

# Technical Memorandum

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**To:** Dawn Tanner and Phil Belfiori  
VLAWMO

**From:** Adam N. Nies PE, CFM  
Chris Otterness PE  
Houston Engineering, Inc.

**Subject:** MPCA Coordination of On-site Spoil Disposal for Concept BMP Alternatives  
Wilkinson Lake BMP Project

**Date:** January 3, 2023

**Project:** 7057-0014

Following soil sampling completed by Braun Intertec at the Wilkinson Lake BMP Project, the Minnesota Pollution Control Agency (MPCA) was engaged in discussions regarding the reuse of the spoil materials on-site as the preferred plan for the BMP concept alternatives. The soil sampling showed contamination levels above the soil reference value (SRV) for arsenic. Braun Intertec's report dated 12/9/2022 addresses these concerns by stating that "...it appears unlikely that the observed concentrations are the result of a release to the environment. Given the proposed use of the dredge material for construction of a vegetated berm on vacant land, the arsenic concentrations do not appear to pose a significant risk if relocated on-site and arsenic is not considered a contaminant of concern."

The Braun Report further indicates that the dredging and on-site disposal of spoil materials may require a permit from the MPCA. However, per correspondence with the MPCA and in accordance with guidance on their website, a permit from the MPCA is not required for the concept alternatives considered.

For reference, the MPCA website states the following:

*The MPCA may require a State Disposal System (SDS) permit for storing, treating, disposing, or reusing dredged materials on land in Minnesota, if the material was dredged from navigational channels, harbors, docks and marinas, and similar projects in the following areas:*

- *Mississippi River downstream of River Mile 857.6 (near the Soo Line Rail crossing near St. Anthony Parkway in Minneapolis)*
- *Minnesota River downstream of River Mile 27 (about two miles upstream of the CSAH 101 crossing in Shakopee)*

- *St. Croix River downstream of River Mile 26 (about three miles upstream of the East Chestnut St. crossing in Stillwater)*
- *St. Louis River downstream of the State Hwy 23 crossing*
- *St. Louis Bay or Duluth/Superior Harbor*
- *Out-of-state projects*

*If the dredge project is in the areas listed above, a permit is required for volumes greater than 3,000 cubic yards that will be stored or reused.*

*If the project is not located in the areas above or the material (at any volume) will going to a landfill with an MPCA permit that covers the management of dredged material, no permit is required.*

The project site is not within the areas listed above, and thus per this guidance a permit from MPCA is not required for the dredging and on-site disposal of spoil materials.

# **Sediment (Dredge) Sampling**

Wilkinson Lake Wetlands  
North Oaks, Minnesota

*Prepared for*

**Houston Engineering, Inc.**

December 9, 2022

Project B2210417

Mr. Adam Nies, PE  
Houston Engineering, Inc.  
7550 Meridian Circle North, Suite 120  
Maple Grove, MN 55369

Re: Sediment (Dredge) Sampling  
Wilkinson Lake Wetlands  
North Oaks, Minnesota

Dear Mr. Nies:

As authorized, Braun Intertec completed sediment sampling activities at the above-mentioned wetland areas in North Oaks, Minnesota. The objective of the work was to characterize the in-place sediment (future dredge material) for potential disposal purposes.

## **Sediment Sampling Procedures**

Given the wetland designation and irrigation/drainage channels in this area, the wetland areas are considered waters of the State that are not part of the Municipal Separate Storm Sewer System (MS4) for the City of North Oaks. As such, our scope was based on the Minnesota Pollution Control Agency's (MPCA) current best management practice for "Managing Dredge Materials," dated April 2014 (MPCA, 2014).

Based on information provided by Houston Engineering in email correspondence dated September 15, 2022, approximately 15,000 cubic yards (cy) of sediment are planned for removal. The material would be re-used to construct an earthen berm adjacent to the wetland. Sediment depths for excavation are estimated at 4 feet. Per MPCA guidelines, three core sample locations are required for the dredge material. At each location, samples were collected from the planned dredge material in 2-foot intervals (two samples per location), with an additional sample required to characterize the parent material (or residual sediment material) located below the dredged materials.

We collected nine analytical samples from the proposed dredge area. The samples were collected by driving a bucket auger into the underlying sediment using hand-driven sampling equipment.

AA/EOE

During sampling activities, soil sample textures were evaluated by visual methods as the samples were collected and noted in the field notes. Drilling tools were cleaned prior to and between sampling runs by washing the equipment with a brush and potable water containing trisodium phosphate and rinsing the equipment with deionized water.

The samples were transferred to clean laboratory-supplied containers, preserved in accordance with Braun Intertec Standard Operating Procedures (SOPs) and transported to Pace Analytical Services laboratory for analysis. Chain of Custody was initiated at the time of sampling and maintained throughout the process.

Sample locations are depicted on Figure 1.

## **Sample Analytical Parameters**

Each future dredge sediment sample, as well as the underlying native sample were analyzed for the baseline sediment parameters pursuant to MPCA guidelines. The parameters were as follows:

- Metals – arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, and zinc by SW-846 EPA 6010/7471B.
- Total phosphorus using method EPA 365.1.
- Nitrate & nitrite using EPA 353.2.
- Ammonia nitrogen using EPA 350.1.
- Total Kjeldahl nitrogen using EPA 351.2.
- Polychlorinated biphenyls (PCBs) using method SW-846 8082.
- Total organic carbon using SW-846-9060.
- Extended List, Polycyclic Aromatic Hydrocarbons (PAHs) using EPA 8270E SIM.

## Results

### Sediment Profile

Sediments observed during the completion of the borings consisted primarily of a dark brown/black sandy clay throughout each of the borings. No distinct odors or staining were noted in the sediments collected from the borings.

### Sediment Chemistry

#### *Metals*

- Cadmium, hexavalent chromium, and mercury were not detected at or above the laboratory method reporting limit (MRL) in the samples analyzed.
- Trivalent chromium, copper, lead, nickel and zinc were detected at concentrations above the laboratory MRL in one or more of the samples analyzed. However, in each case, the concentration was below the MPCA Level 1 management category, which is equivalent to the Soil Reference Value (SRV) established for each compound.
- Arsenic was detected at concentrations greater than the MRL in each of the samples analyzed. In five cases within the WILK-1 and WILK-2 samples, the concentrations were reported greater than the MPCA SRV (i.e., greater than 9 mg/kg). According to MPCA guidance document c-r1-05, *Soil Reference Value Technical Support Document*, dated April 2021, the value of 9 mg/kg for arsenic is considered a Background Threshold Value (BTV), which is not a calculated health based SRV since the MPCA calculated SRV for arsenic was determined to be less than background levels. Concentrations of arsenic ranged from 5.3 to 15.3 mg/kg. Higher arsenic concentrations appeared to correlate with higher total organic carbon concentrations within the samples, rather than depth, sediment lithology, or specific source areas. As the variations in arsenic concentrations are most readily correlated with total organic carbon (reported at a maximum of 318,000 mg/kg [equivalent to 31.8%], significantly higher than standard soils), it appears unlikely that the observed concentrations are the result of a release to the environment. Given the proposed use of the dredge material for construction of a vegetated berm on vacant land, the arsenic concentrations do not appear to pose a significant risk if relocated on-site and arsenic is not considered a contaminant of concern. Thus, it is our opinion that the detected arsenic concentrations alone do not warrant elevation of the material beyond the MPCA Level 1 management category.

### **PAHs**

- Non-carcinogenic PAHs were detected in seven of nine samples analyzed. In each case, the concentrations were well below the Level 1 Management level.
- Carcinogenic PAHs were not detected in each sample analyzed. BaP equivalent values were calculated pursuant to MPCA Dredged Material guidelines. In instances where carcinogenic compounds were not detected at or above the laboratory MRL, a value of half the applicable MRL was used in the BaP calculation, per MPCA guidance. The BaP equivalents for each analyzed sample were below the Dredge Management Level 1 criteria of 2 mg/kg, with the exception of WILK-1 (4'-6') and WILK-2 (4'-6'), which were calculated at slightly greater than 2 mg/kg. As these non-detect “exceedances” are reported within sediment proposed to remain in-place following dredge activities and are based on elevated MRLs, they are not appropriate for guiding management of the planned dredged materials.

### **Other**

Ammonia, total Kjeldahl nitrogen, nitrate + nitrite, total phosphorous, and total organic carbon were detected at various concentrations in each sample. Management criteria have not been established for these compounds. The MPCA requirement to include these compounds is geared toward end-use of the dredged sediments and the results should be provided to disposal facilities or receiving parties for their use. Additional consultation with the MPCA regarding land application criteria and approvals may be required.

Please refer to Table 1 for a detailed summary of the analytical results.

## **Recommendations**

Based on the analytical results from our sampling and testing, the materials planned for dredging meet Dredge Management Level 1 criteria. However, it should be noted that the planned re-use of the material as an earthen berm equates to long term storage and thereby, disposal, according to dredge management guidelines. As such, dredge management guidelines state that MPCA approvals are required. Additionally, the estimated amount of dredged material is greater than 3,000 cy, which may require the issuance of an individual permit from the MPCA.

## General

Our scope of our work was determined by our understanding of the rules and guidance of the MPCA as they apply to needs of Houston Engineering. Therefore, the scope of work is not represented to conform explicitly to current MPCA written guidance.

We appreciate the opportunity to provide our professional services on this project, and look forward to working with Houston Engineering in the future. Please call Edward Pencak at 612.500.3752 or Mark Ciampone at 651.487.7015 if you have questions about the report or require additional information.

Sincerely,

BRAUN INTERTEC CORPORATION



Edward S. Pencak  
Project Scientist



Mark A. Ciampone, PG  
Business Unit Leader, Senior Scientist

### Attachments:

Table 1: Summary of Sediment Testing Results

Figure 1: Sample Location Sketch

Laboratory Analytical Report



## Summary Table of Sediment Testing Results

Table 1  
Summary of Pond Sediment Testing Results  
Wilkinson Pond  
Project B2210417

Project Name: Wilkinson Pond  
Sample Dates: 10/31/2022

Parameters	Dredge Mgmt.		Sample Locations and Depths																	
	Level 1	Mgmt. Level 2	WILK-1 (0'-2')*	WILK-1 (2'-4')*	WILK-1 (4'-6')*	WILK-2 (0'-2')*	WILK-2 (2'-4')	WILK-2 (4'-6')*	WILK-3 (0'-2')	WILK-3 (2'-4')	WILK-3 (4'-6')									
	mg/kg	mg/kg	10/31/2022 12:05	10/31/2022 12:10	10/31/2022 12:15	10/31/2022 10:45	10/31/2022 10:50	10/31/2022 10:55	10/31/2022 11:20	10/31/2022 11:25	10/31/2022 11:30									
<b>Other (mg/kg)</b>																				
Ammonia	NE	NE	62.4	65.9	91.6	37.4	55.4	85.7	29.3	12.9	12.3									
Total Kjeldahl Nitrogen	NE	NE	5,450	13,200	14,800	14,900	14,100	10,500	6,620	3,120	2,290									
Nitrate+Nitrite	NE	NE	23.7	4.7	1.2	13.6	13.1	1.8	<0.50	<0.34	<0.31									
Total Phosphorous	NE	NE	557	508	234	2,410	347	301	501	383	425									
Total Organic Carbon	NE	NE	273,000	182,000	269,000	318,000	133,000	277,000	250,000	97,600	53,600									
Total PCBs	0.82	10	<0.153	<0.183	<0.249	<0.168	<0.224	<0.322	<0.121	<0.0822	<0.0786									
<b>Metals (mg/kg)</b>																				
Optional Methods SW-846; 6010 or 6020																				
Arsenic	9	9	9.6	9.2	11.4	15.3	8.0	10.8	7.8	5.9	5.3									
Cadmium	1.6	23	0.47	<0.54	<0.73	0.63	<0.67	<0.95	<0.37	<0.26	0.34									
Chromium, Trivalent	23,000	100,000	13	<4.7	<4.7	7.9	30	4.3	8.7	7.6	11									
Chromium, Hexavalent	2.3	62	<30	<38	<49	<36	<42	<63	<27	<27	<1.6									
Copper	2200	33,000	12.5	11.6	8.6	12.5	7.5	6.9	8.6	11.5	13.4									
Lead	200	460	7.9	4.9	3.9	12.9	4.2	3.6	6.1	4.2	6.2									
Mercury	2.7	3.1	<0.056	<0.067	<0.086	<0.070	<0.090	<0.11	<0.048	<0.032	<0.030									
Nickel	170	2,600	11.5	9.2	11.0	15.3	9.1	8.5	11.4	12.4	17.3									
Selenium	78	1,200	3.4	3.6	<4.9	4.2	<4.5	<6.3	2.5	<1.7	<1.6									
Zinc	4,700	70,000	25.9	12.7	14.4	32.4	11.8	19.2	16.0	23.0	34.1									
<b>Noncarcinogenic Polycyclic Aromatic Hydrocarbons (PAHs) (mg/kg)</b>																				
Acenaphthene	460	6,800	<0.031	<0.036	<0.0498	<0.0350	<0.045	<0.064	<0.0250	<0.0171	<0.016									
Acenaphthylene	na	na	<0.0309	<0.0367	<0.050	<0.0350	<0.0449	<0.0643	<0.0250	<0.016	<0.0158									
Anthracene	2,800	42,000	<0.031	0.056	<0.0498	0.064	0.056	<0.0643	<0.0250	<0.0171	<0.016									
Benzo[g,h,i]perylene	na	na	<0.0309	<0.036	<0.0498	<0.035	<0.0449	<0.064	<0.025	<0.0171	<0.0158									
Fluoranthene	210	2,700	<0.0309	<0.0367	<0.0498	<0.0350	<0.0449	<0.064	0.064	<0.0171	<0.0158									
Fluorene	390	5,800	0.027	<0.0367	<0.050	0.057	0.1	<0.064	<0.0250	<0.0171	<0.016									
2-Methylnaphthalene	39	580	<0.0309	<0.0367	<0.0498	<0.0350	<0.0449	<0.0643	<0.0250	<0.0171	<0.0158									
Naphthalene	81	280	<0.0309	<0.0367	<0.0498	<0.0350	0.057	<0.0643	<0.0250	<0.0171	<0.016									
Phenanthrene	na	na	<0.0309	0.37	0.11	<0.0350	0.35	0.076	0.072	<0.016	<0.016									
Pyrene	220	3,200	<0.0309	<0.0367	<0.0498	<0.0350	0.13	<0.0643	<0.0250	<0.0171	<0.0158									
<b>Carcinogenic PAHs &amp; BaP Equiv. (mg/kg)</b>																				
	Potency Equiv. Factor (PEF)		Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.
Benzo[a]anthracene	0.10		0.015	0.002	0.018	0.002	0.025	0.003	0.018	0.002	0.022	0.002	0.032	0.003	0.013	0.001	0.009	0.001	0.008	0.001
Benzo[b, j & k]fluoranthenes	0.10		0.046	0.005	0.055	0.006	0.075	0.008	0.053	0.005	0.068	0.007	0.097	0.010	0.037	0.004	0.026	0.003	0.024	0.002
Benzo[a]pyrene	1.00		0.015	0.015	0.018	0.018	0.025	0.025	0.018	0.018	0.022	0.022	0.032	0.032	0.013	0.013	0.009	0.009	0.008	0.008
Chrysene	0.01		0.015	0.000	0.018	0.000	0.025	0.000	0.018	0.000	0.022	0.000	0.032	0.000	0.013	0.000	0.009	0.000	0.008	0.000
Dibenz[a,h]acridine	0.10		0.015	0.002	0.018	0.002	0.025	0.003	0.018	0.002	0.022	0.002	0.032	0.003	0.013	0.001	0.009	0.001	0.008	0.001
Dibenz[a,h]anthracene	0.56		0.015	0.008	0.018	0.010	0.025	0.014	0.018	0.010	0.022	0.012	0.032	0.018	0.013	0.007	0.009	0.005	0.008	0.004
7H-Dibenzo[c,g]carbazole	1.00		0.015	0.015	0.018	0.018	0.025	0.025	0.018	0.018	0.022	0.022	0.032	0.032	0.013	0.013	0.009	0.009	0.008	0.008
Dibenzo[a,e]pyrene	1.00		0.015	0.015	0.018	0.018	0.025	0.025	0.018	0.018	0.022	0.022	0.032	0.032	0.013	0.013	0.009	0.009	0.008	0.008
Dibenzo[a,h]pyrene	10.00		0.015	0.150	0.018	0.180	0.025	0.250	0.018	0.180	0.022	0.220	0.032	0.320	0.013	0.125	0.009	0.085	0.008	0.080
Dibenzo[a,i]pyrene	10.00		0.015	0.150	0.018	0.180	0.025	0.250	0.018	0.180	0.022	0.220	0.032	0.320	0.013	0.125	0.009	0.085	0.008	0.080
Dibenzo[a,j]pyrene	10.00		0.015	0.150	0.018	0.180	0.025	0.250	0.018	0.180	0.022	0.220	0.032	0.320	0.013	0.125	0.009	0.085	0.008	0.080
7,12 Dimethylbenz-anthracene	34.00		0.015	0.510	0.018	0.612	0.025	0.850	0.018	0.612	0.022	0.748	0.032	1.088	0.013	0.425	0.009	0.289	0.008	0.272
Indeno[1,2,3-c,d]pyrene	0.10		0.015	0.002	0.018	0.002	0.025	0.003	0.018	0.002	0.022	0.002	0.032	0.003	0.013	0.001	0.009	0.001	0.008	0.001
3-Methylcholanthrene	3.00		0.015	0.045	0.018	0.054	0.025	0.075	0.018	0.054	0.022	0.066	0.032	0.096	0.013	0.038	0.009	0.026	0.008	0.024
5-Methylchrysene	1.00		0.015	0.015	0.018	0.018	0.025	0.025	0.018	0.018	0.022	0.022	0.032	0.032	0.013	0.013	0.009	0.009	0.008	0.008
5-Nitroacenaphthene	0.02		0.015	0.00	0.018	0.00	0.025	0.001	0.018	0.000	0.022	0.00	0.032	0.00	0.013	0.000	0.009	0.000	0.008	0.00
1-Nitropyrene	0.10		0.015	0.00	0.018	0.00	0.025	0.003	0.018	0.002	0.022	0.00	0.032	0.00	0.013	0.001	0.009	0.001	0.008	0.00
4-Nitropyrene	0.10		0.015	0.00	0.018	0.00	0.025	0.003	0.018	0.002	0.022	0.00	0.032	0.00	0.013	0.001	0.009	0.001	0.008	0.00
6-Nitrochrysene	10.00		0.015	0.15	0.018	0.18	0.025	0.250	0.018	0.180	0.022	0.22	0.032	0.32	0.013	0.125	0.009	0.085	0.008	0.08
2-Nitrofluorene	0.01		0.015	0.00	0.018	0.00	0.025	0.000	0.018	0.000	0.022	0.00	0.032	0.00	0.013	0.000	0.009	0.000	0.008	0.00
(BaP) Equivalent***	2 mg/kg	23 mg/kg		1.24		1.48		2.060		1.483		1.81		2.64		1.030		0.700		0.66

Dredge Management Level 1= results less than SRV 1 (suitable for residential landuse)  
DredgeManagement Level 2= results less than SRV 2 (suitable for industrial landuse)  
Dredge Management Level 3- exceeds SRV2 (must be treated or disposed in a landfill with MPCA approved industrial waste management plan)

