	454	91	80-120	
Magnesium, Dissolved	ug/L	5000	4610	92	80-120	
Manganese, Dissolved	ug/L	500	456	91	80-120	
Nickel, Dissolved	ug/L	500	450	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621283 1621284

Parameter	Units	40160993017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	2.4	500	500	469	479	93	95	75-125	2	20	
Chromium, Dissolved	ug/L	<1.0	500	500	459	457	92	91	75-125	0	20	
Lead, Dissolved	ug/L	0.21J	500	500	469	467	94	93	75-125	0	20	
Magnesium, Dissolved	ug/L	48400	5000	5000	50600	52900	42	89	75-125	5	20	P6
Manganese, Dissolved	ug/L	857	500	500	1290	1300	87	89	75-125	1	20	
Nickel, Dissolved	ug/L	4.3	500	500	444	445	88	88	75-125	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

QC Batch: 275775 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions,Dissolved
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

METHOD BLANK: 1622074 Matrix: Water
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/01/17 21:13	
Sulfate	mg/L	<1.0	3.0	12/01/17 21:13	

LABORATORY CONTROL SAMPLE: 1622075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.2	106	90-110	
Sulfate	mg/L	20	20.8	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622076 1622077

Parameter	Units	40160975008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	14.7	100	100	132	122	117	107	90-110	8	15	M0
Sulfate	mg/L	42.5	100	100	158	148	116	105	90-110	7	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622078 1622079

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.1	20	20	39.7	39.5	108	107	90-110	0	15	
Sulfate	mg/L	147	200	200	352	356	103	104	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

QC Batch: 275613 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN Dissolved
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

METHOD BLANK: 1620949 Matrix: Water
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	0.73	11/29/17 17:48	

LABORATORY CONTROL SAMPLE: 1620950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	5	4.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620951 1620952

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	5	5	4.9	4.9	95	95	90-110	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

QC Batch: 275676 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrogen, Dissolved, preserved
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

METHOD BLANK: 1621336 Matrix: Water
Associated Lab Samples: 40161045001, 40161045002, 40161045003, 40161045004, 40161045005, 40161045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3, Dissolved	mg/L	<0.095	0.25	11/30/17 10:28	

LABORATORY CONTROL SAMPLE: 1621337

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621338 1621339

Parameter	Units	40160864011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3, Dissolved	mg/L	10.4	12.5	12.5	22.9	23.4	100	104	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621340 1621341

Parameter	Units	40160886008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3, Dissolved	mg/L	<0.095	2.5	2.5	2.6	2.6	101	101	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

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

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161045

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161045001	**B-94-25**	EPA 3010	275662	EPA 6020	275771
40161045002	**B-94-14R**	EPA 3010	275662	EPA 6020	275771
40161045003	**B-94-14A**	EPA 3010	275662	EPA 6020	275771
40161045004	**B-21A**	EPA 3010	275662	EPA 6020	275771
40161045005	**B-96-17A**	EPA 3010	275662	EPA 6020	275771
40161045006	**B-96-17**	EPA 3010	275662	EPA 6020	275771
40161045001	**B-94-25**	EPA 300.0	275775		
40161045002	**B-94-14R**	EPA 300.0	275775		
40161045003	**B-94-14A**	EPA 300.0	275775		
40161045004	**B-21A**	EPA 300.0	275775		
40161045005	**B-96-17A**	EPA 300.0	275775		
40161045006	**B-96-17**	EPA 300.0	275775		
40161045001	**B-94-25**	EPA 351.2	275613	EPA 351.2	275650
40161045002	**B-94-14R**	EPA 351.2	275613	EPA 351.2	275650
40161045003	**B-94-14A**	EPA 351.2	275613	EPA 351.2	275650
40161045004	**B-21A**	EPA 351.2	275613	EPA 351.2	275650
40161045005	**B-96-17A**	EPA 351.2	275613	EPA 351.2	275650
40161045006	**B-96-17**	EPA 351.2	275613	EPA 351.2	275650
40161045001	**B-94-25**	EPA 353.2	275676		
40161045002	**B-94-14R**	EPA 353.2	275676		
40161045003	**B-94-14A**	EPA 353.2	275676		
40161045004	**B-21A**	EPA 353.2	275676		
40161045005	**B-96-17A**	EPA 353.2	275676		
40161045006	**B-96-17**	EPA 353.2	275676		

Pace Analytical®
www.pacelabs.com

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

Page 1 of

40161045

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:	Tetra Tech
Branch/Location:	Brookfield, WI
Project Contact:	Ashley Wagner
Phone:	(262) 792-1282
Project Number:	117-7413003.01
Project Name:	Barrett Landfill
Project State:	WI
Sampled By (Print):	Ashley Wagner
Sampled By (Sign):	Ashley Wagner
PO #:	Regulatory Program:

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: Ni, As, Pb, Cr, Mn, Fe	Chloride, Sulfate	TKN, Nitrate + Nitrite
					Y	D		A	C
001	B-94-25	11.15	1405	GW			1	1	1
002	B-94-14R		1450				1	1	1
003	B-94-14A		1505				1	1	1
004	B-21A		1530				1	1	1
005	B-96-17A		1555				1	1	1
006	B-96-17		1610				1	1	1

Quote #:	
Mail To Contact:	Ashley Wagner
Mail To Company:	Tetra Tech
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)
3-250mL HDPE H2SO4

Profile #

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:	Date/Time:	Received By:	Date/Time:
[illegible]	11.16.17 0800	Mary Jannin	11/16/17 1042
Mary Jannin	11/16/17 1430		
CS Logistics	11/17/17 0715	[illegible]	11/17/17 0715

PACE Project No.: 40161045

Receipt Temp = ROI °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Sample Condition Upon Receipt

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

Pace Analytical™

Client Name: Tetra Tech

Project #: **WO# : 40161045**

40161045

Courier: ☐ Fed Ex ☒ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSM

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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. SSM 11/17/17
Rush Turn Around Time Requested:	☐Yes	☒No	☐N/A	7.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. No MS/MSD vol. SSM 11/17/17
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. SSM 11/17/17
Sample Labels match COC:	☒Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W				
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 SSM / 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: **Date:** 11/17/17

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

December 15, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161322001	**W-23**	Water	11/16/17 15:35	11/22/17 07:15
40161322002	**W-23A**	Water	11/16/17 16:00	11/22/17 07:15
40161322003	**B-96-13A**	Water	11/16/17 16:20	11/22/17 07:15
40161322004	**B-94-25A**	Water	11/16/17 16:40	11/22/17 07:15
40161322005	**EB-GF**	Water	11/17/17 10:15	11/22/17 07:15
40161322006	**W-24**	Water	11/17/17 10:45	11/22/17 07:15
40161322007	**B-96-18A**	Water	11/17/17 14:30	11/22/17 07:15
40161322008	**B-96-18B**	Water	11/17/17 14:45	11/22/17 07:15
40161322009	**B-94-19A**	Water	11/17/17 15:10	11/22/17 07:15
40161322010	**B-15A**	Water	11/17/17 15:40	11/22/17 07:15
40161322011	**B-15**	Water	11/17/17 15:50	11/22/17 07:15
40161322012	**B-15 DUP**	Water	11/17/17 15:55	11/22/17 07:15
40161322013	**B-21**	Water	11/17/17 16:15	11/22/17 07:15
40161322014	**KOWIS DUP**	Water	11/17/17 16:00	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161322001	**W-23**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322002	**W-23A**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322003	**B-96-13A**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322004	**B-94-25A**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322005	**EB-GF**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322006	**W-24**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322007	**B-96-18A**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322008	**B-96-18B**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322009	**B-94-19A**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322010	**B-15A**	EPA 6020	SDW	6	PASI-G

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322011	**B-15**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322012	**B-15 DUP**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322013	**B-21**	EPA 6020	SDW	6	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
40161322014	**KOWIS DUP**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	5	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: W-23 **Lab ID: 40161322001** Collected: 11/16/17 15:35 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.28J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 10:18	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 10:18	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 10:18	7439-92-1	
Magnesium, Dissolved	**48300**	ug/L	2500	297	10	12/05/17 09:54	12/06/17 09:37	7439-95-4	P6
Manganese, Dissolved	**8.3J**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 10:18	7439-96-5	
Nickel, Dissolved	**1.2J**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 10:18	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**18.1**	mg/L	2.0	0.50	1		12/02/17 01:58	16887-00-6	
Sulfate, Dissolved	**147**	mg/L	30.0	10.0	10		12/02/17 21:24	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 17:59	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.69**	mg/L	0.25	0.095	1		11/30/17 11:14		

Sample: W-23A **Lab ID: 40161322002** Collected: 11/16/17 16:00 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.48J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 10:45	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 10:45	7440-47-3	
Lead, Dissolved	**0.23J**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 10:45	7439-92-1	
Magnesium, Dissolved	**43700**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 10:45	7439-95-4	
Manganese, Dissolved	**13.2**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 10:45	7439-96-5	
Nickel, Dissolved	**1.7**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 10:45	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**19.1**	mg/L	2.0	0.50	1		12/02/17 02:29	16887-00-6	
Sulfate, Dissolved	**132**	mg/L	30.0	10.0	10		12/02/17 21:56	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	11/29/17 13:10	11/29/17 18:01	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:20		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: B-96-13A **Lab ID: 40161322003** Collected: 11/16/17 16:20 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.29J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 10:59	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 10:59	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 10:59	7439-92-1	
Magnesium, Dissolved	**53400**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 10:59	7439-95-4	
Manganese, Dissolved	**63.7**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 10:59	7439-96-5	
Nickel, Dissolved	**2.0**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 10:59	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**50.2**	mg/L	2.0	0.50	1		12/02/17 02:40	16887-00-6	
Sulfate, Dissolved	**132**	mg/L	30.0	10.0	10		12/02/17 22:07	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:45	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:22		

Sample: B-94-25A **Lab ID: 40161322004** Collected: 11/16/17 16:40 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**24.6**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:06	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:06	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:06	7439-92-1	
Magnesium, Dissolved	**59500**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:06	7439-95-4	
Manganese, Dissolved	**8.1J**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:06	7439-96-5	
Nickel, Dissolved	**0.83J**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:06	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**160**	mg/L	20.0	5.0	10		12/04/17 18:55	16887-00-6	
Sulfate, Dissolved	**9.0**	mg/L	3.0	1.0	1		12/02/17 13:51	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**2.3**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:50	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.14J**	mg/L	0.25	0.095	1		11/30/17 11:23		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: EB-GF **Lab ID: 40161322005** Collected: 11/17/17 10:15 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**<0.28**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 09:24	7440-38-2	
Chromium, Dissolved	**5.7**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 09:24	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 09:24	7439-92-1	
Magnesium, Dissolved	**53.8J**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 09:24	7439-95-4	
Manganese, Dissolved	**<2.7**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 09:24	7439-96-5	
Nickel, Dissolved	**2.6**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 09:24	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**<0.50**	mg/L	2.0	0.50	1		12/02/17 14:02	16887-00-6	
Sulfate, Dissolved	**<1.0**	mg/L	3.0	1.0	1		12/02/17 14:02	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:52	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:24		

