

Plan



Alternate Daily Cover and Beneficial Reuse Plan Brown County South Landfill

Project I.D.: 18B027

**Brown County Port & Resource Recovery Department
Green Bay, Wisconsin**

September 2019

Revised February 2024



Alternate Daily Cover and Beneficial Reuse Plan Brown County South Landfill

Project ID: 18B027

Prepared for
Brown County Port & Resource Recovery Department

2561 S. Broadway Street
Green Bay, WI 54304

Prepared by
Foth Infrastructure & Environment, LLC

September 2019
Revised February 2024

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Alternate Daily Cover and Beneficial Reuse Plan Brown County South Landfill

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List of Abbreviations, Acronyms, and Symbols

ADC	Alternate Daily Cover
BCPRRD	Brown County Port & Resource Recovery Department
BOW	Brown, Outagamie, and Winnebago
cy	cubic yard
FD	Feasibility Determination
Foth	Foth Infrastructure & Environment, LLC
FR	Feasibility Report
lb	pound
MSW	municipal solid waste
NELF	Northeast Landfill
Plan	Alternate Daily Cover and Beneficial Reuse Plan
SLF	South Landfill
TDA	Tire derived aggregate
WDNR	Wisconsin Department of Natural Resources

1 Introduction

1.1 Background Information

The Brown County South Landfill (SLF) property is located in the E ½ of the SW ¼ Section 18, Township 21N, Range 20E, town of Holland, Brown County, Wisconsin. The county property encompasses approximately 313 acres, of which approximately 69.7 acres are proposed for the limits of filling for the SLF.

A Feasibility Report (FR) for the Brown County SLF was submitted in July of 1994. The SLF received a Feasibility Determination (FD) in October of 1996. The determination included a design capacity of 9,355,148 cubic yards (cy) for a municipal solid waste (MSW) landfill and an additional 3,696,323 cy for a process residue monofill.

This Alternate Daily Cover (ADC) and Beneficial Reuse Plan (Plan) is being submitted as an appendix to the SLF Plan of Operation. The Plan of Operation's design has an airspace capacity of 9,303,000 cy for MSW and does not include a monofill for process residue.

The SLF will serve as a replacement to the Outagamie County Northeast Landfill (NELF). The NELF currently operates as the Brown, Outagamie, and Winnebago (BOW) Counties' regional landfill in a tri-county waste agreement, with the SLF projected as the next BOW landfill. Landfill operations and waste types/sources at the SLF will be consistent with the NELF.

1.2 Purpose

The purpose of this Plan is to obtain approval to use various materials at the SLF as ADC or for other beneficial uses such as berms, dikes, roads, and the staging deck for haul trucks. The following waste types are proposed for use:

- ♦ Paper Mill Sludge
- ♦ Foundry Sand and Slag
- ♦ Automobile Shredder Fluff
- ♦ Shredded Wood
- ♦ Contaminated Soil
- ♦ Boiler/Fly Ash
- ♦ Posi-Shell® Spray-on Synthetic Daily Cover

Each proposed material is presented in the following sections along with a description of physical characteristics and its intended use. This Plan functions to reduce plan modifications needed in the future for the SLF. All of these materials have been approved for ADC and other beneficial uses at the NELF. [This plan was later revised to include use of tire derived aggregate \(TDA\).](#)

2 Paper Mill Sludge

The BOW regional waste system accepts paper mill sludge from a variety of sources. Paper mill sludge has been approved for use as ADC at the NELF. Prior to acceptance, each individual source of paper mill sludge is evaluated in accordance with the SLF's Special Waste Management Plan. If accepted, each source is evaluated for its potential to be used as ADC. Limiting factors include the consistency of the material and its ability to be efficiently handled and spread in a 6-inch layer. In addition, the potential to create an odor issue will also be considered.

Paper mill sludge works well as an ADC. It typically has the ability to absorb moisture which is a benefit during times of precipitation. The material is generally able to be spread in an even thickness, fills voids in the open face of the waste and works well on interior slopes. It also does not create significant dust and works well in windy conditions.

The paper mill sludge will be stockpiled daily near the active area. At the end of each day, the sludge will be spread in a 6-inch layer over the open face of the waste. The sludge will be removed to the extent practical prior to resuming filling to minimize the creation of barrier layers within the waste mass. The removed material can be reused or mixed with the MSW. Typically, the material would be removed during the next working day, but could possibly be left in-place for 2 to 4 weeks depending on fill sequencing. The maximum amount of time the material would be left in-place is 6 months, at which time intermediate cover would be required.

Table 1 indicates probable sources of paper mill sludge wastes that will be accepted at the Brown County Port & Resource Recovery Department (BCPRRD) SLF, along with their percent solids.

Table 1
Papermill Sludge as ADC

Papermill Sludge Source	Percent Solids	Volume (CY)*
Appvion Paper Mill	60.8	4,516
Clearwater Paper Mill	42.4	3,385
Fox River Fiber	50.6	21,999
Neenah Paper Appleton Paper Mill	39.5	1,085
Neenah Paper Neenah Paper Mill	36.0	3,461
Proctor & Gamble Paper Mill	31.5	11,498
Average	43.5	Total 45,944

*Volume based on 2018 data.

As indicated by the table, paper mill sludge currently used for ADC averages 43.5% solids, with total percent solids varying with each source. BCPRRD proposes to continue using paper mill sludge as it is used at the current regional landfill in Outagamie County. Additional chemical and physical characteristics of paper mill sludge sources expected at the SLF are included in Attachment 1. Any new sources for paper mill sludge will be managed accordingly with the

SLF's Special Waste Management Plan, and should any potential sources not meet the aforementioned characteristics, BCPRRD shall seek Wisconsin Department of Natural Resources (WDNR) approval.

3 Foundry Sand and Slag

BCPRRD requests the use of foundry sand and slag for ADC in addition to construction of internal roadways, screening berms, and the staging deck for the haul trucks.

Foundry sand is created during the metal casting process. Sand is used in casting molds. The sand is reused numerous times and a portion of the sand is continuously removed and replaced with virgin sand. Eventually, heat and mechanical abrasion renders it unsuitable for use in the casting molds and it becomes a waste product. Slag is a solidified waste product removed from the molten metal created during the metal casting process.

When used as ADC, the foundry sand will be stockpiled adjacent to the active working face and spread over the refuse in a minimum 6-inch thickness at the end of each day. The foundry sand layer will be removed or mixed with the waste prior to additional waste placement. The sand will be removed to the extent practical prior to resuming filling to minimize the creation of barrier layers within the waste mass. The removed material can be reused or mixed with the MSW. Typically, the material would be covered during the next working day, but could possibly be left in-place for two to four weeks depending on fill sequencing. The maximum amount of time the material would be left in-place is six months, at which time intermediate cover would be required.

As much as possible, the material will be placed and graded directly to avoid double handling when used for berms or road base. Otherwise, it may be stockpiled temporarily near the berm or road locations. If foundry sand is used for berm construction, the outboard slopes will be covered with a minimum thickness of 1 foot of clean soil to prevent direct runoff from the material outside of the lined area of the landfill.

Slag will be stockpiled near to the active working face and used to construct structures (berms, dikes, roads or the staging deck) within the landfill limits on an as-needed basis. The primary use of the material will be for road base. If slag is used for berm construction, the outboard slopes will be covered with a minimum thickness of 1 foot of clean soil to prevent direct runoff from the material outside of the lined area of the landfill.

Foundry sand and slag can generally be used in all weather conditions. The material works well as ADC and for providing a firm base for roadways and staging areas. The sand and slag can also be mixed with other ADC materials to fill surface voids and add shear strength to the ground surface. Dusting may occur in windy conditions. The material will not be used if dust cannot be controlled. Foundry sand would not be used for berms during precipitation events unless all runoff from the material is contained within the lined area of the landfill.

4 Crushed Glass

BCPPRD rescinds its request to use residual glass and 3-mix glass as alternative daily cover at this time.

5 Automobile Shredder Fluff

BCPRRD requests the use of automobile shredder fluff as an approved ADC material, in addition to construction of internal roadways and the staging deck for the haul trucks. Shredder fluff is created as a residue of the shredding and recycling of automobiles.

When used as ADC, the shredder fluff will be stockpiled adjacent to the active working face and spread over the refuse in a minimum 6-inch thickness at the end of each day. Typically, the material would be covered during the next working day but could possibly be left in-place for two to four weeks depending on fill sequencing. The maximum amount of time the material would be left in-place is six months, at which time intermediate cover would be required.

Shredder fluff is useful in providing an all-weather driving surface on internal haul roads and the staging deck. In general, the material is mixed with other materials (shredded wood, road gravel, foundry sand, etc.) and placed an approximate 1-foot thickness over the base material. As much as possible, the material will be placed and graded directly to avoid double handling. Otherwise, it may be stockpiled temporarily near the deck or road locations.

The shredder fluff material will be reviewed and approved for disposal in accordance with the SLF's Special Waste Management Plan. Attachment 2 provides the Special Waste Management Plan's analytical acceptance protocol, Protocol G, for accepting auto shredder fluff. Results of laboratory testing of the material will be included in the SLF's Annual Report.

6 Shredded Wood

BCPRRD is requesting source-separated, clean shredded wood be approved for ADC, internal roadway surfacing, and staging deck material for haul trucks. Typical particle size after shredding is 1 to 2 inches. Shredded wood works well as ADC in wet weather conditions. Shredded wood can also provide a base for vehicle traffic in wet weather conditions. Shredded wood is most likely to be applied as staging deck material and internal roadway surfacing, but may be used sporadically as ADC. Precautions such as using the wood in wet weather conditions will be taken to minimize fire hazards. Any new sources for shredded wood will be managed accordingly with the SLF's Special Waste Management Plan, and should any potential sources not meet the aforementioned characteristics, BCPRRD shall seek WDNR approval. When used as ADC, the shredded wood will be stockpiled adjacent to the active working face and spread over the refuse in a minimum 6-inch thickness at the end of each day. The shredded wood will not require removal prior to additional waste placement. Typically, the material would be covered during the next working day, but could possibly be left in-place for 2 to 4 weeks depending on fill sequencing. The maximum amount of time the material would be left in-place is 6 months, at which time intermediate cover would be required.

As much as possible, the material will be placed and graded directly to avoid double handling when used for road base or staging areas. Otherwise, it may be stockpiled temporarily near the areas where it is to be used.

7 Contaminated Soils

BCPRRD proposes to use contaminated soils for ADC, intermediate cover, as well as interior structures such as berms, dikes, roads and staging areas. Each new source for contaminated soils will be evaluated per the SLF's Special Waste Management Plan. Limiting factors include the consistency of the material and its ability to be efficiently handled and spread in a 6-inch layer. A minimum of 1-foot thickness of clean soil will be placed over the exterior slope of berms constructed using contaminated soils where surface water runoff may occur. All surface water contacted by contaminated soils will be handled as leachate. Contaminated soils will not be used for intermediate cover on exterior slopes unless approved at a future date.

Contaminated soil sources used as ADC will not include all types of contaminated soils that have been approved for disposal in the landfill. Pre-approved ADC and beneficial reuse contaminated soils will be limited to contaminated soils with levels at or below the NR 720 Wis. Adm. Code Industrial Direct Contact Residual Contaminant Levels (RCL). ADC-approved contaminated soil sources will exclude soils approved for disposal in the landfill through a "contained out" determination made in accordance with the Guidance for Hazardous Waste Remediation. Contaminated soils that fall between the two levels will be approved on a case-by-case basis and BCPRRD will seek WDNR approval for these sources. Section 5.2 of the Special Waste Management Plan includes additional information about contaminated soil sources.

7.1 Alternate Daily Cover

Materials will be stockpiled adjacent to the active area at a location that will not affect traffic flow. The material will be placed in a 6-inch layer over the open face of the active fill area following each day's filling activities. The material may be supplemented with other ADC materials or soil. The material will be removed (to the extent practical) prior to filling additional waste materials in that area to minimize the potential to create hydraulic barrier layers in the waste mass. The material may be re-used as ADC if it can be removed with minimal contamination from the waste materials. Material not re-used will be mixed with the waste materials in a manner which will not create hydraulic barriers within the waste mass. Fine-grained soils will not be used during wet weather conditions.

7.2 Intermediate Cover

Materials will be stockpiled within the lined area of the landfill in a location where direct runoff from the material will be contained within the lined area. The material will be placed in an approximate 1-foot thick lift over a completed waste lift which will not receive additional waste for several weeks or more. The material will be placed in a manner which will direct all surface water runoff to the leachate collection system of the SLF. The material will not be placed on exterior slopes. The material will be removed (to the extent practical) prior to filling additional waste materials in that area. The material may be re-used as intermediate cover if it can be removed with minimal contamination from the waste materials. Material not re-used will be mixed with the waste materials in a manner which will not create hydraulic barriers within the waste mass.

7.3 Road Construction/Staging Areas

Materials will be stockpiled within the lined area of the landfill in a location where direct runoff from the material will be contained within the lined area. The material will be spread in 1 to 2 foot layers to provide a firm base over the waste material. Additional road base materials may be placed over the contaminated soils. The material may be re-used as road material if it can be removed with minimal contamination from the waste materials. Material not re-used will be mixed with the waste materials in a manner which will not create hydraulic barriers within the waste mass. Fine-grained soils will not be used during wet weather conditions.

7.4 Berm Construction

Materials will be stockpiled within the lined area of the landfill in a location where direct runoff from the material will be contained within the lined area. The material will be used to construct screening berms around the perimeter of waste lifts. The berms will provide visual screening and protection from the wind. A minimum 1-foot thickness of clean soil will be placed over the exterior slope of the berms if there is a potential for direct runoff of surface water into the site surface water management system. Fine-grained soils will not be used during wet weather conditions.

8 Boiler/Fly Ash

BCPRRD requests approval for boiler/fly ash to be utilized at the SLF site for ADC as well as internal haul roads, screening berms, and staging areas. The ash from each source will be evaluated under the SLF's Special Waste Management Plan. Attachment 3 includes the typical sources of boiler/fly ash anticipated at the SLF. Boiler/fly ash may only be used if dust generation is prevented and controlled.

When used as ADC, the ash will be stockpiled adjacent to the active working face and spread over the refuse in a minimum 6-inch thickness at the end of each day. The ash layer will be mixed with the waste prior to additional waste placement. Typically, the material would be covered during the next working day, but could possibly be left in-place for two to four weeks depending on fill sequencing. The maximum amount of time the material would be left in-place is six months, at which time intermediate cover would be required.

As much as possible, the material will be placed and graded directly to avoid double handling when used for berms or road base. Otherwise, it may be stockpiled temporarily near the berm or road locations. The primary concern with the use of this material is creating dust. The material will not be used if dust cannot be controlled. Water may need to be applied to the material to control dust. The material will not be used on the surface of roadways or the deck area. In general, it will be mixed with other materials (i.e., breaker run, foundry sand, construction and demolition materials, slag, etc.) to form a solid base for the hauling vehicles to operate on. The material will be covered with a surface material (road gravel, shredder fluff, wood chips, etc.) prior to being used for vehicle traffic.

Boiler/fly ash has been used successfully at landfills to stabilize low strength areas. When hydrated, the material tends to form a solid structure which provides stability. For this reason, it is felt the material will make excellent road base or deck material.

9 Posi-Shell® Spray-on Synthetic Daily Cover

9.1 General

Posi-Shell® is a synthetic spray-on daily cover material which has been approved for use as ADC at the NELF. The approval denied the use of the spray-on material during windy days or significant rain events. In addition, the approval limited the amount of time which the material could be left exposed to 72 hours.

The material has been used successfully at the NELF since late 2013. BCPRRD proposes use of Posi-Shell® as an optional daily cover at the SLF.

9.2 Proposed Mixtures

BCPRRD proposes to use four separate mixes in accordance with manufacturer's recommendations. The Posi-Shell® formulation guide is included in Attachment 4 along with product information. Each separate mixture is described below:

Mixture 1 – Standard Mix for Dry Conditions

In general, a typical batch of Mixture 1 will begin with 1,600 gallons of water. Two, 500-pound (lb) bulk sacks of Posi-Shell® will be added and mixed at high speed for five minutes. The material will be spray applied at a rate of approximately 0.1 to 0.125 gallons per square feet. One batch of material will cover approximately 12,800 to 16,000 square feet. This mixture is referred to as the base mix in the Posi-Shell® formulation guide, which is provided in Attachment 4.

Mixture 2 – Moderate Wet Conditions

In general, a typical batch of Mixture 2 will begin with 1,600 gallons of water. Two, 500-lb bulk sacks of Posi-Shell® will be added and mixed at high speed for five minutes. The material will be spray applied at a rate of approximately 0.125 to 0.167 gallons per square feet. A total of 4,000 lbs of Portland cement will be added and mixed for two minutes. One batch of material will cover approximately 9,600 to 12,800 square feet. This mixture is referred to as the EC-4 mix in the Posi-Shell® formulation guide, which is provided in Attachment 4.

Mixture 3 – Severe Wet Conditions

In general, a typical batch of Mixture 3 will begin with 1,600 gallons of water. Two, 500-lb bulk sacks of Posi-Shell® will be added and mixed at high speed for five minutes. The material will be spray applied at a rate of approximately 0.167 to 0.25 gallons per square feet. A total of 4,000 lbs of Portland cement and up to 200 lbs of Xtreme Rain Shield™ will be added and mixed for two minutes. One batch of material will cover approximately 6,400 to 9,600 square feet. This mixture is referred to as the Xtreme Rain Shield™ Series (medium) mix in the Posi-Shell® formulation guide, which is provided in Attachment 4.

9.3 Proposed Usage

9.3.1 Interior Active Areas and Slopes

BCPRRD proposes to use Posi-Shell® spray-on ADC as an optional ADC for the SLF. Mixture 1 under dry weather conditions; and if light or moderate rain is expected (0 to 0.5 inches), Mixture 2 will be used. If heavy rain (>0.5 inches) is forecast, Mixture 3 will be used. The material will remain in place up to 72 hours before being covered with additional waste or other daily cover materials approved for extended exposure prior to intermediate cover placement. The material will be applied in accordance with manufacturer's recommendations. The material will not be used on exterior slopes. In addition, the material will not be used on windy days or during significant rain events.

10 Tire Derived Aggregate

BCPRRD proposes to use tire derived aggregate (TDA) or tire chips as an alternative construction material for horizontal gas extraction well and leachate recirculation pipe bedding aggregate. This material was approved in the November 17, 2023 plan modification approval.

The use of 2-inch by 2-inch nominally sized tire derived aggregate will result in an aggregate material similar to the 1.5-inch stone aggregate specified in the Plan of Operations. The tire derived aggregate loose density is approximately four times less dense than stone 22 pounds per cubic foot (lbs/cf) (110 for stone) as placed loose and between 30 lbs/cf to 60 lbs/cf when loaded. Studies on hydraulic conductivity of tire derived aggregate has shown ranges similar to that of stone (0.5 centimeter per second [cm/sec] to 20 cm/sec). Tire derived aggregate exhibits a greater degree of compressibility with smaller shredded size showing lower amounts than larger shreds. Compressibility of the tire derived aggregate also increases with higher vertical strains. The following design considerations are given.

- ◆ **Compaction and Settlement** – To minimize the effects of compressibility, compaction and post-installation settlement will be addressed. Additional compaction efforts at material installation as well as thickening of the tire derived aggregate pipe bedding is proposed.
- ◆ **Chip size** – Tire derived aggregate that is too small nominal size has tendency to result in lower void space for liquid and gas movement. Tire derived aggregate that is too large has greater risk of higher compressibility due to inadequate compaction on installation. Tire derived aggregate sizes of 2 inches is proposed as it appears to more closely match the planned stone aggregate characteristics for handling liquids drainage and gas extraction capacity.
- ◆ **Trench size** – The width and depth of the bedding will be increased by 40% to account for compressibility under vertical stresses due to filling operations and vehicle loading.

10.1 Performance Evaluation and Contingency Plan

Documentation of installed tire derived aggregate as beneficial use material within horizontal gas extraction wells and leachate recirculation trenches will be performed and included with annual reports. Observations of material handling and compaction will be made. The trenches will be observed as waste filling continues post construction.

Gas extraction is anticipated to begin in 2026. At the time of gas extraction, observations on well performance will be made and documented in the annual report. Should Brown County install some horizontal gas extraction wells with stone aggregate, a comparison in performance can be made at that time. Leachate recirculation will not begin until after gas extraction equipment is up and running.

As noted in Addendum No. 1 to the Plan of Operations, “the horizontal gas extraction wells will be installed as temporary control devices installed during active fill to control gas prior to the time when vertical gas wells can be installed.” Horizontal gas extraction wells have historically been prone to differential settlement of the waste mass resulting in low points in the gas piping.

Due to liquids settling out in low points, gas extraction may be hindered. Should horizontal gas extraction wells with tire derived aggregate bedding become flooded out or unusable, vertical gas extraction wells will be installed as the primary gas extractors once filling reaches design grades. For leachate recirculation wells with tire derived aggregate bedding, Brown County will monitor the system in accordance with the Leachate Recirculation Plan submitted as part of the Plan of Operation for warning symptoms and failure thresholds. Routine monitoring of the system will include documentation of gallons recirculated to each well and performance over time of the recirculation trenches will be used to assess system operations.

10.2 Material Delivery, Handling and Use

The tire aggregate material will be delivered to the site by trailer load at the start of gas or leachate well construction. Tire aggregate may be stockpiled on site or delivered just in time and placed right in the trench. Material stockpile amounts not to exceed 120% of required amounts to reduce excess storage. The tire aggregate will be stockpiled outside the limits of waste.

Installation of the material within trenches has shown to be consistent with stone aggregate installation. An excavator or other earth moving equipment will be used to move material into the dug trenches. An excavator bucket or other compaction equipment will be used to compact the installed tire derived aggregate pipe bedding. After piping installation, the remainder of the trench will be filled and compacted. Waste will be placed over the tire aggregate trenches to provide separation from the active fill area for fire mitigation.

10.3 Trial Period

A 7-year trial period will be applied to the use of the tire aggregate as a beneficial use material. This allows for construction of the wells to occur based on filling sequences and gas extraction system installation and operation. The tonnage accepted and used will be summarized and included in the SLF's annual report. A summary of the material effectiveness and any issues related to its use will be provided in the annual report.

11 Allowable Daily Cover Amounts

The SLF is expected to accept approximately 2,400 tons of waste (including beneficial use materials) per day. Assuming an average density of 1,650 lbs per cubic foot, the daily volume of airspace used is estimated to be 2,900 cy. The daily area where waste is placed is approximately 140 feet by 140 feet. Six inches of daily cover over the working face of the daily filling area results in a volume of 363 cy. Therefore, BCPRRD requests the acceptable daily cover percentage be increased to 363 cy/2,900 cy or 12.5% by volume (of the total airspace).

Attachment 1
Paper Mill Sludge Sources

OUTAGAMIE COUNTY SOLID WASTE DEPARTMENT
1419 HOLLAND RD.
APPLETON, WI 54911

Project Number: 19000768
Report Date: 12/27/2018
Sampled By: CLIENT

Attn: BILL LONG

Samples: 5

Sample Number: 49001625
Sample ID: APPVION
Sample Date: 12/17/2018
Date Received: 12/18/2018

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	58	mg/l	23	77	98	SM4500NH3G	12/26/18	
KJELDAHL NITROGEN	1431	mg/l	70	233	639	EPA351.2	12/21/18	

Sample Number: 49001626
Sample ID: PROCTOR & GAMBLE
Sample Date: 12/17/2018
Date Received: 12/18/2018

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	74	mg/l	23	77	98	SM4500NH3G	12/26/18	
KJELDAHL NITROGEN	1003	mg/l	28	93	259	EPA351.2	12/21/18	

Sample Number: 49001627
Sample ID: NEENAN PAPER NEENAH
Sample Date: 12/17/2018
Date Received: 12/18/2018

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	1070	mg/l	23	77	100	SM4500NH3G	12/26/18	
KJELDAHL NITROGEN	7427	mg/l	115	383	1042	EPA351.2	12/21/18	

Sample Number: 49001628
Sample ID: NEENAN PAPER APPLETON
Sample Date: 12/17/2018
Date Received: 12/18/2018

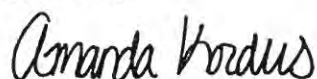
Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	184	mg/l	19	63	83	SM4500NH3G	12/26/18	
KJELDAHL NITROGEN	984	mg/l	40	133	363	EPA351.2	12/21/18	

Sample Number: 49001629
Sample ID: FOX RIVER FIBER
Sample Date: 12/17/2018
Date Received: 12/18/2018

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	71	mg/l	19	63	83	SM4500NH3G	12/26/18	
KJELDAHL NITROGEN	923	mg/l	28	93	255	EPA351.2	12/21/18	

All LOD/LOQs adjusted for dilution and/or solids content.

BADGER LABORATORIES, INC.
WDNR Certified Lab #445023150
Approved By:



BLE:gr



Analytical Report

501 West Bell Street
Neenah, WI 54956 4868
P 920 729 1100 | T 1 800 776 7196
F 920 729 4945

OUTAGAMIE COUNTY SOLID WASTE DEPARTMENT
1419 HOLLAND RD.
APPLETON, WI 54911-8985

Project Number: 19000848
Report Date: 1/2/2019
Sampled By: CLIENT

Attn: MR. GARY STEEDE

Samples: 1

Sample Number: 49001781
Sample ID: CLEARWATER PAPER
Sample Date: 12/19/2018
Date Received: 12/20/2018
Results expressed on an 'as received' basis.

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
AMMONIA NITROGEN	69	ppm	19	63	83	SM4500NH3G	12/27/18	
KJELDAHL NITROGEN	1077	ppm	42	140	383	EPA351.2	12/31/18	

All LOD/LOQs adjusted for dilution and/or solids content.

BADGER LABORATORIES, INC.
WDNR Certified Lab #445023150
Approved By:

Amanda Kordus

BLE:tk



BADGER LABORATORIES & ENGINEERING INC.

501 WEST BELL STREET • NEENAH, WISCONSIN 54956-4868 • EST. 1968
(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

APPVION
P.O. BOX 359, 825 E WISCONSIN AVE
APPLETON, WI 54912-

Report Number: 1511331
Report Date: 11/6/2015
Sampled By: Client
Emailed: 11/6/2015

Attn: DAVE SCHOENLEBER

PO#: 427392
Samples: 1 SLUDGE

Sample Number: 45026376
Description: WASTEWATER TREATMENT SLUDGE
Sample Date: 10/20/2015
Date Received: 10/21/2015

Parameter	Results	Units	Codes	LOD	LOQ	Method	Analyzed
CHLORINE	0.07	%		0.02	0.02	ASTM D2361	11/03/15
CYANIDE, TOTAL	<0.30	ppm		0.30	1.0	SM4500CN-E	10/28/15
CYANIDE-AM. TO CL2	<0.30	ppm		0.007	0.023	SM4500CN-G	10/28/15
FLASH POINT	--SEE ATTACHED ESC REPORT--						
FREE LIQUIDS	0.0	%		0	0	SW 846 9095	10/22/15
METALS DIGESTION	DONE			0	0	SM3030E	11/02/15
PHENOL, TOTAL	6.0	ppm		1.1	3.7	EPA420.4	11/04/15
pH-LAB	7.0	S.U.		0	0	SW846-9045C	10/21/15
SULFIDE	--SEE ATTACHED ESC REPORT--						
TCLP ARSENIC	0.008	mg/l		0.005	0.017	SM3113B	11/02/15
TCLP BARIUM	0.15	mg/l		0.10	0.33	SM3111D	11/02/15
TCLP CADMIUM	<0.01	mg/l		0.01	0.03	SM3111B	11/04/15
TCLP CHROMIUM	<0.03	mg/l		0.03	0.10	SM3111B	11/02/15
TCLP EXTRACTION	COMPLETE			0	0	SW846-1311	10/31/15
TCLP LEAD	<0.03	mg/l		0.03	0.10	SM3113B	11/04/15
TCLP MERCURY	<0.0002	mg/l		0.0002	0.0008	SM3112B	11/05/15
TCLP ORGANICS	--SEE ATTACHED ESC REPORT-- / L*						
TCLP SELENIUM	<0.005	mg/l		0.005	0.017	SM3113B	11/04/15
TCLP SILVER	<0.01	mg/l		0.01	0.03	SM3113B	11/04/15
TOTAL SOLIDS	60.8	%		0.010	0.010	SM2540B	10/21/15

*Quality Assurance Code(s):

L. Sample(s) not received in a glass container as required by WDNR protocol.

BADGER LABS & ENGINEERING
WDNR Certified Lab #445023150
Approved By:

JMW:rt

WI DNR Certified Lab #445023150
WI Reg. Engineers (Corp.) #CE00601
WI DATCP Certified #205 (Bacteria-Water)

Members
WI Environmental Labs; Am. Chemical Soc.;
T.A.P.P.I.; WI Food Processors Assn.;
Wisc. Paper Council

Badger Laboratories & Engineering, Inc.

Sample Delivery Group: L796360

Samples Received: 10/23/2015

Project Number:

Description:

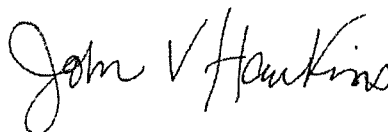
Report To:

Jeff Wagner

501 West Bell Street

Neenah, WI 54956

Entire Report Reviewed By:



John Hawkins

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

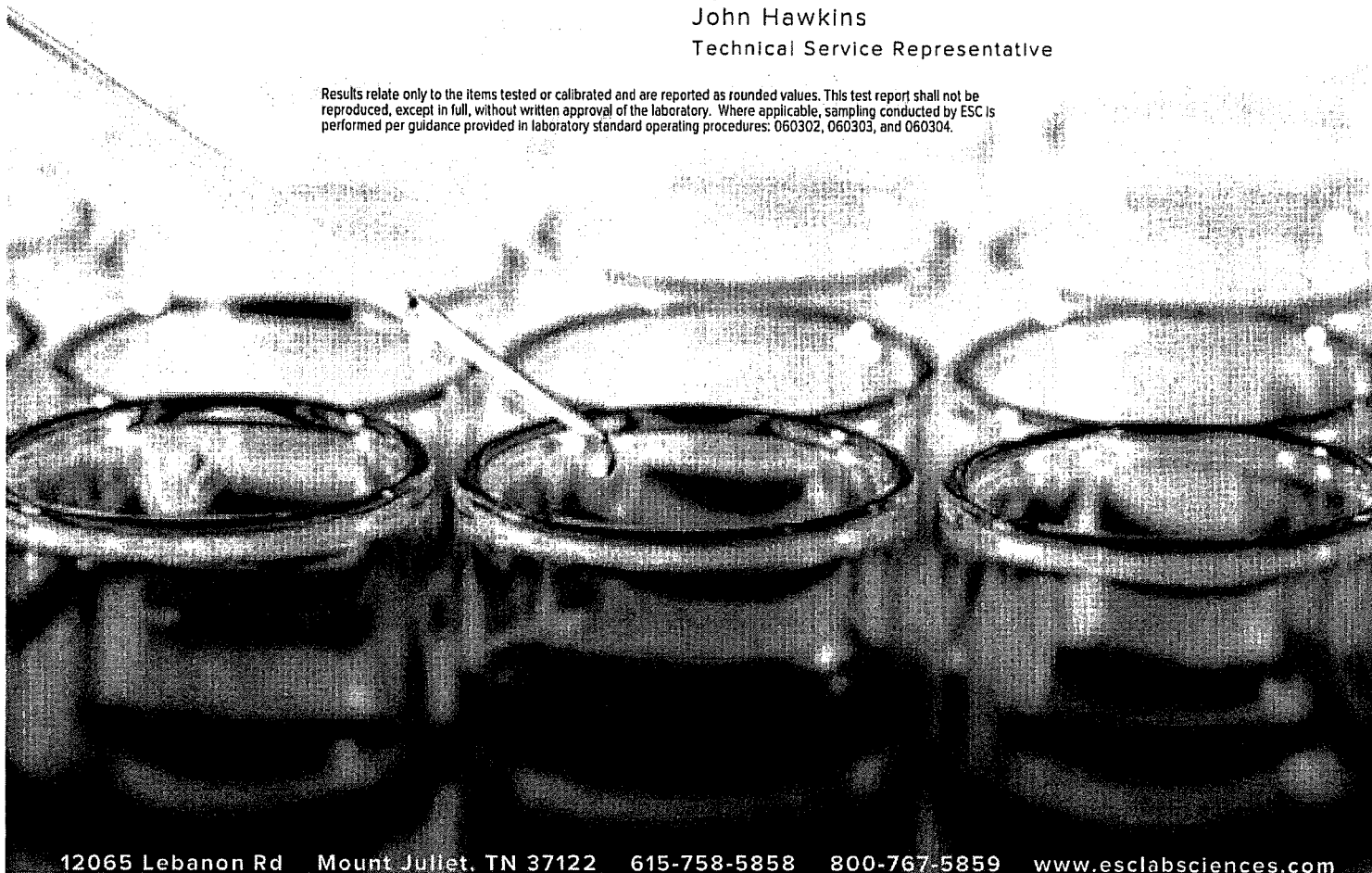


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ONE LAB. NATIONWIDE.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



26376 L796360-01 Solid

Collected by

Collected date/time
10/20/15 13:30

Received date/time
10/23/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Preparation by Method 1311	WG824985	1	10/27/15 22:58	10/27/15 22:59	LJN
Preparation by Method 1311	WG825045	1	10/28/15 13:20	10/28/15 14:06	CHM
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG825405	1	10/29/15 20:04	10/30/15 08:41	JF
Volatile Organic Compounds (GC/MS) by Method 8260B	WG825364	1	10/29/15 17:34	10/29/15 17:34	BMB
Wet Chemistry by Method 9034/9030B	WG825488	1	10/30/15 11:10	10/31/15 13:45	AS
Wet Chemistry by Method D93/1010A	WG825708	1	10/31/15 12:08	10/31/15 12:08	MZ

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

26376

Collected date/time: 10/20/15 13:30

SAMPLE RESULTS - 01

L796360

ONE LAB. NATIONWIDE



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		10/27/2015 10:58:35 PM	WG824985
TCLP ZHE Extraction	-		10/28/2015 1:20:54 PM	WG825045

Wet Chemistry by Method 9034/9030B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Reactive Sulf. (SW846 7.3.4.1)	ND		25.0	1	10/31/2015 13:45	WG825488

Wet Chemistry by Method D93/1010A

Analyte	Result Deg. F	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	DNI at 170 F		1	10/31/2015 12:08	WG825708

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	10/29/2015 17:34	WG825364
Carbon tetrachloride	ND		0.0500	0.50	1	10/29/2015 17:34	WG825364
Chlorobenzene	ND		0.0500	100	1	10/29/2015 17:34	WG825364
Chloroform	ND		0.250	6	1	10/29/2015 17:34	WG825364
1,2-Dichloroethane	ND		0.0500	0.50	1	10/29/2015 17:34	WG825364
1,1-Dichloroethene	ND		0.0500	0.70	1	10/29/2015 17:34	WG825364
2-Butanone (MEK)	ND		0.500	200	1	10/29/2015 17:34	WG825364
Tetrachloroethene	ND		0.0500	0.70	1	10/29/2015 17:34	WG825364
Trichloroethene	ND		0.0500	0.50	1	10/29/2015 17:34	WG825364
Vinyl chloride	ND		0.0500	0.20	1	10/29/2015 17:34	WG825364
(S) Toluene-d8	105		90.0-115	114		10/29/2015 17:34	WG825364
(S) Dibromofluoromethane	101		79.0-121	125		10/29/2015 17:34	WG825364
(S) o,a,a-Trifluorotoluene	98.1		90.4-116	114		10/29/2015 17:34	WG825364
(S) 4-Bromofluorobenzene	90.9		80.1-120	128		10/29/2015 17:34	WG825364

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	10/30/2015 08:41	WG825405
2,4-Dinitrotoluene	ND		0.100	0.13	1	10/30/2015 08:41	WG825405
Hexachlorobenzene	ND		0.100	0.13	1	10/30/2015 08:41	WG825405
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	10/30/2015 08:41	WG825405
Hexachloroethane	ND		0.100	3	1	10/30/2015 08:41	WG825405
Nitrobenzene	ND		0.100	2	1	10/30/2015 08:41	WG825405
Pyridine	ND		0.100	5	1	10/30/2015 08:41	WG825405
3,4-Methyl Phenol	ND		0.100	400	1	10/30/2015 08:41	WG825405
2-Methylphenol	ND		0.100	200	1	10/30/2015 08:41	WG825405
Pentachlorophenol	ND		0.100	100	1	10/30/2015 08:41	WG825405
2,4,5-Trichlorophenol	ND		0.100	400	1	10/30/2015 08:41	WG825405
2,4,6-Trichlorophenol	ND		0.100	2	1	10/30/2015 08:41	WG825405
(S) 2-Fluorophenol	42.0		10.0-77.9	87		10/30/2015 08:41	WG825405
(S) Phenol-d5	30.5		5.00-70.1	67		10/30/2015 08:41	WG825405
(S) Nitrobenzene-d5	43.9		21.8-123	120		10/30/2015 08:41	WG825405
(S) 2-Fluorobiphenyl	53.0		29.5-131	122		10/30/2015 08:41	WG825405
(S) 2,4,6-Tribromophenol	54.6		11.2-130	148		10/30/2015 08:41	WG825405
(S) p-Terphenyl-d14	62.8		29.3-137	149		10/30/2015 08:41	WG825405

CASE NARRATIVE

ONE LAB. NATIONWIDE.



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

WG825488

Wet Chemistry by Method 9034/9030B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) 10/31/15 13:45

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Reactive Sulf.(SW846 7.3.4.1)	ND		25.0

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L796360-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/31/15 13:45 • (DUP) 10/31/15 13:45

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulf.(SW846 7.3.4.1)	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/31/15 13:45 • (LCSD) 10/31/15 13:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Reactive Sulf.(SW846 7.3.4.1)	100	91.8	91.8	91.8	91.8	70.0-130			0.000	20

7 Gl

8 Al

9 Sc

WG825708

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L796360-01

L797217-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/31/15 12:08 • (DUP) 10/31/15 12:08

Analyte	Original Result Deg. F	DUP Result Deg. F	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Ignitability	DNI at 170 F	DNI at 170 F	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/31/15 12:08 • (LCSD) 10/31/15 12:08

Analyte	Spike Amount Deg. F	LCS Result Deg. F	LCSD Result Deg. F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ignitability	82.0	83	83	101	101	93.0-107			0.000	20

Cp

Tc

Ss

Cn

Sr

Qc

GI

Al

Sc

WG825364

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

L796360-01

Method Blank (MB)

(MB) 10/29/15 12:47

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Benzene	ND		0.0500
Carbon tetrachloride	ND		0.0500
Chlorobenzene	ND		0.0500
Chloroform	ND		0.250
1,2-Dichloroethane	ND		0.0500
1,1-Dichloroethene	ND		0.0500
2-Butanone (MEK)	ND		0.500
Tetrachloroethene	ND		0.0500
Trichloroethene	ND		0.0500
Vinyl chloride	ND		0.0500
(S) Toluene-d8	105		90.0-115
(S) Dibromofluoromethane	102		79.0-121
(S) o,o,a-Trifluorotoluene	98.9		90.4-116
(S) 4-Bromofluorobenzene	92.1		80.1-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/29/15 10:41 • (LCSD) 10/29/15 11:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0274	0.0272	110	109	73.0-122			0.850	20
Carbon tetrachloride	0.0250	0.0239	0.0234	95.7	93.6	70.9-129			2.26	20
Chlorobenzene	0.0250	0.0246	0.0245	98.3	98.0	79.7-122			0.330	20
Chloroform	0.0250	0.0265	0.0261	106	104	73.2-125			1.50	20
1,2-Dichloroethane	0.0250	0.0245	0.0237	97.8	94.9	65.3-126			3.00	20
1,1-Dichloroethene	0.0250	0.0220	0.0209	88.1	83.8	60.6-133			5.01	20
2-Butanone (MEK)	0.125	0.147	0.132	118	105	46.4-155			11.2	20
Tetrachloroethene	0.0250	0.0236	0.0236	94.5	94.4	73.5-130			0.160	20
Trichloroethene	0.0250	0.0244	0.0240	97.5	96.1	79.5-121			1.45	20
Vinyl chloride	0.0250	0.0240	0.0232	96.1	92.7	61.5-134			3.68	20
(S) Toluene-d8				105	105	90.0-115				
(S) Dibromofluoromethane				105	103	79.0-121				
(S) o,o,a-Trifluorotoluene				97.6	97.0	90.4-116				
(S) 4-Bromofluorobenzene				90.9	90.0	80.1-120				

ACCOUNT:
Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:
L796360DATE/TIME:
11/03/15 07:10PAGE:
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Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gc

7 GI

8 AI

9 Sc

WG825364

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L796360-01

L796329-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/29/15 15:49 • (MS) 10/29/15 13:22 • (MSD) 10/29/15 13:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	0.227	0.842	0.894	49.2	53.4	1	58.6-133	J6	J6	6.03	20
Carbon tetrachloride	1.25	ND	0.781	0.832	62.5	66.5	1	60.6-139			6.28	20
Chlorobenzene	1.25	ND	0.826	0.931	66.1	74.5	1	70.1-130	J6		12.0	20
Chloroform	1.25	ND	0.971	1.02	77.7	81.6	1	66.1-133			4.93	20
1,2-Dichloroethane	1.25	ND	0.841	0.889	67.3	71.1	1	60.7-132			5.49	20
1,1-Dichloroethene	1.25	ND	0.557	0.575	44.5	46.0	1	48.8-144	J6	J6	3.18	20
2-Butanone (MEK)	6.25	ND	5.27	5.27	84.3	84.4	1	45.0-156			0.0200	20.8
Tetrachloroethene	1.25	ND	0.656	0.729	52.5	58.3	1	57.4-141	J6		10.5	20
Trichloroethene	1.25	ND	0.720	0.767	57.6	61.4	1	48.9-148			6.35	20
Vinyl chloride	1.25	ND	0.514	0.524	41.1	41.9	1	44.3-143	J6	J6	2.02	20
(S) Toluene-d8					105	105		90.0-115				
(S) Dibromofluoromethane					103	104		79.0-121				
(S) o,a,a-Trifluorotoluene					98.2	97.5		90.4-116				
(S) 4-Bromofluorobenzene					90.9	90.0		80.1-120				

L796566-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/29/15 16:31 • (MS) 10/29/15 14:04 • (MSD) 10/29/15 14:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	0.0244	0.884	0.877	68.7	68.2	1	58.6-133			0.770	20
Carbon tetrachloride	1.25	ND	0.781	0.758	62.5	60.6	1	60.6-139			2.96	20
Chlorobenzene	1.25	ND	0.928	0.953	74.2	76.3	1	70.1-130			2.71	20
Chloroform	1.25	ND	1.04	1.02	83.4	81.7	1	66.1-133			2.07	20
1,2-Dichloroethane	1.25	ND	0.892	0.870	71.4	69.6	1	60.7-132			2.53	20
1,1-Dichloroethene	1.25	ND	0.584	0.565	46.7	45.2	1	48.8-144	J6	J6	3.33	20
2-Butanone (MEK)	6.25	ND	3.90	3.77	62.4	60.4	1	45.0-156			3.28	20.8
Tetrachloroethene	1.25	ND	0.746	0.754	59.7	60.4	1	57.4-141			1.17	20
Trichloroethene	1.25	ND	0.857	0.850	68.6	68.0	1	48.9-148			0.910	20
Vinyl chloride	1.25	ND	0.507	0.496	40.6	39.7	1	44.3-143	J6	J6	2.25	20
(S) Toluene-d8					105	105		90.0-115				
(S) Dibromofluoromethane					103	103		79.0-121				
(S) o,a,a-Trifluorotoluene					97.9	98.9		90.4-116				
(S) 4-Bromofluorobenzene					89.6	93.6		80.1-120				

ACCOUNT:

Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:

L796360

DATE/TIME:

11/03/15 07:10

PAGE:

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Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc

WG825405

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L796360-01

ONE LAB. NATIONWIDE



Method Blank (MB)

(MB) 10/30/15 06:44

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
1,4-Dichlorobenzene	ND		0.100
2,4-Dinitrotoluene	ND		0.100
Hexachlorobenzene	ND		0.100
Hexachloro-1,3-butadiene	ND		0.100
Hexachloroethane	ND		0.100
Nitrobenzene	ND		0.100
Pyridine	ND		0.100
2-Methylphenol	ND		0.100
3&4-Methyl Phenol	ND		0.100
Pentachlorophenol	ND		0.100
2,4,5-Trichlorophenol	ND		0.100
2,4,6-Trichlorophenol	ND		0.100
(S) Nitrobenzene-d5	64.6		21.8-123
(S) 2-Fluorobiphenyl	74.1		29.5-131
(S) p-Terphenyl-d14	88.1		29.3-137
(S) Phenol-d5	39.2		5.00-70.1
(S) 2-Fluorophenol	55.5		10.0-77.9
(S) 2,4,6-Tribromophenol	75.5		11.2-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/30/15 05:34 • (LCSD) 10/30/15 05:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.0500	0.0262	0.0244	52.3	48.8	21.0-89.4			6.91	32.6
2,4-Dinitrotoluene	0.0500	0.0346	0.0327	69.3	65.4	31.2-105			5.82	22
Hexachlorobenzene	0.0500	0.0344	0.0328	68.9	65.6	38.5-116			4.88	20.1
Hexachloro-1,3-butadiene	0.0500	0.0259	0.0245	51.8	49.1	16.1-104			5.33	31.2
Hexachloroethane	0.0500	0.0260	0.0240	51.9	48.1	16.5-89.8			7.73	30.7
Nitrobenzene	0.0500	0.0290	0.0271	58.0	54.2	31.4-106			6.67	25.7
Pyridine	0.0500	0.0153	0.0137	30.6	27.4	13.5-58.9			10.8	32.5
2-Methylphenol	0.0500	0.0283	0.0257	56.6	51.3	26.4-86.9			9.81	26.5
3&4-Methyl Phenol	0.0500	0.0312	0.0287	62.4	57.4	27.9-92.0			8.37	27
Pentachlorophenol	0.0500	0.0248	0.0237	49.7	47.3	10.0-97.4			4.83	35.1
2,4,5-Trichlorophenol	0.0500	0.0362	0.0342	72.4	68.4	34.9-112			5.71	23.9
2,4,6-Trichlorophenol	0.0500	0.0357	0.0345	71.5	69.1	29.8-107			3.42	24.1

ACCOUNT:

Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:

L796360

DATE/TIME:

11/03/15 07:10

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WG825405

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L796360-01

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/30/15 05:34 • (LCSD) 10/30/15 05:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Nitrobenzene-d5				53.2	49.6	218-123				
(S) 2-Fluorobiphenyl				59.7	59.5	29.5-131				
(S) p-Terphenyl-d14				70.3	67.4	29.3-137				
(S) Phenol-d5				37.0	33.6	5.00-70.1				
(S) 2-Fluorophenol				49.0	44.6	10.0-77.9				
(S) 2,4,6-Tribromophenol				68.7	67.8	11.2-130				

L796180-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/30/15 07:07 • (MS) 10/30/15 07:31 • (MSD) 10/30/15 07:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.272	0.291	54.5	58.2	1	14.0-104			6.72	36.4
2,4-Dinitrotoluene	0.500	ND	0.366	0.390	73.1	77.9	1	16.2-135			6.38	20.6
Hexachlorobenzene	0.500	ND	0.362	0.397	72.4	79.3	1	31.9-135			9.11	20
Hexachloro-1,3-butadiene	0.500	ND	0.276	0.283	55.2	56.6	1	15.7-109			2.55	37.6
Hexachloroethane	0.500	ND	0.263	0.286	52.5	57.3	1	10.4-105			8.69	40
Nitrobenzene	0.500	ND	0.304	0.317	60.8	63.5	1	23.1-121			4.34	29
Pyridine	0.500	ND	0.151	0.164	30.1	32.7	1	10.0-77.8			8.28	38.8
2-Methylphenol	0.500	ND	0.290	0.289	58.0	57.9	1	10.0-133			0.260	40
3&4-Methyl Phenol	0.500	ND	0.315	0.312	63.1	62.4	1	17.4-100			1.02	27.7
Pentachlorophenol	0.500	ND	0.311	0.340	62.2	68.1	1	10.0-108			9.06	40
2,4,5-Trichlorophenol	0.500	ND	0.394	0.414	78.7	82.8	1	30.6-120			5.00	33.8
2,4,6-Trichlorophenol	0.500	ND	0.394	0.406	78.8	81.2	1	19.1-114			3.00	29.9
(S) Nitrobenzene-d5					54.8	56.4		218-123				
(S) 2-Fluorobiphenyl					62.8	66.8		29.5-131				
(S) p-Terphenyl-d14					70.7	76.3		29.3-137				
(S) Phenol-d5					36.9	36.1		5.00-70.1				
(S) 2-Fluorophenol					48.8	49.1		10.0-77.9				
(S) 2,4,6-Tribromophenol					71.6	79.3		11.2-130				

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier Description

J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
----	---

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ GI

³ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

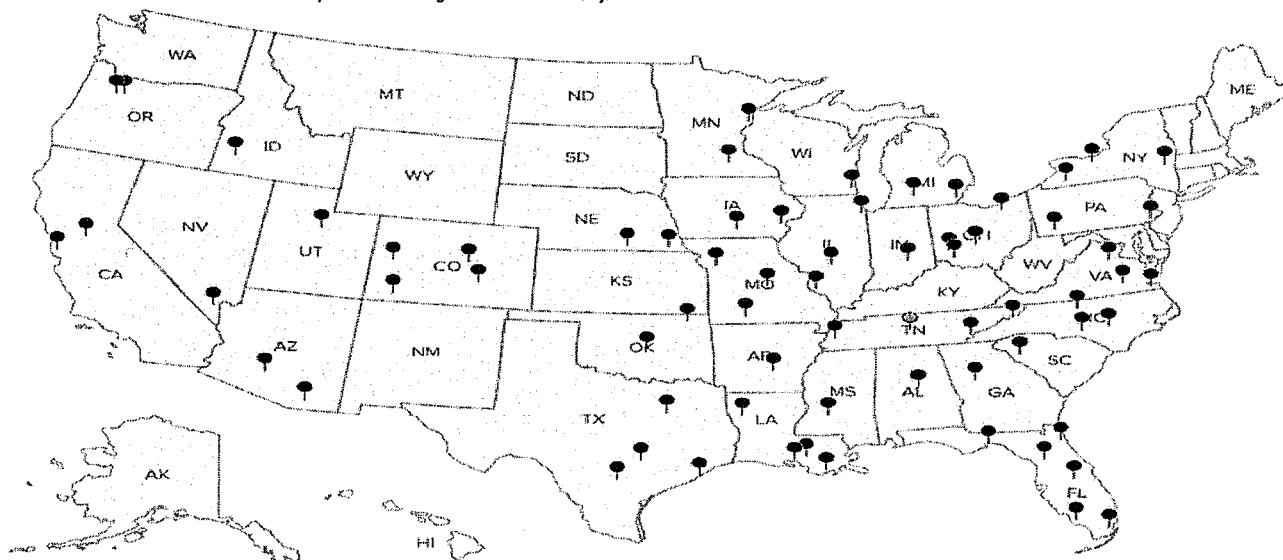
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ¹⁴ Accreditation not applicable

Third Party & Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA-Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

Al

⁹ Sc

ACCOUNT:
Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:
L796360

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sampprct1.xls
7-1-02

Outagamie County Landfill
Brown Outagamie Winnebago Counties
Analytical Protocol/Acceptance Criteria
Protocol A

(Foundry process waste; municipal, hospital and boiler ash; ink wastes; paint wastes and paint sludges; metal treatment/preparation sludges; waste glues and adhesives; ceramic production/manufacturing waste; soils contaminated with heavy metals.)