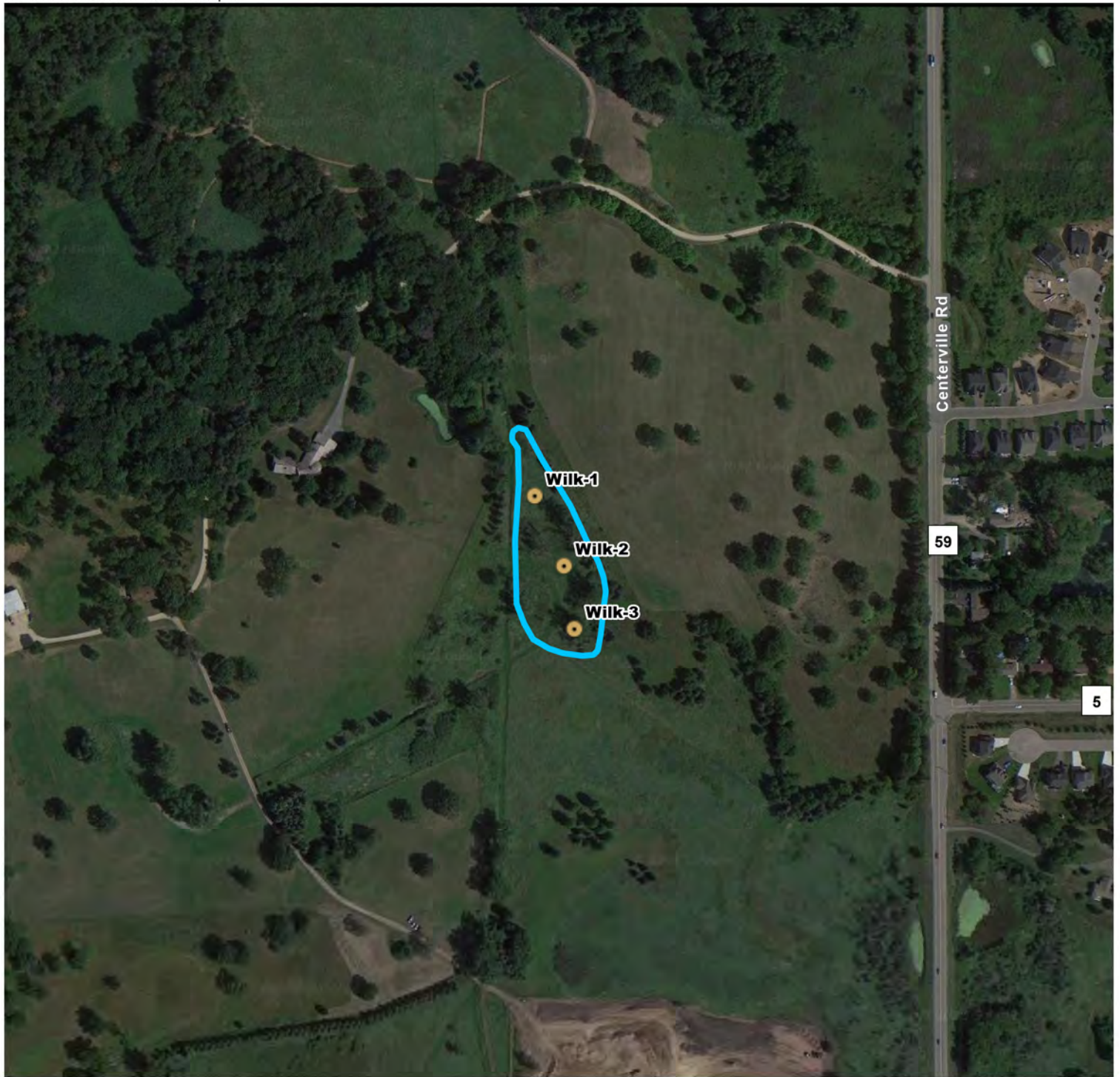
\*\*\*BaP Equivalent - this sheet is set up to multiply the sample concentration for each parameter by the Potency Equivalency Factor (PEF) and sum them to determine the BaP Equivalent for each sample allowing comparison to the Mgmt. Level (see formula in cells E41:V61)

Calculating the BaP equivalents when conc. below the RL; use 1/2 the reporting limit multiplied by the PEF ( change default formula for "J" flagged results).



§ Benzo-b, Benzo -j and Benzo-k fluoranthene are reported together

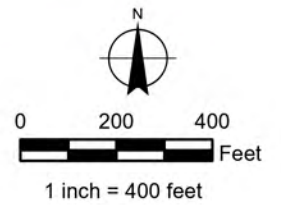
\* = While over the BTV, the arsenic is considered to be consistent with naturally occurring levels in high organic soil in this scenario. Please refer to report for full discussion of the arsenic levels over BTV values.

## Sample Location Sketch



Source: Google Earth Imagery

-  Sediment Sample
-  Proposed Pond Area



11001 Hampshire Avenue S  
 Minneapolis, MN 55438  
 952.995.2000  
 braunintertec.com

Project No:  
B2210417

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Drawing No:  
B2210417\_Sample Location Sketch

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Drawn By: ZS  
 Date Drawn: 11/23/2022  
 Checked By: EP  
 Last Modified: 11/23/2022

Wilkinson Pond

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Centerville Road

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North Oaks, Minnesota

**Sample  
 Location Sketch**

**Figure #**

# Laboratory Analytical Report

November 22, 2022

Mark Ciampone  
Braun Intertec  
11001 Hampshire Ave S.  
Bloomington, MN 55438

RE: Project: B2210417-Revised Report  
Pace Project No.: 10631764

Dear Mark Ciampone:

Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Duluth, MN
- Pace Analytical Services - Minneapolis

This report was revised on November 22, 2022, to report the extended cPAH list on all Pace Samples

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

Sincerely,



Brenna Bloome  
brenna.bloome@pacelabs.com  
(612)607-1700  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: B2210417-Revised Report

Pace Project No.: 10631764

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### **Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414

A2LA Certification #: 2926.01\*

1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009\*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014\*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605\*

Georgia Certification #: 959

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086\*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240\*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081\*

New Jersey Certification #: MN002

New York Certification #: 11647\*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110\*

Oklahoma Certification #: 9507\*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001\*

Pennsylvania Certification #: 68-00563\*

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192\*

Utah Certification #: MN00064\*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163\*

Washington Certification #: C486\*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

\*Please Note: Applicable air certifications are denoted with an asterisk (\*).

### **Pace Analytical Services, LLC - Duluth MN**

4730 Oneota Street, Duluth, MN 55807

Minnesota Certification #: 027-137-152

Minnesota Dept of Ag Approval: via Minnesota 027-137-152

Minnesota Petrofund Registration #: 1240

Montana Certification #: CERT0102

Nevada Certification #: MN00037

North Dakota Certification #: R-105

Wisconsin Certification #: 999446800

Wisconsin Dept of Ag Certification: 480341

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10631764001	WILK-1 (0'-2')	Solid	10/31/22 12:05	10/31/22 16:15
10631764002	WILK-1 (2'-4')	Solid	10/31/22 12:10	10/31/22 16:15
10631764003	WILK-1 (4'-6')	Solid	10/31/22 12:15	10/31/22 16:15
10631764004	WILK-2 (0'-2')	Solid	10/31/22 10:45	10/31/22 16:15
10631764005	WILK-2 (2'-4')	Solid	10/31/22 10:50	10/31/22 16:15
10631764006	WILK-2 (4'-6')	Solid	10/31/22 10:55	10/31/22 16:15
10631764007	WILK-3 (0'-2')	Solid	10/31/22 11:20	10/31/22 16:15
10631764008	WILK-3 (2'-4')	Solid	10/31/22 11:25	10/31/22 16:15
10631764009	WILK-3 (4'-6')	Solid	10/31/22 11:30	10/31/22 16:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
10631764001	WILK-1 (0'-2')	EPA 350.1	JH3	1	PASI-DU		
		EPA 351.2	JH3	1	PASI-DU		
		EPA 353.2	DS3	1	PASI-DU		
		EPA 365.1	DS3	1	PASI-DU		
		EPA 9060A	DW3	4	PASI-DU		
		EPA 8082A	RAG	9	PASI-M		
		EPA 6010D	IP	7	PASI-M		
		EPA 7471B	LMW	1	PASI-M		
		ASTM D2974	JDL	1	PASI-M		
		EPA 8270E by SIM	SP2	19	PASI-M		
		EPA 8270E by SIM	JLR	40	PASI-M		
		10631764002	WILK-1 (2'-4')	EPA 350.1	JH3	1	PASI-DU
				EPA 351.2	JH3	1	PASI-DU
EPA 353.2	DS3			1	PASI-DU		
EPA 365.1	DS3			1	PASI-DU		
EPA 9060A	DW3			4	PASI-DU		
EPA 8082A	RAG			9	PASI-M		
EPA 6010D	IP			7	PASI-M		
EPA 7471B	LMW			1	PASI-M		
ASTM D2974	JDL			1	PASI-M		
EPA 8270E by SIM	SP2			19	PASI-M		
EPA 8270E by SIM	JLR			40	PASI-M		
10631764003	WILK-1 (4'-6')			EPA 350.1	JH3	1	PASI-DU
				EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU		
		EPA 365.1	DS3	1	PASI-DU		
		EPA 9060A	DW3	4	PASI-DU		
		EPA 8082A	RAG	9	PASI-M		
		EPA 6010D	IP	7	PASI-M		
		EPA 7471B	LMW	1	PASI-M		
		ASTM D2974	JDL	1	PASI-M		
		EPA 8270E by SIM	SP2	19	PASI-M		
		EPA 8270E by SIM	JLR	40	PASI-M		
		10631764004	WILK-2 (0'-2')	EPA 350.1	JH3	1	PASI-DU
				EPA 351.2	JH3	1	PASI-DU
EPA 353.2	DS3			1	PASI-DU		
EPA 365.1	DS3			1	PASI-DU		

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10631764005	WILK-2 (2'-4')	EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
		EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
		EPA 8270E by SIM	JLR	40	PASI-M
		EPA 350.1	JH3	1	PASI-DU
		EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU
		EPA 365.1	DS3	1	PASI-DU
		EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
10631764006	WILK-2 (4'-6')	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
		EPA 8270E by SIM	JLR	40	PASI-M
		EPA 350.1	JH3	1	PASI-DU
		EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU
		EPA 365.1	DS3	1	PASI-DU
		EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
		EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
10631764007	WILK-3 (0'-2')	EPA 8270E by SIM	JLR	40	PASI-M
		EPA 350.1	JH3	1	PASI-DU
		EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU
		EPA 365.1	DS3	1	PASI-DU
		EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
		EPA 7471B	LMW	1	PASI-M

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10631764008	WILK-3 (2'-4')	ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
		EPA 8270E by SIM	JLR	40	PASI-M
		EPA 350.1	JH3	1	PASI-DU
		EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU
		EPA 365.1	DS3	1	PASI-DU
		EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
		EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
10631764009	WILK-3 (4'-6')	EPA 8270E by SIM	KJ3	40	PASI-M
		EPA 350.1	JH3	1	PASI-DU
		EPA 351.2	JH3	1	PASI-DU
		EPA 353.2	DS3	1	PASI-DU
		EPA 365.1	DS3	1	PASI-DU
		EPA 9060A	DW3	4	PASI-DU
		EPA 8082A	RAG	9	PASI-M
		EPA 6010D	IP	7	PASI-M
		EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270E by SIM	SP2	19	PASI-M
		EPA 8270E by SIM	KJ3	40	PASI-M

PASI-DU = Pace Analytical Services - Duluth, MN

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 350.1

**Description:** 350.1 Ammonia Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 350.1 by Pace Analytical Services Duluth, MN. 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 350.1 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.

QC Batch: 852321

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631764001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4506668)
  - Nitrogen, Ammonia
- MSD (Lab ID: 4506669)
  - Nitrogen, Ammonia

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 351.2

**Description:** 351.2 TKN Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 351.2 by Pace Analytical Services Duluth, MN. 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 351.2 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.

QC Batch: 850897

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631300001,10631308006

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

- MS (Lab ID: 4499919)
  - Nitrogen, Kjeldahl, Total
- MSD (Lab ID: 4499920)
  - Nitrogen, Kjeldahl, Total

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 351.2

**Description:** 351.2 TKN Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

Analyte Comments:

QC Batch: 850897

1M: The samples were kept frozen; thawed and extracted within the 6 month holding time as indicated by Minnesota Department of Agriculture Guidance Document 11 for extractions and analysis.

- MS (Lab ID: 4499917)
  - Nitrogen, Kjeldahl, Total
- MSD (Lab ID: 4499918)
  - Nitrogen, Kjeldahl, Total

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 353.2

**Description:** 353.2 Nitrogen, N+N Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 353.2 by Pace Analytical Services Duluth, MN. 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 353.2 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.

QC Batch: 851210

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631027003,10631764001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4501289)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 4501290)
  - Nitrogen, NO2 plus NO3

R1: RPD value was outside control limits.

- MSD (Lab ID: 4501290)
  - Nitrogen, NO2 plus NO3

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 353.2

**Description:** 353.2 Nitrogen, N+N Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

### Additional Comments:

Analyte Comments:

QC Batch: 851210

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.

- BLANK (Lab ID: 4501285)
  - Nitrogen, NO2 plus NO3
- LCS (Lab ID: 4501286)
  - Nitrogen, NO2 plus NO3
- MS (Lab ID: 4501287)
  - Nitrogen, NO2 plus NO3
- MS (Lab ID: 4501289)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 4501288)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 4501290)
  - Nitrogen, NO2 plus NO3
- WILK-1 (0'-2') (Lab ID: 10631764001)
  - Nitrogen, NO2 plus NO3
- WILK-1 (2'-4') (Lab ID: 10631764002)
  - Nitrogen, NO2 plus NO3
- WILK-1 (4'-6') (Lab ID: 10631764003)
  - Nitrogen, NO2 plus NO3
- WILK-2 (0'-2') (Lab ID: 10631764004)
  - Nitrogen, NO2 plus NO3
- WILK-2 (2'-4') (Lab ID: 10631764005)
  - Nitrogen, NO2 plus NO3
- WILK-2 (4'-6') (Lab ID: 10631764006)
  - Nitrogen, NO2 plus NO3
- WILK-3 (0'-2') (Lab ID: 10631764007)
  - Nitrogen, NO2 plus NO3
- WILK-3 (2'-4') (Lab ID: 10631764008)
  - Nitrogen, NO2 plus NO3
- WILK-3 (4'-6') (Lab ID: 10631764009)
  - Nitrogen, NO2 plus NO3

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 365.1

**Description:** 365.1 Phos, Total Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 365.1 by Pace Analytical Services Duluth, MN. 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 SM 4500-P B 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.

QC Batch: 850971

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631027003,10631212001

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

- MS (Lab ID: 4500186)
  - Phosphorus
- MSD (Lab ID: 4500187)
  - Phosphorus

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 9060A

**Description:** 9060 TOC, 2 Rep Solids DU

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 9060A by Pace Analytical Services Duluth, MN. 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: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8082A

**Description:** 8082A GCS PCB

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 8082A by Pace Analytical Services Minneapolis. 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 3546 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: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 6010D

**Description:** 6010D MET ICP

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 6010D by Pace Analytical Services Minneapolis. 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 3050B 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: 851291

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631430001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 4501605)
- Selenium

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 7471B

**Description:** 7471B Mercury

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

**General Information:**

9 samples were analyzed for EPA 7471B by Pace Analytical Services Minneapolis. 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 7471B 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: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV PAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

### General Information:

9 samples were analyzed for EPA 8270E by SIM by Pace Analytical Services Minneapolis. 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 3546 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: 850560

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- MS (Lab ID: 4498249)
  - p-Terphenyl-d14 (S)
- MSD (Lab ID: 4498250)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-1 (0'-2') (Lab ID: 10631764001)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)

QC Batch: 851472

S0: Surrogate recovery outside laboratory control limits.

- MS (Lab ID: 4502567)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- MSD (Lab ID: 4502568)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- WILK-2 (2'-4') (Lab ID: 10631764005)

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV PAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

QC Batch: 851472

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- 2-Fluorobiphenyl (S)
- p-Terphenyl-d14 (S)

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- WILK-1 (2'-4') (Lab ID: 10631764002)
- 2-Fluorobiphenyl (S)
- p-Terphenyl-d14 (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: 850560

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631764001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4498249)
  - Acenaphthene
  - Benzo(g,h,i)perylene
  - Chrysene
  - Phenanthrene
- MSD (Lab ID: 4498250)
  - Acenaphthene
  - Anthracene
  - Benzo(a)anthracene
  - Benzo(g,h,i)perylene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluoranthene
  - Phenanthrene
  - Pyrene

R1: RPD value was outside control limits.

- MSD (Lab ID: 4498250)
  - Benzo(b)fluoranthene

QC Batch: 851472

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631764002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4502567)

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV PAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

QC Batch: 851472

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631764002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Acenaphthene
- Anthracene
- Benzo(a)anthracene
- Benzo(g,h,i)perylene
- Chrysene
- Dibenz(a,h)anthracene
- MSD (Lab ID: 4502568)
  - Acenaphthene
  - Anthracene
  - Benzo(a)anthracene
  - Benzo(g,h,i)perylene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluoranthene
  - Fluorene
  - Naphthalene
  - Phenanthrene
  - Pyrene

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV CPAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

### General Information:

9 samples were analyzed for EPA 8270E by SIM by Pace Analytical Services Minneapolis. 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.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- WILK-1 (0'-2') (Lab ID: 10631764001)
- WILK-1 (2'-4') (Lab ID: 10631764002)
- WILK-1 (4'-6') (Lab ID: 10631764003)
- WILK-2 (0'-2') (Lab ID: 10631764004)
- WILK-2 (2'-4') (Lab ID: 10631764005)
- WILK-2 (4'-6') (Lab ID: 10631764006)
- WILK-3 (0'-2') (Lab ID: 10631764007)

### Hold Time:

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

H2: Extraction or preparation was conducted outside of the recognized method holding time.

- WILK-1 (0'-2') (Lab ID: 10631764001)
- WILK-1 (2'-4') (Lab ID: 10631764002)
- WILK-1 (4'-6') (Lab ID: 10631764003)
- WILK-2 (0'-2') (Lab ID: 10631764004)
- WILK-2 (2'-4') (Lab ID: 10631764005)
- WILK-2 (4'-6') (Lab ID: 10631764006)
- WILK-3 (0'-2') (Lab ID: 10631764007)
- WILK-3 (2'-4') (Lab ID: 10631764008)
- WILK-3 (4'-6') (Lab ID: 10631764009)

### Sample Preparation:

The samples were prepared in accordance with EPA 3550C 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.

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

---

**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV CPAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

QC Batch: 854193

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- WILK-1 (0'-2') (Lab ID: 10631764001)
  - p-Terphenyl-d14 (S)
- WILK-1 (2'-4') (Lab ID: 10631764002)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-1 (4'-6') (Lab ID: 10631764003)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-2 (0'-2') (Lab ID: 10631764004)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-2 (2'-4') (Lab ID: 10631764005)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-2 (4'-6') (Lab ID: 10631764006)
  - 2-Fluorobiphenyl (S)
  - p-Terphenyl-d14 (S)
- WILK-3 (0'-2') (Lab ID: 10631764007)
  - p-Terphenyl-d14 (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: 854193

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10631764006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4516162)
  - 2-Chloronaphthalene
  - 7,12-Dimethylbenz(a)anthracene
- MSD (Lab ID: 4516163)
  - 7,12-Dimethylbenz(a)anthracene

R1: RPD value was outside control limits.