Sample: W-24 **Lab ID: 40161322006** Collected: 11/17/17 10:45 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**<0.28**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:13	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:13	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:13	7439-92-1	
Magnesium, Dissolved	**49800**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:13	7439-95-4	
Manganese, Dissolved	**<2.7**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:13	7439-96-5	
Nickel, Dissolved	**2.0**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:13	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**289**	mg/L	20.0	5.0	10		12/04/17 19:05	16887-00-6	
Sulfate, Dissolved	**47.9**	mg/L	3.0	1.0	1		12/02/17 14:12	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.35J**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:53	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**1.8**	mg/L	0.25	0.095	1		11/30/17 11:25		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: B-96-18A **Lab ID: 40161322007** Collected: 11/17/17 14:30 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**<0.28**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:19	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:19	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:19	7439-92-1	
Magnesium, Dissolved	**51800**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:19	7439-95-4	
Manganese, Dissolved	**<2.7**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:19	7439-96-5	
Nickel, Dissolved	**<0.40**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:19	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**120**	mg/L	10.0	2.5	5		12/04/17 19:47	16887-00-6	
Sulfate, Dissolved	**54.3**	mg/L	3.0	1.0	1		12/02/17 14:23	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.32J**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:54	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**2.9**	mg/L	0.25	0.095	1		11/30/17 11:26		

Sample: B-96-18B **Lab ID: 40161322008** Collected: 11/17/17 14:45 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**<0.28**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:40	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:40	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:40	7439-92-1	
Magnesium, Dissolved	**37800**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:40	7439-95-4	
Manganese, Dissolved	**41.0**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:40	7439-96-5	
Nickel, Dissolved	**5.5**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:40	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**61.3**	mg/L	20.0	5.0	10		12/04/17 19:58	16887-00-6	
Sulfate, Dissolved	**50.3**	mg/L	30.0	10.0	10		12/04/17 19:58	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**<0.22**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:55	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**1.3**	mg/L	0.25	0.095	1		11/30/17 11:27		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: B-94-19A **Lab ID: 40161322009** Collected: 11/17/17 15:10 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.42J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:47	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:47	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:47	7439-92-1	
Magnesium, Dissolved	**42600**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:47	7439-95-4	
Manganese, Dissolved	**9.8**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:47	7439-96-5	
Nickel, Dissolved	**0.76J**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:47	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**96.6**	mg/L	10.0	2.5	5		12/04/17 20:08	16887-00-6	
Sulfate, Dissolved	**16.9**	mg/L	3.0	1.0	1		12/02/17 14:44	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.81**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:56	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.21J**	mg/L	0.25	0.095	1		11/30/17 11:28		

Sample: B-15A **Lab ID: 40161322010** Collected: 11/17/17 15:40 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.76J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 11:53	7440-38-2	
Chromium, Dissolved	**3.7**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 11:53	7440-47-3	
Lead, Dissolved	**0.20J**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 11:53	7439-92-1	
Magnesium, Dissolved	**48600**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 11:53	7439-95-4	
Manganese, Dissolved	**370**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 11:53	7439-96-5	
Nickel, Dissolved	**3.4**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 11:53	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**117**	mg/L	10.0	2.5	5		12/04/17 20:19	16887-00-6	
Sulfate, Dissolved	**71.0**	mg/L	15.0	5.0	5		12/04/17 20:19	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.27J**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:57	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:32		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: B-15 **Lab ID: 40161322011** Collected: 11/17/17 15:50 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**8.1**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 12:00	7440-38-2	
Chromium, Dissolved	**4.9**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 12:00	7440-47-3	
Lead, Dissolved	**1.0**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 12:00	7439-92-1	
Magnesium, Dissolved	**62500**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 12:00	7439-95-4	
Manganese, Dissolved	**237**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 12:00	7439-96-5	
Nickel, Dissolved	**5.7**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 12:00	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**128**	mg/L	10.0	2.5	5		12/04/17 20:30	16887-00-6	
Sulfate, Dissolved	**56.9**	mg/L	15.0	5.0	5		12/04/17 20:30	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**1.1**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 17:58	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:34		

Sample: B-15 DUP **Lab ID: 40161322012** Collected: 11/17/17 15:55 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**8.1**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 12:07	7440-38-2	
Chromium, Dissolved	**4.4**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 12:07	7440-47-3	
Lead, Dissolved	**0.99J**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 12:07	7439-92-1	
Magnesium, Dissolved	**63600**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 12:07	7439-95-4	
Manganese, Dissolved	**241**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 12:07	7439-96-5	
Nickel, Dissolved	**5.6**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 12:07	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**127**	mg/L	10.0	2.5	5		12/04/17 20:40	16887-00-6	
Sulfate, Dissolved	**63.5**	mg/L	15.0	5.0	5		12/04/17 20:40	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**1.1**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 18:00	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**<0.095**	mg/L	0.25	0.095	1		11/30/17 11:35		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Sample: B-21 **Lab ID: 40161322013** Collected: 11/17/17 16:15 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic, Dissolved	**0.57J**	ug/L	1.0	0.28	1	12/05/17 09:54	12/06/17 12:14	7440-38-2	
Chromium, Dissolved	**<1.0**	ug/L	3.4	1.0	1	12/05/17 09:54	12/06/17 12:14	7440-47-3	
Lead, Dissolved	**<0.20**	ug/L	1.0	0.20	1	12/05/17 09:54	12/06/17 12:14	7439-92-1	
Magnesium, Dissolved	**51900**	ug/L	250	29.7	1	12/05/17 09:54	12/06/17 12:14	7439-95-4	
Manganese, Dissolved	**671**	ug/L	9.0	2.7	1	12/05/17 09:54	12/06/17 12:14	7439-96-5	
Nickel, Dissolved	**12.5**	ug/L	1.3	0.40	1	12/05/17 09:54	12/06/17 12:14	7440-02-0	
300.0 IC Anions 28 Days,Diss	Analytical Method: EPA 300.0								
Chloride, Dissolved	**93.4**	mg/L	20.0	5.0	10		12/05/17 13:19	16887-00-6	
Sulfate, Dissolved	**82.4**	mg/L	15.0	5.0	5		12/04/17 20:51	14808-79-8	
351.2 Diss. Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total, Dissolved	**0.52J**	mg/L	0.73	0.22	1	12/06/17 13:11	12/06/17 18:01	7727-37-9	
353.2 Nitrogen, Dissolved Pres	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3, Dissolved	**0.90**	mg/L	0.25	0.095	1		11/30/17 11:36		

Sample: KOWIS DUP **Lab ID: 40161322014** Collected: 11/17/17 16:00 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**47800**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 12:02	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**2.6**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 07:30	7440-38-2	
Chromium	**0.51J**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 07:30	7440-47-3	
Lead	**23.7**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 07:30	7439-92-1	
Manganese	**119**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 07:30	7439-96-5	
Nickel	**2.4**	ug/L	0.27	0.057	1	12/03/17 15:46	12/05/17 07:30	7440-02-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**42.7**	mg/L	10.0	2.5	5		12/12/17 19:18	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/30/17 12:18		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 417526
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161322014

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161322014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161322014

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161322014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	
Nickel	ug/L	<0.057	0.27	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	
Nickel	ug/L	40	37.4	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	
Nickel	ug/L	1.5	40	40	36.2	35.9	87	86	70-130	1	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	
Nickel	ug/L	1.5	40	35.7	86	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 276134 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 40161322001, 40161322002, 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

METHOD BLANK: 1624194 Matrix: Water
Associated Lab Samples: 40161322001, 40161322002, 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.28	1.0	12/06/17 09:17	
Chromium, Dissolved	ug/L	<1.0	3.4	12/06/17 09:17	
Lead, Dissolved	ug/L	<0.20	1.0	12/06/17 09:17	
Magnesium, Dissolved	ug/L	<29.7	250	12/06/17 09:17	
Manganese, Dissolved	ug/L	<2.7	9.0	12/06/17 09:17	
Nickel, Dissolved	ug/L	<0.40	1.3	12/06/17 09:17	

LABORATORY CONTROL SAMPLE: 1624195

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	503	101	80-120	
Chromium, Dissolved	ug/L	500	486	97	80-120	
Lead, Dissolved	ug/L	500	491	98	80-120	
Magnesium, Dissolved	ug/L	5000	4920	98	80-120	
Manganese, Dissolved	ug/L	500	490	98	80-120	
Nickel, Dissolved	ug/L	500	482	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1624196 1624197

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.28J	500	500	508	491	102	98	75-125	3	20	
Chromium, Dissolved	ug/L	<1.0	500	500	472	458	94	91	75-125	3	20	
Lead, Dissolved	ug/L	<0.20	500	500	480	466	96	93	75-125	3	20	
Magnesium, Dissolved	ug/L	48300	5000	5000	56100	52400	156	82	75-125	7	20	P6
Manganese, Dissolved	ug/L	8.3J	500	500	482	462	95	91	75-125	4	20	
Nickel, Dissolved	ug/L	1.2J	500	500	460	442	92	88	75-125	4	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 275775 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions,Dissolved
Associated Lab Samples: 40161322001, 40161322002, 40161322003

METHOD BLANK: 1622074 Matrix: Water
Associated Lab Samples: 40161322001, 40161322002, 40161322003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/01/17 21:13	
Sulfate	mg/L	<1.0	3.0	12/01/17 21:13	

LABORATORY CONTROL SAMPLE: 1622075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.2	106	90-110	
Sulfate	mg/L	20	20.8	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622076 1622077

Parameter	Units	40160975008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	14.7	100	100	132	122	117	107	90-110	8	15	M0
Sulfate	mg/L	42.5	100	100	158	148	116	105	90-110	7	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622078 1622079

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.1	20	20	39.7	39.5	108	107	90-110	0	15	
Sulfate	mg/L	147	200	200	352	356	103	104	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 275907 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions,Dissolved
Associated Lab Samples: 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

METHOD BLANK: 1622955 Matrix: Water
Associated Lab Samples: 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/02/17 12:27	
Sulfate	mg/L	<1.0	3.0	12/02/17 12:27	