Analytical Parameter	Acceptance Criteria
pH	$2.0 \leq \text{pH} \leq 12.5$
Total solids	$\geq 40\%$
Free liquids	0%
Flash point (closed cup)	$>140^{\circ}\text{F}$
Chlorine	$<1\%$
TCLP metals ¹	
arsenic	TCLP $<5.0 \text{ mg/l}$
barium	TCLP $<100.0 \text{ mg/l}$
cadmium	TCLP $<1.0 \text{ mg/l}$
chromium	TCLP $<5.0 \text{ mg/l}$
lead	TCLP $<5.0 \text{ mg/l}$
mercury	TCLP $<0.2 \text{ mg/l}$
selenium	TCLP $<1.0 \text{ mg/l}$
silver	TCLP $<5.0 \text{ mg/l}$
Total available sulfide	$<500 \text{ mg/kg}$
Total available cyanide	$<250 \text{ mg/kg}$
Phenol	$<2000 \text{ mg/l}$
TCLP organics ¹	
benzene	TCLP $<0.5 \text{ mg/l}$
carbon tetrachloride	TCLP $<0.5 \text{ mg/l}$
chlorobenzene	TCLP $<100.0 \text{ mg/l}$
chloroform	TCLP $<6.0 \text{ mg/l}$
o - cresol ²	TCLP $<200.0 \text{ mg/l}$
m - cresol ²	TCLP $<200.0 \text{ mg/l}$
p - cresol ²	TCLP $<200.0 \text{ mg/l}$
1,4 - dichlorobenzene	TCLP $<7.5 \text{ mg/l}$
1,2 - dichloroethane	TCLP $<0.5 \text{ mg/l}$
1,1 - dichloroethene	TCLP $<0.7 \text{ mg/l}$
2,4 - dinitrotoluene	TCLP $<0.13 \text{ mg/l}$
hexachlorobenzene	TCLP $<0.13 \text{ mg/l}$
hexachlorobutadiene	TCLP $<0.5 \text{ mg/l}$
hexachloroethane	TCLP $<3.0 \text{ mg/l}$
methyl ethyl ketone	TCLP $<200.0 \text{ mg/l}$



Outagamie County Recycling & Solid Waste Brown Outagamie Winnebago Counties SPECIAL WASTE DISPOSAL APPLICATION

A. Generator Information

Name Clearwater Paper - Neenah
Contact Person Katie Byrum
Email Address katie.byrum@clearwaterpaper.com
Phone Number 920-727-3912
Site Address (where material is generated)
249 N Lake St
Neenah, WI 54956

B. Billing Information

(In order to be billed, you must fill out a credit application)

Name Clearwater Paper - Neenah
Contact Person David Woelz
Email Address david.woelz@clearwaterpaper.com
Phone 920-727-3943
Fax Number _____
Billing Address _____

C. Consultant Information

Name N/A
Contact Person _____
Email Address _____
Phone Number _____
Fax Number _____
Address _____

D. Hauler Information

Name Advanced Disposal
Contact Person Patrick Coughlin
Phone Number 920-685-6666
Address 250 Adler Ave/PO Box 337
Omro, WI 54963

E. Waste Information

Waste Name Sludge - Primary Clarifier
Process Used to Generate Waste Paper Making and Water Treatment
Waste Category Number C - Paper Mill Sludge Waste
Total Anticipated Waste Volume (include units) 400 ton/mo
Frequency of Disposal 6x/week
Name of Lab Performing Analysis Badger Labs
Date of Most Recent Analysis June 2013
Physical State @ 25°C Solid
Color gray Odor none
Comments _____

*For all waste types, attach available pertinent documents, MSDSs, technical bulletins, etc. List attachments here:

Lab Analytics from Badger Labs 8/2016

F. Generator Warranty

The generator warrants, represents, and certifies that this waste is not hazardous waste as specified by NR600 or 40CFR261, that his material does not contain more than 50 ppm of PCB materials, and that this information is representative of the waste.

John Crane Sr. Mill Manager 8/29/16
Generator's Signature Title Date

Instructions:

For Category A, B, and, C Wastes: Complete Section I

For Category D Wastes: Complete Section II

For Category E Wastes: Complete Section III

Outagamie County Internal Use Only:

- ☐ BC Customer
☐ OC Customer
☐ WC Customer

Section I

For Category A, B, and C Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
% Solids	≥ 40% (A&B)	
	≥ 20% (C)	42.4%
% Free Liquids (paint filter test)	0%	0%
Flash Point	> 140°F	
pH	2.0 ≤ pH ≤ 12.5	7.3
Total available sulfide	<500 mg/kg	67.0 mg/kg
Total available cyanide	<250 mg/kg	<0.084 mg/kg
Arsenic	< 5.0	<0.005 mg/l
Barium	< 100.0	0.25 mg/l
Cadmium	< 1.0	<0.01 mg/l
Chromium	< 5.0	<0.02 mg/l
Lead	< 5.0	<0.03 mg/l
Mercury	< 0.2	<0.0002 mg/l
Selenium	< 1.0	<0.009 mg/l
Silver	< 5.0	<0.01 mg/l
% Chlorine	< 1%	0.02%
Phenol	< 2000	0.06 mg/l
Benzene	< 0.5	<0.0500 mg/l
Carbon tetrachloride	< 0.5	<0.0500 mg/l
Chlorobenzene	< 100.0	<0.0500 mg/l
Chloroform	< 6.0	<0.250 mg/l
Cresol	< 200.0	
1,4-Dichlorobenzene	< 7.5	<0.100 mg/l
1,2-Dichloroethane	< 0.5	<0.0500 mg/l
1,1-Dichloroethylene	< 0.7	<0.0500 mg/l
2,4-Dinitrotoluene	< 0.3	<0.100 mg/l
Hexachlorobenzene	< 0.13	<0.100 mg/l
Hexachlorobutadiene	< 0.5	<0.100 mg/l
Hexachloroethane	< 3.0	<0.100 mg/l
Methyl ethyl ketone	< 200.0	
Nitrobenzene	< 2.0	
Pentachlorophenol	< 100.0	
Pyridine	< 5.0	
Tetrachloroethylene	< 0.7	
Trichloroethylene	< 0.5	
2,4,5-Trichlorophenol	< 400.0	
2,4,6-Trichlorophenol	< 2.0	
Vinyl Chloride	< 0.2	

For Category B and C Wastes, complete the following and attach laboratory report:

PCB (Arochlor 1016, 1221, 1232, 1242, 1248, 1254, 1260)

Section II

For Category D Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level	Lab Result
a. All Soils		
Lead	Total <100 mg/kg or TCLP <5 mg/l	
b. Gasoline or Diesel (analyze all parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Benzene	Total <10 mg/kg Or TCLP <0.5 mg/l	
c. Waste Oil or Unknown Petroleum Waste (analyze al parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Cadmium	Total <20 mg/kg Or TCLP <1 mg/l	

Section III

For Category E Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
pH	2.0 ≤ pH ≤ 12.5	
% Solids	≥ 20%	
% Free liquids	0%	
TCLP metals		
Arsenic	< 5.0	
Barium	< 100.0	
Cadmium	< 1.0	
Chromium	< 5.0	
Lead	< 5.0	
Mercury	< 0.2	
Selenium	< 1.0	
Silver	< 5.0	
Total available sulfide	< 500 mg/kg	

Section IV

For Category F Wastes, include the following information and attach MSDS(s), technical bulletin(s), or other pertinent information regarding the waste stream. Indicate the waste type, the source of the waste stream, the reason for disposal, the physical state of the material, and describe the process from which the waste was generated.



BADGER LABORATORIES & ENGINEERING INC.

501 WEST BELL STREET • NEENAH, WISCONSIN 54956-4868 • EST. 1966

(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

CLEARWATER PAPER
249 N LAKE ST
NEENAH, WI 54956

Report Number: 16008119
Report Date: 8/10/2016
Sampled By: Client
Emailed: 8/10/16

Attn: KATIE BYRUM/BILL ANSTETT/DAVE DRZEWIECKI

PO#: 1025155
Samples: 1

Sample Number: 46018445
Description: SLUDGE
Sample Date: 7/18/2016
Date Received: 7/18/2016

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
CHLORINE	0.02	%	0.02	0.02		SW-846-5050	08/04/16	
CYANIDE, TOTAL	<0.084	ppm	0.084	0.280	12	EPA335.4	07/25/16	
CYANIDE-AM. TO CL2	<0.084	ppm	0.084	0.280	12	SM4500CN-G	07/25/16	
FLASH POINT	--SEE ATTACHED ESC REPORT--							
FREE LIQUIDS	0.0	%	0	0		SW 846 9095	08/03/16	
METALS DIGESTION	DONE		0	0		SM3030E	07/22/16	
PCB, TOTAL	--SEE ATTACHED ESC REPORT--							
PHENOL, TOTAL	0.06	mg/l	0.05	0.17	1	EPA420.4	08/08/16	
pH-LAB	7.3	S.U.	0	0		SW846-9045C	07/20/16	
SULFIDE	--SEE ATTACHED ESC REPORT--							
TCLP ARSENIC	<0.005	mg/l	0.005	0.017	5	SM3113B	07/26/16	
TCLP BARIUM	0.25	mg/l	0.03	0.08	1	SM3111D	07/28/16	
TCLP CADMIUM	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TCLP CHROMIUM	<0.02	mg/l	0.02	0.06	1	SM3111B	07/27/16	
TCLP EXTRACTION	DONE		0	0		SW846-1311	07/22/16	
TCLP LEAD	<0.03	mg/l	0.03	0.10	1	SM3111B	07/27/16	
TCLP MERCURY	<0.0002	mg/l	0.0002	0.0008	1	SM3112B	07/26/16	
TCLP ORGANICS	--SEE ATTACHED ESC REPORT--							
TCLP SELENIUM	<0.009	mg/l	0.009	0.030	5	SM3113B	07/26/16	
TCLP SILVER	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TOTAL SOLIDS	42.8	%	0.010	0.010		SM2540B	07/20/16	

All LOD/LOQs adjusted for dilution and/or solids content.

BADGER LABS & ENGINEERING
WDNR Certified Lab #445023150
Approved By:

JMW:rt

WI DNR Certified Lab #445023150
WI Reg. Engineers (Corp.) #CE00601
WI DATCP Certified #205 (Bacteria-Water)

Members
WI Environmental Labs; Am. Chemical Soc.;
T.A.P.P.I.; WI Food Processors Assn.;
Wisc. Paper Council

Badger Laboratories & Engineering, Inc.

Sample Delivery Group: L848577
Samples Received: 07/21/2016
Project Number:
Description:

Report To: Jeff Wagner
501 West Bell Street
Neenah, WI 54956

Entire Report Reviewed By:



John Hawkins
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

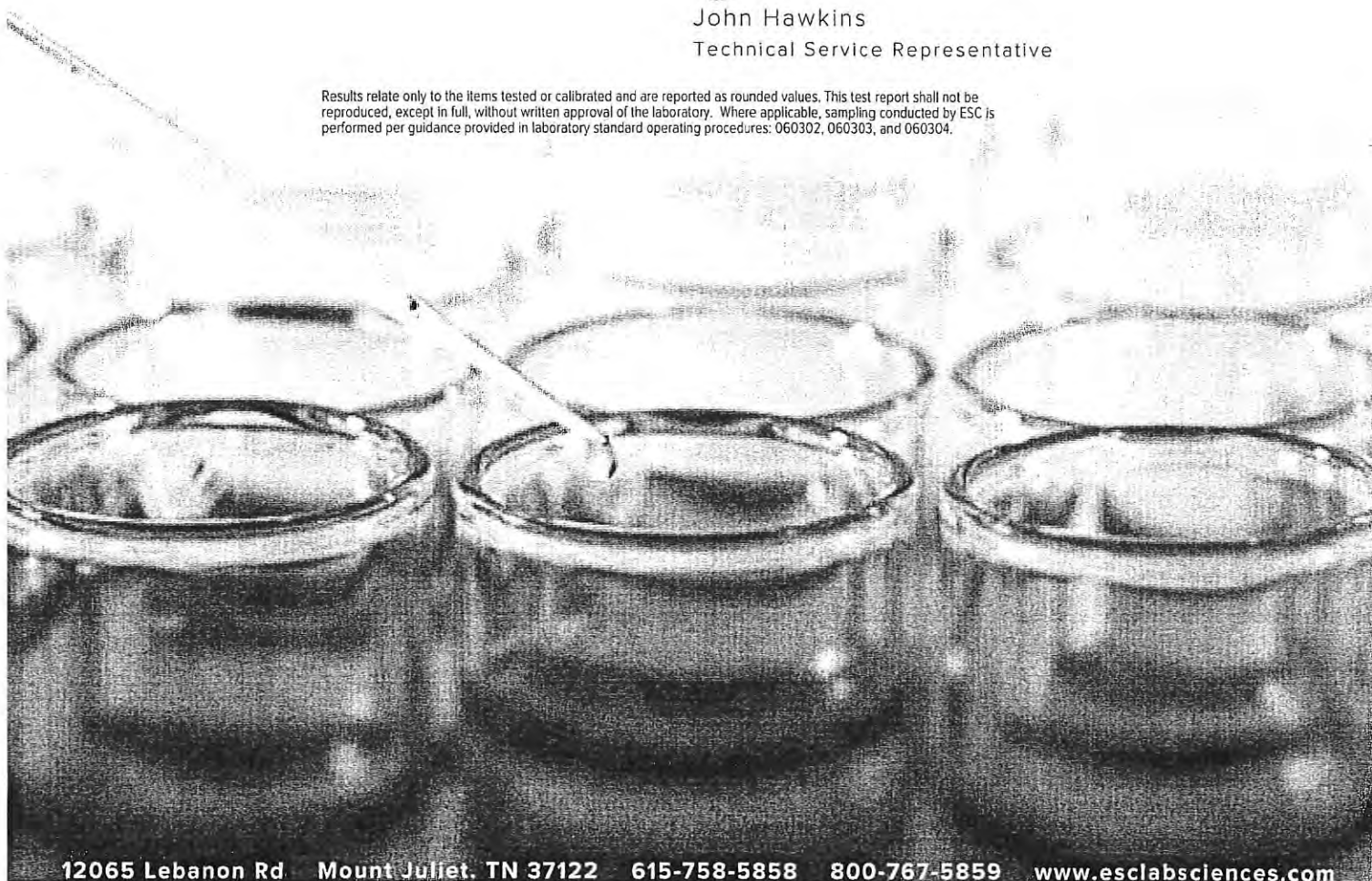


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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



18445 L848577-01 Solid

Collected by

Collected date/time
07/18/16 00:00

Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Polychlorinated Biphenyls (GC) by Method 8082	WG891943	3	07/25/16 22:29	07/26/16 14:59	LKD
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ



18445 L848577-02 Waste

Collected by

Collected date/time
07/18/16 00:00

Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG892468	1	07/26/16 12:37	07/26/16 12:38	BG
Preparation by Method 1311	WG892919	1	07/27/16 10:32	07/27/16 10:33	BG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG893216	1	07/28/16 21:14	07/29/16 16:30	SNR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG892961	1	07/28/16 03:35	07/28/16 03:35	ACG



18460 L848577-03 Solid

Collected by

Collected date/time
07/15/16 00:00

Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ



CASE NARRATIVE

ONE LAB. NATIONWIDE.



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

Sample Handling and Receiving

Analysis was performed from an improper container for the following samples.

ESC Sample ID	Project Sample ID	Method
L848577-01	18445	8082

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

18445

Collected date/time: 07/18/16 00:00

SAMPLE RESULTS - 01

L848577

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	42.4		1	07/27/2016 09:27	WG892868

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	67.0		25.0	1	07/28/2016 20:10	WG893594

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.0351	3	07/26/2016 14:59	WG891943
PCB 1221	ND		0.0537	3	07/26/2016 14:59	WG891943
PCB 1232	ND		0.0417	3	07/26/2016 14:59	WG891943
PCB 1242	ND		0.0318	3	07/26/2016 14:59	WG891943
PCB 1248	ND		0.0315	3	07/26/2016 14:59	WG891943
PCB 1254	ND		0.0471	3	07/26/2016 14:59	WG891943
PCB 1260	ND		0.0495	3	07/26/2016 14:59	WG891943
(S) Decachlorobiphenyl	61.3		10.0-143		07/26/2016 14:59	WG891943
(S) Tetrachloro-m-xylene	78.3		29.2-144		07/26/2016 14:59	WG891943

Ca

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

18445

Collected date/time: 07/18/16 00:00

SAMPLE RESULTS - 02

L848577

ONE LAB. NATIONWIDE.



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		7/27/2016 10:32:03 AM	WG892919
TCLP ZHE Extraction	-		7/26/2016 12:37:09 PM	WG892468

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	07/28/2016 03:35	WG892961
Carbon tetrachloride	ND		0.0500	0.50	1	07/28/2016 03:35	WG892961
Chlorobenzene	ND		0.0500	100	1	07/28/2016 03:35	WG892961
Chloroform	ND		0.250	6	1	07/28/2016 03:35	WG892961
1,2-Dichloroethane	ND		0.0500	0.50	1	07/28/2016 03:35	WG892961
1,1-Dichloroethene	ND		0.0500	0.70	1	07/28/2016 03:35	WG892961
2-Butanone (MEK)	ND		0.500	200	1	07/28/2016 03:35	WG892961
Tetrachloroethene	ND		0.0500	0.70	1	07/28/2016 03:35	WG892961
Trichloroethene	ND		0.0500	0.50	1	07/28/2016 03:35	WG892961
Vinyl chloride	ND		0.0500	0.20	1	07/28/2016 03:35	WG892961
(S) Toluene-d8	106		90.0-115	114		07/28/2016 03:35	WG892961
(S) Dibromofluoromethane	102		79.0-121	125		07/28/2016 03:35	WG892961
(S) o,a,a-Trifluorotoluene	106		90.4-116	114		07/28/2016 03:35	WG892961
(S) 4-Bromofluorobenzene	101		80.1-120	128		07/28/2016 03:35	WG892961

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	07/29/2016 16:30	WG893216
2,4-Dinitrotoluene	ND		0.100	0.13	1	07/29/2016 16:30	WG893216
Hexachlorobenzene	ND		0.100	0.13	1	07/29/2016 16:30	WG893216
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	07/29/2016 16:30	WG893216
Hexachloroethane	ND		0.100	3	1	07/29/2016 16:30	WG893216
Nitrobenzene	ND		0.100	2	1	07/29/2016 16:30	WG893216
Pyridine	ND		0.100	5	1	07/29/2016 16:30	WG893216
3&4-Methyl Phenol	ND		0.100	400	1	07/29/2016 16:30	WG893216
2-Methylphenol	ND		0.100	200	1	07/29/2016 16:30	WG893216
Pentachlorophenol	ND		0.100	100	1	07/29/2016 16:30	WG893216
2,4,5-Trichlorophenol	ND		0.100	400	1	07/29/2016 16:30	WG893216
2,4,6-Trichlorophenol	ND		0.100	2	1	07/29/2016 16:30	WG893216
(S) 2-Fluorophenol	41.0		10.0-77.9	87		07/29/2016 16:30	WG893216
(S) Phenol-d5	28.5		5.00-70.1	67		07/29/2016 16:30	WG893216
(S) Nitrobenzene-d5	47.3		21.8-123	120		07/29/2016 16:30	WG893216
(S) 2-Fluorobiphenyl	61.2		29.5-131	122		07/29/2016 16:30	WG893216
(S) 2,4,6-Tribromophenol	90.3		11.2-130	148		07/29/2016 16:30	WG893216
(S) p-Terphenyl-d14	89.8		29.3-137	149		07/29/2016 16:30	WG893216

3&4 methyl phenol + 2-methylphenol = o-, m-, p-cresol.
 Form asks for Cresol - non-detect for both parameters = $<.100 + <.100 =$
 $<.200$ reported on form. KBynum 8/25/16
 ↑
 total Cresol

WG892868

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L848577-01,03

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3152777-1 07/27/16 09:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000200			

Cp

³Tc³Ss⁴Cn⁵Sr⁶Qc

L848956-01 Original Sample (OS) • Duplicate (DUP)

(OS) L848956-01 07/27/16 09:27 • (DUP) R3152777-3 07/27/16 09:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	67.2	67.5	1	0.498		5

Laboratory Control Sample (LCS)

(LCS) R3152777-2 07/27/16 09:27

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

⁷Gl⁸Al⁹Sc

18460

Collected date/time: 07/15/16 00:00

SAMPLE RESULTS - 03

L848577

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	44.3		1	07/27/2016 09:27	WG892863

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	61.0		25.0	1	07/28/2016 20:10	WG893594

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG893594

Wet Chemistry by Method 9030B

QUALITY CONTROL SUMMARY

L848577-01,03

ONE LAB. NATIONWIDE



Method Blank (MB)

(MB) WG893594-1 07/28/16 20:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Sulfide	U		7.63	25.0

Cp

²Tc³Ss

L848577-03 Original Sample (OS) • Duplicate (DUP)

(OS) L848577-03 07/28/16 20:10 • (DUP) WG893594-4 07/28/16 20:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Sulfide	61.0	66.0	1	7.87		20

⁴Cn⁵Sr⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG893594-2 07/28/16 20:10 • (LCSD) WG893594-3 07/28/16 20:10

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Sulfide	100	79.0	72.8	79.0	72.8	70.0-130			8.17	20

⁷Gl⁸Al⁹Sc

WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L848577-02

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3152874-3 07/27/16 23:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	108			90.0-115
(S) Dibromofluoromethane	102			79.0-121
(S) a,a,a-Trifluorotoluene	105			90.4-116
(S) 4-Bromofluorobenzene	103			80.1-120

Cd

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3152874-1 07/27/16 21:44 • (LCSD) R3152874-2 07/27/16 22:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Benzene	0.0250	0.0228	0.0227	91.2	90.9	73.0-122			0.300	20
Carbon tetrachloride	0.0250	0.0243	0.0235	97.2	93.9	70.9-129			3.48	20
Chlorobenzene	0.0250	0.0250	0.0246	99.8	98.6	79.7-122			1.24	20
Chloroform	0.0250	0.0235	0.0236	94.1	94.5	73.2-125			0.390	20
1,2-Dichloroethane	0.0250	0.0251	0.0253	100	101	65.3-126			0.890	20
1,1-Dichloroethene	0.0250	0.0240	0.0239	95.8	95.8	60.6-133			0.0200	20
2-Butanone (MEK)	0.125	0.126	0.124	101	98.9	46.4-155			1.74	20
Tetrachloroethene	0.0250	0.0242	0.0244	96.7	97.5	73.5-130			0.900	20
Trichloroethene	0.0250	0.0251	0.0248	101	99.1	79.5-121			1.52	20
Vinyl chloride	0.0250	0.0264	0.0261	105	105	61.5-134			0.900	20
(S) Toluene-d8				107	106	90.0-115				
(S) Dibromofluoromethane				107	105	79.0-121				
(S) a,a,a-Trifluorotoluene				105	106	90.4-116				
(S) 4-Bromofluorobenzene				102	101	80.1-120				

WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L848577-02

ONE LAB. NATIONWIDE.



L848569-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L848569-02 07/28/16 00:59 • (MS) R3152874-4 07/27/16 23:21 • (MSD) R3152874-5 07/27/16 23:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	ND	1.23	1.29	98.1	103	1	58.6-133			4.96	20
Carbon tetrachloride	1.25	ND	1.22	1.34	97.9	107	1	60.6-139			8.78	20
Chlorobenzene	1.25	ND	1.36	1.42	109	114	1	70.1-130			4.57	20
Chloroform	1.25	ND	1.28	1.35	102	108	1	66.1-133			5.08	20
1,2-Dichloroethane	1.25	ND	1.34	1.39	107	111	1	60.7-132			3.94	20
1,1-Dichloroethene	1.25	ND	1.30	1.36	104	109	1	48.8-144			4.47	20
2-Butanone (MEK)	6.25	ND	4.95	5.23	74.9	79.3	1	45.0-156			5.47	20.8
Tetrachloroethene	1.25	ND	1.33	1.38	106	111	1	57.4-141			3.92	20
Trichloroethene	1.25	ND	1.36	1.42	109	114	1	48.9-148			4.13	20
Vinyl chloride	1.25	ND	1.28	1.36	102	109	1	44.3-143			6.01	20
(S) Toluene-d8					108	107		90.0-115				
(S) Dibromofluoromethane					106	105		79.0-121				
(S) a,a,a-Trifluorotoluene					106	104		90.4-116				
(S) 4-Bromofluorobenzene					101	101		80.1-120				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG891943

Polychlorinated Biphenyls (GC) by Method 8082

QUALITY CONTROL SUMMARY

L848577-01

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3152453-3 07/26/16 10:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0117
PCB 1221	U		0.00537	0.0179
PCB 1232	U		0.00417	0.0139
PCB 1242	U		0.00318	0.0106
PCB 1248	U		0.00315	0.0105
PCB 1254	U		0.00472	0.0157
PCB 1260	U		0.00494	0.0165
(S) Decachlorobiphenyl	114			10.0-143
(S) Tetrachloro-m-xylene	104			29.2-144

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3152453-1 07/26/16 09:46 • (LCSD) R3152453-2 07/26/16 10:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.161	0.139	96.8	83.6	46.5-120			14.7	27
PCB 1016	0.167	0.154	0.130	92.1	77.7	46.3-117			16.9	27.5
(S) Decachlorobiphenyl				113	87.5	10.0-143				
(S) Tetrachloro-m-xylene				106	81.2	29.2-144				

L849002-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L849002-05 07/26/16 13:48 • (MS) R3152453-4 07/26/16 13:19 • (MSD) R3152453-5 07/26/16 13:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.124	0.122	74.5	73.1	1	24.6-127			1.86	20
PCB 1016	0.167	ND	0.135	0.133	80.8	80.0	1	23.9-147			0.970	25.8
(S) Decachlorobiphenyl					61.6	65.4		10.0-143				
(S) Tetrachloro-m-xylene					89.6	86.4		29.2-144				

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L848577-02

Method Blank (MB)

(MB) R3153267-3 07/29/16 12:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) Nitrobenzene-d5	58.2			21.8-123
(S) 2-Fluorobiphenyl	72.2			29.5-131
(S) p-Terphenyl-d14	83.1			29.3-137
(S) Phenol-d5	34.8			5.00-70.1
(S) 2-Fluorophenol	50.0			10.0-77.9
(S) 2,4,6-Tribromophenol	80.7			11.2-130

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.0500	0.0293	0.0318	58.7	63.6	21.0-89.4			7.97	32.6
2,4-Dinitrotoluene	0.0500	0.0423	0.0426	84.7	85.3	31.2-105			0.660	22
Hexachlorobenzene	0.0500	0.0412	0.0444	82.4	88.8	38.5-116			7.45	20.1
Hexachloro-1,3-butadiene	0.0500	0.0365	0.0394	73.0	78.7	16.1-104			7.52	31.2
Hexachloroethane	0.0500	0.0267	0.0300	53.5	60.1	16.5-89.8			11.6	30.7
Nitrobenzene	0.0500	0.0287	0.0325	57.4	65.0	31.4-106			12.5	25.7
Pyridine	0.0500	0.00859	0.00948	17.2	19.0	13.5-58.9			9.83	32.5
2-Methylphenol	0.0500	0.0267	0.0284	53.4	56.9	26.4-86.9			6.29	26.5
3&4-Methyl Phenol	0.0500	0.0296	0.0317	59.2	63.5	27.9-92.0			7.02	27
Pentachlorophenol	0.0500	0.0352	0.0376	70.4	75.1	10.0-97.4			6.45	35.1
2,4,5-Trichlorophenol	0.0500	0.0417	0.0445	83.5	89.1	34.9-112			6.51	23.9
2,4,6-Trichlorophenol	0.0500	0.0389	0.0435	77.8	87.1	29.8-107			11.3	24.1
(S) Nitrobenzene-d5				67.1	70.8	21.8-123				
(S) 2-Fluorobiphenyl				77.8	80.3	29.5-131				
(S) p-Terphenyl-d14				90.1	91.9	29.3-137				

WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L848577-02

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Phenol-d5				37.2	39.8	5.00-70.1				
(S) 2-Fluorophenol				52.1	58.0	10.0-77.9				
(S) 2,4,6-Tribromophenol				100	101	11.2-130				

L849237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L849237-01 07/29/16 16:53 • (MS) R3153267-4 07/29/16 17:16 • (MSD) R3153267-5 07/29/16 17:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.278	0.271	55.6	54.3	1	14.0-104			2.34	36.4
2,4-Dinitrotoluene	0.500	ND	0.414	0.402	82.8	80.4	1	16.2-135			2.93	20.6
Hexachlorobenzene	0.500	ND	0.423	0.411	84.6	82.3	1	31.9-135			2.84	20
Hexachloro-1,3-butadiene	0.500	ND	0.353	0.328	70.6	65.5	1	15.7-109			7.47	37.6
Hexachloroethane	0.500	ND	0.257	0.256	51.3	51.2	1	10.4-105			0.230	40
Nitrobenzene	0.500	ND	0.275	0.269	54.9	53.7	1	23.1-121			2.26	29
Pyridine	0.500	ND	0.0989	0.103	19.8	20.5	1	10.0-77.8			3.74	38.8
2-Methylphenol	0.500	ND	0.257	0.252	51.4	50.5	1	10.0-133			1.74	40
3&4-Methyl Phenol	0.500	ND	0.295	0.288	59.0	57.6	1	17.4-100			2.49	27.7
Pentachlorophenol	0.500	ND	0.375	0.375	75.0	74.9	1	10.0-108			0.0700	40
2,4,5-Trichlorophenol	0.500	ND	0.415	0.421	83.0	84.3	1	30.6-120			1.53	33.8
2,4,6-Trichlorophenol	0.500	ND	0.390	0.409	78.0	81.8	1	19.1-114			4.66	29.9
(S) Nitrobenzene-d5					62.0	57.7		21.8-123				
(S) 2-Fluorobiphenyl					72.2	69.0		29.5-131				
(S) p-Terphenyl-d14					87.8	82.8		29.3-137				
(S) Phenol-d5					36.3	34.6		5.00-70.1				
(S) 2-Fluorophenol					49.2	48.0		10.0-77.9				
(S) 2,4,6-Tribromophenol					99.6	98.2		11.2-130				

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE

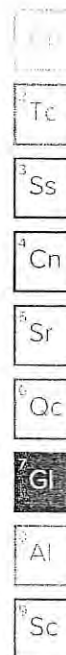


Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ^{1,4}	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



CHEMISTS

ENGINEERS

BADGER LABORATORIES & ENGINEERING, INC.

501 WEST BELL STREET - NEENAH, WISCONSIN 54956-4868 - EST. 1966
(920) 729-1100 - Fax (920) 729-4945 - 1-800-776-7196

16008119

SAMPLE RECEIPT FORM

CLIENT INFORMATION

COMPANY:	Clear Water Paper
NAME:	Bill Aastett
ADDRESS:	
FAX/PHONE/EMAIL:	
P.O. #:	
PROJECT/SITE:	
REPORT & BILL TO:	
ADDITIONAL REPORTS TO:	

TURN AROUND TIME:

- ☒ Normal
☐ Other TAT*

*REQUIRES PRIOR LAB
APPROVAL _____

SAMPLE TYPE:

- ☐ Groundwater ☐ Lab Filtered
☐ Wastewater ☐ Field Filtered
☐ WPDES ☐ Grab
☐ Cooling Water ☐ Composite
☐ Drinking Water ☐ Flow Proportional
☒ Solid Waste ☐ Time Proportional
☐ Oil
☐ Other Sludge

CUSTOMER SAMPLE ID	SAMPLE DATE/TIME	DATE REC'D	BL & E REPORT #	BL & E SAMPLE #	TEMP °	CONTAINER S	Ice Y/N	DELIVERY METHOD				PRESERVATION								ANALYTICAL REQUESTS	pH ok	EP
								BL&E	CLIENT	UPS	OTHER	PIF	PIL	NON-PRES	H2SO4	HNO3	NAOH	OTHER				
Sludge	7-18-16 7am	7/18	8119	1848	-	3	N		X					X						List		
																				</		

CHAIN OF CUSTODY RECORD

FILLED IN BY CUSTOMER SAMPLED BY: <u>Bill Aastett</u> DATE/TIME SAMPLED: <u>7-18-16 7am</u> RELINQUISHED BY: <u>Bill Aastett</u>	FILLED IN BY BADGER LABS & ENG RECEIVED BY: <u>[Signature]</u> DATE/TIME RECEIVED: <u>7-18-16 10:40</u> LOGGED IN: <u>[Signature]</u>
--	---

* Temperature over 6°C are above EPA/DNR Protocol unless received on ice.

* EP= If pH was not correct, extra preservation was added until correct pH was achieved; H2SO4/HNO3 adjusted to pH <2.0; NaOH >12.0

* PIF= Preserved in field.

* PIL= Preserved in lab.



June 28, 2017

Chad Doverspike
BROWN CO PORT & SOLID WASTE
2561 S Broadway
Green Bay, WI 54304

RE: Project: FRF SLUDGE
Pace Project No.: 40151526

Dear Chad Doverspike:

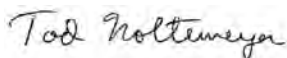
Enclosed are the analytical results for sample(s) received by the laboratory on June 13, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

%Chlorine subcontracted to EMT Labs which is certified for that analysis.

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

Sincerely,



Tod Noltemeyer
tod.noltemeyer@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: FRF SLUDGE

Pace Project No.: 40151526

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: FRF SLUDGE

Pace Project No.: 40151526

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40151526001	FRF #1	Solid	06/13/17 13:30	06/13/17 14:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: FRF SLUDGE

Pace Project No.: 40151526

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40151526001	FRF #1	EPA 8082	BDS	10	PASI-G
		EPA 6010	DLB	7	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 8270	RJN	19	PASI-G
		EPA 8260	LAP	13	PASI-G
		ASTM D2974-87	SSM	1	PASI-G
		EPA 1010	DEY	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 9095	DEY	1	PASI-G
		EPA 9014	PAS	1	PASI-PA
		SM4500S2F-00	PAS	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 8082

Description: 8082 GCS PCB

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 3541 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 6010

Description: 6010 MET ICP, TCLP

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 7470

Description: 7470 Mercury, TCLP

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 258908

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40151516002,40151526001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1525797)
 - Mercury
- MS (Lab ID: 1525799)
 - Mercury
- MSD (Lab ID: 1525798)
 - Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 8270

Description: 8270 MSSV TCLP Sep Funnel

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 8260

Description: 8260 MSV TCLP

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 258621

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.

- LCS (Lab ID: 1523789)
- Chloroform

Matrix Spikes:

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

QC Batch: 258621

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):
40151453001, 40151516001, 40151526001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1523961)
- Chloroform

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 1010

Description: 1010 Flashpoint, Closed Cup

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 1010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 9040

Description: 9040 pH

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 9040. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- FRF #1 (Lab ID: 40151526001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 259165

1q: Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.

- FRF #1 (Lab ID: 40151526001)
 - pH

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 9095

Description: 9095 Paint Filter Liquid Test

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 9095. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: EPA 9014

Description: 733C S Reactive Cyanide

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for EPA 9014. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with SW-846 7.3.3.2 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: FRF SLUDGE

Pace Project No.: 40151526

Method: SM4500S2F-00

Description: 734S Reactive Sulfide

Client: BROWN CO PORT & SOLID WASTE

Date: June 28, 2017

General Information:

1 sample was analyzed for SM4500S2F-00. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with SW-846 7.3.4.2 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FRF SLUDGE
Pace Project No.: 40151526

Sample: FRF #1 **Lab ID: 40151526001** Collected: 06/13/17 13:30 Received: 06/13/17 14:00 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB Analytical Method: EPA 8082 Preparation Method: EPA 3541									
PCB-1016 (Aroclor 1016)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	12674-11-2	
PCB-1221 (Aroclor 1221)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	11104-28-2	
PCB-1232 (Aroclor 1232)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	11141-16-5	
PCB-1242 (Aroclor 1242)	311	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	53469-21-9	
PCB-1248 (Aroclor 1248)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	12672-29-6	
PCB-1254 (Aroclor 1254)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	11097-69-1	
PCB-1260 (Aroclor 1260)	<49.4	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	11096-82-5	
PCB, Total	311	ug/kg	98.7	49.4	1	06/15/17 12:32	06/15/17 20:46	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	66	%	50-102		1	06/15/17 12:32	06/15/17 20:46	877-09-8	
Decachlorobiphenyl (S)	70	%	53-105		1	06/15/17 12:32	06/15/17 20:46	2051-24-3	
6010 MET ICP, TCLP Analytical Method: EPA 6010 Preparation Method: EPA 3010 Leachate Method/Date: EPA 1311; 06/15/17 13:57									
Arsenic	<0.042	mg/L	0.12	0.042	1	06/19/17 09:59	06/20/17 11:49	7440-38-2	
Barium	0.28	mg/L	0.075	0.025	1	06/19/17 09:59	06/20/17 11:49	7440-39-3	
Cadmium	<0.0066	mg/L	0.025	0.0066	1	06/19/17 09:59	06/20/17 11:49	7440-43-9	
Chromium	<0.013	mg/L	0.050	0.013	1	06/19/17 09:59	06/20/17 11:49	7440-47-3	
Lead	<0.022	mg/L	0.065	0.022	1	06/19/17 09:59	06/20/17 11:49	7439-92-1	
Selenium	<0.083	mg/L	0.25	0.083	1	06/19/17 09:59	06/20/17 11:49	7782-49-2	
Silver	<0.017	mg/L	0.050	0.017	1	06/19/17 09:59	06/20/17 11:49	7440-22-4	
7470 Mercury, TCLP Analytical Method: EPA 7470 Preparation Method: EPA 7470 Leachate Method/Date: EPA 1311; 06/15/17 13:57									
Mercury	<0.13	ug/L	0.42	0.13	1	06/19/17 07:40	06/19/17 12:49	7439-97-6	MO
8270 MSSV TCLP Sep Funnel Analytical Method: EPA 8270 Preparation Method: EPA 3510 Leachate Method/Date: EPA 1311; 06/15/17 13:57									
1,4-Dichlorobenzene	<18.8	ug/L	62.5	18.8	1	06/19/17 07:50	06/19/17 16:29	106-46-7	
2,4,5-Trichlorophenol	<8.4	ug/L	28.0	8.4	1	06/19/17 07:50	06/19/17 16:29	95-95-4	
2,4,6-Trichlorophenol	<21.1	ug/L	70.4	21.1	1	06/19/17 07:50	06/19/17 16:29	88-06-2	
2,4-Dinitrotoluene	<7.9	ug/L	26.4	7.9	1	06/19/17 07:50	06/19/17 16:29	121-14-2	
2-Methylphenol(o-Cresol)	<8.7	ug/L	28.9	8.7	1	06/19/17 07:50	06/19/17 16:29	95-48-7	
3&4-Methylphenol(m&p Cresol)	<15.6	ug/L	52.0	15.6	1	06/19/17 07:50	06/19/17 16:29		
Hexachloro-1,3-butadiene	<24.6	ug/L	82.0	24.6	1	06/19/17 07:50	06/19/17 16:29	87-68-3	
Hexachlorobenzene	<16.9	ug/L	56.4	16.9	1	06/19/17 07:50	06/19/17 16:29	118-74-1	
Hexachloroethane	<26.6	ug/L	88.6	26.6	1	06/19/17 07:50	06/19/17 16:29	67-72-1	
Nitrobenzene	<14.5	ug/L	48.3	14.5	1	06/19/17 07:50	06/19/17 16:29	98-95-3	
Pentachlorophenol	<14.3	ug/L	47.8	14.3	1	06/19/17 07:50	06/19/17 16:29	87-86-5	
Phenol	<6.0	ug/L	20.0	6.0	1	06/19/17 07:50	06/19/17 16:29	108-95-2	
Pyridine	<17.9	ug/L	59.6	17.9	1	06/19/17 07:50	06/19/17 16:29	110-86-1	
Surrogates									
Nitrobenzene-d5 (S)	76	%	53-100		1	06/19/17 07:50	06/19/17 16:29	4165-60-0	
2-Fluorobiphenyl (S)	83	%	59-109		1	06/19/17 07:50	06/19/17 16:29	321-60-8	
Terphenyl-d14 (S)	80	%	59-108		1	06/19/17 07:50	06/19/17 16:29	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FRF SLUDGE
Pace Project No.: 40151526

Sample: FRF #1 **Lab ID: 40151526001** Collected: 06/13/17 13:30 Received: 06/13/17 14:00 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV TCLP Sep Funnel									
Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Leachate Method/Date: EPA 1311; 06/15/17 13:57									
Surrogates									
Phenol-d6 (S)	31	%	18-120		1	06/19/17 07:50	06/19/17 16:29	13127-88-3	
2-Fluorophenol (S)	47	%	27-67		1	06/19/17 07:50	06/19/17 16:29	367-12-4	
2,4,6-Tribromophenol (S)	107	%	65-140		1	06/19/17 07:50	06/19/17 16:29	118-79-6	
8260 MSV TCLP									
Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 06/14/17 12:56									
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		06/15/17 12:00	75-35-4	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		06/15/17 12:00	107-06-2	
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		06/15/17 12:00	78-93-3	
Benzene	<5.0	ug/L	10.0	5.0	10		06/15/17 12:00	71-43-2	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		06/15/17 12:00	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		06/15/17 12:00	108-90-7	
Chloroform	<25.0	ug/L	50.0	25.0	10		06/15/17 12:00	67-66-3	L1
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		06/15/17 12:00	127-18-4	
Trichloroethene	<3.3	ug/L	10.0	3.3	10		06/15/17 12:00	79-01-6	
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		06/15/17 12:00	75-01-4	
Surrogates									
Toluene-d8 (S)	91	%	70-130		10		06/15/17 12:00	2037-26-5	
4-Bromofluorobenzene (S)	117	%	61-130		10		06/15/17 12:00	460-00-4	
Dibromofluoromethane (S)	116	%	67-130		10		06/15/17 12:00	1868-53-7	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	49.4	%	0.10	0.10	1		06/14/17 15:06		
1010 Flashpoint,Closed Cup									
Analytical Method: EPA 1010									
Flashpoint	>210	deg F			1		06/15/17 14:21		
9040 pH									
Analytical Method: EPA 9040									
pH	8.4	Std. Units	0.10	0.010	1		06/20/17 10:40		1q,H6
9095 Paint Filter Liquid Test									
Analytical Method: EPA 9095									
Free Liquids	Pass	no units			1		06/15/17 16:07		
733C S Reactive Cyanide									
Analytical Method: EPA 9014 Preparation Method: SW-846 7.3.3.2									
Cyanide, Reactive	<0.79	mg/kg	2.0	0.79	1	06/16/17 14:18	06/16/17 23:06		
734S Reactive Sulfide									
Analytical Method: SM4500S2F-00 Preparation Method: SW-846 7.3.4.2									
Sulfide, Reactive	<19.7	mg/kg	19.7	19.7	1	06/16/17 14:18	06/16/17 22:01		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258908

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury TCLP

Associated Lab Samples: 40151526001

METHOD BLANK: 1525795

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	06/19/17 12:25	

METHOD BLANK: 1523835

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	06/19/17 12:42	

METHOD BLANK: 1523921

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	06/19/17 12:58	

METHOD BLANK: 1523955

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	06/19/17 13:05	

LABORATORY CONTROL SAMPLE: 1525796

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1525797

1525798

Parameter	Units	40151516002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.00013 mg/L	5	5	6.9	6.7	138	134	85-115	3	20	M0

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

MATRIX SPIKE SAMPLE:		1525799					
Parameter	Units	40151526001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.13	5	7.3	145	85-115	M0

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258929

Analysis Method: EPA 6010

QC Batch Method: EPA 3010

Analysis Description: 6010 MET TCLP

Associated Lab Samples: 40151526001

METHOD BLANK: 1525856

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	06/20/17 11:28	
Barium	mg/L	<0.0050	0.015	06/20/17 11:28	
Cadmium	mg/L	<0.0013	0.0050	06/20/17 11:28	
Chromium	mg/L	<0.0025	0.010	06/20/17 11:28	
Lead	mg/L	<0.0043	0.013	06/20/17 11:28	
Selenium	mg/L	<0.017	0.050	06/20/17 11:28	
Silver	mg/L	<0.0033	0.010	06/20/17 11:28	

METHOD BLANK: 1523832

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	06/20/17 11:46	
Barium	mg/L	<0.025	0.075	06/20/17 11:46	
Cadmium	mg/L	<0.0066	0.025	06/20/17 11:46	
Chromium	mg/L	<0.013	0.050	06/20/17 11:46	
Lead	mg/L	<0.022	0.065	06/20/17 11:46	
Selenium	mg/L	<0.083	0.25	06/20/17 11:46	
Silver	mg/L	<0.017	0.050	06/20/17 11:46	

METHOD BLANK: 1523833

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	06/20/17 12:08	
Barium	mg/L	<0.0050	0.015	06/20/17 12:08	
Cadmium	mg/L	<0.0013	0.0050	06/20/17 12:08	
Chromium	mg/L	<0.0025	0.010	06/20/17 12:08	
Lead	mg/L	<0.0043	0.013	06/20/17 12:08	
Selenium	mg/L	<0.017	0.050	06/20/17 12:08	
Silver	mg/L	<0.0033	0.010	06/20/17 12:08	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

METHOD BLANK: 1523919

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	06/20/17 11:59	
Barium	mg/L	<0.025	0.075	06/20/17 11:59	
Cadmium	mg/L	<0.0066	0.025	06/20/17 11:59	
Chromium	mg/L	<0.013	0.050	06/20/17 11:59	
Lead	mg/L	<0.022	0.065	06/20/17 11:59	
Selenium	mg/L	<0.083	0.25	06/20/17 11:59	
Silver	mg/L	<0.017	0.050	06/20/17 11:59	

METHOD BLANK: 1523953

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	06/20/17 12:03	
Barium	mg/L	<0.025	0.075	06/20/17 12:03	
Cadmium	mg/L	<0.0066	0.025	06/20/17 12:03	
Chromium	mg/L	<0.013	0.050	06/20/17 12:03	
Lead	mg/L	<0.022	0.065	06/20/17 12:03	
Selenium	mg/L	<0.083	0.25	06/20/17 12:03	
Silver	mg/L	<0.017	0.050	06/20/17 12:03	

METHOD BLANK: 1523954

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	06/20/17 12:18	
Barium	mg/L	<0.0050	0.015	06/20/17 12:18	
Cadmium	mg/L	<0.0013	0.0050	06/20/17 12:18	
Chromium	mg/L	<0.0025	0.010	06/20/17 12:18	
Lead	mg/L	<0.0043	0.013	06/20/17 12:18	
Selenium	mg/L	<0.017	0.050	06/20/17 12:18	
Silver	mg/L	<0.0033	0.010	06/20/17 12:18	

LABORATORY CONTROL SAMPLE: 1525857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.5	0.40	80	80-120	
Barium	mg/L	.5	0.43	86	80-120	
Cadmium	mg/L	.5	0.41	83	80-120	
Chromium	mg/L	.5	0.44	88	80-120	
Lead	mg/L	.5	0.42	85	80-120	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

LABORATORY CONTROL SAMPLE: 1525857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Selenium	mg/L	.5	0.41	82	80-120	
Silver	mg/L	.25	0.21	85	80-120	

MATRIX SPIKE SAMPLE: 1525858

Parameter	Units	40151526001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.4	94	75-125	
Barium	mg/L	0.28	2.5	2.6	94	75-125	
Cadmium	mg/L	<0.0066	2.5	2.4	96	75-125	
Chromium	mg/L	<0.013	2.5	2.4	95	75-125	
Lead	mg/L	<0.022	2.5	2.4	94	75-125	
Selenium	mg/L	<0.083	2.5	2.5	98	75-125	
Silver	mg/L	<0.017	1.2	1.2	98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1525859 1525860

Parameter	Units	40151588002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	<0.042	2.5	2.5	2.3	2.3	92	92	75-125	0	20	
Barium	mg/L	0.87	2.5	2.5	3.2	3.2	95	95	75-125	0	20	
Cadmium	mg/L	<0.0066	2.5	2.5	2.4	2.4	95	96	75-125	1	20	
Chromium	mg/L	0.075	2.5	2.5	2.5	2.5	98	98	75-125	1	20	
Lead	mg/L	<0.022	2.5	2.5	2.4	2.4	95	96	75-125	1	20	
Selenium	mg/L	<0.083	2.5	2.5	2.4	2.4	95	97	75-125	2	20	
Silver	mg/L	<0.017	1.2	1.2	1.2	1.2	97	98	75-125	1	20	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258621

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV TCLP

Associated Lab Samples: 40151526001

METHOD BLANK: 1523788

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<0.41	1.0	06/15/17 06:20	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/15/17 06:20	
2-Butanone (MEK)	ug/L	<3.0	20.0	06/15/17 06:20	
Benzene	ug/L	<0.50	1.0	06/15/17 06:20	
Carbon tetrachloride	ug/L	<0.50	1.0	06/15/17 06:20	
Chlorobenzene	ug/L	<0.50	1.0	06/15/17 06:20	
Chloroform	ug/L	<2.5	5.0	06/15/17 06:20	
Tetrachloroethene	ug/L	<0.50	1.0	06/15/17 06:20	
Trichloroethene	ug/L	<0.33	1.0	06/15/17 06:20	
Vinyl chloride	ug/L	<0.18	1.0	06/15/17 06:20	
4-Bromofluorobenzene (S)	%	115	61-130	06/15/17 06:20	
Dibromofluoromethane (S)	%	116	67-130	06/15/17 06:20	
Toluene-d8 (S)	%	91	70-130	06/15/17 06:20	