- MSD (Lab ID: 4516163)
  - 7,12-Dimethylbenz(a)anthracene

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV CPAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

Analyte Comments:

QC Batch: 853608

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.

- BLANK (Lab ID: 4513549)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- LCS (Lab ID: 4513550)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- MS (Lab ID: 4513551)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- MSD (Lab ID: 4513552)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- WILK-3 (2'-4') (Lab ID: 10631764008)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-3 (4'-6') (Lab ID: 10631764009)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)

QC Batch: 854193

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.

- BLANK (Lab ID: 4516117)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV CPAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

Analyte Comments:

QC Batch: 854193

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.

- LCS (Lab ID: 4516118)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- MS (Lab ID: 4516162)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- MSD (Lab ID: 4516163)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Benzofluoranthenes (Total)
- WILK-1 (0'-2') (Lab ID: 10631764001)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-1 (2'-4') (Lab ID: 10631764002)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-1 (4'-6') (Lab ID: 10631764003)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-2 (0'-2') (Lab ID: 10631764004)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-2 (2'-4') (Lab ID: 10631764005)
  - 1-Nitropyrene
  - 2-Nitrofluorene

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B2210417-Revised Report

Pace Project No.: 10631764

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**Method:** EPA 8270E by SIM

**Description:** 8270E MSSV CPAH by SIM

**Client:** Braun Intertec Corporation

**Date:** November 22, 2022

Analyte Comments:

QC Batch: 854193

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.

- WILK-2 (2'-4') (Lab ID: 10631764005)
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-2 (4'-6') (Lab ID: 10631764006)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)
- WILK-3 (0'-2') (Lab ID: 10631764007)
  - 1-Nitropyrene
  - 2-Nitrofluorene
  - 4-Nitropyrene
  - Total BaP Eq. MN 2006 ND=0
  - Benzofluoranthenes (Total)

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: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (0'-2')**      **Lab ID: 10631764001**      Collected: 10/31/22 12:05      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1      Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>62.4</b>	mg/kg	8.8	1	11/09/22 09:00	11/09/22 11:04	7664-41-7	M1
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2      Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>5450</b>	mg/kg	147	1	11/02/22 14:46	11/03/22 11:06	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2      Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>23.7</b>	mg/kg	1.2	2	11/03/22 09:22	11/03/22 13:58		M1, N2, R1
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1      Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>557</b>	mg/kg	7.6	1	11/02/22 15:10	11/03/22 15:27	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>4.8</b>	%		1		11/03/22 16:18		
Total Organic Carbon	<b>266000</b>	mg/kg	14900	1		11/03/22 16:10	7440-44-0	
Total Organic Carbon	<b>279000</b>	mg/kg	14900	1		11/03/22 16:18	7440-44-0	
Mean Total Organic Carbon	<b>273000</b>	mg/kg	14900	1		11/03/22 16:18	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A      Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	153	1	11/01/22 10:30	11/02/22 19:56	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	87	%	53-125	1	11/01/22 10:30	11/02/22 19:56	877-09-8	
Decachlorobiphenyl (S)	65	%	41-125	1	11/01/22 10:30	11/02/22 19:56	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D      Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>9.6</b>	mg/kg	3.1	1	11/03/22 16:17	11/07/22 12:05	7440-38-2	
Cadmium	<b>0.47</b>	mg/kg	0.46	1	11/03/22 16:17	11/07/22 12:05	7440-43-9	
Copper	<b>12.5</b>	mg/kg	1.5	1	11/03/22 16:17	11/07/22 12:05	7440-50-8	
Lead	<b>7.9</b>	mg/kg	1.5	1	11/03/22 16:17	11/07/22 12:05	7439-92-1	
Nickel	<b>11.5</b>	mg/kg	3.1	1	11/03/22 16:17	11/07/22 12:05	7440-02-0	
Selenium	<b>3.4</b>	mg/kg	3.1	1	11/03/22 16:17	11/07/22 12:05	7782-49-2	
Zinc	<b>25.9</b>	mg/kg	6.1	1	11/03/22 16:17	11/07/22 12:05	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (0'-2')** Lab ID: **10631764001** Collected: 10/31/22 12:05 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.056	1	11/03/22 12:01	11/08/22 11:58	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	67.7	%	0.10	1		11/02/22 12:15		N2
<b>8270E MSSV PAH by SIM</b>								
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
Acenaphthene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	83-32-9	M1
Acenaphthylene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	208-96-8	
Anthracene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	120-12-7	M1
Benzo(a)anthracene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	56-55-3	M1
Benzo(a)pyrene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	50-32-8	
Benzo(b)fluoranthene	0.047	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	205-99-2	R1
Benzo(g,h,i)perylene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	191-24-2	M1
Benzo(k)fluoranthene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	207-08-9	
Chrysene	0.040	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	218-01-9	M1
Dibenz(a,h)anthracene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	53-70-3	M1
Fluoranthene	0.12	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	206-44-0	M1
Fluorene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	193-39-5	
Naphthalene	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	91-20-3	
Phenanthrene	0.11	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	85-01-8	M1
Pyrene	0.057	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34	129-00-0	M1
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.031	1	11/01/22 13:34	11/03/22 00:34		
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	56	%	59-125	1	11/01/22 13:34	11/03/22 00:34	321-60-8	S5
p-Terphenyl-d14 (S)	62	%	65-125	1	11/01/22 13:34	11/03/22 00:34	1718-51-0	S5
<b>8270E MSSV CPAH by SIM</b>								
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C								
Pace Analytical Services - Minneapolis								
Acenaphthene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	83-32-9	H2
Acenaphthylene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	208-96-8	H2
Anthracene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	191-24-2	H2
Benzo(a)fluoranthenes (Total)	ND	ug/kg	92.7	1	11/17/22 16:49	11/21/22 19:35		H2,N2
Carbazole	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	91-58-7	H2
Chrysene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	224-42-0	H2,L2

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (0'-2')**      **Lab ID: 10631764001**      Collected: 10/31/22 12:05      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	194-59-2	H2
Dibenzofuran	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	57-97-6	H2
Fluoranthene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	206-44-0	H2
Fluorene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	56-49-5	H2
5-Methylchrysene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	91-57-6	H2
Naphthalene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	57835-92-4	H2,N2
Perylene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	198-55-0	H2
Phenanthrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	85-01-8	H2
Pyrene	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	30.9	1	11/17/22 16:49	11/21/22 19:35		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	46	%.	43-125	1	11/17/22 16:49	11/21/22 19:35	321-60-8	
p-Terphenyl-d14 (S)	30	%.	40-125	1	11/17/22 16:49	11/21/22 19:35	1718-51-0	S2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (2'-4')**      **Lab ID: 10631764002**      Collected: 10/31/22 12:10      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1      Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>65.9</b>	mg/kg	11.0	1	11/09/22 09:00	11/09/22 11:07	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2      Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>13200</b>	mg/kg	1670	10	11/02/22 14:46	11/03/22 11:37	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2      Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>4.7</b>	mg/kg	0.73	1	11/03/22 09:22	11/03/22 13:34		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1      Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>508</b>	mg/kg	9.4	1	11/02/22 15:10	11/03/22 15:29	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>7.3</b>	%		1		11/04/22 11:14		
Total Organic Carbon	<b>176000</b>	mg/kg	19700	1		11/04/22 11:07	7440-44-0	
Total Organic Carbon	<b>189000</b>	mg/kg	19700	1		11/04/22 11:14	7440-44-0	
Mean Total Organic Carbon	<b>182000</b>	mg/kg	19700	1		11/04/22 11:14	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A      Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	183	1	11/01/22 10:30	11/02/22 20:43	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	53-125	1	11/01/22 10:30	11/02/22 20:43	877-09-8	
Decachlorobiphenyl (S)	78	%	41-125	1	11/01/22 10:30	11/02/22 20:43	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D      Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>9.2</b>	mg/kg	3.6	1	11/03/22 16:17	11/07/22 12:07	7440-38-2	
Cadmium	ND	mg/kg	0.54	1	11/03/22 16:17	11/07/22 12:07	7440-43-9	
Copper	<b>11.6</b>	mg/kg	1.8	1	11/03/22 16:17	11/07/22 12:07	7440-50-8	
Lead	<b>4.9</b>	mg/kg	1.8	1	11/03/22 16:17	11/07/22 12:07	7439-92-1	
Nickel	<b>9.2</b>	mg/kg	3.6	1	11/03/22 16:17	11/07/22 12:07	7440-02-0	
Selenium	<b>3.6</b>	mg/kg	3.6	1	11/03/22 16:17	11/07/22 12:07	7782-49-2	
Zinc	<b>12.7</b>	mg/kg	7.2	1	11/03/22 16:17	11/07/22 12:07	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (2'-4')** Lab ID: **10631764002** Collected: 10/31/22 12:10 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.067	1	11/03/22 12:01	11/08/22 12:03	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>72.8</b>	%	0.10	1		11/02/22 12:16		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	83-32-9	M1
Acenaphthylene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	208-96-8	
Anthracene	<b>0.056</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	120-12-7	M1
Benzo(a)anthracene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	56-55-3	M1
Benzo(a)pyrene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	50-32-8	
Benzo(b)fluoranthene	<b>0.047</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	191-24-2	M1
Benzo(k)fluoranthene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	207-08-9	
Chrysene	<b>0.050</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	218-01-9	M1
Dibenz(a,h)anthracene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	53-70-3	M1
Fluoranthene	<b>0.26</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	206-44-0	M1
Fluorene	<b>0.10</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	86-73-7	M1
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	193-39-5	
Naphthalene	<b>0.044</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	91-20-3	M1
Phenanthrene	<b>0.37</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	85-01-8	M1
Pyrene	<b>0.11</b>	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08	129-00-0	M1
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.036	1	11/04/22 11:13	11/07/22 14:08		

**Surrogates**

2-Fluorobiphenyl (S)	40	%	59-125	1	11/04/22 11:13	11/07/22 14:08	321-60-8	S5
p-Terphenyl-d14 (S)	39	%	65-125	1	11/04/22 11:13	11/07/22 14:08	1718-51-0	S5

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	83-32-9	H2
Acenaphthylene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	208-96-8	H2
Anthracene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	110	1	11/17/22 16:49	11/21/22 20:07		H2,N2
Carbazole	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	91-58-7	H2
Chrysene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	224-42-0	H2,L2

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (2'-4')**      **Lab ID: 10631764002**      Collected: 10/31/22 12:10      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	194-59-2	H2
Dibenzofuran	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	57-97-6	H2
Fluoranthene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	206-44-0	H2
Fluorene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	56-49-5	H2
5-Methylchrysene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	91-57-6	H2
Naphthalene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	57835-92-4	H2,N2
Perylene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	198-55-0	H2
Phenanthrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	85-01-8	H2
Pyrene	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	36.7	1	11/17/22 16:49	11/21/22 20:07		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	26	%.	43-125	1	11/17/22 16:49	11/21/22 20:07	321-60-8	S2
p-Terphenyl-d14 (S)	21	%.	40-125	1	11/17/22 16:49	11/21/22 20:07	1718-51-0	S2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (4'-6')**      **Lab ID: 10631764003**      Collected: 10/31/22 12:15      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1      Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>91.6</b>	mg/kg	15.0	1	11/09/22 09:00	11/09/22 11:08	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2      Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>14800</b>	mg/kg	2630	10	11/02/22 14:46	11/03/22 11:38	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2      Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>1.2</b>	mg/kg	0.99	1	11/03/22 09:22	11/03/22 13:36		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1      Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>234</b>	mg/kg	12.6	1	11/02/22 15:10	11/03/22 15:30	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>2.4</b>	%		1		11/03/22 13:19		
Total Organic Carbon	<b>272000</b>	mg/kg	28600	1		11/03/22 13:02	7440-44-0	
Total Organic Carbon	<b>266000</b>	mg/kg	28800	1		11/03/22 13:19	7440-44-0	
Mean Total Organic Carbon	<b>269000</b>	mg/kg	28700	1		11/03/22 13:19	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A      Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	249	1	11/01/22 10:30	11/02/22 20:59	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	79	%	53-125	1	11/01/22 10:30	11/02/22 20:59	877-09-8	
Decachlorobiphenyl (S)	71	%	41-125	1	11/01/22 10:30	11/02/22 20:59	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D      Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>11.4</b>	mg/kg	4.9	1	11/03/22 16:17	11/07/22 12:09	7440-38-2	
Cadmium	ND	mg/kg	0.73	1	11/03/22 16:17	11/07/22 12:09	7440-43-9	
Copper	<b>8.6</b>	mg/kg	2.4	1	11/03/22 16:17	11/07/22 12:09	7440-50-8	
Lead	<b>3.9</b>	mg/kg	2.4	1	11/03/22 16:17	11/07/22 12:09	7439-92-1	
Nickel	<b>11.0</b>	mg/kg	4.9	1	11/03/22 16:17	11/07/22 12:09	7440-02-0	
Selenium	ND	mg/kg	4.9	1	11/03/22 16:17	11/07/22 12:09	7782-49-2	
Zinc	<b>14.4</b>	mg/kg	9.7	1	11/03/22 16:17	11/07/22 12:09	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (4'-6')**      **Lab ID: 10631764003**      Collected: 10/31/22 12:15      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.086	1	11/03/22 12:01	11/08/22 12:05	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>80.0</b>	%	0.10	1		11/02/22 12:16		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	83-32-9	
Acenaphthylene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	208-96-8	
Anthracene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	207-08-9	
Chrysene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	53-70-3	
Fluoranthene	<b>0.066</b>	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	206-44-0	
Fluorene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	193-39-5	
Naphthalene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	91-20-3	
Phenanthrene	<b>0.11</b>	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	85-01-8	
Pyrene	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.050	1	11/01/22 13:34	11/03/22 01:53		

**Surrogates**

2-Fluorobiphenyl (S)	62	%	59-125	1	11/01/22 13:34	11/03/22 01:53	321-60-8	
p-Terphenyl-d14 (S)	66	%	65-125	1	11/01/22 13:34	11/03/22 01:53	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	83-32-9	H2
Acenaphthylene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	208-96-8	H2
Anthracene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	149	1	11/17/22 16:49	11/21/22 20:39		H2,N2
Carbazole	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	91-58-7	H2
Chrysene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	224-42-0	H2,L2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-1 (4'-6')**      **Lab ID: 10631764003**      Collected: 10/31/22 12:15      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM    Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	194-59-2	H2
Dibenzofuran	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	57-97-6	H2
Fluoranthene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	206-44-0	H2
Fluorene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	56-49-5	H2
5-Methylchrysene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	91-57-6	H2
Naphthalene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	57835-92-4	H2,N2
Perylene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	198-55-0	H2
Phenanthrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	85-01-8	H2
Pyrene	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	49.8	1	11/17/22 16:49	11/21/22 20:39		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	26	%.	43-125	1	11/17/22 16:49	11/21/22 20:39	321-60-8	S2
p-Terphenyl-d14 (S)	16	%.	40-125	1	11/17/22 16:49	11/21/22 20:39	1718-51-0	S2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (0'-2')**      **Lab ID: 10631764004**      Collected: 10/31/22 10:45      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1    Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>37.4</b>	mg/kg	9.6	1	11/09/22 09:00	11/09/22 11:10	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2    Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>14900</b>	mg/kg	1750	10	11/02/22 14:46	11/03/22 11:38	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2    Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>13.6</b>	mg/kg	0.69	1	11/03/22 09:22	11/03/22 13:37		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1    Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>2410</b>	mg/kg	43.8	5	11/02/22 15:10	11/03/22 16:30	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>6.1</b>	%		1		11/03/22 16:47		
Total Organic Carbon	<b>309000</b>	mg/kg	19900	1		11/03/22 16:40	7440-44-0	
Total Organic Carbon	<b>328000</b>	mg/kg	19900	1		11/03/22 16:47	7440-44-0	
Mean Total Organic Carbon	<b>318000</b>	mg/kg	19900	1		11/03/22 16:47	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	168	1	11/01/22 10:30	11/02/22 21:15	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	86	%	53-125	1	11/01/22 10:30	11/02/22 21:15	877-09-8	
Decachlorobiphenyl (S)	81	%	41-125	1	11/01/22 10:30	11/02/22 21:15	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>15.3</b>	mg/kg	3.5	1	11/03/22 16:17	11/07/22 12:10	7440-38-2	
Cadmium	<b>0.63</b>	mg/kg	0.52	1	11/03/22 16:17	11/07/22 12:10	7440-43-9	
Copper	<b>12.5</b>	mg/kg	1.7	1	11/03/22 16:17	11/07/22 12:10	7440-50-8	
Lead	<b>12.9</b>	mg/kg	1.7	1	11/03/22 16:17	11/07/22 12:10	7439-92-1	
Nickel	<b>15.3</b>	mg/kg	3.5	1	11/03/22 16:17	11/07/22 12:10	7440-02-0	
Selenium	<b>4.2</b>	mg/kg	3.5	1	11/03/22 16:17	11/07/22 12:10	7782-49-2	
Zinc	<b>32.4</b>	mg/kg	6.9	1	11/03/22 16:17	11/07/22 12:10	7440-66-6	

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (0'-2')**      **Lab ID: 10631764004**      Collected: 10/31/22 10:45      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.070	1	11/03/22 12:01	11/08/22 12:06	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	71.5	%	0.10	1		11/02/22 12:16		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	83-32-9	
Acenaphthylene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	208-96-8	
Anthracene	0.064	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	50-32-8	
Benzo(b)fluoranthene	0.082	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	207-08-9	
Chrysene	0.095	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	53-70-3	
Fluoranthene	0.48	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	206-44-0	
Fluorene	0.057	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	193-39-5	
Naphthalene	0.049	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	91-20-3	
Phenanthrene	0.45	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	85-01-8	
Pyrene	0.18	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.035	1	11/04/22 11:13	11/07/22 15:15		

**Surrogates**

2-Fluorobiphenyl (S)	70	%	59-125	1	11/04/22 11:13	11/07/22 15:15	321-60-8	
p-Terphenyl-d14 (S)	73	%	65-125	1	11/04/22 11:13	11/07/22 15:15	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	83-32-9	H2
Acenaphthylene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	208-96-8	H2
Anthracene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	191-24-2	H2
Benzo(a)fluoranthene (Total)	ND	ug/kg	105	1	11/17/22 16:49	11/21/22 21:11		H2,N2
Carbazole	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	91-58-7	H2
Chrysene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	224-42-0	H2,L2