LABORATORY CONTROL SAMPLE: 1622956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.5	108	90-110	
Sulfate	mg/L	20	21.2	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622957 1622958

Parameter	Units	40161033001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	44.5	100	100	148	154	103	109	90-110	4	15	
Sulfate	mg/L	21.2	20	20	41.2	42.5	100	107	90-110	3	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622959 1622960

Parameter	Units	40161385004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	59.9	100	100	165	168	105	108	90-110	2	15	
Sulfate	mg/L	11.3	20	20	32.4	32.8	106	108	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 276066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161322014

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161322014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L		2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 275613 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN Dissolved
Associated Lab Samples: 40161322001, 40161322002

METHOD BLANK: 1620949 Matrix: Water
Associated Lab Samples: 40161322001, 40161322002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	0.73	11/29/17 17:48	

LABORATORY CONTROL SAMPLE: 1620950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	5	4.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620951 1620952

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	5	5	4.9	4.9	95	95	90-110	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 276331 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN Dissolved
Associated Lab Samples: 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

METHOD BLANK: 1625313 Matrix: Water
Associated Lab Samples: 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	0.73	12/06/17 17:44	

LABORATORY CONTROL SAMPLE: 1625314

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1625315 1625316

Parameter	Units	40161322003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	<0.22	5	5	5.2	5.1	100	98	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1625317 1625318

Parameter	Units	40161322004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total, Dissolved	mg/L	2.3	5	5	7.6	7.5	106	105	90-110	1	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 275681
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161322014

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161322014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

QC Batch: 275677 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrogen, Dissolved, preserved
Associated Lab Samples: 40161322001, 40161322002, 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

METHOD BLANK: 1621346 Matrix: Water
Associated Lab Samples: 40161322001, 40161322002, 40161322003, 40161322004, 40161322005, 40161322006, 40161322007, 40161322008, 40161322009, 40161322010, 40161322011, 40161322012, 40161322013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3, Dissolved	mg/L	<0.095	0.25	11/30/17 11:06	

LABORATORY CONTROL SAMPLE: 1621347

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3, Dissolved	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621348 1621349

Parameter	Units	40161322001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3, Dissolved	mg/L	0.69	2.5	2.5	3.2	3.2	99	100	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621350 1621351

Parameter	Units	40160977002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3, Dissolved	mg/L	<0.095	2.5	2.5	2.5	2.5	99	99	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161322014	**KOWIS DUP**	EPA 200.7	417526	EPA 200.7	418027
40161322014	**KOWIS DUP**	EPA 200.8	417900	EPA 200.8	418045
40161322001	**W-23**	EPA 3010	276134	EPA 6020	276235
40161322002	**W-23A**	EPA 3010	276134	EPA 6020	276235
40161322003	**B-96-13A**	EPA 3010	276134	EPA 6020	276235
40161322004	**B-94-25A**	EPA 3010	276134	EPA 6020	276235
40161322005	**EB-GF**	EPA 3010	276134	EPA 6020	276235
40161322006	**W-24**	EPA 3010	276134	EPA 6020	276235
40161322007	**B-96-18A**	EPA 3010	276134	EPA 6020	276235
40161322008	**B-96-18B**	EPA 3010	276134	EPA 6020	276235
40161322009	**B-94-19A**	EPA 3010	276134	EPA 6020	276235
40161322010	**B-15A**	EPA 3010	276134	EPA 6020	276235
40161322011	**B-15**	EPA 3010	276134	EPA 6020	276235
40161322012	**B-15 DUP**	EPA 3010	276134	EPA 6020	276235
40161322013	**B-21**	EPA 3010	276134	EPA 6020	276235
40161322014	**KOWIS DUP**	EPA 300.0	276066		
40161322001	**W-23**	EPA 300.0	275775		
40161322002	**W-23A**	EPA 300.0	275775		
40161322003	**B-96-13A**	EPA 300.0	275775		
40161322004	**B-94-25A**	EPA 300.0	275907		
40161322005	**EB-GF**	EPA 300.0	275907		
40161322006	**W-24**	EPA 300.0	275907		
40161322007	**B-96-18A**	EPA 300.0	275907		
40161322008	**B-96-18B**	EPA 300.0	275907		
40161322009	**B-94-19A**	EPA 300.0	275907		
40161322010	**B-15A**	EPA 300.0	275907		
40161322011	**B-15**	EPA 300.0	275907		
40161322012	**B-15 DUP**	EPA 300.0	275907		
40161322013	**B-21**	EPA 300.0	275907		
40161322001	**W-23**	EPA 351.2	275613	EPA 351.2	275650
40161322002	**W-23A**	EPA 351.2	275613	EPA 351.2	275650
40161322003	**B-96-13A**	EPA 351.2	276331	EPA 351.2	276386
40161322004	**B-94-25A**	EPA 351.2	276331	EPA 351.2	276386
40161322005	**EB-GF**	EPA 351.2	276331	EPA 351.2	276386
40161322006	**W-24**	EPA 351.2	276331	EPA 351.2	276386
40161322007	**B-96-18A**	EPA 351.2	276331	EPA 351.2	276386
40161322008	**B-96-18B**	EPA 351.2	276331	EPA 351.2	276386
40161322009	**B-94-19A**	EPA 351.2	276331	EPA 351.2	276386
40161322010	**B-15A**	EPA 351.2	276331	EPA 351.2	276386
40161322011	**B-15**	EPA 351.2	276331	EPA 351.2	276386
40161322012	**B-15 DUP**	EPA 351.2	276331	EPA 351.2	276386
40161322013	**B-21**	EPA 351.2	276331	EPA 351.2	276386
40161322014	**KOWIS DUP**	EPA 353.2	275681		
40161322001	**W-23**	EPA 353.2	275677		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161322

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161322002	**W-23A**	EPA 353.2	275677		
40161322003	**B-96-13A**	EPA 353.2	275677		
40161322004	**B-94-25A**	EPA 353.2	275677		
40161322005	**EB-GF**	EPA 353.2	275677		
40161322006	**W-24**	EPA 353.2	275677		
40161322007	**B-96-18A**	EPA 353.2	275677		
40161322008	**B-96-18B**	EPA 353.2	275677		
40161322009	**B-94-19A**	EPA 353.2	275677		
40161322010	**B-15A**	EPA 353.2	275677		
40161322011	**B-15**	EPA 353.2	275677		
40161322012	**B-15 DUP**	EPA 353.2	275677		
40161322013	**B-21**	EPA 353.2	275677		

Pace Analytical®
www.pacelabs.com

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

55M

40161322

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:	Tetra Tech
Branch/Location:	Brookfield, WI
Project Contact:	Ashley Wagner
Phone:	(262) 792-1282
Project Number:	117413003.01
Project Name:	Barrett Landfill
Project State:	WI
Sampled By (Print):	Ashley Wagner
Sampled By (Sign):	Ashley Wagner
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Ashley Wagner
Mail To Company:	Tetra Tech
Mail To Address:	175 N. Corporate Dr Suite 100 Brookfield, WI 53045
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: As, Pb, Ni, Mn, Mg, Cr	Chloride/Sulfates	TKN/Nitrate+Nitrite	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					Y	Y	Y					
					D	A	C					
001	W-23	11.16	1535	GW	1	1	1			DS 11/22/17	~~3~~ - 9 - 250 mlp ACD	
	W-23 MS		1540		1	1	1					
	W-23 MSD		1545		1	1	1					
002	W-23A		1600		1	1	1				3 - 250 mlp ACD	
003	B-96-13A		1620		1	1	1					
004	B-94-25A		1640		1	1	1					
005	EB-GF	11-17	1015		1	1	1					
006	W-24	11-17	1045		1	1	1					
007	B-96-18A		1430		1	1	1					
008	B-96-18B		1445		1	1	1					
009	B-94-19A		1510		1	1	1					
010	B-15A		1540		1	1	1					
011	B-15		1550		1	1	1					

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:	Date/Time:	Received By:	Date/Time:
Ashley Wagner	11.21.17 0800	Mary Jannin	11/21/17 1357
Mary Jannin	11/21/17 1500		
CS Logistics	11/22/17 0715	DBorns Pace	11/22/17 0715

PACE Project No.
40161322

Receipt Temp = 2.5 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Pace Analytical®
www.pacelabs.com

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

Page 1 of

40146132

Page 27 of 28

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:	Tetra Tech
Branch/Location:	Brookfield, WI
Project Contact:	Ashley Wagner
Phone:	(262) 792-1282
Project Number:	117-7413003.01
Project Name:	Barrett Landfill
Project State:	WI
Sampled By (Print):	Ashley Wagner
Sampled By (Sign):	Ashley Wagner
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Ashley Wagner
Mail To Company:	Tetra Tech
Mail To Address:	175 N. Corporate Dr Suite 100 Brookfield, WI 53045
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	Y	Y	Y	N	N	N	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					PRESERVATION (CODE)*	Pick Letter	D	A	C	D	A	C			
					Analyses Requested		As, Pb, Ni, Mn, Mg, Cr	Chloride, Sulfate	TKN/Nitrate+Nitrite	Total As, Pb, Mn, Mg, Cr	Total Chloride	Nitrate + Nitrite			
012	B-15 Dup	11/17	1555	GW			1	1	1					3-250ml pACD	
013	B-21	↓	16				1	1	1					↓	
014	Kohls (Dup)	↓	1150	DW					#2	1	1	1			

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:	Date/Time:	Received By:	Date/Time:
Ashley Wagner	11.21.17 0800	Mary Jannin	11/21/17 1357
Mary Jannin	11/21/17 1500		
CS Logistics	11/22/17 0715	RSoms pace	11/22/17 0715

PACE Project No.