METHOD BLANK: 1523273

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	10.0	06/15/17 12:23	
1,2-Dichloroethane	ug/L	<1.7	10.0	06/15/17 12:23	
2-Butanone (MEK)	ug/L	<29.8	200	06/15/17 12:23	
Benzene	ug/L	<5.0	10.0	06/15/17 12:23	
Carbon tetrachloride	ug/L	<5.0	10.0	06/15/17 12:23	
Chlorobenzene	ug/L	<5.0	10.0	06/15/17 12:23	
Chloroform	ug/L	<25.0	50.0	06/15/17 12:23	
Tetrachloroethene	ug/L	<5.0	10.0	06/15/17 12:23	
Trichloroethene	ug/L	<3.3	10.0	06/15/17 12:23	
Vinyl chloride	ug/L	<1.8	10.0	06/15/17 12:23	
4-Bromofluorobenzene (S)	%	108	61-130	06/15/17 12:23	
Dibromofluoromethane (S)	%	114	67-130	06/15/17 12:23	
Toluene-d8 (S)	%	98	70-130	06/15/17 12:23	

LABORATORY CONTROL SAMPLE: 1523789

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	50	57.5	115	75-130	
1,2-Dichloroethane	ug/L	50	58.3	117	70-131	
2-Butanone (MEK)	ug/L		<3.0			

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

LABORATORY CONTROL SAMPLE: 1523789

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	63.2	126	73-145	
Carbon tetrachloride	ug/L	50	60.7	121	70-133	
Chlorobenzene	ug/L	50	53.6	107	70-130	
Chloroform	ug/L	50	60.9	122	80-121	L1
Tetrachloroethene	ug/L	50	50.1	100	70-130	
Trichloroethene	ug/L	50	60.1	120	70-130	
Vinyl chloride	ug/L	50	65.5	131	57-136	
4-Bromofluorobenzene (S)	%			114	61-130	
Dibromofluoromethane (S)	%			111	67-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1523959 1523960

Parameter	Units	40151516001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	<0.0041 mg/L	500	500	557	558	111	112	75-136	0	20	
1,2-Dichloroethane	ug/L	<0.0017 mg/L	500	500	576	573	115	115	70-131	1	20	
2-Butanone (MEK)	ug/L	<0.030 mg/L			<29.8	<29.8					20	
Benzene	ug/L	<0.0050 mg/L	500	500	613	621	123	124	73-145	1	20	
Carbon tetrachloride	ug/L	<0.0050 mg/L	500	500	588	593	118	119	70-134	1	20	
Chlorobenzene	ug/L	<0.0050 mg/L	500	500	543	543	109	109	70-130	0	20	
Chloroform	ug/L	<0.025 mg/L	500	500	579	592	116	118	80-121	2	20	
Tetrachloroethene	ug/L	<0.0050 mg/L	500	500	502	492	100	98	70-130	2	20	
Trichloroethene	ug/L	<0.0033 mg/L	500	500	612	605	122	121	70-130	1	20	
Vinyl chloride	ug/L	<0.0018 mg/L	500	500	616	637	123	127	56-143	3	20	
4-Bromofluorobenzene (S)	%						109	115	61-130			
Dibromofluoromethane (S)	%						107	110	67-130			
Toluene-d8 (S)	%						101	100	70-130			

MATRIX SPIKE SAMPLE: 1523961

Parameter	Units	40151453001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	500	598	120	75-136	
1,2-Dichloroethane	ug/L	<1.7	500	591	118	70-131	
2-Butanone (MEK)	ug/L	<29.8		<29.8			
Benzene	ug/L	<5.0	500	639	128	73-145	
Carbon tetrachloride	ug/L	<5.0	500	638	128	70-134	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

MATRIX SPIKE SAMPLE:		1523961					
Parameter	Units	40151453001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	<5.0	500	559	112	70-130	M0
Chloroform	ug/L	<25.0	500	622	124	80-121	
Tetrachloroethene	ug/L	<5.0	500	518	104	70-130	
Trichloroethene	ug/L	<3.3	500	622	124	70-130	
Vinyl chloride	ug/L	<1.8	500	661	132	56-143	
4-Bromofluorobenzene (S)	%				126	61-130	
Dibromofluoromethane (S)	%				113	67-130	
Toluene-d8 (S)	%				99	70-130	

MATRIX SPIKE SAMPLE:		1523962					
Parameter	Units	40151526001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	500	591	118	75-136	
1,2-Dichloroethane	ug/L	<1.7	500	567	113	70-131	
2-Butanone (MEK)	ug/L	<29.8		<29.8			
Benzene	ug/L	<5.0	500	634	127	73-145	
Carbon tetrachloride	ug/L	<5.0	500	607	121	70-134	
Chlorobenzene	ug/L	<5.0	500	540	108	70-130	
Chloroform	ug/L	<25.0	500	606	121	80-121	
Tetrachloroethene	ug/L	<5.0	500	501	100	70-130	
Trichloroethene	ug/L	<3.3	500	610	122	70-130	
Vinyl chloride	ug/L	<1.8	500	692	138	56-143	
4-Bromofluorobenzene (S)	%				120	61-130	
Dibromofluoromethane (S)	%				111	67-130	
Toluene-d8 (S)	%				96	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258693

Analysis Method: EPA 8082

QC Batch Method: EPA 3541

Analysis Description: 8082 GCS PCB

Associated Lab Samples: 40151526001

METHOD BLANK: 1524083

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1221 (Aroclor 1221)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1232 (Aroclor 1232)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1242 (Aroclor 1242)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1248 (Aroclor 1248)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1254 (Aroclor 1254)	ug/kg	<25.0	50.0	06/15/17 22:51	
PCB-1260 (Aroclor 1260)	ug/kg	<25.0	50.0	06/15/17 22:51	
Decachlorobiphenyl (S)	%	75	53-105	06/15/17 22:51	
Tetrachloro-m-xylene (S)	%	67	50-102	06/15/17 22:51	

LABORATORY CONTROL SAMPLE: 1524084

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg		<25.0			
PCB-1221 (Aroclor 1221)	ug/kg		<25.0			
PCB-1232 (Aroclor 1232)	ug/kg		<25.0			
PCB-1242 (Aroclor 1242)	ug/kg		<25.0			
PCB-1248 (Aroclor 1248)	ug/kg		<25.0			
PCB-1254 (Aroclor 1254)	ug/kg		<25.0			
PCB-1260 (Aroclor 1260)	ug/kg	500	387	77	59-106	
Decachlorobiphenyl (S)	%			79	53-105	
Tetrachloro-m-xylene (S)	%			70	50-102	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1524085

1524086

Parameter	Units	40151620001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<29.8			<29.8	<29.8					20	
PCB-1221 (Aroclor 1221)	ug/kg	<29.8			<29.8	<29.8					20	
PCB-1232 (Aroclor 1232)	ug/kg	<29.8			<29.8	<29.8					20	
PCB-1242 (Aroclor 1242)	ug/kg	66.6			62.8	71.4				13	20	
PCB-1248 (Aroclor 1248)	ug/kg	<29.8			<29.8	<29.8					20	
PCB-1254 (Aroclor 1254)	ug/kg	<29.8			<29.8	<29.8					20	
PCB-1260 (Aroclor 1260)	ug/kg	<29.8	596	596	440	439	74	74	51-109	0	20	
Decachlorobiphenyl (S)	%						73	72	53-105			
Tetrachloro-m-xylene (S)	%						67	68	50-102			

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258922

Analysis Method: EPA 8270

QC Batch Method: EPA 3510

Analysis Description: 8270 TCLP MSSV

Associated Lab Samples: 40151526001

METHOD BLANK: 1525838

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<3.8	12.5	06/19/17 13:16	
2,4,5-Trichlorophenol	ug/L	<1.7	5.6	06/19/17 13:16	
2,4,6-Trichlorophenol	ug/L	<4.2	14.1	06/19/17 13:16	
2,4-Dinitrotoluene	ug/L	<1.6	5.3	06/19/17 13:16	
2-Methylphenol(o-Cresol)	ug/L	<1.7	5.8	06/19/17 13:16	
3&4-Methylphenol(m&p Cresol)	ug/L	<3.1	10.4	06/19/17 13:16	
Hexachloro-1,3-butadiene	ug/L	<4.9	16.4	06/19/17 13:16	
Hexachlorobenzene	ug/L	<3.4	11.3	06/19/17 13:16	
Hexachloroethane	ug/L	<5.3	17.7	06/19/17 13:16	
Nitrobenzene	ug/L	<2.9	9.7	06/19/17 13:16	
Pentachlorophenol	ug/L	<2.9	9.6	06/19/17 13:16	
Phenol	ug/L	<1.2	4.0	06/19/17 13:16	
Pyridine	ug/L	<3.6	11.9	06/19/17 13:16	
2,4,6-Tribromophenol (S)	%	107	65-140	06/19/17 13:16	
2-Fluorobiphenyl (S)	%	87	59-109	06/19/17 13:16	
Nitrobenzene-d5 (S)	%	82	53-100	06/19/17 13:16	
Phenol-d6 (S)	%	28	18-120	06/19/17 13:16	

METHOD BLANK: 1523834

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<18.8	62.5	06/19/17 16:50	
2,4,5-Trichlorophenol	ug/L	<8.4	28.0	06/19/17 16:50	
2,4,6-Trichlorophenol	ug/L	<21.1	70.4	06/19/17 16:50	
2,4-Dinitrotoluene	ug/L	<7.9	26.4	06/19/17 16:50	
2-Methylphenol(o-Cresol)	ug/L	<8.7	28.9	06/19/17 16:50	
3&4-Methylphenol(m&p Cresol)	ug/L	<15.6	52.0	06/19/17 16:50	
Hexachloro-1,3-butadiene	ug/L	<24.6	82.0	06/19/17 16:50	
Hexachlorobenzene	ug/L	<16.9	56.4	06/19/17 16:50	
Hexachloroethane	ug/L	<26.6	88.6	06/19/17 16:50	
Nitrobenzene	ug/L	<14.5	48.3	06/19/17 16:50	
Pentachlorophenol	ug/L	<14.3	47.8	06/19/17 16:50	
Phenol	ug/L	<6.0	20.0	06/19/17 16:50	
Pyridine	ug/L	<17.9	59.6	06/19/17 16:50	
2,4,6-Tribromophenol (S)	%	105	65-140	06/19/17 16:50	
2-Fluorobiphenyl (S)	%	75	59-109	06/19/17 16:50	
Nitrobenzene-d5 (S)	%	73	53-100	06/19/17 16:50	
Phenol-d6 (S)	%	22	18-120	06/19/17 16:50	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

METHOD BLANK: 1523920

Matrix: Water

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<18.8	62.5	06/19/17 17:12	
2,4,5-Trichlorophenol	ug/L	<8.4	28.0	06/19/17 17:12	
2,4,6-Trichlorophenol	ug/L	<21.1	70.4	06/19/17 17:12	
2,4-Dinitrotoluene	ug/L	<7.9	26.4	06/19/17 17:12	
2-Methylphenol(o-Cresol)	ug/L	<8.7	28.9	06/19/17 17:12	
3&4-Methylphenol(m&p Cresol)	ug/L	<15.6	52.0	06/19/17 17:12	
Hexachloro-1,3-butadiene	ug/L	<24.6	82.0	06/19/17 17:12	
Hexachlorobenzene	ug/L	<16.9	56.4	06/19/17 17:12	
Hexachloroethane	ug/L	<26.6	88.6	06/19/17 17:12	
Nitrobenzene	ug/L	<14.5	48.3	06/19/17 17:12	
Pentachlorophenol	ug/L	<14.3	47.8	06/19/17 17:12	
Phenol	ug/L	<6.0	20.0	06/19/17 17:12	
Pyridine	ug/L	<17.9	59.6	06/19/17 17:12	
2,4,6-Tribromophenol (S)	%	112	65-140	06/19/17 17:12	
2-Fluorobiphenyl (S)	%	78	59-109	06/19/17 17:12	
Nitrobenzene-d5 (S)	%	76	53-100	06/19/17 17:12	
Phenol-d6 (S)	%	24	18-120	06/19/17 17:12	

LABORATORY CONTROL SAMPLE: 1525839

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	50	36.9	74	44-84	
2,4,5-Trichlorophenol	ug/L	50	56.4	113	63-127	
2,4,6-Trichlorophenol	ug/L	50	56.6	113	65-125	
2,4-Dinitrotoluene	ug/L	50	60.9	122	68-137	
2-Methylphenol(o-Cresol)	ug/L	50	37.1	74	54-103	
3&4-Methylphenol(m&p Cresol)	ug/L	50	30.6	61	50-95	
Hexachloro-1,3-butadiene	ug/L	50	42.7	85	57-100	
Hexachlorobenzene	ug/L	50	49.5	99	70-130	
Hexachloroethane	ug/L	50	34.9	70	41-130	
Nitrobenzene	ug/L	50	46.1	92	70-130	
Pentachlorophenol	ug/L	50	46.7	93	57-121	
Phenol	ug/L	50	22.1	44	25-120	
Pyridine	ug/L	50	9.8J	20	10-79	
2,4,6-Tribromophenol (S)	%			125	65-140	
2-Fluorobiphenyl (S)	%			99	59-109	
Nitrobenzene-d5 (S)	%			94	53-100	
Phenol-d6 (S)	%			35	18-120	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

MATRIX SPIKE SAMPLE:		1525840					
Parameter	Units	40151516001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<0.019 mg/L	250	188	75	42-96	
2,4,5-Trichlorophenol	ug/L	<0.0084 mg/L	250	217	87	49-127	
2,4,6-Trichlorophenol	ug/L	<0.021 mg/L	250	251	100	52-125	
2,4-Dinitrotoluene	ug/L	<0.0079 mg/L	250	278	111	56-137	
2-Methylphenol(o-Cresol)	ug/L	<0.0087 mg/L	250	192	77	29-103	
3&4-Methylphenol(m&p Cresol)	ug/L	<0.016 mg/L	250	156	62	21-95	
Hexachloro-1,3-butadiene	ug/L	<0.025 mg/L	250	222	89	52-100	
Hexachlorobenzene	ug/L	<0.017 mg/L	250	237	95	67-130	
Hexachloroethane	ug/L	<0.027 mg/L	250	170	68	41-130	
Nitrobenzene	ug/L	<0.015 mg/L	250	215	86	61-130	
Pentachlorophenol	ug/L	<0.014 mg/L	250	232	93	44-134	
Phenol	ug/L	<6.0	250	98.6	39	16-120	
Pyridine	ug/L	<0.018 mg/L	250	60.3	24	10-79	
2,4,6-Tribromophenol (S)	%				116	65-140	
2-Fluorobiphenyl (S)	%				87	59-109	
Nitrobenzene-d5 (S)	%				86	53-100	
Phenol-d6 (S)	%				33	18-120	

MATRIX SPIKE SAMPLE:		1525841					
Parameter	Units	40151453001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<18.8	250	183	73	42-96	
2,4,5-Trichlorophenol	ug/L	<8.4	250	248	99	49-127	
2,4,6-Trichlorophenol	ug/L	<21.1	250	275	110	52-125	
2,4-Dinitrotoluene	ug/L	<7.9	250	293	117	56-137	
2-Methylphenol(o-Cresol)	ug/L	<8.7	250	178	71	29-103	
3&4-Methylphenol(m&p Cresol)	ug/L	<15.6	250	162	65	21-95	
Hexachloro-1,3-butadiene	ug/L	<24.6	250	206	83	52-100	
Hexachlorobenzene	ug/L	<16.9	250	228	91	67-130	
Hexachloroethane	ug/L	<26.6	250	162	65	41-130	
Nitrobenzene	ug/L	<14.5	250	216	87	61-130	
Pentachlorophenol	ug/L	<14.3	250	241	96	44-134	
Phenol	ug/L	<6.0	250	99.9	40	16-120	
Pyridine	ug/L	<17.9	250	25.6J	10	10-79	
2,4,6-Tribromophenol (S)	%				120	65-140	
2-Fluorobiphenyl (S)	%				93	59-109	
Nitrobenzene-d5 (S)	%				93	53-100	
Phenol-d6 (S)	%				34	18-120	

MATRIX SPIKE SAMPLE:		1525842					
Parameter	Units	40151526001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<18.8	250	165	66	42-96	
2,4,5-Trichlorophenol	ug/L	<8.4	250	274	110	49-127	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

MATRIX SPIKE SAMPLE:		1525842					
Parameter	Units	40151526001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2,4,6-Trichlorophenol	ug/L	<21.1	250	280	112	52-125	
2,4-Dinitrotoluene	ug/L	<7.9	250	294	118	56-137	
2-Methylphenol(o-Cresol)	ug/L	<8.7	250	183	73	29-103	
3&4-Methylphenol(m&p Cresol)	ug/L	<15.6	250	159	64	21-95	
Hexachloro-1,3-butadiene	ug/L	<24.6	250	195	78	52-100	
Hexachlorobenzene	ug/L	<16.9	250	232	93	67-130	
Hexachloroethane	ug/L	<26.6	250	149	60	41-130	
Nitrobenzene	ug/L	<14.5	250	212	85	61-130	
Pentachlorophenol	ug/L	<14.3	250	265	106	44-134	
Phenol	ug/L	<6.0	250	107	43	16-120	
Pyridine	ug/L	<17.9	250	83.8	34	10-79	
2,4,6-Tribromophenol (S)	%				121	65-140	
2-Fluorobiphenyl (S)	%				82	59-109	
Nitrobenzene-d5 (S)	%				81	53-100	
Phenol-d6 (S)	%				34	18-120	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258542

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40151526001

SAMPLE DUPLICATE: 1523157

Parameter	Units	40151370034 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.0	18.8	4	10	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258650

Analysis Method: EPA 1010

QC Batch Method: EPA 1010

Analysis Description: 1010 Flash Point, Closed Cup

Associated Lab Samples: 40151526001

LABORATORY CONTROL SAMPLE: 1523890

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		80.8			

SAMPLE DUPLICATE: 1524596

Parameter	Units	10391860001 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>210	>210			C4

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 259165 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40151526001

SAMPLE DUPLICATE: 1526648

Parameter	Units	40151803006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.2	7.3	1	20	H6

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 258751

Analysis Method: EPA 9095

QC Batch Method: EPA 9095

Analysis Description: 9095 PAINT FILTER LIQUID TEST

Associated Lab Samples: 40151526001

METHOD BLANK: 1524455

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Free Liquids	no units	Fail		06/15/17 15:32	

LABORATORY CONTROL SAMPLE: 1524456

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Free Liquids	no units		Pass			

SAMPLE DUPLICATE: 1524457

Parameter	Units	40151516002 Result	Dup Result	RPD	Max RPD	Qualifiers
Free Liquids	no units	Pass	Pass			

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 262127

Analysis Method: EPA 9014

QC Batch Method: SW-846 7.3.3.2

Analysis Description: 733C Reactive Cyanide

Associated Lab Samples: 40151526001

METHOD BLANK: 1290868

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Reactive	mg/kg	<0.40	0.99	06/16/17 22:57	

LABORATORY CONTROL SAMPLE: 1290869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Reactive	mg/kg	101	<0.40	0	0-8	

SAMPLE DUPLICATE: 1290870

Parameter	Units	40151526001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Reactive	mg/kg	<0.79	<0.79		20	

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QUALITY CONTROL DATA

Project: FRF SLUDGE

Pace Project No.: 40151526

QC Batch: 262126

Analysis Method: SM4500S2F-00

QC Batch Method: SW-846 7.3.4.2

Analysis Description: 734S Reactive Sulfide

Associated Lab Samples: 40151526001

METHOD BLANK: 1290865

Matrix: Solid

Associated Lab Samples: 40151526001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide, Reactive	mg/kg	<9.9	9.9	06/16/17 22:01	

LABORATORY CONTROL SAMPLE: 1290866

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Reactive	mg/kg	201	52.3	26	0-52	

SAMPLE DUPLICATE: 1290867

Parameter	Units	40151526001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Reactive	mg/kg	<19.7	<19.6		20	

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QUALIFIERS

Project: FRF SLUDGE
Pace Project No.: 40151526

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-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

1q	Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.
C4	Sample container did not meet EPA or method requirements.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FRF SLUDGE

Pace Project No.: 40151526

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151526001	FRF #1	EPA 3541	258693	EPA 8082	258694
40151526001	FRF #1	EPA 3010	258929	EPA 6010	259129
40151526001	FRF #1	EPA 7470	258908	EPA 7470	258931
40151526001	FRF #1	EPA 3510	258922	EPA 8270	259012
40151526001	FRF #1	EPA 8260	258621		
40151526001	FRF #1	ASTM D2974-87	258542		
40151526001	FRF #1	EPA 1010	258650		
40151526001	FRF #1	EPA 9040	259165		
40151526001	FRF #1	EPA 9095	258751		
40151526001	FRF #1	SW-846 7.3.3.2	262127	EPA 9014	262199
40151526001	FRF #1	SW-846 7.3.4.2	262126	SM4500S2F-00	262197

REPORT OF LABORATORY ANALYSIS

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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

FILTERED?
(YES/NO)

**PRESERVATION
(CODE)***

1110

**Pick
Letter**

Analyses Requested

✓ Robert B-TCP

(Please Print Clearly)	
Company Name:	Brown Buntz
Branch/Location:	Port E Resource Recovery
Project Contact:	Chad Dvorspik
Phone:	(920) 492-4955
Project Number:	
Project Name:	FRF Sludge
Project State:	WI
Sampled By (Print):	Chad Dvorspik
Sampled By (Sign):	
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
Sl = Sludge	WP = Wipe

PACE LAB #

CLIENT FIELD ID

COLLECTION

MATRIX

001

FRF #1

6/12

1:30

S

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:

PACE Project No.

Relinquished by:

Date/Time:

Received By _____

Date/Time:

Receipt Temp = ROT °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact



Sample Condition Upon Receipt

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

Project #

WO#: 40151526



Client Name: Brown Co

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 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

Temp Blank Present: ☐ yes ☒ no ☐ no

Temp should be above freezing to 6°C.

Biota Samples may be received at ≤ 0°C.

Comments:

Person examining contents:

Date: 6/13/17

Initials: AK

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.
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:	<u>S</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☐ Yes ☐ No ☒ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO ₃ , H ₂ SO ₄ ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	☐ Yes ☐ No ☒ N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☐ Yes ☒ No	
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: Rmn for Tr

Date: 6/13/17

Analytical Report

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

June 20, 2017

Work Order: 17F0534

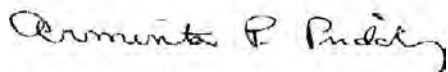
RE: Green Bay
FRF Sludge / 40151526

Dear Tod Noltzenmeyer:

Enclosed are the analytical reports for the EMT Work Order listed. Also included with this analytical report is a copy of the chain of custody associated with these samples. If you have any questions, please contact me.

Sincerely,

Approved by,



Arminta Priddy
Project Manager
847.967.6666
apriddy@emt.com
Approved for release: 6/20/2017 2:42:56PM



Matthew Gregory
Technical Manager

The contents of this report apply to the sample(s) analyzed. No duplication is allowed except in its entirety. Detection and Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

State of Wisconsin Dept of Natural Resources, Cert No. 999888890

Table of Contents

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Case Narrative	4
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List of Certifications	9
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Chain of Custody	11

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Sample Summary

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FRF#1	17F0534-01	Solid	06/13/17 13:30	06/15/17 10:00

Case Narrative

Client: Pace Analytical Services, Inc.

Date: 06/20/2017

Project: Green Bay
FRF Sludge / 40151526

Work Order: 17F0534

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Sample results only relate to the sample(s) received at the laboratory and analytes of interest tested.

Work Order: 17F0534

The samples were received on 06/15/17 10:00. The samples arrived in good condition and properly preserved. The temperature of the cooler at receipt was

<u>Cooler</u>	<u>Temp C°</u>
Default Cooler	6.8

Refer to Qualifiers and Definitions for quality and analytical clarifications or deviations.

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Client Sample Results

Client: Pace Analytical Services, Inc.
Project: Green Bay
 FRF Sludge / 40151526
Work Order: 17F0534

Client Sample ID: FRF#1
Report Date: 06/20/2017
Collection Date: 06/13/2017 13:30
Matrix: Solid
Lab ID: 17F0534-01

Analyses	Result	EMT Reporting		Qual	Units	MDL	Date/Time Analyzed	Batch	Analyst	DF
		Limit								
Anions by Ion Chromatography										
Method: SW9056A / SW5050										
Chlorine	0.0318	0.231	J	% dry	0.0139	06/19/17 14:11	B7F0638	NB1	5	
Wet Chemistry										
Method: SM2540G										
Total Solids	49.9	0.100		% (Percent)	0.00700	06/19/17 06:12	B7F0665	CP1	1	

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Dates Report**Client:** Pace Analytical Services, Inc.**Report Date:** 06/20/2017**Project:** Green Bay
FRF Sludge / 40151526**Work Order:** 17F0534

Sample ID	Client Sample ID	Collection	Matrix	Test Name	Leached Prep Date	Prep Date	Analysis Date	Batch ID	Sequence
17F0534-01	FRF#1	06/13/17	Solid	Chlorine, Percent		06/19/17 08:30	06/19/17 14:11	B7F0638	S7F0383
				Total Solids / Percent Moisture		06/19/17 06:00	06/19/17 06:12	B7F0665	

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Quality Control

Client: Pace Analytical Services, Inc.

Report Date: 06/20/2017

Project: Green Bay
FRF Sludge / 40151526

Matrix: Solid

Work Order: 17F0534

Anions by Ion Chromatography

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	------	----

Batch: B7F0638 - SW5050
Blank (B7F0638-BLK1)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 09:59

Chlorine	< 0.00000600	0.000100	% wet								1
----------	--------------	----------	-------	--	--	--	--	--	--	--	---

Blank (B7F0638-BLK2)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 11:23

Chlorine	< 0.000582	0.00970	% wet								1
----------	------------	---------	-------	--	--	--	--	--	--	--	---

LCS (B7F0638-BS1)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 10:27

Chlorine	0.0000235	0.000100	% wet	0.00002000		117	80-120			J	1
----------	-----------	----------	-------	------------	--	-----	--------	--	--	---	---

LCS (B7F0638-BS2)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 10:55

Chlorine	0.000494	0.000100	% wet	0.0005000		98.7	80-120				1
----------	----------	----------	-------	-----------	--	------	--------	--	--	--	---

Duplicate (B7F0638-DUP1)
Source: 17F0534-01
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 14:39

Chlorine	0.0280	0.209	% dry		0.0318			12.9	20	J	5
----------	--------	-------	-------	--	--------	--	--	------	----	---	---

Reference (B7F0638-SRM1)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 11:51

Chlorine	0.00339	0.0188	% wet	0.008400		40.4	50-150			S, J	1
----------	---------	--------	-------	----------	--	------	--------	--	--	------	---

Reference (B7F0638-SRM2)
Prepared: 06/19/2017 08:30 Analyzed: 06/19/2017 12:19

Chlorine	0.0372	0.0189	% wet	0.03800		97.9	50-150				1
----------	--------	--------	-------	---------	--	------	--------	--	--	--	---

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Quality Control

(Continued)

Client: Pace Analytical Services, Inc.

Report Date: 06/20/2017

Project: Green Bay
FRF Sludge / 40151526

Matrix: Solid

Work Order: 17F0534

Wet Chemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	------	----

Batch: B7F0665

Blank (B7F0665-BLK1)

Prepared: 06/19/2017 06:00 Analyzed: 06/19/2017 06:16

Total Solids	< 0.100	0.100	%								1
--------------	---------	-------	---	--	--	--	--	--	--	--	---

LCS (B7F0665-BS1)

Prepared: 06/19/2017 06:00 Analyzed: 06/19/2017 06:18

Total Solids	0.190	0.100	%	0.2000		94.8	88.3-107				1
--------------	-------	-------	---	--------	--	------	----------	--	--	--	---

Duplicate (B7F0665-DUP1)

Source: 17F0464-01

Prepared: 06/19/2017 06:00 Analyzed: 06/19/2017 06:20

Total Solids	85.4	0.100	%		86.0			0.695	5		1
--------------	------	-------	---	--	------	--	--	-------	---	--	---

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Certified Analyses included in this Report

Analyte	CAS #	Certifications
SM2540G in Solid		
Total Solids	Moist	WDNR

List of Certifications

Code	Description	Number	Expires
AKDEC	State of Alaska, Dept. Environmental Conservation	UST-105	07/16/2017
CPSC	US Consumer Product Safety Commission, Accredited by PJLA Lab No. 1050	L14-56	04/30/2018
DoD	Department of Defense, Accredited by PJLA	L14-55	04/30/2018
ILEPA	State of Illinois, NELAP Accredited Lab No. 100256	003674	07/27/2017
ISO	ISO/IEC 17025, Accredited by PJLA	L14-56	04/30/2018
LELAP	State of Louisiana, NELAP Accredited Lab No. 171344	05015	06/30/2017
NJDEP	State of New Jersey, NELAP Accredited Lab No. IL010	NLC160001	06/30/2017
WDNR	State of Wisconsin Dept of Natural Resources	999888890	08/31/2017

Qualifiers and Definitions

Item	Description
J	Estimated Value
S	The recovery is outside of the laboratory control limits.
%Rec	Percent Recovery
MDL	In the state of Wisconsin MDL is equivalent to LOD; in all other applications MDL is equivalent to MDL.



17F0534

PM: Arminta Priddy
Pace Analytical Services, Inc.
Green Bay

Chain of Custody



Workorder: 40151526

Workorder Name: FRF SLUDGE

Results Requested By: 6/27/2017

Report / Invoice To		Subcontract To		Requested Analysis											
Tod Noltemeyer Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436 Email: tod.noltemeyer@pacelabs.com		EMT LABS 8100 North Austin Avenue Morton Grove, IL 60053 P.O. _____		Chlorine sub-contracted to EMT Labs LAB USE ONLY											
State of Sample Origin: WI LOD/LOQ		Preserved Containers													
Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Unaltered										
1	FRF #1	6/13/2017 13:30	40151528001	Solid	1										
2															
3															
4															
5															
Comments															
Transfers	Released By	Date/Time	Received By	Date/Time											
1	Rochelle Wrenn Pave	6/14/17 10:00													
2															
3															
Cooler Temperature on Receipt		68°C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact								
			Y		Y										



**Outagamie County Recycling & Solid Waste
Brown Outagamie Winnebago Counties
SPECIAL WASTE DISPOSAL APPLICATION**

A. Generator Information

Name Neenah Paper Appleton Mill
Contact Person Dave Linden
Email Address dave.linden@neenah.com
Phone Number 920-738-8396
Site Address (where material is generated)
430 E South Island St.
Appleton, WI 54915

B. Billing Information

(In order to be billed, you must fill out a credit application)

Name Neenah Paper Accounts Payable
Contact Person Jennifer Healy
Email Address jennifer.healy@neenah.com
Phone 920-738-8380
Fax Number 920-721-1332
Billing Address
1376 Kimberly Drive
Neenah, WI 54956

C. Consultant Information

Name _____
Contact Person _____
Email Address _____
Phone Number _____
Fax Number _____
Address _____

D. Hauler Information

Name Vans Waste
Contact Person Jeff Vander Heiden
Phone Number 920-687-2632
Address N 2061 Vandenbroek Rd
Kaukauna, WI 54130

E. Waste Information

Waste Name Paper Mill Sludge
Process Used to Generate Waste paper making
Waste Category Number _____
Total Anticipated Waste Volume (include units) 1439 ton/yr
Frequency of Disposal 2-3 x / week
Name of Lab Performing Analysis Badger Labs
Date of Most Recent Analysis 8-1-16
Physical State @ 25°C solid
Color Varies Odor none
Comments _____

*For all waste types, attach available pertinent documents, MSDSs, technical bulletins, etc. List attachments here:

Lab results

F. Generator Warranty

The generator warrants, represents, and certifies that this waste is not hazardous waste as specified by NR600 or 40CFR261, that his material does not contain more than 50 ppm of PCB materials, and that this information is representative of the waste.

Generator's Signature _____ Title _____ Date _____

Instructions:

For Category A, B, and, C Wastes: Complete Section I

For Category D Wastes: Complete Section II

For Category E Wastes: Complete Section III

Outagamie County Internal Use Only:

- ☐ BC Customer
☐ OC Customer
☐ WC Customer

Section I

For Category A, B, and C Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
% Solids	≥ 40% (A&B) ≥ 20% (C)	39.5
% Free Liquids (paint filter test)	0%	0.0
Flash Point	> 140°F	7170
pH	2.0 ≤ pH ≤ 12.5	7.0
Total available sulfide	<500 mg/kg	73.0
Total available cyanide	<250 mg/kg	< 0.026
Arsenic	< 5.0	< 0.005
Barium	< 100.0	0.17
Cadmium	< 1.0	< 0.01
Chromium	< 5.0	< 0.02
Lead	< 5.0	< 0.03
Mercury	< 0.2	< 0.0002
Selenium	< 1.0	< 0.009
Silver	< 5.0	< 0.01
% Chlorine	< 1%	< 0.02
Phenol	< 2000	0.06
Benzene	< 0.5	ND
Carbon tetrachloride	< 0.5	ND
Chlorobenzene	< 100.0	ND
Chloroform	< 6.0	ND
Cresol	< 200.0	ND
1,4-Dichlorobenzene	< 7.5	ND
1,2-Dichloroethane	< 0.5	ND
1,1-Dichloroethylene	< 0.7	ND
2,4-Dinitrotoluene	< 0.3	ND
Hexachlorobenzene	< 0.13	ND
Hexachlorobutadiene	< 0.5	ND
Hexachloroethane	< 3.0	ND
Methyl ethyl ketone	< 200.0	ND
Nitrobenzene	< 2.0	ND
Pentachlorophenol	< 100.0	ND
Pyridine	< 5.0	ND
Tetrachloroethylene	< 0.7	ND
Trichloroethylene	< 0.5	ND
2,4,5-Trichlorophenol	< 400.0	ND
2,4,6-Trichlorophenol	< 2.0	ND
Vinyl Chloride	< 0.2	ND

For Category B and C Wastes, complete the following and attach laboratory report:

PCB (Arochlor 1016, 1221, 1232, 1242, 1248, 1254, 1260)

Section II

For Category D Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level	Lab Result
a. All Soils		
Lead	Total <100 mg/kg or TCLP <5 mg/l	
b. Gasoline or Diesel (analyze all parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Benzene	Total <10 mg/kg Or TCLP <0.5 mg/l	
c. Waste Oil or Unknown Petroleum Waste (analyze al parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Cadmium	Total <20 mg/kg Or TCLP <1 mg/l	

Section III

For Category E Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
pH	2.0 ≤ pH ≤ 12.5	
% Solids	≥ 20%	
% Free liquids	0%	
TCLP metals		
Arsenic	< 5.0	
Barium	< 100.0	
Cadmium	< 1.0	
Chromium	< 5.0	
Lead	< 5.0	
Mercury	< 0.2	
Selenium	< 1.0	
Silver	< 5.0	
Total available sulfide	< 500 mg/kg	

Section IV

For Category F Wastes, include the following information and attach MSDS(s), technical bulletin(s), or other pertinent information regarding the waste stream. Indicate the waste type, the source of the waste stream, the reason for disposal, the physical state of the material, and describe the process from which the waste was generated.

Badger Laboratories & Engineering, Inc.

Sample Delivery Group: L848569
Samples Received: 07/21/2016
Project Number:
Description:

Report To: Jeff Wagner
501 West Bell Street
Neenah, WI 54956

Entire Report Reviewed By:



John Hawkins
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





¹ Cp: Cover Page	1
² Tc: Table of Contents	2
³ Ss: Sample Summary	3
⁴ Cn: Case Narrative	4
⁵ Sr: Sample Results	5
18555 L848569-01	5
18555 L848569-02	6
18556 L848569-03	7
18556 L848569-04	8
⁶ Qc: Quality Control Summary	9
Total Solids by Method 2540 G-2011	9
Wet Chemistry by Method 9030B	10
Wet Chemistry by Method D93/1010A	11
Volatile Organic Compounds (GC/MS) by Method 8260B	12
Polychlorinated Biphenyls (GC) by Method 8082	14
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	15
⁷ Gl: Glossary of Terms	17
⁸ Al: Accreditations & Locations	18
⁹ Sc: Chain of Custody	19



SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



18555 L848569-01 Solid

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Polychlorinated Biphenyls (GC) by Method 8082	WG891275	1.5	07/22/16 00:44	07/22/16 18:36	LKD
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ

Collected by
Collected date/time
Received date/time

18555 L848569-02 Waste

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG892468	1	07/26/16 12:37	07/26/16 12:38	BG
Preparation by Method 1311	WG892919	1	07/27/16 10:32	07/27/16 10:33	BG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG893216	1	07/28/16 21:14	07/29/16 15:09	JF
Volatile Organic Compounds (GC/MS) by Method 8260B	WG892961	1	07/28/16 00:59	07/28/16 00:59	ACG
Wet Chemistry by Method D93/1010A	WG891428	1	07/22/16 12:20	07/22/16 12:20	MZ

Collected by
Collected date/time
Received date/time

18556 L848569-03 Solid

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Polychlorinated Biphenyls (GC) by Method 8082	WG891275	1.5	07/22/16 00:44	07/22/16 18:48	LKD
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ

Collected by
Collected date/time
Received date/time

18556 L848569-04 Waste

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG892468	1	07/26/16 12:37	07/26/16 12:38	BG
Preparation by Method 1311	WG892919	1	07/27/16 10:32	07/27/16 10:33	BG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG893216	1	07/28/16 21:14	07/29/16 15:32	SNR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG892961	1	07/28/16 03:15	07/28/16 03:15	ACG
Wet Chemistry by Method D93/1010A	WG891428	1	07/22/16 12:20	07/22/16 12:20	MZ

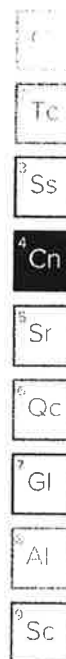
Collected by
Collected date/time
Received date/time





All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative



18555

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 01

L848569

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	39.8		1	07/27/2016 09:27	WG892868

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	36.4		25.0	1	07/28/2016 20:10	WG893594

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
PCB 1016	ND	J3	0.0176	1.5	07/22/2016 18:36	WG891275
PCB 1221	ND		0.0269	1.5	07/22/2016 18:36	WG891275
PCB 1232	ND		0.0209	1.5	07/22/2016 18:36	WG891275
PCB 1242	ND		0.0159	1.5	07/22/2016 18:36	WG891275
PCB 1248	ND		0.0158	1.5	07/22/2016 18:36	WG891275
PCB 1254	ND		0.0236	1.5	07/22/2016 18:36	WG891275
PCB 1260	ND	J3	0.0248	1.5	07/22/2016 18:36	WG891275
(S) Decachlorobiphenyl	59.0		10.0-143		07/22/2016 18:36	WG891275
(S) Tetrachloro-m-xylene	76.7		29.2-144		07/22/2016 18:36	WG891275

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

18555

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 02

L848569

ONE LAB. NATIONWIDE.



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		7/27/2016 10:32:03 AM	WG892919
TCLP ZHE Extraction	-		7/26/2016 12:37:09 PM	WG892468

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	DNI at 170 F		1	07/22/2016 12:20	WG891428

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Carbon tetrachloride	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Chlorobenzene	ND		0.0500	100	1	07/28/2016 00:59	WG892961
Chloroform	ND		0.250	6	1	07/28/2016 00:59	WG892961
1,2-Dichloroethane	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
1,1-Dichloroethene	ND		0.0500	0.70	1	07/28/2016 00:59	WG892961
2-Butanone (MEK)	ND		0.500	200	1	07/28/2016 00:59	WG892961
Tetrachloroethene	ND		0.0500	0.70	1	07/28/2016 00:59	WG892961
Trichloroethene	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Vinyl chloride	ND		0.0500	0.20	1	07/28/2016 00:59	WG892961
(S) Toluene-d8	107		90.0-115	114		07/28/2016 00:59	WG892961
(S) Dibromofluoromethane	104		79.0-121	125		07/28/2016 00:59	WG892961
(S) a,a,a-Trifluorotoluene	105		90.4-116	114		07/28/2016 00:59	WG892961
(S) 4-Bromofluorobenzene	101		80.1-120	128		07/28/2016 00:59	WG892961

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	07/29/2016 15:09	WG893216
2,4-Dinitrotoluene	ND		0.100	0.13	1	07/29/2016 15:09	WG893216
Hexachlorobenzene	ND		0.100	0.13	1	07/29/2016 15:09	WG893216
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	07/29/2016 15:09	WG893216
Hexachloroethane	ND		0.100	3	1	07/29/2016 15:09	WG893216
Nitrobenzene	ND		0.100	2	1	07/29/2016 15:09	WG893216
Pyridine	ND		0.100	5	1	07/29/2016 15:09	WG893216
3&4-Methyl Phenol	ND		0.100	400	1	07/29/2016 15:09	WG893216
2-Methylphenol	ND		0.100	200	1	07/29/2016 15:09	WG893216
Pentachlorophenol	ND		0.100	100	1	07/29/2016 15:09	WG893216
2,4,5-Trichlorophenol	ND		0.100	400	1	07/29/2016 15:09	WG893216
2,4,6-Trichlorophenol	ND		0.100	2	1	07/29/2016 15:09	WG893216
(S) 2-Fluorophenol	53.4		10.0-77.9	87		07/29/2016 15:09	WG893216
(S) Phenol-d5	36.8		5.00-70.1	67		07/29/2016 15:09	WG893216
(S) Nitrobenzene-d5	64.3		21.8-123	120		07/29/2016 15:09	WG893216
(S) 2-Fluorobiphenyl	71.3		29.5-131	122		07/29/2016 15:09	WG893216
(S) 2,4,6-Tribromophenol	99.2		11.2-130	148		07/29/2016 15:09	WG893216
(S) p-Terphenyl-d14	87.6		29.3-137	149		07/29/2016 15:09	WG893216



18556

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 03

L848569

ONE LAB. NATIONWIDE



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	38.5		1	07/27/2016 09:27	WG892868

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	mg/kg		mg/kg			
	73.0		25.0	1	07/28/2016 20:10	WG893594

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
PCB 1016	mg/kg		mg/kg			
PCB 1221	ND	J3	0.0176	1.5	07/22/2016 18:48	WG891275
PCB 1232	ND		0.0269	1.5	07/22/2016 18:48	WG891275
PCB 1242	ND		0.0209	1.5	07/22/2016 18:48	WG891275
PCB 1248	ND		0.0159	1.5	07/22/2016 18:48	WG891275
PCB 1254	ND		0.0158	1.5	07/22/2016 18:48	WG891275
PCB 1260	ND		0.0236	1.5	07/22/2016 18:48	WG891275
	ND	J3	0.0248	1.5	07/22/2016 18:48	WG891275
(S) Decachlorobiphenyl	67.3		10.0-143		07/22/2016 18:48	WG891275
(S) Tetrachloro-m-xylene	91.3		29.2-144		07/22/2016 18:48	WG891275

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

18556

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 04

L848569

ONE LAB. NATIONWIDE.



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction			7/27/2016 10:32:03 AM	WG892919
TCLP ZHE Extraction			7/26/2016 12:37:09 PM	WG892468

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Deg. F		1	07/22/2016 12:20	WG891428
	DNI at 170 F				

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Carbon tetrachloride	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Chlorobenzene	ND		0.0500	100	1	07/28/2016 03:15	WG892961
Chloroform	ND		0.250	6	1	07/28/2016 03:15	WG892961
1,2-Dichloroethane	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
1,1-Dichloroethene	ND		0.0500	0.70	1	07/28/2016 03:15	WG892961
2-Butanone (MEK)	ND		0.500	200	1	07/28/2016 03:15	WG892961
Tetrachloroethene	ND		0.0500	0.70	1	07/28/2016 03:15	WG892961
Trichloroethene	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Vinyl chloride	ND		0.0500	0.20	1	07/28/2016 03:15	WG892961
(S) Toluene-d8	107		90.0-115	114		07/28/2016 03:15	WG892961
(S) Dibromofluoromethane	103		79.0-121	125		07/28/2016 03:15	WG892961
(S) a,a,a-Trifluorotoluene	105		90.4-116	114		07/28/2016 03:15	WG892961
(S) 4-Bromofluorobenzene	103		80.1-120	128		07/28/2016 03:15	WG892961

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	07/29/2016 15:32	WG893216
2,4-Dinitrotoluene	ND		0.100	0.13	1	07/29/2016 15:32	WG893216
Hexachlorobenzene	ND		0.100	0.13	1	07/29/2016 15:32	WG893216
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	07/29/2016 15:32	WG893216
Hexachloroethane	ND		0.100	3	1	07/29/2016 15:32	WG893216
Nitrobenzene	ND		0.100	2	1	07/29/2016 15:32	WG893216
Pyridine	ND		0.100	5	1	07/29/2016 15:32	WG893216
3&4-Methyl Phenol	ND		0.100	400	1	07/29/2016 15:32	WG893216
2-Methylphenol	ND		0.100	200	1	07/29/2016 15:32	WG893216
Pentachlorophenol	ND		0.100	100	1	07/29/2016 15:32	WG893216
2,4,5-Trichlorophenol	ND		0.100	400	1	07/29/2016 15:32	WG893216
2,4,6-Trichlorophenol	ND		0.100	2	1	07/29/2016 15:32	WG893216
(S) 2-Fluorophenol	44.9		10.0-77.9	87		07/29/2016 15:32	WG893216
(S) Phenol-d5	32.4		5.00-70.1	67		07/29/2016 15:32	WG893216
(S) Nitrobenzene-d5	53.8		21.8-123	120		07/29/2016 15:32	WG893216
(S) 2-Fluorobiphenyl	66.3		29.5-131	122		07/29/2016 15:32	WG893216
(S) 2,4,6-Tribromophenol	88.4		11.2-130	148		07/29/2016 15:32	WG893216
(S) p-Terphenyl-d14	85.6		29.3-137	149		07/29/2016 15:32	WG893216

WG892868

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

L848569-01,03

Method Blank (MB)

(MB) R3152777-1 07/27/16 09:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000200			

L848956-01 Original Sample (OS) • Duplicate (DUP)

(OS) L848956-01 07/27/16 09:27 • (DUP) R3152777-3 07/27/16 09:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Total Solids	67.2	67.5	1	0.498		5

Laboratory Control Sample (LCS)

(LCS) R3152777-2 07/27/16 09:27

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG893594

Wet Chemistry by Method 9030B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) WG893594-1 07/28/16 20:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Sulfide	U		7.63	25.0

L848577-03 Original Sample (OS) • Duplicate (DUP)

(OS) L848577-03 07/28/16 20:10 • (DUP) WG893594-4 07/28/16 20:10

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	61.0	66.0	1	7.87		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG893594-2 07/28/16 20:10 • (LCSD) WG893594-3 07/28/16 20:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Sulfide	100	79.0	72.8	79.0	72.8	70.0-130			8.17	20



WG891428

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

ONE LAB NATIONWIDE.

L848569-02.04

L848569-02 Original Sample (OS) • Duplicate (DUP)

(OS) L848569-02 07/22/16 12:20 • (DUP) WG891428-3 07/22/16 12:20

Analyte	Original Result Deg. F	DUP Result Deg. F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ignitability	DNI at 170 F	DNI at 170 F	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG891428-1 07/22/16 12:20 • (LCSD) WG891428-2 07/22/16 12:20

Analyte	Spike Amount Deg. F	LCS Result Deg. F	LCSD Result Deg. F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ignitability	82.0	82.9	82.9	101	101	93.0-107			0.000	20

Cd

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L848569-02,04

ONE LAB. NATIONWIDE.