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (0'-2')**      **Lab ID: 10631764004**      Collected: 10/31/22 10:45      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	194-59-2	H2
Dibenzofuran	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	57-97-6	H2
Fluoranthene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	206-44-0	H2
Fluorene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	56-49-5	H2
5-Methylchrysene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	91-57-6	H2
Naphthalene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	57835-92-4	H2,N2
Perylene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	198-55-0	H2
Phenanthrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	85-01-8	H2
Pyrene	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	35.0	1	11/17/22 16:49	11/21/22 21:11		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	29	%	43-125	1	11/17/22 16:49	11/21/22 21:11	321-60-8	S2
p-Terphenyl-d14 (S)	17	%	40-125	1	11/17/22 16:49	11/21/22 21:11	1718-51-0	S2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (2'-4')**      **Lab ID: 10631764005**      Collected: 10/31/22 10:50      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1    Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>55.4</b>	mg/kg	13.5	1	11/09/22 09:00	11/09/22 11:11	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2    Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>14100</b>	mg/kg	2050	10	11/02/22 14:46	11/03/22 11:39	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2    Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>13.1</b>	mg/kg	0.89	1	11/03/22 09:22	11/03/22 13:38		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1    Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>347</b>	mg/kg	11.0	1	11/02/22 15:10	11/03/22 15:32	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>2.4</b>	%		1		11/03/22 14:03		
Total Organic Carbon	<b>135000</b>	mg/kg	29400	1		11/03/22 13:56	7440-44-0	
Total Organic Carbon	<b>132000</b>	mg/kg	28800	1		11/03/22 14:03	7440-44-0	
Mean Total Organic Carbon	<b>133000</b>	mg/kg	29100	1		11/03/22 14:03	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	224	1	11/01/22 10:30	11/02/22 21:31	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	53-125	1	11/01/22 10:30	11/02/22 21:31	877-09-8	
Decachlorobiphenyl (S)	68	%	41-125	1	11/01/22 10:30	11/02/22 21:31	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>8.0</b>	mg/kg	4.5	1	11/03/22 16:17	11/07/22 12:15	7440-38-2	
Cadmium	ND	mg/kg	0.67	1	11/03/22 16:17	11/07/22 12:15	7440-43-9	
Copper	<b>7.5</b>	mg/kg	2.2	1	11/03/22 16:17	11/07/22 12:15	7440-50-8	
Lead	<b>4.2</b>	mg/kg	2.2	1	11/03/22 16:17	11/07/22 12:15	7439-92-1	
Nickel	<b>9.1</b>	mg/kg	4.5	1	11/03/22 16:17	11/07/22 12:15	7440-02-0	
Selenium	ND	mg/kg	4.5	1	11/03/22 16:17	11/07/22 12:15	7782-49-2	
Zinc	<b>11.8</b>	mg/kg	9.0	1	11/03/22 16:17	11/07/22 12:15	7440-66-6	

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (2'-4')** Lab ID: **10631764005** Collected: 10/31/22 10:50 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.090	1	11/03/22 12:01	11/08/22 12:11	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>77.8</b>	%	0.10	1		11/02/22 12:16		N2
<b>8270E MSSV PAH by SIM</b>								
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
Acenaphthene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	83-32-9	
Acenaphthylene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	208-96-8	
Anthracene	<b>0.056</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	50-32-8	
Benzo(b)fluoranthene	<b>0.060</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	207-08-9	
Chrysene	<b>0.065</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	53-70-3	
Fluoranthene	<b>0.31</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	206-44-0	
Fluorene	<b>0.10</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	193-39-5	
Naphthalene	<b>0.057</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	91-20-3	
Phenanthrene	<b>0.35</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	85-01-8	
Pyrene	<b>0.13</b>	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.045	1	11/04/22 11:13	11/07/22 15:37		
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	51	%	59-125	1	11/04/22 11:13	11/07/22 15:37	321-60-8	S2
p-Terphenyl-d14 (S)	47	%	65-125	1	11/04/22 11:13	11/07/22 15:37	1718-51-0	S2
<b>8270E MSSV CPAH by SIM</b>								
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C								
Pace Analytical Services - Minneapolis								
Acenaphthene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	83-32-9	H2
Acenaphthylene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	208-96-8	H2
Anthracene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	135	1	11/17/22 16:49	11/21/22 21:42		H2,N2
Carbazole	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	91-58-7	H2
Chrysene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	224-42-0	H2,L2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (2'-4')**      **Lab ID: 10631764005**      Collected: 10/31/22 10:50      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	194-59-2	H2
Dibenzofuran	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	57-97-6	H2
Fluoranthene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	206-44-0	H2
Fluorene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	56-49-5	H2
5-Methylchrysene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	91-57-6	H2
Naphthalene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	57835-92-4	H2,N2
Perylene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	198-55-0	H2
Phenanthrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	85-01-8	H2
Pyrene	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	44.9	1	11/17/22 16:49	11/21/22 21:42		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	38	%.	43-125	1	11/17/22 16:49	11/21/22 21:42	321-60-8	S2
p-Terphenyl-d14 (S)	26	%.	40-125	1	11/17/22 16:49	11/21/22 21:42	1718-51-0	S2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (4'-6')**      **Lab ID: 10631764006**      Collected: 10/31/22 10:55      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1    Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>85.7</b>	mg/kg	19.3	1	11/09/22 09:00	11/09/22 11:12	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2    Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>10500</b>	mg/kg	322	1	11/02/22 14:46	11/03/22 11:14	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2    Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	<b>1.8</b>	mg/kg	1.3	1	11/03/22 09:22	11/03/22 13:39		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1    Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>301</b>	mg/kg	15.3	1	11/02/22 15:10	11/03/22 15:33	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>5.6</b>	%		1		11/04/22 11:29		
Total Organic Carbon	<b>269000</b>	mg/kg	19200	1		11/04/22 11:22	7440-44-0	
Total Organic Carbon	<b>285000</b>	mg/kg	19300	1		11/04/22 11:29	7440-44-0	
Mean Total Organic Carbon	<b>277000</b>	mg/kg	19300	1		11/04/22 11:29	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	322	1	11/01/22 10:30	11/02/22 21:47	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	74	%	53-125	1	11/01/22 10:30	11/02/22 21:47	877-09-8	
Decachlorobiphenyl (S)	62	%	41-125	1	11/01/22 10:30	11/02/22 21:47	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>10.8</b>	mg/kg	6.3	1	11/03/22 16:17	11/07/22 12:17	7440-38-2	
Cadmium	ND	mg/kg	0.95	1	11/03/22 16:17	11/07/22 12:17	7440-43-9	
Copper	<b>6.9</b>	mg/kg	3.2	1	11/03/22 16:17	11/07/22 12:17	7440-50-8	
Lead	<b>3.6</b>	mg/kg	3.2	1	11/03/22 16:17	11/07/22 12:17	7439-92-1	
Nickel	<b>8.5</b>	mg/kg	6.3	1	11/03/22 16:17	11/07/22 12:17	7440-02-0	
Selenium	ND	mg/kg	6.3	1	11/03/22 16:17	11/07/22 12:17	7782-49-2	
Zinc	<b>19.2</b>	mg/kg	12.7	1	11/03/22 16:17	11/07/22 12:17	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (4'-6')**      **Lab ID: 10631764006**      Collected: 10/31/22 10:55      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.11	1	11/03/22 12:01	11/08/22 12:13	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>84.5</b>	%	0.10	1		11/02/22 12:16		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	83-32-9	
Acenaphthylene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	208-96-8	
Anthracene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	207-08-9	
Chrysene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	53-70-3	
Fluoranthene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	206-44-0	
Fluorene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	193-39-5	
Naphthalene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	91-20-3	
Phenanthrene	<b>0.076</b>	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	85-01-8	
Pyrene	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.064	1	11/01/22 13:34	11/03/22 02:52		

**Surrogates**

2-Fluorobiphenyl (S)	61	%	59-125	1	11/01/22 13:34	11/03/22 02:52	321-60-8	
p-Terphenyl-d14 (S)	66	%	65-125	1	11/01/22 13:34	11/03/22 02:52	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	83-32-9	H2
Acenaphthylene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	208-96-8	H2
Anthracene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	193	1	11/17/22 16:49	11/21/22 22:13		H2,N2
Carbazole	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	91-58-7	H2,M1
Chrysene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	224-42-0	H2,L2

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-2 (4'-6')**      **Lab ID: 10631764006**      Collected: 10/31/22 10:55      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	194-59-2	H2
Dibenzofuran	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	57-97-6	H2,M1, R1
Fluoranthene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	206-44-0	H2
Fluorene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	56-49-5	H2
5-Methylchrysene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	91-57-6	H2
Naphthalene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	57835-92-4	H2,N2
Perylene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	198-55-0	H2
Phenanthrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	85-01-8	H2
Pyrene	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	64.3	1	11/17/22 16:49	11/21/22 22:13		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	18	%	43-125	1	11/17/22 16:49	11/21/22 22:13	321-60-8	S2
p-Terphenyl-d14 (S)	25	%	40-125	1	11/17/22 16:49	11/21/22 22:13	1718-51-0	S2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (0'-2')**      **Lab ID: 10631764007**      Collected: 10/31/22 11:20      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1    Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>29.3</b>	mg/kg	7.5	1	11/09/22 09:00	11/09/22 11:16	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2    Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>6620</b>	mg/kg	1140	10	11/02/22 14:46	11/03/22 11:40	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2    Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	ND	mg/kg	0.50	1	11/03/22 09:22	11/03/22 13:40		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1    Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>501</b>	mg/kg	5.7	1	11/02/22 15:10	11/03/22 15:37	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>1.4</b>	%		1		11/04/22 11:44		
Total Organic Carbon	<b>248000</b>	mg/kg	15100	1		11/04/22 11:37	7440-44-0	
Total Organic Carbon	<b>252000</b>	mg/kg	14900	1		11/04/22 11:44	7440-44-0	
Mean Total Organic Carbon	<b>250000</b>	mg/kg	15000	1		11/04/22 11:44	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	121	1	11/01/22 10:30	11/02/22 22:02	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	88	%	53-125	1	11/01/22 10:30	11/02/22 22:02	877-09-8	
Decachlorobiphenyl (S)	77	%	41-125	1	11/01/22 10:30	11/02/22 22:02	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>7.8</b>	mg/kg	2.5	1	11/03/22 16:17	11/07/22 12:19	7440-38-2	
Cadmium	ND	mg/kg	0.37	1	11/03/22 16:17	11/07/22 12:19	7440-43-9	
Copper	<b>8.6</b>	mg/kg	1.2	1	11/03/22 16:17	11/07/22 12:19	7440-50-8	
Lead	<b>6.1</b>	mg/kg	1.2	1	11/03/22 16:17	11/07/22 12:19	7439-92-1	
Nickel	<b>11.4</b>	mg/kg	2.5	1	11/03/22 16:17	11/07/22 12:19	7440-02-0	
Selenium	<b>2.5</b>	mg/kg	2.5	1	11/03/22 16:17	11/07/22 12:19	7782-49-2	
Zinc	<b>16.0</b>	mg/kg	4.9	1	11/03/22 16:17	11/07/22 12:19	7440-66-6	

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (0'-2')** Lab ID: **10631764007** Collected: 10/31/22 11:20 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.048	1	11/03/22 12:01	11/08/22 12:14	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>60.0</b>	%	0.10	1		11/02/22 12:17		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	83-32-9	
Acenaphthylene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	208-96-8	
Anthracene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	207-08-9	
Chrysene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	53-70-3	
Fluoranthene	<b>0.064</b>	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	206-44-0	
Fluorene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	193-39-5	
Naphthalene	<b>0.030</b>	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	91-20-3	
Phenanthrene	<b>0.072</b>	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	85-01-8	
Pyrene	<b>0.036</b>	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.025	1	11/01/22 13:34	11/03/22 03:11		

**Surrogates**

2-Fluorobiphenyl (S)	65	%	59-125	1	11/01/22 13:34	11/03/22 03:11	321-60-8	
p-Terphenyl-d14 (S)	66	%	65-125	1	11/01/22 13:34	11/03/22 03:11	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	83-32-9	H2
Acenaphthylene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	208-96-8	H2
Anthracene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	74.9	1	11/17/22 16:49	11/21/22 23:44		H2,N2
Carbazole	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	91-58-7	H2
Chrysene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	224-42-0	H2,L2

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (0'-2')**      **Lab ID: 10631764007**      Collected: 10/31/22 11:20      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM    Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	194-59-2	H2
Dibenzofuran	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	57-97-6	H2
Fluoranthene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	206-44-0	H2
Fluorene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	56-49-5	H2
5-Methylchrysene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	91-57-6	H2
Naphthalene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	57835-92-4	H2,N2
Perylene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	198-55-0	H2
Phenanthrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	85-01-8	H2
Pyrene	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	25.0	1	11/17/22 16:49	11/21/22 23:44		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	52	%.	43-125	1	11/17/22 16:49	11/21/22 23:44	321-60-8	
p-Terphenyl-d14 (S)	37	%.	40-125	1	11/17/22 16:49	11/21/22 23:44	1718-51-0	S2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (2'-4')**      **Lab ID: 10631764008**      Collected: 10/31/22 11:25      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1    Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>12.9</b>	mg/kg	5.2	1	11/09/22 09:00	11/09/22 11:17	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2    Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>3120</b>	mg/kg	86.3	1	11/02/22 14:46	11/03/22 11:16	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2    Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	ND	mg/kg	0.34	1	11/03/22 09:22	11/03/22 13:42		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1    Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>383</b>	mg/kg	4.2	1	11/02/22 15:10	11/03/22 15:38	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>19.5</b>	%		1		11/03/22 15:02		
Total Organic Carbon	<b>88100</b>	mg/kg	16000	1		11/03/22 14:55	7440-44-0	
Total Organic Carbon	<b>107000</b>	mg/kg	16000	1		11/03/22 15:02	7440-44-0	
Mean Total Organic Carbon	<b>97600</b>	mg/kg	16000	1		11/03/22 15:02	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	82.2	1	11/01/22 10:30	11/02/22 22:18	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	88	%	53-125	1	11/01/22 10:30	11/02/22 22:18	877-09-8	
Decachlorobiphenyl (S)	91	%	41-125	1	11/01/22 10:30	11/02/22 22:18	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>5.9</b>	mg/kg	1.7	1	11/03/22 16:17	11/07/22 12:20	7440-38-2	
Cadmium	ND	mg/kg	0.26	1	11/03/22 16:17	11/07/22 12:20	7440-43-9	
Copper	<b>11.5</b>	mg/kg	0.86	1	11/03/22 16:17	11/07/22 12:20	7440-50-8	
Lead	<b>4.2</b>	mg/kg	0.86	1	11/03/22 16:17	11/07/22 12:20	7439-92-1	
Nickel	<b>12.4</b>	mg/kg	1.7	1	11/03/22 16:17	11/07/22 12:20	7440-02-0	
Selenium	ND	mg/kg	1.7	1	11/03/22 16:17	11/07/22 12:20	7782-49-2	
Zinc	<b>23.0</b>	mg/kg	3.4	1	11/03/22 16:17	11/07/22 12:20	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (2'-4')** Lab ID: **10631764008** Collected: 10/31/22 11:25 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.032	1	11/03/22 12:01	11/08/22 12:16	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>42.1</b>	%	0.10	1		11/02/22 12:17		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	83-32-9	
Acenaphthylene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	208-96-8	
Anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	207-08-9	
Chrysene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	53-70-3	
Fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	206-44-0	
Fluorene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	193-39-5	
Naphthalene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	91-20-3	
Phenanthrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	85-01-8	
Pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:31		

**Surrogates**

2-Fluorobiphenyl (S)	67	%	59-125	1	11/01/22 13:34	11/03/22 03:31	321-60-8	
p-Terphenyl-d14 (S)	75	%	65-125	1	11/01/22 13:34	11/03/22 03:31	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	83-32-9	H2
Acenaphthylene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	208-96-8	H2
Anthracene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	51.4	1	11/15/22 15:07	11/17/22 16:23		H2,N2
Carbazole	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	91-58-7	H2
Chrysene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	224-42-0	H2

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (2'-4')**      **Lab ID: 10631764008**      Collected: 10/31/22 11:25      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	194-59-2	H2
Dibenzofuran	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	57-97-6	H2
Fluoranthene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	206-44-0	H2
Fluorene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	56-49-5	H2
5-Methylchrysene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	91-57-6	H2
Naphthalene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	57835-92-4	H2,N2
Perylene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	198-55-0	H2
Phenanthrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	85-01-8	H2
Pyrene	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	17.1	1	11/15/22 15:07	11/17/22 16:23		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%.	43-125	1	11/15/22 15:07	11/17/22 16:23	321-60-8	
p-Terphenyl-d14 (S)	59	%.	40-125	1	11/15/22 15:07	11/17/22 16:23	1718-51-0	

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (4'-6')**      **Lab ID: 10631764009**      Collected: 10/31/22 11:30      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>350.1 Ammonia Solids DU</b>								
Analytical Method: EPA 350.1      Preparation Method: EPA 350.1 Pace Analytical Services - Duluth, MN								
Nitrogen, Ammonia	<b>12.3</b>	mg/kg	5.3	1	11/09/22 09:00	11/09/22 11:18	7664-41-7	
<b>351.2 TKN Solids DU</b>								
Analytical Method: EPA 351.2      Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN								
Nitrogen, Kjeldahl, Total	<b>2290</b>	mg/kg	836	10	11/02/22 14:46	11/03/22 11:17	7727-37-9	
<b>353.2 Nitrogen, N+N Solids DU</b>								
Analytical Method: EPA 353.2      Preparation Method: EPA 353.2 Pace Analytical Services - Duluth, MN								
Nitrogen, NO <sub>2</sub> plus NO <sub>3</sub>	ND	mg/kg	0.31	1	11/03/22 09:22	11/03/22 13:43		N2
<b>365.1 Phos, Total Solids DU</b>								
Analytical Method: EPA 365.1      Preparation Method: SM 4500-P B Pace Analytical Services - Duluth, MN								
Phosphorus	<b>425</b>	mg/kg	19.9	5	11/02/22 15:10	11/03/22 16:31	7723-14-0	
<b>9060 TOC, 2 Rep Solids DU</b>								
Analytical Method: EPA 9060A Pace Analytical Services - Duluth, MN								
RPD%	<b>8.3</b>	%		1		11/03/22 15:19		
Total Organic Carbon	<b>55800</b>	mg/kg	15800	1		11/03/22 15:12	7440-44-0	
Total Organic Carbon	<b>51300</b>	mg/kg	15800	1		11/03/22 15:19	7440-44-0	
Mean Total Organic Carbon	<b>53600</b>	mg/kg	15800	1		11/03/22 15:19	7440-44-0	
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A      Preparation Method: EPA 3546 Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	78.6	1	11/01/22 10:30	11/02/22 22:34	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	86	%	53-125	1	11/01/22 10:30	11/02/22 22:34	877-09-8	
Decachlorobiphenyl (S)	86	%	41-125	1	11/01/22 10:30	11/02/22 22:34	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D      Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	<b>5.3</b>	mg/kg	1.6	1	11/03/22 16:17	11/07/22 12:22	7440-38-2	
Cadmium	<b>0.34</b>	mg/kg	0.24	1	11/03/22 16:17	11/07/22 12:22	7440-43-9	
Copper	<b>13.4</b>	mg/kg	0.79	1	11/03/22 16:17	11/07/22 12:22	7440-50-8	
Lead	<b>6.2</b>	mg/kg	0.79	1	11/03/22 16:17	11/07/22 12:22	7439-92-1	
Nickel	<b>17.3</b>	mg/kg	1.6	1	11/03/22 16:17	11/07/22 12:22	7440-02-0	
Selenium	ND	mg/kg	1.6	1	11/03/22 16:17	11/07/22 12:22	7782-49-2	
Zinc	<b>34.1</b>	mg/kg	3.1	1	11/03/22 16:17	11/07/22 12:22	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (4'-6')** Lab ID: **10631764009** Collected: 10/31/22 11:30 Received: 10/31/22 16:15 Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**7471B Mercury**

Analytical Method: EPA 7471B Preparation Method: EPA 7471B  
Pace Analytical Services - Minneapolis