Receipt Temp = 2.1 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Sample Condition Upon Receipt

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

Pace Analytical™

Client Name: TetraTech

Project #: **WO# : 40161322**

40161322

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SL-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

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

Person examining contents:
Date: 11/22/17
Initials: DS

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.
Sufficient Volume: DS 11/22/17	☑Yes ☐No ☐N/A	8. ~~MS~~ MS/MSD collection times actual times DS 11/22/17
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. 013 – Time on labels 1615 DS 11/22/17 ~~014 – time on labels~~
-Includes date/time/ID/Analysis Matrix: W		
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 DS / 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: Date: 11-27-17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161040001	**CHRISTIANSEN**	Water	11/15/17 13:25	11/17/17 07:15

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161040001	**CHRISTIANSEN**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

Sample: CHRISTIANSEN **Lab ID: 40161040001** Collected: 11/15/17 13:25 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**44700**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 10:58	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**3.7**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 22:30	7440-38-2	
Chromium	**0.76**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 22:30	7440-47-3	B0
Lead	**<0.12**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 22:30	7439-92-1	
Manganese	**18.7**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 22:30	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**30.1**	mg/L	2.0	0.50	1		12/04/17 13:28	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/28/17 11:46		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

QC Batch: 417526
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161040001

METHOD BLANK: 1922921
Matrix: Water
Associated Lab Samples: 40161040001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

QC Batch: 416996
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 40161040001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161040001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161040001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161040001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

QC Batch: 275419
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161040001

METHOD BLANK: 1619979 Matrix: Water
Associated Lab Samples: 40161040001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/28/17 11:16	

LABORATORY CONTROL SAMPLE: 1619980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1619981 1619982

Parameter	Units	40160848001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	1.8	2.5	2.5	4.3	4.3	101	101	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1619983 1619984

Parameter	Units	40161041001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	98	97	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161040

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161040001	**CHRISTIANSEN**	EPA 200.7	417526	EPA 200.7	418027
40161040001	**CHRISTIANSEN**	EPA 200.8	416996	EPA 200.8	417536
40161040001	**CHRISTIANSEN**	EPA 300.0	275777		
40161040001	**CHRISTIANSEN**	EPA 353.2	275419		

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161040

Page: 1 of 1

Section A
Required Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B
Required Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C
Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D Required Client Information	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N		
1	Christiansen (953) 3551 S. Woodland Ct	DW	G	—	—	11-15-2017	1325		3	1	1	1							1	1	1		3-250mL pAD 001
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
		11-16-17	0800	Mary Jannin	11/16/17	10:47				
	Mary Jannin	11/16/17	1430							
	CS Logistics	11/17/17	0715		11/17/17	0715	NO1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 11-15-17

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Project: **WO#: 40161040**

40161040

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. No MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: SSA 11/17/17 SW				
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 SSA / 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: Date: 11/17/17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161041001	**SANFELIPPO**	Water	11/15/17 09:25	11/17/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161041001	**SANFELIPPO**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

Sample: SANFELIPPO **Lab ID: 40161041001** Collected: 11/15/17 09:25 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**40400**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:01	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**3.8**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 22:35	7440-38-2	
Chromium	**0.54J**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 22:35	7440-47-3	B0
Lead	**3.8**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 22:35	7439-92-1	
Manganese	**108**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 22:35	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**15.4**	mg/L	10.0	2.5	5		12/04/17 13:38	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/28/17 11:47		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161041001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161041001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

QC Batch: 416996
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 40161041001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161041001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161041001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161041001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

QC Batch: 275419 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161041001

METHOD BLANK: 1619979 Matrix: Water
Associated Lab Samples: 40161041001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/28/17 11:16	

LABORATORY CONTROL SAMPLE: 1619980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1619981 1619982

Parameter	Units	40160848001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	1.8	2.5	2.5	4.3	4.3	101	101	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1619983 1619984

Parameter	Units	40161041001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	98	97	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161041

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161041001	**SANFELIPPO**	EPA 200.7	417526	EPA 200.7	418027
40161041001	**SANFELIPPO**	EPA 200.8	416996	EPA 200.8	417536
40161041001	**SANFELIPPO**	EPA 300.0	275777		
40161041001	**SANFELIPPO**	EPA 353.2	275419		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161041

RMW

Page: | of |

Section A
Required Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B
Required Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C
Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location **STATE:** WI

Section D
Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																	Requested Analysis Filtered (Y/N)	N	N	N											
1	Santelippo (230	DW	—	—	11.15	9:25		3	1	1	1							1	1	1										3250nlp ACD 001
2	20770 W. Coffee Rd																													
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
		11.16.17	0800	Mary Jansma	11/16/17	10:47				
	Mary Jansma	11/16/17	1430							
	CS Logistics	11/17/17	0715		11/17/17	0715	401	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: | DATE Signed (MM/DD/YY): 11.15.17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Project #: **WO#: 40161041**

40161041

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 NCA **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. No MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 SSA / 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: Date: 11/17/17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161042001	**SERVI**	Water	11/14/17 09:55	11/17/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161042001	**SERVI**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

Sample: SERVI **Lab ID: 40161042001** Collected: 11/14/17 09:55 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**59800**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:05	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**0.32J**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 22:49	7440-38-2	
Chromium	**0.86**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 22:49	7440-47-3	B0
Lead	**0.41**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 22:49	7439-92-1	
Manganese	**34.2**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 22:49	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**334**	mg/L	20.0	5.0	10		12/05/17 11:02	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/29/17 13:04		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161042001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161042001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

QC Batch: 416996 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161042001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161042001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161042001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161042001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

QC Batch: 275600
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161042001

METHOD BLANK: 1620845 Matrix: Water
Associated Lab Samples: 40161042001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/29/17 12:26	

LABORATORY CONTROL SAMPLE: 1620846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620847 1620848

Parameter	Units	40161392006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	100	100	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161042

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161042001	**SERVI**	EPA 200.7	417526	EPA 200.7	418027
40161042001	**SERVI**	EPA 200.8	416996	EPA 200.8	417536
40161042001	**SERVI**	EPA 300.0	275777		
40161042001	**SERVI**	EPA 353.2	275600		

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161042

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
						2017													N	N	N														
1	Servi (239)	DW	G	—	—	11.14	955		3	1	1	1							1	1	1														3-250mlp ACD 001
2	3730 S. Racine Ave																																	
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Ashley Wagner	11.16.17	1510	Mary Fanning	11/16/17	10:47				
	Mary Fanning	11/16/17	1430							
	FS Logistics	11/17/17	0715		11/17/17	0715	Rad	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 11.14.17

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Client Name: Tetra Tech

Project # **WO# : 40161042**

40161042

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 NrA **Type of Ice:** ~~Wet~~ Blue Dry None ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. No MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 SSA / 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: Date: 11/19/17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	Water	11/14/17 09:25	11/17/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

Sample: HEUN(241) 3561 S. WOODLAND CT. **Lab ID: 40161043001** Collected: 11/14/17 09:25 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**47900**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:16	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**<0.18**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 23:11	7440-38-2	
Chromium	**0.73**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 23:11	7440-47-3	B0
Lead	**0.51**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 23:11	7439-92-1	
Manganese	**0.65J**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 23:11	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**118**	mg/L	10.0	2.5	5		12/05/17 11:12	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.66**	mg/L	0.25	0.095	1		11/29/17 13:05		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

QC Batch: 417526
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161043001

METHOD BLANK: 1922921
Matrix: Water
Associated Lab Samples: 40161043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

QC Batch: 416996
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 40161043001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161043001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

QC Batch: 275600
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161043001

METHOD BLANK: 1620845 Matrix: Water
Associated Lab Samples: 40161043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/29/17 12:26	

LABORATORY CONTROL SAMPLE: 1620846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620847 1620848

Parameter	Units	40161392006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	100	100	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161043

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	EPA 200.7	417526	EPA 200.7	418027
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	EPA 200.8	416996	EPA 200.8	417536
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	EPA 300.0	275777		
40161043001	**HEUN(241) 3561 S. WOODLAND CT.**	EPA 353.2	275600		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161043

RMV

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Total Chloride N; Total As, Pb, Cr, Mn, Mg N; Total Nitrate + Nitrite N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE (2017)	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Heun (241)	DW	G	—	—	11-14	9:25		3	1	1	1							1	1	1		3-250mLp ACO 001
2	3561 S. Woodland Ct																						
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Ashley Wagner	11-16-17	0800	Mary Fannin	11/16/17	10:47				
	Mary Fannin	11/16/17	1430							
	CS Logistics	11/17/17	0715	[signature] Pace	11/17/17	0715	ROI	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 11-14-17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Sample Condition Upon Receipt

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

Pace Analytical™

Project **WO#: 40161043**

40161043

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 NRA **Type of Ice:** ☒ Wet Blue Dry None ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. No MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 SSA / 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: Date: 11/17/17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161044001	**SCHMIDT**	Water	11/14/17 08:55	11/17/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161044001	**SCHMIDT**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

Sample: SCHMIDT **Lab ID: 40161044001** Collected: 11/14/17 08:55 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**44900**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:12	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**6.7**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 22:58	7440-38-2	
Chromium	**0.81**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 22:58	7440-47-3	B0
Lead	**0.38**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 22:58	7439-92-1	
Manganese	**19.2**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 22:58	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.7**	mg/L	10.0	2.5	5		12/05/17 11:23	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/29/17 13:07		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161044001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

QC Batch: 416996 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161044001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161044001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

QC Batch: 275600
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161044001

METHOD BLANK: 1620845 Matrix: Water
Associated Lab Samples: 40161044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/29/17 12:26	

LABORATORY CONTROL SAMPLE: 1620846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620847 1620848

Parameter	Units	40161392006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	100	100	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161044001	**SCHMIDT**	EPA 200.7	417526	EPA 200.7	418027
40161044001	**SCHMIDT**	EPA 200.8	416996	EPA 200.8	417536
40161044001	**SCHMIDT**	EPA 300.0	275777		
40161044001	**SCHMIDT**	EPA 353.2	275600		

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161044

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D Required Client Information / SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
						2017													N	N	N														
1	Schmidt (952) 3770 S. Racine Ave	DW	G	—	—	11.14	855		3	1	1	1							1	1	1														3250-16 ACD 001
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	11/16/17	0800	Mary Tammin	11/16/17	10:43				
	Mary Tammin	11/16/17	1430	[signature]						
	[signature] CS Logistics	11/17/17	0715	[signature]	11/17/17	0715	DBL	Y	X	X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11.14.17

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Project #: WO#: 40161044

Client Name: Data Tech

Courier: ☐ Fed Ex ☐ UPS ☒ Client ☐ Pace Other: CS Logistics

Tracking #:

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 ☒ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☒ no

Person examining contents: Date: 11/17/17 Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No ☐N/A	8. No MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: W			
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 SSA / 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: **Date:** 11/17/17

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

December 05, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Mark Manthey, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161047001	**SANCHEZ**	Water	11/13/17 16:00	11/17/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161047001	**SANCHEZ**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

Sample: SANCHEZ **Lab ID: 40161047001** Collected: 11/13/17 16:00 Received: 11/17/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**46600**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:09	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**3.7**	ug/L	0.75	0.18	1	11/28/17 14:36	11/29/17 22:53	7440-38-2	
Chromium	**0.60J**	ug/L	0.68	0.38	1	11/28/17 14:36	11/29/17 22:53	7440-47-3	B0
Lead	**0.30**	ug/L	0.18	0.12	1	11/28/17 14:36	11/29/17 22:53	7439-92-1	
Manganese	**51.6**	ug/L	0.86	0.44	1	11/28/17 14:36	11/29/17 22:53	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**38.9**	mg/L	2.0	0.50	1		12/04/17 15:45	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/29/17 13:08		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