Method Blank (MB)

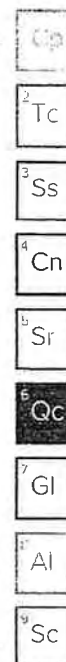
(MB) R3152874-3 07/27/16 23:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	108			90.0-115
(S) Dibromofluoromethane	102			79.0-121
(S) a,a,a-Trifluorotoluene	105			90.4-116
(S) 4-Bromofluorobenzene	103			80.1-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3152874-1 07/27/16 21:44 • (LCSD) R3152874-2 07/27/16 22:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0228	0.0227	91.2	90.9	73.0-122			0.300	20
Carbon tetrachloride	0.0250	0.0243	0.0235	97.2	93.9	70.9-129			3.48	20
Chlorobenzene	0.0250	0.0250	0.0246	99.8	98.6	79.7-122			1.24	20
Chloroform	0.0250	0.0235	0.0236	94.1	94.5	73.2-125			0.390	20
1,2-Dichloroethane	0.0250	0.0251	0.0253	100	101	65.3-126			0.890	20
1,1-Dichloroethene	0.0250	0.0240	0.0239	95.8	95.8	60.6-133			0.0200	20
2-Butanone (MEK)	0.125	0.126	0.124	101	98.9	46.4-155			1.74	20
Tetrachloroethene	0.0250	0.0242	0.0244	96.7	97.5	73.5-130			0.900	20
Trichloroethene	0.0250	0.0251	0.0248	101	99.1	79.5-121			1.52	20
Vinyl chloride	0.0250	0.0264	0.0261	105	105	61.5-134			0.900	20
(S) Toluene-d8				107	106	90.0-115				
(S) Dibromofluoromethane				107	105	79.0-121				
(S) a,a,a-Trifluorotoluene				105	106	90.4-116				
(S) 4-Bromofluorobenzene				102	101	80.1-120				



WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L848569-02.04

L848569-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L848569-02 07/28/16 00:59 • (MS) R3152874-4 07/27/16 23:21 • (MSD) R3152874-5 07/27/16 23:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	ND	1.23	1.29	98.1	103	1	58.6-133			4.96	20
Carbon tetrachloride	1.25	ND	1.22	1.34	97.9	107	1	60.6-139			8.78	20
Chlorobenzene	1.25	ND	1.36	1.42	109	114	1	70.1-130			4.57	20
Chloroform	1.25	ND	1.28	1.35	102	108	1	66.1-133			5.08	20
1,2-Dichloroethane	1.25	ND	1.34	1.39	107	111	1	60.7-132			3.94	20
1,1-Dichloroethene	1.25	ND	1.30	1.36	104	109	1	48.8-144			4.47	20
2-Butanone (MEK)	6.25	ND	4.95	5.23	74.9	79.3	1	45.0-156			5.47	20.8
Tetrachloroethene	1.25	ND	1.33	1.38	106	111	1	57.4-141			3.92	20
Trichloroethene	1.25	ND	1.36	1.42	109	114	1	48.9-148			4.13	20
Vinyl chloride	1.25	ND	1.28	1.36	102	109	1	44.3-143			6.01	20
(S) Toluene-d8					108	107		90.0-115				
(S) Dibromofluoromethane					106	105		79.0-121				
(S) o,o,o-Trifluorotoluene					106	104		90.4-116				
(S) 4-Bromofluorobenzene					101	101		80.1-120				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG891275

Polychlorinated Biphenyls (GC) by Method 8082

QUALITY CONTROL SUMMARY

L848569-01.03

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3151699-1 07/22/16 09:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0117
PCB 1221	U		0.00537	0.0179
PCB 1232	U		0.00417	0.0139
PCB 1242	U		0.00318	0.0106
PCB 1248	U		0.00315	0.0105
PCB 1254	U		0.00472	0.0157
PCB 1260	U		0.00494	0.0165
(S) Decachlorobiphenyl	87.0			10.0-143
(S) Tetrachloro-m-xylene	91.7			29.2-144

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3151699-2 07/22/16 09:16 • (LCSD) R3151699-3 07/22/16 09:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.124	0.166	74.5	99.6	46.5-120		J3	28.8	27
PCB 1016	0.167	0.111	0.150	66.5	89.7	46.3-117		J3	29.8	27.5
(S) Decachlorobiphenyl				89.7	100	10.0-143				
(S) Tetrachloro-m-xylene				96.8	102	29.2-144				

L848452-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L848452-01 07/22/16 19:00 • (MS) R3151699-4 07/22/16 19:13 • (MSD) R3151699-5 07/22/16 19:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.139	0.147	83.2	88.0	1	24.6-127			5.67	20
PCB 1016	0.167	ND	0.180	0.215	86.2	103	1	23.9-147			18.0	25.8
(S) Decachlorobiphenyl					66.4	74.2		10.0-143				
(S) Tetrachloro-m-xylene					84.4	87.0		29.2-144				

WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L848569-02.04

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3153267-3 07/29/16 12:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) Nitrobenzene-d5	58.2			21.8-123
(S) 2-Fluorobiphenyl	72.2			29.5-131
(S) p-Terphenyl-d14	83.1			29.3-137
(S) Phenol-d5	34.8			5.00-70.1
(S) 2-Fluorophenol	50.0			10.0-77.9
(S) 2,4,6-Tribromophenol	80.7			11.2-130

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.0500	0.0293	0.0318	58.7	63.6	21.0-89.4			7.97	32.6
2,4-Dinitrotoluene	0.0500	0.0423	0.0426	84.7	85.3	31.2-105			0.660	22
Hexachlorobenzene	0.0500	0.0412	0.0444	82.4	88.8	38.5-116			7.45	20.1
Hexachloro-1,3-butadiene	0.0500	0.0365	0.0394	73.0	78.7	16.1-104			7.52	31.2
Hexachloroethane	0.0500	0.0267	0.0300	53.5	60.1	16.5-89.8			11.6	30.7
Nitrobenzene	0.0500	0.0287	0.0325	57.4	65.0	31.4-106			12.5	25.7
Pyridine	0.0500	0.00859	0.00948	17.2	19.0	13.5-58.9			9.83	32.5
2-Methylphenol	0.0500	0.0267	0.0284	53.4	56.9	26.4-86.9			6.29	26.5
3&4-Methyl Phenol	0.0500	0.0296	0.0317	59.2	63.5	27.9-92.0			7.02	27
Pentachlorophenol	0.0500	0.0352	0.0376	70.4	75.1	10.0-97.4			6.45	35.1
2,4,5-Trichlorophenol	0.0500	0.0417	0.0445	83.5	89.1	34.9-112			6.51	23.9
2,4,6-Trichlorophenol	0.0500	0.0389	0.0435	77.8	87.1	29.8-107			11.3	24.1
(S) Nitrobenzene-d5				67.1	70.8	21.8-123				
(S) 2-Fluorobiphenyl				77.8	80.3	29.5-131				
(S) p-Terphenyl-d14				90.1	91.9	29.3-137				

WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L848569-02.04

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

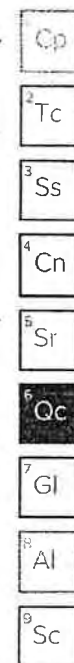
(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Phenol-d5				37.2	39.8	5.00-70.1				
(S) 2-Fluorophenol				52.1	58.0	10.0-77.9				
(S) 2,4,6-Tribromophenol				100	101	11.2-130				

L849237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L849237-01 07/29/16 16:53 • (MS) R3153267-4 07/29/16 17:16 • (MSD) R3153267-5 07/29/16 17:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.278	0.271	55.6	54.3	1	14.0-104			2.34	36.4
2,4-Dinitrotoluene	0.500	ND	0.414	0.402	82.8	80.4	1	16.2-135			2.93	20.6
Hexachlorobenzene	0.500	ND	0.423	0.411	84.6	82.3	1	31.9-135			2.84	20
Hexachloro-1,3-butadiene	0.500	ND	0.353	0.328	70.6	65.5	1	15.7-109			7.47	37.6
Hexachloroethane	0.500	ND	0.257	0.256	51.3	51.2	1	10.4-105			0.230	40
Nitrobenzene	0.500	ND	0.275	0.269	54.9	53.7	1	23.1-121			2.26	29
Pyridine	0.500	ND	0.0989	0.103	19.8	20.5	1	10.0-77.8			3.74	38.8
2-Methylphenol	0.500	ND	0.257	0.252	51.4	50.5	1	10.0-133			1.74	40
3&4-Methyl Phenol	0.500	ND	0.295	0.288	59.0	57.6	1	17.4-100			2.49	27.7
Pentachlorophenol	0.500	ND	0.375	0.375	75.0	74.9	1	10.0-108			0.0700	40
2,4,5-Trichlorophenol	0.500	ND	0.415	0.421	83.0	84.3	1	30.6-120			1.53	33.8
2,4,6-Trichlorophenol	0.500	ND	0.390	0.409	78.0	81.8	1	19.1-114			4.66	29.9
(S) Nitrobenzene-d5					62.0	57.7		21.8-123				
(S) 2-Fluorobiphenyl					72.2	69.0		29.5-131				
(S) p-Terphenyl-d14					87.8	82.8		29.3-137				
(S) Phenol-d5					36.3	34.6		5.00-70.1				
(S) 2-Fluorophenol					49.2	48.0		10.0-77.9				
(S) 2,4,6-Tribromophenol					99.6	98.2		11.2-130				





Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN0002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ¹⁴ Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**





BADGER LABORATORIES & ENGINEERING INC.

501 WEST BELL STREET • NEENAH, WISCONSIN 54956-4888 • EST. 1966

(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

NEENAH PAPER INC-NEENAH MILL
135 N COMMERCIAL ST
NEENAH, WI 54956-

Report Number: 16008170
Report Date: 8/10/2016
Sampled By: Client
Emailed: 8/10/16

Attn: MR. STEVEN HAGGLUND

PO#: 333242966
Samples: 2

Sample Number: 46018555
Description: NEENAH SLUDGE
Sample Date: 7/20/2016
Date Received: 7/20/2016

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
CHLORINE	<0.02	%	0.02	0.02		SW-846-5050	08/04/16	
CYANIDE, TOTAL	0.098	ppm	0.086	0.286	12	EPA335.4	07/25/16	
CYANIDE-AM. TO CL2	0.098	ppm	0.086	0.286	12	SM4500CN-G	07/26/16	
FLASH POINT	--SEE ATTACHED ESC REPORT--							
FREE LIQUIDS	0.0	%	0	0		SW 846 9095	08/03/16	
METALS DIGESTION	DONE		0	0		SM3030E	07/22/16	
PCB, TOTAL	--SEE ATTACHED ESC REPORT--							
PHENOL, TOTAL	<0.05	mg/l	0.05	0.17	1	EPA420.4	08/08/16	
pH-LAB	7.7	S.U.	0	0		SW846-9045C	07/21/16	
SULFIDE	--SEE ATTACHED ESC REPORT--							
TCLP ARSENIC	<0.005	mg/l	0.005	0.017	5	SM3113B	07/26/16	
TCLP BARIUM	0.30	mg/l	0.03	0.08	1	SM3111D	07/28/16	
TCLP CADMIUM	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TCLP CHROMIUM	<0.02	mg/l	0.02	0.06	1	SM3111B	07/27/16	
TCLP EXTRACTION	DONE		0	0		SW846-1311	07/22/16	
TCLP LEAD	<0.03	mg/l	0.03	0.10	1	SM3111B	07/27/16	
TCLP MERCURY	<0.0002	mg/l	0.0002	0.0008	1	SM3112B	07/26/16	
TCLP ORGANICS	--SEE ATTACHED ESC REPORT--							
TCLP SELENIUM	<0.009	mg/l	0.009	0.030	5	SM3113B	07/26/16	
TCLP SILVER	0.02	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TOTAL SOLIDS	36.0	%	0.010	0.010		SM2540B	07/25/16	

WI DNR Certified Lab #445023150
WI Reg. Engineers (Corp.) #CE00601
WI DATCP Certified #205 (Bacteria-Water)

Members
WI Environmental Labs; Am. Chemical Soc.;
T.A.P.P.I.; WI Food Processors Assn.;
Wisc. Paper Council



BADGER LABORATORIES & ENGINEERING INC.

501 WEST BELL STREET • NEENAH, WISCONSIN 54956-4868 • EST. 1966

(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

Sample Number: 46018556
Description: APPLETON SLUDGE
Sample Date: 7/20/2016
Date Received: 7/20/2016

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
CHLORINE	<0.02	%	0.02	0.02		SW-846-5050	08/04/16	
CYANIDE, TOTAL	<0.086	ppm	0.086	0.286	12	EPA335.4	07/25/16	
CYANIDE-AM. TO CL2	<0.086	ppm	0.086	0.286	12	SM4500CN-G	07/25/16	
FLASH POINT	--SEE ATTACHED ESC REPORT--							
FREE LIQUIDS	0.0	%	0	0		SW 846 9095	08/03/16	
METALS DIGESTION	DONE		0	0		SM3030E	07/22/16	
PCB, TOTAL	--SEE ATTACHED ESC REPORT--							
PHENOL, TOTAL	0.06	mg/l	0.05	0.17	1	EPA420.4	08/08/16	
pH-LAB	7.0	S.U.	0	0		SW846-9045C	07/21/16	
SULFIDE	--SEE ATTACHED ESC REPORT--							
TCLP ARSENIC	<0.005	mg/l	0.005	0.017	5	SM3113B	07/26/16	
TCLP BARIUM	0.17	mg/l	0.03	0.08	1	SM3111D	07/28/16	
TCLP CADMIUM	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TCLP CHROMIUM	<0.02	mg/l	0.02	0.06	1	SM3111B	07/27/16	
TCLP EXTRACTION	DONE		0	0		SW846-1311	07/22/16	
TCLP LEAD	<0.03	mg/l	0.03	0.10	1	SM3111B	07/27/16	
TCLP MERCURY	<0.0002	mg/l	0.0002	0.0008	1	SM3112B	07/26/16	
TCLP ORGANICS	--SEE ATTACHED ESC REPORT--							
TCLP SELENIUM	<0.009	mg/l	0.009	0.030	5	SM3113B	07/26/16	
TCLP SILVER	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TOTAL SOLIDS	39.5	%	0.010	0.010		SM2540B	07/25/16	

All LOD/LOQs adjusted for dilution and/or solids content.

BADGER LABS & ENGINEERING
WDNR Certified Lab #445023150
Approved By:

JMW:rt

CHEMISTS

ENGINEERS

BADGER LABORATORIES & ENGINEERING, INC.

501 WEST BELL STREET - NEENAH, WISCONSIN 54956-4868 - EST. 1966
(920) 729-1100 - Fax (920) 729-4945 - 1-800-776-7196

16008170

SAMPLE RECEIPT FORM

CLIENT INFORMATION

COMPANY: Neenah Paper
 NAME: _____
 ADDRESS: _____
 FAX/PHONE/EMAIL: _____
 P.O. #: _____
 PROJECT/SITE: _____
 REPORT & BILL TO: _____
 ADDITIONAL REPORTS TO: _____

TURN AROUND TIME:

- ☒ Normal
☐ Other TAT*

*REQUIRES PRIOR LAB
 APPROVAL _____

SAMPLE TYPE:

- ☐ Groundwater ☐ Lab Filtered
☐ Wastewater ☐ Field Filtered
☐ WPDES ☐ Grab
☐ Cooling Water ☐ Composite
☐ Drinking Water ☐ Flow Proportional
☐ Solid Waste ☐ Time Proportional
☐ Oil
☐ Other _____

CUSTOMER SAMPLE ID	SAMPLE DATE/TIME	DATE REC'D	BL & E REPORT #	BL & E SAMPLE #	TEMP *	CONTAINER S	Ice Y/N	DELIVERY METHOD				PRESERVATION						ANALYTICAL REQUESTS	pH ok	EP
								BL&E	CLIENT	UPS	OTHER	PIF	PIL	NON-PRES	H2SO4	HNO3	NaOH	OTHER		
		7/2	5170	18538	-3	1	Y		4					3						
			8170	18538	-3	1	Y		4					3						

CHAIN OF CUSTODY RECORD

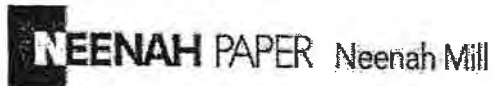
FILLED IN BY CUSTOMER SAMPLED BY: <u>[Signature]</u> DATE/TIME SAMPLED: _____ RELINQUISHED BY: _____	FILLED IN BY BADGER LABS & ENG RECEIVED BY: <u>[Signature]</u> DATE/TIME RECEIVED: <u>7/14 2:43 2010</u> LOGGED IN: <u>[Signature]</u>	
---	---	--

* Temperature over 6°C are above EPA/DNR Protocol unless received on ice.

* EP= If pH was not correct, extra preservation was added until correct pH was achieved; H2SO4/HNO3 adjusted to pH <2.0; NaOH >12.0

* PIF= Preserved in field.

* PIL= Preserved in lab.



NEENAH PAPER WWTP SAMPLE
CHAIN OF CUSTODY RECORD

SAMPLE(S) SOURCE INFORMATION

NEENAH PAPER CONTACT: STEVEN HAGGLUND
ADDRESS: NEENAH PAPER INC. - NEENAH MILL
135 NORTH COMMERCIAL STREET
P. O. BOX 2003
NEENAH, WISCONSIN 54957-2003
CONTACT PHONE NUMBER: (920) 721-1065
WWTP OPERATOR PHONE NUMBER: (920) 721-1049 Daily 7am - 3pm
FAX NUMBER: 678-784-7261
PURCHASE ORDER: ~~333443830~~ Exp. 2-28-2016

DESTINATION/TESTING LAB INFORMATION

LAB NAME AND ADDRESS: BADGER LABS AND ENGINEERING
501 WEST BELL STREET
NEENAH, WISCONSIN 54957-1392
LAB PHONE NUMBER: (920) 729-1100
LAB CONTACT PERSON: JEFF WAGNER

Sampled by: Signature	Date	Time	Sample Type		Preservation	Sample ID (must match sample label)	Analyte
			Grab	Comp			
	7-20-16	10:30	X		None	Neenah Sludge	TCLP
	7-20-16	11:10	X		None	Appleton Sludge	TCLP

Relinquished by: (signature) Date: 7-20-16 Time: 12:15 Neenah Paper

Delivered to: (signature) Date: 7-20-16 Time: 12:15 Badger Labs

RETURN THIS FORM WITH TEST RESULTS

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR TOXICITY CHARACTERISTIC

Contaminant	Regulatory Level (mg/l.)
Arsenic	5.0
Barium	100.0
Benzene	0.5
Cadmium	1.0
Carbon tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
Chromium	5.0
o-Cresol	200.0
m-Cresol	200.0
p-Cresol	200.0
Cresol	200.0
2-4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-dinitrotoluene	0.13
Endrin	0.02
Heptachlor (and its hydroxide)	0.008
Hexachlorobenzene	0.13
Hexachloro-1,3-butadiene	0.5
Hexachloroethane	3.0
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachloroophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichloroophenol	400.0
2,4,6-Trichloroophenol	2.0
2,4,5-TP (Silvex)	1.0
Vinyl chloride	0.2



Outagamie County Recycling & Solid Waste
Brown Outagamie Winnebago Counties
SPECIAL WASTE DISPOSAL APPLICATION

A. Generator Information

Name Neenah Paper - Neenah Mill
Contact Person Steve Hagglund
Email Address steven.hagglund@neenah.com
Phone Number 920-721-1065
Site Address (where material is generated)
135 North Commercial St.
Neenah, WI 54956

B. Billing Information

(In order to be billed, you must fill out a credit application)

Name Neenah Paper - Accounts Payable
Contact Person Jennifer Healy
Email Address jennifer.healy@neenah.com
Phone 920-738-8380
Fax Number 920-721-1332
Billing Address
1376 Kimberly Drive
Neenah, WI 54956

C. Consultant Information

Name _____
Contact Person _____
Email Address _____
Phone Number _____
Fax Number _____
Address _____

D. Hauler Information

Name Vans Waste
Contact Person Jeff Vander Heiden
Phone Number 920-681-2632
Address 12061 Vandenberg Road
Kaukauna, WI 54130

E. Waste Information

Waste Name Paper Mill Sludge
Process Used to Generate Waste Paper Making
Waste Category Number _____
Total Anticipated Waste Volume (include units) 3265 ton/yr
Frequency of Disposal 4x/week
Name of Lab Performing Analysis Badger Labs
Date of Most Recent Analysis 8-1-16
Physical State @ 25°C solid
Color Varies Odor Varies/none
Comments _____

*For all waste types, attach available pertinent documents, MSDSs, technical bulletins, etc. List attachments here:

Lab results

F. Generator Warranty

The generator warrants, represents, and certifies that this waste is not hazardous waste as specified by NR600 or 40CFR261, that this material does not contain more than 50 ppm of PCB materials, and that this information is representative of the waste.

Generator's Signature _____ Title _____ Date _____

Instructions:

For Category A, B, and, C Wastes: Complete Section I

For Category D Wastes: Complete Section II

For Category E Wastes: Complete Section III

Outagamie County Internal Use Only:

- ☐ BC Customer
☐ OC Customer
☐ WC Customer

Section I

For Category A, B, and C Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
% Solids	≥ 40% (A&B) ≥ 20% (C)	36
% Free Liquids (paint filter test)	0%	0
Flash Point	> 140°F	7170
pH	2.0 ≤ pH ≤ 12.5	7.7
Total available sulfide	<500 mg/kg	36.4
Total available cyanide	<250 mg/kg	0.095
Arsenic	< 5.0	< 0.005
Barium	< 100.0	0.30
Cadmium	< 1.0	< 0.01
Chromium	< 5.0	< 0.02
Lead	< 5.0	< 0.03
Mercury	< 0.2	< 0.0002
Selenium	< 1.0	< 0.009
Silver	< 5.0	0.02
% Chlorine	< 1%	< 0.02
Phenol	< 2000	< 0.05
Benzene	< 0.5	ND
Carbon tetrachloride	< 0.5	ND
Chlorobenzene	< 100.0	ND
Chloroform	< 6.0	ND
Cresol	< 200.0	ND
1,4-Dichlorobenzene	< 7.5	ND
1,2-Dichloroethane	< 0.5	ND
1,1-Dichloroethylene	< 0.7	ND
2,4-Dinitrotoluene	< 0.3	ND
Hexachlorobenzene	< 0.13	ND
Hexachlorobutadiene	< 0.5	ND
Hexachloroethane	< 3.0	ND
Methyl ethyl ketone	< 200.0	ND
Nitrobenzene	< 2.0	ND
Pentachlorophenol	< 100.0	ND
Pyridine	< 5.0	ND
Tetrachloroethylene	< 0.7	ND
Trichloroethylene	< 0.5	ND
2,4,5-Trichlorophenol	< 400.0	ND
2,4,6-Trichlorophenol	< 2.0	ND
Vinyl Chloride	< 0.2	ND

For Category B and C Wastes, complete the following and attach laboratory report:

PCB (Arochlor 1016, 1221, 1232, 1242, 1248, 1254, 1260)

Section II

For Category D Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level	Lab Result
a. All Soils		
Lead	Total <100 mg/kg or TCLP <5 mg/l	
b. Gasoline or Diesel		
(analyze all parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Benzene	Total <10 mg/kg Or TCLP <0.5 mg/l	
c. Waste Oil or Unknown Petroleum Waste		
(analyze all parameters in a., plus the following):		
DRO	<2000 ppm	
or GRO	<2000 ppm	
Cadmium	Total <20 mg/kg Or TCLP <1 mg/l	

Section III

For Category E Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
pH	2.0 ≤ pH ≤ 12.5	
% Solids	≥ 20%	
% Free liquids	0%	
TCLP metals		
Arsenic	< 5.0	
Barium	< 100.0	
Cadmium	< 1.0	
Chromium	< 5.0	
Lead	< 5.0	
Mercury	< 0.2	
Selenium	< 1.0	
Silver	< 5.0	
Total available sulfide	< 500 mg/kg	

Section IV

For Category F Wastes, include the following information and attach MSDS(s), technical bulletin(s), or other pertinent information regarding the waste stream. Indicate the waste type, the source of the waste stream, the reason for disposal, the physical state of the material, and describe the process from which the waste was generated.

August 01, 2016

Badger Laboratories & Engineering, Inc.

Sample Delivery Group: L848569

Samples Received: 07/21/2016

Project Number:

Description:

Report To: Jeff Wagner
501 West Bell Street
Neenah, WI 54956

Entire Report Reviewed By:



John Hawkins
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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ONE LAB. NATIONWIDE.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE



18555 L848569-01 Solid

Collected by
Collected date/time
07/20/16 00:00
Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Polychlorinated Biphenyls (GC) by Method 8082	WG891275	1.5	07/22/16 00:44	07/22/16 18:36	LKD
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ

18555 L848569-02 Waste

Collected by
Collected date/time
07/20/16 00:00
Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG892468	1	07/26/16 12:37	07/26/16 12:38	BG
Preparation by Method 1311	WG892919	1	07/27/16 10:32	07/27/16 10:33	BG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG893216	1	07/28/16 21:14	07/29/16 15:09	JF
Volatile Organic Compounds (GC/MS) by Method 8260B	WG892961	1	07/28/16 00:59	07/28/16 00:59	ACG
Wet Chemistry by Method D93/1010A	WG891428	1	07/22/16 12:20	07/22/16 12:20	MZ

18556 L848569-03 Solid

Collected by
Collected date/time
07/20/16 00:00
Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Polychlorinated Biphenyls (GC) by Method 8082	WG891275	1.5	07/22/16 00:44	07/22/16 18:48	LKD
Total Solids by Method 2540 G-2011	WG892868	1	07/27/16 09:17	07/27/16 09:27	MEL
Wet Chemistry by Method 9030B	WG893594	1	07/28/16 19:00	07/28/16 20:10	JLJ

18556 L848569-04 Waste

Collected by
Collected date/time
07/20/16 00:00
Received date/time
07/21/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG892468	1	07/26/16 12:37	07/26/16 12:38	BG
Preparation by Method 1311	WG892919	1	07/27/16 10:32	07/27/16 10:33	BG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG893216	1	07/28/16 21:14	07/29/16 15:32	SNR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG892961	1	07/28/16 03:15	07/28/16 03:15	ACG
Wet Chemistry by Method D93/1010A	WG891428	1	07/22/16 12:20	07/22/16 12:20	MZ

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

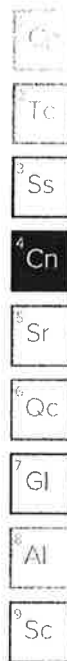
CASE NARRATIVE

ONE LAB, NATIONWIDE



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative



18555

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 01

L848569

ONE LAB, NATIONWIDE



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	39.8		1	07/27/2016 09:27	WG892868

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	36.4		25.0	1	07/28/2016 20:10	WG893594

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
PCB 1016	ND	J3	0.0176	1.5	07/22/2016 18:36	WG891275
PCB 1221	ND		0.0269	1.5	07/22/2016 18:36	WG891275
PCB 1232	ND		0.0209	1.5	07/22/2016 18:36	WG891275
PCB 1242	ND		0.0159	1.5	07/22/2016 18:36	WG891275
PCB 1248	ND		0.0158	1.5	07/22/2016 18:36	WG891275
PCB 1254	ND		0.0236	1.5	07/22/2016 18:36	WG891275
PCB 1260	ND	J3	0.0248	1.5	07/22/2016 18:36	WG891275
(S) Decachlorobiphenyl	59.0		10.0-143		07/22/2016 18:36	WG891275
(S) Tetrachloro-m-xylene	76.7		29.2-144		07/22/2016 18:36	WG891275

Ct

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

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SAMPLE RESULTS - 02

LB48569

ONE LAB. NATIONWIDE.



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		7/27/2016 10:32:03 AM	WG892919
TCLP ZHE Extraction	-		7/26/2016 12:37:09 PM	WG892468

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	DNI at 170 F		1	07/22/2016 12:20	WG891428

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Benzene	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Carbon tetrachloride	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Chlorobenzene	ND		0.0500	100	1	07/28/2016 00:59	WG892961
Chloroform	ND		0.250	6	1	07/28/2016 00:59	WG892961
1,2-Dichloroethane	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
1,1-Dichloroethene	ND		0.0500	0.70	1	07/28/2016 00:59	WG892961
2-Butanone (MEK)	ND		0.500	200	1	07/28/2016 00:59	WG892961
Tetrachloroethene	ND		0.0500	0.70	1	07/28/2016 00:59	WG892961
Trichloroethene	ND		0.0500	0.50	1	07/28/2016 00:59	WG892961
Vinyl chloride	ND		0.0500	0.20	1	07/28/2016 00:59	WG892961
(S) Toluene-d8	107		90.0-115	114		07/28/2016 00:59	WG892961
(S) Dibromofluoromethane	104		79.0-121	125		07/28/2016 00:59	WG892961
(S) a,a,a-Trifluorotoluene	105		90.4-116	114		07/28/2016 00:59	WG892961
(S) 4-Bromofluorobenzene	101		80.1-120	128		07/28/2016 00:59	WG892961

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
1,4-Dichlorobenzene	ND		0.100	7.50	1	07/29/2016 15:09	WG893216
2,4-Dinitrotoluene	ND		0.100	0.13	1	07/29/2016 15:09	WG893216
Hexachlorobenzene	ND		0.100	0.13	1	07/29/2016 15:09	WG893216
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	07/29/2016 15:09	WG893216
Hexachloroethane	ND		0.100	3	1	07/29/2016 15:09	WG893216
Nitrobenzene	ND		0.100	2	1	07/29/2016 15:09	WG893216
Pyridine	ND		0.100	5	1	07/29/2016 15:09	WG893216
3&4-Methyl Phenol	ND		0.100	400	1	07/29/2016 15:09	WG893216
2-Methylphenol	ND		0.100	200	1	07/29/2016 15:09	WG893216
Pentachlorophenol	ND		0.100	100	1	07/29/2016 15:09	WG893216
2,4,5-Trichlorophenol	ND		0.100	400	1	07/29/2016 15:09	WG893216
2,4,6-Trichlorophenol	ND		0.100	2	1	07/29/2016 15:09	WG893216
(S) 2-Fluorophenol	53.4		10.0-77.9	87		07/29/2016 15:09	WG893216
(S) Phenol-d5	36.8		5.00-70.1	67		07/29/2016 15:09	WG893216
(S) Nitrobenzene-d5	64.3		21.8-123	120		07/29/2016 15:09	WG893216
(S) 2-Fluorobiphenyl	71.3		29.5-131	122		07/29/2016 15:09	WG893216
(S) 2,4,6-Tribromophenol	99.2		11.2-130	148		07/29/2016 15:09	WG893216
(S) p-Terphenyl-d14	87.6		29.3-137	149		07/29/2016 15:09	WG893216

ACCOUNT:

Badger Laboratories & Engineering, Inc.

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SAMPLE RESULTS - 03

L848569

ONE LAB. NATIONWIDE



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	38.5		1	07/27/2016 09:27	WG892868

Wet Chemistry by Method 9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	73.0		25.0	1	07/28/2016 20:10	WG893594

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
PCB 1016	ND	J3	0.0176	1.5	07/22/2016 18:48	WG891275
PCB 1221	ND		0.0269	1.5	07/22/2016 18:48	WG891275
PCB 1232	ND		0.0209	1.5	07/22/2016 18:48	WG891275
PCB 1242	ND		0.0159	1.5	07/22/2016 18:48	WG891275
PCB 1248	ND		0.0158	1.5	07/22/2016 18:48	WG891275
PCB 1254	ND		0.0236	1.5	07/22/2016 18:48	WG891275
PCB 1260	ND	J3	0.0248	1.5	07/22/2016 18:48	WG891275
(S) Decachlorobiphenyl	67.3		10.0-143		07/22/2016 18:48	WG891275
(S) Tetrachloro-m-xylene	91.3		29.2-144		07/22/2016 18:48	WG891275

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

18556

Collected date/time: 07/20/16 00:00

SAMPLE RESULTS - 04

L848569

ONE LAB. NATIONWIDE



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction			7/27/2016 10:32:03 AM	WG892919
TCLP ZHE Extraction			7/26/2016 12:37:09 PM	WG892468

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Deg. F				
	DNI at 170 F		1	07/22/2016 12:20	WG891428

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Benzene	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Carbon tetrachloride	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Chlorobenzene	ND		0.0500	100	1	07/28/2016 03:15	WG892961
Chloroform	ND		0.250	6	1	07/28/2016 03:15	WG892961
1,2-Dichloroethane	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
1,1-Dichloroethene	ND		0.0500	0.70	1	07/28/2016 03:15	WG892961
2-Butanone (MEK)	ND		0.500	200	1	07/28/2016 03:15	WG892961
Tetrachloroethene	ND		0.0500	0.70	1	07/28/2016 03:15	WG892961
Trichloroethene	ND		0.0500	0.50	1	07/28/2016 03:15	WG892961
Vinyl chloride	ND		0.0500	0.20	1	07/28/2016 03:15	WG892961
(S) Toluene-d8	107		90.0-115	114		07/28/2016 03:15	WG892961
(S) Dibromofluoromethane	103		79.0-121	125		07/28/2016 03:15	WG892961
(S) a,a,a-Trifluorotoluene	105		90.4-116	114		07/28/2016 03:15	WG892961
(S) 4-Bromofluorobenzene	103		80.1-120	128		07/28/2016 03:15	WG892961

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
1,4-Dichlorobenzene	ND		0.100	7.50	1	07/29/2016 15:32	WG893216
2,4-Dinitrotoluene	ND		0.100	0.13	1	07/29/2016 15:32	WG893216
Hexachlorobenzene	ND		0.100	0.13	1	07/29/2016 15:32	WG893216
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	07/29/2016 15:32	WG893216
Hexachloroethane	ND		0.100	3	1	07/29/2016 15:32	WG893216
Nitrobenzene	ND		0.100	2	1	07/29/2016 15:32	WG893216
Pyridine	ND		0.100	5	1	07/29/2016 15:32	WG893216
3&4-Methyl Phenol	ND		0.100	400	1	07/29/2016 15:32	WG893216
2-Methylphenol	ND		0.100	200	1	07/29/2016 15:32	WG893216
Pentachlorophenol	ND		0.100	100	1	07/29/2016 15:32	WG893216
2,4,5-Trichlorophenol	ND		0.100	400	1	07/29/2016 15:32	WG893216
2,4,6-Trichlorophenol	ND		0.100	2	1	07/29/2016 15:32	WG893216
(S) 2-Fluorophenol	44.9		10.0-77.9	87		07/29/2016 15:32	WG893216
(S) Phenol-d5	32.4		5.00-70.1	67		07/29/2016 15:32	WG893216
(S) Nitrobenzene-d5	53.8		21.8-123	120		07/29/2016 15:32	WG893216
(S) 2-Fluorobiphenyl	66.3		29.5-131	122		07/29/2016 15:32	WG893216
(S) 2,4,6-Tribromophenol	88.4		11.2-130	148		07/29/2016 15:32	WG893216
(S) p-Terphenyl-d14	85.6		29.3-137	149		07/29/2016 15:32	WG893216

ACCOUNT:

Badger Laboratories & Engineering, Inc.

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WG892868

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L848569-01,03

ONE LAB, NATIONWIDE.



Method Blank (MB)

(MB) R3152777-1 07/27/16 09:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000200			

L848956-01 Original Sample (OS) • Duplicate (DUP)

(OS) L848956-01 07/27/16 09:27 • (DUP) R3152777-3 07/27/16 09:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Total Solids	67.2	67.5	1	0.498	5	

Laboratory Control Sample (LCS)

(LCS) R3152777-2 07/27/16 09:27

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG893594

Wet Chemistry by Method 9030B

QUALITY CONTROL SUMMARY

L848569-01.03

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) WG893594-1 07/28/16 20:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Sulfide	U		7.63	25.0

L848577-03 Original Sample (OS) • Duplicate (DUP)

(OS) L848577-03 07/28/16 20:10 • (DUP) WG893594-4 07/28/16 20:10

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	61.0	66.0	1	7.87		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG893594-2 07/28/16 20:10 • (LCSD) WG893594-3 07/28/16 20:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Sulfide	100	79.0	72.8	79.0	72.8	70.0-130			8.17	20

1
Co2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG891428

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

L848569-02.04

L848569-02 Original Sample (OS) • Duplicate (DUP)

(OS) L848569-02 07/22/16 12:20 • (DUP) WG891428-3 07/22/16 12:20

Analyte	Original Result Deg. F	DUP Result Deg. F	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Ignitability	DNI at 170 F	DNI at 170 F	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG891428-1 07/22/16 12:20 • (LCSD) WG891428-2 07/22/16 12:20

Analyte	Spike Amount Deg. F	LCS Result Deg. F	LCSD Result Deg. F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ignitability	82.0	82.9	82.9	101	101	93.0-107			0.000	20

1
Cd2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L848569-02.04

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3152874-3 07/27/16 23:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	108			90.0-115
(S) Dibromofluoromethane	102			79.0-121
(S) o,a,o-Trifluorotoluene	105			90.4-116
(S) 4-Bromofluorobenzene	103			80.1-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3152874-1 07/27/16 21:44 • (LCSD) R3152874-2 07/27/16 22:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0228	0.0227	91.2	90.9	73.0-122			0.300	20
Carbon tetrachloride	0.0250	0.0243	0.0235	97.2	93.9	70.9-129			3.48	20
Chlorobenzene	0.0250	0.0250	0.0246	99.8	98.6	79.7-122			1.24	20
Chloroform	0.0250	0.0235	0.0236	94.1	94.5	73.2-125			0.390	20
1,2-Dichloroethane	0.0250	0.0251	0.0253	100	101	65.3-126			0.890	20
1,1-Dichloroethene	0.0250	0.0240	0.0239	95.8	95.8	60.6-133			0.0200	20
2-Butanone (MEK)	0.125	0.126	0.124	101	98.9	46.4-155			1.74	20
Tetrachloroethene	0.0250	0.0242	0.0244	96.7	97.5	73.5-130			0.900	20
Trichloroethene	0.0250	0.0251	0.0248	101	99.1	79.5-121			1.52	20
Vinyl chloride	0.0250	0.0264	0.0261	105	105	61.5-134			0.900	20
(S) Toluene-d8				107	106	90.0-115				
(S) Dibromofluoromethane				107	105	79.0-121				
(S) o,a,o-Trifluorotoluene				105	106	90.4-116				
(S) 4-Bromofluorobenzene				102	101	80.1-120				

ACCOUNT:

Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:

L848569

DATE/TIME:

08/01/16 15:33

PAGE:

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Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG892961

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L848569-02,04

ONE LAB. NATIONWIDE.



L848569-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L848569-02 07/28/16 00:59 • (MS) R3152874-4 07/27/16 23:21 • (MSD) R3152874-5 07/27/16 23:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	ND	1.23	1.29	98.1	103	1	58.6-133			4.96	20
Carbon tetrachloride	1.25	ND	1.22	1.34	97.9	107	1	60.6-139			8.78	20
Chlorobenzene	1.25	ND	1.36	1.42	109	114	1	70.1-130			4.57	20
Chloroform	1.25	ND	1.28	1.35	102	108	1	66.1-133			5.08	20
1,2-Dichloroethane	1.25	ND	1.34	1.39	107	111	1	60.7-132			3.94	20
1,1-Dichloroethene	1.25	ND	1.30	1.36	104	109	1	48.8-144			4.47	20
2-Butanone (MEK)	6.25	ND	4.95	5.23	74.9	79.3	1	45.0-156			5.47	20.8
Tetrachloroethene	1.25	ND	1.33	1.38	106	111	1	57.4-141			3.92	20
Trichloroethene	1.25	ND	1.36	1.42	109	114	1	48.9-148			4.13	20
Vinyl chloride	1.25	ND	1.28	1.36	102	109	1	44.3-143			6.01	20
(S) Toluene-d8					108	107		90.0-115				
(S) Dibromofluoromethane					106	105		79.0-121				
(S) o,a,a-Trifluorotoluene					106	104		90.4-116				
(S) 4-Bromofluorobenzene					101	101		80.1-120				

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG891275

Polychlorinated Biphenyls (GC) by Method 8082

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE



L848569-01.03

Method Blank (MB)

(MB) R3151699-1 07/22/16 09:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0117
PCB 1221	U		0.00537	0.0179
PCB 1232	U		0.00417	0.0139
PCB 1242	U		0.00318	0.0106
PCB 1248	U		0.00315	0.0105
PCB 1254	U		0.00472	0.0157
PCB 1260	U		0.00494	0.0165
(S) Decachlorobiphenyl	87.0			10.0-143
(S) Tetrachloro-m-xylene	91.7			29.2-144

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

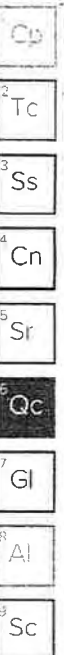
(LCS) R3151699-2 07/22/16 09:16 • (LCSD) R3151699-3 07/22/16 09:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.124	0.166	74.5	99.6	46.5-120		J3	28.8	27
PCB 1016	0.167	0.111	0.150	66.5	89.7	46.3-117		J3	29.8	27.5
(S) Decachlorobiphenyl				89.7	100	10.0-143				
(S) Tetrachloro-m-xylene				96.8	102	29.2-144				

L848452-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L848452-01 07/22/16 19:00 • (MS) R3151699-4 07/22/16 19:13 • (MSD) R3151699-5 07/22/16 19:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.139	0.147	83.2	88.0	1	24.6-127			5.67	20
PCB 1016	0.167	ND	0.180	0.215	86.2	103	1	23.9-147			18.0	25.8
(S) Decachlorobiphenyl					66.4	74.2		10.0-143				
(S) Tetrachloro-m-xylene					84.4	87.0		29.2-144				



WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L848569-02.04

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3153267-3 07/29/16 12:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) Nitrobenzene-d5	58.2			21.8-123
(S) 2-Fluorobiphenyl	72.2			29.5-131
(S) p-Terphenyl-d14	83.1			29.3-137
(S) Phenol-d5	34.8			5.00-70.1
(S) 2-Fluorophenol	50.0			10.0-77.9
(S) 2,4,6-Tribromophenol	80.7			11.2-130

Cp

2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.0500	0.0293	0.0318	58.7	63.6	21.0-89.4			7.97	32.6
2,4-Dinitrotoluene	0.0500	0.0423	0.0426	84.7	85.3	31.2-105			0.660	22
Hexachlorobenzene	0.0500	0.0412	0.0444	82.4	88.8	38.5-116			7.45	20.1
Hexachloro-1,3-butadiene	0.0500	0.0365	0.0394	73.0	78.7	16.1-104			7.52	31.2
Hexachloroethane	0.0500	0.0267	0.0300	53.5	60.1	16.5-89.8			11.6	30.7
Nitrobenzene	0.0500	0.0287	0.0325	57.4	65.0	31.4-106			12.5	25.7
Pyridine	0.0500	0.00859	0.00948	17.2	19.0	13.5-58.9			9.83	32.5
2-Methylphenol	0.0500	0.0267	0.0284	53.4	56.9	26.4-86.9			6.29	26.5
3&4-Methyl Phenol	0.0500	0.0296	0.0317	59.2	63.5	27.9-92.0			7.02	27
Pentachlorophenol	0.0500	0.0352	0.0376	70.4	75.1	10.0-97.4			6.45	35.1
2,4,5-Trichlorophenol	0.0500	0.0417	0.0445	83.5	89.1	34.9-112			6.51	23.9
2,4,6-Trichlorophenol	0.0500	0.0389	0.0435	77.8	87.1	29.8-107			11.3	24.1
(S) Nitrobenzene-d5				67.1	70.8	21.8-123				
(S) 2-Fluorobiphenyl				77.8	80.3	29.5-131				
(S) p-Terphenyl-d14				90.1	91.9	29.3-137				

WG893216

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L848569-02.04

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3153267-1 07/29/16 11:15 • (LCSD) R3153267-2 07/29/16 11:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Phenol-d5				37.2	39.8	5.00-70.1				
(S) 2-Fluorophenol				52.1	58.0	10.0-77.9				
(S) 2,4,6-Tribromophenol				100	101	11.2-130				

L849237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L849237-01 07/29/16 16:53 • (MS) R3153267-4 07/29/16 17:16 • (MSD) R3153267-5 07/29/16 17:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.278	0.271	55.6	54.3	1	14.0-104			2.34	36.4
2,4-Dinitrotoluene	0.500	ND	0.414	0.402	82.8	80.4	1	16.2-135			2.93	20.6
Hexachlorobenzene	0.500	ND	0.423	0.411	84.6	82.3	1	31.9-135			2.84	20
Hexachloro-1,3-butadiene	0.500	ND	0.353	0.328	70.6	65.5	1	15.7-109			7.47	37.6
Hexachloroethane	0.500	ND	0.257	0.256	51.3	51.2	1	10.4-105			0.230	40
Nitrobenzene	0.500	ND	0.275	0.269	54.9	53.7	1	23.1-121			2.26	29
Pyridine	0.500	ND	0.0989	0.103	19.8	20.5	1	10.0-77.8			3.74	38.8
2-Methylphenol	0.500	ND	0.257	0.252	51.4	50.5	1	10.0-133			1.74	40
3&4-Methyl Phenol	0.500	ND	0.295	0.288	59.0	57.6	1	17.4-100			2.49	27.7
Pentachlorophenol	0.500	ND	0.375	0.375	75.0	74.9	1	10.0-108			0.0700	40
2,4,5-Trichlorophenol	0.500	ND	0.415	0.421	83.0	84.3	1	30.6-120			1.53	33.8
2,4,6-Trichlorophenol	0.500	ND	0.390	0.409	78.0	81.8	1	19.1-114			4.66	29.9
(S) Nitrobenzene-d5					62.0	57.7		21.8-123				
(S) 2-Fluorobiphenyl					72.2	69.0		29.5-131				
(S) p-Terphenyl-d14					87.8	82.8		29.3-137				
(S) Phenol-d5					36.3	34.6		5.00-70.1				
(S) 2-Fluorophenol					49.2	48.0		10.0-77.9				
(S) 2,4,6-Tribromophenol					99.6	98.2		11.2-130				

ACCOUNT:

Badger Laboratories & Engineering, Inc.

PROJECT:

SDG:

L848569

DATE/TIME:

08/01/16 15:33

PAGE:

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Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

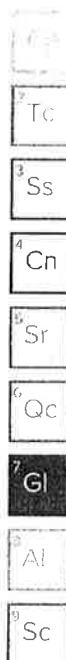
9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.



ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA	100789
A2LA - ISO 17025 ³	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ¹⁴ Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**





BADGER LABORATORIES & ENGINEERING INC.

501 WEST BELL STREET • NEENAH, WISCONSIN 54956-4868 • EST. 1966

(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

NEENAH PAPER INC-NEENAH MILL
135 N COMMERCIAL ST
NEENAH, WI 54956-

Report Number: 16008170
Report Date: 8/10/2016
Sampled By: Client
Emailed: 8/10/16

Attn: MR. STEVEN HAGGLUND

PO#: 333242966
Samples: 2

Sample Number: 46018555
Description: NEENAH SLUDGE
Sample Date: 7/20/2016
Date Received: 7/20/2016

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
CHLORINE	<0.02	%	0.02	0.02		SW-846-5050	08/04/16	
CYANIDE, TOTAL	0.098	ppm	0.086	0.286	12	EPA335.4	07/25/16	
CYANIDE-AM. TO CL2	0.098	ppm	0.086	0.286	12	SM4500CN-G	07/26/16	
FLASH POINT	--SEE ATTACHED ESC REPORT--							
FREE LIQUIDS	0.0	%	0	0		SW 846 9095	08/03/16	
METALS DIGESTION	DONE		0	0		SM3030E	07/22/16	
PCB, TOTAL	--SEE ATTACHED ESC REPORT--							
PHENOL, TOTAL	<0.05	mg/l	0.05	0.17	1	EPA420.4	08/08/16	
pH-LAB	7.7	S.U.	0	0		SW846-9045C	07/21/16	
SULFIDE	--SEE ATTACHED ESC REPORT--							
TCLP ARSENIC	<0.005	mg/l	0.005	0.017	5	SM3113B	07/26/16	
TCLP BARIUM	0.30	mg/l	0.03	0.08	1	SM3111D	07/28/16	
TCLP CADMIUM	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TCLP CHROMIUM	<0.02	mg/l	0.02	0.06	1	SM3111B	07/27/16	
TCLP EXTRACTION	DONE		0	0		SW846-1311	07/22/16	
TCLP LEAD	<0.03	mg/l	0.03	0.10	1	SM3111B	07/27/16	
TCLP MERCURY	<0.0002	mg/l	0.0002	0.0008	1	SM3112B	07/26/16	
TCLP ORGANICS	--SEE ATTACHED ESC REPORT--							
TCLP SELENIUM	<0.009	mg/l	0.009	0.030	5	SM3113B	07/26/16	
TCLP SILVER	0.02	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TOTAL SOLIDS	36.0	%	0.010	0.010		SM2540B	07/25/16	

WI DNR Certified Lab #445023150
WI Reg. Engineers (Corp.) #CE00601
WI DATCP Certified #205 (Bacteria-Water)

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(920) 729-1100 • FAX (920) 729-4945 • 1-800-776-7196

Sample Number: 46018556
Description: APPLETON SLUDGE
Sample Date: 7/20/2016
Date Received: 7/20/2016

Parameter	Results	Units	LOD	LOQ	Dil.	Method	Analyzed	Codes
CHLORINE	<0.02	%	0.02	0.02		SW-846-5050	08/04/16	
CYANIDE, TOTAL	<0.086	ppm	0.086	0.286	12	EPA335.4	07/25/16	
CYANIDE-AM. TO CL2	<0.086	ppm	0.086	0.286	12	SM4500CN-G	07/25/16	
FLASH POINT	--SEE ATTACHED ESC REPORT--							
FREE LIQUIDS	0.0	%	0	0		SW 846 9095	08/03/16	
METALS DIGESTION	DONE		0	0		SM3030E	07/22/16	
PCB, TOTAL	--SEE ATTACHED ESC REPORT--							
PHENOL, TOTAL	0.06	mg/l	0.05	0.17	1	EPA420.4	08/08/16	
pH-LAB	7.0	S.U.	0	0		SW846-9045C	07/21/16	
SULFIDE	--SEE ATTACHED ESC REPORT--							
TCLP ARSENIC	<0.005	mg/l	0.005	0.017	5	SM3113B	07/26/16	
TCLP BARIUM	0.17	mg/l	0.03	0.08	1	SM3111D	07/28/16	
TCLP CADMIUM	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TCLP CHROMIUM	<0.02	mg/l	0.02	0.06	1	SM3111B	07/27/16	
TCLP EXTRACTION	DONE		0	0		SW846-1311	07/22/16	
TCLP LEAD	<0.03	mg/l	0.03	0.10	1	SM3111B	07/27/16	
TCLP MERCURY	<0.0002	mg/l	0.0002	0.0008	1	SM3112B	07/26/16	
TCLP ORGANICS	--SEE ATTACHED ESC REPORT--							
TCLP SELENIUM	<0.009	mg/l	0.009	0.030	5	SM3113B	07/26/16	
TCLP SILVER	<0.01	mg/l	0.01	0.03	1	SM3111B	07/27/16	
TOTAL SOLIDS	39.5	%	0.010	0.010		SM2540B	07/25/16	

All LOD/LOQs adjusted for dilution and/or solids content.

BADGER LABS & ENGINEERING
WDNR Certified Lab #445023150
Approved By:

JMW:rt

ENGINEERS

501 WEST BELL STREET - NEENAH, WISCONSIN 54956-4868 - EST. 1966
(920) 729-1100 - Fax (920) 729-4945 - 1-800-776-7196

16008170

CLIENT INFORMATION

COMPANY: *Neenah Paper*

NAME: _____

ADDRESS: _____

FAX/PHONE/EMAIL: _____

P.O. #: _____

PROJECT/SITE: _____

REPORT & BILL TO: _____

ADDITIONAL REPORTS TO: _____

☒ Normal
☐ Other TAT*

***REQUIRES PRIOR LAB APPROVAL**

- ☐ Groundwater
- ☐ Wastewater
- ☐ WPDES
- ☐ Cooling Water
- ☐ Drinking Water
- ☐ Solid Waste
- ☐ Oil
- ☐ Other

- ☐ Lab Filtered
- ☐ Field Filtered
- ☐ Grab
- ☐ Composite
- ☐ Flow Proportional
- ☐ Time Proportional

[illegible]

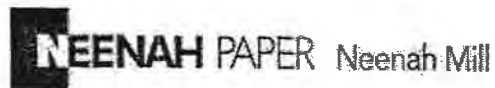
FILLED IN BY CUSTOMER SAMPLED BY: <u>[Signature]</u> DATE/TIME SAMPLED: _____ RELINQUISHED BY: _____	FILLED IN BY BADGER LABS & ENG RECEIVED BY: <u>[Signature]</u> DATE/TIME RECEIVED: <u>4-11-23 20:16</u> LOGGED IN: <u>[Signature]</u>	
---	--	--

* Temperature over 6°C are above EPA/DNR Protocol unless marked as low

* Temperature over 6°C are above EPA/DNR Protocol unless received on ice.

* EP= If pH was not correct, extra preservation was added until correct pH was achieved; H2SO4/HNO3 adjusted to pH <2.0; NaOH >12.0 * PIF= Preserved in field.
* PIL= Preserved in lab.

* PIF= Preserved in field.
* PIL= Preserved in lab.