Mercury	ND	mg/kg	0.030	1	11/03/22 12:01	11/08/22 12:18	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	37.1	%	0.10	1		11/02/22 12:17		N2
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**8270E MSSV PAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	83-32-9	
Acenaphthylene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	208-96-8	
Anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	207-08-9	
Chrysene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	53-70-3	
Fluoranthene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	206-44-0	
Fluorene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	193-39-5	
Naphthalene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	91-20-3	
Phenanthrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	85-01-8	
Pyrene	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51	129-00-0	
Total BaP Eq. MN 2006sh. ND=0	ND	mg/kg	0.016	1	11/01/22 13:34	11/03/22 03:51		

**Surrogates**

2-Fluorobiphenyl (S)	71	%	59-125	1	11/01/22 13:34	11/03/22 03:51	321-60-8	
p-Terphenyl-d14 (S)	83	%	65-125	1	11/01/22 13:34	11/03/22 03:51	1718-51-0	

**8270E MSSV CPAH by SIM**

Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3550C  
Pace Analytical Services - Minneapolis

Acenaphthene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	83-32-9	H2
Acenaphthylene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	208-96-8	H2
Anthracene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	120-12-7	H2
Benzo(a)anthracene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	56-55-3	H2
Benzo(a)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	50-32-8	H2
Benzo(e)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	192-97-2	H2
Benzo(g,h,i)perylene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	191-24-2	H2
Benzofluoranthenes (Total)	ND	ug/kg	47.3	1	11/15/22 15:07	11/17/22 17:59		H2,N2
Carbazole	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	86-74-8	H2
2-Chloronaphthalene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	91-58-7	H2
Chrysene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	218-01-9	H2
Dibenz(a,h)acridine	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	226-36-8	H2
Dibenz(a,h)anthracene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	53-70-3	H2
Dibenz(a,j)acridine	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	224-42-0	H2

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: B2210417-Revised Report

Pace Project No.: 10631764

**Sample: WILK-3 (4'-6')**      **Lab ID: 10631764009**      Collected: 10/31/22 11:30      Received: 10/31/22 16:15      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV CPAH by SIM</b>		Analytical Method: EPA 8270E by SIM      Preparation Method: EPA 3550C Pace Analytical Services - Minneapolis						
Dibenzo(a,e)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	192-65-4	H2
Dibenzo(a,h)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	189-64-0	H2
Dibenzo(a,i)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	189-55-9	H2
Dibenzo(a,l)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	191-30-0	H2
7H-Dibenzo(c,g)carbazole	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	194-59-2	H2
Dibenzofuran	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	132-64-9	H2
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	57-97-6	H2
Fluoranthene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	206-44-0	H2
Fluorene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	86-73-7	H2
Indeno(1,2,3-cd)pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	193-39-5	H2
3-Methylcholanthrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	56-49-5	H2
5-Methylchrysene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	3697-24-3	H2
1-Methylnaphthalene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	90-12-0	H2
2-Methylnaphthalene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	91-57-6	H2
Naphthalene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	91-20-3	H2
5-Nitroacenaphthene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	602-87-9	H2
6-Nitrochrysene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	7496-02-8	H2
2-Nitrofluorene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	607-57-8	H2,N2
1-Nitropyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	5522-43-0	H2,N2
4-Nitropyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	57835-92-4	H2,N2
Perylene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	198-55-0	H2
Phenanthrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	85-01-8	H2
Pyrene	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59	129-00-0	H2
Total BaP Eq. MN 2006 ND=0	ND	ug/kg	15.8	1	11/15/22 15:07	11/17/22 17:59		N2
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	66	%.	43-125	1	11/15/22 15:07	11/17/22 17:59	321-60-8	
p-Terphenyl-d14 (S)	75	%.	40-125	1	11/15/22 15:07	11/17/22 17:59	1718-51-0	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report  
Pace Project No.: 10631764

QC Batch:	852321	Analysis Method:	EPA 350.1
QC Batch Method:	EPA 350.1	Analysis Description:	350.1 Ammonia DU
		Laboratory:	Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4506666 Matrix: Solid  
Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/kg	ND	3.0	11/09/22 11:01	

LABORATORY CONTROL SAMPLE: 4506667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/kg	30	32.5	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4506668 4506669

Parameter	Units	10631764001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	62.4	97.7	92.8	143	135	83	78	90-110	6	10	M1

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	850897	Analysis Method:	EPA 351.2
QC Batch Method:	EPA 351.2	Analysis Description:	351.2 TKN Soil DU
		Laboratory:	Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4499915 Matrix: Solid

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	ND	50.0	11/03/22 11:58	

LABORATORY CONTROL SAMPLE: 4499916

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	1000	1000	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4499917 4499918

Parameter	Units	10631300001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	340	1020	1070	1290	1350	93	95	90-110	5	10	1M

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4499919 4499920

Parameter	Units	10631308006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	28500	1060	1060	32600	31800	385	307	90-110	3	10	P6

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	851210	Analysis Method:	EPA 353.2
QC Batch Method:	EPA 353.2	Analysis Description:	353.2 Nitrate + Nitrite Soil DU
		Laboratory:	Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4501285 Matrix: Solid  
Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/kg	ND	0.20	11/03/22 13:11	N2

LABORATORY CONTROL SAMPLE: 4501286

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/kg	5	4.9	97	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4501287 4501288

Parameter	Units	10631027003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/kg	<1.3	66.4	65	60.9	61.9	92	94	90-110	2	10	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4501289 4501290

Parameter	Units	10631764001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/kg	23.7	15.2	15.2	34.8	31.0	73	48	90-110	11	10	M1,N2, R1

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	850971	Analysis Method:	EPA 365.1
QC Batch Method:	SM 4500-P B	Analysis Description:	3651 Phos, Total Solids DU
		Laboratory:	Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4500182 Matrix: Solid

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/kg	ND	2.5	11/03/22 15:13	

LABORATORY CONTROL SAMPLE: 4500183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/kg	25	26.9	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4500184 4500185

Parameter	Units	10631027003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/kg	221	1370	1340	1770	1700	113	110	80-120	4	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4500186 4500187

Parameter	Units	10631212001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/kg	2630	289	301	3050	3030	144	134	80-120	0	10	P6

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch: 850924

Analysis Method: EPA 9060A

QC Batch Method: EPA 9060A

Analysis Description: 9060 TOC Average DU

Laboratory: Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4500012

Matrix: Solid

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	ND	600	11/03/22 11:56	

LABORATORY CONTROL SAMPLE & LCSD: 4500013

4501459

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Mean Total Organic Carbon	mg/kg	5000	5020	5040	100	101	80-120	0	20	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	850545	Analysis Method:	EPA 7471B
QC Batch Method:	EPA 7471B	Analysis Description:	7471B Mercury Solids
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4498213 Matrix: Solid

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.020	11/08/22 11:55	

LABORATORY CONTROL SAMPLE: 4498214

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.5	0.48	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4498215 4498216

Parameter	Units	10631764001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	ND	1.5	1.5	1.3	1.4	87	88	80-120	8	20	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	851291	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3050B	Analysis Description:	6010D Solids
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK:	4501602	Matrix:	Solid
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Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	11/07/22 11:39	
Cadmium	mg/kg	ND	0.15	11/07/22 11:39	
Copper	mg/kg	ND	0.50	11/07/22 11:39	
Lead	mg/kg	ND	0.50	11/07/22 11:39	
Nickel	mg/kg	ND	1.0	11/07/22 11:39	
Selenium	mg/kg	ND	1.0	11/07/22 11:39	
Zinc	mg/kg	ND	2.0	11/07/22 11:39	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	48.8	45.2	93	80-120	
Cadmium	mg/kg	48.8	49.2	101	80-120	
Copper	mg/kg	48.8	48.3	99	80-120	
Lead	mg/kg	48.8	48.3	99	80-120	
Nickel	mg/kg	48.8	48.4	99	80-120	
Selenium	mg/kg	48.8	44.1	90	80-120	
Zinc	mg/kg	48.8	48.1	99	80-120	

Parameter	Units	4501604		4501605		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10631430001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Arsenic	mg/kg	ND	55.2	55.5	45.3	44.7	79	78	75-125	1	20
Cadmium	mg/kg	ND	55.2	55.5	47.8	47.4	86	85	75-125	1	20
Copper	mg/kg	41.5	55.2	55.5	89.8	97.9	88	102	75-125	9	20
Lead	mg/kg	3.4	55.2	55.5	51.1	51.1	86	86	75-125	0	20
Nickel	mg/kg	20.8	55.2	55.5	68.1	69.8	86	88	75-125	2	20
Selenium	mg/kg	ND	55.2	55.5	41.8	41.7	75	74	75-125	0	20 M1
Zinc	mg/kg	32.3	55.2	55.5	80.8	84.0	88	93	75-125	4	20

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch: 850813

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

SAMPLE DUPLICATE: 4499686

Parameter	Units	10631764001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	67.7	65.6	3	30	N2

SAMPLE DUPLICATE: 4499954

Parameter	Units	10631596003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.1	19.8	4	30	N2

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report  
Pace Project No.: 10631764

QC Batch:	850559	Analysis Method:	EPA 8082A
QC Batch Method:	EPA 3546	Analysis Description:	8082A GCS PCB
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4498243 Matrix: Solid  
Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1221 (Aroclor 1221)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1232 (Aroclor 1232)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1242 (Aroclor 1242)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1248 (Aroclor 1248)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1254 (Aroclor 1254)	ug/kg	ND	50.0	11/02/22 18:37	
PCB-1260 (Aroclor 1260)	ug/kg	ND	50.0	11/02/22 18:37	
Decachlorobiphenyl (S)	%	97	41-125	11/02/22 18:37	
Tetrachloro-m-xylene (S)	%	85	53-125	11/02/22 18:37	

LABORATORY CONTROL SAMPLE: 4498244

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	1000	895	90	68-125	
PCB-1260 (Aroclor 1260)	ug/kg	1000	922	92	70-125	
Decachlorobiphenyl (S)	%			97	41-125	
Tetrachloro-m-xylene (S)	%			86	53-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4498245 4498246

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10631764001 Result	Spike Conc.	Spike Conc.	Conc.								
PCB-1016 (Aroclor 1016)	ug/kg	ND	3080	3010	2770	2770	90	92	53-125	0	30		
PCB-1260 (Aroclor 1260)	ug/kg	ND	3080	3010	2480	2640	81	88	30-143	6	30		
Decachlorobiphenyl (S)	%						69	83	41-125				
Tetrachloro-m-xylene (S)	%						84	88	53-125				

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch: 850560 Analysis Method: EPA 8270E by SIM  
 QC Batch Method: EPA 3546 Analysis Description: 8270E Solid PAH by SIM MSSV  
 Laboratory: Pace Analytical Services - Minneapolis  
 Associated Lab Samples: 10631764001, 10631764003, 10631764006, 10631764007, 10631764008, 10631764009

METHOD BLANK: 4498247 Matrix: Solid  
 Associated Lab Samples: 10631764001, 10631764003, 10631764006, 10631764007, 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/kg	ND	0.010	11/03/22 16:37	
Acenaphthylene	mg/kg	ND	0.010	11/03/22 16:37	
Anthracene	mg/kg	ND	0.010	11/03/22 16:37	
Benzo(a)anthracene	mg/kg	ND	0.010	11/03/22 16:37	
Benzo(a)pyrene	mg/kg	ND	0.010	11/03/22 16:37	
Benzo(b)fluoranthene	mg/kg	ND	0.010	11/03/22 16:37	
Benzo(g,h,i)perylene	mg/kg	ND	0.010	11/03/22 16:37	
Benzo(k)fluoranthene	mg/kg	ND	0.010	11/03/22 16:37	
Chrysene	mg/kg	ND	0.010	11/03/22 16:37	
Dibenz(a,h)anthracene	mg/kg	ND	0.010	11/03/22 16:37	
Fluoranthene	mg/kg	ND	0.010	11/03/22 16:37	
Fluorene	mg/kg	ND	0.010	11/03/22 16:37	
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.010	11/03/22 16:37	
Naphthalene	mg/kg	ND	0.010	11/03/22 16:37	
Phenanthrene	mg/kg	ND	0.010	11/03/22 16:37	
Pyrene	mg/kg	ND	0.010	11/03/22 16:37	
2-Fluorobiphenyl (S)	%	74	59-125	11/03/22 16:37	
p-Terphenyl-d14 (S)	%	87	65-125	11/03/22 16:37	

LABORATORY CONTROL SAMPLE: 4498248

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/kg	0.1	0.096	96	60-125	
Acenaphthylene	mg/kg	0.1	0.094	94	59-125	
Anthracene	mg/kg	0.1	0.085	85	62-125	
Benzo(a)anthracene	mg/kg	0.1	0.093	93	64-125	
Benzo(a)pyrene	mg/kg	0.1	0.11	109	64-125	
Benzo(b)fluoranthene	mg/kg	0.1	0.099	99	65-125	
Benzo(g,h,i)perylene	mg/kg	0.1	0.10	105	66-125	
Benzo(k)fluoranthene	mg/kg	0.1	0.11	108	66-125	
Chrysene	mg/kg	0.1	0.096	96	66-125	
Dibenz(a,h)anthracene	mg/kg	0.1	0.10	104	67-125	
Fluoranthene	mg/kg	0.1	0.094	94	65-125	
Fluorene	mg/kg	0.1	0.10	100	60-125	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.097	97	64-125	
Naphthalene	mg/kg	0.1	0.087	87	48-125	
Phenanthrene	mg/kg	0.1	0.094	94	62-125	
Pyrene	mg/kg	0.1	0.097	97	68-125	
2-Fluorobiphenyl (S)	%			91	59-125	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

LABORATORY CONTROL SAMPLE: 4498248

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
p-Terphenyl-d14 (S)	%.			94	65-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4498249 4498250

Parameter	Units	10631764001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Acenaphthene	mg/kg	ND	0.31	0.31	0.21	0.18	67	60	70-125	11	30	M1	
Acenaphthylene	mg/kg	ND	0.31	0.31	0.20	0.19	65	62	30-150	5	30		
Anthracene	mg/kg	ND	0.31	0.31	0.20	0.18	67	60	67-125	12	30	M1	
Benzo(a)anthracene	mg/kg	ND	0.31	0.31	0.20	0.18	66	58	64-125	14	30	M1	
Benzo(a)pyrene	mg/kg	ND	0.31	0.31	0.20	0.16	65	54	40-137	19	30		
Benzo(b)fluoranthene	mg/kg	0.047	0.31	0.31	0.27	0.18	73	44	30-150	40	30	R1	
Benzo(g,h,i)perylene	mg/kg	ND	0.31	0.31	0.17	0.15	56	50	69-125	13	30	M1	
Benzo(k)fluoranthene	mg/kg	ND	0.31	0.31	0.19	0.20	61	67	48-133	9	30		
Chrysene	mg/kg	0.040	0.31	0.31	0.22	0.19	58	48	62-125	15	30	M1	
Dibenz(a,h)anthracene	mg/kg	ND	0.31	0.31	0.18	0.17	59	54	57-125	9	30	M1	
Fluoranthene	mg/kg	0.12	0.31	0.31	0.32	0.27	63	49	60-125	16	30	M1	
Fluorene	mg/kg	ND	0.31	0.31	0.23	0.20	74	65	53-125	14	30		
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.31	0.31	0.20	0.17	64	55	49-130	16	30		
Naphthalene	mg/kg	ND	0.31	0.31	0.15	0.15	50	51	46-125	1	30		
Phenanthrene	mg/kg	0.11	0.31	0.31	0.30	0.27	60	52	61-125	9	30	M1	
Pyrene	mg/kg	0.057	0.31	0.31	0.24	0.21	61	50	58-125	16	30	M1	
2-Fluorobiphenyl (S)	%.						60	58	59-125			S5	
p-Terphenyl-d14 (S)	%.						64	58	65-125			S5	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch:	851472	Analysis Method:	EPA 8270E by SIM
QC Batch Method:	EPA 3546	Analysis Description:	8270E Solid PAH by SIM MSSV
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764002, 10631764004, 10631764005

METHOD BLANK: 4502565 Matrix: Solid

Associated Lab Samples: 10631764002, 10631764004, 10631764005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/kg	ND	0.010	11/07/22 12:39	
Acenaphthylene	mg/kg	ND	0.010	11/07/22 12:39	
Anthracene	mg/kg	ND	0.010	11/07/22 12:39	
Benzo(a)anthracene	mg/kg	ND	0.010	11/07/22 12:39	
Benzo(a)pyrene	mg/kg	ND	0.010	11/07/22 12:39	
Benzo(b)fluoranthene	mg/kg	ND	0.010	11/07/22 12:39	
Benzo(g,h,i)perylene	mg/kg	ND	0.010	11/07/22 12:39	
Benzo(k)fluoranthene	mg/kg	ND	0.010	11/07/22 12:39	
Chrysene	mg/kg	ND	0.010	11/07/22 12:39	
Dibenz(a,h)anthracene	mg/kg	ND	0.010	11/07/22 12:39	
Fluoranthene	mg/kg	ND	0.010	11/07/22 12:39	
Fluorene	mg/kg	ND	0.010	11/07/22 12:39	
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.010	11/07/22 12:39	
Naphthalene	mg/kg	ND	0.010	11/07/22 12:39	
Phenanthrene	mg/kg	ND	0.010	11/07/22 12:39	
Pyrene	mg/kg	ND	0.010	11/07/22 12:39	
2-Fluorobiphenyl (S)	%	85	59-125	11/07/22 12:39	
p-Terphenyl-d14 (S)	%	90	65-125	11/07/22 12:39	

LABORATORY CONTROL SAMPLE: 4502566

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/kg	0.1	0.090	90	60-125	
Acenaphthylene	mg/kg	0.1	0.087	87	59-125	
Anthracene	mg/kg	0.1	0.081	81	62-125	
Benzo(a)anthracene	mg/kg	0.1	0.090	90	64-125	
Benzo(a)pyrene	mg/kg	0.1	0.10	101	64-125	
Benzo(b)fluoranthene	mg/kg	0.1	0.096	96	65-125	
Benzo(g,h,i)perylene	mg/kg	0.1	0.096	96	66-125	
Benzo(k)fluoranthene	mg/kg	0.1	0.11	113	66-125	
Chrysene	mg/kg	0.1	0.096	96	66-125	
Dibenz(a,h)anthracene	mg/kg	0.1	0.099	99	67-125	
Fluoranthene	mg/kg	0.1	0.090	90	65-125	
Fluorene	mg/kg	0.1	0.095	95	60-125	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.093	93	64-125	
Naphthalene	mg/kg	0.1	0.077	77	48-125	
Phenanthrene	mg/kg	0.1	0.089	89	62-125	
Pyrene	mg/kg	0.1	0.092	92	68-125	
2-Fluorobiphenyl (S)	%			83	59-125	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

LABORATORY CONTROL SAMPLE: 4502566

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
p-Terphenyl-d14 (S)	%.			90	65-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4502567 4502568