QC Batch: 417526
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161047001

METHOD BLANK: 1922921
Matrix: Water
Associated Lab Samples: 40161047001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

QC Batch: 416996
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 40161047001

METHOD BLANK: 1920514 Matrix: Water
Associated Lab Samples: 40161047001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	11/29/17 22:21	
Chromium	ug/L	0.48J	0.68	11/29/17 22:21	
Lead	ug/L	<0.12	0.18	11/29/17 22:21	
Manganese	ug/L	<0.44	0.86	11/29/17 22:21	

LABORATORY CONTROL SAMPLE: 1920515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Lead	ug/L	40	40.1	100	85-115	
Manganese	ug/L	40	40.4	101	85-115	

MATRIX SPIKE SAMPLE: 1920516

Parameter	Units	40161067001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.72J	40	40.6	100	70-130	
Chromium	ug/L	0.45J	40	38.6	95	70-130	
Lead	ug/L	<0.12	40	40.0	100	70-130	
Manganese	ug/L	27.4	40	65.6	96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1920517 1920518

Parameter	Units	40161176002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	40	40	36.7	39.6	91	98	70-130	8	20	
Chromium	ug/L	0.88	40	40	36.5	39.2	89	96	70-130	7	20	
Lead	ug/L	1.3	40	40	38.2	41.5	92	101	70-130	8	20	
Manganese	ug/L	0.73J	40	40	36.2	39.0	89	96	70-130	7	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

QC Batch: 275777 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161047001

METHOD BLANK: 1622095 Matrix: Water
Associated Lab Samples: 40161047001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/04/17 11:07	

LABORATORY CONTROL SAMPLE: 1622096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.0	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622097 1622098

Parameter	Units	40160955005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.4	20	20	37.5	37.9	106	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1622099 1622100

Parameter	Units	40161044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	100	100	146	147	106	107	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

QC Batch: 275600
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161047001

METHOD BLANK: 1620845 Matrix: Water
Associated Lab Samples: 40161047001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/29/17 12:26	

LABORATORY CONTROL SAMPLE: 1620846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1620847 1620848

Parameter	Units	40161392006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	100	100	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

B0	Analyte was detected in an associated blank at a concentration greater than the MDL.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161047

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161047001	**SANCHEZ**	EPA 200.7	417526	EPA 200.7	418027
40161047001	**SANCHEZ**	EPA 200.8	416996	EPA 200.8	417536
40161047001	**SANCHEZ**	EPA 300.0	275777		
40161047001	**SANCHEZ**	EPA 353.2	275600		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161047

RMV

Section A — **Required** Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B — **Required** Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C — Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Section D — **Required** Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D Required Client Information (SAMPLE ID)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N														
1	Sanchez (951)	aw	G	—	—	11.13	1600		3	1	1	1							1	1	1													3-250mL HNO3	001
2	3720 S. Racine Ave																																	
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	11.16.17	0800	[signature]	11/16/17	10:47				
	[signature]	11/16/17	1430							
	[signature]	11/17/17	0715	[signature]	11/17/17	0719	ROI	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11.13.17

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Client Name: Tetra Tech

Project #: **WO#: 40161047**

40161047

Courier: ☐ Fed Ex ☒ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: R0T /Corr: **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 11/17/17
Initials: SSA

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☒No	☐N/A	8. NO MS/MSD vol. SSA 11/17/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 SSA / 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: **Date:** 11/17/17

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

December 14, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	Water	11/17/17 14:15	11/22/17 07:15

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

Sample: SRI LAKSHMI NARASIMNA TEMPLE **Lab ID: 40161324001** Collected: 11/17/17 14:15 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**51000**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:58	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**1.7**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 07:26	7440-38-2	
Chromium	**0.38J**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 07:26	7440-47-3	
Lead	**0.95**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 07:26	7439-92-1	
Manganese	**75.4**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 07:26	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**174**	mg/L	10.0	2.5	5		12/12/17 19:30	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/30/17 12:19		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161324001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161324001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161324001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161324001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

QC Batch: 276066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161324001

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161324001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4140	2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

QC Batch: 275681 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161324001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161324001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161324

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	EPA 200.7	417526	EPA 200.7	418027
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	EPA 200.8	417900	EPA 200.8	418045
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	EPA 300.0	276066		
40161324001	**SRI LAKSHMI NARASIMNA TEMPLE**	EPA 353.2	275681		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

4016324

RM

Page: 1 of 1

Section A
Required Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone:	(262)792-1282 Fax:
Requested Due Date/TAT:	

Section B
Required Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C
Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: WI

Section D
Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE (2017)	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Total Chloride (N)	Total As, Pb, Cr, Mn, Mg (N)	Total Nitrate + Nitrite (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
001 1	Sri Lakshmi Narasimha	DW	G	—	—	11-17	1415		3	1	1	1							1	1	1		3-250ml pACD
2	Temple (950)																						
3																							
4	3765 S. Swartz Rd																						
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ashley Wagner	11-21-17	0800	Mary Jasmin	11/21/17	1357				
	CS 6093429	11/22/17	0715	D Burke pace	11/22/17	0715	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner

DATE Signed (MM/DD/YY): 11 17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay \
1241 Bellevue Street, Suite
Green Bay, WI 543(

Pace Analytical

Project #: **WO#: 40161324**

40161324

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 11/22/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD DS 11/22/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 DS / 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: **Date:** 11-27-17

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

December 14, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161326001	**WYSZKOWSKI**	Water	11/17/17 13:00	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161326001	**WYSZKOWSKI**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

Sample: WYSZKOWSKI **Lab ID: 40161326001** Collected: 11/17/17 13:00 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**44200**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:48	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**<0.18**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 06:45	7440-38-2	
Chromium	**0.41J**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 06:45	7440-47-3	
Lead	**1.8**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 06:45	7439-92-1	
Manganese	**11.7**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 06:45	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**33.4**	mg/L	10.0	2.5	5		12/12/17 19:42	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/30/17 12:20		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161326001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161326001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161326001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161326001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

QC Batch: 276066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161326001

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161326001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4140	2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

QC Batch: 275681 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161326001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161326001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161326

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161326001	**WYSZKOWSKI**	EPA 200.7	417526	EPA 200.7	418027
40161326001	**WYSZKOWSKI**	EPA 200.8	417900	EPA 200.8	418045
40161326001	**WYSZKOWSKI**	EPA 300.0	276066		
40161326001	**WYSZKOWSKI**	EPA 353.2	275681		

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161326

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes: MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
		DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS					2017												Y/N	N	N	N										
001 1	WYSZKOWSKI (243)		DW	G	—	—	11.17	13		3	1	1	1							1	1	1									3-250ml/pres
2																															
3	3630 S. Canary Rd																														
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Ashley Wagner	11/21/17	0800	Mary Fannin	11/21/17	1357				
	CS Logistics	11/22/17	0715	PSonts pace	11/22/17	0715	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE					
PRINT Name of SAMPLER:	Ashley Wagner				
SIGNATURE of SAMPLER:	Ashley Wagner	DATE Signed (MM/DD/YY):	11.17.17		

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay W
1241 Bellevue Street, Suite
Green Bay, WI 543(

Pace Analytical

Project #: WO#: 40161326

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 11/22/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes ☑No ☐N/A	8. NO MS/MSD DS 11/22/17
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. Sample time on labels 1315 DS 11/22/17
-Includes date/time/ID/Analysis Matrix: W		
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 DS / 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: Date: 11-27-17

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

December 14, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161327001	**WHITEHAUS**	Water	11/17/17 12:50	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161327001	**WHITEHAUS**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

Sample: WHITEHAUS **Lab ID: 40161327001** Collected: 11/17/17 12:50 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**41900**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:44	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**<0.18**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 06:41	7440-38-2	
Chromium	**0.71**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 06:41	7440-47-3	
Lead	**1.8**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 06:41	7439-92-1	
Manganese	**4.0**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 06:41	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**95.0**	mg/L	10.0	2.5	5		12/12/17 20:30	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.49**	mg/L	0.25	0.095	1		11/30/17 12:21		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161327001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161327001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161327001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161327001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

QC Batch: 276066
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161327001

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161327001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4140	2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

QC Batch: 275681 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161327001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161327001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161327

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161327001	**WHITEHAUS**	EPA 200.7	417526	EPA 200.7	418027
40161327001	**WHITEHAUS**	EPA 200.8	417900	EPA 200.8	418045
40161327001	**WHITEHAUS**	EPA 300.0	276066		
40161327001	**WHITEHAUS**	EPA 353.2	275681		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161327

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N											
001 1	White Haus 1242	DW	G	—	—	11-17	1250		3	1	1	1							1	1	1											3-250-11020
2																															
3	3040 S. Canary Rd																														
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
		11-21-17	0800	Mary Fannin	11/21/17	1357				
	CS Logistics	11/22/17	0715	DSBorns pace	11/22/17	0715	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 11-17-17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay \
1241 Bellevue Street, Suite
Green Bay, WI 543(

Pace Analytical™

Project #: **WO# : 40161327**

40161327

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 11/22/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD 05 11/22/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 DS / 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: **Date:** 11-27-17

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

December 14, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161338001	**MEYER**	Water	11/17/17 13:50	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161338001	**MEYER**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

Sample: MEYER **Lab ID: 40161338001** Collected: 11/17/17 13:50 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**4400**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:51	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**11.2**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 07:17	7440-38-2	
Chromium	**6.7**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 07:17	7440-47-3	
Lead	**2.5**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 07:17	7439-92-1	
Manganese	**9.5**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 07:17	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**29.8**	mg/L	10.0	2.5	5		12/12/17 20:42	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/30/17 12:22		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161338001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161338001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161338001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161338001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

QC Batch: 276066
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161338001

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161338001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4140	2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

QC Batch: 275681
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161338001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161338001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161338

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161338001	**MEYER**	EPA 200.7	417526	EPA 200.7	418027
40161338001	**MEYER**	EPA 200.8	417900	EPA 200.8	418045
40161338001	**MEYER**	EPA 300.0	276066		
40161338001	**MEYER**	EPA 353.2	275681		

Pace Analytical™ www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161338

Page: 1 of 1

Section A — **Required** Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B — **Required** Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C — Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location — **STATE:** WI