NEENAH PAPER WWTP SAMPLE
CHAIN OF CUSTODY RECORD

SAMPLE(S) SOURCE INFORMATION

NEENAH PAPER CONTACT: STEVEN HAGGLUND
ADDRESS: NEENAH PAPER INC. - NEENAH MILL
135 NORTH COMMERCIAL STREET
P. O. BOX 2003
NEENAH, WISCONSIN 54957-2003
CONTACT PHONE NUMBER: (920) 721-1065
WWTP OPERATOR PHONE NUMBER: (920) 721-1049 Daily 7am - 3pm
FAX NUMBER: 678-784-7261
PURCHASE ORDER: ~~353473050~~ Exp. 12/31/2016

DESTINATION/TESTING LAB INFORMATION

LAB NAME AND ADDRESS: BADGER LABS AND ENGINEERING
501 WEST BELL STREET
NEENAH, WISCONSIN 54957-1392
LAB PHONE NUMBER: (920) 729-1100
LAB CONTACT PERSON: JEFF WAGNER

Sampled by: Signature	Date	Time	Sample Type		Preservation	Sample ID (must match sample label)	Analyte
			Grab	Comp			
	7-20-16	10:30	X		None	Neenah Sludge	TCLP
	7-20-16	11:10	X		None	Appleton Sludge	TCLP

Relinquished by: (signature) Date: 7-20-16 Time: 12:15
Neenah Paper

Delivered to: (signature) Date: 7-20-16 Time: 12:15
Badger Labs

RETURN THIS FORM WITH TEST RESULTS

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR TOXICITY CHARACTERISTIC

Contaminant	Regulatory Level (mg/l.)
Arsenic	5.0
Barium	100.0
Benzene	0.5
Cadmium	1.0
Carbon tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
Chromium	5.0
o-Cresol	200.0
m-Cresol	200.0
p-Cresol	200.0
Cresol	200.0
2-4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-dinitrotoluene	0.13
Endrin	0.02
Heptachlor (and its hydroxide)	0.008
Hexachlorobenzene	0.13
Hexachloro-1,3-butadiene	0.5
Hexachloroethane	3.0
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachloroophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichloroophenol	400.0
2,4,6-Trichloroophenol	2.0
2,4,5-TP (Silvex)	1.0
Vinyl chloride	0.2

February 24, 2017

Mandy Peterson
Veolia ES Industrial Services
501 Eastman Ave
Green Bay, WI 54302

RE: Project: PAPER FINES TESTING
Pace Project No.: 40145698

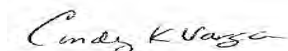
Dear Mandy Peterson:

Enclosed are the analytical results for sample(s) received by the laboratory on February 15, 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.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

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

Sincerely,



Cindy Varga
cindy.varga@pacelabs.com
Project Manager

Enclosures

cc: Jim Delvoye, Proctor & Gamble



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

Alaska Certification UST-107

525 N 8th Street, Salina, KS 67401

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Saipan (CNMI) #:MP0003

South Carolina #:74003001

Texas Certification #: T104704192

Tennessee Certification #: 02818

Utah Certification #: MN000642013-4

Virginia DGS Certification #: 251

Virginia/VELAP Certification #: Pace

Washington Certification #: C486

West Virginia Certification #: 382

West Virginia DHHR #:9952C

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40145698001	PAPER FINES	Solid	02/15/17 11:30	02/15/17 11:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40145698001	PAPER FINES	EPA 8082	BLM	10	PASI-G
		EPA 6010	DLB	10	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 8270	RJN	16	PASI-G
		EPA 8260	HNW	13	PASI-G
		ASTM D2974-87	BTH	1	PASI-G
		EPA 1010	DEY	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 9095	DEY	1	PASI-G
		EPA 420.4	KEO	1	PASI-M
		EPA 9012	DAW	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Sample: PAPER FINES **Lab ID: 40145698001** Collected: 02/15/17 11:30 Received: 02/15/17 11:55 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB Analytical Method: EPA 8082 Preparation Method: EPA 3541									
PCB-1016 (Aroclor 1016)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	12674-11-2	
PCB-1221 (Aroclor 1221)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	11104-28-2	
PCB-1232 (Aroclor 1232)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	11141-16-5	
PCB-1242 (Aroclor 1242)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	53469-21-9	
PCB-1248 (Aroclor 1248)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	12672-29-6	
PCB-1254 (Aroclor 1254)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	11097-69-1	
PCB-1260 (Aroclor 1260)	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	11096-82-5	
PCB, Total	<79.3	ug/kg	159	79.3	1	02/16/17 11:22	02/16/17 20:08	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	73	%	63-130		1	02/16/17 11:22	02/16/17 20:08	877-09-8	
Decachlorobiphenyl (S)	57	%	48-130		1	02/16/17 11:22	02/16/17 20:08	2051-24-3	
6010 MET ICP, TCLP Analytical Method: EPA 6010 Preparation Method: EPA 3010 Leachate Method/Date: EPA 1311; 02/20/17 00:00									
Arsenic	<0.042	mg/L	0.12	0.042	1	02/21/17 14:37	02/22/17 10:35	7440-38-2	
Barium	0.037J	mg/L	0.075	0.025	1	02/21/17 14:37	02/22/17 10:35	7440-39-3	
Cadmium	<0.0066	mg/L	0.025	0.0066	1	02/21/17 14:37	02/22/17 10:35	7440-43-9	
Chromium	<0.013	mg/L	0.050	0.013	1	02/21/17 14:37	02/22/17 10:35	7440-47-3	
Copper	<0.031	mg/L	0.10	0.031	1	02/21/17 14:37	02/22/17 10:35	7440-50-8	
Lead	<0.022	mg/L	0.065	0.022	1	02/21/17 14:37	02/22/17 10:35	7439-92-1	
Nickel	<0.013	mg/L	0.050	0.013	1	02/21/17 14:37	02/22/17 10:35	7440-02-0	
Selenium	<0.083	mg/L	0.25	0.083	1	02/21/17 14:37	02/22/17 10:35	7782-49-2	
Silver	<0.017	mg/L	0.050	0.017	1	02/21/17 14:37	02/22/17 10:35	7440-22-4	
Zinc	0.11J	mg/L	0.20	0.047	1	02/21/17 14:37	02/22/17 10:35	7440-66-6	
7470 Mercury, TCLP Analytical Method: EPA 7470 Preparation Method: EPA 7470 Leachate Method/Date: EPA 1311; 02/20/17 00:00									
Mercury	<0.13	ug/L	0.42	0.13	1	02/23/17 11:05	02/24/17 08:48	7439-97-6	
8270 MSSV TCLP Sep Funnel Analytical Method: EPA 8270 Preparation Method: EPA 3510 Leachate Method/Date: EPA 1311; 02/20/17 00:00									
1,4-Dichlorobenzene	<19.4	ug/L	50.0	19.4	1	02/21/17 08:15	02/21/17 16:59	106-46-7	
2,4-Dinitrotoluene	<10	ug/L	50.0	10	1	02/21/17 08:15	02/21/17 16:59	121-14-2	
Hexachloro-1,3-butadiene	<18.2	ug/L	100	18.2	1	02/21/17 08:15	02/21/17 16:59	87-68-3	
Hexachlorobenzene	<5.7	ug/L	50.0	5.7	1	02/21/17 08:15	02/21/17 16:59	118-74-1	
Hexachloroethane	<14.8	ug/L	50.0	14.8	1	02/21/17 08:15	02/21/17 16:59	67-72-1	
2-Methylphenol(o-Cresol)	<9.6	ug/L	50.0	9.6	1	02/21/17 08:15	02/21/17 16:59	95-48-7	
3&4-Methylphenol(m&p Cresol)	<12.8	ug/L	50.0	12.8	1	02/21/17 08:15	02/21/17 16:59		
Nitrobenzene	<10.3	ug/L	50.0	10.3	1	02/21/17 08:15	02/21/17 16:59	98-95-3	
Pentachlorophenol	<7.5	ug/L	100	7.5	1	02/21/17 08:15	02/21/17 16:59	87-86-5	
Pyridine	<14.6	ug/L	50.0	14.6	1	02/21/17 08:15	02/21/17 16:59	110-86-1	
2,4,5-Trichlorophenol	<7.6	ug/L	50.0	7.6	1	02/21/17 08:15	02/21/17 16:59	95-95-4	
2,4,6-Trichlorophenol	<10.5	ug/L	50.0	10.5	1	02/21/17 08:15	02/21/17 16:59	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	87	%	43-130		1	02/21/17 08:15	02/21/17 16:59	4165-60-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Sample: PAPER FINES **Lab ID: 40145698001** Collected: 02/15/17 11:30 Received: 02/15/17 11:55 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV TCLP Sep Funnel									
Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Leachate Method/Date: EPA 1311; 02/20/17 00:00									
Surrogates									
2-Fluorobiphenyl (S)	80	%	41-130		1	02/21/17 08:15	02/21/17 16:59	321-60-8	
Phenol-d6 (S)	37	%	15-130		1	02/21/17 08:15	02/21/17 16:59	13127-88-3	
2,4,6-Tribromophenol (S)	119	%	42-140		1	02/21/17 08:15	02/21/17 16:59	118-79-6	
8260 MSV TCLP									
Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 02/20/17 00:00									
Benzene	<5.0	ug/L	10.0	5.0	10		02/22/17 15:56	71-43-2	
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		02/22/17 15:56	78-93-3	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		02/22/17 15:56	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		02/22/17 15:56	108-90-7	
Chloroform	<25.0	ug/L	50.0	25.0	10		02/22/17 15:56	67-66-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		02/22/17 15:56	107-06-2	
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		02/22/17 15:56	75-35-4	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		02/22/17 15:56	127-18-4	
Trichloroethene	<3.3	ug/L	10.0	3.3	10		02/22/17 15:56	79-01-6	
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		02/22/17 15:56	75-01-4	
Surrogates									
Toluene-d8 (S)	97	%	70-130		10		02/22/17 15:56	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		10		02/22/17 15:56	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		10		02/22/17 15:56	1868-53-7	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	68.5	%	0.10	0.10	1		02/15/17 17:26		
1010 Flashpoint,Closed Cup									
Analytical Method: EPA 1010									
Flashpoint	>210	deg F			1		02/20/17 15:46		
9040 pH									
Analytical Method: EPA 9040									
pH	7.4	Std. Units	0.10	0.010	1		02/21/17 08:45		1q,H6
9095 Paint Filter Liquid Test									
Analytical Method: EPA 9095									
Free Liquids	Pass	no units			1		02/21/17 11:23		
420.4 Phenolics, Total									
Analytical Method: EPA 420.4 Preparation Method: EPA 420.4									
Phenol	5.1J	ug/L	11.3	3.4	1	02/23/17 09:15	02/24/17 13:44	108-95-2	B
9012 Cyanide, Total									
Analytical Method: EPA 9012 Preparation Method: EPA 9012A									
Cyanide	0.62J	mg/kg	1.5	0.45	1	02/22/17 09:40	02/22/17 13:10	57-12-5	B

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch: 248920 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury TCLP
Associated Lab Samples: 40145698001

METHOD BLANK: 1470352 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	02/24/17 08:20	

METHOD BLANK: 1469072 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	02/24/17 08:52	

METHOD BLANK: 1469390 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	02/24/17 09:20	

LABORATORY CONTROL SAMPLE: 1470353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.5	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1470354 1470355

Parameter	Units	40145633005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.41J	5	5	5.2	5.1	96	93	85-115	3	20	

MATRIX SPIKE SAMPLE: 1470356

Parameter	Units	40145714001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	0.00014J mg/L	5	4.5	88	85-115	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE SAMPLE:		1470357					
Parameter	Units	40145632003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.13	5	4.7	94	85-115	

MATRIX SPIKE SAMPLE:		1470358					
Parameter	Units	40145698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.13	5	4.9	96	85-115	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch:	248763	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET TCLP
Associated Lab Samples:	40145698001		

METHOD BLANK: 1469668 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	02/22/17 10:02	
Barium	mg/L	<0.0050	0.015	02/22/17 10:02	
Cadmium	mg/L	<0.0013	0.0050	02/22/17 10:02	
Chromium	mg/L	<0.0025	0.010	02/22/17 10:02	
Copper	mg/L	<0.0063	0.020	02/22/17 10:02	
Lead	mg/L	<0.0043	0.013	02/22/17 10:02	
Nickel	mg/L	<0.0026	0.010	02/22/17 10:02	
Selenium	mg/L	<0.017	0.050	02/22/17 10:02	
Silver	mg/L	<0.0033	0.010	02/22/17 10:02	
Zinc	mg/L	<0.0093	0.040	02/22/17 10:02	

METHOD BLANK: 1469070 Matrix: Solid
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	02/22/17 10:40	
Barium	mg/L	<0.025	0.075	02/22/17 10:40	
Cadmium	mg/L	<0.0066	0.025	02/22/17 10:40	
Chromium	mg/L	<0.013	0.050	02/22/17 10:40	
Copper	mg/L	<0.031	0.10	02/22/17 10:40	
Lead	mg/L	<0.022	0.065	02/22/17 10:40	
Nickel	mg/L	<0.013	0.050	02/22/17 10:40	
Selenium	mg/L	<0.083	0.25	02/22/17 10:40	
Silver	mg/L	<0.017	0.050	02/22/17 10:40	
Zinc	mg/L	<0.047	0.20	02/22/17 10:40	

LABORATORY CONTROL SAMPLE: 1469669

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.5	0.46	92	80-120	
Barium	mg/L	.5	0.48	97	80-120	
Cadmium	mg/L	.5	0.47	95	80-120	
Chromium	mg/L	.5	0.49	97	80-120	
Copper	mg/L	.5	0.49	98	80-120	
Lead	mg/L	.5	0.47	93	80-120	
Nickel	mg/L	.5	0.47	93	80-120	
Selenium	mg/L	.5	0.45	91	80-120	
Silver	mg/L	.25	0.24	97	80-120	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

LABORATORY CONTROL SAMPLE: 1469669

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Zinc	mg/L	.5	0.49	98	80-120	

MATRIX SPIKE SAMPLE: 1469670

Parameter	Units	40145714001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	92	75-125	
Barium	mg/L	0.096	2.5	2.5	98	75-125	
Cadmium	mg/L	<0.0066	2.5	2.4	95	75-125	
Chromium	mg/L	<0.013	2.5	2.4	97	75-125	
Copper	mg/L	<0.031	2.5	2.5	98	75-125	
Lead	mg/L	<0.022	2.5	2.3	93	75-125	
Nickel	mg/L	0.58	2.5	2.9	91	75-125	
Selenium	mg/L	<0.083	2.5	2.3	93	75-125	
Silver	mg/L	<0.017	1.2	1.2	99	75-125	
Zinc	mg/L	5.3	2.5	7.6	92	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1469671 1469672

Parameter	Units	40145632003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	<0.042	2.5	2.5	2.3	2.3	94	92	75-125	2	20	
Barium	mg/L	0.22	2.5	2.5	2.7	2.6	100	97	75-125	3	20	
Cadmium	mg/L	<0.0066	2.5	2.5	2.5	2.4	99	95	75-125	3	20	
Chromium	mg/L	<0.013	2.5	2.5	2.5	2.4	99	96	75-125	3	20	
Copper	mg/L	<0.031	2.5	2.5	2.6	2.5	102	99	75-125	3	20	
Lead	mg/L	<0.022	2.5	2.5	2.4	2.3	95	92	75-125	3	20	
Nickel	mg/L	0.049J	2.5	2.5	2.4	2.3	95	91	75-125	4	20	
Selenium	mg/L	<0.083	2.5	2.5	2.4	2.3	95	92	75-125	3	20	
Silver	mg/L	<0.017	1.2	1.2	1.3	1.2	102	99	75-125	3	20	
Zinc	mg/L	205	2.5	2.5	214	213	330	292	75-125	0	20 P6	

MATRIX SPIKE SAMPLE: 1469673

Parameter	Units	40145633005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	92	75-125	
Barium	mg/L	0.23	2.5	2.7	99	75-125	
Cadmium	mg/L	<0.0066	2.5	2.4	96	75-125	
Chromium	mg/L	<0.013	2.5	2.4	97	75-125	
Copper	mg/L	<0.031	2.5	2.5	100	75-125	
Lead	mg/L	<0.022	2.5	2.3	92	75-125	
Nickel	mg/L	0.015J	2.5	2.3	92	75-125	
Selenium	mg/L	<0.083	2.5	2.3	93	75-125	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE SAMPLE:		1469673					
Parameter	Units	40145633005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Silver	mg/L	<0.017	1.2	1.3	100	75-125	
Zinc	mg/L	<0.047	2.5	2.5	97	75-125	

MATRIX SPIKE SAMPLE:		1469674					
Parameter	Units	40145698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.2	89	75-125	
Barium	mg/L	0.037J	2.5	2.4	96	75-125	
Cadmium	mg/L	<0.0066	2.5	2.3	93	75-125	
Chromium	mg/L	<0.013	2.5	2.4	97	75-125	
Copper	mg/L	<0.031	2.5	2.5	98	75-125	
Lead	mg/L	<0.022	2.5	2.3	91	75-125	
Nickel	mg/L	<0.013	2.5	2.3	92	75-125	
Selenium	mg/L	<0.083	2.5	2.3	92	75-125	
Silver	mg/L	<0.017	1.2	1.2	97	75-125	
Zinc	mg/L	0.11J	2.5	2.5	98	75-125	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch:	248719	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV TCLP
Associated Lab Samples:	40145698001		

METHOD BLANK: 1469432 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<0.41	1.0	02/22/17 09:12	
1,2-Dichloroethane	ug/L	<0.17	1.0	02/22/17 09:12	
2-Butanone (MEK)	ug/L	<3.0	20.0	02/22/17 09:12	
Benzene	ug/L	<0.50	1.0	02/22/17 09:12	
Carbon tetrachloride	ug/L	<0.50	1.0	02/22/17 09:12	
Chlorobenzene	ug/L	<0.50	1.0	02/22/17 09:12	
Chloroform	ug/L	<2.5	5.0	02/22/17 09:12	
Tetrachloroethene	ug/L	<0.50	1.0	02/22/17 09:12	
Trichloroethene	ug/L	<0.33	1.0	02/22/17 09:12	
Vinyl chloride	ug/L	<0.18	1.0	02/22/17 09:12	
4-Bromofluorobenzene (S)	%	96	70-130	02/22/17 09:12	
Dibromofluoromethane (S)	%	99	70-130	02/22/17 09:12	
Toluene-d8 (S)	%	99	70-130	02/22/17 09:12	

METHOD BLANK: 1469073 Matrix: Solid
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	10.0	02/22/17 12:12	
1,2-Dichloroethane	ug/L	<1.7	10.0	02/22/17 12:12	
2-Butanone (MEK)	ug/L	<29.8	200	02/22/17 12:12	
Benzene	ug/L	<5.0	10.0	02/22/17 12:12	
Carbon tetrachloride	ug/L	<5.0	10.0	02/22/17 12:12	
Chlorobenzene	ug/L	<5.0	10.0	02/22/17 12:12	
Chloroform	ug/L	<25.0	50.0	02/22/17 12:12	
Tetrachloroethene	ug/L	<5.0	10.0	02/22/17 12:12	
Trichloroethene	ug/L	<3.3	10.0	02/22/17 12:12	
Vinyl chloride	ug/L	<1.8	10.0	02/22/17 12:12	
4-Bromofluorobenzene (S)	%	96	70-130	02/22/17 12:12	
Dibromofluoromethane (S)	%	100	70-130	02/22/17 12:12	
Toluene-d8 (S)	%	98	70-130	02/22/17 12:12	

METHOD BLANK: 1469074 Matrix: Solid
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	10.0	02/22/17 11:49	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

METHOD BLANK: 1469074

Matrix: Solid

Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	<1.7	10.0	02/22/17 11:49	
2-Butanone (MEK)	ug/L	<29.8	200	02/22/17 11:49	
Benzene	ug/L	<5.0	10.0	02/22/17 11:49	
Carbon tetrachloride	ug/L	<5.0	10.0	02/22/17 11:49	
Chlorobenzene	ug/L	<5.0	10.0	02/22/17 11:49	
Chloroform	ug/L	<25.0	50.0	02/22/17 11:49	
Tetrachloroethene	ug/L	<5.0	10.0	02/22/17 11:49	
Trichloroethene	ug/L	<3.3	10.0	02/22/17 11:49	
Vinyl chloride	ug/L	<1.8	10.0	02/22/17 11:49	
4-Bromofluorobenzene (S)	%	97	70-130	02/22/17 11:49	
Dibromofluoromethane (S)	%	99	70-130	02/22/17 11:49	
Toluene-d8 (S)	%	100	70-130	02/22/17 11:49	

LABORATORY CONTROL SAMPLE: 1469433

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	50	50.9	102	70-130	
1,2-Dichloroethane	ug/L	50	50.7	101	70-130	
Benzene	ug/L	50	53.7	107	60-135	
Carbon tetrachloride	ug/L	50	52.7	105	70-138	
Chlorobenzene	ug/L	50	51.1	102	70-130	
Chloroform	ug/L	50	49.8	100	70-130	
Tetrachloroethene	ug/L	50	51.7	103	70-138	
Trichloroethene	ug/L	50	52.0	104	70-130	
Vinyl chloride	ug/L	50	52.8	106	49-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			102	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE SAMPLE: 1469437

Parameter	Units	40145632001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	500	516	103	68-136	
1,2-Dichloroethane	ug/L	<1.7	500	507	101	70-130	
2-Butanone (MEK)	ug/L	762		740			
Benzene	ug/L	<5.0	500	540	108	57-138	
Carbon tetrachloride	ug/L	<5.0	500	535	107	70-138	
Chlorobenzene	ug/L	<5.0	500	500	100	70-130	
Chloroform	ug/L	<25.0	500	500	100	70-130	
Tetrachloroethene	ug/L	<5.0	500	511	102	70-148	
Trichloroethene	ug/L	<3.3	500	526	105	70-131	
Vinyl chloride	ug/L	<1.8	500	534	107	49-133	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE SAMPLE:		1469437					
Parameter	Units	40145632001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
4-Bromofluorobenzene (S)	%				100	70-130	
Dibromofluoromethane (S)	%				101	70-130	
Toluene-d8 (S)	%				98	70-130	

MATRIX SPIKE SAMPLE:		1469438					
Parameter	Units	40145698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	500	513	103	68-136	
1,2-Dichloroethane	ug/L	<1.7	500	514	103	70-130	
2-Butanone (MEK)	ug/L	<29.8		<29.8			
Benzene	ug/L	<5.0	500	540	108	57-138	
Carbon tetrachloride	ug/L	<5.0	500	534	107	70-138	
Chlorobenzene	ug/L	<5.0	500	514	103	70-130	
Chloroform	ug/L	<25.0	500	500	100	70-130	
Tetrachloroethene	ug/L	<5.0	500	513	103	70-148	
Trichloroethene	ug/L	<3.3	500	522	104	70-131	
Vinyl chloride	ug/L	<1.8	500	526	105	49-133	
4-Bromofluorobenzene (S)	%				102	70-130	
Dibromofluoromethane (S)	%				102	70-130	
Toluene-d8 (S)	%				100	70-130	

MATRIX SPIKE SAMPLE:		1469439					
Parameter	Units	40145714001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	<0.0041 mg/L	500	511	102	68-136	
1,2-Dichloroethane	ug/L	<0.0017 mg/L	500	505	101	70-130	
2-Butanone (MEK)	ug/L	<0.030 mg/L		<29.8			
Benzene	ug/L	<0.0050 mg/L	500	530	106	57-138	
Carbon tetrachloride	ug/L	<0.0050 mg/L	500	515	103	70-138	
Chlorobenzene	ug/L	<0.0050 mg/L	500	498	100	70-130	
Chloroform	ug/L	<0.025 mg/L	500	489	98	70-130	
Tetrachloroethene	ug/L	<0.0050 mg/L	500	499	100	70-148	
Trichloroethene	ug/L	<0.0033 mg/L	500	516	103	70-131	
Vinyl chloride	ug/L	<0.0018 mg/L	500	524	105	49-133	
4-Bromofluorobenzene (S)	%				101	70-130	
Dibromofluoromethane (S)	%				102	70-130	
Toluene-d8 (S)	%				100	70-130	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1469440 1469441												
Parameter	Units	40145766001		MS		MSD		MS		MSD		Qual
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	% Rec	Max	
1,1-Dichloroethene	ug/L	<4.1	500	500	500	513	524	103	105	68-136	2	20
1,2-Dichloroethane	ug/L	<1.7	500	500	500	512	504	102	101	70-130	2	20
2-Butanone (MEK)	ug/L	<29.8				<29.8	<29.8					20
Benzene	ug/L	<5.0	500	500	500	540	545	108	109	57-138	1	20
Carbon tetrachloride	ug/L	<5.0	500	500	500	526	533	105	107	70-138	1	20
Chlorobenzene	ug/L	<5.0	500	500	500	510	511	102	102	70-130	0	20
Chloroform	ug/L	<25.0	500	500	500	500	503	100	101	70-130	1	20
Tetrachloroethene	ug/L	<5.0	500	500	500	515	514	103	103	70-148	0	20
Trichloroethene	ug/L	<3.3	500	500	500	518	528	104	106	70-131	2	20
Vinyl chloride	ug/L	<1.8	500	500	500	531	538	106	108	49-133	1	20
4-Bromofluorobenzene (S)	%							102	103	70-130		
Dibromofluoromethane (S)	%							102	104	70-130		
Toluene-d8 (S)	%							100	101	70-130		

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch:	248480	Analysis Method:	EPA 8082
QC Batch Method:	EPA 3541	Analysis Description:	8082 GCS PCB
Associated Lab Samples:	40145698001		

METHOD BLANK: 1468263 Matrix: Solid
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1221 (Aroclor 1221)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1232 (Aroclor 1232)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1242 (Aroclor 1242)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1248 (Aroclor 1248)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1254 (Aroclor 1254)	ug/kg	<25.0	50.0	02/16/17 16:22	
PCB-1260 (Aroclor 1260)	ug/kg	<25.0	50.0	02/16/17 16:22	
Decachlorobiphenyl (S)	%	78	48-130	02/16/17 16:22	
Tetrachloro-m-xylene (S)	%	70	63-130	02/16/17 16:22	

LABORATORY CONTROL SAMPLE: 1468264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg		<25.0			
PCB-1221 (Aroclor 1221)	ug/kg		<25.0			
PCB-1232 (Aroclor 1232)	ug/kg		<25.0			
PCB-1242 (Aroclor 1242)	ug/kg		<25.0			
PCB-1248 (Aroclor 1248)	ug/kg		<25.0			
PCB-1254 (Aroclor 1254)	ug/kg		<25.0			
PCB-1260 (Aroclor 1260)	ug/kg	500	392	78	55-130	
Decachlorobiphenyl (S)	%			80	48-130	
Tetrachloro-m-xylene (S)	%			72	63-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1468265 1468266

Parameter	Units	40145663015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1221 (Aroclor 1221)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1232 (Aroclor 1232)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1242 (Aroclor 1242)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1248 (Aroclor 1248)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1254 (Aroclor 1254)	ug/kg	<31.1			<31.1	<31.1					20	
PCB-1260 (Aroclor 1260)	ug/kg	<31.1	622	622	477	493	77	79	40-130	3	20	
Decachlorobiphenyl (S)	%						74	77	48-130			
Tetrachloro-m-xylene (S)	%						74	77	63-130			

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch:	248695	Analysis Method:	EPA 8270
QC Batch Method:	EPA 3510	Analysis Description:	8270 TCLP MSSV
Associated Lab Samples:	40145698001		

METHOD BLANK: 1469374 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<3.9	10.0	02/21/17 13:22	
2,4,5-Trichlorophenol	ug/L	<1.5	10.0	02/21/17 13:22	
2,4,6-Trichlorophenol	ug/L	<2.1	10.0	02/21/17 13:22	
2,4-Dinitrotoluene	ug/L	<2.0	10.0	02/21/17 13:22	
2-Methylphenol(o-Cresol)	ug/L	<1.9	10.0	02/21/17 13:22	
3&4-Methylphenol(m&p Cresol)	ug/L	<2.6	10.0	02/21/17 13:22	
Hexachloro-1,3-butadiene	ug/L	<3.6	20.0	02/21/17 13:22	
Hexachlorobenzene	ug/L	<1.1	10.0	02/21/17 13:22	
Hexachloroethane	ug/L	<3.0	10.0	02/21/17 13:22	
Nitrobenzene	ug/L	<2.1	10.0	02/21/17 13:22	
Pentachlorophenol	ug/L	<1.5	20.0	02/21/17 13:22	
Pyridine	ug/L	<2.9	10.0	02/21/17 13:22	
2,4,6-Tribromophenol (S)	%	125	42-140	02/21/17 13:22	
2-Fluorobiphenyl (S)	%	94	41-130	02/21/17 13:22	
Nitrobenzene-d5 (S)	%	101	43-130	02/21/17 13:22	
Phenol-d6 (S)	%	39	15-130	02/21/17 13:22	

METHOD BLANK: 1469071 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<19.4	50.0	02/21/17 18:04	
2,4,5-Trichlorophenol	ug/L	<7.6	50.0	02/21/17 18:04	
2,4,6-Trichlorophenol	ug/L	<10.5	50.0	02/21/17 18:04	
2,4-Dinitrotoluene	ug/L	<10	50.0	02/21/17 18:04	
2-Methylphenol(o-Cresol)	ug/L	<9.6	50.0	02/21/17 18:04	
3&4-Methylphenol(m&p Cresol)	ug/L	<12.8	50.0	02/21/17 18:04	
Hexachloro-1,3-butadiene	ug/L	<18.2	100	02/21/17 18:04	
Hexachlorobenzene	ug/L	<5.7	50.0	02/21/17 18:04	
Hexachloroethane	ug/L	<14.8	50.0	02/21/17 18:04	
Nitrobenzene	ug/L	<10.3	50.0	02/21/17 18:04	
Pentachlorophenol	ug/L	<7.5	100	02/21/17 18:04	
Pyridine	ug/L	<14.6	50.0	02/21/17 18:04	
2,4,6-Tribromophenol (S)	%	106	42-140	02/21/17 18:04	
2-Fluorobiphenyl (S)	%	91	41-130	02/21/17 18:04	
Nitrobenzene-d5 (S)	%	91	43-130	02/21/17 18:04	
Phenol-d6 (S)	%	32	15-130	02/21/17 18:04	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

LABORATORY CONTROL SAMPLE: 1469375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	50	35.3	71	42-130	
2,4,5-Trichlorophenol	ug/L	50	48.4	97	70-130	
2,4,6-Trichlorophenol	ug/L	50	51.2	102	70-130	
2,4-Dinitrotoluene	ug/L	50	56.8	114	70-130	
2-Methylphenol(o-Cresol)	ug/L	50	36.5	73	57-130	
3&4-Methylphenol(m&p Cresol)	ug/L	50	31.8	64	47-130	
Hexachloro-1,3-butadiene	ug/L	50	37.0	74	46-130	
Hexachlorobenzene	ug/L	50	45.6	91	70-130	
Hexachloroethane	ug/L	50	36.2	72	37-130	
Nitrobenzene	ug/L	50	44.2	88	62-130	
Pentachlorophenol	ug/L	50	43.4	87	50-130	
Pyridine	ug/L	50	17.3	35	10-130	
2,4,6-Tribromophenol (S)	%			118	42-140	
2-Fluorobiphenyl (S)	%			90	41-130	
Nitrobenzene-d5 (S)	%			91	43-130	
Phenol-d6 (S)	%			36	15-130	

MATRIX SPIKE SAMPLE: 1469376

Parameter	Units	40145714001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<0.019 mg/L	250	152	61	26-130	
2,4,5-Trichlorophenol	ug/L	<0.0076 mg/L	250	283	113	55-130	
2,4,6-Trichlorophenol	ug/L	<0.011 mg/L	250	294	117	56-130	
2,4-Dinitrotoluene	ug/L	<0.010 mg/L	250	322	129	69-130	
2-Methylphenol(o-Cresol)	ug/L	<0.0096 mg/L	250	192	77	40-130	
3&4-Methylphenol(m&p Cresol)	ug/L	<0.013 mg/L	250	175	70	35-130	
Hexachloro-1,3-butadiene	ug/L	<0.018 mg/L	250	183	73	45-130	
Hexachlorobenzene	ug/L	<0.0057 mg/L	250	247	99	70-130	
Hexachloroethane	ug/L	<0.015 mg/L	250	157	63	34-130	
Nitrobenzene	ug/L	<0.010 mg/L	250	222	89	62-130	
Pentachlorophenol	ug/L	<0.0075 mg/L	250	242	97	28-138	
Pyridine	ug/L	<0.015 mg/L	250	101	40	10-130	
2,4,6-Tribromophenol (S)	%				130	42-140	
2-Fluorobiphenyl (S)	%				95	41-130	
Nitrobenzene-d5 (S)	%				94	43-130	
Phenol-d6 (S)	%				38	15-130	

MATRIX SPIKE SAMPLE: 1469377

Parameter	Units	40145632002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<484	250	<484	66	26-130	
2,4,5-Trichlorophenol	ug/L	<191	250	237J	95	55-130	
2,4,6-Trichlorophenol	ug/L	<263	250	268J	107	56-130	
2,4-Dinitrotoluene	ug/L	<249	250	<249	93	69-130	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE SAMPLE:		1469377					
Parameter	Units	40145632002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2-Methylphenol(o-Cresol)	ug/L	353J	250	581J	91	40-130	
3&4-Methylphenol(m&p Cresol)	ug/L	<319	250	<319	70	35-130	
Hexachloro-1,3-butadiene	ug/L	<454	250	<454	73	45-130	
Hexachlorobenzene	ug/L	<143	250	238J	95	70-130	
Hexachloroethane	ug/L	<370	250	<370	66	34-130	
Nitrobenzene	ug/L	<256	250	<256	87	62-130	
Pentachlorophenol	ug/L	<188	250	849J	340	28-138	M6
Pyridine	ug/L	<364	250	<364	53	10-130	
2,4,6-Tribromophenol (S)	%				108	42-140	
2-Fluorobiphenyl (S)	%				88	41-130	
Nitrobenzene-d5 (S)	%				95	43-130	
Phenol-d6 (S)	%				45	15-130	

MATRIX SPIKE SAMPLE:		1469378					
Parameter	Units	40145633005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<19.4	250	170	68	26-130	
2,4,5-Trichlorophenol	ug/L	<7.6	250	279	112	55-130	
2,4,6-Trichlorophenol	ug/L	<10.5	250	294	117	56-130	
2,4-Dinitrotoluene	ug/L	<10	250	308	123	69-130	
2-Methylphenol(o-Cresol)	ug/L	<9.6	250	194	78	40-130	
3&4-Methylphenol(m&p Cresol)	ug/L	<12.8	250	174	70	35-130	
Hexachloro-1,3-butadiene	ug/L	<18.2	250	188	75	45-130	
Hexachlorobenzene	ug/L	<5.7	250	226	90	70-130	
Hexachloroethane	ug/L	<14.8	250	169	67	34-130	
Nitrobenzene	ug/L	<10.3	250	224	90	62-130	
Pentachlorophenol	ug/L	<7.5	250	226	90	28-138	
Pyridine	ug/L	<14.6	250	130	52	10-130	
2,4,6-Tribromophenol (S)	%				113	42-140	
2-Fluorobiphenyl (S)	%				89	41-130	
Nitrobenzene-d5 (S)	%				91	43-130	
Phenol-d6 (S)	%				36	15-130	

MATRIX SPIKE SAMPLE:		1469379					
Parameter	Units	40145698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	<19.4	250	192	77	26-130	
2,4,5-Trichlorophenol	ug/L	<7.6	250	294	118	55-130	
2,4,6-Trichlorophenol	ug/L	<10.5	250	292	117	56-130	
2,4-Dinitrotoluene	ug/L	<10	250	315	126	69-130	
2-Methylphenol(o-Cresol)	ug/L	<9.6	250	205	82	40-130	
3&4-Methylphenol(m&p Cresol)	ug/L	<12.8	250	189	76	35-130	
Hexachloro-1,3-butadiene	ug/L	<18.2	250	212	85	45-130	
Hexachlorobenzene	ug/L	<5.7	250	237	95	70-130	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

MATRIX SPIKE SAMPLE:		1469379					
Parameter	Units	40145698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Hexachloroethane	ug/L	<14.8	250	201	80	34-130	
Nitrobenzene	ug/L	<10.3	250	234	94	62-130	
Pentachlorophenol	ug/L	<7.5	250	231	93	28-138	
Pyridine	ug/L	<14.6	250	74.3	30	10-130	
2,4,6-Tribromophenol (S)	%				132	42-140	
2-Fluorobiphenyl (S)	%				93	41-130	
Nitrobenzene-d5 (S)	%				98	43-130	
Phenol-d6 (S)	%				38	15-130	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

QC Batch: 248423

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40145698001

SAMPLE DUPLICATE: 1468064

Parameter	Units	40145662001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.4	8.3	1	10	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

QC Batch: 248629

Analysis Method: EPA 1010

QC Batch Method: EPA 1010

Analysis Description: 1010 Flash Point, Closed Cup

Associated Lab Samples: 40145698001

LABORATORY CONTROL SAMPLE: 1469172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		80.3			

LABORATORY CONTROL SAMPLE: 1469197

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		81.5			

SAMPLE DUPLICATE: 1469340

Parameter	Units	40145698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>210	>210			

SAMPLE DUPLICATE: 1469341

Parameter	Units	40145851001 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>210	>210			

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

QC Batch:	248716	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
Associated Lab Samples:	40145698001		

SAMPLE DUPLICATE: 1469428

Parameter	Units	40145812001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.4	7.4	1	20	H6

SAMPLE DUPLICATE: 1469429

Parameter	Units	40145792001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.6	7.6	0	20	H6

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING

Pace Project No.: 40145698

QC Batch: 248737

Analysis Method: EPA 9095

QC Batch Method: EPA 9095

Analysis Description: 9095 PAINT FILTER LIQUID TEST

Associated Lab Samples: 40145698001

SAMPLE DUPLICATE: 1469502

Parameter	Units	40145766001 Result	Dup Result	RPD	Max RPD	Qualifiers
Free Liquids	no units	Pass	Pass			

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch: 461219 Analysis Method: EPA 420.4
QC Batch Method: EPA 420.4 Analysis Description: 420.4 Phenolics
Associated Lab Samples: 40145698001

METHOD BLANK: 2522309 Matrix: Water
Associated Lab Samples: 40145698001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phenol	ug/L	4.9J	11.3	02/24/17 13:35	

LABORATORY CONTROL SAMPLE: 2522310

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenol	ug/L	250	230	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522311 2522312

Parameter	Units	1282794003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol	ug/L	ND	250	250	32.4	5.9J	12	1	90-110		20	M3

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522313 2522314

Parameter	Units	10379540001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol	ug/L	ND	250	250	260	248	102	97	90-110	5	20	

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QUALITY CONTROL DATA

Project: PAPER FINES TESTING
Pace Project No.: 40145698

QC Batch:	248779	Analysis Method:	EPA 9012
QC Batch Method:	EPA 9012A	Analysis Description:	9012 Cyanide
Associated Lab Samples:	40145698001		

METHOD BLANK:	1469738	Matrix:	Solid
Associated Lab Samples:	40145698001		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/kg	0.17J	0.40	02/22/17 13:02	

LABORATORY CONTROL SAMPLE: 1469739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	3	3.0	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1469740 1469741

Parameter	Units	10379473001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	ND	3.2	3.2	2.8	3.1	80	90	80-120	10	20	

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QUALIFIERS

Project: PAPER FINES TESTING
Pace Project No.: 40145698

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-M Pace Analytical Services - Minneapolis

WORKORDER QUALIFIERS

WO: 40145698
[1] 420.4 Phenols was performed using the TCLP Leach.

SAMPLE QUALIFIERS

Sample: 40145698001
[1] Sample container used for ZHE had headspace

ANALYTE QUALIFIERS

1q Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.
B Analyte was detected in the associated method blank.
H6 Analysis initiated outside of the 15 minute EPA required holding time.
M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.
M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PAPER FINES TESTING

Pace Project No.: 40145698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40145698001	PAPER FINES	EPA 3541	248480	EPA 8082	248482
40145698001	PAPER FINES	EPA 3010	248763	EPA 6010	248822
40145698001	PAPER FINES	EPA 7470	248920	EPA 7470	248972
40145698001	PAPER FINES	EPA 3510	248695	EPA 8270	248770
40145698001	PAPER FINES	EPA 8260	248719		
40145698001	PAPER FINES	ASTM D2974-87	248423		
40145698001	PAPER FINES	EPA 1010	248629		
40145698001	PAPER FINES	EPA 9040	248716		
40145698001	PAPER FINES	EPA 9095	248737		
40145698001	PAPER FINES	EPA 420.4	461219	EPA 420.4	461376
40145698001	PAPER FINES	EPA 9012A	248779	EPA 9012	248841

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[illegible]

Data Package Options	MS/MSD	Matrix Codes
(billable)		A = Air
☐ EPA Level III	☐ On your sample	W = Water
	(billable)	B = Biota
☐ EPA Level IV	☐ NOT needed on your sample	DW = Drinking Water
		C = Charcoal
		GW = Ground Water
		O = Oil
		SW = Surface Water
		WW = Waste Water
		S = Soil
		WP = Waste
		Sl = Sludge

[illegible]Version 6.0 06/14/06



Sample Condition Upon Receipt

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

Project #

WO#: 40145698

Client Name: Veolia

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 SR169 Type of Ice: Wet Blue Dry ☒ None ☐ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 25 /Corr: 25 Biological Tissue is Frozen: ☐ yes ☐ no

Temp Blank Present: ☐ yes ☒ no ☐ no

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

Frozen Biota Samples should be received ≤ 0°C.

Comments:

Person examining contents:

Date: 2/15/17

Initials: 2

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.
Correct Containers Used:	☒ Yes ☐ No ☐ N/A	9.
-Pace Containers Used:	☒ Yes ☐ No ☐ N/A	
-Pace IR Containers Used:	☐ Yes ☐ No ☒ N/A	
Containers Intact:	☒ Yes ☐ No ☐ N/A	10.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	11.
Sample Labels match COC:	☐ Yes ☒ No ☐ N/A	12. no collect time
-Includes date/time/ID/Analysis Matrix: <u>5</u>		<u>2/15/17</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☐ Yes ☐ No ☒ N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	☐ Yes ☐ No ☒ N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☐ Yes ☒ No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	☐ Yes ☐ No ☒ N/A	14.
Trip Blank Present:	☐ Yes ☒ No ☐ N/A	15.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: C19

Date: 2/15/17

Analytical Report

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

February 21, 2017

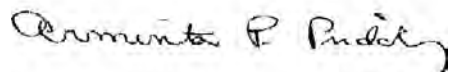
Work Order: 17B0590

RE: Green Bay
Paper Fines Testing / 40145698

Dear Cindy Varga:

Enclosed are the analytical reports for the EMT Work Order listed. Also included with this analytical report is a copy of the chain of custody associated with these samples. If you have any questions, please contact me.

Sincerely,



Arminta Priddy
Project Manager
847.967.6666
apriddy@emt.com
Approved for release: 2/21/2017 4:03:09PM

Approved by,



Matthew Gregory
Technical Manager

The contents of this report apply to the sample(s) analyzed. No duplication is allowed except in its entirety. Detection and Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

State of Wisconsin Dept of Natural Resources, Cert No. 999888890

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Case Narrative	4
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Qualifiers and Definitions	9
Chain of Custody	10

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Sample Summary

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PAPER FINES	17B0590-01	Solid	02/15/17 11:30	02/16/17 09:30

Case Narrative

Client: Pace Analytical Services, Inc.
Project: Green Bay
Paper Fines Testing / 40145698
Work Order: 17B0590

Date: 02/21/2017

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Sample results only relate to the sample(s) received at the laboratory and analytes of interest tested.

Work Order: 17B0590

The samples were received on 02/16/17 09:30. The samples arrived in good condition and properly preserved. The temperature of the cooler at receipt was

<u>Cooler</u>	<u>Temp C°</u>
Default Cooler	3.3

Refer to Qualifiers and Definitions for quality and analytical clarifications or deviations.

WET Chemistry

Method 2540G_TS%, 17B0590-01: Analysis was performed by Pace so no associated qc results.

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Client Sample Results

Client: Pace Analytical Services, Inc.
Project: Green Bay
 Paper Fines Testing / 40145698
Work Order: 17B0590

Client Sample ID: PAPER FINES
Report Date: 02/21/2017
Collection Date: 02/15/2017 11:30
Matrix: Solid
Lab ID: 17B0590-01

Analyses	Result	EMT Reporting		Qual	Units	MDL	Date/Time Analyzed	Batch	Analyst	DF
		Limit								
Wet Chemistry										
Method: SM2540G										
Total Solids	68.5	0.100		% (Percent)		0.00700	02/20/17 13:26	B7B0680	MLB	1
Method: SW9030B/SW9034/SM4500-S2 F										
Sulfide, total	23.0	29.2	J	mg/Kg dry		4.96	02/21/17 14:42	B7B0732	SK2	1

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Dates Report

Client: Pace Analytical Services, Inc.
Project: Green Bay
Paper Fines Testing / 40145698
Work Order: 17B0590

Report Date: 02/21/2017

Sample ID	Client Sample ID	Collection	Matrix	Test Name	Leached Prep Date	Prep Date	Analysis Date	Batch ID	Sequence
17B0590-01	PAPER FINES	02/15/17	Solid	Total Solids / Percent Moisture		02/20/17 13:25	02/20/17 13:26	B7B0680	
				Sulfide (S2), Total		02/21/17 11:00	02/21/17 14:42	B7B0732	

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Quality Control

Client: Pace Analytical Services, Inc.
Project: Green Bay
 Paper Fines Testing / 40145698
Work Order: 17B0590

Report Date: 02/21/2017
Matrix: Solid

Wet Chemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	------	----

Batch: B7B0732

Blank (B7B0732-BLK1)

Prepared: 02/21/2017 11:00 Analyzed: 02/21/2017 14:42

Sulfide, total	< 3.40	20.0	mg/Kg wet								1
----------------	--------	------	-----------	--	--	--	--	--	--	--	---

LCS (B7B0732-BS1)

Prepared: 02/21/2017 11:00 Analyzed: 02/21/2017 14:42

Sulfide, total	163	20.0	mg/Kg wet	175.2		93.2	80-120				1
----------------	-----	------	-----------	-------	--	------	--------	--	--	--	---

Duplicate (B7B0732-DUP1)

Source: 17B0590-01

Prepared: 02/21/2017 11:00 Analyzed: 02/21/2017 14:42

Sulfide, total	23.0	29.2	mg/Kg dry		23.0			0.00	14.1	J	1
----------------	------	------	-----------	--	------	--	--	------	------	---	---

8100 N. Austin Avenue Morton Grove, IL 60053-3203 P 847.967.6666 800.246.0663 F 847.967.6735 www.emt.com

Certified Analyses included in this Report

Analyte	CAS #	Certifications
SM2540G in Solid		
Total Solids	Moist	WDNR
SW9030B/SW9034/SM4500-S2 F in Solid		
Sulfide, total	18496-25-8	DoD, ILEPA, WDNR

List of Certifications

Code	Description	Number	Expires
AKDEC	State of Alaska, Dept. Environmental Conservation	UST-105	07/16/2017
CPSC	US Consumer Product Safety Commission, Accredited by PJLA Lab No. 1050	L14-56	04/30/2018
DoD	Department of Defense, Accredited by PJLA	L14-55	04/30/2018
ILEPA	State of Illinois, NELAP Accredited Lab No. 100256	003674	07/27/2017
ISO	ISO/IEC 17025, Accredited by PJLA	L14-56	04/30/2018
LELAP	State of Louisiana, NELAP Accredited Lab No. 171344	05015	06/30/2017
WDNR	State of Wisconsin Dept of Natural Resources	999888890	08/31/2017

Qualifiers and Definitions

Item	Description
J	Estimated Value
%Rec	Percent Recovery

Chain of Custody



17B0590

PM: Arminta Priddy
Pace Analytical Services, Inc.
Green Bay



Workorder: 40145698

Workorder Name: PAPER FINES TESTING

Results Requested By: 3/1/2017

17B0590

Report / Invoice To		Subcontract To		Requested Analysis																													
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436 Email: cindy.varga@pacelabs.com		EMT, Inc 8100 North Austin Ave Morton Grove, IL 60053																															
State of Sample Origin: WI LOD/LOQ				Preserved Containers								sulfide														LAB USE ONLY							
Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Unpreserved	4 oz jar																											
1	PAPER FINES	2/15/2017 11:30	40145698001	Solid	1																												
2																																	
3																																	
4																																	
5																																	
Comments																																	
Transfers	Released By	Date/Time	Received By	Date/Time																													
1	<i>[Signature]</i>	2/15/17 1600																															
2																																	
3			<i>[Signature]</i>	2/16/17 7:30																													
Cooler Temperature on Receipt 3.3 °C		Custody Seal <u>Y</u> or N		Received on Ice <u>Y</u> or N		Samples Intact <u>Y</u> or N																											

Attachment 2
Special Waste Management Plan: Analytical/Acceptance Protocol G
– Auto Shredder Fluff

Brown County South Landfill

Analytical Protocol/Acceptance Criteria

Protocol G

Testing protocols for auto shredder fluff.

Analytical Parameter	Acceptance Criteria
TCLP metals	
cadmium	TCLP <1.0 mg/L
lead	TCLP <5.0 mg/L
mercury	TCLP <0.2 mg/L
PCB (Arochlor 1216, 1221, 1232, 1242, 1249, 1254, 1260)	<50mg/kg
ASTM Water Leach or TCLP PCBs	Not Applicable

Note: Physical testing of materials to be considered for use as ADC or other beneficial uses will be required. Meeting the minimum testing requirements does not relieve the generator of the responsibility to determine whether their waste is hazardous. Brown County reserves the right to request additional information in order to evaluate the waste stream for disposal.

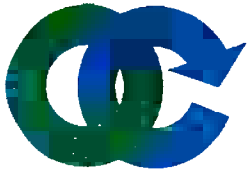
Testing requirements summary:

- Perform testing on a semi-annual basis, according to the methods listed in the WDNR publication PUB-WA-1699 2014, Condition 16. Specifically, ten samples of each source of ASR shall be collected over a five-day period. Each sample shall be obtained by removing a shovel full of fluff from the conveyor once an hour for a four-hour period in the morning and then again for another four-hour period in the afternoon for a typical 8-hour production cycle. If the production cycle is typically less than 8-hours, then sampling should consist of a minimum of 3 hours of production. Each day's sampling shall be composited into a single sample. The resulting daily sample shall be coned and quartered until 10 gallons of fluff remain. Each 10-gallon sample shall be coned and quartered into two five-gallon samples. The samples shall be stored in sealed containers made of inert material until they are analyzed in a laboratory.
- Three samples for each testing round will need to be randomly selected and analyzed for TCLP lead, cadmium, and mercury, as well as total PCBs. If any of the samples are above a regulatory/acceptance limit, then the seven additional collected samples need to be analyzed for the exceeding parameter. The

results from the analyzed samples are to be averaged to determine the test result for each sampling event. If the average result of the sampling event exceeds the regulatory/acceptance limit, additional sampling must be performed immediately under the same protocol for the exceeding parameter.

- A rolling average from the last 5 sampling events needs to be reported and compared to the regulatory limit. If the rolling average exceeds 80% of the regulatory limit, then the material is not acceptable.
- On an annual basis, one sample of auto shredder fluff from each source shall be subject to the ASTM D 3987-85 water leach test and the leaching fluid shall be analyzed for dissolved PCBs using an analytical method with a level of detection <10 micrograms per liter. TCLP PCB analysis may be used in place of the water leach test.