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10631764002 Result	Spike Conc.	Spike Conc.	MS Result						
Acenaphthene	mg/kg	ND	0.36	0.36	0.21	0.22	60	59	70-125	1	30 M1
Acenaphthylene	mg/kg	ND	0.36	0.36	0.18	0.19	51	51	30-150	2	30
Anthracene	mg/kg	0.056	0.36	0.36	0.23	0.21	48	43	67-125	7	30 M1
Benzo(a)anthracene	mg/kg	ND	0.36	0.36	0.21	0.19	58	52	64-125	9	30 M1
Benzo(a)pyrene	mg/kg	ND	0.36	0.36	0.18	0.17	50	45	40-137	8	30
Benzo(b)fluoranthene	mg/kg	0.047	0.36	0.36	0.25	0.22	56	48	30-150	12	30
Benzo(g,h,i)perylene	mg/kg	ND	0.36	0.36	0.19	0.18	52	49	69-125	4	30 M1
Benzo(k)fluoranthene	mg/kg	ND	0.36	0.36	0.24	0.21	67	57	48-133	14	30
Chrysene	mg/kg	0.050	0.36	0.36	0.25	0.21	55	44	62-125	16	30 M1
Dibenz(a,h)anthracene	mg/kg	ND	0.36	0.36	0.19	0.19	54	53	57-125	1	30 M1
Fluoranthene	mg/kg	0.26	0.36	0.36	0.52	0.39	73	37	60-125	28	30 M1
Fluorene	mg/kg	0.10	0.36	0.36	0.32	0.28	61	48	53-125	14	30 M1
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.36	0.36	0.19	0.18	53	49	49-130	5	30
Naphthalene	mg/kg	0.044	0.36	0.36	0.21	0.20	46	42	46-125	5	30 M1
Phenanthrene	mg/kg	0.37	0.36	0.36	0.66	0.51	82	38	61-125	27	30 M1
Pyrene	mg/kg	0.11	0.36	0.36	0.32	0.26	59	42	58-125	20	30 M1
2-Fluorobiphenyl (S)	%.						47	50	59-125		S0
p-Terphenyl-d14 (S)	%.						47	49	65-125		S0

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report  
Pace Project No.: 10631764

QC Batch: 853608 Analysis Method: EPA 8270E by SIM  
QC Batch Method: EPA 3550C Analysis Description: 8270E CPAH by SIM MSSV  
Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764008, 10631764009

METHOD BLANK: 4513549 Matrix: Solid

Associated Lab Samples: 10631764008, 10631764009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND	10.0	11/17/22 11:33	
1-Nitropyrene	ug/kg	ND	10.0	11/17/22 11:33	N2
2-Chloronaphthalene	ug/kg	ND	10.0	11/17/22 11:33	
2-Methylnaphthalene	ug/kg	ND	10.0	11/17/22 11:33	
2-Nitrofluorene	ug/kg	ND	10.0	11/17/22 11:33	N2
3-Methylcholanthrene	ug/kg	ND	10.0	11/17/22 11:33	
4-Nitropyrene	ug/kg	ND	10.0	11/17/22 11:33	N2
5-Methylchrysene	ug/kg	ND	10.0	11/17/22 11:33	
5-Nitroacenaphthene	ug/kg	ND	10.0	11/17/22 11:33	
6-Nitrochrysene	ug/kg	ND	10.0	11/17/22 11:33	
7,12-Dimethylbenz(a)anthracene	ug/kg	ND	10.0	11/17/22 11:33	
7H-Dibenzo(c,g)carbazole	ug/kg	ND	10.0	11/17/22 11:33	
Acenaphthene	ug/kg	ND	10.0	11/17/22 11:33	
Acenaphthylene	ug/kg	ND	10.0	11/17/22 11:33	
Anthracene	ug/kg	ND	10.0	11/17/22 11:33	
Benzo(a)anthracene	ug/kg	ND	10.0	11/17/22 11:33	
Benzo(a)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Benzo(e)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Benzo(g,h,i)perylene	ug/kg	ND	10.0	11/17/22 11:33	
Benzofluoranthenes (Total)	ug/kg	ND	30.0	11/17/22 11:33	N2
Carbazole	ug/kg	ND	10.0	11/17/22 11:33	
Chrysene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenz(a,h)acridine	ug/kg	ND	10.0	11/17/22 11:33	
Dibenz(a,h)anthracene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenz(a,i)acridine	ug/kg	ND	10.0	11/17/22 11:33	
Dibenzo(a,e)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenzo(a,h)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenzo(a,i)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenzo(a,l)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Dibenzofuran	ug/kg	ND	10.0	11/17/22 11:33	
Fluoranthene	ug/kg	ND	10.0	11/17/22 11:33	
Fluorene	ug/kg	ND	10.0	11/17/22 11:33	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	10.0	11/17/22 11:33	
Naphthalene	ug/kg	ND	10.0	11/17/22 11:33	
Perylene	ug/kg	ND	10.0	11/17/22 11:33	
Phenanthrene	ug/kg	ND	10.0	11/17/22 11:33	
Pyrene	ug/kg	ND	10.0	11/17/22 11:33	
2-Fluorobiphenyl (S)	%	83	43-125	11/17/22 11:33	
p-Terphenyl-d14 (S)	%	86	40-125	11/17/22 11:33	

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

LABORATORY CONTROL SAMPLE: 4513550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	100	71.8	72	52-125	
1-Nitropyrene	ug/kg	100	84.6	85	30-131	N2
2-Chloronaphthalene	ug/kg	100	82.4	82	54-125	
2-Methylnaphthalene	ug/kg	100	73.6	74	52-125	
2-Nitrofluorene	ug/kg	100	91.0	91	60-132	N2
3-Methylcholanthrene	ug/kg	100	86.5	87	30-131	
4-Nitropyrene	ug/kg	100	86.1	86	42-135	N2
5-Methylchrysene	ug/kg	100	85.0	85	63-125	
5-Nitroacenaphthene	ug/kg	100	76.5	77	60-128	
6-Nitrochrysene	ug/kg	100	81.7	82	30-143	
7,12-Dimethylbenz(a)anthracene	ug/kg	100	97.3	97	30-125	
7H-Dibenzo(c,g)carbazole	ug/kg	100	82.0	82	69-125	
Acenaphthene	ug/kg	100	79.4	79	59-125	
Acenaphthylene	ug/kg	100	80.3	80	56-125	
Anthracene	ug/kg	100	82.8	83	62-125	
Benzo(a)anthracene	ug/kg	100	82.4	82	60-125	
Benzo(a)pyrene	ug/kg	100	87.9	88	67-125	
Benzo(e)pyrene	ug/kg	100	91.9	92	64-125	
Benzo(g,h,i)perylene	ug/kg	100	85.6	86	39-129	
Benzo(a)fluoranthene (Total)	ug/kg	300	277	92	67-125	N2
Carbazole	ug/kg	100	83.0	83	66-125	
Chrysene	ug/kg	100	83.6	84	60-125	
Dibenz(a,h)acridine	ug/kg	100	84.1	84	66-125	
Dibenz(a,h)anthracene	ug/kg	100	84.4	84	66-125	
Dibenz(a,i)acridine	ug/kg	100	81.0	81	30-133	
Dibenzo(a,e)pyrene	ug/kg	100	76.2	76	57-125	
Dibenzo(a,h)pyrene	ug/kg	100	86.1	86	59-126	
Dibenzo(a,i)pyrene	ug/kg	100	73.9	74	45-125	
Dibenzo(a,l)pyrene	ug/kg	100	64.2	64	30-125	
Dibenzofuran	ug/kg	100	79.0	79	61-125	
Fluoranthene	ug/kg	100	79.1	79	66-125	
Fluorene	ug/kg	100	79.4	79	63-125	
Indeno(1,2,3-cd)pyrene	ug/kg	100	87.1	87	67-125	
Naphthalene	ug/kg	100	76.8	77	50-125	
Perylene	ug/kg	100	87.4	87	69-125	
Phenanthrene	ug/kg	100	83.4	83	67-125	
Pyrene	ug/kg	100	93.4	93	62-125	
2-Fluorobiphenyl (S)	%			85	43-125	
p-Terphenyl-d14 (S)	%			92	40-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4513551 4513552

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		10631764008	Spike Conc.	Spike Conc.	Result							
1-Methylnaphthalene	ug/kg	ND	172	172	93.9	80.5	55	47	37-125	15	30	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

Parameter	Units	4513551			4513552			% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		10631764008	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1-Nitropyrene	ug/kg	ND	172	172	99.6	111	58	65	30-131	11	30	N2		
2-Chloronaphthalene	ug/kg	ND	172	172	107	100	62	58	48-125	6	30			
2-Methylnaphthalene	ug/kg	ND	172	172	96.3	80.5	56	47	40-125	18	30			
2-Nitrofluorene	ug/kg	ND	172	172	125	133	72	78	30-150	7	30	N2		
3-Methylcholanthrene	ug/kg	ND	172	172	107	119	62	69	30-131	11	30			
4-Nitropyrene	ug/kg	ND	172	172	105	116	61	67	30-135	10	30	N2		
5-Methylchrysene	ug/kg	ND	172	172	102	113	59	65	30-150	10	30			
5-Nitroacenaphthene	ug/kg	ND	172	172	102	113	59	66	30-150	10	30			
6-Nitrochrysene	ug/kg	ND	172	172	98.0	110	57	64	30-143	11	30			
7,12-Dimethylbenz(a)anthracene	ug/kg	ND	172	172	88.0	76.3	51	44	30-145	14	30			
7H-Dibenzo(c,g)carbazole	ug/kg	ND	172	172	114	128	66	75	30-125	12	30			
Acenaphthene	ug/kg	ND	172	172	105	106	61	62	30-139	1	30			
Acenaphthylene	ug/kg	ND	172	172	106	107	62	62	30-125	1	30			
Anthracene	ug/kg	ND	172	172	105	116	61	67	30-150	10	30			
Benzo(a)anthracene	ug/kg	ND	172	172	99.7	109	58	63	30-150	8	30			
Benzo(a)pyrene	ug/kg	ND	172	172	102	113	59	66	30-150	11	30			
Benzo(e)pyrene	ug/kg	ND	172	172	104	115	60	67	30-150	11	30			
Benzo(g,h,i)perylene	ug/kg	ND	172	172	98.6	111	57	65	30-150	12	30			
Benzofluoranthenes (Total)	ug/kg	ND	516	516	313	349	61	68	30-150	11	30	N2		
Carbazole	ug/kg	ND	172	172	108	118	63	69	30-150	9	30			
Chrysene	ug/kg	ND	172	172	101	111	59	64	30-150	9	30			
Dibenz(a,h)acridine	ug/kg	ND	172	172	102	115	59	67	30-125	12	30			
Dibenz(a,h)anthracene	ug/kg	ND	172	172	104	114	60	66	30-146	10	30			
Dibenz(a,j)acridine	ug/kg	ND	172	172	90.8	104	53	61	30-133	14	30			
Dibenzo(a,e)pyrene	ug/kg	ND	172	172	105	115	61	67	30-125	9	30			
Dibenzo(a,h)pyrene	ug/kg	ND	172	172	107	119	62	69	30-126	11	30			
Dibenzo(a,i)pyrene	ug/kg	ND	172	172	91.8	100	53	58	30-125	9	30			
Dibenzo(a,l)pyrene	ug/kg	ND	172	172	85.1	90.8	49	53	30-125	7	30			
Dibenzofuran	ug/kg	ND	172	172	105	110	61	64	43-125	4	30			
Fluoranthene	ug/kg	ND	172	172	93.8	106	54	62	30-150	13	30			
Fluorene	ug/kg	ND	172	172	103	110	60	64	30-147	7	30			
Indeno(1,2,3-cd)pyrene	ug/kg	ND	172	172	103	116	60	67	30-150	12	30			
Naphthalene	ug/kg	ND	172	172	103	80.5	60	47	37-125	25	30			
Perylene	ug/kg	ND	172	172	102	113	59	66	30-150	10	30			
Phenanthrene	ug/kg	ND	172	172	106	117	62	68	30-150	10	30			
Pyrene	ug/kg	ND	172	172	116	126	68	73	30-150	8	30			
2-Fluorobiphenyl (S)	%						67	61	43-125					
p-Terphenyl-d14 (S)	%						66	75	40-125					

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report

Pace Project No.: 10631764

QC Batch: 854193

Analysis Method: EPA 8270E by SIM

QC Batch Method: EPA 3550C

Analysis Description: 8270E CPAH by SIM MSSV

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007

METHOD BLANK: 4516117

Matrix: Solid

Associated Lab Samples: 10631764001, 10631764002, 10631764003, 10631764004, 10631764005, 10631764006, 10631764007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND	10.0	11/21/22 16:22	
1-Nitropyrene	ug/kg	ND	10.0	11/21/22 16:22	N2
2-Chloronaphthalene	ug/kg	ND	10.0	11/21/22 16:22	
2-Methylnaphthalene	ug/kg	ND	10.0	11/21/22 16:22	
2-Nitrofluorene	ug/kg	ND	10.0	11/21/22 16:22	N2
3-Methylcholanthrene	ug/kg	ND	10.0	11/21/22 16:22	
4-Nitropyrene	ug/kg	ND	10.0	11/21/22 16:22	N2
5-Methylchrysene	ug/kg	ND	10.0	11/21/22 16:22	
5-Nitroacenaphthene	ug/kg	ND	10.0	11/21/22 16:22	
6-Nitrochrysene	ug/kg	ND	10.0	11/21/22 16:22	
7,12-Dimethylbenz(a)anthracene	ug/kg	ND	10.0	11/21/22 16:22	
7H-Dibenzo(c,g)carbazole	ug/kg	ND	10.0	11/21/22 16:22	
Acenaphthene	ug/kg	ND	10.0	11/21/22 16:22	
Acenaphthylene	ug/kg	ND	10.0	11/21/22 16:22	
Anthracene	ug/kg	ND	10.0	11/21/22 16:22	
Benzo(a)anthracene	ug/kg	ND	10.0	11/21/22 16:22	
Benzo(a)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Benzo(e)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Benzo(g,h,i)perylene	ug/kg	ND	10.0	11/21/22 16:22	
Benzofluoranthenes (Total)	ug/kg	ND	30.0	11/21/22 16:22	N2
Carbazole	ug/kg	ND	10.0	11/21/22 16:22	
Chrysene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenz(a,h)acridine	ug/kg	ND	10.0	11/21/22 16:22	
Dibenz(a,h)anthracene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenz(a,i)acridine	ug/kg	ND	10.0	11/21/22 16:22	
Dibenzo(a,e)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenzo(a,h)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenzo(a,i)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenzo(a,l)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Dibenzofuran	ug/kg	ND	10.0	11/21/22 16:22	
Fluoranthene	ug/kg	ND	10.0	11/21/22 16:22	
Fluorene	ug/kg	ND	10.0	11/21/22 16:22	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	10.0	11/21/22 16:22	
Naphthalene	ug/kg	ND	10.0	11/21/22 16:22	
Perylene	ug/kg	ND	10.0	11/21/22 16:22	
Phenanthrene	ug/kg	ND	10.0	11/21/22 16:22	
Pyrene	ug/kg	ND	10.0	11/21/22 16:22	
2-Fluorobiphenyl (S)	%	88	43-125	11/21/22 16:22	
p-Terphenyl-d14 (S)	%	94	40-125	11/21/22 16:22	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B2210417-Revised Report  
Pace Project No.: 10631764

LABORATORY CONTROL SAMPLE: 4516118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	100	76.1	76	52-125	
1-Nitropyrene	ug/kg	100	75.4	75	30-131	N2
2-Chloronaphthalene	ug/kg	100	77.7	78	54-125	
2-Methylnaphthalene	ug/kg	100	76.4	76	52-125	
2-Nitrofluorene	ug/kg	100	80.9	81	60-132	N2
3-Methylcholanthrene	ug/kg	100	66.5	67	30-131	
4-Nitropyrene	ug/kg	100	81.2	81	42-135	N2
5-Methylchrysene	ug/kg	100	84.5	85	63-125	
5-Nitroacenaphthene	ug/kg	100	80.0	80	60-128	
6-Nitrochrysene	ug/kg	100	83.6	84	30-143	
7,12-Dimethylbenz(a)anthracene	ug/kg	100	92.8	93	30-125	
7H-Dibenzo(c,g)carbazole	ug/kg	100	91.8	92	69-125	
Acenaphthene	ug/kg	100	79.2	79	59-125	
Acenaphthylene	ug/kg	100	79.4	79	56-125	
Anthracene	ug/kg	100	81.3	81	62-125	
Benzo(a)anthracene	ug/kg	100	80.9	81	60-125	
Benzo(a)pyrene	ug/kg	100	91.4	91	67-125	
Benzo(e)pyrene	ug/kg	100	92.7	93	64-125	
Benzo(g,h,i)perylene	ug/kg	100	90.3	90	39-129	
Benzo(a)fluoranthene (Total)	ug/kg	300	281	94	67-125	N2
Carbazole	ug/kg	100	84.2	84	66-125	
Chrysene	ug/kg	100	84.5	84	60-125	
Dibenz(a,h)acridine	ug/kg	100	77.5	77	66-125	
Dibenz(a,h)anthracene	ug/kg	100	90.3	90	66-125	
Dibenz(a,i)acridine	ug/kg	100	4.3J	4	30-133	L2
Dibenzo(a,e)pyrene	ug/kg	100	85.4	85	57-125	
Dibenzo(a,h)pyrene	ug/kg	100	97.0	97	59-126	
Dibenzo(a,i)pyrene	ug/kg	100	81.7	82	45-125	
Dibenzo(a,l)pyrene	ug/kg	100	53.6	54	30-125	
Dibenzofuran	ug/kg	100	81.8	82	61-125	
Fluoranthene	ug/kg	100	86.2	86	66-125	
Fluorene	ug/kg	100	82.4	82	63-125	
Indeno(1,2,3-cd)pyrene	ug/kg	100	92.1	92	67-125	
Naphthalene	ug/kg	100	75.6	76	50-125	
Perylene	ug/kg	100	87.3	87	69-125	
Phenanthrene	ug/kg	100	81.9	82	67-125	
Pyrene	ug/kg	100	84.5	85	62-125	
2-Fluorobiphenyl (S)	%			80	43-125	
p-Terphenyl-d14 (S)	%			89	40-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4516162 4516163

Parameter	Units	10631764006 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
1-Methylnaphthalene	ug/kg	ND	644	641	273	346	42	54	37-125	23	30	