Section D — **Required** Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
001 1	DW	G	—	—	11-17	1350		3	1	1	1							1	1	1		3-250mlpres
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

3690 S. Racine Ave

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ashley Wagner	11.21.17	0800	Mary Jannin	11/21/17	1357				
	CS Logistics	11/22/17	0715	Bobby Pace	11/22/17	0715	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner — DATE Signed (MM/DD/YY): 11.17.17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay V
1241 Bellevue Street, Suite
Green Bay, WI 5430

Pace Analytical™

Project #: **WO# : 40161338**

40161338

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 11/22/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD DS 11/28/17
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.
-Includes date/time/ID/Analysis Matrix: V				
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 DS / 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: **Date:** 11-27-17

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

December 14, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161339001	**WERNING**	Water	11/17/17 12:20	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161339001	**WERNING**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

Sample: WERNING **Lab ID: 40161339001** Collected: 11/17/17 12:20 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**39000**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:55	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**<0.18**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 07:21	7440-38-2	
Chromium	**0.56J**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 07:21	7440-47-3	
Lead	**1.3**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 07:21	7439-92-1	
Manganese	**<0.44**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 07:21	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**53.5**	mg/L	10.0	2.5	5		12/12/17 20:54	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.31**	mg/L	0.25	0.095	1		11/30/17 12:23		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

QC Batch: 417526 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161339001

METHOD BLANK: 1922921 Matrix: Water
Associated Lab Samples: 40161339001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161339001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161339001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

QC Batch: 276066
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161339001

METHOD BLANK: 1623955 Matrix: Water
Associated Lab Samples: 40161339001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/07/17 20:32	

LABORATORY CONTROL SAMPLE: 1623956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623957 1623958

Parameter	Units	40161289001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4140	2000	2000	5850	5750	86	80	90-110	2	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623959 1623960

Parameter	Units	40161339001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	53.5	100	100	152	150	98	97	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

QC Batch: 275681 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161339001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161339001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161339

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161339001	**WERNING**	EPA 200.7	417526	EPA 200.7	418027
40161339001	**WERNING**	EPA 200.8	417900	EPA 200.8	418045
40161339001	**WERNING**	EPA 300.0	276066		
40161339001	**WERNING**	EPA 353.2	275681		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161339

RMW

Page: 1 of 1

Section A — **Required** Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B — **Required** Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C — Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Section D — **Required** Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N		
1	Werning (244)	DW	G	—	—	11-17	1220		3	1	1	1							1	1	1		3-250mlp ACD
2																							
3	3620 S. Canary Rd																						
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		11/21/17	0002	Mary Jannin	11/21/17	1357	
	CS Logistics	11/22/17	0715		11/22/17	0715	2.5 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/17/17

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay V
1241 Bellevue Street, Suite
Green Bay, WI 543C

Pace Analytical

Project #: **WO# : 40161339**

40161339

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 11/22/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD DS 11/22/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 DS / 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: DS **Date:** 11-22-17

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

December 18, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161340001	**KOWIS**	Water	11/17/17 11:45	11/22/17 07:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161340001	**KOWIS**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

Sample: KOWIS **Lab ID: 40161340001** Collected: 11/17/17 11:45 Received: 11/22/17 07:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**47700**	ug/L	1660	500	1	11/30/17 11:40	12/04/17 11:20	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**2.7**	ug/L	0.75	0.18	1	12/03/17 15:46	12/05/17 06:36	7440-38-2	
Chromium	**0.54J**	ug/L	0.68	0.38	1	12/03/17 15:46	12/05/17 06:36	7440-47-3	
Lead	**1.2**	ug/L	0.18	0.12	1	12/03/17 15:46	12/05/17 06:36	7439-92-1	
Manganese	**112**	ug/L	0.86	0.44	1	12/03/17 15:46	12/05/17 06:36	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**45.6**	mg/L	10.0	2.5	5		12/14/17 17:02	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		11/30/17 12:24		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

QC Batch: 417526
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161340001

METHOD BLANK: 1922921
Matrix: Water
Associated Lab Samples: 40161340001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/04/17 10:51	

LABORATORY CONTROL SAMPLE: 1922922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9820	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1922923 1922924

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47700	10000	10000	52800	53600	51	59	70-130	1	20	M3

MATRIX SPIKE SAMPLE: 1922925

Parameter	Units	40161322014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	47800	10000	55600	79	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

QC Batch: 417900 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161340001

METHOD BLANK: 1924994 Matrix: Water
Associated Lab Samples: 40161340001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/05/17 06:22	
Chromium	ug/L	<0.38	0.68	12/05/17 06:22	
Lead	ug/L	<0.12	0.18	12/05/17 06:22	
Manganese	ug/L	<0.44	0.86	12/05/17 06:22	

LABORATORY CONTROL SAMPLE: 1924995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.3	93	85-115	
Chromium	ug/L	40	39.9	100	85-115	
Lead	ug/L	40	38.0	95	85-115	
Manganese	ug/L	40	40.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1924996 1924997

Parameter	Units	40161326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	38.0	38.1	95	95	70-130	0	20	
Chromium	ug/L	0.41J	40	40	39.2	39.0	97	96	70-130	1	20	
Lead	ug/L	1.8	40	40	40.7	40.9	97	98	70-130	0	20	
Manganese	ug/L	11.7	40	40	50.4	50.3	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1924998

Parameter	Units	40161520001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	37.6	94	70-130	
Chromium	ug/L	0.45J	40	38.9	96	70-130	
Lead	ug/L	0.41	40	39.4	97	70-130	
Manganese	ug/L	5.2	40	42.4	93	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

QC Batch: 277168 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161340001

METHOD BLANK: 1629416 Matrix: Water
Associated Lab Samples: 40161340001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/14/17 12:04	

LABORATORY CONTROL SAMPLE: 1629417

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1629418 1629419

Parameter	Units	40161239002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	<250	10000	10000	13400	12100	132	119	90-110	10	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1629420 1629421

Parameter	Units	40161125003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.9J	100	100	125	124	120	119	90-110	1	15	M0

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

QC Batch: 275681
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161340001

METHOD BLANK: 1621362 Matrix: Water
Associated Lab Samples: 40161340001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	11/30/17 11:52	

LABORATORY CONTROL SAMPLE: 1621363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621364 1621365

Parameter	Units	40161275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.5	2.7	2.6	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1621366 1621367

Parameter	Units	40161340001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.4	2.4	96	96	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161340

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161340001	**KOWIS**	EPA 200.7	417526	EPA 200.7	418027
40161340001	**KOWIS**	EPA 200.8	417900	EPA 200.8	418045
40161340001	**KOWIS**	EPA 300.0	277168		
40161340001	**KOWIS**	EPA 353.2	275681		

Pace Analytical™ www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40161340

SBM

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: WI

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

	ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE (2017)	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride (N)	Total As, Pb, Cr, Mn, Mg (N)	Total Nitrate + Nitrite (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
001	1	Kowis (244)	DW	G	—	—	11·17	1145		3	1	1	1							1	1	1		3-250 mlp ACD
	2																							
	3	3540 S. Canary Rd																						
	4																							
	5																							
	6																							
	7																							
	8																							
	9																							
	10																							
	11																							
	12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ashley Wagner	11·21·17	0800	Mary Fannin	11/21/17	1357				
	Mary Fannin	11/21/17	1500							
	CS Log 3125	11/22/17	0715	Bern Pace	11/22/17	0715	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11·17·17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Sample Condition Upon Receipt

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

Pace Analytical™

Project #: **WO# : 40161340**

40161340

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SL-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

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

Person examining contents:
Date: 11/22/17
Initials: DS

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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD DS 11/22/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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: DS / 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: Date: 11-27-17

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

February 09, 2018

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on February 02, 2018. 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40164220001	**KOWIS**	Water	01/31/18 10:00	02/02/18 08:55
40164220002	**KOWIS DUP**	Water	01/31/18 10:06	02/02/18 08:55

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40164220001	**KOWIS**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	CAW	4	PASI-I
40164220002	**KOWIS DUP**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	CAW	4	PASI-I

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Sample: KOWIS **Lab ID: 40164220001** Collected: 01/31/18 10:00 Received: 02/02/18 08:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**47100**	ug/L	1660	500	1	02/07/18 11:25	02/08/18 07:10	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**2.1**	ug/L	0.60	0.18	1	02/07/18 09:30	02/08/18 14:09	7440-38-2	
Chromium	**<0.38**	ug/L	1.3	0.38	1	02/07/18 09:30	02/08/18 14:09	7440-47-3	
Lead	**0.37J**	ug/L	0.40	0.12	1	02/07/18 09:30	02/08/18 14:09	7439-92-1	
Manganese	**39.1**	ug/L	1.5	0.44	1	02/07/18 09:30	02/08/18 14:09	7439-96-5	

Sample: KOWIS DUP **Lab ID: 40164220002** Collected: 01/31/18 10:06 Received: 02/02/18 08:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**47200**	ug/L	1660	500	1	02/07/18 11:25	02/08/18 07:13	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**1.9**	ug/L	0.60	0.18	1	02/07/18 09:30	02/08/18 14:28	7440-38-2	
Chromium	**<0.38**	ug/L	1.3	0.38	1	02/07/18 09:30	02/08/18 14:28	7440-47-3	
Lead	**0.20J**	ug/L	0.40	0.12	1	02/07/18 09:30	02/08/18 14:28	7439-92-1	
Manganese	**41.5**	ug/L	1.5	0.44	1	02/07/18 09:30	02/08/18 14:28	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

QC Batch: 426717
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40164220001, 40164220002

METHOD BLANK: 1967043 Matrix: Water
Associated Lab Samples: 40164220001, 40164220002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	02/08/18 07:02	

LABORATORY CONTROL SAMPLE: 1967044

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9590	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1967045 1967046

Parameter	Units	40164220002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	47200	10000	10000	55500	55100	83	79	70-130	1	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

QC Batch: 426720 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40164220001, 40164220002

METHOD BLANK: 1967062 Matrix: Water
Associated Lab Samples: 40164220001, 40164220002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.60	02/08/18 13:55	
Chromium	ug/L	<0.38	1.3	02/08/18 13:55	
Lead	ug/L	<0.12	0.40	02/08/18 13:55	
Manganese	ug/L	<0.44	1.5	02/08/18 13:55	

LABORATORY CONTROL SAMPLE: 1967063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	41.0	102	85-115	
Chromium	ug/L	40	41.7	104	85-115	
Lead	ug/L	40	41.0	103	85-115	
Manganese	ug/L	40	41.7	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1967064 1967065