Attachment 3
Boiler/Fly Ash Sources



**Outagamie County Recycling & Solid Waste
Brown Outagamie Winnebago Counties
SPECIAL WASTE DISPOSAL APPLICATION**

A. Generator Information

Name Expera Specialty Solutions
Contact Person Tom Emory
Email Address tom.emory@expera.com
Phone Number 715-369-4160
Site Address (where material is generated)
515 West Davenport St.
Rhinelander, WI 54501

B. Billing Information

(In order to be billed, you must fill out a credit application)

Name Expera Specialty Solutions LLC
Contact Person Iola Van Oss
Email Address iola.vanoss@expera.com
Phone 920-766-8608
Fax Number _____
Billing Address
Accounts Payable
P.O. Box 600
Kaukauna, WI 54130

C. Consultant Information

Name _____
Contact Person _____
Email Address NA
Phone Number _____
Fax Number _____
Address _____

D. Hauler Information

Name _____
Contact Person _____
Phone Number TBD
Address _____

E. Waste Information

Waste Name Flyash
Process Used to Generate Waste coal combustion
Waste Category Number A
Total Anticipated Waste Volume (include units) 700 tons/mo
Frequency of Disposal 5 days/week; 7 mos/yr
Name of Lab Performing Analysis NLS
Date of Most Recent Analysis 2018
Physical State @ 25°C solid
Color black/gray Odor none
Comments _____

*For all waste types, attach available pertinent documents, MSDSs, technical bulletins, etc. List attachments here:

Lab reports

F. Generator Warranty

The generator warrants, represents, and certifies that this waste is not hazardous waste as specified by NR600 or 40CFR261, that this material does not contain more than 50 ppm of PCB materials, and that this information is representative of the waste.

Tom Emory Env. Mgr 8/16/18
Generator's Signature Title Date

Instructions:

For Category A, B, and, C Wastes: Complete Section I

For Category D Wastes: Complete Section II

For Category E Wastes: Complete Section III

Outagamie County Internal Use Only:

- ☐ BC Customer
☐ OC Customer
☐ WC Customer

Section I

For Category A, B, and C Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
% Solids	≥ 40% (A&B) ≥ 20% (C)	> 80%
% Free Liquids (paint filter test)	0%	0%
Flash Point	> 140°F	> 220
pH	2.0 ≤ pH ≤ 12.5	9.2
Total available sulfide	< 500 mg/kg	ND
Total available cyanide	< 250 mg/kg	ND
Arsenic	< 5.0	ND
Barium	< 100.0	0.22
Cadmium	< 1.0	0.005
Chromium	< 5.0	ND
Lead	< 5.0	ND
Mercury	< 0.2	ND
Selenium	< 1.0	ND
Silver	< 5.0	ND
% Chlorine	< 1%	< 0.1
Phenol	< 2000	NA
Benzene	< 0.5	ND
Carbon tetrachloride	< 0.5	ND
Chlorobenzene	< 100.0	ND
Chloroform	< 6.0	ND
Cresol	< 200.0	ND
1,4-Dichlorobenzene	< 7.5	ND
1,2-Dichloroethane	< 0.5	ND
1,1-Dichloroethylene	< 0.7	ND
2,4-Dinitrotoluene	< 0.3	ND
Hexachlorobenzene	< 0.13	ND
Hexachlorobutadiene	< 0.5	ND
Hexachloroethane	< 3.0	ND
Methyl ethyl ketone	< 200.0	ND
Nitrobenzene	< 2.0	ND
Pentachlorophenol	< 100.0	ND
Pyridine	< 5.0	ND
Tetrachloroethylene	< 0.7	ND
Trichloroethylene	< 0.5	ND
2,4,5-Trichlorophenol	< 400.0	ND
2,4,6-Trichlorophenol	< 2.0	ND
Vinyl Chloride	< 0.2	ND

For Category B and C Wastes, complete the following and attach laboratory report:

PCB (Arochlor 1016, 1221, 1232, 1242, 1248, 1254, 1260)

Section II

For Category D Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level	Lab Result
a. All Soils		
Lead	Total < 100 mg/kg or TCLP < 5 mg/l	
b. Gasoline or Diesel		
(analyze all parameters in a., plus the following):		
DRO	< 2000 ppm	
or GRO	< 2000 ppm	
Benzene	Total < 10 mg/kg Or TCLP < 0.5 mg/l	
c. Waste Oil or Unknown Petroleum Waste		
(analyze all parameters in a., plus the following):		
DRO	< 2000 ppm	
or GRO	< 2000 ppm	
Cadmium	Total < 20 mg/kg Or TCLP < 1 mg/l	

Section III

For Category E Wastes, complete the following and attach laboratory report:

Analytical Information

Parameter	Acceptance Level (mg/l)	Lab Result
pH	2.0 ≤ pH ≤ 12.5	
% Solids	≥ 20%	
% Free liquids	0%	
TCLP metals		
Arsenic	< 5.0	
Barium	< 100.0	
Cadmium	< 1.0	
Chromium	< 5.0	
Lead	< 5.0	
Mercury	< 0.2	
Selenium	< 1.0	
Silver	< 5.0	
Total available sulfide	< 500 mg/kg	

Section IV

For Category F Wastes, include the following information and attach MSDS(s), technical bulletin(s), or other pertinent information regarding the waste stream. Indicate the waste type, the source of the waste stream, the reason for disposal, the physical state of the material, and describe the process from which the waste was generated.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

Printed: 08/14/18 Page 1 of 1

Client: Expera Specialty Solutions (Rhineland)
Attn: Tom Emond
515 West Davenport Street
Rhineland, WI 54501 3300

NLS Project: 302347

NLS Customer: 29247

Fax: 715 369 4293 Phone: 715 369 4160

PO # 6249687 OS

Project: Fly Ash

Fly Ash NLS ID: 1064005

COC: 212785:1 Matrix: MS

Collected: 06/26/18 13:20 Received: 06/27/18

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
TCLP Extraction	yes					07/09/18	SW846 1311	721026460
TCLP Zero Head Space Extraction	yes					07/09/18	SW846 1311	721026460

TCLP Fly Ash NLS ID: 1064006

COC: 212785:1 Matrix: EX

Collected: 07/10/18 08:30 Received: 07/10/18

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Arsenic, tot. recoverable on extract as As by ICP	ND	ug/L	10	49*	160*	07/12/18	SW846 6010	721026460
Barium, tot. recoverable on extract as Ba by ICP	220	ug/L	10	12*	40*	07/12/18	SW846 6010	721026460
Cadmium, tot. recoverable on extract as Cd by ICP	(5.4)	ug/L	10	1.9	6.1	07/12/18	SW846 6010	721026460
Chromium, tot. recoverable on extract as Cr by ICP	ND	ug/L	10	8.3	28	07/12/18	SW846 6010	721026460
Lead, tot. recoverable on extract as Pb by ICP	ND	ug/L	10	43	140	07/12/18	SW846 6010	721026460
Mercury by CVAA	ND	ug/L	1	0.47	1.5	07/14/18	EPA 245.1, Rev 3	721026460
Selenium, tot. recoverable on extract as Se by ICP	ND	ug/L	10	120	400	07/12/18	SW846 6010	721026460
Silver, tot. recoverable on extract as Ag by ICP	ND	ug/L	10	8.1	27	07/12/18	SW846 6010	721026460
Metals digestion - tot. recov.ICP	yes					07/11/18	SW846 3005M	721026460
TCLP VOC by EPA Method 8260B	see attached					07/10/18	SW846 8260	721026460
Organics Extraction (TCLP) Pest/PCB	yes					07/12/18	SW846 3500	721026460
Organics Extraction (Herbicides)	yes					07/13/18	SW846 8151	632021390
Acid/Base Extraction for GC/MS	yes					07/17/18	SW846 3510C	721026460
Semi-Volatiles TCLP by EPA Method 8270C	see attached					07/27/18	SW846 8270	721026460
TCLP Pesticides	see attached					07/19/18	SW846 8081	721026460
TCLP Herbicides	see attached					07/31/18	SW846 8151A	632021390

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution and/or solids content.

ND = Not Detected (< LOD) LOD = Limit of Detection LOQ = Limit of Quantitation NA = Not Applicable

DWB = Dry Weight Basis %DWB = (mg/kg DWB) / 10000 1000 ug/L = 1 mg/L

MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:



Authorized by:
R. T. Krueger
President

ANALYTICAL RESULTS: TCLP Organochlorine Pesticides by GC

Page 1 of 1

Customer: Expera Specialty Solutions (Rhinelander)

NLS Project: 302347 PO # 6249687 OS

Project Description: Fly Ash

Project Title:

Template: OCTCLPW Printed: 08/14/2018 17:01

Sample: 1064006 TCLP Fly Ash Collected: 07/10/18 Analyzed: 07/19/18 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Gamma-BHC	ND	ug/L	1	0.0018	0.0058	
Chlordane	ND	ug/L	1	0.013	0.043	
Endrin	ND	ug/L	1	0.0017	0.0058	
Heptachlor	ND	ug/L	1	0.0019	0.0063	
Heptachlor Epoxide	ND	ug/L	1	0.0020	0.0066	
Methoxychlor	ND	ug/L	1	0.0033	0.011	
Toxaphene	ND	ug/L	1	0.18	0.58	
DBC (SURR)	90%		1			S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

ANALYTICAL RESULTS: VOC's by P&T/GCMS - TCLP - (VarSat3)

Page 1 of 1

Customer: Expera Specialty Solutions (Rhineland)

NLS Project: 302347 PO # 6249687 OS

Project Description: Fly Ash

Project Title:

Template: SAT3TCLP Printed: 08/14/2018 17:01

Sample: 1064006 TCLP Fly Ash Collected: 07/10/18 Analyzed: 07/10/18 - Analytes: 11

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Benzene	ND	ug/L	1	0.19	0.69	
Carbon Tetrachloride	ND	ug/L	1	0.19	0.66	
Chlorobenzene	ND	ug/L	1	0.16	0.56	
Chloroform	ND	ug/L	1	0.17	0.60	
1,4-Dichlorobenzene	ND	ug/L	1	0.21	0.76	
1,2-Dichloroethane	ND	ug/L	1	0.19	0.69	
1,1-Dichloroethene	ND	ug/L	1	0.16	0.57	
Tetrachloroethene	ND	ug/L	1	0.17	0.58	
Trichloroethene	ND	ug/L	1	0.24	0.84	
Vinyl chloride	ND	ug/L	1	0.16	0.57	
Methyl ethyl ketone	ND	ug/L	1	0.50	1.8	
Dibromofluoromethane (SURR)	99%		1			S
Toluene-d8 (SURR)	103%		1			S
1-Bromo-4-Fluorobenzene (SURR)	106%		1			S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

ANALYTICAL RESULTS: Semi-Volatile Organic TCLP Compounds by GC/MS

Page 1 of 1

Customer: Expera Specialty Solutions (Rhineland)

NLS Project: 302347 PO # 6249687 OS

Project Description: Fly Ash

Project Title:

Template: SVTCLP

Printed: 08/14/2018 17:01

Sample: 1064006 TCLP Fly Ash Collected: 07/10/18 Analyzed: 07/27/18 - Analytes: 12

Notes: HX

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Pyridine	ND	ug/L	2	1.0	3.3	
2-Methylphenol (o-Cresol)	ND	ug/L	2	1.8	6.9	
3 & 4-Methylphenol (m/p-Cresol)	ND	ug/L	2	3.1	10	
Nitrobenzene	ND	ug/L	2	1.2	4.0	
1,4-Dichlorobenzene	ND	ug/L	2	1.8	6.1	
2,4,6-Trichlorophenol	ND	ug/L	2	1.4	4.8	
2,4,5-Trichlorophenol	ND	ug/L	2	1.8	5.9	
2,4-Dinitrotoluene	ND	ug/L	2	1.9	6.4	
Hexachlorobutadiene	ND	ug/L	2	1.1	3.5	
Hexachloroethane	ND	ug/L	2	2.3	7.6	
Hexachlorobenzene	ND	ug/L	2	1.4	4.6	
Pentachlorophenol	ND	ug/L	2	2.3	7.4	
2-Fluorophenol (SURR)	41%		2			S
Phenol-d5 (SURR)	26%		2			S
Nitrobenzene-d5 (SURR)	75%		2			S
2-Fluorobiphenyl (SURR)	77%		2			S
2,4,6-Tribromophenol (SURR)	103%		2			S
Terphenyl-d14 (SURR)	66%		2			S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

HX = A dilution was required due to complex sample matrix.

IV = Initial extract is 500 mL.

ANALYTICAL RESULTS: Chlorinated Herbicides by EPA 8151

Page 1 of 1

Customer: Expera Specialty Solutions (Rhinelander)

NLS Project: 302347 PO # 6249687 OS

Project Description: Fly Ash

Project Title: Template: DAV8151S Printed: 08/14/2018 17:01

Sample: 1064006 TCLP Fly Ash Collected: 07/10/18 Analyzed: 07/31/18 - Analytes: 2

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
2,4-D	ND	ug/L	200	10	34	
2,4,5-TP (Silvex)	ND	ug/L	200	4.0	16	
DCAA (SURR)	80.2%		1			S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

CLIENT <i>Expera Specialty Solutions</i>	
ADDRESS <i>515 W. Davenport St 54501</i>	
CITY <i>Rhineland</i>	STATE <i>WI</i>
ZIP <i>54501</i>	
PROJECT DESCRIPTION / NO. <i>Fly Ash</i>	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT <i>Kayla Chauinard</i>	PHONE <i>715-369-4174</i>
PURCHASE ORDER NO. <i>2018 Blanket</i>	FAX

Wisconsin DNR cert ID
721026460 (Cran) / 268533760 (Wauk)
Wisconsin DATCP ID
105-000330 (Cran) / 105-000479 (Wauk)

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered.
Indicate G or C if WW Sample is Grab or Composite.



NO. 212785

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS										COLLECTION REMARKS (i.e. DNR Well ID #)
			DATE	TIME		TCLP Metals	TCLP BNAs	TCLP VOCs	Pest/Herbicides							
1.	1064005	Fly Ash	6/26/18	1:15 pm	Other											
2.		Fly Ash	6/26/18	1:20 pm	Other											
3.	006	Top														
4.																
5.																
6.																
7.																
8.																
9.																
10.																

COLLECTED BY (signature) <i>Kayla Chauinard</i>		CUSTODY SEAL NO. (IF ANY)		DATE/TIME <i>6/26/18 / 1:52 pm</i>	
RELINQUISHED BY (signature)		RECEIVED BY (signature)		DATE/TIME	
DISPATCHED BY (signature)		METHOD OF TRANSPORT		DATE/TIME	
RECEIVED AT NLS BY (signature) <i>John Brown</i>		DATE/TIME <i>6/27/18 9:45</i>	CONDITION <i>OK</i>	TEMP.	
COOLER #		REMARKS & OTHER INFORMATION			
PRESERVATIVE: NP = no preservative S = sulfuric acid		WDNR FACILITY NUMBER		E-MAIL ADDRESS <i>Kayla.Chauinard@expera.com</i>	

REPORT TO
INVOICE TO

IMPORTANT:

Rev. 7/20/15

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP YELLOW COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICE TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

ORIGINAL COPY

Waste Management - Antigo
1715 Deeglise
Antigo, WI 54409

Project: Wausau Mosinee Paper
Project Number: MW61373
Project Manager: Marie Jaszewski

Lab ID: BQB0103
Reported: 02/23/07 16:04

General Chemistry

TestAmerica - Buffalo Grove, IL

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Flyash 61373 (BQB0103-01) Waste (S) Sampled: 02/15/07 00:00 Received: 02/16/07 09:08									
Percent Chlorine	ND	0.100	%	I	7020342	02/23/07	02/23/07	ASTMD808^	
Flashpoint	>220 °F		°F	"	7020340	02/23/07	02/23/07	ASTM D92-85	
Free Liquid	No sample flowed.		N/A	"	7020294	02/21/07	02/21/07	9095A	
pH	3.31		pH Units	"	7020290	02/21/07	02/21/07	EPA 9045C	G26
Reactive Cyanide	ND	0.130	mg/kg wet	"	7020218	02/16/07	02/19/07	EPA 9014 Ch 7	G33
Reactive Sulfide	ND	6.50	"	"	7020219	02/16/07	02/16/07	EPA 9034 Ch 7	G33
Total Solids	99.9	0.100	% by Weight	"	7020319	02/22/07	02/23/07	EPA 160.3^^	G25
Specific Gravity	1.48		g/ml	"	7020341	02/23/07	02/23/07	ASTM D854-83^^	

TestAmerica - Buffalo Grove, IL

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Reviewed &
Approved by:

Jim Knapp

April 20, 2019

David Bender
WI DoA, Div of Facilities Development
101 East Wilson St
P.O Box 7866
Madison, WI 53707

RE: Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

Dear David Bender:

Enclosed are the analytical results for sample(s) received by the laboratory on April 10, 2019. 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,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Jerome Jansen, WI Department of Administration



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40185584001	Coal Ash	Solid	04/09/19 09:00	04/10/19 10:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40185584001	Coal Ash	EPA 6010	TXW	7	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 8270	RJN	17	PASI-G
		EPA 8260	LAP	13	PASI-G
		ASTM D2974-87	JAK	1	PASI-G
		EPA 1010	DEY	1	PASI-G
		EPA 9045	ALY	1	PASI-G
		EPA 9076	CEH	1	PASI-A
		EPA 9095	DEY	1	PASI-G
		EPA 9014	PAS	1	PASI-PA
		SM 4500S2F-00	PAS	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

Sample: Coal Ash **Lab ID:** 40185584001 **Collected:** 04/09/19 09:00 **Received:** 04/10/19 10:50 **Matrix:** Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, TCLP									
Analytical Method: EPA 6010 Preparation Method: EPA 3010									
Leachate Method/Date: EPA 1311; 04/15/19 13:36									
Arsenic	<0.042	mg/L	0.12	0.042	1	04/17/19 13:43	04/19/19 10:40	7440-38-2	
Barium	0.60	mg/L	0.075	0.025	1	04/17/19 13:43	04/19/19 10:40	7440-39-3	
Cadmium	0.073	mg/L	0.025	0.0066	1	04/17/19 13:43	04/19/19 10:40	7440-43-9	
Chromium	0.17	mg/L	0.050	0.013	1	04/17/19 13:43	04/19/19 10:40	7440-47-3	1q
Lead	1.0	mg/L	0.098	0.030	1	04/17/19 13:43	04/19/19 10:40	7439-92-1	
Selenium	<0.061	mg/L	0.25	0.061	1	04/17/19 13:43	04/19/19 10:40	7782-49-2	
Silver	<0.017	mg/L	0.050	0.017	1	04/17/19 13:43	04/19/19 10:40	7440-22-4	
7470 Mercury, TCLP									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Leachate Method/Date: EPA 1311; 04/15/19 13:36									
Mercury	<0.000084	mg/L	0.00028	0.000084	1	04/16/19 12:00	04/17/19 11:13	7439-97-6	
8270 MSSV TCLP Sep Funnel									
Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Leachate Method/Date: EPA 1311; 04/15/19 13:36									
1,4-Dichlorobenzene	<0.019	mg/L	0.062	0.019	1	04/17/19 07:40	04/18/19 14:47	106-46-7	
2,4-Dinitrotoluene	<0.0079	mg/L	0.026	0.0079	1	04/17/19 07:40	04/18/19 14:47	121-14-2	
Hexachloro-1,3-butadiene	<0.025	mg/L	0.082	0.025	1	04/17/19 07:40	04/18/19 14:47	87-68-3	
Hexachlorobenzene	<0.017	mg/L	0.056	0.017	1	04/17/19 07:40	04/18/19 14:47	118-74-1	
Hexachloroethane	<0.027	mg/L	0.089	0.027	1	04/17/19 07:40	04/18/19 14:47	67-72-1	
2-Methylphenol(o-Cresol)	<0.0087	mg/L	0.029	0.0087	1	04/17/19 07:40	04/18/19 14:47	95-48-7	
3&4-Methylphenol(m&p Cresol)	<0.016	mg/L	0.052	0.016	1	04/17/19 07:40	04/18/19 14:47		
Nitrobenzene	<0.015	mg/L	0.048	0.015	1	04/17/19 07:40	04/18/19 14:47	98-95-3	
Pentachlorophenol	<0.014	mg/L	0.048	0.014	1	04/17/19 07:40	04/18/19 14:47	87-86-5	
Phenol	<0.0060	mg/L	0.020	0.0060	1	04/17/19 07:40	04/18/19 14:47	108-95-2	
Pyridine	<0.018	mg/L	0.060	0.018	1	04/17/19 07:40	04/18/19 14:47	110-86-1	
2,4,5-Trichlorophenol	<0.0084	mg/L	0.028	0.0084	1	04/17/19 07:40	04/18/19 14:47	95-95-4	
2,4,6-Trichlorophenol	<0.021	mg/L	0.070	0.021	1	04/17/19 07:40	04/18/19 14:47	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	79	%	51-108		1	04/17/19 07:40	04/18/19 14:47	4165-60-0	
2-Fluorobiphenyl (S)	75	%	47-105		1	04/17/19 07:40	04/18/19 14:47	321-60-8	
2,4,6-Tribromophenol (S)	86	%	57-131		1	04/17/19 07:40	04/18/19 14:47	118-79-6	
Phenol-d6 (S)	35	%	18-120		1	04/17/19 07:40	04/18/19 14:47	13127-88-3	
8260 MSV TCLP									
Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 04/15/19 13:36									
Benzene	<0.0050	mg/L	0.010	0.0050	10		04/17/19 08:38	71-43-2	
2-Butanone (MEK)	<0.030	mg/L	0.20	0.030	10		04/17/19 08:38	78-93-3	
Carbon tetrachloride	<0.0050	mg/L	0.010	0.0050	10		04/17/19 08:38	56-23-5	
Chlorobenzene	<0.0050	mg/L	0.010	0.0050	10		04/17/19 08:38	108-90-7	
Chloroform	<0.025	mg/L	0.050	0.025	10		04/17/19 08:38	67-66-3	
1,2-Dichloroethane	<0.0017	mg/L	0.010	0.0017	10		04/17/19 08:38	107-06-2	
1,1-Dichloroethene	<0.0041	mg/L	0.010	0.0041	10		04/17/19 08:38	75-35-4	
Tetrachloroethene	<0.0050	mg/L	0.010	0.0050	10		04/17/19 08:38	127-18-4	
Trichloroethene	<0.0033	mg/L	0.010	0.0033	10		04/17/19 08:38	79-01-6	
Vinyl chloride	<0.0018	mg/L	0.010	0.0018	10		04/17/19 08:38	75-01-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

Sample: Coal Ash **Lab ID:** 40185584001 Collected: 04/09/19 09:00 Received: 04/10/19 10:50 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 04/15/19 13:36									
Surrogates									
Toluene-d8 (S)	98	%	70-130		10		04/17/19 08:38	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130		10		04/17/19 08:38	460-00-4	
Dibromofluoromethane (S)	110	%	70-130		10		04/17/19 08:38	1868-53-7	
Percent Moisture Analytical Method: ASTM D2974-87									
Percent Moisture	1.2	%	0.10	0.10	1		04/10/19 19:31		
1010 Flashpoint,Closed Cup Analytical Method: EPA 1010									
Flashpoint	>200	deg F			1		04/15/19 14:22		2q
9045 pH Soil Analytical Method: EPA 9045									
pH at 25 Degrees C	4.09	Std. Units	0.100	0.0100	1		04/16/19 10:07		H6
9076 Total Chlorine Analytical Method: EPA 9076									
Chlorine, Total	<0.010	%	0.010	0.010	1		04/20/19 03:06	7782-50-5	N2
9095 Paint Filter Liquid Test Analytical Method: EPA 9095									
Free Liquids	Pass	no units			1		04/12/19 16:00		
733C S Reactive Cyanide Analytical Method: EPA 9014 Preparation Method: SW-846 7.3.3.2									
Cyanide, Reactive	<0.40	mg/kg	1.0	0.40	1	04/18/19 17:35	04/18/19 18:23		
734S Reactive Sulfide Analytical Method: SM 4500S2F-00 Preparation Method: SW-846 7.3.4.2									
Sulfide, Reactive	<10.1	mg/kg	10.1	10.1	1	04/18/19 17:35	04/18/19 17:39		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch:	318544	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury TCLP
Associated Lab Samples:	40185584001		

METHOD BLANK: 1851229 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	04/17/19 10:26	

METHOD BLANK: 1850647 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	04/17/19 11:03	

METHOD BLANK: 1850649 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	04/17/19 11:17	

METHOD BLANK: 1850651 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	04/17/19 11:24	

LABORATORY CONTROL SAMPLE: 1851230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.005	0.0053	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1851231 1851232

Parameter	Units	40185566002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.28 ug/L	0.005	0.005	0.0060	0.0060	119	119	85-115	0	20	M0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

MATRIX SPIKE SAMPLE:		1851234					
Parameter	Units	40185698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000084	0.005	0.0053	105	85-115	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch:	318672	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET TCLP
Associated Lab Samples:	40185584001		

METHOD BLANK: 1851881 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	0.014J	0.025	04/19/19 10:28	
Barium	mg/L	<0.0050	0.015	04/19/19 10:28	
Cadmium	mg/L	<0.0013	0.0050	04/19/19 10:28	
Chromium	mg/L	<0.0025	0.010	04/19/19 10:28	
Lead	mg/L	<0.0059	0.020	04/19/19 10:28	
Selenium	mg/L	<0.012	0.050	04/19/19 10:28	
Silver	mg/L	<0.0033	0.010	04/19/19 10:28	

METHOD BLANK: 1851242 Matrix: Solid
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	0.013J	0.025	04/19/19 11:04	
Barium	mg/L	<0.0050	0.015	04/19/19 11:04	
Cadmium	mg/L	<0.0013	0.0050	04/19/19 11:04	
Chromium	mg/L	<0.0025	0.010	04/19/19 11:04	
Lead	mg/L	0.012J	0.020	04/19/19 11:04	
Selenium	mg/L	<0.012	0.050	04/19/19 11:04	
Silver	mg/L	<0.0033	0.010	04/19/19 11:04	

METHOD BLANK: 1851604 Matrix: Solid
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	0.059J	0.12	04/19/19 10:50	
Barium	mg/L	<0.025	0.075	04/19/19 10:50	
Cadmium	mg/L	<0.0066	0.025	04/19/19 10:50	
Chromium	mg/L	<0.013	0.050	04/19/19 10:50	
Lead	mg/L	<0.030	0.098	04/19/19 10:50	
Selenium	mg/L	<0.061	0.25	04/19/19 10:50	
Silver	mg/L	<0.017	0.050	04/19/19 10:50	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

METHOD BLANK: 1851653

Matrix: Solid

Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	0.048J	0.12	04/19/19 10:45	
Barium	mg/L	<0.025	0.075	04/19/19 10:45	
Cadmium	mg/L	<0.0066	0.025	04/19/19 10:45	
Chromium	mg/L	0.016J	0.050	04/19/19 10:45	
Lead	mg/L	<0.030	0.098	04/19/19 10:45	
Selenium	mg/L	<0.061	0.25	04/19/19 10:45	
Silver	mg/L	<0.017	0.050	04/19/19 10:45	

LABORATORY CONTROL SAMPLE: 1851882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.5	0.48	96	80-120	
Barium	mg/L	0.5	0.51	102	80-120	
Cadmium	mg/L	0.5	0.51	101	80-120	
Chromium	mg/L	0.5	0.50	101	80-120	
Lead	mg/L	0.5	0.51	102	80-120	
Selenium	mg/L	0.5	0.49	98	80-120	
Silver	mg/L	0.25	0.25	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1851883 1851884

Parameter	Units	40185510001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.077J	2.5	2.5	2.4	2.4	91	94	75-125	3	20	
Barium	mg/L	0.27	2.5	2.5	2.8	2.7	100	98	75-125	2	20	
Cadmium	mg/L	0.014J	2.5	2.5	2.5	2.5	100	100	75-125	0	20	
Chromium	mg/L	<0.013	2.5	2.5	2.5	2.5	99	99	75-125	1	20	
Lead	mg/L	0.043J	2.5	2.5	2.5	2.4	97	96	75-125	2	20	
Selenium	mg/L	<0.061	2.5	2.5	2.5	2.6	99	101	75-125	2	20	
Silver	mg/L	<0.017	1.2	1.2	1.3	1.3	101	100	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch: 318487 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV TCLP
Associated Lab Samples: 40185584001

METHOD BLANK: 1850997 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.00041	0.0010	04/16/19 15:18	
1,2-Dichloroethane	mg/L	<0.00017	0.0010	04/16/19 15:18	
2-Butanone (MEK)	mg/L	<0.0030	0.020	04/16/19 15:18	
Benzene	mg/L	<0.00050	0.0010	04/16/19 15:18	
Carbon tetrachloride	mg/L	<0.00050	0.0010	04/16/19 15:18	
Chlorobenzene	mg/L	<0.00050	0.0010	04/16/19 15:18	
Chloroform	mg/L	<0.0025	0.0050	04/16/19 15:18	
Tetrachloroethene	mg/L	<0.00050	0.0010	04/16/19 15:18	
Trichloroethene	mg/L	<0.00033	0.0010	04/16/19 15:18	
Vinyl chloride	mg/L	<0.00018	0.0010	04/16/19 15:18	
4-Bromofluorobenzene (S)	%	88	70-130	04/16/19 15:18	
Dibromofluoromethane (S)	%	105	70-130	04/16/19 15:18	
Toluene-d8 (S)	%	95	70-130	04/16/19 15:18	

METHOD BLANK: 1850652 Matrix: Solid
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.0041	0.010	04/16/19 15:40	
1,2-Dichloroethane	mg/L	<0.0017	0.010	04/16/19 15:40	
2-Butanone (MEK)	mg/L	<0.030	0.20	04/16/19 15:40	
Benzene	mg/L	<0.0050	0.010	04/16/19 15:40	
Carbon tetrachloride	mg/L	<0.0050	0.010	04/16/19 15:40	
Chlorobenzene	mg/L	<0.0050	0.010	04/16/19 15:40	
Chloroform	mg/L	<0.025	0.050	04/16/19 15:40	
Tetrachloroethene	mg/L	<0.0050	0.010	04/16/19 15:40	
Trichloroethene	mg/L	<0.0033	0.010	04/16/19 15:40	
Vinyl chloride	mg/L	<0.0018	0.010	04/16/19 15:40	
4-Bromofluorobenzene (S)	%	90	70-130	04/16/19 15:40	
Dibromofluoromethane (S)	%	110	70-130	04/16/19 15:40	
Toluene-d8 (S)	%	98	70-130	04/16/19 15:40	

LABORATORY CONTROL SAMPLE: 1850998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	0.05	0.054	108	73-150	
1,2-Dichloroethane	mg/L	0.05	0.053	106	75-140	
Benzene	mg/L	0.05	0.054	109	70-130	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

LABORATORY CONTROL SAMPLE: 1850998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	mg/L	0.05	0.057	113	70-130	
Chlorobenzene	mg/L	0.05	0.054	109	70-130	
Chloroform	mg/L	0.05	0.054	108	74-136	
Tetrachloroethene	mg/L	0.05	0.054	107	70-130	
Trichloroethene	mg/L	0.05	0.053	105	70-130	
Vinyl chloride	mg/L	0.05	0.045	90	51-120	
4-Bromofluorobenzene (S)	%			95	70-130	
Dibromofluoromethane (S)	%			107	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1851079 1851080

Parameter	Units	40185566002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.55	0.59	109	119	73-153	8	20	
1,2-Dichloroethane	mg/L	<10.0 ug/L	0.5	0.5	0.57	0.59	113	119	75-140	4	20	
Benzene	mg/L	<10.0 ug/L	0.5	0.5	0.57	0.58	114	117	70-130	2	20	
Carbon tetrachloride	mg/L	<10.0 ug/L	0.5	0.5	0.59	0.62	118	124	70-130	5	20	
Chlorobenzene	mg/L	<10.0 ug/L	0.5	0.5	0.57	0.55	114	111	70-130	3	20	
Chloroform	mg/L	<50.0 ug/L	0.5	0.5	0.56	0.56	111	113	74-136	1	20	
Tetrachloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.54	0.54	108	108	70-130	0	20	
Trichloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.56	0.55	111	111	70-130	1	20	
Vinyl chloride	mg/L	<10.0 ug/L	0.5	0.5	0.49	0.48	99	97	41-129	2	20	
4-Bromofluorobenzene (S)	%						95	94	70-130			
Dibromofluoromethane (S)	%						103	116	70-130			
Toluene-d8 (S)	%						101	100	70-130			

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch:	318606	Analysis Method:	EPA 8270
QC Batch Method:	EPA 3510	Analysis Description:	8270 TCLP MSSV
Associated Lab Samples:	40185584001		

METHOD BLANK: 1851621 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.0038	0.012	04/17/19 15:05	
2,4,5-Trichlorophenol	mg/L	<0.0017	0.0056	04/17/19 15:05	
2,4,6-Trichlorophenol	mg/L	<0.0042	0.014	04/17/19 15:05	
2,4-Dinitrotoluene	mg/L	<0.0016	0.0053	04/17/19 15:05	
2-Methylphenol(o-Cresol)	mg/L	<0.0017	0.0058	04/17/19 15:05	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0031	0.010	04/17/19 15:05	
Hexachloro-1,3-butadiene	mg/L	<0.0049	0.016	04/17/19 15:05	
Hexachlorobenzene	mg/L	<0.0034	0.011	04/17/19 15:05	
Hexachloroethane	mg/L	<0.0053	0.018	04/17/19 15:05	
Nitrobenzene	mg/L	<0.0029	0.0097	04/17/19 15:05	
Pentachlorophenol	mg/L	<0.0029	0.0096	04/17/19 15:05	
Phenol	mg/L	<0.0012	0.0040	04/17/19 15:05	
Pyridine	mg/L	<0.0036	0.012	04/17/19 15:05	
2,4,6-Tribromophenol (S)	%	85	57-131	04/17/19 15:05	
2-Fluorobiphenyl (S)	%	74	47-105	04/17/19 15:05	
Nitrobenzene-d5 (S)	%	83	51-108	04/17/19 15:05	
Phenol-d6 (S)	%	36	18-120	04/17/19 15:05	

METHOD BLANK: 1850648 Matrix: Water
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	04/17/19 23:45	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	04/17/19 23:45	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	04/17/19 23:45	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	04/17/19 23:45	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	04/17/19 23:45	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	04/17/19 23:45	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	04/17/19 23:45	
Hexachlorobenzene	mg/L	<0.017	0.056	04/17/19 23:45	
Hexachloroethane	mg/L	<0.027	0.089	04/17/19 23:45	
Nitrobenzene	mg/L	<0.015	0.048	04/17/19 23:45	
Pentachlorophenol	mg/L	<0.014	0.048	04/17/19 23:45	
Phenol	mg/L	<0.0060	0.020	04/17/19 23:45	
Pyridine	mg/L	<0.018	0.060	04/17/19 23:45	
2,4,6-Tribromophenol (S)	%	85	57-131	04/17/19 23:45	
2-Fluorobiphenyl (S)	%	74	47-105	04/17/19 23:45	
Nitrobenzene-d5 (S)	%	78	51-108	04/17/19 23:45	
Phenol-d6 (S)	%	34	18-120	04/17/19 23:45	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

METHOD BLANK: 1850650

Matrix: Water

Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	04/18/19 00:07	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	04/18/19 00:07	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	04/18/19 00:07	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	04/18/19 00:07	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	04/18/19 00:07	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	04/18/19 00:07	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	04/18/19 00:07	
Hexachlorobenzene	mg/L	<0.017	0.056	04/18/19 00:07	
Hexachloroethane	mg/L	<0.027	0.089	04/18/19 00:07	
Nitrobenzene	mg/L	<0.015	0.048	04/18/19 00:07	
Pentachlorophenol	mg/L	<0.014	0.048	04/18/19 00:07	
Phenol	mg/L	<0.0060	0.020	04/18/19 00:07	
Pyridine	mg/L	<0.018	0.060	04/18/19 00:07	
2,4,6-Tribromophenol (S)	%	86	57-131	04/18/19 00:07	
2-Fluorobiphenyl (S)	%	71	47-105	04/18/19 00:07	
Nitrobenzene-d5 (S)	%	75	51-108	04/18/19 00:07	
Phenol-d6 (S)	%	34	18-120	04/18/19 00:07	

LABORATORY CONTROL SAMPLE: 1851622

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	0.05	0.034	68	57-120	
2,4,5-Trichlorophenol	mg/L	0.05	0.042	85	59-124	
2,4,6-Trichlorophenol	mg/L	0.05	0.041	81	64-125	
2,4-Dinitrotoluene	mg/L	0.05	0.047	93	70-132	
2-Methylphenol(o-Cresol)	mg/L	0.05	0.036	71	45-107	
3&4-Methylphenol(m&p Cresol)	mg/L	0.05	0.032	65	39-130	
Hexachloro-1,3-butadiene	mg/L	0.05	0.033	65	63-107	
Hexachlorobenzene	mg/L	0.05	0.047	94	70-124	
Hexachloroethane	mg/L	0.05	0.030	60	50-130	
Nitrobenzene	mg/L	0.05	0.045	91	70-130	
Pentachlorophenol	mg/L	0.05	0.037	74	61-113	
Phenol	mg/L	0.05	0.020	40	25-120	
Pyridine	mg/L	0.05	0.019	37	10-78	
2,4,6-Tribromophenol (S)	%			83	57-131	
2-Fluorobiphenyl (S)	%			79	47-105	
Nitrobenzene-d5 (S)	%			84	51-108	
Phenol-d6 (S)	%			37	18-120	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

MATRIX SPIKE SAMPLE:		1851623					
Parameter	Units	40185510001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<18.8 ug/L	0.25	0.19	75	55-120	
2,4,5-Trichlorophenol	mg/L	<8.4 ug/L	0.25	0.24	94	26-124	
2,4,6-Trichlorophenol	mg/L	<21.1 ug/L	0.25	0.23	92	29-125	
2,4-Dinitrotoluene	mg/L	<7.9 ug/L	0.25	0.25	101	32-143	
2-Methylphenol(o-Cresol)	mg/L	<8.7 ug/L	0.25	0.23	92	25-107	
3&4-Methylphenol(m&p Cresol)	mg/L	<15.6 ug/L	0.25	0.20	81	21-130	
Hexachloro-1,3-butadiene	mg/L	<24.6 ug/L	0.25	0.18	74	63-109	
Hexachlorobenzene	mg/L	<16.9 ug/L	0.25	0.24	97	57-124	
Hexachloroethane	mg/L	<26.6 ug/L	0.25	0.17	69	50-130	
Nitrobenzene	mg/L	<14.5 ug/L	0.25	0.23	94	23-147	
Pentachlorophenol	mg/L	<14.3 ug/L	0.25	0.22	86	10-200	
Phenol	mg/L	<6.0 ug/L	0.25	0.11	44	20-120	
Pyridine	mg/L	<17.9 ug/L	0.25	0.12	48	10-78	
2,4,6-Tribromophenol (S)	%				95	57-131	
2-Fluorobiphenyl (S)	%				82	47-105	
Nitrobenzene-d5 (S)	%				89	51-108	
Phenol-d6 (S)	%				40	18-120	

MATRIX SPIKE SAMPLE:		1851624					
Parameter	Units	40185736001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.25	0.19	77	55-120	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.25	0.24	94	26-124	
2,4,6-Trichlorophenol	mg/L	<0.021	0.25	0.24	95	29-125	
2,4-Dinitrotoluene	mg/L	<0.0079	0.25	0.25	99	32-143	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.25	0.21	84	25-107	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.25	0.20	80	21-130	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.25	0.19	76	63-109	
Hexachlorobenzene	mg/L	<0.017	0.25	0.24	97	57-124	
Hexachloroethane	mg/L	<0.027	0.25	0.18	72	50-130	
Nitrobenzene	mg/L	<0.015	0.25	0.24	95	23-147	
Pentachlorophenol	mg/L	<0.014	0.25	0.21	82	10-200	
Phenol	mg/L	<0.0060	0.25	0.11	45	20-120	
Pyridine	mg/L	<0.018	0.25	0.12	46	10-78	
2,4,6-Tribromophenol (S)	%				96	57-131	
2-Fluorobiphenyl (S)	%				81	47-105	
Nitrobenzene-d5 (S)	%				93	51-108	
Phenol-d6 (S)	%				40	18-120	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

QC Batch: 317991

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40185584001

SAMPLE DUPLICATE: 1848813

Parameter	Units	40185530001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.0	5.2	4	10	

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

QC Batch: 318348

Analysis Method: EPA 1010

QC Batch Method: EPA 1010

Analysis Description: 1010 Flash Point, Closed Cup

Associated Lab Samples: 40185584001

LABORATORY CONTROL SAMPLE: 1850642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		83.0			

SAMPLE DUPLICATE: 1850893

Parameter	Units	10470465008 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>200	>200			

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

QC Batch: 318498 Analysis Method: EPA 9045

QC Batch Method: EPA 9045 Analysis Description: 9045 pH

Associated Lab Samples: 40185584001

SAMPLE DUPLICATE: 1851021

Parameter	Units	40185682001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.44	6.60	2	5	H6,PI

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch:	318216	Analysis Method:	EPA 9095
QC Batch Method:	EPA 9095	Analysis Description:	9095 PAINT FILTER LIQUID TEST
Associated Lab Samples:	40185584001		

METHOD BLANK: 1850066 Matrix: Solid
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Free Liquids	no units	Fail		04/12/19 15:38	

LABORATORY CONTROL SAMPLE: 1850067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Free Liquids	no units		Pass			

SAMPLE DUPLICATE: 1850068

Parameter	Units	40185693001 Result	Dup Result	RPD	Max RPD	Qualifiers
Free Liquids	no units	Pass	Pass			

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

QC Batch:	338818	Analysis Method:	EPA 9014
QC Batch Method:	SW-846 7.3.3.2	Analysis Description:	733C Reactive Cyanide
Associated Lab Samples:	40185584001		

METHOD BLANK: 1649268 Matrix: Solid

Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Reactive	mg/kg	<0.40	1.0	04/18/19 18:13	

LABORATORY CONTROL SAMPLE: 1649269

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Reactive	mg/kg	99.2	<0.40	0	0-8	

SAMPLE DUPLICATE: 1649270

Parameter	Units	30289771002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Reactive	mg/kg	1.0 U	<0.40		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

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QUALITY CONTROL DATA

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

QC Batch:	338819	Analysis Method:	SM 4500S2F-00
QC Batch Method:	SW-846 7.3.4.2	Analysis Description:	734S Reactive Sulfide
Associated Lab Samples:	40185584001		

METHOD BLANK: 1649271 Matrix: Solid
Associated Lab Samples: 40185584001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide, Reactive	mg/kg	<10	10	04/18/19 17:39	

LABORATORY CONTROL SAMPLE: 1649272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Reactive	mg/kg	199	39.7	20	0-52	

SAMPLE DUPLICATE: 1649273

Parameter	Units	30289771002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Reactive	mg/kg	10 U	<10		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

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QUALIFIERS

Project: UW-Oshkosh Coal Ash
Pace Project No.: 40185584

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, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

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-A Pace Analytical Services - Asheville
PASI-G Pace Analytical Services - Green Bay
PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

1q Analyte was detected in the associated leach blank at a concentration of 0.016 mg/L.
2q Use of method EPA 1010A for flash point analysis on solid samples is for informational purposes only. It is the user's responsibility to verify the acceptance of this data for intended use.
H6 Analysis initiated outside of the 15 minute EPA required holding time.
M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
PI The precision between the sample and the duplicate sample exceeded laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UW-Oshkosh Coal Ash

Pace Project No.: 40185584

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40185584001	Coal Ash	EPA 3010	318672	EPA 6010	318808
40185584001	Coal Ash	EPA 7470	318544	EPA 7470	318603
40185584001	Coal Ash	EPA 3510	318606	EPA 8270	318695
40185584001	Coal Ash	EPA 8260	318487		
40185584001	Coal Ash	ASTM D2974-87	317991		
40185584001	Coal Ash	EPA 1010	318348		
40185584001	Coal Ash	EPA 9045	318498		
40185584001	Coal Ash	EPA 9076	470604		
40185584001	Coal Ash	EPA 9095	318216		
40185584001	Coal Ash	SW-846 7.3.3.2	338818	EPA 9014	338981
40185584001	Coal Ash	SW-846 7.3.4.2	338819	SM 4500S2F-00	338979

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COC No.

40185584



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		

FILTERED?
(YES/NO)
PRESERVATION
(CODE)*

Y / N	N	N	N	N	N	N	N
Pick Letter	A	A	A	A	A	A	A

Analyses Requested

TCLP RCRA Metals

TCLP VOCs

TCLP SVOCs

% Chlorine

Free Liquids, Flashpoint

% Moisture, pH

Reactive Sulfide / CN

1000

Inv	Inv	Inv	
Inv	Inv	Inv	
Inv	Inv	Inv	
Inv	Inv	Inv	

CL
OM

Address

ss:

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370

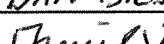
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Pr

File # 10

(Please Print Clearly)

Company Name:	UW-Oshkosh	
Branch/Location:	Oshkosh	
Project Contact:	Dan Biese	
Phone:	(920) 424-4484	
Project Number:	-	
Project Name:	UW-Oshkosh Coal Ash	
Project State:	WI	
Sampled By (Print):	DAN BIESE	
Sampled By (Sign):		
PO #:	N/A	Regulatory Program:

Data Package Options (billable)		MS/MSD	Matrix
☐	EPA Level III	☐ On your sample (billable)	A = Air B = Biota C = Charcoal
☐	EPA Level IV	☐ NOT needed on your sample	O = Oil S = Soil Sl = Sludge

[illegible]

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:		Reli
Transmit Prelim Rush Results by (complete what you want):		Reli
Email #1:	<i>biesed@uwosh.edu</i>	Reli
Email #2:		
Telephone:		Reli
Fax:		
Samples on HOLD are subject to special pricing and release of liability		Reli

Acquisition By: DAN BIESE	Date/Time: 4/9/19 9:00 AM
Acquisition By: [Signature]	Date/Time: 4/10/19 10:50
Acquisition By:	Date/Time:
Acquisition By:	Date/Time:
Acquisition By:	Date/Time:

Received By:	Date/Time:
Received By: 	Date/Time: 4/10/19 1050
Received By:	Date/Time:
Received By:	Date/Time:
Received By:	Date/Time:

PACE Project No.	
40185584	
Receipt Temp =	72.5 °C
Sample Receipt pH	
OK / Adjusted	
Cooler Custody Seal	
Present /	Not Present
Intact / Not intact	

Sample Preservation Receipt Form

Client Name: UW Oshkosh

Project # 40185589

All containers needing preservation have been checked and noted below: ☐ Yes ☐ No ☒ N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when
completed:

Date/
Time:

Pace Lab #	Glass							Plastic							Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	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						
001																																2.5 / 5 / 10
002																																2.5 / 5 / 10
003																																2.5 / 5 / 10
004																																2.5 / 5 / 10
005																																2.5 / 5 / 10
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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:	



1241 Bellevue Street, Green Bay, WI 54302

Document Name:
Sample Condition Upon Receipt (SCUR)
Document No.:
F-GB-C-031-Rev.07Document Revised: 25Apr2018
Issuing Authority:
Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: UWoshkosh

Project #:

W0#: **40185584**Courier: ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☒ UPS ☐ Waltco
☐ Client ☐ Pace Other: NoneTracking #: 1251631203519837801Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noCustody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noPacking Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ OtherThermometer Used SR - 66 Type of Ice: Wet Blue Dry ☒ None ☐ Samples on ice, cooling process has begunCooler Temperature Uncorr: 22 / Corr: 22.5Temp Blank Present: ☐ yes ☒ noBiological Tissue is Frozen: ☐ yes ☐ no

Person examining contents:

Date: 4/10/19Initials: AS

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. <u>no id, date, time</u>
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	5.
- VOA Samples frozen upon receipt	☐ Yes ☐ No	Date/Time:
Short Hold Time Analysis (<72hr):	☐ Yes ☒ No	6.
Rush Turn Around Time Requested:	☐ Yes ☒ No	7.
Sufficient Volume:		8.
For Analysis: ☒ Yes ☐ No MS/MSD: ☐ Yes ☒ No ☐ N/A		
Correct Containers Used:	☒ Yes ☐ No	9.
-Pace Containers Used:	☒ Yes ☐ No ☐ N/A	
-Pace IR Containers Used:	☐ Yes ☐ No ☒ N/A	
Containers Intact:	☒ Yes ☐ No	10.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	11.
Sample Labels match COC:	☐ Yes ☒ No ☐ N/A	12. <u>10 "Van Biele" 4/11/19 @ 0900</u>
-Includes date/time/ID/Analysis Matrix: <u>S</u>		<u>4/11/19</u>
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:

Client placed label on sample like a custody sealProject Manager Review: AWDate: 4/11/19

October 25, 2018

MARK METCALF
WEC Business Services, LLC.
PO BOX 19800
700 NORTH ADAMS
Green Bay, WI 543079004

RE: Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Dear MARK METCALF:

Enclosed are the analytical results for sample(s) received by the laboratory on October 12, 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: Patrick Ahrens, WEC Business Services, LLC.
Jeff Dykhuis, WEC Business Services, LLC.
Tom Jansen, WE Energies



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40177595001	WESTON 4 FLY ASH	Solid	10/12/18 00:00	10/12/18 13:02

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SAMPLE ANALYTE COUNT

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40177595001	WESTON 4 FLY ASH	EPA 6010	TXW	7	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 8270	RJN	17	PASI-G
		EPA 8260	HNW	13	PASI-G
		ASTM D2974-87	JXS	1	PASI-G
		EPA 1010	DEY	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 9076	MJP	1	PASI-A
		EPA 9095	DDY	1	PASI-G
		SM 2710F	DEY	1	PASI-G
		EPA 9014	PAS	1	PASI-PA
		SM4500S2F-00	PAS	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: EPA 6010
Description: 6010 MET ICP, TCLP
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: EPA 7470
Description: 7470 Mercury, TCLP
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 303426

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):
10451259001,40177385001,40177395001,40177480001,40177541001,40177595001,40177596001

MO: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1772293)
- Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: EPA 8270

Description: 8270 MSSV TCLP Sep Funnel

Client: WEC Business Services, LLC.

Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

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

QC Batch: 303829

S0: Surrogate recovery outside laboratory control limits.

- LCS (Lab ID: 1775444)
 - 2,4,6-Tribromophenol (S)
- MS (Lab ID: 1775445)
 - 2,4,6-Tribromophenol (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 303829

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):

40177480001,40177505001,40177506001,40177621001,40177838001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 1775447)
 - Hexachloroethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: EPA 8270

Description: 8270 MSSV TCLP Sep Funnel

Client: WEC Business Services, LLC.

Date: October 25, 2018

QC Batch: 303829

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):
40177480001,40177505001,40177506001,40177621001,40177838001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- Nitrobenzene
- Pentachlorophenol

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: EPA 8260
Description: 8260 MSV TCLP
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: EPA 1010
Description: 1010 Flashpoint,Closed Cup
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 1010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 303161

2q: Use of method EPA 1010A for flash point analysis on solid samples is for informational purposes only. It is the user's responsibility to verify the acceptance of this data for intended use.

- WESTON 4 FLY ASH (Lab ID: 40177595001)
- Flashpoint

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: EPA 9040

Description: 9040 pH

Client: WEC Business Services, LLC.

Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 9040. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- WESTON 4 FLY ASH (Lab ID: 40177595001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 303308

1q: Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.

- WESTON 4 FLY ASH (Lab ID: 40177595001)
- pH at 25 Degrees C

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: EPA 9076

Description: 9076 Total Chlorine

Client: WEC Business Services, LLC.

Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 9076. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

Analyte Comments:

QC Batch: 437300

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- MS (Lab ID: 2405201)
 - Chlorine, Total
- MSD (Lab ID: 2405202)
 - Chlorine, Total
- WESTON 4 FLY ASH (Lab ID: 40177595001)
 - Chlorine, Total

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: EPA 9095

Description: 9095 Paint Filter Liquid Test

Client: WEC Business Services, LLC.

Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 9095. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Method: SM 2710F

Description: Specific Gravity

Client: WEC Business Services, LLC.

Date: October 25, 2018

General Information:

1 sample was analyzed for SM 2710F. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: EPA 9014
Description: 733C S Reactive Cyanide
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for EPA 9014. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with SW-846 7.3.3.2 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

Method: SM4500S2F-00
Description: 734S Reactive Sulfide
Client: WEC Business Services, LLC.
Date: October 25, 2018

General Information:

1 sample was analyzed for SM4500S2F-00. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with SW-846 7.3.4.2 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Sample: WESTON 4 FLY ASH **Lab ID: 40177595001** Collected: 10/12/18 00:00 Received: 10/12/18 13:02 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, TCLP									
Analytical Method: EPA 6010 Preparation Method: EPA 3010									
Leachate Method/Date: EPA 1311; 10/15/18 14:35									
Arsenic	<0.042	mg/L	0.12	0.042	1	10/17/18 06:44	10/18/18 12:04	7440-38-2	
Barium	0.69	mg/L	0.075	0.025	1	10/17/18 06:44	10/18/18 12:04	7440-39-3	
Cadmium	<0.0066	mg/L	0.025	0.0066	1	10/17/18 06:44	10/18/18 12:04	7440-43-9	
Chromium	0.081	mg/L	0.050	0.013	1	10/17/18 06:44	10/18/18 12:04	7440-47-3	
Lead	<0.030	mg/L	0.098	0.030	1	10/17/18 06:44	10/18/18 12:04	7439-92-1	
Selenium	<0.061	mg/L	0.25	0.061	1	10/17/18 06:44	10/18/18 12:04	7782-49-2	
Silver	<0.017	mg/L	0.050	0.017	1	10/17/18 06:44	10/18/18 12:04	7440-22-4	
7470 Mercury, TCLP									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Leachate Method/Date: EPA 1311; 10/15/18 14:35									
Mercury	0.00038	mg/L	0.00028	0.000084	1	10/17/18 07:20	10/17/18 13:06	7439-97-6	M0
8270 MSSV TCLP Sep Funnel									
Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Leachate Method/Date: EPA 1311; 10/15/18 14:35									
1,4-Dichlorobenzene	<0.019	mg/L	0.062	0.019	1	10/22/18 07:35	10/22/18 17:17	106-46-7	
2,4-Dinitrotoluene	<0.0079	mg/L	0.026	0.0079	1	10/22/18 07:35	10/22/18 17:17	121-14-2	
Hexachloro-1,3-butadiene	<0.025	mg/L	0.082	0.025	1	10/22/18 07:35	10/22/18 17:17	87-68-3	
Hexachlorobenzene	<0.017	mg/L	0.056	0.017	1	10/22/18 07:35	10/22/18 17:17	118-74-1	
Hexachloroethane	<0.027	mg/L	0.089	0.027	1	10/22/18 07:35	10/22/18 17:17	67-72-1	
2-Methylphenol(o-Cresol)	<0.0087	mg/L	0.029	0.0087	1	10/22/18 07:35	10/22/18 17:17	95-48-7	
3&4-Methylphenol(m&p Cresol)	<0.016	mg/L	0.052	0.016	1	10/22/18 07:35	10/22/18 17:17		
Nitrobenzene	<0.015	mg/L	0.048	0.015	1	10/22/18 07:35	10/22/18 17:17	98-95-3	
Pentachlorophenol	<0.014	mg/L	0.048	0.014	1	10/22/18 07:35	10/22/18 17:17	87-86-5	
Phenol	<6.0	ug/L	20.0	6.0	1	10/22/18 07:35	10/22/18 17:17	108-95-2	
Pyridine	<0.018	mg/L	0.060	0.018	1	10/22/18 07:35	10/22/18 17:17	110-86-1	
2,4,5-Trichlorophenol	<0.0084	mg/L	0.028	0.0084	1	10/22/18 07:35	10/22/18 17:17	95-95-4	
2,4,6-Trichlorophenol	<0.021	mg/L	0.070	0.021	1	10/22/18 07:35	10/22/18 17:17	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	85	%	56-120		1	10/22/18 07:35	10/22/18 17:17	4165-60-0	
2-Fluorobiphenyl (S)	86	%	54-122		1	10/22/18 07:35	10/22/18 17:17	321-60-8	
2,4,6-Tribromophenol (S)	122	%	58-134		1	10/22/18 07:35	10/22/18 17:17	118-79-6	
Phenol-d6 (S)	33	%	16-120		1	10/22/18 07:35	10/22/18 17:17	13127-88-3	
8260 MSV TCLP									
Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 10/15/18 14:35									
Benzene	<0.0050	mg/L	0.010	0.0050	10		10/16/18 20:04	71-43-2	
2-Butanone (MEK)	<0.030	mg/L	0.20	0.030	10		10/16/18 20:04	78-93-3	
Carbon tetrachloride	<0.0050	mg/L	0.010	0.0050	10		10/16/18 20:04	56-23-5	
Chlorobenzene	<0.0050	mg/L	0.010	0.0050	10		10/16/18 20:04	108-90-7	
Chloroform	<0.025	mg/L	0.050	0.025	10		10/16/18 20:04	67-66-3	
1,2-Dichloroethane	<0.0017	mg/L	0.010	0.0017	10		10/16/18 20:04	107-06-2	
1,1-Dichloroethene	<0.0041	mg/L	0.010	0.0041	10		10/16/18 20:04	75-35-4	
Tetrachloroethene	<0.0050	mg/L	0.010	0.0050	10		10/16/18 20:04	127-18-4	
Trichloroethene	<0.0033	mg/L	0.010	0.0033	10		10/16/18 20:04	79-01-6	
Vinyl chloride	<0.0018	mg/L	0.010	0.0018	10		10/16/18 20:04	75-01-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Sample: WESTON 4 FLY ASH **Lab ID: 40177595001** Collected: 10/12/18 00:00 Received: 10/12/18 13:02 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP	Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 10/15/18 14:35								
Surrogates									
Toluene-d8 (S)	106	%	70-130		10		10/16/18 20:04	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		10		10/16/18 20:04	460-00-4	
Dibromofluoromethane (S)	96	%	70-130		10		10/16/18 20:04	1868-53-7	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	27.4	%	0.10	0.10	1		10/12/18 17:53		
1010 Flashpoint,Closed Cup	Analytical Method: EPA 1010								
Flashpoint	>200	deg F			1		10/15/18 12:02		2q
9040 pH	Analytical Method: EPA 9040								
pH at 25 Degrees C	11.4	Std. Units	0.10	0.010	1		10/16/18 10:35		1q,H6
9076 Total Chlorine	Analytical Method: EPA 9076								
Chlorine, Total	0.028	%	0.010	0.010	1		10/19/18 14:29	7782-50-5	N2
9095 Paint Filter Liquid Test	Analytical Method: EPA 9095								
Free Liquids	pass	no units			1		10/15/18 14:05		
Specific Gravity	Analytical Method: SM 2710F								
Specific Gravity	1.7	no units			1		10/18/18 14:08		
733C S Reactive Cyanide	Analytical Method: EPA 9014 Preparation Method: SW-846 7.3.3.2								
Cyanide, Reactive	<0.55	mg/kg	1.4	0.55	1	10/18/18 23:11	10/19/18 00:16		
734S Reactive Sulfide	Analytical Method: SM4500S2F-00 Preparation Method: SW-846 7.3.4.2								
Sulfide, Reactive	<13.7	mg/kg	13.7	13.7	1	10/18/18 23:11	10/18/18 23:14		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

QC Batch:	303426	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury TCLP
Associated Lab Samples:	40177595001		

METHOD BLANK: 1772285 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	10/17/18 12:22	

METHOD BLANK: 1769037 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	10/17/18 12:38	

METHOD BLANK: 1770912 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	10/17/18 13:18	

METHOD BLANK: 1770915 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	10/17/18 13:11	

METHOD BLANK: 1770916 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.000084	0.00028	10/17/18 12:59	

LABORATORY CONTROL SAMPLE: 1772286

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0053	105	85-115	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1772287 1772288											
Parameter	Units	40177385001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Mercury	mg/L	<0.084 ug/L	.005	.005	0.0049	0.0048	97	96	85-115	1	20

MATRIX SPIKE SAMPLE: 1772289							
Parameter	Units	40177541001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.084 ug/L	.005	0.0050	99	85-115	

MATRIX SPIKE SAMPLE: 1772290							
Parameter	Units	10451259001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.084 ug/L	.005	0.0050	99	85-115	

MATRIX SPIKE SAMPLE: 1772291							
Parameter	Units	40177395001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.084 ug/L	.005	0.0051	100	85-115	

MATRIX SPIKE SAMPLE: 1772292							
Parameter	Units	40177480001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00015J	.005	0.0051	99	85-115	

MATRIX SPIKE SAMPLE: 1772293							
Parameter	Units	40177595001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00038	.005	0.0046	84	85-115	M0

MATRIX SPIKE SAMPLE: 1772294							
Parameter	Units	40177596001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00040	.005	0.0054	99	85-115	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

QC Batch:	303424	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET TCLP
Associated Lab Samples:	40177595001		

METHOD BLANK: 1772270 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	10/18/18 11:07	
Barium	mg/L	<0.0050	0.015	10/18/18 11:07	
Cadmium	mg/L	<0.0013	0.0050	10/18/18 11:07	
Chromium	mg/L	<0.0025	0.010	10/18/18 11:07	
Lead	mg/L	<0.0059	0.020	10/18/18 11:07	
Selenium	mg/L	<0.012	0.050	10/18/18 11:07	
Silver	mg/L	<0.0033	0.010	10/18/18 11:07	

METHOD BLANK: 1770901 Matrix: Solid
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	10/18/18 11:52	
Barium	mg/L	<0.025	0.075	10/18/18 11:52	
Cadmium	mg/L	<0.0066	0.025	10/18/18 11:52	
Chromium	mg/L	<0.013	0.050	10/18/18 11:52	
Lead	mg/L	<0.030	0.098	10/18/18 11:52	
Selenium	mg/L	<0.061	0.25	10/18/18 11:52	
Silver	mg/L	<0.017	0.050	10/18/18 11:52	

METHOD BLANK: 1770902 Matrix: Solid
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	10/18/18 12:09	
Barium	mg/L	<0.025	0.075	10/18/18 12:09	
Cadmium	mg/L	<0.0066	0.025	10/18/18 12:09	
Chromium	mg/L	<0.013	0.050	10/18/18 12:09	
Lead	mg/L	<0.030	0.098	10/18/18 12:09	
Selenium	mg/L	<0.061	0.25	10/18/18 12:09	
Silver	mg/L	<0.017	0.050	10/18/18 12:09	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

METHOD BLANK: 1770903

Matrix: Solid

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.042	0.12	10/18/18 12:16	
Barium	mg/L	<0.025	0.075	10/18/18 12:16	
Cadmium	mg/L	<0.0066	0.025	10/18/18 12:16	
Chromium	mg/L	<0.013	0.050	10/18/18 12:16	
Lead	mg/L	<0.030	0.098	10/18/18 12:16	
Selenium	mg/L	<0.061	0.25	10/18/18 12:16	
Silver	mg/L	<0.017	0.050	10/18/18 12:16	

METHOD BLANK: 1770904

Matrix: Solid

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	10/18/18 12:24	
Barium	mg/L	<0.0050	0.015	10/18/18 12:24	
Cadmium	mg/L	<0.0013	0.0050	10/18/18 12:24	
Chromium	mg/L	<0.0025	0.010	10/18/18 12:24	
Lead	mg/L	<0.0059	0.020	10/18/18 12:24	
Selenium	mg/L	<0.012	0.050	10/18/18 12:24	
Silver	mg/L	<0.0033	0.010	10/18/18 12:24	

LABORATORY CONTROL SAMPLE: 1772271

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.5	0.44	89	80-120	
Barium	mg/L	.5	0.47	94	80-120	
Cadmium	mg/L	.5	0.45	90	80-120	
Chromium	mg/L	.5	0.50	101	80-120	
Lead	mg/L	.5	0.48	96	80-120	
Selenium	mg/L	.5	0.44	88	80-120	
Silver	mg/L	.25	0.26	102	80-120	

MATRIX SPIKE SAMPLE: 1772272

Parameter	Units	10451259001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	91	75-125	
Barium	mg/L	0.15	2.5	2.5	93	75-125	
Cadmium	mg/L	<0.0066	2.5	2.2	89	75-125	
Chromium	mg/L	<0.013	2.5	2.5	100	75-125	
Lead	mg/L	<0.030	2.5	2.3	91	75-125	
Selenium	mg/L	<0.061	2.5	2.2	88	75-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

MATRIX SPIKE SAMPLE:		1772272					
Parameter	Units	10451259001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Silver	mg/L	<0.017	1.2	1.3	105	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:			1772273		1772274							
Parameter	Units	40176305004	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike	Spike								Result
Arsenic	mg/L	<0.042	2.5	2.5	2.3	2.3	91	92	75-125	1	20	
Barium	mg/L	0.61	2.5	2.5	2.9	2.9	92	93	75-125	1	20	
Cadmium	mg/L	0.028	2.5	2.5	2.3	2.3	90	91	75-125	2	20	
Chromium	mg/L	<0.013	2.5	2.5	2.4	2.5	97	99	75-125	2	20	
Lead	mg/L	2.9	2.5	2.5	5.0	5.1	85	90	75-125	2	20	
Selenium	mg/L	<0.061	2.5	2.5	2.2	2.3	89	92	75-125	3	20	
Silver	mg/L	<0.017	1.2	1.2	1.3	1.3	103	105	75-125	1	20	

MATRIX SPIKE SAMPLE:		1772275					
Parameter	Units	40177395001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.2	89	75-125	
Barium	mg/L	<0.025	2.5	2.3	93	75-125	
Cadmium	mg/L	0.0080J	2.5	2.2	89	75-125	
Chromium	mg/L	0.015J	2.5	2.5	99	75-125	
Lead	mg/L	<0.030	2.5	2.3	91	75-125	
Selenium	mg/L	<0.061	2.5	2.3	89	75-125	
Silver	mg/L	<0.017	1.2	1.3	104	75-125	

MATRIX SPIKE SAMPLE:		1772276					
Parameter	Units	40177480001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	91	75-125	
Barium	mg/L	0.28	2.5	2.6	93	75-125	
Cadmium	mg/L	<0.0066	2.5	2.3	91	75-125	
Chromium	mg/L	<0.013	2.5	2.4	96	75-125	
Lead	mg/L	0.24	2.5	2.5	90	75-125	
Selenium	mg/L	<0.061	2.5	2.2	90	75-125	
Silver	mg/L	<0.017	1.2	1.3	104	75-125	

MATRIX SPIKE SAMPLE:		1772277					
Parameter	Units	40177541001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	92	75-125	
Barium	mg/L	0.14	2.5	2.5	94	75-125	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

MATRIX SPIKE SAMPLE: 1772277		40177541001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Cadmium	mg/L	0.030	2.5	2.3	91	75-125	
Chromium	mg/L	<0.013	2.5	2.5	99	75-125	
Lead	mg/L	0.95	2.5	3.4	97	75-125	
Selenium	mg/L	<0.061	2.5	2.3	90	75-125	
Silver	mg/L	<0.017	1.2	1.3	106	75-125	

MATRIX SPIKE SAMPLE: 1772278		40177546001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	93	75-125	
Barium	mg/L	0.074J	2.5	2.4	93	75-125	
Cadmium	mg/L	0.0089J	2.5	2.3	90	75-125	
Chromium	mg/L	2.5	2.5	5.1	100	75-125	
Lead	mg/L	<0.030	2.5	2.3	91	75-125	
Selenium	mg/L	<0.061	2.5	2.3	89	75-125	
Silver	mg/L	<0.017	1.2	1.3	104	75-125	

MATRIX SPIKE SAMPLE: 1772279		40177595001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.4	94	75-125	
Barium	mg/L	0.69	2.5	3.1	94	75-125	
Cadmium	mg/L	<0.0066	2.5	2.3	92	75-125	
Chromium	mg/L	0.081	2.5	2.5	97	75-125	
Lead	mg/L	<0.030	2.5	2.3	91	75-125	
Selenium	mg/L	<0.061	2.5	2.3	91	75-125	
Silver	mg/L	<0.017	1.2	1.3	106	75-125	

MATRIX SPIKE SAMPLE: 1772280		40177596001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	<0.042	2.5	2.3	94	75-125	
Barium	mg/L	<0.025	2.5	2.4	95	75-125	
Cadmium	mg/L	<0.0066	2.5	2.3	93	75-125	
Chromium	mg/L	<0.013	2.5	2.5	99	75-125	
Lead	mg/L	<0.030	2.5	2.3	92	75-125	
Selenium	mg/L	<0.061	2.5	2.3	93	75-125	
Silver	mg/L	<0.017	1.2	1.3	105	75-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

QC Batch:	303318	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV TCLP
Associated Lab Samples:	40177595001		

METHOD BLANK: 1771608 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.00041	0.0010	10/16/18 16:20	
1,2-Dichloroethane	mg/L	<0.00017	0.0010	10/16/18 16:20	
2-Butanone (MEK)	mg/L	<0.0030	0.020	10/16/18 16:20	
Benzene	mg/L	<0.00050	0.0010	10/16/18 16:20	
Carbon tetrachloride	mg/L	<0.00050	0.0010	10/16/18 16:20	
Chlorobenzene	mg/L	<0.00050	0.0010	10/16/18 16:20	
Chloroform	mg/L	<0.0025	0.0050	10/16/18 16:20	
Tetrachloroethene	mg/L	<0.00050	0.0010	10/16/18 16:20	
Trichloroethene	mg/L	<0.00033	0.0010	10/16/18 16:20	
Vinyl chloride	mg/L	<0.00018	0.0010	10/16/18 16:20	
4-Bromofluorobenzene (S)	%	99	70-130	10/16/18 16:20	
Dibromofluoromethane (S)	%	95	70-130	10/16/18 16:20	
Toluene-d8 (S)	%	105	70-130	10/16/18 16:20	

METHOD BLANK: 1770889 Matrix: Solid
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.0041	0.010	10/16/18 18:57	
1,2-Dichloroethane	mg/L	<0.0017	0.010	10/16/18 18:57	
2-Butanone (MEK)	mg/L	0.38	0.20	10/16/18 18:57	
Benzene	mg/L	<0.0050	0.010	10/16/18 18:57	
Carbon tetrachloride	mg/L	<0.0050	0.010	10/16/18 18:57	
Chlorobenzene	mg/L	<0.0050	0.010	10/16/18 18:57	
Chloroform	mg/L	<0.025	0.050	10/16/18 18:57	
Tetrachloroethene	mg/L	<0.0050	0.010	10/16/18 18:57	
Trichloroethene	mg/L	<0.0033	0.010	10/16/18 18:57	
Vinyl chloride	mg/L	<0.0018	0.010	10/16/18 18:57	
4-Bromofluorobenzene (S)	%	100	70-130	10/16/18 18:57	
Dibromofluoromethane (S)	%	95	70-130	10/16/18 18:57	
Toluene-d8 (S)	%	106	70-130	10/16/18 18:57	

LABORATORY CONTROL SAMPLE: 1771609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	.05	0.047	93	75-132	
1,2-Dichloroethane	mg/L	.05	0.049	99	73-134	
Benzene	mg/L	.05	0.053	105	69-137	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

LABORATORY CONTROL SAMPLE: 1771609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	mg/L	.05	0.051	101	73-142	
Chlorobenzene	mg/L	.05	0.051	101	70-130	
Chloroform	mg/L	.05	0.048	96	80-129	
Tetrachloroethene	mg/L	.05	0.055	109	70-130	
Trichloroethene	mg/L	.05	0.056	111	70-130	
Vinyl chloride	mg/L	.05	0.039	79	48-134	
4-Bromofluorobenzene (S)	%			112	70-130	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			106	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1771960 1771961

Parameter	Units	40177501001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	mg/L	<4.1 ug/L	.5	.5	0.49	0.48	97	97	72-137	0	20	
1,2-Dichloroethane	mg/L	<1.7 ug/L	.5	.5	0.51	0.49	101	99	71-137	3	20	
Benzene	mg/L	<0.0050	.5	.5	0.53	0.53	106	105	66-143	1	20	
Carbon tetrachloride	mg/L	<5.0 ug/L	.5	.5	0.50	0.50	101	100	73-142	1	20	
Chlorobenzene	mg/L	<5.0 ug/L	.5	.5	0.51	0.50	101	101	70-130	1	20	
Chloroform	mg/L	<25.0 ug/L	.5	.5	0.47	0.48	95	96	80-131	1	20	
Tetrachloroethene	mg/L	<5.0 ug/L	.5	.5	0.54	0.53	108	107	70-132	1	20	
Trichloroethene	mg/L	<3.3 ug/L	.5	.5	0.55	0.55	110	111	70-131	1	20	
Vinyl chloride	mg/L	<1.8 ug/L	.5	.5	0.41	0.42	82	84	46-134	2	20	
4-Bromofluorobenzene (S)	%						112	111	70-130			
Dibromofluoromethane (S)	%						94	94	70-130			
Toluene-d8 (S)	%						105	106	70-130			

MATRIX SPIKE SAMPLE: 1771962

Parameter	Units	40177595001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	<0.0041	.5	0.48	96	72-137	
1,2-Dichloroethane	mg/L	<0.0017	.5	0.51	102	71-137	
Benzene	mg/L	<0.0050	.5	0.53	107	66-143	
Carbon tetrachloride	mg/L	<0.0050	.5	0.51	101	73-142	
Chlorobenzene	mg/L	<0.0050	.5	0.51	102	70-130	
Chloroform	mg/L	<0.025	.5	0.48	97	80-131	
Tetrachloroethene	mg/L	<0.0050	.5	0.54	109	70-132	
Trichloroethene	mg/L	<0.0033	.5	0.56	111	70-131	
Vinyl chloride	mg/L	<0.0018	.5	0.42	84	46-134	
4-Bromofluorobenzene (S)	%				113	70-130	
Dibromofluoromethane (S)	%				96	70-130	
Toluene-d8 (S)	%				107	70-130	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

QC Batch:	303829	Analysis Method:	EPA 8270
QC Batch Method:	EPA 3510	Analysis Description:	8270 TCLP MSSV
Associated Lab Samples:	40177595001		

METHOD BLANK: 1775443 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.0038	0.012	10/22/18 12:35	
2,4,5-Trichlorophenol	mg/L	<0.0017	0.0056	10/22/18 12:35	
2,4,6-Trichlorophenol	mg/L	<0.0042	0.014	10/22/18 12:35	
2,4-Dinitrotoluene	mg/L	<0.0016	0.0053	10/22/18 12:35	
2-Methylphenol(o-Cresol)	mg/L	<0.0017	0.0058	10/22/18 12:35	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0031	0.010	10/22/18 12:35	
Hexachloro-1,3-butadiene	mg/L	<0.0049	0.016	10/22/18 12:35	
Hexachlorobenzene	mg/L	<0.0034	0.011	10/22/18 12:35	
Hexachloroethane	mg/L	<0.0053	0.018	10/22/18 12:35	
Nitrobenzene	mg/L	<0.0029	0.0097	10/22/18 12:35	
Pentachlorophenol	mg/L	<0.0029	0.0096	10/22/18 12:35	
Phenol	ug/L	<1.2	4.0	10/22/18 12:35	
Pyridine	mg/L	<0.0036	0.012	10/22/18 12:35	
2,4,6-Tribromophenol (S)	%	131	58-134	10/22/18 12:35	
2-Fluorobiphenyl (S)	%	102	54-122	10/22/18 12:35	
Nitrobenzene-d5 (S)	%	98	56-120	10/22/18 12:35	
Phenol-d6 (S)	%	33	16-120	10/22/18 12:35	

METHOD BLANK: 1770913 Matrix: Water
Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	10/22/18 20:55	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	10/22/18 20:55	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	10/22/18 20:55	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	10/22/18 20:55	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	10/22/18 20:55	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	10/22/18 20:55	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	10/22/18 20:55	
Hexachlorobenzene	mg/L	<0.017	0.056	10/22/18 20:55	
Hexachloroethane	mg/L	<0.027	0.089	10/22/18 20:55	
Nitrobenzene	mg/L	<0.015	0.048	10/22/18 20:55	
Pentachlorophenol	mg/L	<0.014	0.048	10/22/18 20:55	
Phenol	ug/L	<6.0	20.0	10/22/18 20:55	
Pyridine	mg/L	<0.018	0.060	10/22/18 20:55	
2,4,6-Tribromophenol (S)	%	113	58-134	10/22/18 20:55	
2-Fluorobiphenyl (S)	%	78	54-122	10/22/18 20:55	
Nitrobenzene-d5 (S)	%	78	56-120	10/22/18 20:55	
Phenol-d6 (S)	%	28	16-120	10/22/18 20:55	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

METHOD BLANK: 1770914

Matrix: Water

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	10/22/18 21:17	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	10/22/18 21:17	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	10/22/18 21:17	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	10/22/18 21:17	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	10/22/18 21:17	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	10/22/18 21:17	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	10/22/18 21:17	
Hexachlorobenzene	mg/L	<0.017	0.056	10/22/18 21:17	
Hexachloroethane	mg/L	<0.027	0.089	10/22/18 21:17	
Nitrobenzene	mg/L	<0.015	0.048	10/22/18 21:17	
Pentachlorophenol	mg/L	<0.014	0.048	10/22/18 21:17	
Phenol	ug/L	<6.0	20.0	10/22/18 21:17	
Pyridine	mg/L	<0.018	0.060	10/22/18 21:17	
2,4,6-Tribromophenol (S)	%	117	58-134	10/22/18 21:17	
2-Fluorobiphenyl (S)	%	83	54-122	10/22/18 21:17	
Nitrobenzene-d5 (S)	%	71	56-120	10/22/18 21:17	
Phenol-d6 (S)	%	28	16-120	10/22/18 21:17	

METHOD BLANK: 1771858

Matrix: Water

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	10/23/18 14:57	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	10/23/18 14:57	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	10/23/18 14:57	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	10/23/18 14:57	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	10/23/18 14:57	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	10/23/18 14:57	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	10/23/18 14:57	
Hexachlorobenzene	mg/L	<0.017	0.056	10/23/18 14:57	
Hexachloroethane	mg/L	<0.027	0.089	10/23/18 14:57	
Nitrobenzene	mg/L	<0.015	0.048	10/23/18 14:57	
Pentachlorophenol	mg/L	<0.014	0.048	10/23/18 14:57	
Phenol	ug/L	<6.0	20.0	10/23/18 14:57	
Pyridine	mg/L	<0.018	0.060	10/23/18 14:57	
2,4,6-Tribromophenol (S)	%	97	58-134	10/23/18 14:57	
2-Fluorobiphenyl (S)	%	69	54-122	10/23/18 14:57	
Nitrobenzene-d5 (S)	%	58	56-120	10/23/18 14:57	
Phenol-d6 (S)	%	24	16-120	10/23/18 14:57	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

METHOD BLANK: 1773592

Matrix: Water

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	0.062	10/23/18 15:19	
2,4,5-Trichlorophenol	mg/L	<0.0084	0.028	10/23/18 15:19	
2,4,6-Trichlorophenol	mg/L	<0.021	0.070	10/23/18 15:19	
2,4-Dinitrotoluene	mg/L	<0.0079	0.026	10/23/18 15:19	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	0.029	10/23/18 15:19	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	0.052	10/23/18 15:19	
Hexachloro-1,3-butadiene	mg/L	<0.025	0.082	10/23/18 15:19	
Hexachlorobenzene	mg/L	<0.017	0.056	10/23/18 15:19	
Hexachloroethane	mg/L	<0.027	0.089	10/23/18 15:19	
Nitrobenzene	mg/L	<0.015	0.048	10/23/18 15:19	
Pentachlorophenol	mg/L	<0.014	0.048	10/23/18 15:19	
Phenol	ug/L	<6.0	20.0	10/23/18 15:19	
Pyridine	mg/L	<0.018	0.060	10/23/18 15:19	
2,4,6-Tribromophenol (S)	%	103	58-134	10/23/18 15:19	
2-Fluorobiphenyl (S)	%	95	54-122	10/23/18 15:19	
Nitrobenzene-d5 (S)	%	94	56-120	10/23/18 15:19	
Phenol-d6 (S)	%	28	16-120	10/23/18 15:19	

LABORATORY CONTROL SAMPLE: 1775444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	.05	0.038	76	61-108	
2,4,5-Trichlorophenol	mg/L	.05	0.053	107	70-127	
2,4,6-Trichlorophenol	mg/L	.05	0.057	113	77-120	
2,4-Dinitrotoluene	mg/L	.05	0.064	127	70-130	
2-Methylphenol(o-Cresol)	mg/L	.05	0.043	87	60-130	
3&4-Methylphenol(m&p Cresol)	mg/L	.05	0.038	77	53-130	
Hexachloro-1,3-butadiene	mg/L	.05	0.048	96	66-114	
Hexachlorobenzene	mg/L	.05	0.055	110	70-130	
Hexachloroethane	mg/L	.05	0.036	73	52-130	
Nitrobenzene	mg/L	.05	0.047	94	70-130	
Pentachlorophenol	mg/L	.05	0.048	96	65-109	
Phenol	ug/L	50	22.9	46	28-120	
Pyridine	mg/L	.05	0.0098J	20	10-130	
2,4,6-Tribromophenol (S)	%			143	58-134	S0
2-Fluorobiphenyl (S)	%			100	54-122	
Nitrobenzene-d5 (S)	%			103	56-120	
Phenol-d6 (S)	%			40	16-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

MATRIX SPIKE SAMPLE: 1775445		40177838001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	.25	0.21	84	57-108	
2,4,5-Trichlorophenol	mg/L	<0.0084	.25	0.26	104	45-127	
2,4,6-Trichlorophenol	mg/L	<0.021	.25	0.28	111	43-129	
2,4-Dinitrotoluene	mg/L	<0.0079	.25	0.30	121	36-165	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	.25	0.20	78	38-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	.25	0.17	69	36-130	
Hexachloro-1,3-butadiene	mg/L	<0.025	.25	0.25	101	66-114	
Hexachlorobenzene	mg/L	<0.017	.25	0.27	109	70-130	
Hexachloroethane	mg/L	<0.027	.25	0.20	81	52-130	
Nitrobenzene	mg/L	<0.015	.25	0.23	93	65-130	
Pentachlorophenol	mg/L	<0.014	.25	0.25	100	39-132	
Phenol	ug/L	<0.0060 mg/L	250	96.0	38	21-120	
Pyridine	mg/L	<0.018	.25	0.11	45	10-130	
2,4,6-Tribromophenol (S)	%				137	58-134	S0
2-Fluorobiphenyl (S)	%				102	54-122	
Nitrobenzene-d5 (S)	%				103	56-120	
Phenol-d6 (S)	%				38	16-120	

MATRIX SPIKE SAMPLE: 1775446		40177480001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	.25	0.18	70	57-108	
2,4,5-Trichlorophenol	mg/L	<0.0084	.25	0.23	93	45-127	
2,4,6-Trichlorophenol	mg/L	<0.021	.25	0.25	99	43-129	
2,4-Dinitrotoluene	mg/L	<0.0079	.25	0.26	106	36-165	
2-Methylphenol(o-Cresol)	mg/L	<0.0087	.25	0.19	74	38-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	.25	0.16	66	36-130	
Hexachloro-1,3-butadiene	mg/L	<0.025	.25	0.22	89	66-114	
Hexachlorobenzene	mg/L	<0.017	.25	0.24	97	70-130	
Hexachloroethane	mg/L	<0.027	.25	0.16	66	52-130	
Nitrobenzene	mg/L	<0.015	.25	0.21	82	65-130	
Pentachlorophenol	mg/L	<0.014	.25	0.23	92	39-132	
Phenol	ug/L	<6.0	250	99.5	40	21-120	
Pyridine	mg/L	<0.018	.25	0.039J	15	10-130	
2,4,6-Tribromophenol (S)	%				124	58-134	
2-Fluorobiphenyl (S)	%				87	54-122	
Nitrobenzene-d5 (S)	%				89	56-120	
Phenol-d6 (S)	%				34	16-120	

MATRIX SPIKE SAMPLE: 1775447		40177505001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<375 ug/L	.25	<0.38	78	57-108	
2,4,5-Trichlorophenol	mg/L	<168 ug/L	.25	<0.17	65	45-127	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

MATRIX SPIKE SAMPLE:		1775447					
Parameter	Units	40177505001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2,4,6-Trichlorophenol	mg/L	<423 ug/L	.25	<0.42	79	43-129	
2,4-Dinitrotoluene	mg/L	<158 ug/L	.25	0.18J	70	36-165	
2-Methylphenol(o-Cresol)	mg/L	242J ug/L	.25	0.49J	97	38-130	
3&4-Methylphenol(m&p Cresol)	mg/L	484J ug/L	.25	0.69J	82	36-130	
Hexachloro-1,3-butadiene	mg/L	<492 ug/L	.25	<0.49	83	66-114	
Hexachlorobenzene	mg/L	<339 ug/L	.25	<0.34	90	70-130	
Hexachloroethane	mg/L	<532 ug/L	.25	<0.53	137	52-130	M6
Nitrobenzene	mg/L	<290 ug/L	.25	<0.29	62	65-130	M6
Pentachlorophenol	mg/L	<287 ug/L	.25	0.42J	169	39-132	M6
Phenol	ug/L	271J	250	391J	48	21-120	
Pyridine	mg/L	<358 ug/L	.25	<0.36	59	10-130	
2,4,6-Tribromophenol (S)	%				103	58-134	
2-Fluorobiphenyl (S)	%				89	54-122	
Nitrobenzene-d5 (S)	%				88	56-120	
Phenol-d6 (S)	%				31	16-120	

MATRIX SPIKE SAMPLE:		1775448					
Parameter	Units	40177506001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<93.9 ug/L	.25	0.17J	70	57-108	
2,4,5-Trichlorophenol	mg/L	<42.1 ug/L	.25	0.21	83	45-127	
2,4,6-Trichlorophenol	mg/L	<106 ug/L	.25	0.24J	95	43-129	
2,4-Dinitrotoluene	mg/L	<39.6 ug/L	.25	0.20	80	36-165	
2-Methylphenol(o-Cresol)	mg/L	<43.4 ug/L	.25	0.21	73	38-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<78.1 ug/L	.25	0.19J	62	36-130	
Hexachloro-1,3-butadiene	mg/L	<123 ug/L	.25	0.21J	82	66-114	
Hexachlorobenzene	mg/L	<84.7 ug/L	.25	0.22J	89	70-130	
Hexachloroethane	mg/L	<133 ug/L	.25	0.25J	98	52-130	
Nitrobenzene	mg/L	<72.5 ug/L	.25	0.19J	75	65-130	
Pentachlorophenol	mg/L	<71.7 ug/L	.25	0.21J	85	39-132	
Phenol	ug/L	42.6J	250	117	30	21-120	
Pyridine	mg/L	<89.5 ug/L	.25	0.098J	39	10-130	
2,4,6-Tribromophenol (S)	%				110	58-134	
2-Fluorobiphenyl (S)	%				86	54-122	
Nitrobenzene-d5 (S)	%				81	56-120	
Phenol-d6 (S)	%				29	16-120	

MATRIX SPIKE SAMPLE:		1775449					
Parameter	Units	40177621001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.019	.25	0.18	74	57-108	
2,4,5-Trichlorophenol	mg/L	<0.0084	.25	0.22	90	45-127	
2,4,6-Trichlorophenol	mg/L	<0.021	.25	0.24	95	43-129	
2,4-Dinitrotoluene	mg/L	<0.0079	.25	0.27	107	36-165	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

MATRIX SPIKE SAMPLE:		1775449					
Parameter	Units	40177621001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2-Methylphenol(o-Cresol)	mg/L	<0.0087	.25	0.18	74	38-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.016	.25	0.16	63	36-130	
Hexachloro-1,3-butadiene	mg/L	<0.025	.25	0.21	86	66-114	
Hexachlorobenzene	mg/L	<0.017	.25	0.23	91	70-130	
Hexachloroethane	mg/L	<0.027	.25	0.17	69	52-130	
Nitrobenzene	mg/L	<0.015	.25	0.20	82	65-130	
Pentachlorophenol	mg/L	<0.014	.25	0.19	77	39-132	
Phenol	ug/L	<6.0	250	94.7	38	21-120	
Pyridine	mg/L	<0.018	.25	0.13	50	10-130	
2,4,6-Tribromophenol (S)	%				118	58-134	
2-Fluorobiphenyl (S)	%				83	54-122	
Nitrobenzene-d5 (S)	%				85	56-120	
Phenol-d6 (S)	%				33	16-120	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch: 303106

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40177595001

SAMPLE DUPLICATE: 1770478

Parameter	Units	40177554001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.3	5.3	0	10	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch:	303161	Analysis Method:	EPA 1010
QC Batch Method:	EPA 1010	Analysis Description:	1010 Flash Point, Closed Cup
Associated Lab Samples:	40177595001		

LABORATORY CONTROL SAMPLE: 1770861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		83.0			

SAMPLE DUPLICATE: 1770967

Parameter	Units	10450966001 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	131.8	139.7			

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch:	303308	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
Associated Lab Samples:	40177595001		

SAMPLE DUPLICATE: 1771549

Parameter	Units	40177448002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.0	0	20	H6

SAMPLE DUPLICATE: 1771550

Parameter	Units	40177631001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	0	20	H6

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch: 437300

Analysis Method: EPA 9076

QC Batch Method: EPA 9076

Analysis Description: 9076 Total Chlorine

Associated Lab Samples: 40177595001

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2405201 2405202												
Parameter	Units	92403918003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chlorine, Total	%	0.012	.05	.05	0.059	0.059	94	94	80-120	1	20	N2

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch:	303188	Analysis Method:	EPA 9095
QC Batch Method:	EPA 9095	Analysis Description:	9095 PAINT FILTER LIQUID TEST
Associated Lab Samples:	40177595001		

METHOD BLANK: 1771088 Matrix: Solid

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Free Liquids	no units	fail		10/15/18 13:54	

LABORATORY CONTROL SAMPLE: 1771089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Free Liquids	no units		pass			

SAMPLE DUPLICATE: 1771090

Parameter	Units	40177306001 Result	Dup Result	RPD	Max RPD	Qualifiers
Free Liquids	no units	pass	pass			

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch: 303638

Analysis Method: SM 2710F

QC Batch Method: SM 2710F

Analysis Description: Spec.Gravity

Associated Lab Samples: 40177595001

SAMPLE DUPLICATE: 1773578

Parameter	Units	40177838001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Gravity	no units	1.9	1.8	5	20	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch:	317251	Analysis Method:	EPA 9014
QC Batch Method:	SW-846 7.3.3.2	Analysis Description:	733C Reactive Cyanide
Associated Lab Samples:	40177595001		

METHOD BLANK: 1547717 Matrix: Solid

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Reactive	mg/kg	<0.40	0.99	10/19/18 00:02	

LABORATORY CONTROL SAMPLE: 1547718

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Reactive	mg/kg	99.6	<0.40	0	0-8	

SAMPLE DUPLICATE: 1547719

Parameter	Units	30268573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Reactive	mg/kg	ND	<0.40		20	

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QUALITY CONTROL DATA

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

QC Batch:	317250	Analysis Method:	SM4500S2F-00
QC Batch Method:	SW-846 7.3.4.2	Analysis Description:	734S Reactive Sulfide
Associated Lab Samples:	40177595001		

METHOD BLANK: 1547714

Matrix: Solid

Associated Lab Samples: 40177595001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide, Reactive	mg/kg	<9.9	9.9	10/18/18 23:14	

LABORATORY CONTROL SAMPLE: 1547715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Reactive	mg/kg	199	35.9	18	0-52	

SAMPLE DUPLICATE: 1547716

Parameter	Units	30268573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Reactive	mg/kg	ND	<10		20	

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QUALIFIERS

Project: WESTON COAL FLY ASH-LF ACCEPTA
Pace Project No.: 40177595

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-A Pace Analytical Services - Asheville
PASI-G Pace Analytical Services - Green Bay
PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

1q	Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.
2q	Use of method EPA 1010A for flash point analysis on solid samples is for informational purposes only. It is the user's responsibility to verify the acceptance of this data for intended use.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter.
S0	Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WESTON COAL FLY ASH-LF ACCEPTA

Pace Project No.: 40177595

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40177595001	WESTON 4 FLY ASH	EPA 3010	303424	EPA 6010	303571
40177595001	WESTON 4 FLY ASH	EPA 7470	303426	EPA 7470	303467
40177595001	WESTON 4 FLY ASH	EPA 3510	303829	EPA 8270	303962
40177595001	WESTON 4 FLY ASH	EPA 8260	303318		
40177595001	WESTON 4 FLY ASH	ASTM D2974-87	303106		
40177595001	WESTON 4 FLY ASH	EPA 1010	303161		
40177595001	WESTON 4 FLY ASH	EPA 9040	303308		
40177595001	WESTON 4 FLY ASH	EPA 9076	437300		
40177595001	WESTON 4 FLY ASH	EPA 9095	303188		
40177595001	WESTON 4 FLY ASH	SM 2710F	303638		
40177595001	WESTON 4 FLY ASH	SW-846 7.3.3.2	317251	EPA 9014	317278
40177595001	WESTON 4 FLY ASH	SW-846 7.3.4.2	317250	SM4500S2F-00	317277

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CHAIN-OF-CUSTODY / Analytical Request Document

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

40177595

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: <u>1</u> of <u>1</u>	
Company: Wisconsin Public Service Corp.		Report To: Patrick Ahrens		Attention: Accounts Payable		REGULATORY AGENCY ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____	
Address: 700 North Adams Street		Copy To:		Company Name: WEC Energy Group			
Green Bay, WI 54307				Address: PO Box 19800, Green Bay, WI			
Email To: patrick.ahrens@wecenergygroup.com		Purchase Order No.: 1200187395		Pace Quote Reference:			
Phone: (920) 433-1391 Fax: (920) 433-4916		Project Name: Weston Coal Fly Ash - Landfill Acceptance		Pace Project Manager: Brian Baesten		Site Location: WI	
Requested Due Date/TAT: Normal		Project Number:		Pace Profile #:		STATE: WI	

ITEM #	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	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test ↓	Protocol A	See attached list																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>Merlin Raab</i>	10/12/2018	11:45	<i>Tatiana Hill</i>	10/12/18	1145				
	<i>Tatiana Hill</i>	10/12/18	1302	<i>[Signature]</i>	10/12/18	1302	ROI	Y	N	Y

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Merlin Raab					
SIGNATURE of SAMPLER: <i>Merlin Raab</i>	DATE Signed (MM/DD/YY): 10/12/2018				

Outagamie County Landfill
Brown Outagamie Winnebago Counties
Analytical Protocol/Acceptance Criteria
Protocol A

(Foundry process waste; municipal, hospital and boiler ash; ink wastes; paint wastes and paint sludges; metal treatment/preparation sludges; waste glues and adhesives; ceramic production/manufacturing waste; soils contaminated with heavy metals.)

Analytical Parameter	Acceptance Criteria
pH	$2.0 \leq \text{pH} \leq 12.5$
Total solids	$\geq 40\%$
Free liquids	0%
Flash point (closed cup)	$>140^{\circ}\text{F}$
Chlorine	$<1\%$
TCLP metals ¹	
arsenic	TCLP $<5.0 \text{ mg/l}$
barium	TCLP $<100.0 \text{ mg/l}$
cadmium	TCLP $<1.0 \text{ mg/l}$
chromium	TCLP $<5.0 \text{ mg/l}$
lead	TCLP $<5.0 \text{ mg/l}$
mercury	TCLP $<0.2 \text{ mg/l}$
selenium	TCLP $<1.0 \text{ mg/l}$
silver	TCLP $<5.0 \text{ mg/l}$
Total available sulfide	$<500 \text{ mg/kg}$
Total available cyanide	$<250 \text{ mg/kg}$
Phenol	$<2000 \text{ mg/l}$
TCLP organics ¹	
benzene	TCLP $<0.5 \text{ mg/l}$
carbon tetrachloride	TCLP $<0.5 \text{ mg/l}$
chlorobenzene	TCLP $<100.0 \text{ mg/l}$
chloroform	TCLP $<6.0 \text{ mg/l}$
o - cresol ²	TCLP $<200.0 \text{ mg/l}$
m - cresol ²	TCLP $<200.0 \text{ mg/l}$
p - cresol ²	TCLP $<200.0 \text{ mg/l}$
1,4 - dichlorobenzene	TCLP $<7.5 \text{ mg/l}$
1,2 - dichloroethane	TCLP $<0.5 \text{ mg/l}$
1,1 - dichloroethene	TCLP $<0.7 \text{ mg/l}$
2,4 - dinitrotoluene	TCLP $<0.13 \text{ mg/l}$
hexachlorobenzene	TCLP $<0.13 \text{ mg/l}$
hexachlorobutadiene	TCLP $<0.5 \text{ mg/l}$
hexachloroethane	TCLP $<3.0 \text{ mg/l}$
methyl ethyl ketone	TCLP $<200.0 \text{ mg/l}$

40177595

Analytical Parameter	Acceptance Criteria
nitrobenzene	TCLP <2.0 mg/l
pentachlorophenol	TCLP <100.0 mg/l
pyridine	TCLP <5.0 mg/l
tetrachloroethene	TCLP <0.7 mg/l
trichloroethene	TCLP <0.5 mg/l
2,4,5 - trichlorophenol	TCLP <400.0 mg/l
2,4,6 - trichlorophenol	TCLP <2.0 mg/l
vinyl chloride	TCLP <0.2 mg/l

1. For all constituents which are identified as TCLP extraction, it is permissible to do a totals analysis if <20 times the regulatory level. If the totals analysis is >20 times regulatory limit, the TCLP extraction is required.
2. If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol concentration is used. The regulatory level for total cresol is 200 mg/l.

Sample Preservation Receipt Form

Client Name: WEC

Project # 4007595

All containers needing preservation have been checked and noted below: ☐ Yes ☒ No ☐ N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when
completed:

Date/
Time:

Pace Lab #	Glass						Plastic						Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3C	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU							
001																														2.5 / 5 / 10
002																														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
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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	SP5T 120 mL plastic Na Thiosulfate ZPLC ziploc bag GN:	
AG5U	100 mL amber glass unpres	BP3C	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH		
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI		
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4				

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #

Client Name: WEC

WO#: **40177595**

Courier: ☐ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Walto



40177595

☒ 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 - NA Type of Ice: ☒ Wet ☐ Blue ☐ Dry ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: _____ /Corr: (20)

Temp Blank Present: ☐ yes ☒ no

Biological Tissue is Frozen: ☐ yes ☒ no

Person examining contents:

Date: 10/12/18

Initials: OW

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. <u>no time</u>
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	5.
- VOA Samples frozen upon receipt ☐ Yes ☐ No	Date/Time: _____
Short Hold Time Analysis (<72hr): ☐ Yes ☒ No	6.
Rush Turn Around Time Requested: ☐ Yes ☒ No	7.
Sufficient Volume: ☐ Yes ☒ No MS/MSD: ☐ Yes ☐ No ☐ N/A	8.
Correct Containers Used: ☒ Yes ☐ No	9.
-Pace Containers Used: ☒ Yes ☐ No ☐ N/A	
-Pace IR Containers Used: ☐ Yes ☐ No ☒ N/A	
Containers Intact: ☒ Yes ☐ No	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: <u>S</u>	
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: 10-12-18

Attachment 4
Posi-Shell® Product Information and Formulations Guide



ENVIRONMENTAL
PRODUCTS, LLC™

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Apalachin, NY 13732
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BASE MIX USAGE GUIDE



Revised September 2016 LF

For other LSC Products, Application Equipment, or parts call us at 1-800-800-7671

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This guide gives you specific, easy to follow instructions for the safe and efficient usage of LSC Environmental Products Posi-Shell® Base Mix product. For best results and to ensure safety, please follow the instructions carefully.

1.0 Definition of Posi-Shell® Base Mix

Posi-Shell® is a spray applied mineral mortar coating, similar to stucco, used for waste cover, erosion control, and hydroseeding. It is a low-cost alternative to the conventional six inches (150 mm) of soil used as daily cover at most landfills. Posi-Shell® is a noncombustible blend of materials providing a thin, non-toxic, stucco-like coating that performs all functions of landfill daily cover, intermediate cover, and erosion control. Applied with a standard hydroseeding unit, this system provides increased landfill capacity while providing a more environmentally effective cover system for the landfill.

1.1 Background and Concept

Landfilled solid waste must be covered each day to control vectors, fires, odors, blowing litter, and scavenging. Cover material is generally defined as a six inch (150 mm) soil layer or other suitable material.

Posi-Shell® is an alternative to traditional landfill daily cover materials. The coating is a spray-on slurry composed of water, Posi-Shell® Base Mix, and optional Portland cement that forms a coating for various types of landfill cover. Posi-Shell® is designed for use by a landfill operator at the close of each operating day for compliance with cover regulations. The material meets and exceeds regulatory requirements for the control of landfill vectors, fires, odors, blowing litter, and scavenging.

For most situations Posi-Shell® provides cover ranging from 4 to 10 ft² per gallon (0.10 to 0.25m²/liter) of slurry but depending on conditions and desired quality coverage up to 40ft² per gallon (0.75m²/L) can be achieved. The coverage area is dependent upon the desired thickness and the texture of the covered surface. Application of Posi-Shell® is a one-man operation.

1.2 Environmental and Economic Benefits

Use of Posi-Shell® conserves energy, natural resources and improves air quality by eliminating the use of heavy earth-moving equipment for the transporting, laying, and reworking of some soil covers on the landfill.

The major benefit of the use of Posi-Shell® is the conservation of extremely valuable landfill capacity, commonly known as "air space". Landfill air space is a valuable asset and the need to conserve capacity is paramount to achieve environmental and economic objectives for both landfill operators and regulatory agencies. Efficient use of air space today can directly translate into longer landfill life, decreased operating costs, and increased revenue generation. An increase in air space efficiency up to 20% delays the need for the siting and construction of new facilities that ultimately may have severe environmental and economic impacts.

1.3 Equipment

The equipment used for Posi-Shell® consists of a standard hydroseeding unit, a towing unit, and a water source. The towing unit is used for moving the hydroseeding unit around the landfill site. If a nearby hydrant or other water source is not available, then a water trailer or truck is required.

1.4 Personnel

One operator is required for Posi-Shell®. This operator must be capable of operating heavy equipment and be familiar with the mechanics of all equipment used. The operator will be trained by LSC Environmental Products in the use of Posi-Shell®. If preferred, a

two man operation may be used to expedite coverage time.

1.5 Materials

1.5.1 Water

Potable water, non-potable water and landfill leachate can be used as the liquid portion of Posi-Shell®. Use of leachate requires site-specific regulatory approval, operations, and safety plan to assure proper health and safety practices are implemented.

In most Posi-Shell® mixtures approximately 800 gallons (3030liters) of water is used for each 1000 gallon (3785liters) load of Posi-Shell®. The water can either be supplied by a hydrant, pumped from a nearby pond, or brought to and stored adjacent to the hydroseeding unit by water truck or trailer. The sizing of the specific water supply method should be adequate to ensure that the filling of the hydroseeding unit occurs within a few minutes' time.

As stated, leachate can be used as a water source if specific regulatory approval is obtained. It is not recommended that a high-strength leachate be used due to odor concerns and the added safety precautions required to assure worker safety. However, use of relatively dilute leachate is an effective method for reducing a portion of a landfill's total leachate production. The inherent odor-neutralizing properties of Posi-Shell® EC Series can mitigate the potential odor problems of leachate when it is used as a water source.

1.5.2 Posi-Shell® Base Mix

A proprietary blend of finely ground clay, reinforcing fiber, and coloring mixed with water creates the Posi-Shell® Base Formulation. See the back of this manual for a GHS Safety Data Sheet for this material.

1.5.3 Portland Cement

For more durable covers, optional Portland cement can be used as the cementitious mineral binder component of Posi-Shell® EC Series. Approximately 2000 lbs. (907kg) of this material is used for each 1000 gallon (3785 liter) Posi-Shell® load. The Portland cement further helps neutralize odors and contaminants found in leachate. Material Safety Data for this material is available through local suppliers.

1.5.4 Xtreme Rain Shield™

During light rains, Posi-Shell® coatings will not typically wash off. However, if heavy rains are expected prior to the product fully curing (12-24 hours) the addition of Xtreme Rain Shield™ is necessary to prevent washing. See the back of this manual for a GHS Safety Data Sheet for this material.

2.0 Safety

Posi-Shell® is nonhazardous and is composed of nonhazardous materials. Certain safety measures are recommended during different aspects of Posi-Shell® use. **Follow safety procedures specific to your hydroseeding unit, towing unit, or other equipment used.**

3.0 Operator Attire

The operator should, at all times, wear appropriate protective clothing. Jewelry and loose fitting clothing should be avoided. Recommended protective clothing includes the following:

- Safety glasses with side shields
- Leather gloves
- Industrial grade work coveralls
- Leather steel-toed shoes
- Dust particulate mask

If leachate is being used as the liquid portion of the Posi-Shell® mixture, protective clothing in accordance with site regulations should be worn.

4.0 Towing Units

See table on Page 11 for Posi-Shell® material weights. To determine the total load weight, add the Posi-Shell® material weight to the weight of your hydroseeding unit. Ensure that the towing unit and hitch arrangement are capable of handling the total of these weights.

5.0 Loading and Mixing Procedure

It is important to add the Posi-Shell® materials in the order specified.

5.1 Liquid Addition (Step 1)

Before placing any dry material in the mixing tank, the tank must be filled with the appropriate amount of liquid (water or leachate). See chart on Page 11. If your hydroseeding unit has a reserve water tank, fill at this time with clean water. It is not recommended to use leachate as the clean out water.

All bags of material (Posi-Shell® Base Mix, Xtreme Rain Shield™, Portland cement) can be loaded through the side rails of the hydroseeding unit onto the mixing deck from the ground. Ensure that they do not obstruct the ladder area. Never attempt to carry materials up or down ladders. To avoid back injuries, always use proper lifting practices when handling bags. Frozen materials should not be used.

5.2 Posi-Shell® Base Mix Addition (Step 2) (If using component mix add Posi-Pak, PSM-200, and coloring at this time)

When handling Posi-Shell® Base Mix, Xtreme Rain Shield™, or Portland cement a dust mask is recommended to prevent inhalation, and coveralls and gloves to prevent skin contact. Safety glasses should be worn to keep dust from entering the eyes. Should eyes or skin come in physical contact with any Posi-Shell® ingredients thoroughly rinse with water.

With mixer paddles running at medium speed add Posi-Shell® Base Mix material by cutting open bag and dumping contents into the mixing tank (discard bag). See chart on Page 11 for quantities. Allow Posi-Shell® Base Mix to mix at high speed for about 5 minutes until peaks and craters are visible on the surface of the product. Properly thickened Posi-Shell® Base Mix will have the consistency of pudding. (see left photo below).



5.3 Optional Xtreme Rain Shield™

During light rains, Posi-Shell® coatings will not typically wash off. However, if heavier rains are expected prior to the product fully curing (12-24 hours), the addition of Xtreme Rain Shield™ may be necessary. Operator experience and discretion will determine which Xtreme Rain Shield™ formulation is best suited for the situation. With mixer paddles running at medium speed, add material to the already thickened Base Mix by cutting open the bag and gradually adding the contents into the mixing tank (discard bag). For better dispersion of this product into the Posi-Shell® Base Mix, recirculation through the pump and back to tank may be necessary. Properly thickened Posi-Shell® Base Mix with Xtreme Rain Shield™ added will be more sticky and "rubbery" than the Base Mix (see right photo below showing the elasticity of Xtreme Rain Shield™). Posi-Shell® Base Mix does not "stretch" this far). For best results, Portland cement should be added after the Xtreme Rain Shield™ has thickened to better activate the product. (See chart on Page 11 for quantities).



5.4 Optional Portland Cement Addition

At times more durable Posi-Shell® coatings may be desired. These can be achieved by the addition of Portland cement to the already thickened Posi-Shell® Base Mix. With mixer paddles still running at medium speed add Type I Portland cement material (regular Portland cement, NOT concrete.) by cutting open bag and dumping contents into the mixing tank (discard bag). See chart on Page 11 for quantities. After the Portland is added, the material will appear a more grayish brown and have a denser appearance. The thickness should still be about the same as the Posi-Shell® Base Mix (see middle photo below).



Properly Thickened Base Mix
(Quarter used for perspective)



With Portland Cement Added
(Quarter used for perspective)



With Xtreme Rain Shield™ Added
(Showing dripping from spray nozzle)

6.0 Transporting

Close inlet hopper lid prior to transportation and leave mixer paddles turning at low speed.

6.1 Cold Weather Posi-Shell® Transport

To prevent freezing during extremely cold weather (below 20°F -6°C), recirculate product through system back to mixing tank. Prior to disconnecting spray wand from recirculation hose, be sure to disengage pump.

6.2 Towing on Slopes

To avoid the possibility of equipment tipping over, always tow up or back down slopes. DO NOT traverse (tow sideways) across slopes.



Proper orientation of equipment on slope

7.0 Application of Posi-Shell®

For overnight cover, conventional end-of-day waste compaction and surface preparation are normally adequate prior to Posi-Shell® application. A smoother surface will require less material due to reduced surface area. For intermediate cover applications it may be desirable to create a smoother, more uniform receiving area by spreading available materials such as greenwaste, ash, or processed waste as leveling material over the conventional waste.

Methods of application and the recommended finished appearance of Posi-Shell® are shown in the photographs on the next page. In general, the operator should position the application unit upwind, and should select the spray nozzle appropriate to the distance from the waste pile. When changing nozzles, be sure to disengage pump before disconnecting nozzle. In some cases, it will be necessary to spray a given area from two directions to compensate for "spray shadow" effects or wind dispersion. The most effective method of coverage will vary with each site, but generally, if opposite spray angles cannot be achieved due to operational constraints, the product is best applied from the location at which it will be observed most often.



An example of Spray Shadow
(To correct, apply from opposing directions)

When high winds are encountered, it may be necessary to position the hydroseeding unit in an upwind position. Since pumps emit a high pressure stream of slurry it is not generally effected by light winds; however, wind direction should always be considered with respect to airborne dispersion of overspray.

The application process is not typically affected by cold weather. During extremely cold weather, Posi-Shell® will freeze before curing. After a thaw the material will cure. (See Page 16, Durability of Long Term Cover.)



Application of Posi-Shell® via
Deck-Mounted Discharge Wand



Application of Posi-Shell® via
Extension Hose



Daily and Intermediate Cover



Cured Long-Term Posi-Shell® Coating

7.1 Odor Control

The Posi-Shell® formulation has an inherent capability to suppress odors. By applying the Posi-Shell® as a daily cover, typical landfill odors will be reduced. Additionally if an EC Series coating is used the calcium oxide in Portland cement will further suppress odors.

Where excess or extreme odors warrant additional action, contact LSC for information about our Odor-Shell® product.

7.2 Vector Control

Posi-Shell® cover has proven effective at inhibiting the attraction of vectors to waste piles.

7.3 Scavenging

General animal scavenging is reduced since the Posi-Shell® seals in odors and hides the visible food source beneath the covering shell. Scavenging by humans is inhibited by the complete visual coverage of the waste pile and by the coating of slurry applied upon all surface objects.

7.4 Litter Control

Posi-Shell® cover is highly effective for litter control. Due to the sticky consistency and weight of the material, a shell is formed over the garbage which prevents litter from being blown away by high winds. A thin layer of Posi-Shell® cover is recommended for preventing blowing litter.

In extremely windy situations, Posi-Shell® can be applied to waste as it is being unloaded from garbage trucks. This technique has been proven highly effective.

7.5 Fire Control

Posi-Shell® cover is an extremely effective fire control material. Independent laboratory testing of Posi-Shell® by ASTM D4982 method has certified that Posi-Shell® is non-fuel contributing, non-smoke producing, and non-combustible. When an acetylene torch is applied directly to the Posi-Shell® cover, ignition of the Posi-Shell® cover or underlying waste does not occur.

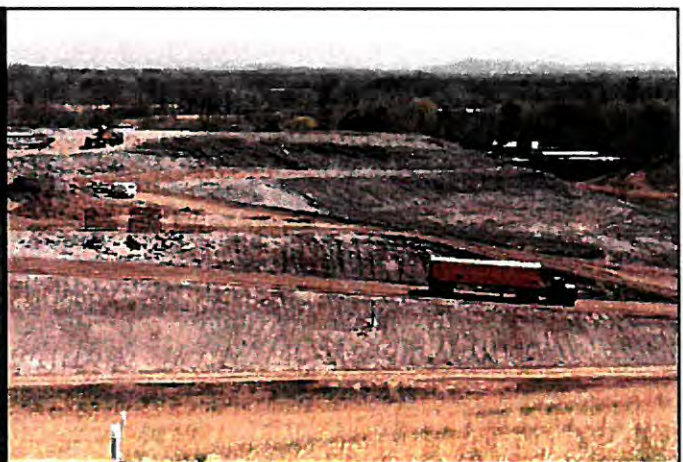
In addition to the non-flammable characteristic of Posi-Shell cover, the Posi-Shell® application unit can be used to fight landfill fires. Direct application of Posi-Shell® material to an open flame will smother it. If a subterranean landfill fire occurs, Posi-Shell® coating can be applied to the waste pile's surface and will form a fire smothering seal.

7.6 Additional Applications

Posi-Shell® cover fulfills the relevant performance criteria for various additional applications including erosion control, ditch lining, coating of sludge piles, contaminated soil piles, compost piles and temporary waste piles and excavations of various types. Posi-Shell® has been successfully applied to coal piles, salt piles, cement clinker piles and used at remediation sites to suppress volatile emissions. Posi-Shell® may also be used as the tackifier in hydroseeding mixtures.



Ditch Lining



Finished Appearance of Posi-Shell® Intermediate Cover, Daily Cover, and Erosion Control at a Major Municipal Landfill



Erosion Control



Odor Control

Posi-Shell®

Application Minimum Requirements Guideline

	SHORT TERM COVER (Depending on conditions cover can last overnight to several weeks)	MEDIUM TERM COVER (Depending on conditions cover can last several weeks to several months)	LONG TERM COVER (Depending on conditions cover can last several months to one year)
SLURRY MIXTURE*	Posi-Shell® Base Posi-Shell® EC-1 (See next page for mixtures)	Posi-Shell® EC-2 Posi-Shell® EC-4 (See next page for mixtures)	Posi-Shell® EC-2 Posi-Shell® EC-4 (See next page for mixtures)
APPLICATION RATE	Approx. 8-10 ft ² /gal.** (0.20 to 0.25 m ² /L.)	Approx. 6-8 ft ² /gal. (0.15 to 0.20 m ² /L.)	Approx. 4-6 ft ² /gal. (0.10 to 0.15 m ² /L.)
COVERAGE METHOD	Apply from two directions to eliminate spray shadow.	Apply from two directions to eliminate spray shadow.	Apply from two directions to eliminate spray shadow. For slope coverage extend cover 3-4 feet (0.9 to 1.2 meters) beyond crest of slope.
COVERAGE THICKNESS	Finished cover should be Approx. 1/8" (3.5 mm)	Finished cover should be Approx. 1/4" (6.5 mm)	Finished cover should be Approx. 3/8" (9.5 mm)
COVERAGE APPEARANCE	No waste/soil visible from any angle.	No waste/soil visible from any angle. Cover should have a "stucco-like" texture.	No waste/soil visible from any angle. Cover should have a "stucco-like" texture.
COVERAGE MAINTENANCE	None. Waste is placed over cover next working day.	Cover should be inspected periodically and touched up if waste/soil becomes visible.	Cover should be inspected periodically and touched up if waste/soil becomes visi- ble.

* These are manufacturer's recommendations. Use and practice will determine the best mixture for each situation.

** Depending on conditions and desired quality, up to 40 ft²/gal. (0.75m²/L.) can be achieved.

Posi-Shell® Formulations Guide

Materials	Base	EC Series			Xtreme Rain Shield™ Series (XRS)		
		EC-1	EC-2	EC-4	Light	Medium	Heavy
Water or Leachate (Gallons)*	800	800	800	800	800	800	800
Posi-Shell® Base Mix: 50 lb Bag	10	10 (500 lbs.)	10 (500 lbs.)	10 (500 lbs.)	10 (500 lbs.)	5 (250 lbs.)	5 (250 lbs.)
Portland cement (lbs)	-	500	1000	2000	500	1000	2000
Xtreme Rain Shield™ (50 lb Bag)	-	-	-	-	0.50 (25 lbs.)	2 (100 lbs.)	4 (200 lbs.)
Finished Product (Gallons)	800	850	900	1000	850	900	1000
Rain Guide (Inches)**	0.0-0.25	0.0-0.5	0.0-0.5	0.0-0.5	0.5-1.0	1.0-2.0	>2.0

*Amount of rainfall product typically sustains without washing.

**Some leachate, hard water, and salty water may require more Posi-Shell® Base Mix to achieve proper thickness.

Materials	Base	EC Series			Xtreme Rain Shield™ Series (XRS)		
		EC-1	EC-2	EC-4	Light	Medium	Heavy
Water or Leachate (Liters)	3030	3030	3030	3030	3030	3030	3030
Posi-Shell® Base Mix: 50 lb Bag	10	10 (225 kg.)	10 (225 kg.)	10 (225 kg.)	10 (225 kg.)	6 (138 kg.)	5 (138 kg.)
Portland cement (kgs)	-	225	450	900	225	450	900
Xtreme Rain Shield™ (23 kg Bag)	-	-	-	-	0.50	2	4
Finished Product (Liters)							
Rain Guide (Centimeters)	0.0-1.25	0.0-1.25	0.0-1.25	0.0-1.25	1.25-2.54	2.54-5.08	>5.08

7.7 Discharge Nozzle Selection

While other nozzles may be used, LSC Environmental Products offers numerous types of discharge nozzles for the effective spraying of Posi-Shell® at a variety of ranges. Experience and operator discretion will determine which nozzle to use in each situation.



Long Range (Solid Stream)
for Distances of 100–150 feet
(30–46 meters)



Medium/Long Range (15° Flat
Spray) for Distances of 75–100
feet (23–30 meters)



Medium Range (25° Flat Spray)
for Distances of 25–75 feet
(8–23 meters)



Short Range (50° Flat Spray)
for Distances of 5–25 feet
(1.5–8 meters)



High Efficiency (25° Low Flow Spray)
for Distances of 5–25 feet
(1.5–8 meters)

7.8 Handling the Discharge Spray Boom

Care must be taken to use the proper discharge nozzle in order to attain the desired spray range, as being too close to the surface will cause the Posi-Shell® stream to overturn waste on contact. At long range distances the Posi-Shell® stream will break up, causing the desired spray effect. At ranges under 75 ft. (23 meters) the medium or short nozzle should be used and are designed to spray in a wide ribbon pattern.

Blockages may occur in nozzles due to foreign objects in the raw materials. Refer to Section 11.1 for procedure on removing foreign object from discharge nozzle.

With the desired nozzle securely in place, firmly grasp discharge spray handle in one hand and point discharge nozzle in desired direction of spray. With the other hand engage product pump and begin covering area. For desired spray effect operator may adjust pump or throttle speed.

Never disconnect nozzles when pump is running. Never engage pump with discharge spray boom unattended. Never put hands in front of discharge nozzles.

Do not spray at or near other persons. Spray exits nozzle at a high velocity and could cause injury.

Do not spray toward power lines, transformers or other high voltage conductors. Avoid spraying into wind. When unavoidable, be sure to keep direction of spray near to ground. Safety glasses should be worn during spraying operation.

7.9 Coverage of Large Area

Coverage of a large area will require moving the application unit to several spray locations. Inspect the area from several perspectives to ensure that the spray has covered all areas.

7.10 Heavy Applications

Heavy applications may be applied in multiple coats by letting the previous coats partially dry between applications. Several thin applications provides a more consistent and durable shell than a single thick application.

8.0 Cleaning

It is recommended that the hydroseeding unit be cleaned after use. For sites using Posi-Shell® Base, the product MAY be used over several days and will not set up in the mixing tank. After the product is all used, the unit should be cleaned. For loads with Portland cement in the mixture, all the product should be used in one day and the unit cleaned after use.

1. When tank is empty of product, shut off pumps, paddles, and engine.
2. Open all inlet lids.
3. With clean water, rinse product from inlets, lids, deck, walls, etc.
4. Fill tank to mixing shaft.
5. Close inlet lids.
6. Agitate mixing paddles at high speed for several minutes, splashing water inside of tank.
7. Drain in approved location.
8. Repeat steps 4–7 as necessary.

A properly cleaned hydroseeding unit will remain free of any built-up product internally and externally.



9.0 Winter Care

In extreme cold it is imperative that engines and hydraulic systems are thoroughly warmed before introducing a load. Refer to the operations manual for your hydroseeding unit for proper winter usage and care. During cold weather periods, the hydroseeding unit tank and pump must be drained at the end of the day to avoid freezing. It is desirable, but not necessary, to bring the machinery into a heated building for overnight storage.

9.1 Posi-Shell® Winterizing Procedure

1. After cleanout, drain the mixing tank thoroughly. DO NOT REPLACE DRAIN CAP.
2. If your hydroseeding unit is equipped with a reserve water tank and/or pump, drain thoroughly. DO NOT REPLACE DRAIN CAPS.
3. Pour approximately one half gallon (1.9 L) of anti-freeze into pump or tank and slowly run through pump and lines to prevent freezing.

10.0 Materials Storage

All materials are inert, and can be stored on, or off, the boundaries of lined landfill cells.

10.1 Posi-Shell® Material Storage

10.1.1 Posi-Shell® Base Mix

Posi-Shell® Base Mix should be kept dry. Stretch wrapped pallets can be easily covered with a tarp or plastic.

10.1.2 Optional Portland Cement & Xtreme Rain Shield™

Portland cement & Xtreme Rain Shield™ should be kept dry. Stretch wrapped pallets can be easily covered with a tarp or plastic.

11.0 Troubleshooting

11.1 Removing Foreign Object from Discharge Nozzle

1. Immediately turn off pump.
2. If unit is equipped with pump reverse feature, reversing for a few seconds releases any potential pressure in lines. With nozzle pointing away, remove nozzle and clear obstruction.
3. Reconnect nozzle and continue spraying.

11.2 Removing Foreign Object from Mixing Tank

1. Shut off mixer, pump, and engine.
2. If object can be safely retrieved with extended gaff tool, remove and continue with operation. If object cannot be found, drain load in approved area, locate object, and safely remove with extended gaff tool.

11.3 Clearing Clogged Mixing Tank

1. In the unlikely event that the Posi-Shell® slurry has thickened in the mixing tank to the point that the mixer paddles will not turn, disengage mixer. Do not force mixer.
2. A strong stream of water applied to the surface of the material should begin to thin the slurry. Gently rocking the mixer should free up material and allow to mix back to normal consistency. If this procedure does not work, product would need to be manually removed from tank. It is recommended that deck plates are removed for this process, site specific PPE be worn, and confined space entry and lockout/tagout procedures are followed.

11.4 Lockout/Tagout & Confined Space Entry

1. The authorized employee must adhere to their own company's procedure for "Lockout/Tagout". He or she must understand the hazards and know how to control them.
2. If the equipment is operating, shut it down by normal stopping procedure (turn key switch off, depress emergency stop button, close valves, etc.) and remove the positive battery cable so that the machine or equipment is isolated from the battery.
3. Install tags on the battery cable lug and at the ignition control box with Date, Time, & Authorized Repair Employee's Name.
4. If repairing such items as springs, flywheels, hydraulic systems, air, gas or water pressure, etc..., stored or residual energy may be present and must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
5. Ensure that no other personnel are in the engine compartment or areas of isolation. Then verify the isolation of the equipment by operating the normal controls, testing to make certain the equipment will not operate.
6. Return all controls to "Neutral" or "OFF" after verifying the isolation of the equipment.
7. If entry into confined space is necessary, the authorized employee must adhere to their own company's procedure for "Confined Space Entry"

12.0 Contingency Soil Supply

In the event that you are unable to apply Posi-Shell®, the landfill operator should have a three-day supply of soil for daily cover material available on-site.



Recycling Waste Latex Paint With Posi-Shell®

Liquids in Landfills – To limit the generation of leachate in solid waste landfills, 40 CFR Part 264.314 and 265.314 cites restrictions on the disposal of material containing free liquids. The criteria used to determine whether a material contains free liquids is the ASTM B9095 Paint Filter Test Method in which 100-mL or 100-g of sample of material is placed into a standard conical paint filter (mesh number +/-5%, available at local paint stores). In short, if any of the material passes through and drops from the filter within a 5 minute test period, the material is deemed to contain free liquids.

Household Hazardous Waste - Household Hazardous Waste (HHW) departments offer various programs for residents and businesses to dispose of special wastes including but not limited to certain free liquids such as oils, aerosols, detergents, and paints most of which, after collection, are forwarded to specialty facilities for disposal or recycling.

Waste Latex Paint - Waste latex paint (WLP) can be generated in large quantities which results in high disposal costs for the solid waste facilities that collect it. Being water based, WLP is non-hazardous but is a free liquid and therefore may not be disposed in it's original form in solid waste facilities.

Traditional Methods of disposal - Methods employed by solid waste facilities for disposing of WLP, once collected, are varied. In some cases, residents are instructed to solidify the WLP by mixing it with a product such as litter box media or other absorbent and then dispose of it along with their other residential waste, while others facilities may collect the WLP, warehouse it, and offer residents a "drop and swap" program. Many facilities not favoring these programs will pay to have WLP removed by third party firms permitted to dispose of or recycle it in some way.

Beneficial Reuse with Posi-Shell® - Numerous solid waste facilities utilizing the Posi-Shell® Cover System (for alternate daily cover, intermediate cover, erosion control, etc.) recycle WLP through the spray-applied Posi-Shell® product. Since Posi-Shell® is a thick, viscous, mineral mortar slurry which passes the ASTM B9095 Paint Filter Test Method, approval to add quantities of WLP into this slurry can be obtained, thus altering the WLP from a free liquid into a beneficially reused solid.

LSC Environmental Products endorses the use of WLP in the Posi-Shell® mixture as this additive actually enhances the coating in a number of ways and has no negative effect on application equipment. The WLP becomes a part of the hardened coating and does not recirculate through the landfill as a free liquid. Under the compaction of heavy landfill equipment, the WLP-enhanced Posi-Shell® breaks up and falls into surface voids already present on the working face. Posi-Shell® does not create impermeable layers within a landfill cell and has no negative effect on leachate or leachate collection systems.

Numerous methods exist for collecting and storing WLP for use with Posi-Shell®. Facilities collecting only small quantities usually store the WLP in the original cans or containers in an approved area. Facilities collecting larger quantities utilize automated can crushers which puncture, empty, and size reduce one and five gallon cans and collect the paint into larger drums. Regardless of the collection process it is recommended to screen the WLP through a 5/16" expanded metal sieve prior to pouring into application equipment.

Approval - Historically, obtaining approval for adding WLP to Posi-Shell® is not difficult. Generally, submittal to the state regulatory agency for a demonstration project period is required and possibly a minor modification to the operating permit.

Mixture Ratio - Approximately 10% WLP can be added to every gallon of finished Posi-Shell® slurry.

Mixture Procedure - WLP is added to the finished Posi-Shell® slurry, after all other ingredients have been mixed.



Durability of Posi-Shell[®] Long Term Cover

When used for long term cover, Posi-Shell[®] Coatings should be applied at 4-6 sq. ft. per gallon using application techniques described in the Base Mix Usage Guide. For best results apply product while outdoor temperature is above 50° F with no precipitation, and on a dry surface. These "ideal conditions" should remain for 48 hours after application to allow product to cure properly. When applied as described above customers in various climate and precipitation zones regularly achieve 12 months of durable cover with little to no maintenance.

The "duration" or "durability" of long term cover is understood to mean that the cover will perform as well as it did shortly after application and curing. Around the 12 month point, if no maintenance has been performed, the cover could begin to deteriorate from exposure to various elements, but will likely continue performing it's desired function (i.e.: erosion control, dust control, etc.). In this case, "durability" of cover could extend well beyond this 12 month period.

If an end user wants to maintain cover at "just applied" conditions, they may expect to use 5-20% of the original application materials for touch up annually, depending on the application surface.

Long term durability is best achieved using Posi-Shell[®] Coatings with durability enhancer added; however, if the product is applied in less than "ideal conditions" (i.e.: below 50° F, in rainy conditions, or on wet surfaces), the duration of the cover may become shortened. Describing exactly the shortened duration period is difficult, but field experience shows that the product will likely perform for several months even when applied in less than ideal conditions. Product should not be applied to standing water, or in heavy rainfall. The addition of Xtreme Rain Shield is recommended when application during rainfall is unavoidable, or when heavy rainfall is forecasted.



GHS Safety Data Sheet

SDS

LSC Environmental Products, LLC

Issue Date: June 15, 2015

Posi-Shell® Base Mix

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1 Identification

Supplier	LSC Environmental Products, LLC 2183 Pennsylvania Ave Apalachin, NY 13732
Telephone:	607-625-3050
Fax:	607-625-2688
Web:	www.lscenv.com
Product Name	Posi-Shell® Base Mix
Description:	Sodium Montmorillonite Clay (SMC) with Synthetic Fibers and Coloring
CAS Number:	N/A
Recommended Use:	Spray Applied Environmental Coatings.

2 Hazards Identification

Route of Entry:	Eye Contact, Skin Contact, Inhalation
Hazards:	Eye: May cause mechanical irritation.
	Skin: May cause drying resulting in dermatitis.
	Ingestion: No known health effects.
	Inhalation: Acute: Short term exposure may cause mechanical irritation resulting in dry cough. May aggravate existing respiratory illness.
	Chronic: Repeated inhalation of respirable* crystalline silica above exposure limits can cause lung disease, including silicosis and lung cancer.

NFPA: Not regulated, Non-hazardous

3 Composition / Information on Ingredients

Component	CAS#	Amount
Sodium Montmorillonite Clay (SMC)*	N/A	> 90%

*Typical western SMC contains 1-6% crystalline silica as quartz CAS# 14808-60-7.

4 First-Aid Measures

Eye:	Flush eyes and under eye lids with plenty of water until irritation ceases. Contact physician if irritation persists.
Skin:	Wash with soap and water until clean. Contact physician if irritation develops.
Ingestion:	None known.
Inhalation:	Move to area free from dust. If symptoms of irritation persist, contact physician. Inhalation may aggravate existing respiratory illness.



GHS Safety Data Sheet

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Posi-Shell® Base Mix

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5 Fire Fighting Measures

Flammability: Non-flammable

6 Accidental Release Measures

Personal Precaution: Avoid breathing dust; wear respirator approved for silica bearing dust.
 Cleanup: Vacuum to avoid generating airborne dust. Avoid using water. Material becomes slippery when wet.

7 Handling and Storage

Handling: Use NIOSH/MSHA respirators approved for silica bearing dust when airborne SMC dust levels exceed PEL/TLVs. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.
 Storage: Store in a dry place.

8 Exposure Controls / Personal Protection

Exposure Guidelines (Inhalation):

Component	OSHA PEL (8 hr TWA)	ACGIH TVL
Crystalline Silica as Quartz	0.1 mg/m ³	0.1 mg/m ³
Particles not Otherwise Regulated		
Total Dust	15 mg/m ³	N/A
Respirable Dust	5 mg/m ³	N/A

Engineering Controls: None required for outdoor mixing and application. Use local ventilation to maintain PELs/TLVs if handling indoors.

Personal Protective Equipment:

Eye and Face Protection: Wear safety glasses or goggles during loading and application to protect from dust, splashing, and spray mist.

Skin Protection: Wear gloves and overalls to protect skin and clothing from contact with product. Personal hygiene measures, such as washing hands and face after working with materials, are recommended.

Respiratory Protection: When handling generates dust levels above exposure limits, use respirators approved by NIOSH/MSHA for silica bearing dust.

9 Physical and Chemical Properties

Appearance: Off-white dry powder. Small quantity of brown powder and fine white fibers also present in package.



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LSC Environmental Products, LLC

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Posi-Shell® Base Mix

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Odor:	Not Determined
pH:	8-10 (5% aqueous suspension)
Relative Density (H ₂ O=1):	2.45-2.55
Bulk Density (at 20° C):	55 lbs/cu ft as dry product
Melting Point:	Approx. 1450° C
Solubility in Water:	<2% soluble by weight.
Flammability:	Non-flammable

10 Stability and Reactivity

Stability:	Stable
Hazardous Decomposition Products:	None under normal handling conditions.
Hazardous Polymerization:	Will not occur.
Incompatible Materials:	Hydrofluoric Acid.

11 Toxicological Information

- Carcinogenicity:
- Sodium Montmorillonite Clay is not listed by ACGIH, IARC, NTP, or OSHA.
 - IARC, 1997, concludes that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources (IARC Class 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. NTP classifies respirable crystalline silica as "known to be a human carcinogen" (NTP 9th Report on Carcinogens - 2000). ACGIH classifies crystalline silica quartz as a suspected human carcinogen (A2).

12 Ecological Information

No information available.

13 Disposal Considerations

Bury in licensed landfill according to local, state, and federal regulations.

14 Transportation Information

US DOT: Non-regulated

15 Regulatory Information

None of the components in this product are known to be regulated by national or international regulatory bodies.



GHS Safety Data Sheet

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LSC Environmental Products, LLC

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Posi-Shell® Base Mix

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Other Information

SDS Status: Revised from MSDS format in 2015 to comply with GHS requirements.

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.

No warranty or guarantee, expressed or implied, is made by LSC Environmental Products, LLC as to this information or as to the safety, toxicity, or effect of the use of this product.

Attachment 5
WDNR Plan Mod Approvals



November 18, 2021

FID # 405132860
Brown County
SW / Approval

Mr. Chad Doverspike
Brown County Port & Resource Recovery Department
2561 S Broadway
Green Bay, WI 54304

Subject: No Objection to Expedited Plan of Operation Approval Modification at the Brown County South Landfill, Town of Holland, Brown County, DNR Monitoring No. 3565

Dear Mr. Doverspike:

The Department of Natural Resources (department) does not object to the request dated October 22, 2021, to use papermill sludge as alternative daily cover (ADC) at the Brown County South Landfill (BCSLF). Based on the information provided, the department has determined that the proposal poses low risk to human health and the environment. Please include this letter in the written operating record for the landfill as specified in s. NR 506.17, Wis. Adm. Code.

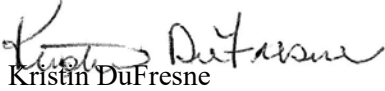
The department received the request on October 22, 2021, from Foth Infrastructure and Environment, LLC (Foth), on behalf of Brown County Port & Resource Recovery Department (BCPRRD). The review fee was received on November 1, 2021. The expedited plan modification was requested in accordance with s. NR 514.09(1)(a)4, and 10, Wis. Adm. Code, regarding the use of papermill sludge as ADC.

BCSLF proposes to use papermill sludge as ADC from Green Bay Packaging (GBP), Inc. and Sonoco. The GBP material will be fiber rejects, which has approximately 39.9% solids. The Sonoco material will be screw press sludge, which has approximately 41.8% solids. BCSLF anticipates receiving 100-300 tons per day from GBP and 20-40 tons per day from Sonoco. BCSLF will stockpile the ADC near the active area before spreading it in 6-inch layers over the active area. BCSLF will not place the papermill sludge within 10 feet of the drainage layer and will not use it on exterior sideslopes. BCSLF will initially conduct a 1-year trial to confirm the materials' use as ADC. BCSLF should notify the department of problems while using papermill sludge as ADC. BCSLF will report tonnage accepted, use, summary of the effectiveness, and any issues related to its use in the annual report.

This letter is based on the information available to the department as of the date of this letter. If additional information, project changes or other circumstances indicate a possible need to modify the approved plan, the department may ask you to provide further information relating to this activity. Likewise, the department accepts proposals to modify approvals, as provided for in state statutes and administrative codes.

Please keep in mind that this approval does not relieve BCPRRD of obligations to meet all other applicable federal, state or local permits, zoning and regulatory requirements. If you have questions regarding this approval, please contact Sally Hronek at 920-609-5236 or email: Sally.Hronek@wisconsin.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kristin DuFresne".

Kristin DuFresne
Waste and Materials Management Supervisor
Northeast Region

cc: Marty Sturzl – Foth (e-mail)
Jackie Marciulionis – DNR/WA (e-mail)
Valerie Joosten – DNR/WA (e-mail)



November 29, 2022

FID 405132860
Brown County
SW / Approval

Mr. Chad Doverspike
Brown County Port & Resource Recovery Department
2561 S Broadway
Green Bay, WI 54304

Subject: Conditional Plan of Operation Approval Modification for the use of NEW Water Ash/Sand Mixture as alternate daily cover (ADC) and other beneficial uses within the Brown County South Landfill, Town of Holland, Brown County, License No. 3565

Dear Mr. Doverspike:

The Department of Natural Resources (department) has reviewed the requested plan of operation modification dated August 15, 2022. The department conditionally approves the plan of operation modification. Please include the attached plan of operation approval modification in the written operating record for the landfill as specified in s. NR 506.17, Wis. Adm. Code.

The Brown County Port & Resource Recovery Department (BCPRRD) requested use of NEW Water incinerator ash and sand as well as Manitowoc Grey Iron Foundry sand and slag for ADC and other beneficial uses within the landfill. In an email dated October 21, 2022, Foth (on behalf of BCPRRD) requested to remove the Manitowoc Grey Iron Foundry material from the request. The NEW Water incinerator ash and sand will be used for berm construction, for stabilization of interior roadways and the deck area, and for ADC within the landfill.

Please keep in mind that this approval does not relieve the BCPRRD of obligations to meet all other applicable federal, state or local permits, zoning and regulatory requirements. If you have questions regarding this approval, please contact Sally Hronek at 920-609-5236 or email: Sally.Hronek@wisconsin.gov.

Sincerely,

Kristin DuFresne
Waste and Materials Management Program Supervisor
Northeast Region

Enclosed - Approval

cc: Dan Michiels – Foth (e-mail)
Sara Beine – Foth (email)
Ben Hintz – BC (email)
Sally Hronek – DNR/WA (email)
Kevin Lincicum – DNR/WA (e-mail)
Valerie Joosten – DNR/WA (e-mail)

**BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CONDITIONAL PLAN OF OPERATION APPROVAL MODIFICATION
FOR THE
BROWN COUNTY SOUTH LANDFILL
LICENSE NO. 3565**

FINDINGS OF FACT

The Department of Natural Resources (department) finds that:

1. The Brown County Port & Resource Recovery Department (BCPRRD) owns and operates a non-hazardous solid waste disposal facility (Brown County South Landfill [BCSLF]) in the E ½ of the SW ¼ of Section 18, Township 21N, Range 20E, town of Holland, Brown County, Wisconsin.
2. On January 16, 2020, the department issued a conditional plan of operation approval for the BCSLF.
3. On August 15, 2022, Foth Infrastructure and Environment, LLC (Foth), on behalf of the BCPRRD, submitted a request for an expedited plan of operation modification. On September 9, 2022, BCPRRD withdrew the request for an expedited plan of operation modification and requested a modification to the plan of operation in accordance with s. NR 514.04(6), Wis. Adm. Code. The department received the review fee of \$1,000 for an expedited plan of operation modification on August 19, 2022. The remaining review fee of \$650 for a regular plan of operation modification was received by the department on November 14, 2022.
4. The information submitted in connection with the plan modification request includes the following:
 - a. A letter and attachments prepared by Foth titled, “Expedited Plan Modification Beneficial Use and ADC Request – Ash, Sand, and Slag Brown County South Landfill – WDNR License No. 3565” and dated August 15, 2022.
 - b. An email dated September 29, 2022 from Foth revising the request to a regular plan modification to allow more time to collect additional information for the Manitowoc Grey Iron Foundry sand and slag material.
 - c. An email dated October 21, 2022 from Foth requesting to remove the Manitowoc Grey Iron Foundry sand and slag material from the plan of operation modification request.
5. Additional documents reviewed in connection with the plan modification request include the following:
 - a. The department’s November 18, 2021 approval for BCSLF to use papermill sludge as ADC from Green Bay Packaging (GBP), Inc. and Sonoco.
 - b. The department’s January 16, 2020 conditional plan of operation approval for BCSLF.
 - c. The department’s Alternate Daily Cover for Municipal Solid Waste Landfills, PUB-WA-1699, dated 2014.

- d. The department's files pertaining to the BCSLF (License No. 3565).
6. Additional facts relevant to the review of the plan modification request include:
 - a. NEW Water incinerator ash and sand is generated as part of the wastewater treatment plant (WWTP) sludge incineration process.
 - i. Ash from the incineration process is stockpiled in ponds and then dewatered.
 - ii. A berm of clean sand is placed between the dewatering ash and the pond to filter the dewatered ash and provide a wind barrier.
 - iii. The dewatered ash and sand, primarily sand by weight, make up the material that is proposed for beneficial use.
 - b. BCSLF anticipates receiving 3,000-4,000 tons of NEW Water incinerator ash and sand per year.
 - c. BCSLF use of the ash/sand material for beneficial use includes berm construction, road base, and decking surfaces. The request also proposed used as ADC.
 - i. The material will be used for stabilization of interior roadways and the deck area.
 - ii. BCSLF may mix it with other materials (i.e., breaker run, foundry sand, construction and demolition materials, slag, etc.) to form a solid base for the hauling vehicles to operate on.
 7. The special conditions set forth below are needed to assure that the sites are operated and maintained in an environmentally sound manner. If the special conditions are complied with, the proposed modifications will not inhibit compliance with the standards set forth in the applicable portions of chs. NR 500-538, Wis. Adm. Code.

CONCLUSIONS OF LAW

1. The department has the authority under s. 289.30(6), Wis. Stats., to modify a plan of operation approval if the modification would not inhibit compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
2. The department has the authority to approve a modification to the plan of operation with special conditions if the conditions are needed to ensure compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
3. The conditions of approval set forth below are needed to ensure compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
4. In accordance with the foregoing, the department has the authority under s. 289.30(6), Wis. Stats., to issue the following conditional plan of operation modification approval.

CONDITIONAL PLAN OF OPERATION APPROVAL MODIFICATION

The department hereby approves the proposed plan of operation modification for the BCSLF, subject to compliance with chs. NR 500-538, Wis. Adm. Code and the following conditions:

1. Waste materials used as ADC shall not contain free liquids.
2. The landfill operator shall remove, scarify or mix-in to the extent possible, at the beginning of the next operating day, any alternative daily cover material that would create a barrier to the movement of leachate and gas.
3. ADC materials shall be stored within the lined footprint of the landfill.
4. The NEW Water incinerator ash and sand material shall not be used within 10-feet of the landfill drainage blanket.
5. The use of the NEW Water incinerator ash within the landfill shall be limited to weather conditions that do not make the material windblown. If the material becomes windblown, it must be covered with a material that prevents windblown conditions.

Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

This approval is based on the information available to the department as of the date of approval. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the department may ask you to provide further information relating to this activity. Likewise, the department accepts proposals to modify approvals, as provided for in state statutes and administrative codes.

NOTICE OF APPEAL RIGHTS

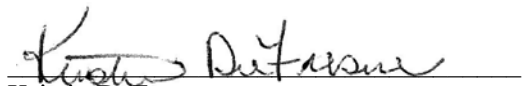
If you believe you have a right to challenge this decision made by the department, you should know that Wisconsin statutes and administrative codes establish time periods and requirements for reviewing department decisions.

To seek judicial review of the department's decision, sections 227.52 and 227.53, Wis. Stats., establish criteria for filing a petition for judicial review. You have 30 days after the decision is mailed or otherwise served by the department to file your petition with the appropriate circuit court and serve the petition on the department. The petition shall name the Department of Natural Resources as the respondent.

Dated: November 29, 2022

DEPARTMENT OF NATURAL RESOURCES

For the Secretary



Kristin DuFresne

Waste and Materials Management Program Supervisor
Northeast Region



Sally Hronek

Waste Management Engineer
Northeast Region



November 17, 2023

FID 405132860
Brown County
SW/Approval

Mr. Chad Doverspike
Brown County Port & Resource Recovery Department
2561 S Broadway
Green Bay, WI 54304

Subject: Conditional Plan of Operation Approval Modification for the Beneficial Use of Tire Chips at the Brown County South Landfill, Town of Holland, Brown County, License No. 3565

Dear Mr. Doverspike:

The Department of Natural Resources (department) is approving the requested plan of operation modification (the plan) dated September 5, 2023, for the Brown County South Landfill. The department is conditionally approving the plan of operation modification to beneficially use tire derived aggregate (TDA) as horizontal gas extraction well and leachate recirculation trench pipe bedding. Please include the attached plan of operation approval modification in the written operating record for the landfill as specified in s. NR 506.17, Wis. Adm. Code.

Brown County Port & Resource Recovery Department (BCPRRD) is proposing to replace stone aggregate in horizontal gas collection and leachate recirculation trenches with TDA. The TDA will be 2-inch by 2-inch nominally sized tire chips or shreds with 95% of embedded metals removed and wire strands limited to ½ inch protrusions from tire chips. The TDA will additionally have 95% of fines passing the ½ inch screen removed. The TDA will be stockpiled off of the landfill footprint on a concrete pad located north of the landfill.

The horizontal gas extraction trench and leachate recirculation trench widths will be increased to 42-inches to account for anticipated consolidation of the tire chips. BCPRRD is proposing to try various configurations of the horizontal gas extraction trenches by installing one or multiple low points in the horizontal gas extraction trenches for leachate drainage. Tire chips will be set back 20 feet from exterior sideslopes for horizontal gas extraction trenches and 100 feet for leachate recirculation trenches.

After installation of the active gas extraction system infrastructure, BCPRRD will evaluate the performance of the horizontal gas extraction wells and include a summary of the evaluation in the landfill's annual report. In accordance with condition 1 of this approval, if at any time the department determines the TDA horizontal gas extraction wells are not preventing nuisance odor conditions or are creating other adverse conditions, the department reserves the right to discontinue the use of TDA in horizontal gas extraction trenches.

Please keep in mind that this approval does not relieve you of obligations to meet all other applicable federal, state or local permits, zoning and regulatory requirements. If you have questions regarding this approval, please contact Tess Brester at (920) 419-9219 or email Tess.Brester@wisconsin.gov.

Sincerely,



Kristin DuFresne
Waste and Materials Management Supervisor
Northeast Region

cc: Dan Michiels – Foth (dan.michiels@foth.com)
Sara Beine – Foth (sara.beine@foth.com)
Casey Krausensky – DNR/WA (e-copy)
Dan Kroll – DNR/WA (e-copy)
Jackie Marciulionis – DNR/WA (e-copy)
Tess Brester – DNR/WA (e-copy)

**BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CONDITIONAL PLAN OF OPERATION APPROVAL MODIFICATION
FOR THE
BROWN COUNTY SOUTH LANDFILL, LICENSE #3565**

FINDINGS OF FACT

The Department of Natural Resources (department) finds that:

1. The Brown County Port & Resource Recovery Department (BCPRRD) owns and operates a solid waste disposal facility (Brown County South Landfill [BCSLF]) in the E ½ of the SW ¼ of Section 18, Township 21N, Range 20E, Town of Holland, Brown County, Wisconsin.
2. The department issued a conditional plan of operation approval for the solid waste disposal facility on January 16, 2020.
3. On September 5, 2023, Foth Infrastructure and Environment, LLC (Foth), on behalf of the BCPRRD, submitted a request to beneficially use tire chips within the landfill. The department received the review fee of \$1,650 on September 18, 2023.
4. The information submitted in connection with the plan of operation modification request includes the following:
 - a. A letter titled “Plan Modification for Beneficial Use Request - Tire Derived Aggregate, Brown County South Landfill – WDNR License No. 3565” which was dated and received by the department on September 5, 2023.
 - b. An email from Foth received by the department on August 25, 2023, containing the following articles or links to the articles:
 - i. SCS Engineers paper titled, “Use of Tire Chips in Landfill Gas Extraction Applications” (paper undated).
 - ii. Ohio Environmental Protection Agency Policy Document #599, titled, “Use of Shredded Tire in Landfill Construction” and dated October 2014 (originally published on March 21, 2005).
 - iii. California Department of Resource Recycling and Recovery document titled, “Usage Guide, Tire-Derived Aggregate (TDA)” and dated January 2016.
 - iv. Ohio Environmental Protection Agency Policy Document #671, titled, “Beneficial Use of Scrap Tires” and dated May 2018.
 - v. ASTM D6270-20, titled, “Standard Practice for Use of Scrap Tires in Civil Engineering Applications,” and last updated September 22, 2020.
 - vi. U.S. Tire Manufacturers Association paper titled, “2021 US Scrap Tire Management Summary” and dated October 25, 2022.

- c. An email and attachments from Foth received by the department on November 2, 2023, in response to the department's October 12, 2023, request for additional information email.
5. Additional documents reviewed in connection with the plan of operation modification request include the following:
 - a. The department's October 12, 2023, request for additional information email.
 - b. Appendix K of BCPRRD's plan of operation report titled "Alternative Daily Cover and Beneficial Reuse Plan" and dated April 30, 2019.
 - c. The department's January 16, 2020, plan of operation approval.
 - d. The department's files pertaining to the BCSLF (License No. 3565).
6. Additional facts relevant to the review of the plan of operation modification request include:
 - a. Horizontal gas extraction wells (with or without tire derived aggregate) are supplemental to the permanent, vertical gas extraction system and are anticipated to be abandoned prior to final cover construction.
 - b. Tire derived aggregate will be stockpiled off of the landfill footprint in quantities limited to the volume needed for each sequence of horizontal gas extraction well and leachate recirculation trench installation.
7. The special conditions set forth below are needed to assure that the sites are operated and maintained in an environmentally sound manner. If the special conditions are complied with, the proposed modifications will not inhibit compliance with the standards set forth in the applicable portions of chs. NR 500-538, Wis. Adm. Code.

CONCLUSIONS OF LAW

1. The department has the authority under s. 289.30(6), Wis. Stats., to modify a plan of operation approval if the modification would not inhibit compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
2. The department has the authority to approve a modification to the plan of operation with special conditions if the conditions are needed to ensure compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
3. The conditions of approval set forth below are needed to ensure compliance with the applicable portions of chs. NR 500-538, Wis. Adm. Code.
4. In accordance with the foregoing, the department has the authority under s. 289.30(6), Wis. Stats., to issue the following conditional plan of operation modification approval.

CONDITIONAL PLAN OF OPERATION APPROVAL MODIFICATION

The department hereby approves the proposed plan of operation modification for the BCSLF, subject to compliance with chs. NR 500-538, Wis. Adm. Code, and the following conditions:

1. If at any time the department determines that the horizontal gas extraction wells with tire derived aggregate are not preventing nuisance odor conditions or are creating adverse effects on the landfill, BCPRRD shall discontinue the use of TDA in horizontal gas extraction trenches.
2. BCPRRD shall submit a written plan to control the nuisance odors or other adverse conditions to the department within 30 days of the department's determination for BCPRRD to discontinue the use of TDA in horizontal gas extraction trenches.
3. BCPRRD shall place enough select waste over the constructed horizontal gas extraction wells and leachate recirculation trenches to minimize the chance of smolders/fires from the active disposal area from reaching the tire derived aggregate.
4. BCPRRD shall submit a revised beneficial use plan (Appendix K of the plan of operation) to the department within 90 days to include the acceptance of tire derived aggregate. The department shall charge a separate review fee if the department determines that the revised 'Appendix K' includes modifications outside of the beneficial use of tires outlined in this approval.

Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

This approval is based on the information available to the department as of the date of approval. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the department may ask you to provide further information relating to this activity. Likewise, the department accepts proposals to modify approvals, as provided for in state statutes and administrative codes.

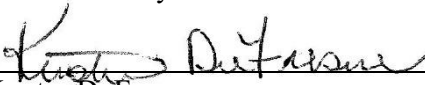
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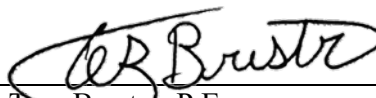
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Dated: November 17, 2023

DEPARTMENT OF NATURAL RESOURCES
For the Secretary



Kristin DuFresne
Waste and Materials Management Program Supervisor
Northeast Region



Tess Brestor, P.E.
Waste Management Lead Engineer
Waste and Materials Management Program