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**QUALITY CONTROL DATA**

Project: B2210417-Revised Report

Pace Project No.: 10631764

Parameter	Units	4516162		4516163		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10631764006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1-Nitropyrene	ug/kg	ND	644	641	291	341	45	53	30-131	16	30	N2	
2-Chloronaphthalene	ug/kg	ND	644	641	289	364	45	57	48-125	23	30	M1	
2-Methylnaphthalene	ug/kg	ND	644	641	277	349	43	55	40-125	23	30		
2-Nitrofluorene	ug/kg	ND	644	641	351	403	54	63	30-150	14	30	N2	
3-Methylcholanthrene	ug/kg	ND	644	641	374	441	58	69	30-131	16	30		
4-Nitropyrene	ug/kg	ND	644	641	330	387	51	60	30-135	16	30	N2	
5-Methylchrysene	ug/kg	ND	644	641	345	405	54	63	30-150	16	30		
5-Nitroacenaphthene	ug/kg	ND	644	641	350	391	54	61	30-150	11	30		
6-Nitrochrysene	ug/kg	ND	644	641	346	408	54	64	30-143	16	30		
7,12-Dimethylbenz(a)anthracene	ug/kg	ND	644	641	82.4	150	13	23	30-145	58	30	M1,R1	
7H-Dibenzo(c,g)carbazole	ug/kg	ND	644	641	415	478	64	75	30-125	14	30		
Acenaphthene	ug/kg	ND	644	641	298	369	46	58	30-139	21	30		
Acenaphthylene	ug/kg	ND	644	641	291	357	45	56	30-125	20	30		
Anthracene	ug/kg	ND	644	641	304	361	47	56	30-150	17	30		
Benzo(a)anthracene	ug/kg	ND	644	641	320	373	50	58	30-150	15	30		
Benzo(a)pyrene	ug/kg	ND	644	641	340	394	53	62	30-150	15	30		
Benzo(e)pyrene	ug/kg	ND	644	641	339	403	53	63	30-150	17	30		
Benzo(g,h,i)perylene	ug/kg	ND	644	641	330	384	51	60	30-150	15	30		
Benzofluoranthenes (Total)	ug/kg	ND	1930	1920	1040	1240	54	64	30-150	17	30	N2	
Carbazole	ug/kg	ND	644	641	348	395	54	62	30-150	13	30		
Chrysene	ug/kg	ND	644	641	324	391	50	61	30-150	19	30		
Dibenz(a,h)acridine	ug/kg	ND	644	641	343	405	53	63	30-125	17	30		
Dibenz(a,h)anthracene	ug/kg	ND	644	641	372	430	58	67	30-146	15	30		
Dibenz(a,i)acridine	ug/kg	ND	644	641	286	332	44	52	30-133	15	30		
Dibenzo(a,e)pyrene	ug/kg	ND	644	641	363	437	56	68	30-125	18	30		
Dibenzo(a,h)pyrene	ug/kg	ND	644	641	393	460	61	72	30-126	16	30		
Dibenzo(a,i)pyrene	ug/kg	ND	644	641	319	371	50	58	30-125	15	30		
Dibenzo(a,l)pyrene	ug/kg	ND	644	641	292	338	45	53	30-125	14	30		
Dibenzofuran	ug/kg	ND	644	641	303	367	47	57	43-125	19	30		
Fluoranthene	ug/kg	ND	644	641	326	380	51	59	30-150	15	30		
Fluorene	ug/kg	ND	644	641	313	375	49	59	30-147	18	30		
Indeno(1,2,3-cd)pyrene	ug/kg	ND	644	641	352	416	55	65	30-150	17	30		
Naphthalene	ug/kg	ND	644	641	287	354	45	55	37-125	21	30		
Perylene	ug/kg	ND	644	641	323	377	50	59	30-150	15	30		
Phenanthrene	ug/kg	ND	644	641	315	370	49	58	30-150	16	30		
Pyrene	ug/kg	ND	644	641	324	376	50	59	30-150	15	30		
2-Fluorobiphenyl (S)	%						45	58	43-125				
p-Terphenyl-d14 (S)	%						50	56	40-125				

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**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: B2210417-Revised Report

Pace Project No.: 10631764

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### 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 adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1M	The samples were kept frozen; thawed and extracted within the 6 month holding time as indicated by Minnesota Department of Agriculture Guidance Document 11 for extractions and analysis.
H2	Extraction or preparation was conducted outside of the recognized method holding time.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
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.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10631764001	WILK-1 (0'-2')	EPA 350.1	852321	EPA 350.1	852427
10631764002	WILK-1 (2'-4')	EPA 350.1	852321	EPA 350.1	852427
10631764003	WILK-1 (4'-6')	EPA 350.1	852321	EPA 350.1	852427
10631764004	WILK-2 (0'-2')	EPA 350.1	852321	EPA 350.1	852427
10631764005	WILK-2 (2'-4')	EPA 350.1	852321	EPA 350.1	852427
10631764006	WILK-2 (4'-6')	EPA 350.1	852321	EPA 350.1	852427
10631764007	WILK-3 (0'-2')	EPA 350.1	852321	EPA 350.1	852427
10631764008	WILK-3 (2'-4')	EPA 350.1	852321	EPA 350.1	852427
10631764009	WILK-3 (4'-6')	EPA 350.1	852321	EPA 350.1	852427
10631764001	WILK-1 (0'-2')	EPA 351.2	850897	EPA 351.2	851341
10631764002	WILK-1 (2'-4')	EPA 351.2	850897	EPA 351.2	851341
10631764003	WILK-1 (4'-6')	EPA 351.2	850897	EPA 351.2	851341
10631764004	WILK-2 (0'-2')	EPA 351.2	850897	EPA 351.2	851341
10631764005	WILK-2 (2'-4')	EPA 351.2	850897	EPA 351.2	851341
10631764006	WILK-2 (4'-6')	EPA 351.2	850897	EPA 351.2	851341
10631764007	WILK-3 (0'-2')	EPA 351.2	850897	EPA 351.2	851341
10631764008	WILK-3 (2'-4')	EPA 351.2	850897	EPA 351.2	851341
10631764009	WILK-3 (4'-6')	EPA 351.2	850897	EPA 351.2	851341
10631764001	WILK-1 (0'-2')	EPA 353.2	851210	EPA 353.2	851292
10631764002	WILK-1 (2'-4')	EPA 353.2	851210	EPA 353.2	851292
10631764003	WILK-1 (4'-6')	EPA 353.2	851210	EPA 353.2	851292
10631764004	WILK-2 (0'-2')	EPA 353.2	851210	EPA 353.2	851292
10631764005	WILK-2 (2'-4')	EPA 353.2	851210	EPA 353.2	851292
10631764006	WILK-2 (4'-6')	EPA 353.2	851210	EPA 353.2	851292
10631764007	WILK-3 (0'-2')	EPA 353.2	851210	EPA 353.2	851292
10631764008	WILK-3 (2'-4')	EPA 353.2	851210	EPA 353.2	851292
10631764009	WILK-3 (4'-6')	EPA 353.2	851210	EPA 353.2	851292
10631764001	WILK-1 (0'-2')	SM 4500-P B	850971	EPA 365.1	851064
10631764002	WILK-1 (2'-4')	SM 4500-P B	850971	EPA 365.1	851064
10631764003	WILK-1 (4'-6')	SM 4500-P B	850971	EPA 365.1	851064
10631764004	WILK-2 (0'-2')	SM 4500-P B	850971	EPA 365.1	851064
10631764005	WILK-2 (2'-4')	SM 4500-P B	850971	EPA 365.1	851064
10631764006	WILK-2 (4'-6')	SM 4500-P B	850971	EPA 365.1	851064
10631764007	WILK-3 (0'-2')	SM 4500-P B	850971	EPA 365.1	851064
10631764008	WILK-3 (2'-4')	SM 4500-P B	850971	EPA 365.1	851064
10631764009	WILK-3 (4'-6')	SM 4500-P B	850971	EPA 365.1	851064
10631764001	WILK-1 (0'-2')	EPA 9060A	850924		
10631764001	WILK-1 (0'-2')	EPA 9060A	851258		
10631764002	WILK-1 (2'-4')	EPA 9060A	850924		
10631764002	WILK-1 (2'-4')	EPA 9060A	851258		
10631764003	WILK-1 (4'-6')	EPA 9060A	850924		
10631764003	WILK-1 (4'-6')	EPA 9060A	851258		
10631764004	WILK-2 (0'-2')	EPA 9060A	850924		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10631764004	WILK-2 (0'-2')	EPA 9060A	851258		
10631764005	WILK-2 (2'-4')	EPA 9060A	850924		
10631764005	WILK-2 (2'-4')	EPA 9060A	851258		
10631764006	WILK-2 (4'-6')	EPA 9060A	850924		
10631764006	WILK-2 (4'-6')	EPA 9060A	851258		
10631764007	WILK-3 (0'-2')	EPA 9060A	850924		
10631764007	WILK-3 (0'-2')	EPA 9060A	851258		
10631764008	WILK-3 (2'-4')	EPA 9060A	850924		
10631764008	WILK-3 (2'-4')	EPA 9060A	851258		
10631764009	WILK-3 (4'-6')	EPA 9060A	850924		
10631764009	WILK-3 (4'-6')	EPA 9060A	851258		
10631764001	WILK-1 (0'-2')	EPA 3546	850559	EPA 8082A	850956
10631764002	WILK-1 (2'-4')	EPA 3546	850559	EPA 8082A	850956
10631764003	WILK-1 (4'-6')	EPA 3546	850559	EPA 8082A	850956
10631764004	WILK-2 (0'-2')	EPA 3546	850559	EPA 8082A	850956
10631764005	WILK-2 (2'-4')	EPA 3546	850559	EPA 8082A	850956
10631764006	WILK-2 (4'-6')	EPA 3546	850559	EPA 8082A	850956
10631764007	WILK-3 (0'-2')	EPA 3546	850559	EPA 8082A	850956
10631764008	WILK-3 (2'-4')	EPA 3546	850559	EPA 8082A	850956
10631764009	WILK-3 (4'-6')	EPA 3546	850559	EPA 8082A	850956
10631764001	WILK-1 (0'-2')	EPA 3050B	851291	EPA 6010D	851677
10631764002	WILK-1 (2'-4')	EPA 3050B	851291	EPA 6010D	851677
10631764003	WILK-1 (4'-6')	EPA 3050B	851291	EPA 6010D	851677
10631764004	WILK-2 (0'-2')	EPA 3050B	851291	EPA 6010D	851677
10631764005	WILK-2 (2'-4')	EPA 3050B	851291	EPA 6010D	851677
10631764006	WILK-2 (4'-6')	EPA 3050B	851291	EPA 6010D	851677
10631764007	WILK-3 (0'-2')	EPA 3050B	851291	EPA 6010D	851677
10631764008	WILK-3 (2'-4')	EPA 3050B	851291	EPA 6010D	851677
10631764009	WILK-3 (4'-6')	EPA 3050B	851291	EPA 6010D	851677
10631764001	WILK-1 (0'-2')	EPA 7471B	850545	EPA 7471B	851787
10631764002	WILK-1 (2'-4')	EPA 7471B	850545	EPA 7471B	851787
10631764003	WILK-1 (4'-6')	EPA 7471B	850545	EPA 7471B	851787
10631764004	WILK-2 (0'-2')	EPA 7471B	850545	EPA 7471B	851787
10631764005	WILK-2 (2'-4')	EPA 7471B	850545	EPA 7471B	851787
10631764006	WILK-2 (4'-6')	EPA 7471B	850545	EPA 7471B	851787
10631764007	WILK-3 (0'-2')	EPA 7471B	850545	EPA 7471B	851787
10631764008	WILK-3 (2'-4')	EPA 7471B	850545	EPA 7471B	851787
10631764009	WILK-3 (4'-6')	EPA 7471B	850545	EPA 7471B	851787
10631764001	WILK-1 (0'-2')	ASTM D2974	850813		
10631764002	WILK-1 (2'-4')	ASTM D2974	850813		
10631764003	WILK-1 (4'-6')	ASTM D2974	850813		
10631764004	WILK-2 (0'-2')	ASTM D2974	850813		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B2210417-Revised Report

Pace Project No.: 10631764

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10631764005	WILK-2 (2'-4')	ASTM D2974	850813		
10631764006	WILK-2 (4'-6')	ASTM D2974	850813		
10631764007	WILK-3 (0'-2')	ASTM D2974	850813		
10631764008	WILK-3 (2'-4')	ASTM D2974	850813		
10631764009	WILK-3 (4'-6')	ASTM D2974	850813		
10631764001	WILK-1 (0'-2')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764002	WILK-1 (2'-4')	EPA 3546	851472	EPA 8270E by SIM	851838
10631764003	WILK-1 (4'-6')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764004	WILK-2 (0'-2')	EPA 3546	851472	EPA 8270E by SIM	851838
10631764005	WILK-2 (2'-4')	EPA 3546	851472	EPA 8270E by SIM	851838
10631764006	WILK-2 (4'-6')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764007	WILK-3 (0'-2')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764008	WILK-3 (2'-4')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764009	WILK-3 (4'-6')	EPA 3546	850560	EPA 8270E by SIM	850914
10631764001	WILK-1 (0'-2')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764002	WILK-1 (2'-4')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764003	WILK-1 (4'-6')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764004	WILK-2 (0'-2')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764005	WILK-2 (2'-4')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764006	WILK-2 (4'-6')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764007	WILK-3 (0'-2')	EPA 3550C	854193	EPA 8270E by SIM	854359
10631764008	WILK-3 (2'-4')	EPA 3550C	853608	EPA 8270E by SIM	854121
10631764009	WILK-3 (4'-6')	EPA 3550C	853608	EPA 8270E by SIM	854121

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Affix WO

# WO#: 10631764

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Billing Information:  
 mciampone@braunintertec.com  
 ↓

Company: **Braun Intertec**  
 Address: **11001 Hampshire Ave S, Blomington MN**  
 Report To: **Mark Ciampone**  
 Copy To:

Customer Project Name/Number: **B2210417**  
 State: **MN** County/City: **White Bear Lake** Time Zone Collected: **JPT** | **IMT** | **ACT** | **JET**

Site Collection Info/Address:  
 Email To: **MCIampone@braunintertec.com**  
 Site Collection Info/Address:

Site/Facility ID #: \_\_\_\_\_  
 Purchase Order #: \_\_\_\_\_  
 Quote #: \_\_\_\_\_  
 Turnaround Date Required: **SID**  
 Rush:  Same Day  Next Day  13 Day  14 Day  15 Day (Expedite Charges Apply)  
 Dispose as appropriate  Return  Archive \_\_\_\_\_  Hold: \_\_\_\_\_

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
WELK-1 (0-2)	SL	comp	10/31/22	12:05		9
WELK-1 (2-4)				12:10		
WELK-1 (4-6)				12:15		
WELK-2 (0-2)				10:45		
WELK-2 (2-4)				10:50		
WELK-2 (4-6)				10:55		
WELK-3 (0-2)				11:20		
WELK-3 (2-4)				11:25		
WELK-3 (4-6)				11:30		

Customer Remarks / Special Conditions / Possible Hazards: \_\_\_\_\_

Type of Ice Used: Wet Blue Dry None

Packing Material Used: \_\_\_\_\_

Radchem sample(s) screened (<500 cpm): Y N NA

Relinquished by/Company: (Signature) **Braun Boeckers / Braun** Date/Time: **10/31/22 13:25**

Relinquished by/Company: (Signature) **Charles XJ Pace** Date/Time: **10/31/22 13:25**

Relinquished by/Company: (Signature) **Charles XJ Pace** Date/Time: **10/31/22 16:15**

Container Preservative Type: **V V V V V V V V V V**

ALL SHALE

Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Analyses	PCBS by 8082	PHAS by 8270	Moisture
X Total Cr, Cr III, Cr VI			
X Phos, N+N, Ammonia, TRN, TOL			
X Metals by 6010			

Lab Profile/Line: **33913**

Lab Sample Receipt Checklist:

Custody Seals Present/Intact Y N NA  
 Custody Signatures Present Y N NA  
 Collector Signatures Present Y N NA  
 Bottles Intact Y N NA  
 Correct Bottles Y N NA  
 Sufficient Volume Y N NA  
 Samples Received on Ice Y N NA  
 VOA - Headspace Acceptable Y N NA  
 USDA Regulated Soils Y N NA  
 Samples in Holding Time Y N NA  
 Residual Chlorine Present Y N NA  
 Cl Strips: \_\_\_\_\_ Y N NA  
 Sample pH Acceptable \_\_\_\_\_ Y N NA  
 pH Strips: \_\_\_\_\_ Y N NA  
 Sulfide Present \_\_\_\_\_ Y N NA  
 Lead Acetate Strips: \_\_\_\_\_ Y N NA

LAB USE ONLY:  
 Lab Sample # / Comments: \_\_\_\_\_

Lab Sample Temperature Info:  
 Temp Blank Received: **Y** N NA  
 Therm ID#: \_\_\_\_\_  
 Cooler 1 Temp Upon Receipt: \_\_\_\_\_ °C  
 Cooler 1 Therm Corr. Factor: \_\_\_\_\_ °C  
 Cooler 1 Corrected Temp: \_\_\_\_\_ °C  
 Comments: **Temp 3.2 / 2.7**

Lab Tracking #: **2855398**

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Samples received via: FEDEX UPS Client Courier Pace Courier

Date/Time: **10/31/22 13:40**

Date/Time: **10/31/22 15:35**

Date/Time: **10/31/22 16:15**



Effective Date: 8/26/2022

Sample Condition Upon Receipt Client Name: Braun water

Project #: WO#: 10631764 PM: BGB Due Date: 11/09/22 CLIENT: Braun-BLM

Courier: FedEx UPS USPS Client Pace Speedee Commercial

Tracking Number: See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Seals Intact? Biological Tissue Frozen? Packing Material: Thermometer: Type of Ice:

Did Samples Originate in West Virginia? Were All Container Temps Taken? Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: Average Corrected Temp

USDA Regulated Soil: Date/Initials of Person Examining Contents: Did samples originate in a quarantine zone within the United States: Did samples originate from a foreign source

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Table with 2 columns: Question and Answer/Comments. Includes questions like Chain of Custody Present and Filled Out, Samples Arrived within Hold Time, Rush Turn Around Time Requested, etc.

CLIENT NOTIFICATION/RESOLUTION Person Contacted: Date/Time: Comments/Resolution: Project Manager Review: Brenna Bloome Date: 11/01/2022

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office. Labeled By: Line:

# Pace Container Order #1011840

Addresses	Ship To :	Return To:
<b>Order By :</b>	<b>Ship To :</b>	<b>Return To:</b>
Company <u>Braun Intertec Corporation</u>	Company <u>Braun Intertec Corporation</u>	Company <u>Pace Analytical Minnesota</u>
Contact <u>Ciampone, Mark</u>	Contact <u>Ciampone, Mark</u>	Contact <u>Bloome, Brenna</u>
Email <u>mciampone@braunintertec.com</u>	Email <u>mciampone@braunintertec.com</u>	Email <u>brenna.bloome@pacelabs.com</u>
Address <u>11001 Hampshire Ave S.</u>	Address <u>11001 Hampshire Ave S.</u>	Address <u>1700 Elm Street</u>
Address 2 _____	Address 2 _____	Address 2 <u>Suite 200</u>
City <u>Bloomington</u>	City <u>Bloomington</u>	City <u>Minneapolis</u>
State <u>MN</u> Zip <u>55438</u>	State <u>MN</u> Zip <u>55438</u>	State <u>MN</u> Zip <u>55414</u>
Phone <u>612-210-6147</u>	Phone <u>612-210-6147</u>	Phone <u>(612)607-1700</u>

Info			
<b>Project Name</b> <u>Sediment</u>	<b>Due Date</b> <u>10/28/2022</u>	<b>Profile</b> <u>33913</u>	<b>Quote</b> _____
<b>Project Manager</b> <u>Bloome, Brenna</u>	<b>Return Date</b> _____	<b>Carrier</b> <u>Pace Courier</u>	<b>Location</b> <u>MN</u>

**Trip Blanks**

Include Trip Blanks

**Bottle Labels**

Blank

Pre-Printed No Sample IDs

Pre-Printed With Sample IDs

**Bottles**

Boxed Cases

Individually Wrapped

Grouped By Sample ID/Matrix

**Return Shipping Labels**

No Shipper

With Shipper

**Misc**

Sampling Instructions

Custody Seal

Temp. Blanks

Coolers \_\_\_\_\_

Syringes \_\_\_\_\_

Extra Bubble Wrap

Short Hold/Rush Stickers

DI Water Liter(s) \_\_\_\_\_

USDA Regulated Soils

**COC Options**

Number of Blanks 2

Pre-Printed \_\_\_\_\_

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
9	SL	Moisture	Dry weight containers	9	0	2125-022	
9	SL	Metals by 6010	4oz. Jar unpres	9	0	091222-1KM	As, Cd, Cu, Pb, Hg, Ni, Se, Zn
9	SL	Total Cr, Cr III, Cr VI	4oz. jar unpres	9	0	091222-1KM	Sub to ALS Holland
9	SL	Phos, N+N, Ammonia, TKN, TOC	4oz. jar unpres	9	0	091222-1KM	Sub to Duluth
9	SL	PCBs by 8082	4oz. jar unpres	9	0	091222-1KM	
9	SL	PAHs by 8270	4oz. jar unpres	9	0	091222-1KM	

## RETURN W/ SAMPLES

**Hazard Shipping Placard In Place : NO**

Sample receiving hours are Mon-Fri 7:30am-7:00pm and Sat 9:00am-1:00pm unless special arrangements are made with your project manager.