Parameter	Units	40164220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	2.1	40	40	42.1	42.7	100	102	70-130	1	20	
Chromium	ug/L	<0.38	40	40	39.9	40.2	99	100	70-130	1	20	
Lead	ug/L	0.37J	40	40	41.6	41.9	103	104	70-130	1	20	
Manganese	ug/L	39.1	40	40	77.7	80.8	97	104	70-130	4	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40164220

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40164220001	**KOWIS**	EPA 200.7	426717	EPA 200.7	426909
40164220002	**KOWIS DUP**	EPA 200.7	426717	EPA 200.7	426909
40164220001	**KOWIS**	EPA 200.8	426720	EPA 200.8	426877
40164220002	**KOWIS DUP**	EPA 200.8	426720	EPA 200.8	426877

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40164220

Page: 1 of 1

Section A
Required Client Information:

Company:	Tetra Tech
Address:	175 N. Corporate Dr, Suite 100
	Brookfield, WI
Email To:	ashley.wagner@tetratech.com
Phone: 262-792-1282	Fax: 262-792-1310
Requested Due Date/TAT: ★	5 day TAT ★

Section B
Required Project Information:

Report To:	Lori Huntoon and Ashley Wagner
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C
Invoice Information:

Attention:	Ashley Wagner
Company Name:	Tetra Tech
Address:	175 N. Corporate Dr, Suite 100
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WI

Section D
Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N ↓	Requested Analysis Filtered (Y/N): Total As, Pb, Cr, Mn, Mg	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	001 Kowis	DW	G	-	-	01/31/18	10:00		1			1						N	1		
2	002 Kowis Dup	DW	G	-	-	01/31/18	10:06		1			1						N	1		
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
★ 5 DAY TAT ★	Ashley Wagner	2.1.18	0800	Mary Fannin	2/1/18	11:05	
	Mary Fannin	2/1/18	1230				
	CS Logistics	2-2-18	0855	Susan K Myles Paul	2-2-18	0855	ROI Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley A. Wagner

SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 1/31/18

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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

Sample Preservation Receipt Form

Client Name: Tetra Tech Project # 40164220

Initial when completed: SKW Date/ Time: 2-2-18

All containers needing preservation have been checked and noted below: ☑Yes ☐No ☐N/A Lab Std #ID of preservation (if pH adjusted):

	Glass							Plastic							Vials						Jars			General							
Pace Lab #	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3C	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001													1																			2.5 / 5 / 10
002													1																			2.5 / 5 / 10
003																																2.5 / 5 / 10
004																																2.5 / 5 / 10
005																																2.5 / 5 / 10
006																																2.5 / 5 / 10
007																																2.5 / 5 / 10
008																																2.5 / 5 / 10
009																																2.5 / 5 / 10
010																																2.5 / 5 / 10
011																																2.5 / 5 / 10
012																																2.5 / 5 / 10
013																																2.5 / 5 / 10
014																																2.5 / 5 / 10
015																																2.5 / 5 / 10
016																																2.5 / 5 / 10
017																																2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																																2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☐N/A ***If yes look in headspace column**

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3C	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

Pace Analytical™ 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 31Jan2018
	Document No.: F-GB-C-031-rev.06	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Tetra Tech

Project #: **WO# : 40164220**

40164220

Courier: ☒ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

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 SR - N/A **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: R01 /Corr: _____

Temp Blank Present: ☐ yes ☑ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents:
Date: 2-2-18
Initials: SEV

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

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.
Sufficient Volume: ☐Yes ☑No ☐N/A MS/MSD	☐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.
-Includes date/time/ID/Analysis Matrix: W		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
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: _____ **Date:** 2-2-18

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

December 22, 2017

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40161818001	**HANKE**	Water	12/01/17 16:00	12/05/17 08:15

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40161818001	**HANKE**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

Sample: HANKE **Lab ID: 40161818001** Collected: 12/01/17 16:00 Received: 12/05/17 08:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**42000**	ug/L	1660	500	1	12/08/17 06:12	12/15/17 15:33	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**1.7**	ug/L	0.75	0.18	1	12/08/17 16:49	12/10/17 19:28	7440-38-2	
Chromium	**<0.38**	ug/L	0.68	0.38	1	12/08/17 16:49	12/10/17 19:28	7440-47-3	
Lead	**0.37**	ug/L	0.18	0.12	1	12/08/17 16:49	12/10/17 19:28	7439-92-1	
Manganese	**15.2**	ug/L	0.86	0.44	1	12/08/17 16:49	12/10/17 19:28	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**17.2**	mg/L	2.0	0.50	1		12/18/17 20:51	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.095**	mg/L	0.25	0.095	1		12/08/17 11:24		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

QC Batch: 418661 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40161818001

METHOD BLANK: 1928612 Matrix: Water
Associated Lab Samples: 40161818001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/15/17 14:17	

LABORATORY CONTROL SAMPLE: 1928613

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9670	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1928614 1928615

Parameter	Units	40161819001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	19500	10000	10000	28900	28800	94	93	70-130	0	20	

MATRIX SPIKE SAMPLE: 1928616

Parameter	Units	40161818001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	42000	10000	51400	94	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

QC Batch: 418785 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40161818001

METHOD BLANK: 1929266 Matrix: Water
Associated Lab Samples: 40161818001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/10/17 19:05	
Chromium	ug/L	<0.38	0.68	12/10/17 19:05	
Lead	ug/L	<0.12	0.18	12/10/17 19:05	
Manganese	ug/L	<0.44	0.86	12/10/17 19:05	

LABORATORY CONTROL SAMPLE: 1929267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	40.8	102	85-115	
Lead	ug/L	40	41.1	103	85-115	
Manganese	ug/L	40	42.0	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1929268 1929269

Parameter	Units	40161862001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	41.3	41.3	103	103	70-130	0	20	
Chromium	ug/L	0.42J	40	40	41.0	41.1	101	102	70-130	0	20	
Lead	ug/L	1.5	40	40	44.8	44.5	108	107	70-130	1	20	
Manganese	ug/L	<0.44	40	40	40.9	41.9	102	104	70-130	2	20	

MATRIX SPIKE SAMPLE: 1929881

Parameter	Units	40161825001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	42.2	105	70-130	
Chromium	ug/L	<0.38	40	42.0	104	70-130	
Lead	ug/L	1.4	40	45.4	110	70-130	
Manganese	ug/L	1.0	40	42.6	104	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

QC Batch: 277209 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40161818001

METHOD BLANK: 1629802 Matrix: Water
Associated Lab Samples: 40161818001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/18/17 13:34	

LABORATORY CONTROL SAMPLE: 1629803

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.3	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1629804 1629805

Parameter	Units	40161826001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	620	2000	2000	2770	2780	107	108	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1629806 1629807

Parameter	Units	40161819015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.9	20	20	23.7	23.9	104	105	90-110	1	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

QC Batch: 276598
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40161818001

METHOD BLANK: 1626611 Matrix: Water
Associated Lab Samples: 40161818001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	12/08/17 10:55	

LABORATORY CONTROL SAMPLE: 1626612

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1626613 1626614

Parameter	Units	40161880006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	100	100	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1626615 1626616

Parameter	Units	40161819003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.095	2.5	2.5	2.5	2.5	99	99	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40161818

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40161818001	**HANKE**	EPA 200.7	418661	EPA 200.7	420110
40161818001	**HANKE**	EPA 200.8	418785	EPA 200.8	419081
40161818001	**HANKE**	EPA 300.0	277209		
40161818001	**HANKE**	EPA 353.2	276598		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40116818

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Tetra Tech	Report To:	Ashley Wagner, Lori Huntoon	Attention:	Ashley Wagner
Address:	175 N Corporate Dr, Suite 100	Copy To:		Company Name:	
	Brookfield, WI 53045			Address:	
Email To:	ashley.wagner@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(262)792-1282 Fax:	Project Name:	Barrett Landfill	Pace Project Manager:	
Requested Due Date/TAT:		Project Number:	117-7413003.01	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D Required Client Information	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N									
1	Hanke (237) 001	DW	G	—	—	12-1	1600		3	1	1	1							1	1	1									3-250mlp ACD
2																														
3	20745 W. Coffee Rd																													
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Ashley Wagner	12-4-17	0800	Mary Jannin	12/4/17	1433				
	Mary Jannin	12/4/17	1515							
	CS Logistics	12/5/17	0815	Kathi Chromiak	12/5/17	0815	ROI	4	4	4

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 12-1-17

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Project #: **WO# : 40161818**

40161818

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace ☑ Other: CS Logistics

Tracking #:

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: /Corr: R01 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

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

Person examining contents:
Date: 12/5/17
Initials: KJ

		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.
Sufficient Volume: KJ 12/5/17	☑Yes ☐No ☐N/A	8. no MS/MSD KJ 12/5/17
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.
-Includes date/time/ID/Analysis Matrix: W		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☑Yes ☐No ☐N/A	13. ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH +ZnAct 250mLpD pH=6, after adding 2.5mL HNO3 pH=2 KJ 12/5/17
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 KJ / Lab Std #ID of preservative 175371 / Date/Time: 12/5/17 1100
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: Date: 12-5-17

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

January 03, 2018

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on December 19, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40162599001	**HOLBROOK (245)**	Water	12/14/17 10:30	12/19/17 10:00

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40162599001	**HOLBROOK (245)**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	HMB	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

Sample: HOLBROOK (245) **Lab ID: 40162599001** Collected: 12/14/17 10:30 Received: 12/19/17 10:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**41000**	ug/L	1660	500	1	12/23/17 07:46	12/27/17 12:03	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**<0.18**	ug/L	0.75	0.18	1	12/22/17 08:21	12/23/17 00:22	7440-38-2	
Chromium	**0.87**	ug/L	0.68	0.38	1	12/22/17 08:21	12/23/17 00:22	7440-47-3	
Lead	**13.0**	ug/L	0.18	0.12	1	12/22/17 08:21	12/23/17 00:22	7439-92-1	
Manganese	**1.0**	ug/L	0.86	0.44	1	12/29/17 07:38	12/30/17 01:19	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**156**	mg/L	10.0	2.5	5		12/27/17 14:01	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**1.9**	mg/L	0.25	0.095	1		12/22/17 13:58		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

QC Batch: 421642
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40162599001

METHOD BLANK: 1944524
Matrix: Water
Associated Lab Samples: 40162599001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	12/27/17 11:32	

LABORATORY CONTROL SAMPLE: 1944525

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9590	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1944526 1944527

Parameter	Units	40162324001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	5930	10000	10000	15800	15200	99	93	70-130	4	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

QC Batch: 420879 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40162599001

METHOD BLANK: 1940535 Matrix: Water
Associated Lab Samples: 40162599001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/22/17 22:10	
Chromium	ug/L	<0.38	0.68	12/22/17 22:10	
Lead	ug/L	<0.12	0.18	12/22/17 22:10	

LABORATORY CONTROL SAMPLE: 1940536

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.1	100	85-115	
Chromium	ug/L	40	40.3	101	85-115	
Lead	ug/L	40	39.6	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1940537 1940538

Parameter	Units	40162502003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	40	40	40.6	40.9	101	101	70-130	1	20	
Chromium	ug/L	0.71	40	40	40.0	40.1	98	99	70-130	0	20	
Lead	ug/L	24.3	40	40	65.7	65.6	104	103	70-130	0	20	

MATRIX SPIKE SAMPLE: 1940539

Parameter	Units	40162502011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.18	40	40.2	100	70-130	
Chromium	ug/L	0.76	40	41.0	101	70-130	
Lead	ug/L	3.1	40	44.5	104	70-130	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

QC Batch: 422021 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40162599001

METHOD BLANK: 1945856 Matrix: Water
Associated Lab Samples: 40162599001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese	ug/L	<0.44	0.86	12/30/17 01:10	

LABORATORY CONTROL SAMPLE: 1945857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese	ug/L	40	44.4	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1945858 1945859

Parameter	Units	40162867001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese	ug/L	0.88	40	40	41.5	41.7	102	102	70-130	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

QC Batch: 277974
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40162599001

METHOD BLANK: 1633971
Matrix: Water
Associated Lab Samples: 40162599001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	12/27/17 10:09	

LABORATORY CONTROL SAMPLE: 1633972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.5	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1633973 1633974

Parameter	Units	40162186022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	<0.50	20	20	22.9	22.9	114	115	90-110	0	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1633975 1633976

Parameter	Units	40162654002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1080	1000	1000	2140	2140	106	106	90-110	0	15	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

QC Batch: 277874
QC Batch Method: EPA 353.2
Associated Lab Samples: 40162599001

Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved

METHOD BLANK: 1633358 Matrix: Water
Associated Lab Samples: 40162599001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	12/22/17 13:26	

LABORATORY CONTROL SAMPLE: 1633359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1633360 1633361

Parameter	Units	40162825003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	<0.48	12.5	12.5	11.4	11.4	91	92	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1633362 1633363

Parameter	Units	40162627001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	13.0	12.5	12.5	25.6	25.6	101	101	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162599

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40162599001	**HOLBROOK (245)**	EPA 200.7	421642	EPA 200.7	421755
40162599001	**HOLBROOK (245)**	EPA 200.8	420879	EPA 200.8	421615
40162599001	**HOLBROOK (245)**	EPA 200.8	422021	EPA 200.8	422477
40162599001	**HOLBROOK (245)**	EPA 300.0	277974		
40162599001	**HOLBROOK (245)**	EPA 353.2	277874		

Pace Analytical® www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40162599

SSM

Page: 1 of 1

Section A **Required** Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone:	(262)792-1282
Fax:	
Requested Due Date/TAT:	

Section B **Required** Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: WI

Section D **Required** Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE (2017)	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Total Chloride (N)	Total As, Pb, Cr, Mn, Mg (N)	Total Nitrate + Nitrite (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
001 1	Holbrook (245)	DW	G	—	—	12.14	1030			1	1	1							1	1	1		3-250ml p ACO
2																							
3	3600 S. Canary Rd																						
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ashley Wagner	12.15.17	0800	Mary Fannin	12/18/17	11:45				
	Mary Fannin	12/18/17	1245							
	CS Logistics	12/19/17	1000	[illegible] Pace	12/19/17	1000	3.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Wagner

SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 12-14-17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Sample Condition Upon Receipt

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

Pace Analytical™

Project #: **WO# : 40162599**

40162599

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CS Logistics

Tracking #:

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 SR-14 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 3 /Corr: 3.5 **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Person examining contents:
Date: 12/19/17
Initials: DS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD DS 12/19/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 DS / 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: **Date:** 12/19/17

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

January 08, 2018

Lori Huntoon
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Dear Lori Huntoon:
Enclosed are the analytical results for sample(s) received by the laboratory on December 21, 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,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Ashley Wagner, Tetra Tech Geo

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

CERTIFICATIONS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Minnesota Certification IDs

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #:MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970

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

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 003971
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2017-124
Texas Certification #: T104704355-17-11
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40162817001	**RHYNER**	Water	12/18/17 13:30	12/21/17 16:00

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

SAMPLE ANALYTE COUNT

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40162817001	**RHYNER**	EPA 200.7	FRW	1	PASI-I
		EPA 200.8	DMT	4	PASI-I
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	DAW	1	PASI-G

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

ANALYTICAL RESULTS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Sample: RHYNER **Lab ID: 40162817001** Collected: 12/18/17 13:30 Received: 12/21/17 16:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Magnesium	**46000**	ug/L	1660	500	1	01/05/18 05:47	01/08/18 11:17	7439-95-4	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	**0.92**	ug/L	0.75	0.18	1	12/29/17 07:38	12/30/17 01:28	7440-38-2	
Chromium	**0.62J**	ug/L	0.68	0.38	1	12/29/17 07:38	12/30/17 01:28	7440-47-3	
Lead	**2.9**	ug/L	0.18	0.12	1	12/29/17 07:38	12/30/17 01:28	7439-92-1	
Manganese	**29.7**	ug/L	0.86	0.44	1	12/29/17 07:38	12/30/17 01:28	7439-96-5	
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**43.4**	mg/L	0.45	0.14	1		12/30/17 01:27	16887-00-6	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.30**	mg/L	0.25	0.095	1		12/28/17 13:32		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

QC Batch: 422906
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 40162817001

METHOD BLANK: 1949055
Matrix: Water
Associated Lab Samples: 40162817001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Magnesium	ug/L	<500	1660	01/08/18 11:09	

LABORATORY CONTROL SAMPLE: 1949056

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	10000	9800	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1949057 1949058

Parameter	Units	40162817001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Magnesium	ug/L	46000	10000	10000	53200	52300	73	63	70-130	2	20	M0

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

QC Batch: 422021 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 40162817001

METHOD BLANK: 1945856 Matrix: Water
Associated Lab Samples: 40162817001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.18	0.75	12/30/17 01:10	
Chromium	ug/L	<0.38	0.68	12/30/17 01:10	
Lead	ug/L	<0.12	0.18	12/30/17 01:10	
Manganese	ug/L	<0.44	0.86	12/30/17 01:10	

LABORATORY CONTROL SAMPLE: 1945857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	42.5	106	85-115	
Chromium	ug/L	40	41.6	104	85-115	
Lead	ug/L	40	41.8	104	85-115	
Manganese	ug/L	40	44.4	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1945858 1945859

Parameter	Units	40162867001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<0.18	40	40	41.9	41.5	105	104	70-130	1	20	
Chromium	ug/L	0.75	40	40	41.2	41.5	101	102	70-130	1	20	
Lead	ug/L	6.3	40	40	49.3	48.9	108	107	70-130	1	20	
Manganese	ug/L	0.88	40	40	41.5	41.7	102	102	70-130	0	20	

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

QC Batch: 516044
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40162817001

METHOD BLANK: 2805056 Matrix: Water
Associated Lab Samples: 40162817001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	0.29J	0.45	12/30/17 17:11	

LABORATORY CONTROL SAMPLE: 2805057

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.1	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2805058 2805059

Parameter	Units	40162899001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	15.8	12.5	12.5	26.0	22.6	82	54	90-110	14	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2805060 2805061

Parameter	Units	40162899002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	17.9	12.5	12.5	23.9	26.8	48	72	90-110	11	20	M1

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

QUALITY CONTROL DATA

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

QC Batch: 278163 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 40162817001

METHOD BLANK: 1634666 Matrix: Water
Associated Lab Samples: 40162817001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.095	0.25	12/28/17 13:25	

LABORATORY CONTROL SAMPLE: 1634667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1634668 1634669

Parameter	Units	40162817001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.30	2.5	2.5	2.6	2.6	92	92	90-110	0	20	

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

QUALIFIERS

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-I	Pace Analytical Services - Indianapolis
PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-7413003.01 BARRETT LANDFIL
Pace Project No.: 40162817

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40162817001	**RHYNER**	EPA 200.7	422906	EPA 200.7	423136
40162817001	**RHYNER**	EPA 200.8	422021	EPA 200.8	422477
40162817001	**RHYNER**	EPA 300.0	516044		
40162817001	**RHYNER**	EPA 353.2	278163		

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40162817

Section A
Required Client Information:

Company:	Tetra Tech
Address:	175 N Corporate Dr, Suite 100
	Brookfield, WI 53045
Email To:	ashley.wagner@tetratech.com
Phone: (262)792-1282	Fax:
Requested Due Date/TAT:	

Section B
Required Project Information:

Report To:	Ashley Wagner, Lori Huntoon
Copy To:	
Purchase Order No.:	
Project Name:	Barrett Landfill
Project Number:	117-7413003.01

Section C
Invoice Information:

Attention:	Ashley Wagner
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Preservatives: NaOH	Preservatives: $Na_2S_2O_3$	Preservatives: Methanol	Preservatives: Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Total Chloride	Total As, Pb, Cr, Mn, Mg	Total Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
001	1 Rhyner (240)	DW	G			12-18	1330		3	1	1	1							1	1	1		3-250mlp HCO
	2																						
	3 3540 S. Woodland Ct																						
	4																						
	5																						
	6																						
	7																						
	8																						
	9																						
	10																						
	11																						
	12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Ashley Wagner	12.19.17	0800	Mary Tammin	12/21/17	10:50
	Mary Tammin 12/21/17		1335	Rachel Wis Rca	12/21/17	1335
	Rachel Wis Rca 12/21/17		1600	DSchmidt	12/21/17	1600

SAMPLE CONDITIONS			
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
ROI	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ashley Wagner
SIGNATURE of SAMPLER: Ashley Wagner DATE Signed (MM/DD/YY): 12.18.17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

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

Pace Analytical™

Project #: **WO# : 40162817**

40162817

Client Name: Tetra tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☑ Pace Other: _____

Tracking #: _____

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 ☑ Samples on ice, cooling process has begun

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

Temp Blank Present: ☐ yes ☑ no

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

Person examining contents:
Date: 12/21/17
Initials: PS

				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.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. NO MS/MSD PS 12/21/17
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.
-Includes date/time/ID/Analysis Matrix: W				
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 PS / 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: _____ **Date:** 12-22-17