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

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

Payment term are net 30 days.

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

**LAB USE:**

**Ship Date :** 10/28/2022

**Prepared By:** PC

**Verified By:** \_\_\_\_\_

**Sample**

The Pace Courier will deliver by end of day Friday (10/28).

**CLIENT USE (Optional):**

**Date Rec'd:** \_\_\_\_\_

**Received By:** \_\_\_\_\_

**Verified By:** \_\_\_\_\_



## Service Center Transfer Checklist

**Service Center:** MPLS  BLM  AZ  MT

**Client:**

**Destination Lab:**

MPLS  Duluth  National  Other

**Received w/ Custody Seal?** Yes  No

**Custody Seal Intact?** Yes  No

<b>Temperature °C:</b>	Temp Read	Corr. Factor	Corr. Temp
	<input type="text" value="2.3"/> 3.5	<input type="text" value="TRUE"/>	<input type="text" value="2.3"/> 3.5

**IR Gun:**

Samples on ice, in cool down

Rush  Short Hold  N/A

**Containers Intact?** Yes  No

**Repacked and Re-iced?** Yes  No

**Notes:**

**No Temp Blank Section**

Read Temp	Corr. Temp	Avg. Temp

10/31/22  
 AF

# Intra-Regional Chain of Custody



## MO#: 10631764

PM: BGB Due Date: 11/09/22  
 CLIENT: Braun-Blm



Workorder: 10631764      Workorder Name: B2210417      Owner Received Date: 10/31/2022      Due Date: 11/9/2022

Received at: Pace Analytical Minnesota  
 1700 Elm Street  
 Minneapolis, MN 55414  
 Phone (612)607-1700


Send To Lab: Pace Analytical Duluth  
 4730 Oneota St.  
 Duluth, MN 55807  
 Phone (218) 727-6380

Report To: Brenna Bloome

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Requested Analysis					LAB USE ONLY	
						Unpreserved	Preserved	EPA 353.2	EPA 351.2	EPA 9060A	EPA 350.1	EPA 365.1		
1	WILK-1 (0-2)	PS	10/31/2022 12:05	10631764001	Solid	1		X	X	X	X			
2	WILK-1 (2-4)	PS	10/31/2022 12:10	10631764002	Solid	1		X	X	X	X			
3	WILK-1 (4-6)	PS	10/31/2022 12:15	10631764003	Solid	1		X	X	X	X			
4	WILK-2 (0-2)	PS	10/31/2022 10:45	10631764004	Solid	1		X	X	X	X			
5	WILK-2 (2-4)	PS	10/31/2022 10:50	10631764005	Solid	1		X	X	X	X			
6	WILK-2 (4-6)	PS	10/31/2022 10:55	10631764006	Solid	1		X	X	X	X			
7	WILK-3 (0-2)	PS	10/31/2022 11:20	10631764007	Solid	1		X	X	X	X			
8	WILK-3 (2-4)	PS	10/31/2022 11:25	10631764008	Solid	1		X	X	X	X			
9	WILK-3 (4-6)	PS	10/31/2022 11:30	10631764009	Solid	1		X	X	X	X			
Comments														
Location 10-C16-184 and Receiving														
Transfers		Released By	Date/Time	Received By	Date/Time									
1		CSM/Pace	11/08/22 10:50	[Signature]	11/12/22 11:20									
2		[Signature]	11/12/22 1515	[Signature]	11/11/22 1515									
3														
4														
Cooler Temperature on Receipt 2.0 °C      Custody Seal <input checked="" type="checkbox"/> or N      Received on Ice <input checked="" type="checkbox"/> or N      Samples Intact <input checked="" type="checkbox"/> or N														

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.  
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Effective Date:

<b>Sample Condition Upon Receipt</b>	<b>Client Name:</b> <u>Pace</u>	<b>Project</b>	<b>WO#: 10631764</b>
Courier: <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input checked="" type="checkbox"/> Pace <input type="checkbox"/> SpeeDee <input type="checkbox"/> Commercial			 <b>10631764</b>
Tracking Number: _____ <input type="checkbox"/> See Exception... ENV-FRM-MIN4-0142			

Custody Seal on Cooler/Box Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Biological Tissue Frozen? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Packing Material: <input checked="" type="checkbox"/> Bubble Wrap <input checked="" type="checkbox"/> Bubble Bags <input type="checkbox"/> None <input type="checkbox"/> Other	Temp Blank? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Thermometer: <input type="checkbox"/> T1 (0461) <input type="checkbox"/> T2 (1336) <input type="checkbox"/> T3 (0459) <input type="checkbox"/> T4 (0254) <input type="checkbox"/> T5 (0178) <input type="checkbox"/> T6 (0235) <input type="checkbox"/> T7 (0042) <input type="checkbox"/> T8 (0775) <input checked="" type="checkbox"/> 01339252/1710	Type of Ice: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Blue <input type="checkbox"/> Dry <input type="checkbox"/> None <input type="checkbox"/> Melted

Did Samples Originate in West Virginia? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Were All Container Temps Taken? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: <u>1.9</u> °C	Average Corrected Temp (no temp blank only): _____ °C
Correction Factor: <u>0.1</u> Cooler Temp Corrected w/temp blank: <u>2.0</u> °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: ( N/A, ~~water sample~~ other: \_\_\_\_\_) Date/Initials of Person Examining Contents: AH 11/1/22

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)?  Yes  No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?  Yes  No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): <input checked="" type="checkbox"/> Duluth <input type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	COMMENTS
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4. If fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E.coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrom <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Sample Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	Positive for Residual Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 pH Paper Lot # Residual Chlorine    0-6 Roll    0-6 Strip    0-14 Strip
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	
Headspace in Methyl Mercury Container? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
3 Trip Blanks Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15. Pace Trip Blank Lot # (if purchased): _____
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

**CLIENT NOTIFICATION/RESOLUTION** Field Data Required?  Yes  No

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/Resolution: \_\_\_\_\_

Project Manager Review: Brenna Bloome Date: 11/01/2022

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).



right solutions.  
right partner.

# Work Order: 22110326

**Project Name:**

**10631764**

## **Pace Analytical Services, LLC**

Brenna Bloome

1700 Elm Street

Suite 200

Minneapolis, MN 55414

**10-Nov-2022**



Certificate No: FL E871106

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company



10-Nov-2022

Brenna Bloome  
Pace Analytical Services, LLC  
1700 Elm Street  
Suite 200  
Minneapolis, MN 55414

Re: **10631764**

Work Order: **22110326**

Dear Brenna,

ALS Environmental received 9 samples on 02-Nov-2022 08:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 22.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA  
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Rob Swick  
Laboratory Manager

## Report of Laboratory Analysis

Certificate No: FL E871106

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Client: Pace Analytical Services, LLC  
 Project: 10631764  
 Work Order: 22110326

**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
22110326-01	WILK-1 (0'-2')	Solid		10/31/2022 12:05	11/2/2022 08:30	<input type="checkbox"/>
22110326-02	WILK-1 (2'-4')	Solid		10/31/2022 12:10	11/2/2022 08:30	<input type="checkbox"/>
22110326-03	WILK-1 (4'-6')	Solid		10/31/2022 12:15	11/2/2022 08:30	<input type="checkbox"/>
22110326-04	WILK-2 (0'-2')	Solid		10/31/2022 10:45	11/2/2022 08:30	<input type="checkbox"/>
22110326-05	WILK-2 (2'-4')	Solid		10/31/2022 10:50	11/2/2022 08:30	<input type="checkbox"/>
22110326-06	WILK-2 (4'-6')	Solid		10/31/2022 10:55	11/2/2022 08:30	<input type="checkbox"/>
22110326-07	WILK-3 (0'-2')	Solid		10/31/2022 11:20	11/2/2022 08:30	<input type="checkbox"/>
22110326-08	WILK-3 (2'-4')	Solid		10/31/2022 11:25	11/2/2022 08:30	<input type="checkbox"/>
22110326-09	WILK-3 (4'-6')	Solid		10/31/2022 11:30	11/2/2022 08:30	<input type="checkbox"/>



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**Client:** Pace Analytical Services, LLC  
**Project:** 10631764  
**WorkOrder:** 22110326

**QUALIFIERS,  
ACRONYMS, UNITS**

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<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

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**Client:** Pace Analytical Services, LLC  
**Project:** 10631764  
**Work Order:** 22110326

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**Case Narrative**

Samples for the above noted Work Order were received on 11/2/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

**Wet Chemistry:**

Batch 206046, Method SW6010D, Sample 22110326-01AMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Cr, Cu, Pb, Ni, V, Zn

Batch 206046, Method SW6010D, Sample 22110326-01AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba, Fe, Mn

Batch 206046, Method SW6010D, Sample 22110326-01AMSD: The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Cr, Cu, Pb, Ni, V, Zn

Batch 206046, Method SW6010D, Sample 22110326-01AMSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba, Fe, Mn

Batch 206046, Method SW6010D, Sample 22110326-01AMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Li

Batch 206046, Method SW6010D, Sample 22110326-01AMSD: The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased

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**Client:** Pace Analytical Services, LLC  
**Project:** 10631764  
**Work Order:** 22110326

**Case Narrative**

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high for this analyte: Li

Batch 206353, Method SW7196A, Sample 22110326-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte:

Batch 206353, Method SW7196A, Sample 22110326-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte:

Batch 206353, Method SW7196A, Sample 22110326-01A MSI: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte:

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-1 (0'-2')

**Lab ID:** 22110326-01

**Collection Date:** 10/31/2022 12:05 PM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	13		0.77	mg/Kg-dry	1	11/4/2022 04:34 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	13		3.0	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		30	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	66		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-1 (2'-4')

**Lab ID:** 22110326-02

**Collection Date:** 10/31/2022 12:10 PM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	7.2		1.0	mg/Kg-dry	1	11/4/2022 04:49 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	7.2		3.8	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		38	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	74		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-1 (4'-6')

**Lab ID:** 22110326-03

**Collection Date:** 10/31/2022 12:15 PM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	4.7		1.4	mg/Kg-dry	1	11/4/2022 04:54 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	ND		5.1	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		49	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	80		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-2 (0'-2')

**Lab ID:** 22110326-04

**Collection Date:** 10/31/2022 10:45 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>		Prep: SW3050B 11/4/22 11:32	Analyst: <b>ABL</b>
Chromium	7.9		0.99	mg/Kg-dry	1	11/4/2022 04:59 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	7.9		3.7	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>		Prep: SW3060A 11/5/22 07:00	Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		36	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	73		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-2 (2'-4')

**Lab ID:** 22110326-05

**Collection Date:** 10/31/2022 10:50 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	30		1.3	mg/Kg-dry	1	11/4/2022 05:04 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	30		4.3	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		42	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	77		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-2 (4'-6')

**Lab ID:** 22110326-06

**Collection Date:** 10/31/2022 10:55 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	4.3		2.1	mg/Kg-dry	1	11/4/2022 05:09 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	ND		6.6	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		63	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	85		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-3 (0'-2')

**Lab ID:** 22110326-07

**Collection Date:** 10/31/2022 11:20 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	8.7		0.84	mg/Kg-dry	1	11/4/2022 05:14 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	8.7		2.7	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		27	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	63		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-3 (2'-4')

**Lab ID:** 22110326-08

**Collection Date:** 10/31/2022 11:25 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	7.5		0.72	mg/Kg-dry	1	11/4/2022 05:29 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	7.5		2.7	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		27	mg/Kg-dry	10	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	63		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group, USA**

Date: 10-Nov-2022

**Client:** Pace Analytical Services, LLC

**Project:** 10631764

**Work Order:** 22110326

**Sample ID:** WILK-3 (4'-6')

**Lab ID:** 22110326-09

**Collection Date:** 10/31/2022 11:30 AM

**Matrix:** SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-AES</b>			<b>SW6010D</b>	Prep: SW3050B 11/4/22 11:32		Analyst: <b>ABL</b>
Chromium	11		0.41	mg/Kg-dry	1	11/4/2022 05:34 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>RZM</b>
Chromium, Trivalent	11		1.6	mg/Kg-dry	1	11/9/2022 03:22 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A 11/5/22 07:00		Analyst: <b>RZM</b>
Chromium, Hexavalent	ND		1.6	mg/Kg-dry	1	11/8/2022 07:24 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>ALG</b>
Moisture	38		0.10	% of sample	1	11/7/2022 02:21 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Pace Analytical Services, LLC  
**Work Order:** 22110326  
**Project:** 10631764

**QC BATCH REPORT**

Batch ID: **206046** Instrument ID **ICP2** Method: **SW6010D**

MBLK		Sample ID: <b>MBLK-206046-206046</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/4/2022 04:03 PM</b>		
Client ID:		Run ID: <b>ICP2_221104A</b>		SeqNo: <b>8977295</b>		Prep Date: <b>11/4/2022</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	ND	0.25								

LCS		Sample ID: <b>LCS-206046-206046</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/4/2022 04:09 PM</b>		
Client ID:		Run ID: <b>ICP2_221104A</b>		SeqNo: <b>8977296</b>		Prep Date: <b>11/4/2022</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	5.597	0.26	5.107	0	110	80-120	0			

MS		Sample ID: <b>22110326-01AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/4/2022 04:39 PM</b>		
Client ID: <b>WILK-1 (0'-2')</b>		Run ID: <b>ICP2_221104A</b>		SeqNo: <b>8977302</b>		Prep Date: <b>11/4/2022</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	11.83	0.26	5.181	4.323	145	75-125	0			S

MSD		Sample ID: <b>22110326-01AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/4/2022 04:44 PM</b>		
Client ID: <b>WILK-1 (0'-2')</b>		Run ID: <b>ICP2_221104A</b>		SeqNo: <b>8977303</b>		Prep Date: <b>11/4/2022</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	11.85	0.26	5.198	4.323	145	75-125	11.83	0.109	20	S

The following samples were analyzed in this batch:

22110326-01A	22110326-02A	22110326-03A
22110326-04A	22110326-05A	22110326-06A
22110326-07A	22110326-08A	22110326-09A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Pace Analytical Services, LLC  
 Work Order: 22110326  
 Project: 10631764

# QC BATCH REPORT

Batch ID: **206353** Instrument ID **SPEC-04** Method: **SW7196A**

MBLK		Sample ID: <b>MBLK-206353-206353</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID:		Run ID: <b>SPEC-04_221108A</b>				SeqNo: <b>8988642</b>		Prep Date: <b>11/5/2022</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

MBLK		Sample ID: <b>MBLK-206353-206353</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID:		Run ID: <b>SPEC-03_221108F</b>				SeqNo: <b>8988714</b>		Prep Date: <b>11/5/2022</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

LCS		Sample ID: <b>LCS-206353-206353</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID:		Run ID: <b>SPEC-04_221108A</b>				SeqNo: <b>8988643</b>		Prep Date: <b>11/5/2022</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.47 1.0 5 0 89.4 80-120 0

LCS		Sample ID: <b>LCS-206353-206353</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID:		Run ID: <b>SPEC-03_221108F</b>				SeqNo: <b>8988715</b>		Prep Date: <b>11/5/2022</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.6 1.0 5 0 92 80-120 0

MS		Sample ID: <b>22110326-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID: <b>WILK-1 (0'-2')</b>		Run ID: <b>SPEC-04_221108A</b>				SeqNo: <b>8988646</b>		Prep Date: <b>11/5/2022</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 9.7 4.854 1.5 -30.9 75-125 0 S

MS		Sample ID: <b>22110326-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID: <b>WILK-1 (0'-2')</b>		Run ID: <b>SPEC-04_221108A</b>				SeqNo: <b>8988648</b>		Prep Date: <b>11/5/2022</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 97 2312 1.5 -0.065 75-125 0 S

MSD		Sample ID: <b>22110326-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/8/2022 07:24 PM</b>		
Client ID: <b>WILK-1 (0'-2')</b>		Run ID: <b>SPEC-04_221108A</b>				SeqNo: <b>8988647</b>		Prep Date: <b>11/5/2022</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 9.5 4.762 1.5 -31.5 75-125 6.408 0 20 S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Pace Analytical Services, LLC  
**Work Order:** 22110326  
**Project:** 10631764

# QC BATCH REPORT

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Batch ID: **206353**      Instrument ID **SPEC-04**      Method: **SW7196A**

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**The following samples were analyzed in this batch:**

22110326-01A	22110326-02A	22110326-03A
22110326-04A	22110326-05A	22110326-06A
22110326-07A	22110326-08A	22110326-09A

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**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



Client: Pace Analytical Services, LLC  
 Work Order: 22110326  
 Project: 10631764

# QC BATCH REPORT

Batch ID: **R357514** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: <b>WBLKS-R357514</b>				Units: % of sample		Analysis Date: <b>11/7/2022 02:21 PM</b>		
Client ID:		Run ID: <b>MOIST_221107C</b>		SeqNo: <b>8980399</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.10								

LCS		Sample ID: <b>LCS-R357514</b>				Units: % of sample		Analysis Date: <b>11/7/2022 02:21 PM</b>		
Client ID:		Run ID: <b>MOIST_221107C</b>		SeqNo: <b>8980398</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.99	0.10	100	0	100	98-102	0			

DUP		Sample ID: <b>22110394-01A DUP</b>				Units: % of sample		Analysis Date: <b>11/7/2022 02:21 PM</b>		
Client ID:		Run ID: <b>MOIST_221107C</b>		SeqNo: <b>8980390</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.12	0.10	0	0	0	0-0	20.34	17.2	10	R

DUP		Sample ID: <b>22110542-01A DUP</b>				Units: % of sample		Analysis Date: <b>11/7/2022 02:21 PM</b>		
Client ID:		Run ID: <b>MOIST_221107C</b>		SeqNo: <b>8980397</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.38	0.10	0	0	0	0-0	10.4	0.192	10	

The following samples were analyzed in this batch:

22110326-01A	22110326-02A	22110326-03A
22110326-04A	22110326-05A	22110326-06A
22110326-07A	22110326-08A	22110326-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



### Sample Receipt Checklist

Client Name: **PACE MN**

Date/Time Received: **02-Nov-22 08:30**

Work Order: **22110326**

Received by: **JD**

Checklist completed by Jason Delinger 03-Nov-22  
eSignature Date

Reviewed by: Chad Whelton 03-Nov-22  
eSignature Date

Matrices: solid

Carrier name: FedEx

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Container/Temp Blank temperature in compliance? Yes  No

Sample(s) received on ice? Yes  No

Temperature(s)/Thermometer(s): 3.0/4.0 c ir3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 11/3/2022 1:21:56 PM

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH acceptable upon receipt? Yes  No  N/A

pH adjusted? Yes  No  N/A

pH adjusted by:

Login Notes:

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Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: