# **FY2021 Investigation Summary**

# Begin Demolition Landfill MPCA Site ID: SW #134 Plymouth, Minnesota

Prepared for:

Prepared by:





Mr. Andrew Eddy Minnesota Pollution Control Agency 520 Lafayette Road North St. Paul, Minnesota 55155 Bay West LLC 5 Empire Drive St. Paul, Minnesota 55103

June 2021

**Bay West Job # J200408** 

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# 1.0 INTRODUCTION

This report summarizes the results of the FY2021 fieldwork performed at the Begin Demolition Landfill (the Site) located at 3900, 3901, 3950 Vinewood Lane North in Plymouth, Minnesota. This report summarizes Bay West's data collection activities and presents Bay West's conclusions and recommendations regarding the risks posed to surrounding receptors by contamination remaining at the Site. The fieldwork was performed in accordance with our work plan dated August 28, 2020, and through subsequent consultation with the MPCA.

A summary of background information is provided in **Section 2.0**. The scope of work is summarized in **Section 3.0**. The landfill waste research is discussed in **Section 4.0**. Results from the fieldwork activities are included in **Section 5.0**. **Section 6.0** presents Bay West's conclusions and recommendations regarding the Site. The location of the Site and the Site details are shown on **Figures 1** and **2**, respectively. Maps depicting soil and groundwater data are included on **Figures 3-6**.

# 2.0 BACKGROUND INFORMATION

During FY2020, Bay West performed soil and groundwater investigations along the edges of the Site boundary to further evaluate the extent of impacts identified previously by Bay West and through review of historical investigation data.

- Four soil borings were advanced along the southern boundary of the 3901 Vinewood Lane property parcel to collect eight soil samples for analysis of gasoline range organics (GRO), diesel range organics (DRO), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), RCRA metals, and polyfluorinated chemicals (PFCs).
- Installed five temporary groundwater monitoring wells (TW05 TW09) within the 3900 Vinewood Lane parcel to collect groundwater samples for analysis of DRO, VOCs, PCBs, PFCs, dioxins, metals (dissolved; 6020A MET ICPMS), mercury (dissolved), pesticides, gross alpha, ammonia as nitrogen, nitrogen as nitrate, total organic nitrogen, and total Kjeldahl nitrogen.

Additionally, Bay West performed a historical file review of records related to the landfill to better understand the types and quantities of wastes disposed at the Site.

The Bay West FY2020 annual report made the following conclusions based on the aforementioned scope of services:

- With the exception of several detections of arsenic above the MPCA Soil Leaching Values (SLV) at depth, none of the contaminants of concern were identified in soil analytical samples at concentrations above their respective MPCA [Soil Leaching Values] SLVs or Soil Reference Values (SRVs).
- DRO, perfluorooctanoic acid (PFOA), and PFOA plus perfluorooctanesulfate (PFOS) were
  detected in one or more groundwater samples at concentrations above their respective
  action levels. The remaining PFCs, VOCs, PCBs, dioxins, metals, pesticides, gross alpha,
  and nitrogen series analytes were not detected at concentrations above their respective
  action levels.
- Review of the available historical landfill records provided by city, county, and state sources did not reveal any significant new discoveries related to historical waste disposal at the Site.

In the FY2020 annual report Bay West recommended the following for future investigations:

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- No further assessment for soil was recommended assuming continuation of current Site use; Site redevelopment or change in use to sensitive population may necessitate additional surface soil characterization.
- To delineate groundwater impacts above action levels, Bay West recommended installation of permanent monitoring wells on the western side of the Site, as well as installation of one or more down-gradient offsite wells to track potential impact migration.

The MPCA discussed the results and scope of work with Bay West in July and August 2020 and authorized execution of the FY2021 scope of services on September 3, 2020.

# 3.0 SCOPE OF WORK

During FY2021, Bay West performed a soil and groundwater investigation at locations near the previous temporary well locations assessed in FY2020 in order to install permanent groundwater monitoring wells to understand local groundwater gradient and the current extent and magnitude of previously-detected groundwater impacts. The FY2021 scope of services and deviations from the work plan are summarized below.

# 3.1 Task 1 – Soil and Groundwater Investigation

- Advanced 5 soil borings (SW134-MW01 through SW134-MW05) at depths up to 95 feet below the ground surface (bgs) using hollow-stem auger technology. The soil borings were installed in the vicinity of the temporary wells advanced during FY2020 investigations and in the presumed down-gradient direction from the Site, as depicted on attached Figure 2.
  - Continuously logged the lithology and waste observed in the soil borings. Screened the soil borings for organic vapors with a photoionization detector (PID). A combustible gas indicator/PID meter also was used to monitor explosive gas conditions and organic vapors potentially emanating from the subsurface during drilling activities.
  - Collected one soil sample from each soil boring from the depth interval exhibiting the highest organic vapor reading. If no organic vapors were detected exceeding 10 part per million (ppm), the soil samples were collected from intervals exhibiting landfill waste impacts.

A total of 6 soil samples (including a QA/QC sample duplicate) were submitted for laboratory analysis of DRO, dioxins/furans, and per- and polyfluoroalkyl substances (PFAS), which replaces PFC analysis. Samples for analysis of dioxins via USEPA Method 8290A was provided by the laboratory instead of the originally requested 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) equivalents due to laboratory error.

- Installed five permanent groundwater monitoring wells within the previously-drilled soil boreholes SW134-MW01 through SW134-MW05. Depth to groundwater ranged from approximately 30 ft to 80 ft below ground surface (bgs).
  - To collect groundwater samples from the permanent monitoring wells, Bay West employed the low-flow sampling technique. U.S. EPA has developed this technique (EPA EQASOP-GW4) to minimize stress on the well and to provide the most representative sample of formation water. Three quarterly rounds of groundwater sampling were completed; October 2020, February 2021, and May 2021.

A total of 18 groundwater samples, including QC samples, were submitted for laboratory analysis including DRO, PFAS, dioxins/furans, and nitrogen series (ammonia as nitrogen, nitrogen as nitrate, total organic nitrogen, and total Kjeldahl nitrogen). Analysis for PFAS

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following the October 2020 sampling event was completed by EPA Method 537M. Following the February and May 2021 sampling events, the laboratory provided results for PFAS using Method PFAS-ID36, a modified version of EPA Method 537 which includes results for an additional 29 PFAS at no additional charge to the project. The PFAS results from each analytical method are summarized on the attached **Table 2**.

- The investigation derived waste (IDW) (i.e., soil boring cuttings and associated landfill debris) was containerized in thirty (30) 55-gallon steel drums following the drilling activities. An IDW soil sample was collected from the drummed IDW and submitted for laboratory analysis of toxicity characteristic leaching procedure (TCLP) VOCs, TCLP semi-volatile organic compounds, and TCLP RCRA metals. The IDW drums were disposed at a State-contracted disposal facility for non-hazardous waste. Copies of the IDW drum characterization sample laboratory results and disposal documentation are attached in Appendix A.
- During FY2021, the following was observed at onsite monitoring points:
  - PSG-03, located on the eastern edge of the Site in the parking lot, appeared to be severely bent on the outer casing;
  - PSG-06, located along driveway on the north side of the MGM Liquor tenant space, was missing its sampling vault cover; and
  - An undocumented historical groundwater monitoring well was identified on the west side of the 3900 Vinewood Lane parcel in right-of-way.

On June 7, 2021, Bay West oversaw replacement of the PSG-03 outer casing and rebuilding of the PSG-06 at-grade vault. The undocumented well was sealed in accordance with MDH requirements. Photographs and field notes from the repair event are included in **Appendix B**.

# 3.2 Task 2 - Vapor Intrusion Assessment

Bay West had proposed the collection of a second round of sub-slab vapor samples from the following properties: 13300 39th Ave N, 13294 39th Ave N, and 13039th Ave N (three properties total). Due to budgetary constraints and access concerns during the on-going COVID-19 pandemic, site access was not obtained for the referenced properties.

# 3.3 Task 3 – Data Management and Reporting

The remaining deliverables prepared by Bay West are included in this report.

# 4.0 FIELD INVESTIGATION RESULTS

Soil boring headspace readings are included as **Table 1**. Groundwater sampling logs and soil boring logs are included as **Appendix C**. Groundwater elevations collected from the top of the ground surface or top of casing are summarized in **Table 2**.

# 4.1 Soil Characterization

Soil boring advancement and monitoring well installation was completed between September 20 and October 8, 2020. Consistent with previous investigations as indicated in the current boring logs, the Site is underlain by landfill materials from depths of approximately 10 feet bgs to at least 40 feet bgs. Landfill materials encountered during the 2021 investigation included fill soils consisting of silty sand, silt, and/or clay; wood fragments; glass; decaying organic matter; and concrete debris. Below the observed landfill materials, the Site is underlain by interbedded lenses of fine-grained to silty sand, silt with clay, and clay, with trace to little amounts of gravel. MW-5, located approximately 650 feet down-gradient from the Site's southeastern corner, is underlain

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by alternating layers of gravelly sands, sandy clays, and gravelly clays to depths of at least 42 feet bgs. Soil headspace readings measured using a PID and the resealable bag headspace technique were recorded between 0.0 and 55.3 ppm; staining and/or free petroleum product was not observed at any of the soil borings.

Bay West compiled the soil borings advanced during FY2020 and FY2021 to create soil cross-sections to better understand subsurface conditions at the Site and surrounding area. Below the surface, the Site is underlain by mixed fill soils with fine matrices; silts and clays with minor sand and gravel components. The identified silt and clay lenses are discontinuous but overlapping between well locations, with intermittent pockets of sand and gravel between them. MW-02, MW-03, and MW-05 are screened within a deeper sand and gravel lens; MW-04 is screened in a silty and sand lense located below denser layers, and MW-01 is screened within sand at a similar depth to the other wells screened in sand and gravel.

The location of the cross-section lines are displayed on **Figure 3**, and the A-A' and B-B' cross section transects are included as **Figures 4A** and **4B**, respectively.

# 4.2 Groundwater Investigation

Groundwater was encountered in sand lenses below overlying landfill soils and clays first encountered between approximately 30 feet bgs (MW-5) to 90 feet bgs (MW-3). The depth to groundwater measured below top of well casing (btc) in the monitoring wells ranged from 31 feet btc (MW-5) to 81 feet btc. A sheen was observed on the purge water from all five monitoring wells during the October 2020 sampling event, though no free product was observed during any of the quarterly monitoring sampling events.

Well recharge was adequate for sampling from each well, with the exception of MW-3; inadequate sampling volume prevented collection of a dioxin/furan sample during the October 2020 sampling event.

No other analysis was excluded, except for the complete nitrogen series from MW-5 during the October 2020 sampling event due to sampler omission. This missing sampling data did not affect Bay West's conclusions regarding current Site conditions or our recommendations.

# 5.0 LABORATORY ANALYTICAL RESULTS

# 5.1 Soil

The soil results were compared to the MPCA 2013 screening soil leaching values (SLVs) and MPCA 2021 industrial and residential soil reference values (SRVs). The soil results are summarized in **Table 3**. The soil results that exceed screening criteria are summarized on **Figure 2**. The laboratory analytical reports are included in **Appendix D**. The soil results are summarized below by analyte type.

# 5.1.1 DRO

There are no applicable SLVs and SRVs for DRO; therefore, the DRO concentrations were compared to the MPCA Best Management Practices for the Off-Site Reuse of Unregulated Fill Criteria of 100 milligrams per kilogram (mg/kg). DRO was not detected at concentrations above the unregulated fill criteria of 100 mg/kg in any of the soil samples.

# 5.1.2 PFAS

PFAS were not detected above laboratory reporting limits in any of the soil samples submitted for analysis.

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# 5.1.3 Dioxins/Furans

The following dioxins/furans were detected in one or more soil samples at concentrations above laboratory reporting limits: 1,2,3,4,6,7,8-heptachlorodibenzodioxin (1,2,3,4,6,7,8-HpCDD); octachlorodibenzodioxin (OCDD); total of heptachlorodibenzodioxin isomers (Total HpCDD); total of hexachlorodibenzodioxin isomers (Total HxCDD); total of pentachlorodibenzofuran (Total PeCDF); Total TCDD; and total of tetrachlorodibenzofuran (TCDF) isomers. No action levels have been set for the above dioxins and furans. The remaining dioxins/furans analyzed were either detected at estimated concentrations below their respective action levels or not detected above the laboratory reporting limits in the soil samples submitted for analysis.

# 5.2 Groundwater

The groundwater results were compared to the Minnesota Department of Health (MDH) health risk limits (HRLs), health-based values (HBVs), and risk assessment advice (RAAs). For analytes without applicable state action levels, the US EPA Maximum Contaminant Levels (MCLs) or Health Advisory Limits (HALs) established for drinking water were used. The Groundwater results are summarized on **Table 4**. The groundwater results that exceed screening criteria are summarized on **Figure 3**. The groundwater results are summarized below by analyte type.

# 5.2.1 DRO

DRO was detected at estimated concentrations 0.1 milligrams per liter (mg/L) in MW-03 during the October 2020 and February 2021 sampling events, above the DRO RAA of 0.050 mg/L. DRO was not detected above the laboratory reporting limit in the remaining groundwater samples submitted for analysis.

# 5.2.2 Dioxins/furans

Dioxins and furans, including 2,3,7,8-TCDD, were not detected at concentrations above their respective laboratory reporting limits in any of the groundwater samples submitted for analysis.

# 5.2.3 1,4-Dioxane

1,4-dioxane was detected in MW-01 (each sampling event), MW-03 (October 2020), and MW-04 (October 2020 and May 2021) at concentrations ranging from 1.5 micrograms per liter ( $\mu$ g/L) to 16.7  $\mu$ g/L (estimated), above the MDH action level of 1  $\mu$ g/L. 1,4-dioxane was not detected above laboratory reporting limits in any of the remaining groundwater samples submitted for analysis.

# 5.2.4 PFAS

Perfluorooctanoic acid (PFOA) was detected in MW-02 (October 2020 and February 2021) at concentrations of 0.071 and 0.081, respectively, below the USEPA health advisory level (HAL: 0.070 ug/L) but above the Minnesota PCA HRL level of PFOA (0.035 ug/L). Per USEPA guidance, when PFOS and PFOA are both present, their concentrations should be combined and compared to the 0.070 ug/L HAL. The combined PFOS+PFOA concentrations in the MW-02 October 2020 and February 2021 groundwater samples exceeded the USEPA HAL.

The remaining PFAS were detected at concentrations above their respectively laboratory limits but below their respective screening criteria or not detected above laboratory reporting limits in any of the remaining groundwater samples submitted for analysis.

# 5.2.5 Nitrogen

Nitrogen as calculated by ammonia as nitrogen (USEPA Method 350.1), total Kjeldahl nitrogen (USEPA Method 351.2), total organic nitrogen, and nitrate/nitrite (Method SM4500) were not detected at concentrations in excesses of their applicable screening criteria in any of the groundwater samples submitted for analysis.

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# 6.0 CONCLUSIONS AND RECOMMENDATIONS

Bay West makes the following conclusions and recommendations regarding the potential risks posed by the Site contamination:

# 6.1 Soil

Outside of buried landfill debris, the Site appears to be underlain with dense unconsolidated sediments in the form of clays and silts with sand and gravel components. Below the clays and silts are water-bearing sand lenses, where the permanent monitoring wells are screened.

DRO, dioxins/furans, and PFAS were not detected in any of the submitted soil samples for laboratory analysis at concentrations above their respective action levels.

Bay West understands that future Site use will continue as a retail shopping center. Based on the lack of immediate receptors and exposure pathways to known contaminants at the Site and the lack of regulatory exceedances in the FY2021 collected soil samples, further assessment of soil conditions is not recommended at this time.

# 6.2 Groundwater

DRO, PFOS, 1,4-dioxane, and PFOS + PFOA were detected in one or more groundwater samples at concentrations above their respective action levels. The remaining PFAS, nitrogen series, and dioxins/furans analyzed were not detected at concentrations above their respective action levels in any of the groundwater samples submitted for analysis.

Impacts to groundwater do not appear to be delineated to the east (1,4-dioxane) and south (PFOS, PFOS + PFOA). Additionally, the highest detections of 1,4-dioxane were from samples from MW-01, located up-gradient and neat the northern limit of the landfill footprint. This data may suggest an off-site, upgradient source for 1,4-dioxane. Based on a previously conducted groundwater risk assessment, the identified groundwater impacts do not appear to pose a risk to surrounding water supply wells at this time. Bay West recommends continued sampling from the existing monitoring wells for a full suite of landfill analysis parameters to establish a baseline of groundwater conditions per guidance for closed and demolition landfills.

If further delineation of 1,4-dioxane and PFAS impacts to groundwater is desired, Bay West recommends installing additional permanent wells offsite to the north, east, and south of where impacts above action levels were observed.

# 6.3 Soil Gas

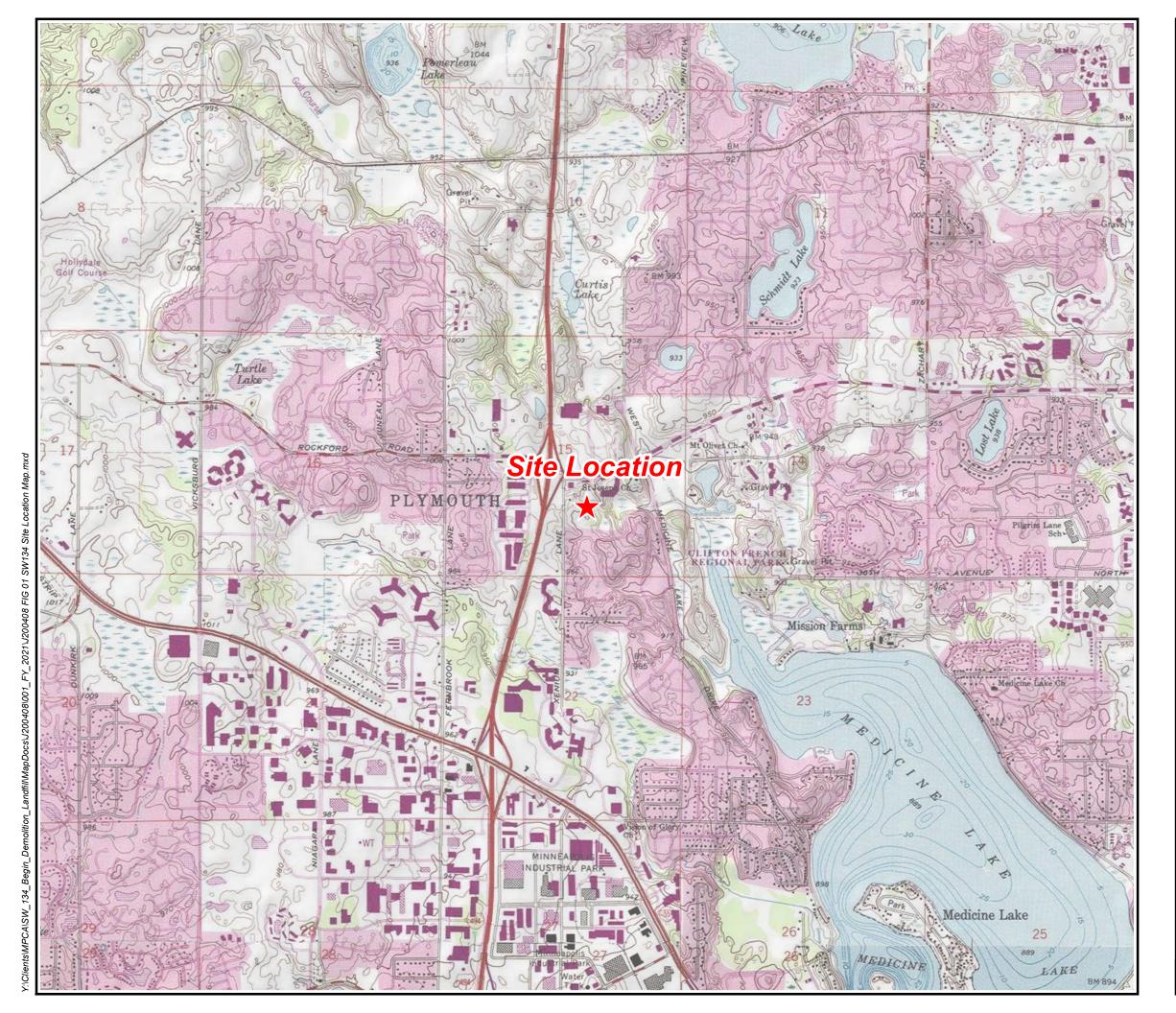
Based on lack of access, the planned second round of sub-slab soil vapor sampling planned for three offsite residences was not completed during FY2021.

To complete vapor intrusion assessment for the Site and surrounding area, Bay West recommends additional attempts to complete a second round of sampling from the properties located at 13300 39th Ave N, 13294 39th Ave N, and 13039th Ave N. If access cannot be obtained after further effort, Bay West recommends collection of soil gas samples in the nearby road right-of-way to complete delineation of the vapor intrusion area of concern.

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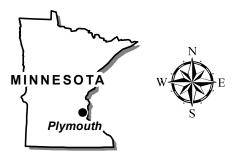
June 2020 BWJ190601



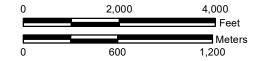
# Site Location Map

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: National Geographic Society, i-cubed





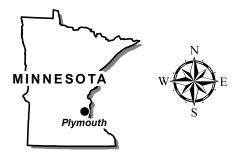


Drawn By: N.J. Date Drawn/Revised:6/10/2021 Project No.J200408

# Site Map

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018



- Monitoring Well
- Unidentified Well (Sealed 6/7/21)
- Permanent Soil-Gas Point (No Waste Observed in Soil Probe)
- Permanent Soil-Gas Point (Waste Observed in Soil Probe)
- FY21 O&M Repairs
- Site Boundary
- **Parcel Boundaries**

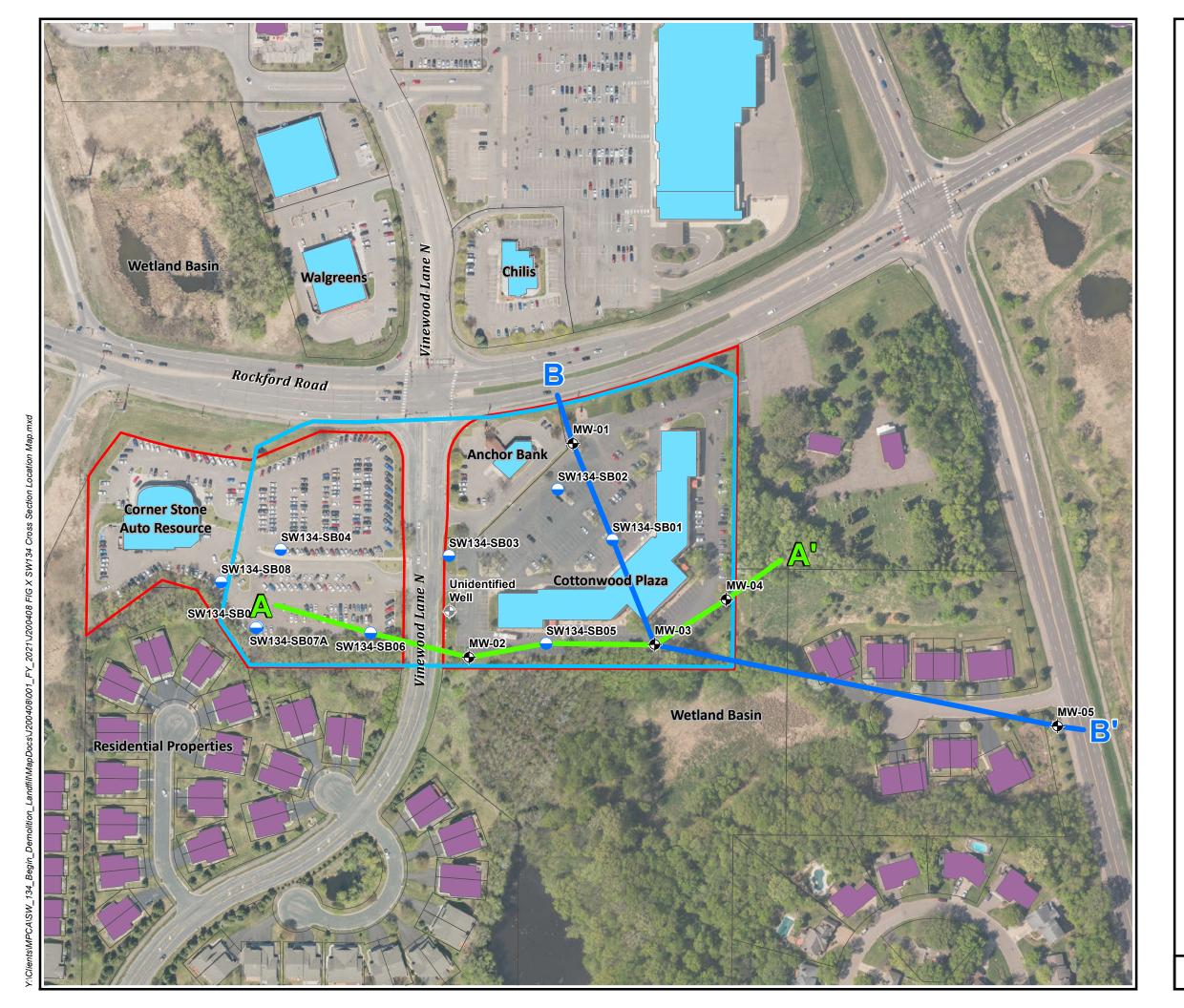
# NOTES:

(12ft) - Final depth of landfill waste in feet below ground surface

The final depth of landfill waste is not indicated for the permanent soil gas points, because the soil gas points were installed to an approximate depth of 10 feet bgs.



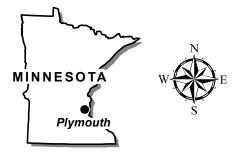
Date Drawn/Revised:6/10/2021 Project No.J200408



# **Cross Section Location Map**

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



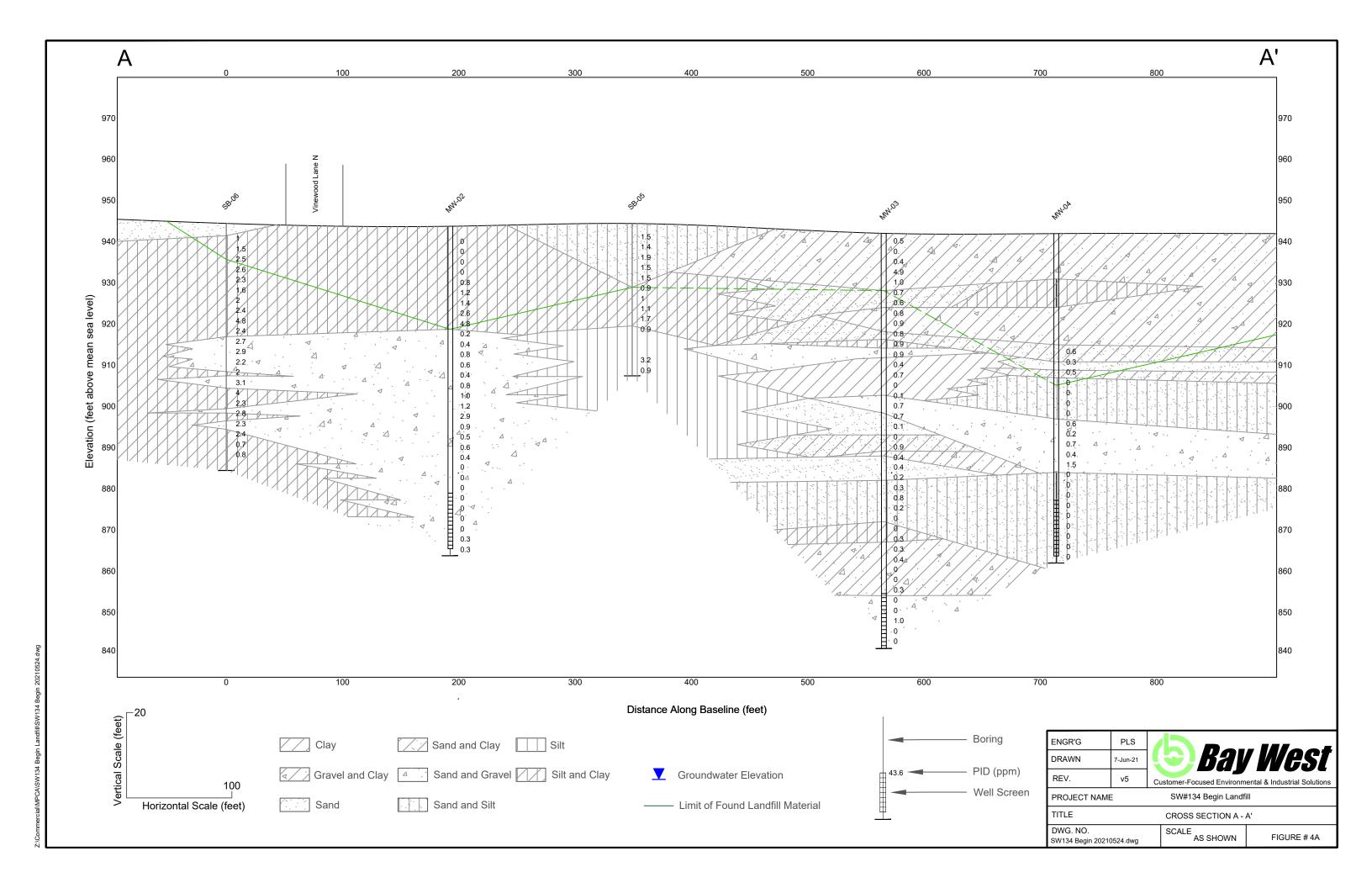
Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018

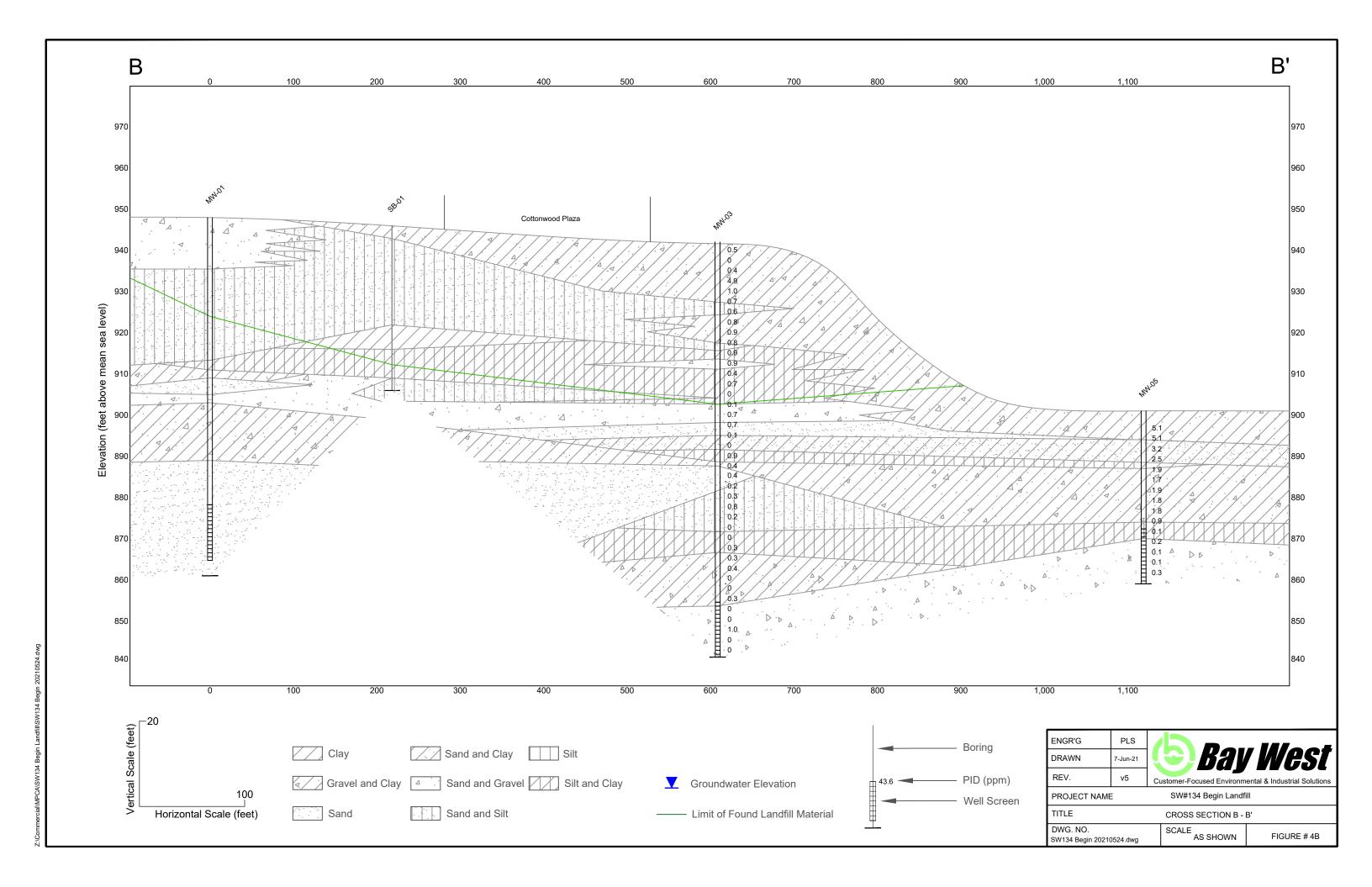


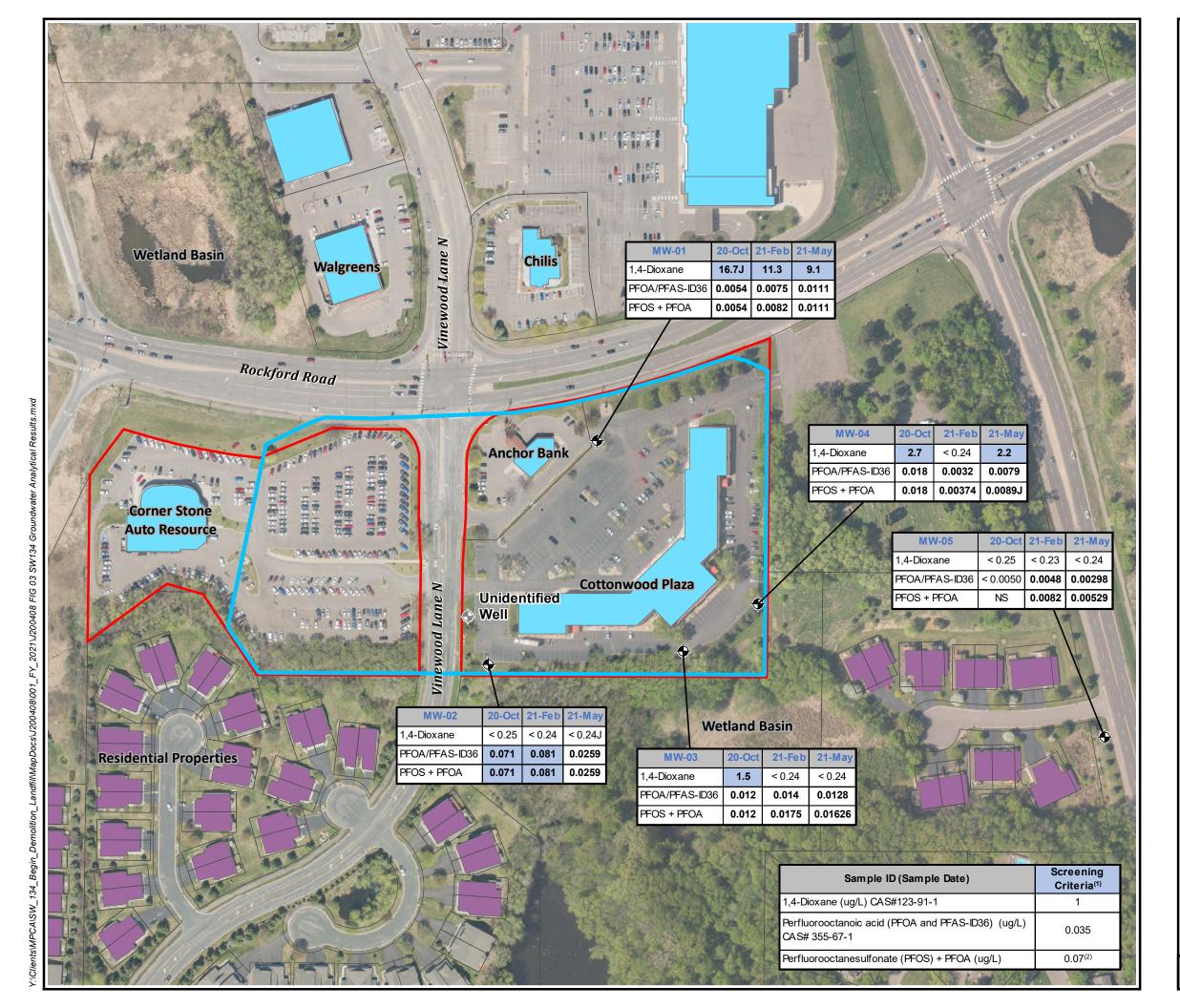
- Soil Boring (Bay West)
- Monitoring Well
- Unidentified Well (Sealed 6/7/21)
- Cross Section Line A to A'
- Cross Section Line B to B'
- Estimated Dump Site
- Site Boundary
- Parcel Boundaries
  - Commercial or Industrial Properties
- Residential



Date Drawn/Revised:6/26/2021 Project No.J200408



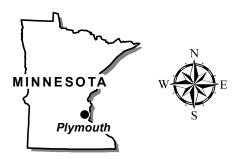




# **Groundwater Analytical Results**

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018



Monitoring Well

Unidentified Well (Sealed 6/7/21)

Estimated Dump Site

Site Boundary

Parcel Boundaries

Commercial or Industrial Properties

Residential

## Notes:

Bold result = Detected above laboratory reporting limits

< = Not detected above laboratory reporting limit</p>

<u>Underlined result</u> = The detection limit exceeds the low est applicable screening criteria

NS = Not tested for that analyte

mg/L = milligrams per liter

ıg/L = micrograms per liter

HRL = Minnesota Department of Health (MDH) Health Risk Limit

HBV = MDH Health-Based Value

EPA = US Environmental Protection Agency

MPCA = Minnesota Pollution Control Agency Guidance c-prp4-01

1)Results were compared to the lowest applicable MDH HRL,

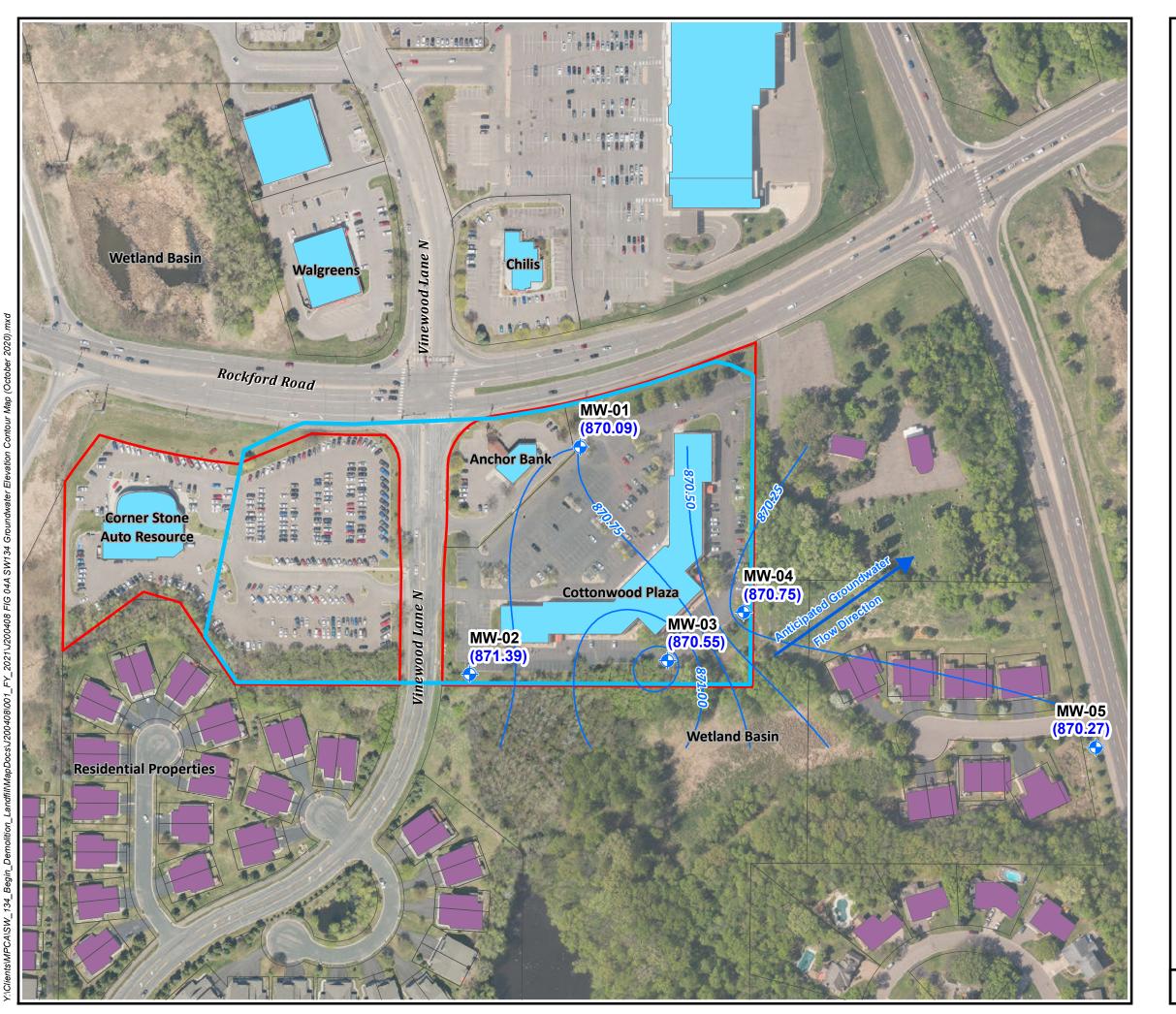
HBV, or RAA, or other applicable screening criteria.

<sup>2)</sup>US Environmental Protection Agency (USEPA) health advisory evel (HAL) for PFOS + PFOA (November 2016).

Blue shading = Result exceeds applicable screening criteria



Date Drawn/Revised:6/10/2021 Project No.J190601

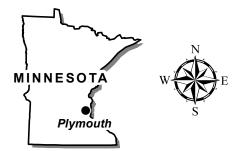


# Figure 6A

# **Groundwater Elevation Contour Map** (October 2020)

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



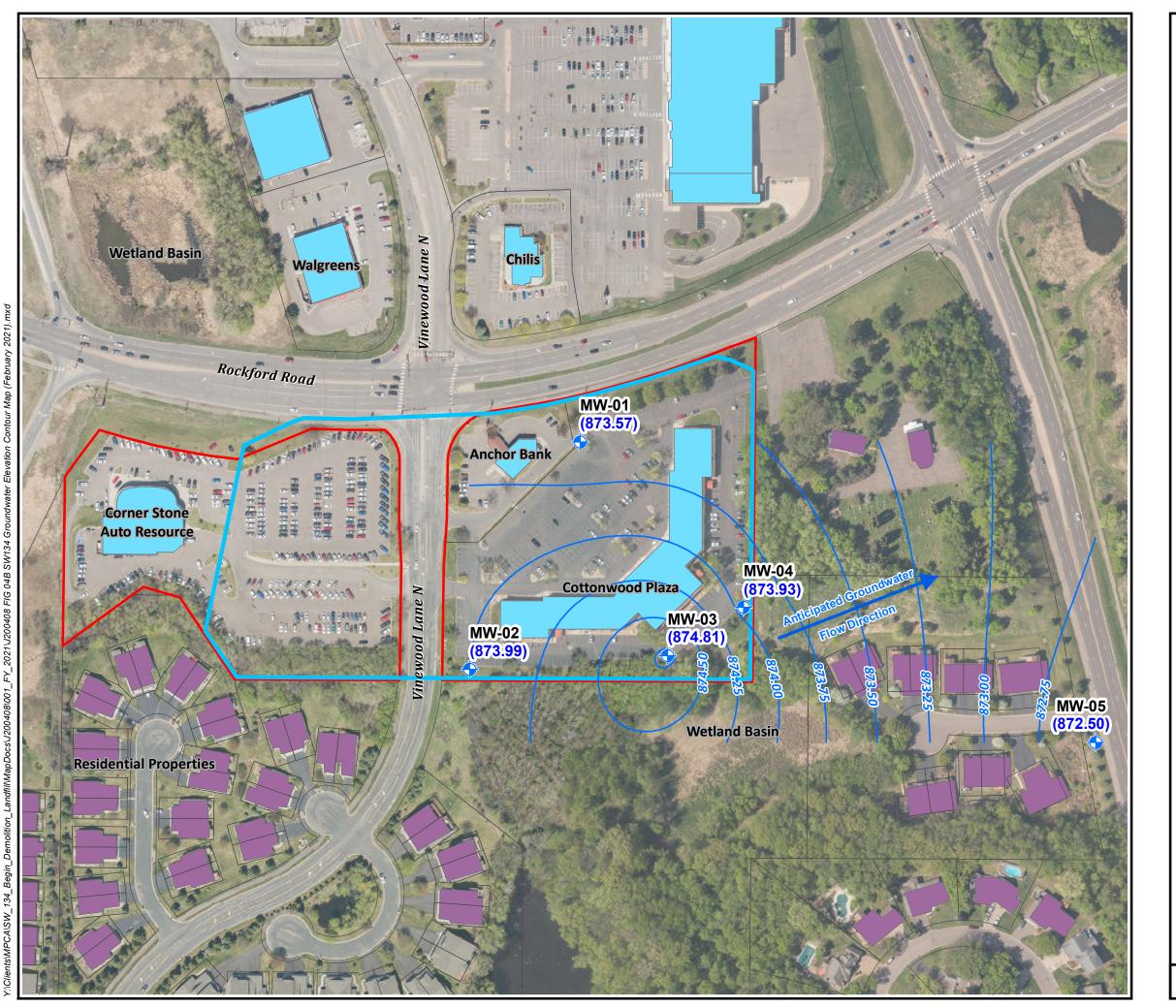
Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018



- Monitoring Well
  - **Groundwater Elevation Contour Line**
- (870.75) Groundwater Elevation at Well (ft amsl)
- **Estimated Dump Site**
- Site Boundary
- **Parcel Boundaries** 
  - **Commercial or Industrial Properties**
  - Residential



Date Drawn/Revised:6/10/2021 Project No.J200408

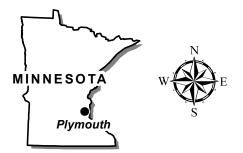


# Figure 6B

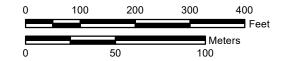
# **Groundwater Elevation Contour Map** (February 2021)

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



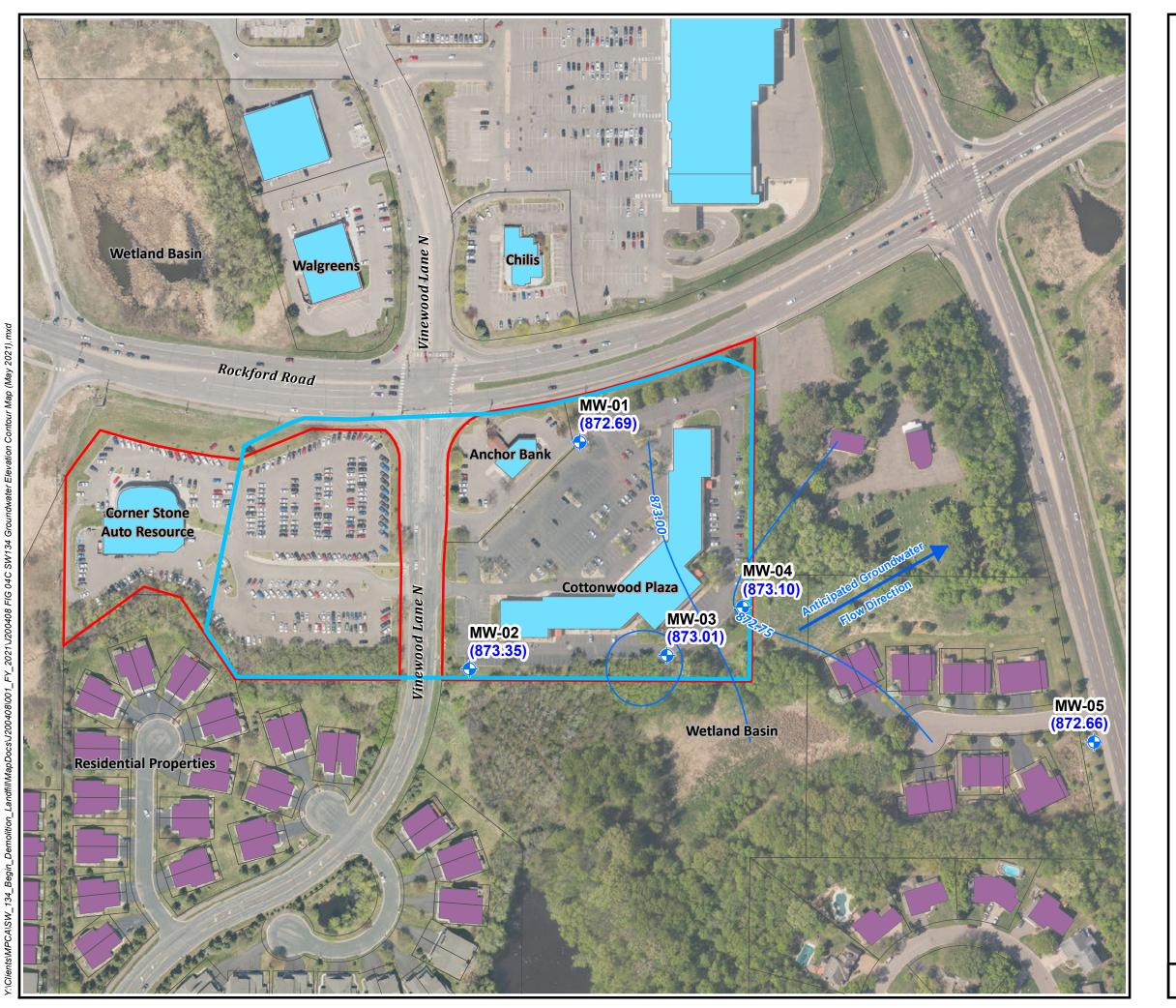
Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018



- Monitoring Well
  - **Groundwater Elevation Contour Line**
- (872.50) Groundwater Elevation at Well (ft amsl)
- **Estimated Dump Site**
- Site Boundary
- **Parcel Boundaries** 
  - **Commercial or Industrial Properties**
- Residential



Date Drawn/Revised:6/11/2021 Project No.J200408

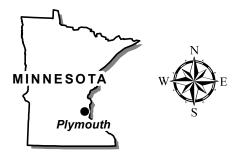


# Figure 6C

# **Groundwater Elevation Contour Map** (May 2021)

# SW#134 - Begin Demolition Landfill

3900, 3901, 3950 Vinewood Lane North Plymouth, MN 55441



Map Projection: NAD 1983 UTM Zone 15 N, Meters Basemap: Hennepin County Aerial Imagery, 2018



- Monitoring Well
  - **Groundwater Elevation Contour Line**
- (872.66) Groundwater Elevation at Well (ft amsl)
- **Estimated Dump Site**
- Site Boundary
- **Parcel Boundaries** 
  - **Commercial or Industrial Properties**
- Residential



Date Drawn/Revised:6/11/2021 Project No.J200408



# **Tables**

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# TABLE 1

# Results of Soil Headspace Screening (PID)

# Field Investigation 2020 SW134 Begin Demolition Landfill

3900, 3901, and 3950 Vinewood Lane North, Plymouth, MN Bay West Job J200408

# **Bay West**

			Sample ID		
Depth	SB/MW-04	SB/MW-03	SB/MW-02		SB/MW-05
(ft bgs)	9/22/20	9/24/20	10/6/21	9/21/20	10/9/20
0-5	0.0	0.5	0.0	0.4	5.1
	0.0	0.0	0.0	0.8	5.1
5-10	0.0	0.4	0.0	0.0	3.2
	0.0	4.9	0.0	0.0	2.5
10-15	0.5	1.0	0.0	11.8	1.9
		0.7	8.0	12.1	
15-20	0.5	0.6	1.2	22.4	1.7
	0.0	0.8	1.4	55.3	1.9
20-25	0.4	0.9	2.6	4.4	1.8
	0.6	0.8	4.8	7.7	1.8
25-30	0.3	0.9	0.2	7.9	0.9
	0.4			4.0	
30-35	0.6	0.9	0.4	4.0	0.1
	0.3	0.4	0.8	4.8	0.2
35-40	0.5	0.7	0.6	4.7	0.1
	0.0	0.0	0.4	4.1	0.1
40-45	0.0	0.1	0.8	4.1	0.3
	0.0	0.7	0.0		
45-50	0.0	0.7	1.0	3.9	
	0.6	0.1	1.2	4.3	
50-55	0.2	0.0	2.7	0.0	
	0.7	0.9	0.9	0.0	
55-60	0.4	0.4	0.5	4.0	
	1.5				
60-65	0.0	0.4	0.6	3.2	
	0.0	0.2	0.4	1.4	
65-70	0.0	0.3	0.0	1.7	
	0.0	0.8	0.0	1.0	
70-75	0.0	0.2	0.0	1.0	
75-80	0.0	0.0	0.3	1.0	
	0.0	0.0	0.3	1.0	
80-85		0.3		1.1	
		0.0		0.8	
85-90		0.0			
		1.0			
90-95		0.0			
		0.0			
EOB	80'	55'	70'	87'	42'

All results in parts per million (ppm).

PID = Photoionization detector MiniRAE 3000

ft bgs = Feet below the ground surface

EOB = End of soil boring

NR = No Recovery

R! = Refusal

# **Table 2**Groundwater Elevations

# SW134 Begin Demolition Landfill 3900, 3901, and 3950 Vinewood Lane North, Plymouth, MN Bay West Job J200408



					Top of Casing	Bottom of Casing		Depth to GW	GW Elevation
Well ID	Northing	Easting	Elevation (meters)	Elevation (feet)	Cover (ft)	(ft)	Date	(TBOC) (ft)	(ft)
							October-21	80.60	870.09
							February-21	77.12	873.57
MW-1	4986121	464737	289.77	950.69	950.896	947.913	May-21	78.00	872.69
							October-21	74.90	871.39
							February-21	72.30	873.99
MW-2	4985991	464673	288.43	946.29	946.621	943.681	May-21	72.94	873.35
							October-21	73.91	870.55
							February-21	69.65	874.81
MW-3	4985998	464787	287.87	944.46	944.790	941.969	May-21	71.45	873.01
							October-21	73.83	870.75
							February-21	70.65	873.93
MW-4	4986026	464830	287.91	944.58	944.675	941.906	May-21	71.48	873.10
							October-21	33.58	870.27
							February-21	31.35	872.50
MW-5	4985949	465032	275.49	903.85	904.02	900.94	May-21	31.19	872.66

# Notes:

Elevations collected from the top of the well casing and used for the top and bottom of screen interval BTOC = below top of casing



#### TABLE 3

Soil Sample Analytical Reuslts SW134 Begin Demolition Landfill 3900, 3901, and 3950 Vinewood Lane North, Plymouth, MN Bay West Job J200408

Source					Bay West 2020				
Sample Name					MW-04	MW-03	MW-01	MW-02	MW-05
Sample Depth (feet)			MPCA SRV	MPCA SRV	(37-40)	(35-40)	(15-20)	(35-40)	(30-35)
Sample Date		MPCA SLV	INDUSTRIAL	RESIDENTIAL	9/22/2020	9/23/2020	10/7/2020	10/5/2020	10/9/2020
WI MOD DRO and WI MOD GRO	(mg/kg)								
WDRO C10-C28	WDRO C10-C28		100*		< 8.1	4.6J	5.9J	< 9.9	< 7.6
Dioxin method SW8290 (ng/Kg)									
1,2,3,4,6,7,8-HpCDD	35822-46-9	NE	NE	NE	< 0.53	< 0.3	14	< 0.15	< 0.095
1,2,3,4,6,7,8-HpCDF	67562-39-4	NE	NE	NE	0.25J	1.4J	4.7J	< 0.095	< 0.11
1,2,3,4,7,8,9-HpCDF	55673-89-7	NE	NE	NE	< 0.21	< 0.28	0.27J	< 0.12	< 0.093
1,2,3,4,7,8-HxCDD	39227-28-6	NE	NE	NE	< 0.28	< 0.31	< 0.17	< 0.19	< 0.15
1,2,3,4,7,8-HxCDF	70648-26-9	NE	NE	NE	< 0.12	< 0.18	< 0.1	< 0.1	< 0.098
1,2,3,6,7,8-HxCDD	57653-85-7	NE	NE	NE	< 0.25	0.28J	0.55J	< 0.13	< 0.12
1,2,3,6,7,8-HxCDF	57117-44-9	NE	NE	NE	< 0.081	< 0.15	< 0.13	< 0.12	< 0.068
1,2,3,7,8,9-HxCDD	19408-74-3	NE	5,000	2,000	< 0.22	< 0.2	0.46J	< 0.15	< 0.099
1,2,3,7,8,9-HxCDF	72918-21-9	NE	NE	NE	< 0.11	< 0.073	< 0.13	< 0.13	< 0.12
1,2,3,7,8-PeCDD	40321-76-4	NE	NE	NE	< 0.41	< 0.31	0.2J	< 0.16	< 0.13
1,2,3,7,8-PeCDF	57117-41-6	NE	NE	NE	< 0.59	< 0.33	< 0.12	< 0.063	< 0.079
2,3,4,6,7,8-HxCDF	60851-34-5	NE	NE	NE	< 0.089	0.18J	0.44J	< 0.11	0.062J
2,3,4,7,8-PeCDF	57117-31-4	NE	NE	NE	< 0.18	< 0.22	0.61J	< 0.061	< 0.042
2,3,7,8-TCDD	1746-01-6	299	28	7	< 0.48	< 0.23	0.38J	< 0.15	< 0.14
2,3,7,8-TCDF	51207-31-9	NE	NE	NE	< 0.29	< 0.35	0.32J	< 0.12	< 0.15
OCDD	3268-87-9	NE	NE	NE	< 0.46	< 0.42	150	< 0.39	< 0.27
OCDF	39001-02-0	NE	NE	NE	< 0.36	6.5J	8.5J	< 0.18	< 0.24
Total HpCDD	37871-00-4	NE	NE	NE	< 0.53	< 0.3	27	< 0.15	0.45J
Total HpCDF	38998-75-3	NE	NE	NE	< 0.17	3.8J	4.7J	< 0.11	< 0.1
Total HxCDD	34465-46-8	NE	NE	NE	7.2	3.8J	7.3	1.5J	1.5J
Total HxCDF	55684-94-1	NE	NE	NE	< 0.099	< 0.14J	7.7B	< 0.11	< 0.086
Total PeCDD	36088-22-9	NE	NE	NE	< 0.41	0.84J	2.6J	1.3J	1.8J
Total PeCDF	30402-15-4	NE	NE	NE	< 0.39	0.85J	6.6	< 0.062	< 0.06
Total TCDD	41903-57-5	299	28	7	0.74J	2.9	1.7	0.27J	1.3
Total TCDF	30402-14-3	NE	NE	NE	< 0.29	< 0.35	3.7	< 0.12	< 0.15
PFAS method MPCA Guidance P	PFCs (ug/kg)								
PFBA	375-22-4	NE	280,000	63,000	<0.094	< 0.094	<0.094	< 0.093	<0.094
PFPeA	2706-90-3	NE	NE	NE	<0.069	<0.068	<0.069	<0.068	<0.069
PFBS	45187-15-3	NE	77,000	5,700	<0.041	<0.041	<0.041	<0.040	<0.041
PFHxA	307-24-4	NE	NE	NE	<0.047	<0.047	<0.047	<0.046	<0.047
PFHxS	108427-53-8	NE	1,700	130	<0.052	<0.051	<0.052	<0.051	<0.052
PFOA	335-67-1	NE	3,200	240	<0.047	<0.047	<0.047	<0.046	<0.047
PFOS	45298-90-6	NE	14	41	<0.048	<0.047	<0.047	<0.047	<0.048

# Notes:

## Bolded data indicates a detectable amount of an analyte.

J = estimated value

< = not detected above laboratory reporting limit

mg/kg = milligrams per kilogram

ng/kg = nanograms per kilogram

ug/kg = microgram per kilogram

MPCA = Minnesota Pollution Control Agency

SLV = Soil Leaching Value

SRV = Soil Reference Value

NE = action level not established for an analyte

Blue shading = Result exceeds SLVs, published June 2013

Yellow shading = Result exceeds Residential SRVs, published May 2021

Orange shading = Result exceeds Industrial SRVs, published May 2021

Green shading = Result exceeds MPCA Unregulated Fill Criteria

<sup>\*</sup>From MPCA Best Management Practices for the Off-Site Reuse of Unregulated Fill Criteria of 100 mg/kg



# TABLE 4 Groundwater Sample Analytical Reuslts SW134 Begin Demolition Landfill 3900, 3901, and 3950 Vinewood Lane North, Plymouth, MN Bay West Job J200408

-												•						
Source	040#		Unit		MW-01			MW-02			Bay West 202 MW-03	20		MW-04			MW-05	
Sample Name	CAS#	HRL / HBV / RAA <sup>(1)</sup>	Unit	########	2/8/2021	5/3/2021	#######		5/4/2021	########		5/4/2021	########	2/9/2021	5/4/2021	#######	2/8/2021	5/5/2021
Sample Date EPA Method 8290 dioxins (pg/L)				**********	2/8/2021	5/3/2021	***********	2/10/2021	5/4/2021	***************************************	2/9/2021	5/4/2021	**********	2/9/2021	5/4/2021	**********	2/8/2021	5/5/2021
	54007.04.0	NE		-10		_	- 4.5	T					110			-40		
2,3,7,8-TCDF	51207-31-9	NE NE	pg/L	< 1.3		< 1.38	< 1.5	< 0.72	< 0.838			< 0.651	< 1.2			< 1.3	< 0.89	< 1.96
2,3,7,8-TCDD 1,2,3,7,8-PeCDF	1746-01-6 57117-41-6	NE NE	pg/L	< 1.6 < 0.76	< 0.87	< 1.38	< 1.7 < 0.71	< 0.72	< 0.838		< 1.1	< 0.051	< 1.2 < 1.1	< 1.1	< 1.35	< 1.0 < 0.69	< 0.89	< 1.96
2,3,4,7,8-PeCDF	57117-31-4	NE NE	pg/L pg/L	< 0.78			< 0.71						< 0.62			< 0.69		
1,2,3,7,8-PeCDD	40321-76-4	NE NE	pg/L pg/L	< 0.63			< 0.92						< 1.1			< 0.42		
1,2,3,4,7,8-HxCDF	70648-26-9	NE NE		< 0.45			< 0.69						< 0.88			< 0.57		
1,2,3,6,7,8-HxCDF	57117-44-9	NE NE	pg/L	< 0.45			< 0.69						< 0.48			< 0.50		
2,3,4,6,7,8-HxCDF	60851-34-5	NE NE	pg/L	< 0.71		1	< 0.68						< 0.49			< 0.49		
1,2,3,7,8,9-HxCDF	72918-21-9	NE NE	pg/L	< 0.66			< 0.00						< 0.49			< 0.49		
1,2,3,4,7,8-HxCDD	39227-28-6	NE NE	pg/L pg/L	< 1.1			< 0.56						< 0.87			< 0.03		
1,2,3,6,7,8-HxCDD	57653-85-7	NE NE	pg/L pg/L	< 0.85			< 0.64						< 0.90			< 0.76		
1,2,3,7,8,9-HxCDD	19408-74-3	NE NE		< 0.80			< 1.0						< 0.43			< 0.48		
1,2,3,4,6,7,8-HpCDF	67562-39-4	NE NE	pg/L	< 0.86			< 0.86						< 0.43			< 0.48		
1,2,3,4,6,7,6-HpCDF 1,2,3,4,7,8,9-HpCDF	55673-89-7	NE NE	pg/L pg/L	< 1.9			< 1.1						< 1.3			< 0.84		
1,2,3,4,6,7,8-HpCDD	35822-46-9	NE NE	pg/L	< 1.6			< 2.1						< 0.88			< 1.3		
OCDF	39001-02-0	NE NE	pg/L pg/L	< 2.6			< 2.8						< 1.7			< 1.8		
OCDD	3268-87-9	NE NE	pg/L pg/L	< 4.3			< 4.5						< 1.8			< 2.2		
Total TCDF	30402-14-3	NE NE	pg/L pg/L	< 1.3			< 1.5						< 1.2			< 1.3		
Total TCDD	41903-57-5	NE NE	pg/L	< 1.6			< 1.7						< 1.2			< 1.0		
Total PeCDF	30402-15-4	NE NE		< 0.68			< 0.55						< 0.84			< 0.56		
Total PeCDD	36088-22-9	NE NE	pg/L pg/L	< 0.63			< 0.92						< 1.1			< 0.90		
Total HxCDF	55684-94-1	NE NE	pg/L pg/L	< 0.59			< 0.92						< 0.71			< 0.55		
Total HxCDD	34465-46-8	NE NE	pg/L pg/L	< 0.59			< 0.72						< 0.71			< 0.55		
Total HpCDF	38998-75-3	NE NE	pg/L pg/L	< 1.4			< 1.0						< 1.0			< 0.68		
Total HpCDD	37871-00-4	NE NE		< 1.4			< 2.1						< 0.88			< 1.3		
TEQ	E17134024	NE NE	pg/L pg/L	< 1.6			< Z.1						< 0.88			< 1.3		
1,4-Dioxane EPA 8270E by SIM (ug/l		INC	l þg/L															
1,4-Dioxane EPA 6270E by SiM (ug/l	-) 123-91-1	1	ug/L	16.7J	11.3	9.1	< 0.25	< 0.24	< 0.24J	1.5	< 0.24	< 0.24	2.7	< 0.24	2.2	< 0.25	< 0.23	< 0.24
Various methods for nitrogen (mg/L	125-91-1		ug/L	10.73	11.5	3.1	10.25	1 0.24	V 0.243	1.0	10.24	· 0.24	2.1	10.24	2.2	10.20	V 0.25	1 0.24
Ammonia as N by EPA 350.1 REV.2	7664-41-7	NE	mg/L	< 0.10J	< 0.10	< 0.20	< 0.10	< 0.10	< 0.20	2.6	2.5	1.9	< 0.10	0.04J	< 0.20		0.07J	< 0.20
Total Kjeldahl Nitrogen by EPA 351.2	7727-37-9	NE NE	mg/L	< 0.50	< 0.50	< 0.50	0.47J	< 0.50	< 0.50	3.6	3.4	3.1	< 0.50	< 0.50	0.18J		< 0.50	0.20J
Total Organic Nitrogen (calculated)	NA	NE NE	mg/L	< 0.69	0.21J	< 0.69	0.47J	0.29J	< 0.69	1.0	0.91	1.3	< 0.69	< 0.60	< 0.69		< 0.60	< 0.69
Nitrate/Nitrite by SM 4500-NO3 H	14797-55-8	NE NE	mg/L	< 0.03	0.018J	0.094	0.57	0.24	0.089	0.034	0.053J	0.038	< 0.03	0.076J	0.056	< 0.02	< 0.10	0.013J
WI MOD DRO (mg/L)	14797-33-0	INL	IIIg/L	V 0.02	0.0103	0.034	0.57	0.24	0.003	0.034	0.0000	0.000	\ \ 0.02	0.0703	0.000	\ 0.02	V 0.10	0.0133
	WDRO C10-C28	NE NE	mg/L	< 0.10	< 0.10	< 0.098JB	< 0.10	< 0.10	< 0.098	0.10J	0.10J	< 0.10JB	< 0.11	< 0.10	< 0.098JB	< 0.098	< 0.10	< 0.098
Perfluorinated analytes SGS AXYS						0.00002	0.10		0.000	000		0.1005		0.10	0.00002	0.000	70.10	0.000
10:2 fluorotelomersulfonic acid (10:2 F	120226-60-0	NE	ug/L		< 0.00050	< 0.00050		< 0.00049	< 0.00048		< 0.00099	< 0.00085		< 0.00048	< 0.00049		< 0.00098	< 0.00094
11-chloroeicosafluoro-3-oxaundecane	763051-92-9	NE	ug/L		< 0.00049	< 0.00049		< 0.00047	< 0.00047		< 0.00097J	< 0.00083		< 0.00047J	< 0.00048		< 0.00096J	< 0.00092
2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-her	13252-13-6	NE	ug/L		< 0.00051J	< 0.00052		< 0.00050	< 0.00050		< 0.001J	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
4,8-dioxa-3H-perfluorononanoic acid (	919005-14-4	NE	ug/L		< 0.00049J			< 0.00048	< 0.00047		< 0.00097	< 0.00083		< 0.00047	< 0.00048		< 0.00096	< 0.00093
4:2 fluorotelomersulfonic acid (4:2 FTS	757124-72-4	NE	ug/L		< 0.00048J			< 0.00047J	< 0.00046		< 0.00096	< 0.00082		< 0.00047J	< 0.00048		< 0.00095J	< 0.00092
6:2 fluorotelomersulfonic acid (6:2 FTS	27619-97-2	NE	ug/L		< 0.00049	< 0.00049		< 0.00048	< 0.00047		< 0.00097J	< 0.00083		< 0.00048	< 0.00048		< 0.00096	< 0.00093
8:2 fluorotelomersulfonic acid (8:2 FTS	39108-34-4	NE	ug/L		< 0.00049	< 0.00050		< 0.00048	< 0.00048		< 0.00098	< 0.00084		< 0.00048	< 0.00049		< 0.00097	< 0.00094
9-chlorohexadecafluoro-3-oxanonane-	756426-58-1	NE	ug/L		< 0.00048	< 0.00048		< 0.00047	< 0.00046		< 0.00096	< 0.00082		< 0.00047	< 0.00047		< 0.00095J	< 0.00091
n-Ethyl perfluorooctanesulfonamidoac	2991-50-6	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
N-Ethylperfluorooctanesulfonamide (E	4151-50-2	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098R
N-Ethylperfluorooctanesulfonamidoeth	1691-99-2	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
n-Methyl perfluorooctanesulfonamidoa	2355-31-9	NE	ug/L		< 0.00051J			< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
N-Methylperfluorooctanesulfonamide	31506-32-8	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098R
N-Methylperfluorooctanesulfonamidoe	24448-09-7	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluorobutanesulfonate (PFBS)	45187-15-3	2	ug/L	< 0.0044			< 0.0018			< 0.0043			< 0.0019			< 0.0044		
Perfluorobutanesulfonic acid [PFAS-II]	375-73-5	2	ug/L		< 0.00046	0.00257		< 0.00045	0.00151		< 0.00091	0.00177		< 0.00044	0.00227		< 0.0009	0.00293
Perfluorobutanoic acid (PFBA)	375-22-4	7	ug/L	0.025			0.018			0.031			0.026			0.019		
Perfluorobutyric Acid [PFAS-ID36]	375-22-4	7	ug/L		0.040	0.0317		0.017	0.026		0.077	0.0571		0.042	0.0484		0.025	0.0254
Perfluorodecanesulfonic acid [PFAS-II	335-77-3	NE	ug/L		< 0.00050J			< 0.00049J	< 0.00048		< 0.00099J	< 0.00085		< 0.00048	< 0.00049		< 0.00098	< 0.00095
Perfluorodecanoic acid [PFAS-ID36]	335-76-2	NE	ug/L		< 0.00051			< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.001J	< 0.00098
Perfluorododecanesulfonic acid (PFDo		NE	ug/L		< 0.00050			< 0.00049	< 0.00048		< 0.00099	< 0.00085		< 0.00049J			< 0.00098	< 0.00095
Perfluorododecanoic acid [PFAS-ID36	307-55-1	NE	ug/L		< 0.00051			< 0.00050	< 0.00050		< 0.001J	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluoroheptanesulfonic acid [PFAS-	375-92-8	NE	ug/L		< 0.00049			< 0.00048	< 0.00047		< 0.00097J	< 0.00083		< 0.00048J	< 0.00048		< 0.00096J	< 0.00093
Perfluoroheptanoic acid [PFAS-ID36]	375-85-9	NE	ug/L		0.0024	0.00269		0.0019	0.00337		0.0047	0.00369		0.00069	0.0016		0.0021	0.00118
Perfluorohexadecanoic Acid (PFHXDA	67905-19-5	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluorohexanesulfonate (PFHxS)	108427-53-8	NE	ug/L	< 0.0047			0.0050			< 0.0046			0.0026			< 0.0047		
Perfluorohexanesulfonic acid [PFAS-II	355-46-4	0.047	ug/L		0.0021	0.00215		0.0026	0.00269		0.0013	0.00129		0.001	0.00148		0.0013	0.00126
Perfluorohexanoic acid (PFHxA)	307-24-4	NE	ug/L	0.0052			0.0065			0.0085			0.0073			< 0.0050		
Perfluorohexanoic acid [PFAS-ID36]	307-24-4	NE	ug/L		0.0066	0.00639		0.004	0.00491		0.012	0.00919		0.0015	0.00338		0.0037	0.00263
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NE	ug/L		< 0.00049	< 0.00050		< 0.00048J	< 0.00048		< 0.00098J	< 0.00084		< 0.00048	< 0.00049		< 0.00097	< 0.00094
Perfluorononanoic acid [PFAS-ID36]	375-95-1	NE	ug/L		< 0.00051	< 0.00052		< 0.0005J	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluorooctadecanoic Acid (PFOCDA	16517-11-6	NE	ug/L		< 0.00051J			< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluorooctane Sulfonate [PFAS-ID3	1763-23-1	0.015	ug/L		0.00074	< 0.00048		< 0.00047	< 0.00046		0.0035	0.00346		0.00054	0.001J		0.0034	0.00231
Perfluorooctanesulfonamide [PFAS-ID	754-91-6	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluorooctanesulfonate (PFOS)	45298-90-6	NE	ug/L	< 0.0048			< 0.0019			< 0.0047			< 0.0020			< 0.0048		
Perfluorooctanoic acid (PFOA)	335-67-1	0.035	ug/L	0.0054			0.071			0.012			0.018			< 0.0050		
Perfluorooctanoic acid [PFAS-ID36]	335-67-1	0.035	ug/L		0.0075	0.0111		0.081	0.0259		0.014	0.0128		0.0032	0.0079		0.0048	0.00298
Perfluoropentanesulfonic acid (PFPeS	2706-91-4	NE	ug/L		0.001	0.00095		0.0008	0.00087		< 0.00096	< 0.00082		< 0.00047	0.00063		< 0.00095	< 0.00092
Perfluoropentanoic acid (PFPeA)	2706-90-3	NE	ug/L	< 0.0050			0.0043			0.011			0.0069			< 0.0050		
Perfluoropentanoic acid [PFAS-ID36]	2706-90-3	NE	ug/L		0.0048	0.00397		0.0028	0.0045		0.013	0.00915		0.0021	0.00439		0.0052	0.00323
Perfluorotetradecanoic acid (PFTA / P	376-06-7	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.001J	< 0.00098
Perfluorotridecanoic acid (PFTrDA / P	72629-94-8	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.00050	< 0.00051		< 0.0010	< 0.00098
Perfluoroundecanoic acid [PFAS-ID36	2058-94-8	NE	ug/L		< 0.00051	< 0.00052		< 0.00050	< 0.00050		< 0.0010	< 0.00088		< 0.0005J	< 0.00051		< 0.0010	< 0.00098
PFOS + PFOA	NA	0.070 <sup>(4)</sup>	ug/L	0.0054	0.00824	0.0111	0.071	0.081	0.0259	0.012	0.0175	0.01626	0.018	0.00374	0.0089J		0.0082	0.00529
		3.010																

Notes:

Bolded values indicate a detectable amount of an analyte.

J flag indicates an estimated value.

B flag indicates value is associated with laboratory or field blank contamination

R flag indicates data rejected due to significant deficiencies in the ability to analyze the sample and meet QC criteria

Underlined values indicate a result with a reporting limit greater than the action level.

NE indicates that an action level has not been established.

< = Not detected above laboratory reporting limit

µg/L = micrograms per liter

mg/L = milligrams per liter

pg/L = picograms per liter

pg/L = picograms per liter

pg/L = Dicograms per liter

HRL = Minnesota Department of Health (MDH) Health Risk Limit

HBV = MDH Health-Based Value

RAA = MDH Risk Assessment Advice

(¹¹)Results were compared to the lowest applicable MDH HRL, HBV, or RAA as published February 4, 2021

(1)Results were compared to the lowest applicable MDH HRL, HBV, or RAA as published February 4, 2021

(2)USEPA maximum contaminant level (MCL) for Gross Alpha of 15 pCi/L

<sup>(3)</sup>USEPA MCL for Mercury is 0.002 mg/L

(d) US Environmental Protection Agency (USEPA) health advisory level for PFOS + PFOA (November 2016).
Blue shading = Result exceeds applicable screening criteria



# Appendix A Investigation Derived Waste

June 2021 BWJ200408





November 11, 2020

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

# Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory between October 09, 2020 and October 27, 2020. 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.

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

• Pace Analytical Services - Minneapolis

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

Sincerely,

Colin Lynch

colin.lynch@pacelabs.com

Col fyml

(612)607-1700

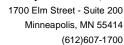
Project Manager

**Enclosures** 

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc.







# **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Pace Analytical Services - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

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

Lab

A2LA Certification #: 2926.01\* 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+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

Massachusetts DWP Certification #: via MN 027-053-137

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Certifcation #: via MN 027-053-137

Minnesota Petrofund Certification #: 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

Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507\*

North Dakota Certification #: R-036

Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001\*
Pennsylvania Certification #: 68-00563\*
Puerto Rico Certification #: MN00064
South Carolina 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

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

Wisconsin Certification #: 999407970

\*Please Note: Applicable air certifications are denoted with

an asterisk (\*).



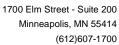


# **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10535048001	SW134 - Disposal	Solid	10/09/20 15:05	10/09/20 16:32
10535048002	TCLP	Solid	10/27/20 11:10	10/27/20 17:02





# **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10535048001	SW134 - Disposal	EPA 8081B	AMV	9
		EPA 6010D	IP	7
		EPA 7470A	LMW	1
		EPA 8270E	CH3	18
10535048002	TCLP	EPA 8260D	MM3	14

PASI-M = Pace Analytical Services - Minneapolis





## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Method: EPA 8081B

Description: 8081B GCS Pesticides, TCLP

Client: Bay West LLC

Date: November 11, 2020

## **General Information:**

1 sample was analyzed for EPA 8081B 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 Mod. 3510C 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:**

Analyte Comments:

QC Batch: 705111

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MS (Lab ID: 3767707)
  - Tetrachloro-m-xylene (S)
- MSD (Lab ID: 3767708)
  - Tetrachloro-m-xylene (S)
- SW134 Disposal (Lab ID: 10535048001)
  - Tetrachloro-m-xylene (S)

(612)607-1700





## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Method: **EPA 6010D** 

Description: 6010D MET ICP, TCLP

Client: Bay West LLC Date: November 11, 2020

## **General Information:**

1 sample was 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 3010A 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:**

Minneapolis, MN 55414 (612)607-1700





## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Method: EPA 7470A

Description: 7470A Mercury, TCLP
Client: Bay West LLC
Date: November 11, 2020

## **General Information:**

1 sample was analyzed for EPA 7470A 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 7470A 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:**



1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Method: EPA 8270E

Description: 8270E MSSV TCLP
Client: Bay West LLC
Date: November 11, 2020

## **General Information:**

1 sample was analyzed for EPA 8270E 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 3510C 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:**





## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Method: EPA 8260D
Description: 8260D MSV TCLP
Client: Bay West LLC
Date: November 11, 2020

## **General Information:**

1 sample was analyzed for EPA 8260D 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.

## 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.

QC Batch: 708156

- B: Analyte was detected in the associated method blank.
  - BLANK for HBN 708156 [MSV/5541 (Lab ID: 3783523)
    - 2-Butanone (MEK)
  - LB for HBN 707525 [TCLP/10328] (Lab ID: 3780085)
    - 2-Butanone (MEK)

## **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:**

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



## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

Lab ID: 10535048001 Sample: SW134 - Disposal Collected: 10/09/20 15:05 Received: 10/09/20 16:32 Matrix: Solid Results reported on a "wet-weight" basis Report **Parameters** Results Units Limit MDL DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8081B Preparation Method: EPA Mod. 3510C 8081B GCS Pesticides, TCLP Leachate Method/Date: EPA 1311; 10/16/20 15:00 Initial pH: 9.5; Final pH: 2.07 Pace Analytical Services - Minneapolis gamma-BHC (Lindane) <5.0 ug/L 5.0 0.066 10 10/18/20 12:03 10/20/20 07:28 58-89-9 Chlordane (Technical) <50.0 ug/L 50.0 2.1 10 10/18/20 12:03 10/20/20 07:28 57-74-9 Endrin <10.0 ug/L 10.0 0.21 10 10/18/20 12:03 10/20/20 07:28 72-20-8 Heptachlor <5.0 ug/L 5.0 0.095 10 10/18/20 12:03 10/20/20 07:28 76-44-8 0.073 10/18/20 12:03 10/20/20 07:28 1024-57-3 Heptachlor epoxide < 5.0 ug/L 5.0 10 Methoxychlor <50.0 ug/L 50.0 1.7 10 10/18/20 12:03 10/20/20 07:28 72-43-5 Toxaphene 150 10 10/18/20 12:03 10/20/20 07:28 8001-35-2 <150 ug/L 4.5 Surrogates Tetrachloro-m-xylene (S) 110 %. 74-125 10 10/18/20 12:03 10/20/20 07:28 877-09-8 D3 Decachlorobiphenyl (S) 116 58-136 10 10/18/20 12:03 10/20/20 07:28 2051-24-3 %. 6010D MET ICP, TCLP Analytical Method: EPA 6010D Preparation Method: EPA 3010A Leachate Method/Date: EPA 1311; 10/16/20 15:00 Initial pH: 9.5; Final pH: 2.07 Pace Analytical Services - Minneapolis Arsenic 31.4J ug/L 500 19.1 10/18/20 11:06 10/19/20 09:38 7440-38-2 Barium 769J ug/L 1000 3.3 1 10/18/20 11:06 10/19/20 09:38 7440-39-3 Cadmium 50.0 10/18/20 11:06 10/19/20 09:38 7440-43-9 2.4J ug/L 1.6 Chromium 10.4J ug/L 500 3.3 10/18/20 11:06 10/19/20 09:38 7440-47-3 Lead < 0.50 mg/L 0.50 0.0098 10/18/20 11:06 10/19/20 09:38 7439-92-1 1 Selenium <100 ug/L 100 29.0 10/18/20 11:06 10/19/20 09:38 7782-49-2 1 <100 100 2.9 10/18/20 11:06 10/19/20 09:38 7440-22-4 Silver ug/L 1 7470A Mercury, TCLP Analytical Method: EPA 7470A Preparation Method: EPA 7470A Leachate Method/Date: EPA 1311; 10/16/20 15:00 Initial pH: 9.5; Final pH: 2.07 Pace Analytical Services - Minneapolis Mercury < 0.60 ug/L 0.60 0.24 10/18/20 13:28 10/19/20 16:12 7439-97-6 8270E MSSV TCLP Analytical Method: EPA 8270E Preparation Method: EPA 3510C Leachate Method/Date: EPA 1311; 10/16/20 15:00 Initial pH: 9.5; Final pH: 2.07 Pace Analytical Services - Minneapolis 19.6 1,4-Dichlorobenzene <100 ug/L 100 10/18/20 10:19 10/19/20 14:30 106-46-7 1 ug/L 2,4-Dinitrotoluene 100 16.3 10/18/20 10:19 10/19/20 14:30 121-14-2 <100 1 Hexachloro-1,3-butadiene <100 100 23 1 10/18/20 10:19 10/19/20 14:30 87-68-3 ug/L 1 Hexachlorobenzene <100 ug/L 100 12.7 1 10/18/20 10:19 10/19/20 14:30 118-74-1 Hexachloroethane <100 ug/L 100 37.0 1 10/18/20 10:19 10/19/20 14:30 67-72-1 2-Methylphenol(o-Cresol) <100 ug/L 100 13.9 1 10/18/20 10:19 10/19/20 14:30 95-48-7 3&4-Methylphenol(m&p Cresol) <100 ug/L 100 14.8 10/18/20 10:19 10/19/20 14:30 Nitrobenzene <100 ug/L 100 16.5 10/18/20 10:19 10/19/20 14:30 98-95-3 1 Pentachlorophenol <200 ug/L 200 58.9 1 10/18/20 10:19 10/19/20 14:30 87-86-5 Pyridine <100 ua/L 100 19.5 1 10/18/20 10:19 10/19/20 14:30 110-86-1 <100 100 10/18/20 10:19 10/19/20 14:30 95-95-4 2,4,5-Trichlorophenol ug/L 8.6 1 10/18/20 10:19 10/19/20 14:30 88-06-2 2,4,6-Trichlorophenol <100 ug/L 100 10.1 1





# **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

Sample: SW134 - Disposal Lab ID: 10535048001 Collected: 10/09/20 15:05 Received: 10/09/20 16:32 Matrix: Solid Results reported on a "wet-weight" basis Report **Parameters** Results Units Limit MDL DF Prepared Analyzed CAS No. Qual 8270E MSSV TCLP Analytical Method: EPA 8270E Preparation Method: EPA 3510C Leachate Method/Date: EPA 1311: 10/16/20 15:00 Initial pH: 9.5: Final pH: 2.07

	11. 2.07										
	Pace Analytical Services - Minneapolis										
Surrogates											
Nitrobenzene-d5 (S)	76	%.	41-125	1	10/18/20 10:19	10/19/20 14:30	4165-60-0				
2-Fluorobiphenyl (S)	55	%.	38-125	1	10/18/20 10:19	10/19/20 14:30	321-60-8				
p-Terphenyl-d14 (S)	93	%.	69-125	1	10/18/20 10:19	10/19/20 14:30	1718-51-0				
Phenol-d6 (S)	30	%.	10-125	1	10/18/20 10:19	10/19/20 14:30	13127-88-3				
2-Fluorophenol (S)	46	%.	30-125	1	10/18/20 10:19	10/19/20 14:30	367-12-4				
2.4.6-Tribromophenol (S)	82	%.	57-125	1	10/18/20 10:19	10/19/20 14:30	118-79-6				

Minneapolis, MN 55414 (612)607-1700



#### **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

Sample: TCLP Lab ID: 10535048002 Collected: 10/27/20 11:10 Received: 10/27/20 17:02 Matrix: Solid

Results reported on a "wet-wei	ight" basis		_						
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
B260D MSV TCLP	Analytical	Method: EP/	A 8260D Lead	chate Metho	d/Date:	EPA 1311; 10/2	9/20 13:59		
	Pace Analy	ytical Service	es - Minneapo	lis					
Benzene	<25.0	ug/L	25.0	3.0	1		11/02/20 13:15	71-43-2	
2-Butanone (MEK)	55.4J	ug/L	125	22.1	1		11/02/20 13:15	78-93-3	В
Carbon tetrachloride	<25.0	ug/L	25.0	4.2	1		11/02/20 13:15	56-23-5	
Chlorobenzene	<25.0	ug/L	25.0	1.9	1		11/02/20 13:15	108-90-7	
Chloroform	<25.0	ug/L	25.0	12.1	1		11/02/20 13:15	67-66-3	
,4-Dichlorobenzene	<25.0	ug/L	25.0	2.0	1		11/02/20 13:15	106-46-7	
,2-Dichloroethane	<25.0	ug/L	25.0	6.4	1		11/02/20 13:15	107-06-2	
,1-Dichloroethene	<25.0	ug/L	25.0	3.2	1		11/02/20 13:15	75-35-4	
etrachloroethene	<25.0	ug/L	25.0	4.4	1		11/02/20 13:15	127-18-4	
richloroethene	<10.0	ug/L	10.0	3.7	1		11/02/20 13:15	79-01-6	
/inyl chloride	<5.0	ug/L	5.0	2.5	1		11/02/20 13:15	75-01-4	
Surrogates		-							
,2-Dichloroethane-d4 (S)	92	%.	75-125		1		11/02/20 13:15	17060-07-0	
oluene-d8 (S)	96	%.	75-125		1		11/02/20 13:15	2037-26-5	
I-Bromofluorobenzene (S)	100	%.	75-125		1		11/02/20 13:15	460-00-4	

(612)607-1700



#### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

QC Batch: 705073 Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury TCLP

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535048001

METHOD BLANK: 3767313 Matrix: Water

Associated Lab Samples: 10535048001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury ug/L <0.60 0.60 0.24 10/19/20 15:53

METHOD BLANK: 3765783 Matrix: Water

Associated Lab Samples: 10535048001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury ug/L <0.60 0.60 0.24 10/19/20 16:18

METHOD BLANK: 3767312 Matrix: Water

Associated Lab Samples: 10535048001

Date: 11/11/2020 08:49 AM

 Parameter
 Units
 Blank Result
 Reporting Limit
 MDL
 Analyzed
 Qualifiers

 Mercury
 ug/L
 <0.60</td>
 0.60
 0.24
 10/19/20 16:20

LABORATORY CONTROL SAMPLE: 3767314

LCS Spike LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Mercury 15 14.9 99 80-120 ug/L

welcuty ug/L 15 14.9 99 00-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3767315 3767316

MS MSD 10534464005 Spike Spike MS MSD MS MSD % Rec Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** Qual Mercury ug/L <0.24 15 15 15.5 15.4 103 103 80-120 20

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

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#### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

QC Batch: 705074 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D TCLP

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535048001

METHOD BLANK: 3767317 Matrix: Water

Associated Lab Samples: 10535048001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	24.3J	500	19.1	10/19/20 08:46	
Barium	ug/L	26.0J	1000	3.3	10/19/20 08:46	
Cadmium	ug/L	<50.0	50.0	1.6	10/19/20 08:46	
Chromium	ug/L	< 500	500	3.3	10/19/20 08:46	
Lead	mg/L	< 0.50	0.50	0.0098	10/19/20 08:46	
Selenium	ug/L	<100	100	29.0	10/19/20 08:46	
Silver	ug/L	<100	100	2.9	10/19/20 08:46	

METHOD BLANK: 3765783 Matrix: Water

Associated Lab Samples: 10535048001

Blank Reporting Parameter Units Result Limit MDL Analyzed Qualifiers Arsenic ug/L 31.6J 500 19.1 10/19/20 08:49 Barium 26.4J 1000 10/19/20 08:49 ug/L 3.3 <50.0 Cadmium ug/L 50.0 1.6 10/19/20 08:49 Chromium <500 500 ug/L 3.3 10/19/20 08:49 < 0.50 0.50 10/19/20 08:49 Lead mg/L 0.0098 <100 Selenium ug/L 100 29.0 10/19/20 08:49 Silver ug/L <100 100 2.9 10/19/20 08:49

METHOD BLANK: 3767312 Matrix: Water

Associated Lab Samples: 10535048001

Date: 11/11/2020 08:49 AM

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	33.3J	500	19.1	10/19/20 08:51	
Barium	ug/L	43.6J	1000	3.3	10/19/20 08:51	
Cadmium	ug/L	<50.0	50.0	1.6	10/19/20 08:51	
Chromium	ug/L	< 500	500	3.3	10/19/20 08:51	
Lead	mg/L	< 0.50	0.50	0.0098	10/19/20 08:51	
Selenium	ug/L	<100	100	29.0	10/19/20 08:51	
Silver	ug/L	<100	100	2.9	10/19/20 08:51	

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

LABORATORY CONTROL SAMPLE:	3767318					
Doromotor	Linito	Spike	LCS	LCS	% Rec	Ovalifiara
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	ug/L	5000	4930	99	80-120	
Barium	ug/L	5000	5110	102	80-120	
Cadmium	ug/L	5000	5060	101	80-120	
Chromium	ug/L	5000	5060	101	80-120	
Lead	mg/L	5	4.9	98	80-120	
Selenium	ug/L	5000	4990	100	80-120	
Silver	ug/L	2500	2480	99	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPI	LICATE: 3767	319		3767320							
Parameter	Units	10534464005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.054J mg/L	5000	5000	5020	5060	99	100	75-125	1	20	
Barium	ug/L	0.54J mg/L	5000	5000	5470	5540	99	100	75-125	1	20	
Cadmium	ug/L	0.0065J mg/L	5000	5000	4960	5030	99	100	75-125	1	20	
Chromium	ug/L	0.0038J mg/L	5000	5000	4990	5050	100	101	75-125	1	20	
Lead	mg/L	0.032J	5	5	4.8	4.9	96	97	75-125	1	20	
Selenium	ug/L	<0.029 mg/L	5000	5000	5000	5040	100	101	75-125	1	20	
Silver	ug/L	<0.0029 mg/L	2500	2500	2490	2510	100	100	75-125	1	20	

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

QC Batch: 708156 Analysis Method: EPA 8260D

QC Batch Method: EPA 8260D Analysis Description: 8260D MSV TCLP

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535048002

METHOD BLANK: 3783523 Matrix: Water

Associated Lab Samples: 10535048002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<25.0	25.0	3.2	11/02/20 12:41	
1,2-Dichloroethane	ug/L	<25.0	25.0	6.4	11/02/20 12:41	
1,4-Dichlorobenzene	ug/L	<25.0	25.0	2.0	11/02/20 12:41	
2-Butanone (MEK)	ug/L	53.5J	125	22.1	11/02/20 12:41	
Benzene	ug/L	<25.0	25.0	3.0	11/02/20 12:41	
Carbon tetrachloride	ug/L	<25.0	25.0	4.2	11/02/20 12:41	
Chlorobenzene	ug/L	<25.0	25.0	1.9	11/02/20 12:41	
Chloroform	ug/L	<25.0	25.0	12.1	11/02/20 12:41	
Tetrachloroethene	ug/L	<25.0	25.0	4.4	11/02/20 12:41	
Trichloroethene	ug/L	<10.0	10.0	3.7	11/02/20 12:41	
Vinyl chloride	ug/L	<5.0	5.0	2.5	11/02/20 12:41	
1,2-Dichloroethane-d4 (S)	%.	92	75-125		11/02/20 12:41	
4-Bromofluorobenzene (S)	%.	99	75-125		11/02/20 12:41	
Toluene-d8 (S)	%.	96	75-125		11/02/20 12:41	

METHOD BLANK: 3780085 Matrix: Solid

Associated Lab Samples: 10535048002

Date: 11/11/2020 08:49 AM

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<25.0	25.0	3.2	11/02/20 12:41	
•	•			_		
1,2-Dichloroethane	ug/L	<25.0	25.0	6.4	11/02/20 12:41	
1,4-Dichlorobenzene	ug/L	<25.0	25.0	2.0	11/02/20 12:41	
2-Butanone (MEK)	ug/L	53.5J	125	22.1	11/02/20 12:41	
Benzene	ug/L	<25.0	25.0	3.0	11/02/20 12:41	
Carbon tetrachloride	ug/L	<25.0	25.0	4.2	11/02/20 12:41	
Chlorobenzene	ug/L	<25.0	25.0	1.9	11/02/20 12:41	
Chloroform	ug/L	<25.0	25.0	12.1	11/02/20 12:41	
Tetrachloroethene	ug/L	<25.0	25.0	4.4	11/02/20 12:41	
Trichloroethene	ug/L	<10.0	10.0	3.7	11/02/20 12:41	
Vinyl chloride	ug/L	<5.0	5.0	2.5	11/02/20 12:41	
1,2-Dichloroethane-d4 (S)	%.	92	75-125		11/02/20 12:41	
4-Bromofluorobenzene (S)	%.	99	75-125		11/02/20 12:41	
Toluene-d8 (S)	%.	96	75-125		11/02/20 12:41	

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

BORATORY CONTROL SAMPLE:	3783524					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
-Dichloroethene	ug/L	500	430	86	58-131	
Dichloroethane	ug/L	500	442	88	69-125	
Dichlorobenzene	ug/L	500	501	100	75-125	
tanone (MEK)	ug/L	2500	2200	88	54-125	
zene	ug/L	500	471	94	69-125	
oon tetrachloride	ug/L	500	405	81	68-128	
robenzene	ug/L	500	508	102	71-136	
oform	ug/L	500	447	89	70-125	
chloroethene	ug/L	500	501	100	70-126	
loroethene	ug/L	500	497	99	73-127	
chloride	ug/L	500	402	80	59-136	
ichloroethane-d4 (S)	%.			89	75-125	
mofluorobenzene (S)	%.			98	75-125	
ene-d8 (S)	%.			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3790001 3790002												
			MS	MSD								
		10537858001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
1,1-Dichloroethene	ug/L	<25.0	500	500	424	524	85	105	61-136	21	30	
1,2-Dichloroethane	ug/L	<25.0	500	500	403	486	81	97	68-125	19	30	
1,4-Dichlorobenzene	ug/L	<25.0	500	500	454	566	91	113	75-125	22	30	
2-Butanone (MEK)	ug/L	85.6J	2500	2500	2060	2510	79	97	39-150	20	30	
Benzene	ug/L	506	500	500	972	1070	93	113	67-130	10	30	
Carbon tetrachloride	ug/L	<25.0	500	500	386	479	77	96	68-133	21	30	
Chlorobenzene	ug/L	<25.0	500	500	461	559	92	112	75-125	19	30	
Chloroform	ug/L	<25.0	500	500	418	510	82	100	70-125	20	30	
Tetrachloroethene	ug/L	<25.0	500	500	477	587	95	117	73-134	21	30	
Trichloroethene	ug/L	<10.0	500	500	455	564	91	113	72-139	21	30	
Vinyl chloride	ug/L	< 5.0	500	500	357	442	71	88	69-132	21	30	
1,2-Dichloroethane-d4 (S)	%.						93	92	75-125			
4-Bromofluorobenzene (S)	%.						99	99	75-125			
Toluene-d8 (S)	%.						99	98	75-125			

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

QC Batch: 705111 Analysis Method: EPA 8081B

QC Batch Method: EPA Mod. 3510C Analysis Description: 8081 GCS Pesticides, TCLP

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535048001

METHOD BLANK: 3767701 Matrix: Solid

Associated Lab Samples: 10535048001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chlordane (Technical)	ug/L	<5.0	5.0	0.21	10/20/20 05:36	
Endrin	ug/L	<1.0	1.0	0.021	10/20/20 05:36	
gamma-BHC (Lindane)	ug/L	< 0.50	0.50	0.0066	10/20/20 05:36	
Heptachlor	ug/L	< 0.50	0.50	0.0095	10/20/20 05:36	
Heptachlor epoxide	ug/L	< 0.50	0.50	0.0073	10/20/20 05:36	
Methoxychlor	ug/L	<5.0	5.0	0.17	10/20/20 05:36	
Toxaphene	ug/L	<15.0	15.0	0.45	10/20/20 05:36	
Decachlorobiphenyl (S)	%.	107	58-136		10/20/20 05:36	
Tetrachloro-m-xylene (S)	%.	100	74-125		10/20/20 05:36	

LABORATORY	CONTROL	SAMPLE:	3767702

Date: 11/11/2020 08:49 AM

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
				70 IXCC		Qualificis
Endrin	ug/L	10	10.3	103	69-138	
gamma-BHC (Lindane)	ug/L	5	4.8	97	68-135	
Heptachlor	ug/L	5	5.0	99	60-131	
Heptachlor epoxide	ug/L	5	5.0	99	68-133	
Methoxychlor	ug/L	50	57.8	116	63-144 v1	
Decachlorobiphenyl (S)	%.			113	58-136	
Tetrachloro-m-xylene (S)	%.			103	74-125	

MATRIX SPIKE & MATRIX S	PIKE DUPL	ICATE: 3767	707 MS	MSD	3767708	}						
		10535472001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Endrin	ug/L	ND	10	10	9.6J	8.5J	96	85	66-136		20	
gamma-BHC (Lindane)	ug/L	ND	5	5	4.5J	4.0J	90	80	64-131		20	
Heptachlor	ug/L	ND	5	5	5.0J	4.5J	100	89	48-140		20	
Heptachlor epoxide	ug/L	ND	5	5	5.4	4.9J	107	98	70-140		20	
Methoxychlor	ug/L	ND	50	50	51.7	44.8J	103	90	45-150		20	v1
Decachlorobiphenyl (S)	%.						123	115	58-136			
Tetrachloro-m-xylene (S)	%.						105	94	74-125			D3

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

QC Batch: 705099 Analysis Method: EPA 8270E

QC Batch Method: EPA 3510C Analysis Description: 8270E TCLP MSSV

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535048001

METHOD BLANK: 3767658 Matrix: Water

Associated Lab Samples: 10535048001

recognition and campion.		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
1,4-Dichlorobenzene	ug/L	<100	100	19.6	10/19/20 09:06	
2,4,5-Trichlorophenol	ug/L	<100	100	8.6	10/19/20 09:06	
2,4,6-Trichlorophenol	ug/L	<100	100	10.1	10/19/20 09:06	
2,4-Dinitrotoluene	ug/L	<100	100	16.3	10/19/20 09:06	
2-Methylphenol(o-Cresol)	ug/L	<100	100	13.9	10/19/20 09:06	
3&4-Methylphenol(m&p Cresol)	ug/L	<100	100	14.8	10/19/20 09:06	
Hexachloro-1,3-butadiene	ug/L	<100	100	23.1	10/19/20 09:06	
Hexachlorobenzene	ug/L	<100	100	12.7	10/19/20 09:06	
Hexachloroethane	ug/L	<100	100	37.0	10/19/20 09:06	
Nitrobenzene	ug/L	<100	100	16.5	10/19/20 09:06	
Pentachlorophenol	ug/L	<200	200	58.9	10/19/20 09:06	
Pyridine	ug/L	<100	100	19.5	10/19/20 09:06	
2,4,6-Tribromophenol (S)	%.	83	57-125		10/19/20 09:06	
2-Fluorobiphenyl (S)	%.	43	38-125		10/19/20 09:06	
2-Fluorophenol (S)	%.	69	30-125		10/19/20 09:06	
Nitrobenzene-d5 (S)	%.	80	41-125		10/19/20 09:06	
p-Terphenyl-d14 (S)	%.	92	69-125		10/19/20 09:06	
Phenol-d6 (S)	%.	52	10-125		10/19/20 09:06	

LABORATORY CONTROL SAMPLE:	3767659					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	500	229	46	30-125	
,4,5-Trichlorophenol	ug/L	500	453	91	65-125	
4,6-Trichlorophenol	ug/L	500	464	93	64-125	
4-Dinitrotoluene	ug/L	500	483	97	60-125	
Methylphenol(o-Cresol)	ug/L	500	418	84	45-125	
4-Methylphenol(m&p Cresol)	ug/L	500	424	85	37-125	
xachloro-1,3-butadiene	ug/L	500	216	43	30-125	
xachlorobenzene	ug/L	500	450	90	67-125	
xachloroethane	ug/L	500	208	42	30-125	
obenzene	ug/L	500	436	87	57-125	
ntachlorophenol	ug/L	500	458	92	40-125	
idine	ug/L	500	265	53	30-125	
,6-Tribromophenol (S)	%.			92	57-125	
luorobiphenyl (S)	%.			74	38-125	
luorophenol (S)	%.			76	30-125	
obenzene-d5 (S)	%.			92	41-125	
erphenyl-d14 (S)	%.			93	69-125	

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



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

LABORATORY CONTROL SAMPLE: 3767659

Spike LCS LCS % Rec

Parameter Units Conc. Result % Rec Limits Qualifiers

Phenol-d6 (S) %. 58 10-125

MATRIX SPIKE & MATRIX SP	PIKE DUPLIC	CATE: 3767	660 MS	MSD	3767661							
Parameter	1 Units	0534464005 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qua
1,4-Dichlorobenzene	ug/L	<19.6	500	500	268	241	54	48	30-125	10	30	
2,4,5-Trichlorophenol	ug/L	<8.6	500	500	429	448	86	90	57-125	4	30	
2,4,6-Trichlorophenol	ug/L	<10.1	500	500	441	459	88	92	58-125	4	30	
2,4-Dinitrotoluene	ug/L	<16.3	500	500	469	497	94	99	57-125	6	30	
2-Methylphenol(o-Cresol)	ug/L	<13.9	500	500	359	337	72	67	34-125	6	30	
3&4-Methylphenol(m&p (Cresol)	ug/L	<14.8	500	500	342	319	68	64	31-125	7	30	
Hexachloro-1,3-butadiene	ug/L	<23.1	500	500	247	233	49	47	30-125	6	30	
Hexachlorobenzene	ug/L	<12.7	500	500	421	449	84	90	62-125	7	30	
Hexachloroethane	ug/L	<37.0	500	500	237	220	47	44	30-125	7	30	
Nitrobenzene	ug/L	<16.5	500	500	413	401	83	80	52-125	3	30	
Pentachlorophenol	ug/L	<58.9	500	500	477	493	95	99	30-130	3	30	
Pyridine	ug/L	<19.5	500	500	242	231	48	46	30-125	5	30	
2,4,6-Tribromophenol (S)	%.						89	92	57-125			
2-Fluorobiphenyl (S)	%.						73	75	38-125			
2-Fluorophenol (S)	%.						53	47	30-125			
Nitrobenzene-d5 (S)	%.						85	81	41-125			
o-Terphenyl-d14 (S)	%.						88	94	69-125			
Phenol-d6 (S)	%.						35	31	10-125			

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

(612)607-1700



#### **QUALIFIERS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

#### **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.

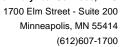
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

#### **ANALYTE QUALIFIERS**

Date: 11/11/2020 08:49 AM

- B Analyte was detected in the associated method blank.
- D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
- v1 The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.





#### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

Date: 11/11/2020 08:49 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10535048001	SW134 - Disposal	EPA Mod. 3510C	705111	EPA 8081B	705386
10535048001	SW134 - Disposal	EPA 3010A	705074	EPA 6010D	705183
10535048001	SW134 - Disposal	EPA 7470A	705073	EPA 7470A	705360
10535048001	SW134 - Disposal	EPA 3510C	705099	EPA 8270E	705184
10535048002	TCLP	EPA 8260D	708156		

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

3000027123 SW0000134 PRJ07786 5 Custody Sealed Cooler (Y/N) SAMPLE CONDITIONS B 7 Received on Ice (Y/N) MO#: 10535048 7, Temp (°C) Work Order Number Project Task Code: Program Code Facility Code: Section E COCID h 163 1700 Elm St. Minneapolis MN, 55414 Colin Lynch 10535048 21/1/10 612-656-2286 Pace S60B/1311) CLP VOCs (EPA Lab Project Manager × DATE Signed (MIMIDD/YY): OLP Pesticides (EPA 7018/1311) Lab Phone: Lab Name: Section D ACCEPTED BY LAFFILIATION Adress: CLP Metals (RCRA) EPA 6010C, 1311,7470) × CLP Semivolatiles 5 Empire Dr. St. Paul, MN 55103 205946 Bay West LLC Accounts Payable # of Cont. PRINT NAME OF SAMPLER: EMOUN ENCYPURM. 505 **əmiT** Purchase Order No. Company Name: Sample Type Codes
Sample-Countros Sample-Countros Sample-ScWOP-Countrosite Sample
S-WP-integrated Vertical Profile Sample
QC-FB-Field Blank Sample
QC-FB-Field Replicate Sample
QC-FB-Field Replicate Sample Section C Address: Attention: 20 Date 16/01 DATE SW#134 Begin Dump - Borings tharsch@baywest.com Soil-Sub Field Matrix Code (MPCA ONLY) Standard 200408 Ζ (MPCA ONLY) SD Lab Matrix Code Field Martix Codes
Wir-Ground-Sourd Water
WTR-Surf-Surdes Water
QC-Blank-Artificial Blank Water
QC-Blank-Artificial Blank Water
Gost-Breel-eachtel Sample
Soil-Surf-Soil Sufrace
Soil-Surf-Soil-Subsurface S Matrix Code SAMPLE TYPE (9MO)=0) Ö Site Location (State) Turnaround Time: Sample Project Number: Project Name: (MPCA ONLY) Section B Copy To: Copy To: Sample Common ID 5 Empire Dr. St.Paul MN, 55103 SW134 - Disposal Lab Matrix Codes

DW-Drinking Water

NW-Non-potable Water

SD-Soil/Soild

WP-Wipe AR=Air BL=Biological Material OT=Other Eweaver@baywest.com enimlos@baywest.com Erik Nimlos 651-291-3493 Unique ID Location roject Manager: Matrix Code
SE=Sediment
SO=Soil
QC=Soil QC
W=Aqueous
WG=Groundwa Address: **Sompany** Email To: Copy To: Phone: Page 23 of 26 # MaTi 2 က 5 9

Samples Intact (Y/V)

## Pace Analytical\*

#### Document Name:

#### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services - **Minneapolis** 

Sample Condition Upon Receipt Client Name:		Projec	ct #:		<b></b>		05040	į
Bay West				W(	J#:1	<b>V</b> 5	<u>35048</u>	<b>3</b>
<u> </u>	USPS Commer				CL1 ENT: BW-		Due Date: 10 JEST	0/23/20
Tracking Number:		See Except ENV-FRM-N						j
Custody Seal on Cooler/Box Present? Yes	∮Nο	Seals Inta	ct?	Yes 🔀 N	lo <b>Biolo</b>	gical Tis	ssue Frozen? 🔲	Yes No No N/A
Packing Material: 🕍 Bubble Wrap 🔀 Bubble B		None 🔲 O			·			<b>Z</b> Yes □No
Thermometer:       ☐ T1(0461) ☐ T2(1336) ☐ T3(0459)         ☐ T4(0254) ☐ T5(0489)		Type of Ice:	₩et	□Blue	□None	□Dr	y Melted	
Did Samples Originate in West Virginia? ☐Yes →No	We	re All Containe	Temps 1	<b>Γaken?</b> ∐Υε	es □No <b>X</b>	<b>∮</b> N/A		
Temp should be above freezing to 6°C Cooler Temp Re	ad w/ten	np blank:	<u>y. 8</u>		oc		ge Corrected	☐See Exceptions
Correction Factor: + O.) Cooler Temp Correcte	ed w/tem	ıp blank:	4.9		ºC	Temp only):	(no temp blank	1 Container
USDA Regulated Soil: (	ed States aps)? [	: AL, AR, CA, FL, 0 ☐Yes   ZNo	GA, Did D Ha	d samples ori	iginate from a erto Rico)?	foreign s	Contents: source (internation ]Yes	ally, including
ii Tes to either question, fill out a	neguiate	u 3011 CHECKIISC	(F-IVIIV-Q	-556) and n	iiciude with	COMN		
Chain of Custody Present and Filled Out?	₹Yes	□No	1.				<u>, , , , , , , , , , , , , , , , , , , </u>	
Chain of Custody Relinquished?	Yes	No	2.					
Sampler Name and/or Signature on COC? Samples Arrived within Hold Time?	Yes Yes	NoN// □No	A 3. 4.					
Short Hold Time Analysis (<72 hr)?	Yes	₩No	5.				orm/E coli BOD/o	BOD Hex Chrome
Rush Turn Around Time Requested?	□Yes	No	6.	,				
Sufficient Volume?	Yes	□No	7.					
Correct Containers Used?	Yes Yes	□No	8.				*	
-Pace Containers Used? Containers Intact?	Yes	No □No	9.				, , , , , , , , , , , , , , , , , , ,	
Field Filtered Volume Received for Dissolved Tests?	Yes	□No ★		Is sediment	visible in the	dissolve	ed container?	es ∏No
Is sufficient information available to reconcile the samples	L 163				Date/Time on			See Exception
to the COC?  Matrix: ☐Water ☑Soil ☐ Oil ☐ Other	Yes	□No			·			ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	Yes	□No <b>⊠</b> N/A	12. Sa	imple#				
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	∐Yes	□No <b>Z</b> N/A	<b>A</b>	☐ NaOH	□ни	1O₃	□H <sub>2</sub> SO <sub>4</sub>	Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	∐Yes	□No Mu/A	Chlori	ve for Res. [ ine? [ Chlorine	Yes No 0-6 Roll	рН Рар	er Lot# 0-6 Strip	See Exception ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers?	Yes	□No N/A	13.					See Exception
Headspace in VOA Vials (greater than 6mm)?  Trip Blank Present?	☐ Yes☐ Yes	□No ★N/A			***************************************			ENV-FRM-MIN4-0140
Trip Blank Custody Seals Present?	Yes			Pace Trip Bla	ank Lot # (if p	urchase	d):	
CLIENT NOTIFICATION/RESOLUTION Person Contacted:			Date	e/Time:	Field	d Data I	Required?	es 🔲 No
Comments/Resolution:								
	4							
Project Manager Review:  Note: Whenever there is a discrepancy affecting (North Carolina hold, incorrect preservative, out of temp, incorrect containers).	conyplia	ce samples, a cop	y of this fo	<b>Date:</b> orm will be se		<u>2/20</u> :h Carolir	na DEHNR Certifica	tion Office (i.e out of

Labeled by:

Page 24 of 26

Non Conformance(s): Page:  YES / NO of:	PM: PB:	Date/Time: P	Date	ignature)	Received by/Company: (Signature)	Date/Time:	Date	Relingarished by/Company: (Xignature)
Trip Blank Received: Y N NA HCL MeOH TSP Other	Template: Prelogin:	Date) Illie. (	G		receive by company, (agnacie)			
	Acctnum:	1000	Date	ignatura)	Received hy/Company: (S	5		ed by Comes py. J.
COMPLETIO.	Table #:		Z	ignature)	received by/ company: (Signature)	26/1903 1003		LABORER PHAMES
	Courier Pace Courier	X UPS Client	FEDEX	NA	Greened (<500 cpm): Y	Radicite in sample(s) screened (<500 cpm):	7.	Relinguished hy/Company: (Signature)
Cooler 1 Therm Corr. Factors		received via:	Samples			Badahan amala/a		
Z	)56	ing# 2557056	Lab Tracking #:	Y.,	#	Packing Material Used:		
Lab Sample Temperature Info:	ırs): Y N N/A	SHORT HOLDS PRESENT (<72 hours):	SHORTH	None	(Vet) Blue Dry	Type of Ice Used:	/ Possible Hazards:	Customer Remarks / Special Conditions / Possible Hazards:
				303				
The state of the s	C00/ cc01			WAS.				
				the state of				
	2 C T - L							
MO# · 1 @537@65				agrace"			!	
					,			
00)			X	-		111 mere-01	25	TCLP
				NO ACT	Date Time	Date Time		
Lab Sample # / Comments:	Lāb S		70	Res # of Ctns	Composite End	Collected (or Composite Start)	Matrix * Grab	Customer Sample ID
Lead Acerate Strips:	LAB US		IP	<u> </u>	]	ssue (TS), Bioassay (B),	ipe (WP), Air (AR), Ti	Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)
pd Strips: Sulfide Present Y N NA	Sulfide Pr		l		niaiyois.	rges Apply)	(Expedite Charges Apply)	J Hold:
CHISTELPS: Sample pH Acceptable Y N NA	Sample pH		<i>loc</i>		Analysis: +/+	[ ]5 Day	[ ]2 Day [ ]3 Day	G:
Chlorine F	Residual		-5		Field Filtered (if applicable):	[ ] Nevt Day	sh:     Same Dav	
eadspace Acceptable Y.N. gulated Soils Y.N.	VOA - H USDA Re				Yes [] No		Turnaround Date Required:	Collected by (signature)
ent Volume Y N Received on Ice Y N	Suffici Samples			20,140,00	DW Location Code:		Quote #:	eraharst
Intact YN Bottles VN	Bottles				S D #	5946	nase C	Collected By (print):
R R I	Custox Colle				Compliance Monitoring?	134	Site/Facility ID #:	151-291-3493
	Custo.			]ਰਾ [ ] ਬ	PLANO WE PT[ ]MT[ ]CT	MN/ P	/JB00408	Begin Demolition Low Fill
ile/Line: 37034	Lab Profile/Line:	Analyses		i i	v: Time Zone Collec	County/		Customer Project Name/Number:
	(C) ammonium hydroxide; (D) TSP, (U) Unpreserved, (O) Other	ydroxide, (D) TSP, (U) Unpr	(C) ammonium h	1	ddress:	Site Collection Info/Address:	H. Com	COPY TO: FLYP a VET(3) bay west. Com
Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, methanol. (7) sodium bisulfate (8) sodium thiosulfate (9) hexane (A) ascorbic acid (R) ammonium sulfate	furic acid, (3) hydrochloric acid, (4)	ypes: (1) nitric acid, (2) sul sodium bisulfate (8) sodiu	** Preservative T	na	Email To: CAM/05 @ bey west com	Email To: C1 m/a		REPORT TO: ENU NIMBS
Lab Project Manager: $ ilde{\Omega}$	*	ontainer Preservative Type		oveni.			+ Paul MN	Address: 5 Empire Dr. St. Paul MIN
AB USE ONLY	ALL SHADED AREAS are for LAB USE ONLY	ALL SHAL				Billing Information:		Company: Bay West
	·			ïelds	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	is a LEGAL DOCUMENT	Chain-of-Custody	Pace Analytical
t Pace Workorder Number or	korder/Login Label Here or List MTJL Log-in Number Here	AB USE ONLY- Affix Woi	U	ment	<b>CHAIN-OF-CUSTODY Analytical Request Document</b>	STODY Analytic	CHAIN-OF-CU	South All the second

## Pace Analytical\*

#### Document Name:

#### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

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Pace Analytical Services - **Minneapolis** 

Sample Condition Upon Receipt  Client Name:	1		Project	:#:	I.IC	\# · 1	<b>05</b>	37005	
- J wes	<u> </u>	*	_1						
Courier:	□USPS e □Commer	rcial (	Client			CL1 Ent: BW-		ue Date: 11 EST	/11/20
Tracking Number:			ee Exceptic NV-FRM-MII		Λ,				<u> </u>
Custody Seal on Cooler/Box Present?	es 🔲 No	Se	als Intact	? <b>(</b>	es 🔲 N	lo <b>Biol</b> o	ogical Ti	ssue Frozen?	Yes No No A
		None	□Oth	ner:				-	Yes No
Thermometer:       ☐ T1(0461) ☐ T2(1336) ☐         ☐ T4(0254) ☑ T5(0489)	T3(0459)	Type of	lce:	Vet	Blue	□None	□ Di	ry Melted	,
Did Samples Originate in West Virginia? ☐Yes	<b>⊠</b> No <b>We</b>	re All Co	ontainer 1	Femps Ta	aken? 🔲 Ye	es 🗆 No 🔀	[N/A		
Temp should be above freezing to 6°C Cooler T	emp Read w/ter	np blank	" <b>&amp;</b> (	. 1		oc `	1	ge Corrected	See Exceptions
Correction Factor: 10 · Cooler Temp	Corrected w/tem	np blank	<u>.</u> 4.	٦,	n 10/23	<u>/20</u> ℃	Temp only):	(no temp blank <u>4                                    </u>	ENV-FRM-MIN4-0142
<b>USDA Regulated Soil:</b> ( ☐ N/A, water sample/O Did samples originate in a quarantine zone within		)	CA EL C					Contents:	10/27/20
ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (			CA, FL, GA		sampies or vaii and Pue			source (internation ]Yes 🎞 No	ally, including
If Yes to either question, fi	ll out a Regulate	d Soil Ch	necklist (F	-MN-Q-	338) and i	nclude with	SCUR/C	OC paperwork.	
							COM	MENTS:	- · · ·
Chain of Custody Present and Filled Out?  Chain of Custody Relinquished?	Types .	□No		1.			••		
Sampler Name and/or Signature on COC?	Z Yes X Yes	No □No	□n/a	2. 3.					
Samples Arrived within Hold Time?	Yes	□No	<u> </u>	4.					IFB.
Short Hold Time Analysis (<72 hr)?	Yes	<b>70</b> %		5.	Fecal Colifor	rm HPC 1	Total Coli	form/E coli BOD/orthophos Other	BOD Hex Chrome
Rush Turn Around Time Requested?	Yes	No		6.					
Sufficient Volume?	¥Yes	No		7.					
Correct Containers Used?	₩ZVes	□No		8.					
-Pace Containers Used? Containers Intact?	Yes Yes	□ No □ No							
Field Filtered Volume Received for Dissolved Tests			<b>M</b>	9.					/
Is sufficient information available to reconcile the s		□No	<b>⊠</b> N/A			Date/Time on			es No See Exception
to the COC?  Matrix:   Water   Other  Other	Yes	□No		12. ""	o, wiice ib,	Date, Time on	Contain	CI DCIOW.	ENV-FRM-MIN4-0142
All containers needing acid/base preservation have	been	□No	<b>□ZÎ</b> N/A	12. Sar	nnle #				<u>.</u>
checked?	Decir Lives	⊔ио	TW/A	12. 301	ilpie <del>II</del>				
All containers needing preservation are found to be compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Co	□ 163	□No	□ <b>Z</b> ON/A	,	□ NaOH	□ нг	NO <sub>3</sub>	∏H₂SO4	☐Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Greas	e, □Yes	□No	<b>Ø</b> N/A	Positive Chlorin	=	⊒Yes ⊒No	рН Рар	er Lot#	See Exception ENV-FRM-MIN4-0142
DRO/8015 (water) and Dioxin/PFAS			·	Res. Ch	lorine	0-6 Roll		0-6 Strip	0-14 Strip
Extra labels present on soil VOA or WIDRO contains Headspace in VOA Vials (greater than 6mm)?	ers? Yes	□No □No	N/A N/A	13.		1		-	See Exception ENV-FRM-MIN4-0140
Trip Blank Present?	□Yes	□No	N/A	14.					FIGA-LIGIT-MINET-0740
Trip Blank Custody Seals Present?	☐Yes	□No	N/A	P.	ace Trip Bla	ank Lot # (if p	ourchase	d):	
<b>CLIENT NOTIFICATION/RESOLUTION</b> Person Contacted:				Date	/Time:	Fiel	d Data	Required? Y	es 🗌 No
Comments/Resolution:						-			··
	1								
Project Manager Review:	L du	met	/		Date:		20		
Note: Whenever there is a discrepancy affecting North hold, incorrect preservative, out of temp, incorrect con-	Carolina com/pliz/ni tainers).	ce sample	es, a copy o	of this for	m will be se	nt to the Nor	th Caroli	na DEHNR Certifica	tion Office (i.e out of

Labeled by: MKZ6

Page 26 of 26

A	NON-HAZARDOUS	1. Generator ID Number	1_ **	3. Emergency Respon		4. Waste Tr	acking Nu	ımber	
Ш	WASTE MANIFEST	NONHAZARDOUS	1	3E: 800-45		J20040	18-SR	R	
П	5. Generator's Name and Maili	ing Address		Generator's Site Addre	ess (if different	than mailing addre	ss)		
	MPCA-SW134 Bec	gin Landfill	N	IPCA-SW134	Begin	Landfil]			
П	520 Lafayette St. Paul, MN	Road North	C	Cottonwood	Plaza		-Ti.		
	Management of the second of th		. in	900 Vinewolymouth,	ood Ln	N.			
	Generator's Phone 651-7			-ymulicil,	2544T	U.S. EPA ID I	Number		-
	6. Transporter 1 Company Nan	ne				0.0. LFM ID I	aumber		
	BAY WEST LLC					MMD982	20543		_
Ш	7. Transporter 2 Company Nan					U.S. EPA ID 1		210	ı
		unical Solutions-N	J						
П	8. Designated Facility Name ar	nd Site Address	Alum			U.S. EPAID	Number		- 1
Ш	Veolia ES Tech	mical Solutions -	SEE CON	Pand					1
	West Carrollto	<del>r Road</del> Wizu <del>or, oii 15110</del> Menov	house Falls with	52 h S I		WID003	9671	48	
	Facility's Phone: 937 91	59-6101 800-255-	5092	,,0,1		OHDO 93	100		I
			- ( )n	10. Co	ntainers	11. Total	12. Unit	Ī	
	9. Waste Shipping Nam	e and Description		No.	Туре	Quantity	Wt./Vol.	32	į
11	Non DOT, No	on RCRA Hazardous Wa	ste Crici.		- 7,				UIS.
8			oce, 1/0,1 Cattings	',		11 .00			
A				28	DM	11,200	P		
Ä									
GENERATOR	2.								
Ĭ									
П									
	3.								
П									
	4.								
						12.0			
	13. Special Handling Instruction	ns and Additional Information		- 100 Marie 10 CM					
1	1) WIP842603-I	DW soil cuttings I	M55 Y 28						- 1
1	R Phone# is co	DW soil cuttings I ontracted by Bay W	lest W/3E/Verisk	(Contracti	£ 5567)				
L	Job#: J200408	CHODRINHS	7	,					
		See OK Cielly						7.	
							DU31	6195	
	14 GENERATOR'S/OFFEROI	R'S CERTIFICATION: I hereby declare th	at the contents of this consignment are	e fully and accurately de	escribed above				
		ded, and are in all respects in proper cond					ping name,	, and are oldosined, packaged,	
	Generator's/Offeror's Printed/T	vned Name	Sigr	nature_	~1			Month Day Ye	-
1	Andrew Edd	ypeditanic			7 ( / /				ear 🚪
μ.		• • • • • • • • • • • • • • • • • • • •	1	e-C	' 2			2 31 2	- 11
1		. Ny		e-C	1			3 31 2	- 11
NT.L	15. International Shipments	Import to U.S.	Export from U	I.S. Port of	entry/exit:			3 31 2	- 11
NT'L	15. International Shipments  Transporter Signature (for expo	Import to U.S.	Export from U	I.S. Port of	entry/exit:			3 31 2	- 11
_	15. International Shipments Transporter Signature (for exported 16. Transporter Acknowledgment)	Import to U.S. orts only): ent of Receipt of Materials		J.S. Port of Date le				13 1011	•
_	15. International Shipments Transporter Signature (for exported 16. Transporter Acknowledgment Transporter 1 Printed/Typed National States (1997).	Import to U.S. orts only): ent of Receipt of Materials		I.S. Port of				Month Day Ye	ear
_	15. International Shipments Transporter Signature (for exported in the state of the	Import to U.S. orts only): ent of Receipt of Materials ame	Sign	S. Port of Date le			,	Month Day Ye	ear
_	15. International Shipments Transporter Signature (for exported 16. Transporter Acknowledgment Transporter 1 Printed/Typed National States (1997).	Import to U.S. orts only): ent of Receipt of Materials ame	Sign Sign	J.S. Port of Date le			9	Month Day Ye	ear T
TRANSPORTER INT'L	15. International Shipments Transporter Signature (for exported in the state of the	Import to U.S. orts only): ent of Receipt of Materials ame	Sign Sign	S. Port of Date le				Month Day Ye	ear
-	15. International Shipments Transporter Signature (for exported to the standard of the standar	Import to U.S. orts only): ent of Receipt of Materials ame ame	Sign	S. Port of Date le			,	Month Day Ye	ear
-	15. International Shipments Transporter Signature (for exported for ex	Import to U.S. orts only): ent of Receipt of Materials ame ame JG	Sign Sign	I.S. Port of Date le		Postial P.	, , , , , , , , , , , , , , , , , , ,	Month Day Ye	ear T
-	15. International Shipments Transporter Signature (for exported to the standard of the standar	Import to U.S. orts only): ent of Receipt of Materials ame ame	Sign Sign	S. Port of Date le		Partial Reje	ection	Month Day Ye	ear T
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TRANSPORTER	15. International Shipments Transporter Signature (for exported to the standard of the standar	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity	Sign Sign	I.S. Port of Date le	J.S.:			Month Day Ye	ear T
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TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear T
FACILITY TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity  Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear T ear
FACILITY TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity  Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear
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FACILITY TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity  Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear T ear
TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity  Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear T ear
FACILITY TRANSPORTER	15. International Shipments Transporter Signature (for exported to the state of the	Import to U.S. orts only): ent of Receipt of Materials ame ame Quantity  Quantity	Sign Sign	Pature Residue	J.S.:			Month Day Ye	ear T ear
FACILITY TRANSPORTER	15. International Shipments Transporter Signature (for exported for ex	Import to U.S. orts only): ent of Receipt of Materials ame  ame  Quantity  crator)	Sign Sign Type	Residue  Manifest Reference	J.S.:			Month Day Ye	ear T ear
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# Appendix B Monitoring Point Repairs

June 2021 BWJ200408

Bay West LLC 5 Empire Drive St. Paul, Minnesota 55103-1867

651/291-0456 FAX 651/291-0099 1-800-279-0456

\_1\_\_ of \_\_\_1\_

### **DAILY DIARY**

To be completed by Crew Leader

Job Name SW#134 Begin – Monument Repairs	Job No. J210344	Date 6/7/2021
Project Manager Erik Nimlos	Bay West Crew Megan Hutchinson	
Personnel on Site (Client, Visitors, Bay West st		
Bronson Keller, Brady Cain with Dakota	Technologies	
Detailed description of work performed:		· · · · · · · · · · · · · · · · · · ·
8:00 - Arrived at Bay West, calibrated equipment	ent, printed field binder documents.	
9:00 – Left Bay West for the site.		
9:30 – Arrived on site, went over SSHP.		
10:00 - Met with drillers (Bronson and Brady)	went over SSHP and tailgate, had the	em sign both.
10:16 – Began repairs on PSG-06.		
10:30 - Drillers had difficulty removing the cor	ncrete around the well, Brady left the s	site to go get more tools.
10:38 - Bronson began the removal process of	of the unknown well.	
11:02 - Brady came back with necessary tool	S.	
11:15 - Unknown well was sealed with Bense	al and completed.	
11:20 - Began repairs on PSG-06 again.		
11:53 – PSG-06 repairs completed.		
12:03 – Began repairs on PSG-03.		
13:20 - Drillers finished replacing the outer ca	sing of PSG-03 and filled it following t	he construction details
provided by Bay West.		
14:00 - Drillers cleaned around wells and load	ded equipment, left site.	
15:15 - Arrived back at Bay West and unloaded	ed equipment.	
Waste Generated:	<b>经工程的证据 医强制性遗传</b>	
None		
Change in Conditions (if any):		
None		
2.0.000		
Sample Summary:		
Samples Taken: ☐ Yes ☐ No	No. of Samples 0	COC #: N/A
Sample Destination:		
N/A Size and Type of Sample:		:
N/A		
IWA		





Photo 1: Close-up view of PSG-03 facing east



Photo 2: PSG-06 vault in foreground facing east

Appendix B –SW134 FY2021 Photographic Log





Photo 3: Unidentified well along Vinewood Lane facing west



Photo 4: Location of unidentified well following removal and sealing

Appendix B –SW134 FY2021 Photographic Log





Photo 5: Complete replacement of PSG-03 facing south



Photo 6: Completed replacement of PSG-06 vault

Appendix B –SW134 FY2021 Photographic Log



# Appendix C Sampling and Construction Logs

June 2021 BWJ200408

PROJECT NO. / NAME  J200408 / SW# 134 Bec  APPROVED BY	in Demolition Landfill	LOCATION Cottonw	ood Plaza		]		
Erik Nimlos		Plymout	h, MN				
DRILLING CONTRACTOR / DF	RILLER	LOGGED B	Y		1		
Midwestern / Tucker DRILLING EQUIPMENT / MET	HOD	Ethan Er SIZE / TYP	ngstrom F of Bit	SAMPLING I	METHOD	START-FINISH	I DATE
GeoProbe / Direct Pusi	า	2 inch	2 0. 5	Macroco		10/7/20-10/	
CASING MAT. / DIA.	SCREEN:	DVC	TOTAL   5110TI	. 40	nu 2 inch	01.07.0175	. 0.01
PVC / 2 ELEVATION OF: GR	TYPE OUND SURFACE TOP OF	MAT.PVC WELL CASING	TOTAL LENGTH	1 10 EEN (	DIA. <b>2 inch</b> GW SURFACE		DATE
(FT. ABOVE MSL)							
Stick Up	2	bis				Analytical	PID W Headspace
Depth, t bgs		aphic .og	Visual Des	cription	1	Sample Number	D Values
		Topsoil				rambor	= (ppm)
.1	VENERAL PROPERTY OF THE PROPER	Concrete					
2		Sand, bro	wn, fine-grained, trace grave	el			
3		Concrete	, wood debris				
4					•		
		2	and have the state of the state			· · · · ·	
5	5		sand, brown, well graded, me	edium grained	1 ,	5	
6		Concrete	and IIII				
7		7 4					
8		- 1 A					
9							
10	40	2				10	
	10 3 3	Wood, co	ncrete debris, trace sand			10	
11	····	$\bowtie$					
12							
13		Sandy cla	y, gray, trace gravel, moist,	no odor			
14							
15	15					15	
	15				,	15	
16							
17							
18							
19		Fill mater	ials: debris, concrete, wood				
20	20					20	
		$\bowtie$					
21	···· 💥	<b>XXX</b>					
22	· · · · · · · · · · · · · · · · · · ·						
23		$\bowtie$					
24	<b>₩</b>	$\bowtie$					
25	25	$\bowtie$				25	
		Silty-sand	l, gray, fine-grained, moist, n	o odor	,		
26		扭扣					
27							
28		掛掛					
29		排料					
30_	30	14.4				30	
31		Gravelly s	sand, grey, well graded, no o	dor			
NXI		Silty sand	, brey/brown, very fine grain	ed, saturated,	slight odor		
32							
33							
34		扫扫					
35	35	#####				35	1 1

BOREHOLE LOCATION SKETCH MAP



## Page 2 of 3 BOREHOLE NO. WELL CONSTRUCTION LOG

**SB-01** PROJECT NO. / NAME LOCATION J200408 / SW# 134 Begin Demolition Landfill **Cottonwood Plaza** APPROVED BY **Erik Nimlos** Plymouth, MN PID Analytical Depth, ft bgs Headspace Graphic Well Summary Visual Description Sample Number Log Values (ppm) Silty clay, brown, high plasticitiy, saturated, no odor -Cement Gravelly clay, brown, high plasticitiy, moist Sand, brown, fine grained, trace gravel, moist, no odor Gravelly sand, brown, fine-medium grained, saturated, no odor Gravellly clay, brown, low plasticity, saturated, no odor <u>55</u> Sand, brown, fine-grained, trace gravel, moist, no odor J200408.GPJ SW134 I LOG <u>70</u> WELL CONSTRUCTION -2" Sch 40 PVC 



Page <b>3</b> of <b>3</b>	WELL CONS	STRUCTION LOG					
BOREHOLE NO.	ANELL COINS	TRUCTION LOG					
SB-01							
PROJECT NO. / NAME		LOCATION					
J200408 / SW# 134 Be	gin Demolition Landfill	Cottonwood Plaza					
APPROVED BY	_						
Erik Nimlos		Plymouth, MN					

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
76						
.77						
78						
79						
80		-slot <u>80   </u>	<u>-</u>	80		
81						
82						
83						
84						
85		<u>85   ```````</u>	<u>.</u>	<u>85</u>		
86						
87		* * * * * * * * * * * * * * * * * * * *				

BOREHOLE NO			LL COI	43 I NOC	TION LOG	‡	See Figur	е
PROJECT NO.	/ NAME			LOCATION	<b>N</b>	<b>-</b>   <b> </b>		
APPROVED BY	W# 134 Be	gin Demo	ition Landfill	Cottonwood I	Plaza	"		
Erik Nimlos	TDACTOR / F	אסוויר		Plymouth, MN	l .			
DRILLING CON Midwestern		RILLER		LOGGED BY  Ethan Engstr	om			
DRILLING EQU	IPMENT / ME			SIZE / TYPE OF B	SAMPLING		START-FINISH	
GeoProbe / CASING MAT. /		SCREEN:		2 inch	Macroc	ore	10/5/20-10/	6/20
PVC / 2		TYPE		MAT.PVC	TOTAL LENGTH 10	DIA. 2 inch		
ELEVATION OF (FT. ABOVE MS		ROUND SURI	-ACE TOP OF	WELL CASING T	OP & BOTTOM SCREEN	GW SURFACE	GW	DATE
	k Úp 🔻 📈			·			Analytical	_ PII
Depth, ft bgs	1 =		Gra <sub>l</sub> Lo		Visual Description	n	Analytical Sample	Value Value
				TOPSOIL			Number	= (pp
. 1			- CEMENT		trace gravel, moist, no odor, low	plasticty	-	
. 2								
3								
. 4				Wood debris  Brown silty clay	trace gravel, moist, no odor, low	nlasticty	-	
5			5	Diowii siity ddy,	ados graver, moist, no odor, low	ριαστίσε	5_	
6			<u> </u>					
. 7								
8				Asphalt				
. 9								
10			10	Light brown clay	, trace gravel, low plasticty		10	
11								
12				Light gray silty c debris	lay, trace sand, moist, low plastici	ty, trace wood		
13								
14								
15			15				15	
			13				<u>15</u>	
16								
.17								
18								
19								
20			<u>20</u>				20	
21								
22								
23								
24								
25			<u>25</u>	Gravelly brown s	sand, poorly graded, no odor, moi	st	25	
26					· -			
27								
28								
29								
30			30				30	
31					sand, poorly graded, no odor, satu			
				grained				
32			ment					
.33								
34				Gravelly brown s fine grained	sand, poorly graded, no odor, moi	st, trace rock		
35		$\langle \langle $	35	inie granieu			35	1 1

BOREHOLE LOCATION SKETCH MAP



## Page 2 of 3 BOREHOLE NO. WELL CONSTRUCTION LOG

SB-02
PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill
APPROVED BY
Erik Nimlos

LOCATION
Cottonwood Plaza
Plymouth, MN

<u>J200408 / S</u> APPROVED B	SW# 134 Begin Demolition	Langtili	Cottonwood Plaza				
Erik Nimlos			Plymouth, MN				
Depth, ft bgs	Well Summary	Graphic Log	Visual Description		Analytical Sample Number	Interval	PID Headsp Value (ppm
200			Gravelly brown sand, poorly graded, no odor, highly satu	ırated,		П	(рріі
36			trace rock fine grained, end of landfill				
37							
38							
39			Gravelly brown sand, coarse grained, large trace rocks, graded, no odor	well			
40		40	,	40			
11							
42							
43							
14							
45		45		45			
			Gravelly brown sand, coarse grained, trace rocks, well g	raded,			
46			moist, no odor				
47							
18							
19							
50		50		50			
		50		<u></u>			
51							
52							
53							
54							
55		<u>55</u>		55			
		50	Fine grained sand, brown, poorly graded, moist, trace ro				
56			odor				
57							
58							
59							
60		60	Gravelly brown sand, coarse grained, trace rock, wellgra	ided,			
		<u>oo</u>	moist, no odor	<u>00</u>			
61							
52							
63							
64							
<u> </u>		<u>65</u>		65			
	V/// Y///	<u> </u>		_00_			
66	—2" Sch 40 F Riser	PVC ····					
67 <sub></sub>							
68							
69							
70		<u>70</u>		70			
		<del>/  </del>		10			
71							
72							
73							
74							
75	2" PVC 10-	75		75			



200408 / PPROVED I			on nwood Plaza outh, MN	PIC
oth, gs	Well Summary	Graphic Log	Visual Description	Analytical Heads Sample by Valu Number (ppn
3				
7 3				
9				
<u>)                                    </u>	[1421 422] 1421 4	80		80

1

2 3

J200408.GPJ

SW134 I

WELL CONSTRUCTION

29 LOG 30

31

BOREHOLE LOCATION SKETCH MAP

WELL CONSTRUCTION LOG See Figure BOREHOLE NO. **SB-03** LOCATION PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill **Cottonwood Plaza** APPROVED BY **Erik Nimlos** Plymouth, MN DRILLING CONTRACTOR / DRILLER Midwestern / Tucker **Ethan Engstrom** DRILLING EQUIPMENT / METHOD SAMPLING METHOD START-FINISH DATE 2 inch GeoProbe / Direct Push **Macrocore** SCREEN: CASING MAT. / DIA.

9/22/20-9/24/20

30

35

DIA. 2 inch **PVC / 2** MAT.PVC SLOT SIZE 0.01 TOTAL LENGTH 10 TYPE GROUND SURFACE ELEVATION OF: TOP OF WELL CASING TOP & BOTTOM SCREEN GW SURFACE **GW DATE** (FT. ABOVE MSL Stick Up PID Analytical eadspace Depth, Graphic Visual Description Sample Values ft bgs Log Number (ppm) TOPSOIL CEMENT

Gravelly sand, rust colored, fine grained, dry, no odor

Gravelly clay, brown, moist, high plasticity

Black gravelly sand, saturated, well graded

Gray silty clay, saturated, high plasticity, trace roots, no odor,

Gravel

4 5 5\_ 6 Gray silty clay, medium plasticity, slight odor, very moist, trace gavel, wood debris, color darkens as boring decends 8 9 10 10 10 11 Silty clay, gray, high plasticity, moist, no odor, trace pebbles 12 13 14 15 <u>15</u> <u>15</u> 16 Brown sandy clay, fine grained, trace rock, very moist, low odor, 17 18 Brown gravelly clay, fine grained, trace rock, no odor, very moist, 19 20 20 21 Color turns gray, lower plasticity, more gravelly 22 23 24 Gray silty clay, tracce gravel, moist, low plasticity, no odor 25 25 26 Black silty clay, low plasticity, trace roots, trace rock, low 27 Gray silty clay, trace gravel, medium plasticcity, moist, no odor 28



### Page 2 of 3 BOREHOLE NO. WELL CONSTRUCTION LOG

**SB-03** LOCATION PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill **Cottonwood Plaza** APPROVED BY **Erik Nimlos** Plymouth, MN PID Analytical Headspace Depth, ft bgs Graphic Well Summary Visual Description Sample Values Log Number (ppm) 36 37 38 Gray silty sand, low plasticity, fine grained, trace gravel, moist 39 Gray clay trace gravel, silty moist, high plasticity Black sand, trace rock, fine grined, small glass debris, end of fill 40 40 'Gray gravelly sand, saturated, odor, trace gravel, low plasticity 41 42 43 Black sand, fine grained, lots of trace organics, moist, odor 44 45 45 45 46 47 48 49 Sandy clay, gray, trace rocks, moisst, no odor, medium plasticity 50 50 <u>50</u> Gray silty clay, moist, high plasticity, no odor 51 52 53 Gravelly clay, low plasticity, moist, no odor 54 Gray fine grained sand, compact, poorly graded, moist, no odor 55 55 55 56 57 58 59 60 60 60 Silty brown sand, compact, moist, fine grained, trace rock 61 62 J200408.GPJ 63 64 65 65 65 66 SW134 I 67 68 69 LOG 70 70 Silty gray clay, low plasticity, trace rock, moist WELL CONSTRUCTION 71 72 73 74 75 75



## Page 3 of 3 BOREHOLE NO. BOREHOLE NO. BOREHOLE NO.

SB-03	
PROJECT NO. / NAME	LOCATION
J200408 / SW# 134 Begin Demolition Landfill	Cottonwood Plaza
APPROVED BY	
Erik Nimlos	Plymouth, MN

Erik Nimlos			Plymouth, MN				
Depth, ft bgs	Well Summary	Graphic Log	Visual Description		Analytical Sample Number	Interval	PID Headspace Values (ppm)
76			Silty brown sand, compact, moist, fine grained, trace ro	ck 			
.77							
78							
79							
80		80		80			
81							
82							
83	—— 2" Sch 40 F Riser	PVC ····					
84	Riser						
85		85		85			
86							
.87							
.88			Brown gravelly sand, well graded, saturated, angular, co	oarse			
.89			grained				
90	2" PVC 10-	slot $\frac{90}{}$		90			
91							
92							
93							
94							
95	[Political]	95   • • • •		95			

WELL CONSTRUCTION LOG MPCA\_SW134 BEGIN\_J200408.GPJ ENV LOG #1.GDT 4/22/21

PROJECT NO. / NAME <b>J200408 / SW# 134</b>	Rogin Da	molition I and	fill	LOCATION Cottonwood Plaza			
APPROVED BY Erik Nimlos	Degin De	momion Land	1111	]			
DRILLING CONTRACTOR				Plymouth, MN LOGGED BY			
Midwestern / Tucker DRILLING EQUIPMENT /				Ethan Engstrom SIZE / TYPE OF BIT	SAMPLING METHOD	START-FINISH	1 DATE
GeoProbe / Direct I	Push			2 inch	Macrocore	9/21/20-9/2	
CASING MAT. / DIA.  PVC / 2		EEN: TYPE	M	AT. <b>PVC</b> TOTAL LE	ENGTH 10 DIA. 2 ir	nch slot size	0.01
ELEVATION OF:			OP OF WEL		SCREEN GW SURFA		/ DATE
(FT. ABOVE MSL) Stick Up \ _				I			PID
Depth, ft bgs			Graphic	Visual [	Description	Analytical Sample	Headspace (nom)
t bgs			Log		<u> </u>	Number	(ppm)
1		CEMENT		TOPSOIL Gravel, trace sands		<b>-</b>	
2							
3			à 💆 🖯 à	Gravelly sand, fine grained, bro	wn, dry, no odor		
4							
5		5		g		_5_	
6							
W//				Gravelly clay, brown, moist, higl	h plasticity		
7							
8							
9							
10_		10				10	
11				Gray silty clay, medium plasticit	v slight odor vorv moist		
12				Gray Silly Gay, medium plasticit	y, slight odor, very moist		
3							
14							
15		1!	5			15	
16		_					
17				Brown sandy clay, fine grained, plasticity, low odor	trace rock, very moist, high		
17				plasticity, IOW OUOI			
·····				Gravelly clay, fine grained, mois	st, high plasticity, brown		
19							
20_		<u>2</u> 1	<u> </u>			20	
21							
22				Gravelly clay turns gray, lower p	slasticity		
23				Gravelly day turns gray, lower p	лазиыцу		
24							
25		<u>2</u> :	5 1/1/1/2			25	
26		_					
27							
28				Brown sandy clay, fine grained,	low plasticity, low odor, moist		
29						20	
30_		30				30	
31				Brown sand, fine grained, poorly	y graded, trace rock		
32			. 0 .	, g.aa., poori	,		
33		—Cement		Silty brown sand, very fine grair	and		
34			1///////	Compact gray/brown clay, low p		<u> </u>	
35		3:	5 ///////	moist, concrete		35	

BOREHOLE LOCATION SKETCH MAP



#### 2 of **3** WELL CONSTRUCTION LOG Page BOREHOLE NO.

75

75

SB-04 LOCATION PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill **Cottonwood Plaza** APPROVED BY **Erik Nimlos** Plymouth, MN PID Analytical Graphic Log Headspace Depth, ft bgs Well Summary Visual Description Sample Number Values (ppm) Silty brown sand, very fine grained, well graded, trace rocks, 36 trace debriss, moist, compact, no odor 37 38 39 End of landfill 40 40 40 Silty brown sand, very fine grained, well graded, trace rocks, 41 trace debriss, moist, compact, no odor 42 43 44 45 45 45 Fine grained brown sand, trace gravel, highly saturated, no odor 46 47 Gravelly sand, well graded, brown, trace rocks, fine grainned, 48 moist, no odor 49 Ø. 50 <u>50</u> 50 0 0 51 o: () 52 Ø 53 0 54 <u>55</u> 55 <u>55</u> ij. 0 56 0 57 o () 58 Gray silty sand, trace gravel, moist, no odor 59 LOG #1.GDT 60 60 60 61 62 J200408.GPJ 63 64 65 65 65 66 2" Sch 40 PVC SW134 I 67 68 69 LOG 70 <u>70</u> 70 WELL CONSTRUCTION 71 72 73 -2" PVC 10-slot 74

PROVED BY rik Nimlos  oth, gs	Well Summary	Graphic Log	visual Description	Analytical Sample Number Very (r.
ggs 6		Log	Visual Description	Analytical Be Hea Sample Sy Ve (r.
 } }				
ł ł				
<u> </u>		<u>80 [조단하다]</u>		80_

SB-05 PROJECT NO. / NAME	in Damaria	I£!!!	LOCATION			
J200408 / SW# 134 Beg APPROVED BY	in Demolition Lar	ndtiii	Cottonwood Plaza			
<b>Erik Nimlos</b> Drilling Contractor / Dr	IIIED		Plymouth, MN LOGGED BY			
Midwestern / Tucker	ILLEN		Ethan Engstrom			
ORILLING EQUIPMENT / METH			SIZE / TYPE OF BIT	SAMPLING METHOD	START-FINISH	
<b>GeoProbe / Direct Push</b> CASING MAT. / DIA.	SCREEN:		2 inch	Macrocore	10/9/20-10/	9/20
PVC / 2	TYPE	M	AT. <b>PVC</b> TOTAL LEN	NGTH 10 DIA. 2 in	nch SLOT SIZE	0.01
	OUND SURFACE	TOP OF WEL	L CASING TOP & BOTTOM	SCREEN GW SURFA		DATE
FT. ABOVE MSL) Stick Up \			Ι			PID
lepth,		Graphic	Visual D	escription	Analytical Sample	F Headspac
t bgs		Log	VISUALD	escription	Number	प्रalues (ppm)
1	CEMENT	711/1 7/11/1 7	Topsoil			
1			orarony carra, proving mountain gr	rained sand, dry, no odor		
2			<u>'</u>			
3		XXXX	Gravelly clay, grey, very low plast	ticity maist no odor	<del></del> ····	
4			Jiavony Jiay, grey, very low plasi	iony, moior, no odor		
<u>5</u>		5			_5_	
6		(XXXXX				
····						
7			Sandy clay, dark brown, high plas	sticity, moist, no odor		
8						
9						
10		10 /////			10	
11						
12			Sand, gray, fine grained, trace gr	avel, saturated, no odor		
····			Cilturales	anticity antit		
13	Cement		Silty clay, gray, saturated, high pl	asucity, saturated, no odor		
14			Gravelly clay, gray, medium plast	icity, trace gravel, saturated in	<u> </u>	
<u>15</u>		<u>15</u>	odor	,, g oi, outuratou, 110	<u>15</u>	
16						
17						
18						
····			9			
19						
20		20			20	
21						
22						
23						
			2			
24			\$			
25		25 6 0			25	
26	<b>Y</b> //>					
27	2" Sch 40 PVC					
28	2" Sch 40 PVC Riser		Silty clay, brown, trace gravel, lov	v plasticity, saturated, no odor		
29						
17.571		20			20	
30		30			30	
31	<b> </b>  :::		Gravelly sand, grey, coarse grain	ed poorly graded saturated n	<u></u>	
32		. 6:2	odor	, poorry gradou, saturateu, II	-	
33			2			
34	<b>1</b>					

BOREHOLE LOCATION SKETCH MAP

Page BOREH			2	WELL C	ONS	STRUC	TION LOG
PROJEC	CT NO	. / NAI	ME			LOCATION	
J2004	08/8	SW#	134 Be	gin Demolition Landfil	II	Cottonwood F	Plaza
APPRO\	VED B	Υ					
Erik N	imlo	s				Plymouth, MN	
Depth, ft bgs			Well Su	ummary	Graphic Log		Visual Description

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
36	2" PVC	10-slot				
37						
38						
39						
40		<u>40</u>		40		
41						
42						

WELL OR BORING LOCATION			MI	NNESOTA	DEPARTMENT OF HEALTH		MINNESOTA AND BO	N UNIQUE WELL ORING NO.
County Name	*	WELL	AND E	ORIN	G CONSTRUCTION REC	CORD	02/	ICOE
Hennesia				Minneso	ta Statutes, Chapter 103I		834	1635
Township Name Township	No. Range No.	Section No. Fr	raction (sm.	. → lg.)	WELL/BORING DEPTH (completed)		COMPLETED	
City of Phyman 11	9 22	15	SEI M	w/su	40'	ft. /4	1/9/20	2
GPS LOCATION — decimal degrees (1	to four decimal places	13011			DRILLING METHOD		· -	
Latitude 45° 61'35" N						Driven Rotary	Dual Rot Rotason	
House Number, Street Name, City, and					Other			
12920 39 <sup>th</sup> Ave M Show exact location of well/boring in s	U, Plymout	4 MN 55	441		DRILLING FLUID	WELL HYDRO	FRACTURED?	Yes No
Show exact location of well/boring in s	ection grid with "X."	5	nowing pro	perty lines,	NA	From	ft. To_	ft.
N	NT.	roads, bu	uildings, and	d direction.		Monitoring	☐ Heating	
	T	H [1]	1 (	12		Environ, Bore Hole		y/Commercial
	MI		B	131		Irrigation Dewatering	Remed	lai
W	14/4		0	151	a course surrenue	ve Shoe? Yes		HOLE DIAM.
×	17/			14			Welded	
1/2	Mile		_	10,	<b>∑</b> Flastic □			
	- 1	1	1	11	CASING Diameter Weight	Specific	ations	
1 Mile			1	11	2 in. To 30 ft. 12	45 lbs./ft.	PUC	8 in. To 40 ft.
	1	101	(1)	1 ,	in. To ft.			in. To ft.
PROPERTY OWNER'S NAME/COMPA	ANY NAME	المشا			in. To ft.			in. To ft.
Vinewood Acquis	Ition LLC				SCREEN Yes	lbs./ft.	LE	111. 10 11.
Property owner's mailing address if diff	ferent than well location	on address indicated	above.		Make Johnson	From		To 40 ft.
6390 Carlson C	)r.				Type PUC	Diam.	-	
					Slot/Gauze 1010	Length		The second secon
Eden Prairie,	20 5536	16-			Set between 35 ft. and 48	ft. FITTIN	as Flush	Thread
Loven manie,		0			STATIC WATER LEVEL 35	ftselow	Above land surfa	ace
					Measured from grade Date r	measured 10	19/20 Dr	y hole Yes Xo
WELL OWNER'S NAME/COMPANY N	1				PUMPING LEVEL (below land surface)			
MPLA (And Well/boring owner's mailing address if	, toldy)				NA ft. after	hrs. p	umping	g.p.m.
Well/boring owner's mailing address if	different than property	owner's address inc	dicated abo	ve.	WELLHEAD COMPLETION		14-del	
520 Lafayette	RdN				Pitless/adapter manufacturer Casing protection		Model	ve grade
J. Morice					At-grade Well House Hand Po			
St. Paul, MN	55150				GROUT INFORMATION (specify bentonite, o			, cuttings, or other) &
31. FAUT, 1110	22/33				Material Bentonte From O	To 28 ft.	10	Yds. Bags
					Material From From	_Toft.		_ Yds Bags
GEOLOGICAL MATERIALS	COLOR	HARDNESS OF	FROM	ТО	Material From	Toft.	Oneh	Yds. Bags
		MATERIAL			Driven casing seal From ToTo		or 50 II	ag = 94 lbs. cement bs. bentonite
11 000	0-		*	112	NEAREST KNOWN SOURCE OF CONTAMI	INATION		
Clacial Orift	Ben	med	8	42	Well is NA feet	direc	ction from	type
					Well disinfected upon completion? Yes	D∕N₀		
	1				PUMP	1		
					Not installed Date installed	H		
					Manufacturer's name	Re Lawrence		
					Model Number	HP	Volts	
					Length of drop pipe	ft. Capa	city	g.p.m.
					Type: Submersible L.S. Turbine	Reciprocating	Jet 🔲	
					ABANDONED WELLS			
	The second second		1		Does property have any not in use and not so	ealed well(s)?	Yes No	
					VARIANCE			
					Was a variance granted from the MDH for thi	is well? Yes	No TN#	
					WELL CONTRACTOR CERTIFICATION			
V.	l and short if				This well was drilled under my supervision ar The information contained in this report is tru	nd in accordance wi ie to the best of my	th Minnesota Ru knowledge.	iles, Chapter 4725.
Use a sec REMARKS, ELEVATION, SOURCE OF	DATA, etc.					. 1		
					MICHACLEUR	Dril	lina	111.20
					Licensee Business Name		Lic. or Reg. No	
						1	0	101
					1 /2/1	lu-	093	5 10/16
				The last	Certified Representative Signature	Certi	fied Rep. No.	Date
		and the second		-	9,01			
IMPORTANT - FILE WITH PROPERT	Y PAPERS WELL OV	VNER COPY	240	25	MIICKEN KPI	nom		
Salah Peli Leni		8	346	35	Name of Driller			

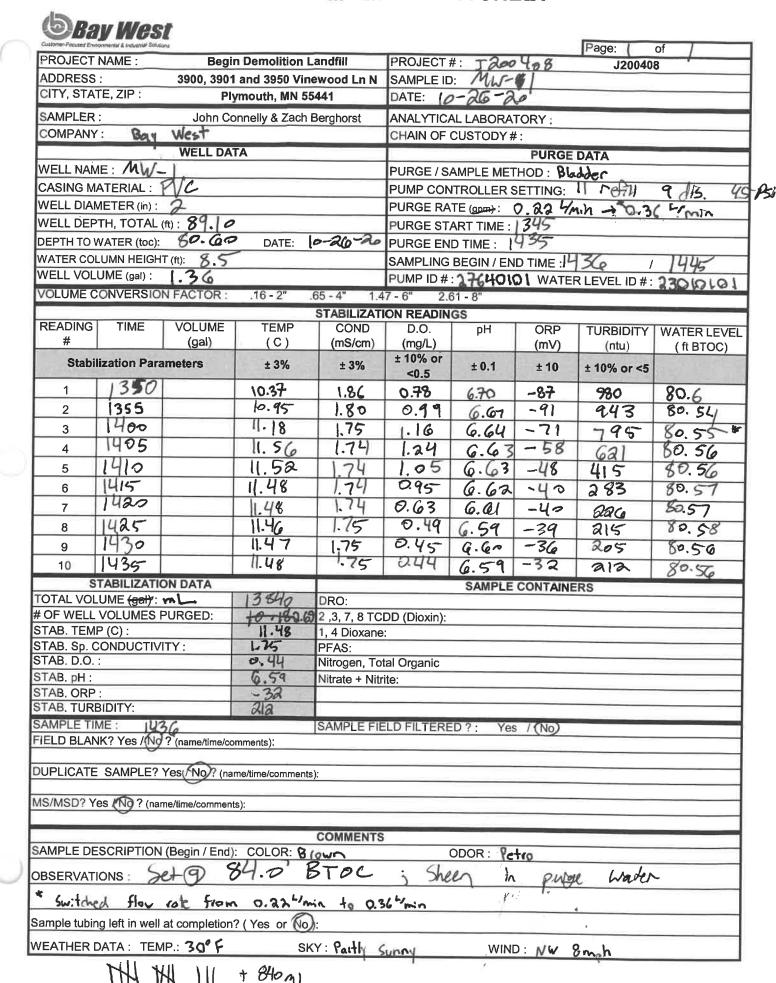
HE-01205-16 (Rev. 5/16)

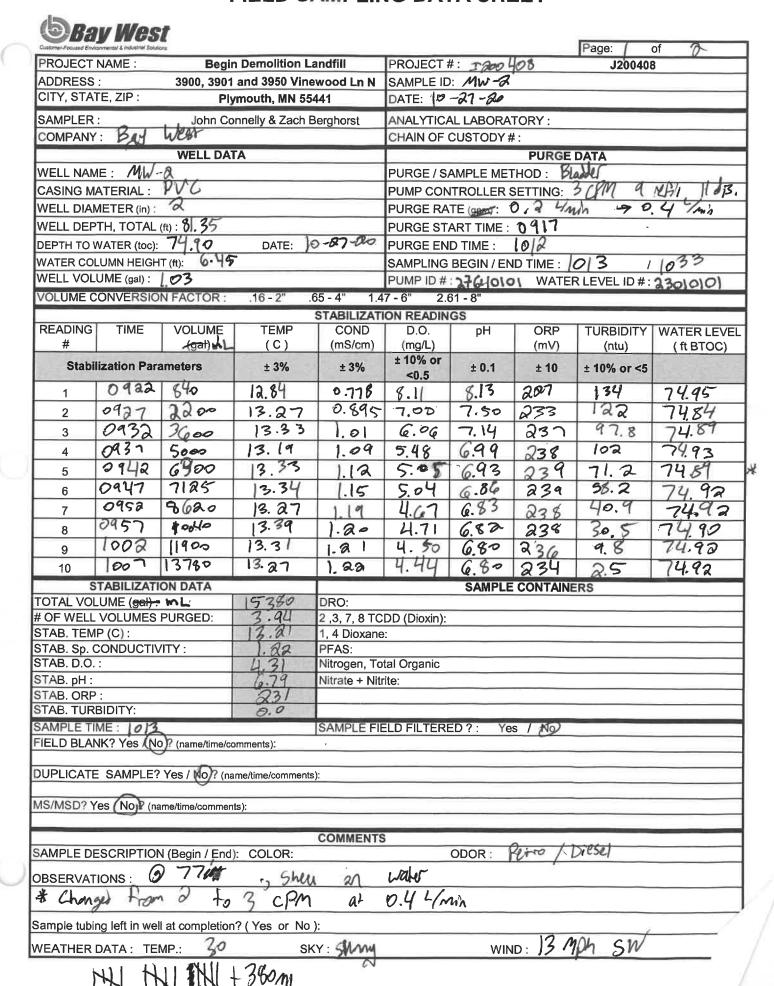
ID #52603



# **GROUNDWATER GAUGING FORM**

PROJECT NAME:	Beg	gin Demolition La	andfill	DATE: 0 -20						
PROJECT NUMBER:		J200408		PERSONNEL: Z. Berghorst S. C						
			PTB	GW INDICATOR USED: TW # 23010101						
Well ID	Time	Water Level	Product Level	Comments: (Missing Cover/Lock, Broken Ballards,etc.)						
MU-J	1019	80.60	89.10	No lock; DTB = 89.10						
MW-a	1030	15.03	81.35	No lock ; Dies						
MW-3	1037	24.00	97.85	No lock; DTB=89.10  No lock; BABE  No lock; gray Sediment at bother						
MW-4	1045	13.92	80.65	No lock						
MW-5	1055	33.58	42.78	No lock						
				3-						
				· · · · · · · · · · · · · · · · · · ·						

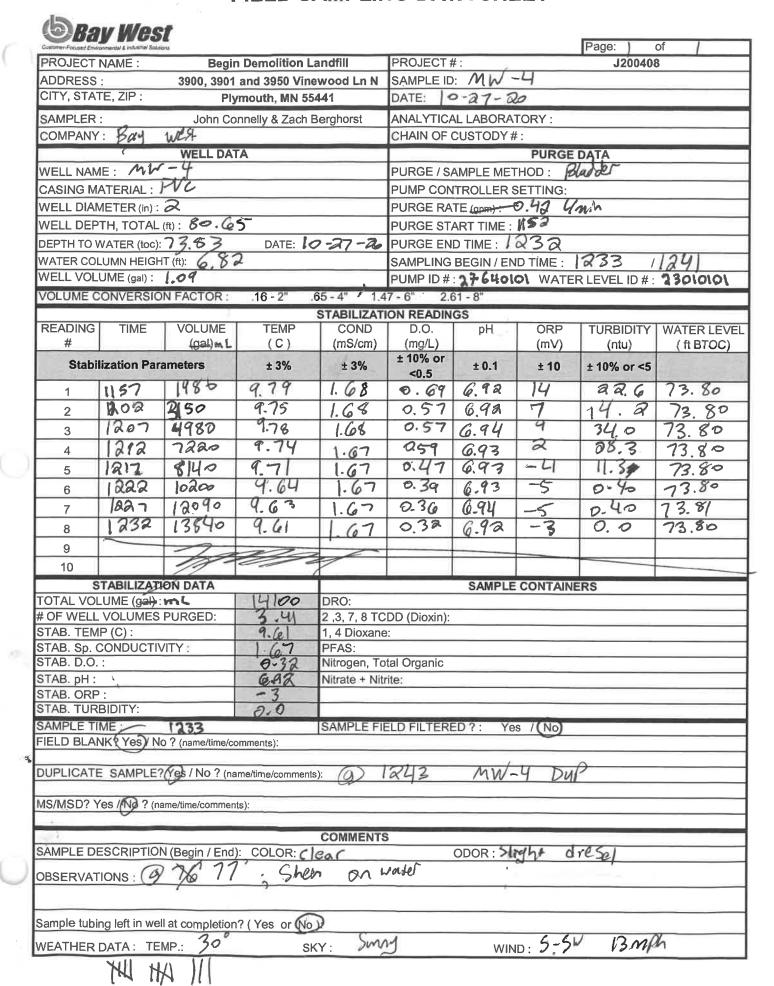






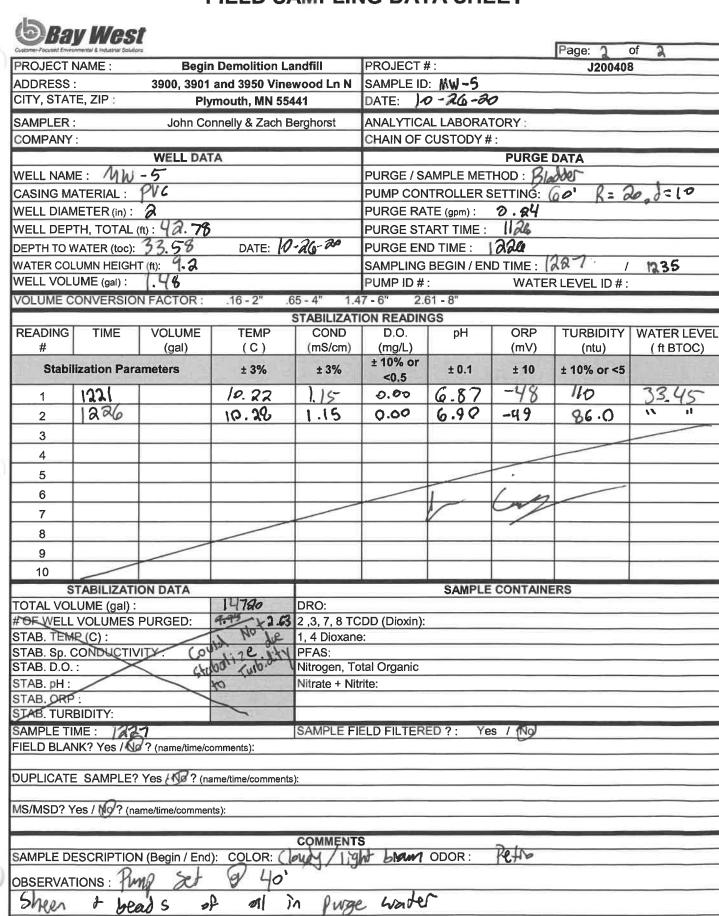
THE COLUMN TWO IS NOT	ironmental & Industrial Soluti							Page: 🔏	of 2		
PROJECT			n Demolition L		PROJECT #		-1	J200408	В		
ADDRESS			and 3950 Vine		SAMPLE ID	: MW-	d				
CITY, STA	TE, ZIP	Ply	mouth, MN 55	441	DATE: 6	7-27-	90				
SAMPLER	:	John Co	nnelly & Zach I	3erghorst	ANALYTICA	L LABORAT	ORY:				
COMPANY	<b>'</b> :				CHAIN OF CUSTODY #:						
		, WELL DAT	ГА				PURGE	DATA			
WELL NAM	ME: MW				PURGE / SA	AMPLE MET					
	IATERIAL				PUMP CON			21	est 1 disal		
	METER (in) :				PURGE RA				0711 9 00-00		
		(ft): 81.35			PURGE STA			71			
	WATER (toc):			7-27-00	PURGE EN						
			DATE: 10	-412				017	1033		
WELL VOL		IT (ft): 6.45			SAMPLING						
		1.03	10 00	72 15 T	PUMP ID#:		WAIE	R LEVEL ID#:			
VOLUME (	CONVERSIO	N FACTOR :	.16 - 2" .			31 - 8"	- 1-24				
DEADING	TIME	1 1/01 11145	TEMP		ION READING		0.77	1			
READING #	TIME	VOLUME	TEMP	COND	D.O.	pН	ORP	TURBIDITY	WATER LEVEL		
			(C)	(mS/cm)	(mg/L) ± 10% or		(mV)	(ntu)	(ft BTOC)		
Stabi	ilization Para	ameters	± 3%	± 3%	<0.5	± 0.1	± 10	± 10% or <5			
1	1012	15140	13.81	1.22	4.31	6.79	231	0.0	74.92		
-	1320 1351			1,200	11			<u> </u>	14.14		
2											
3					-						
4			min	+1							
5				h '							
6			Studite								
7			10 27-00								
8			10 21 00								
					<del>                                     </del>						
9									,		
10											
	STABILIZATI		1 = 0.0.0			SAMPLE	CONTAIN	ERS			
	LUME (gal) .		15380	DRO:							
	VOLUMES	PURGED:	3 94	-9	DD (Dioxin):						
STAB. TEM		UTV	13.81	1, 4 Dioxane	9:						
STAB. D.O.	CONDUCTIV	/11 Y SE	4.31	Nitrogen, To	tal Organic						
STAB. pH:			6.79	Nitrate + Nit							
STAB. ORF			23/	TAIL ALC . TAIL	iite.						
STAB. TUR			0.0								
SAMPLE T	IME: 10	13		SAMPLE FI	ELD FILTERE	D?: Yes	/ No)				
		? (name/time/co	omments):								
		^									
DUPLICATI	E SAMPLE?	Yes / No ? (na	me/time/comments	s):							
	_										
MS/MSD?	Yes / No / (na	ame/time/commen	ts):								
	-dra			(HEV 5) - 1							
0.61451 ===				COMMENTS			1- /-	VOC - 1			
SAMPLE D	ESCRIPTION	N (Begin / End)	: COLOR:		100	ODOR: 1	40/DI	CSe1			
OBSERVAT	TIONS : (P)	77 ,	Sheer	on W	Ste Ste						
Sample tubi	ing left in wel	Il at completion	?(Yes or No	):							
WEATHER	DATA: TE	MP. 30	QI	(Y: SUN	14	WIN	13	nish sw			
						4 4 11 4 1	- 101	- ujo c			

PROJECT ADDRESS	N WGS Ironmental & Industrial Solution	ons			Page: of						
			n Demolition L		PROJECT#: J200408						
			and 3950 Vine								
CITY, STA	IE, ZIP:	PI	ymouth, MN 55	441	DATE: 10-27-20						
SAMPLER		John C	onnelly & Zach I	Berghorst	ANALYTICAL LABORATORY:						
COMPANY	<b>/</b> :		West		CHAIN OF	CUSTODY#	<i>t</i> :				
		WELL DA	TA				PURGE	DATA			
WELL NAN	ME: MV-	3			PURGE / S.	AMPLE MET	HOD: B	adder			
	IATERIAL :	pro				NTROLLER S					
	METER (in):				PURGE RA	TE (gp <del>m)</del> :	0.41 4	min -	0.12 1/m		
		(ft): 97.29			PURGE ST	ART TIME :	1416				
	WATER (toc):			7-27-20	PURGE EN	ID TIME : 🕅	446				
		T(ft): 23.	34			BEGIN / EN			1532		
	.UME (gal) :				PUMP ID#	: 276401	O) WATE	R LEVEL ID#:	23010101		
VOLUME C	CONVERSIO	N FACTOR:	.16 - 2"	65 - 4" 1.4		61 - 8"	- V		***************************************		
				STABILIZAT		IGS					
READING	TIME	VOLUME	TEMP	COND	D.O.	рН	ORP	TURBIDITY	WATER LEVE		
#		(gal) M	(C)	(mS/cm)	(mg/L) ± 10% or		(mV)	(ntu)	(ft BTOC)		
Stabi	ilization Para	ameters	± 3%	± 3%	<0.5	± 0.1	± 10	± 10% or <5			
1	1481	1680	9.25	3.24	2.30	7.12	-132	245	77.94		
2	1486	3680	9.38	3.25	5.18	7.18	-128	215	81.00		
3	1431	5160	9.44	3.05	6.70	7.23	-121	217	83.70		
4	1436	6040	8.97	3.25	6.80	7.23	-114	180	85.01		
5	1441	6710	8.91	3.25	7.01	7.24	-111	138			
	1446	7420	8.96	3.24	6.41	7,24	-109		86.02		
6	1990	1700	0.0	>-877	0.41	7,00-1	1101	127	87.32		
7	W. Labora	/									
8		o minutes		o reduct							
9	-	17th E.	Vimlo5 a	& Samp	led wit	Lout					
10	Stabilit		reached								
	TABILIZATI		0.7			SAMPLE	CONTAIN	ERS			
OTAL VOL	LUME (gal).	mL,	7700	DRO:	DD (D)						
STAB. TEM	D (C)	PURGED: 0	.552.06	2 ,3, 7, 8 TC							
	CONDUCTIV	ITY:		1, 4 Dioxane	j.						
TAB. D.O.				Nitrogen, To	tal Organic						
STAB. pH:				Nitrate + Nitr							
TAB. ORP											
TAB. TUR							1 500				
	ME: 1520			SAMPLE FIE	LD FILTER	ED?: Yes	s / (No)				
IELD BLAN	VICE TESTING	? (name/time/c	omments):								
UPLICATE	SAMPLE?	Yes / No? (na	ame/time/comments	s):							
	es / No ) (na	me/time/commer	nts):								
IS/MSD? Y											
IS/MSD? Y		U/D - : : - :	001000	COMMENTS		271	/				
	TOOMINGTOO.	. 1		7		ODOR: 5	10	i Esel			
AMPLE DE	SCRIPTION	11		heen o		er ; 90	ayi3h	Sciment			
AMPLE DE	IONS : 9	90 BTO	10/11				/				
AMPLE DE	IONS : 9	90 BTO	Hicked to	0.12	-/min						
AMPLE DE BSERVAT	TIONS: 9	Mes Shi	? (Yes or No	0.12	-/min	/					
AMPLE DE  BSERVAT  Drawdou  ample tubir	TIONS: 9	at completion	1? (Yes or No	0.12		WIN	D: 13	nph 5-sh			



PROJECT ADDRESS	NIANE .	Banin	n Demolition La	m dfill	PROJECT#	looft .	Ind.		of 2		
							108	J200408	3		
CITY, STAT			and 3950 Vine		SAMPLE ID		1				
					DATE: 10-26-20						
SAMPLER		John Co	nnelly & Zach B	erghorst	ANALYTICAL LABORATORY :						
COMPANY	<u>′:                                    </u>	39279			CHAIN OF	CUSTODY #	and the second second				
		WELL DA	ГА				PURGE				
	1E: MW-5				PURGE / SA						
	ATERIAL : P	٧٢			PUMP CON	ITROLLER S	SETTING:	60 st, Re =	10,01±10		
	METER (in):	2			PURGE RA						
	TH, TOTAL (fi				PURGE STA						
	WATER (toc):		DATE: 101	26/20	PURGE EN	D TIME :	126				
	LUMN HEIGHT				SAMPLING			1227 /	1335		
	.UME (gal): <b> </b> .		(T)			A STATE OF THE PARTY OF THE PAR	WATE	R LEVEL ID#:	23010101		
OLUME C	CONVERSION	FACTOR:	.16 - 2" .6	5 - 4" 1.4	7 - 6" 2.6	81 - 8"					
				STABILIZATI							
READING	TIME	VOLUME	TEMP	COND (mS/cm)	D.O.	pН	ORP	TURBIDITY	WATER LEVI		
#		(gal)	(C)	(mS/cm)	(mg/L) ± 10% or		(mV)	(ntu)	( ft BTOC)		
Stabi	lization Parar	neters	± 3%	± 3%	<0.5	± 0.1	± 10	± 10% or <5			
1	113		10.14	1.10	0.70	6.77	-42	1000	33.45		
2	1136		10.33	1./0	0.81	6.86	-42	838	33.45		
			10.17								
3	1141		+	1.11	0.70	6.89	- 39	606	33.45		
4	1146		10.33	1,11	0.69	6.89	-39	460	33.45		
5	115		10.35	112	0.61	6.89	-40	372	33.45		
6	1156		10.37	1.12	0.51	6.9	-42	331	33.45		
7	1201		10.21	1.13	0.26	690	~42)	314	33.45		
8	1206		10.31	1.13	0.18	6.89	-46	236	33.45		
9	1211		10.26	1.14	0.07	6.93	-49	174	u "		
			10.26	1.14-16	0.00	6.88	-47		14 4		
10	1316	NIDATA	10.26	[.]	0.00			139			
	S <b>TABILIZATIC</b> LUME ( <del>gal)</del> :: 1		14720	DRO:		SAMPLE	CONTAIN	EKS			
	VOLUMES F			2 ,3, 7, 8 TC	DD (Dioxin).						
STAB. TEM		OITOLD.	1.73 45.	1, 4 Dioxane							
	CONDUCTIVI	TY:	1	PFAS:							
TAB. D.O.			X	Nitrogen, To	tal Organic						
				Nitrate + Nitr	rite:						
TAB. pH : TAB. ORF		N				20 page 1 2					
TAB. pH : TAB. ORF TAB. TUR				ISAMPLE FIR	ELD FILTERI	ED?: Ye	s / Na				
TAB. pH: TAB. ORF TAB. TUR AMPLE T	IME: 100			OF SIVIL ELE I IL							
TAB. pH: TAB. ORF TAB. TUR			comments):	TO SHIP LE I II							
TAB. pH: TAB. ORE TAB. TUR AMPLE TI	IME: 1000 NK? Yes (No	name/time/c									
TAB. pH: TAB. ORE TAB. TUR AMPLE TI	IME: 1000 NK? Yes (No	name/time/c	omments): ame/time/comments								
STAB. pH: STAB. ORF STAB. TUR SAMPLE TI FIELD BLA DUPLICATI	IME: 1000 NK? Yes (No	(name/time/c	ame/time/comments								
STAB. pH: STAB. ORF STAB. TUR SAMPLE TI FIELD BLA DUPLICATI	IME: 122 NK? Yes (No E SAMPLE?	(name/time/c	ame/time/comments								
STAB. pH: STAB. ORF STAB. TUR SAMPLE TI SIELD BLA DUPLICATI	ME: PAR NK? Yes (No E SAMPLE? Yes (No) (nam	Yes No. (n.	ame/time/comments	):	6						
TAB. pH: TAB. ORF TAB. TUR AMPLE TI ELD BLA DUPLICATI	ME: PAR NK? Yes (No E SAMPLE? Yes (No) (nam	Yes No. (n.	ame/time/comments	):	6	ODOR: Pe	110				
TAB. pH: TAB. ORF TAB. TUR AMPLE TI TELD BLA  OUPLICATI TIS/MSD?	ME: PAR NK? Yes (No E SAMPLE? Yes (No) (nam	Yes No. (n. ne/time/commer	ame/time/comments  nts):  1): COLOR: 61	):	6		2+10				
TAB. pH: TAB. ORF TAB. TUR AMPLE TI IELD BLAI UPLICATI IS/MSD? \ AMPLE DI	E SAMPLE?  Yes No (name)  (name)  (name)	Yes No. (n. ne/time/commerce/t	ame/time/comments  nts):  1): COLOR: 61	comments	S	ODOR: Pe	2+10				
TAB. pH: TAB. ORF TAB. TUR AMPLE TI IELD BLA  UPLICATI IS/MSD? \ AMPLE DI BSERVAT  ample tubi	ME: Para No NK? Yes No (name of the control of the	Yes No (name/time/commerce) (Begin / Encommerce) (Begin / Encommerce) (Begin / Encommerce)	ame/time/comments  ints):  COLOR: Clo	COMMENTS	S	ODOR: Pe		w 8 mph			

+++ ++ 1111 +720mi



NW Brigh

WIND:

Sample tubing left in well at completion? (Yes or No):

SKY:

WEATHER DATA: TEMP.:

1		
Page	of	



# GROUNDWATER GAUGING FORM

PROJECT NUMBER:	DATE: 2/8/21 PERSONNEL: Zach M Elling E
	GW INDICATOR USED: TW #

Well ID	Time	Water Level	Product Level	Comments: (Missing Cover/Lock, Broken Ballards,etc.)
MW-01	Time	77./2	- Toduct Level	Comments. (Missing Cover/Lock, Dioken ballalds,etc.)
MW-02		1 . 11 4		
MW-03		69.65		
Mul ord		70 (5		
MW-04		70.65 31.35		
MW-05		31.56		
1				
	V			

Customer-Focused Env	DY Wes	lori#						Page:	of Z		
PROJECT		EGIN LA			PROJECT#: 5204402						
ADDRESS	: 3900	VINEWOOD?	LANE		SAMPLE ID: MW - 01						
CITY, STA	TE, ZIP: P	LYMOTH	MN		DATE: 2/8/2/						
SAMPLER		M, FTH			ANALYTICAL LABORATORY: PACE						
COMPANY	1 BAY	1 es				CUSTODY#					
	- 1	WELL DAT	Α				PURGE D	DATA			
WELL NAM	ME: M	W-01					HOD: BL				
	IATERIAL:				PUMP CON	ITROLLER S	SETTING:2c	Pm Zar	FAIL 10 DISCH		
WELL DIA	METER (in):	2"					0.30 LRN				
WELL DEF	PTH, TOTAL	(ft): 89.45			PURGE ST	ART TIME :					
DEPTH TO	WATER (toc):	77.12	DATE: 2	18/21	PURGE EN	D TIME :	1240				
		IT (ft): 12.37	8		SAMPLING	BEGIN / EN	D TIME:	245	1		
WELL VOL	_UME (gal) :	1.97			PUMP ID#	:	WATER	R LEVEL ID#	:		
VOLUME (	CONVERSIO	N FACTOR:				.61 - 8"					
DEADING	TIME	VOLUME		STABILIZATI			ORP	TURBIDITY	I MATERIEVE		
READING #	TIME	VOLUME ML (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pН	(mV)	(ntu)	( ft BTOC)		
	on Paramete			(.iio/oiii)	(g. L)		(1114)	(ma)	(12700)		
1	1/40	0	3.20	1.40	3.30	7.57	196	725	77.18		
2	1145	1500	3.68	1.47	270	7.40	208	210	77.15		
3	1152	3000	3.60	1.47	2.46	7.25	2002/6	183	77.15		
4	1155	4500	3.54	1.47	229	7.16	224	156	77.15		
	100	6000	3.44	1.47	2.08	7.15	229	141	77.15		
5	1200					7.11		- / -			
6	1205	7500	3.32	1.48	1.82		239	127	77.15		
7	1210	9000	4.0	1.48	1.61	7.07	250	113	77.15		
8	1215	10200	4.45	1.47	1.52	7.07	260	101	77.15		
9	1220	12000	4.35	1.43	1.41	7.05	264	88.1	72.15		
10	1225	14500	3.93	1.46	1.27	7.03	270	76.0	77.15		
	STABILIZAT						CONTAINE				
	LUME (gal):			VOC:				(3 vials per sa			
# OF WEL	L VOLUMES	PURGED:		GRO: DRO:				(3 vials per sa erved (1 liter ja			
	CONDUCTI	/IEV:		SVOC:				d (1 liter jar pe			
STAB. D.O	).: /5/							oreserved (fiel			
STAB. pH		6UD NOT		Total Pb / As	s / Zn:	- 250 ml plas	stic w/HNO <sub>3</sub> p	oreserved (no	n-field filtered)		
STAB ORI	P:	STABILITY	E	Dioxins:	1 L a	mber glass,	unpreserved	l (2 liter jars p	er sample)		
STAB. TUP							1 15				
SAMPLE T		(name/time/c		SAMPLE FII	LD FILTER	ED?: Ye	s / No				
LIELD DLA	AINTE TEST	(name/time/c	mments).								
DUPLICAT	E SAMPLE?	Yes / No. (na	me/time/comment	s):							
		100									
MS/MSD?	Yes / 10/? (n.	ame/time/commen	ts):								
							(C				
SAMDLE D	SECONDIN	N (Begin / End	). COLOR:	CLEAR	5	ODOR:	Want				
OMIVIFLE L	JESURIE HO	in (Degili / ENd	j. COLOR.	LICHTO		JUJA.	NONE				
OBSERVA	TIONS :										
Sample tuk	ning loft in wa	all at completic	n?(Yes or 🚺	: <u>)</u> .							
WEATHER	R DATA: TE	MP.: - 6	S	KY: CLEA	R	W	IND: 6	MH NW	2		

	y Wes	i e						Page: 7	of 3		
PROJECT	NAME :	50/18			PROJECT#:						
ADDRESS					SAMPLE ID						
CITY, STA					DATE:	,					
	THE PERSON NAMED IN										
SAMPLER					ANALYTICAL LABORATORY:						
COMPANY	COLUMN TO SERVICE STREET				CHAIN OF CUSTODY #:						
	1	WELL DA			DUBOE (6		PURGE	DATA			
WELL NAM		MW-01				AMPLE MET					
CASING M					1	NTROLLER S	SETTING:				
	METER (in):				PURGE RA						
	PTH, TOTAL				1	ART TIME :		_			
	WATER (toc):		DATE:		PURGE EN						
	LUMN HEIGH	HT (ft):				BEGIN / EN					
WELL VOL					PUMP ID#		WATER	R LEVEL ID#:			
VOLUME C	CONVERSIO	N FACTOR:	.16 - 2"			.61 - 8"					
				STABILIZAT							
READING	TIME	VOLUME	TEMP	COND	D.O.	pН	ORP	TURBIDITY	WATER LEVEL		
#	on Paramete	ML (get)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	(ft BTOC)		
	T	1.1	41.08	1.48	1.26	7 1	111	68.7	22.5		
1	1230	16000	+			7.01	277		77.15		
2	1235	17560	4.04	1.48	1.99	6.98	284	55.0	77.15		
3	1240	19000	3.89	1.49	1-24	6.79	291	43.6	77.15		
4											
5											
6				V V			7				
7											
8				_							
9											
10											
	STABILIZAT						CONTAIN				
	LUME (gal):			VOC:				(3 vials per sa			
	L VOLUMES	PURGED:		GRO:				(3 vials per sa			
STAB. TEM	(C): CONDUCTIV	/ITV +		DRO:				erved (1 liter ja d (1 liter jar pei			
STAB. D.O		VIII *		Diss. Pb / As				preserved (field			
STAB. pH:				Total Pb / As				preserved (nor			
STAB. ORF				Dioxins:				d (2 liter jars pe			
STAB. TUR	RBIDITY:										
SAMPLE T	IME :		JR -	SAMPLE FIE	ELD FILTER	ED?: Ye	s / No				
FIELD BLA	NK? Yes / N	lo ? (name/time/c	omments):								
DUPLICAT	E SAMPLE?	? Yes / No ? (n	ame/time/commen	ts):							
140/140000	( ) ( ) ( ) ( )										
M2/M2D	Yes/No / (n	ame/time/commer	nts):								
E 111				COMMENTS	2						
SAMPLE D	ESCRIPTIO	N (Begin / End	i): COLOR:	COMMENT		ODOR:					
		(Dogin / Enc	.,. 000011.			22011					
OBSERVA <sup>-</sup>	TIONS :										
Comple 4:4	ing loft in	all of complet!-	n2 / Vaa am N	lo V							
Sample tub	mig ieit in we	at completio	n? (Yes or N	io j.							
WEATHER	DATA: TE	MP.:		SKY:		W	IND :				

	N Wes				DD0 (505)			Page: /	of >		
PROJECT	NAME : Be	GIN LAN	DEILL		PROJECT#: 5205408						
ADDRESS	3700	VINELOUD	سا			Mw-	02				
JITY, STA	IE, ZIP: P	LLMOUTH	AN .		DATE: 2//0/2/						
SAMPLER	ZACH	M, ETH	en E		ANALYTICAL LABORATORY : PACE						
COMPANY					CHAIN OF CUSTODY #:						
		WELL DA	ГА				PURGE				
VELL NAN	ΛΕ: M	N- 02			PURGE / SAMPLE METHOD: BLADDER						
CASING M	ATERIAL:				PUMP CON	TROLLER S	ETTING: 3	CPM 10.5 R	EFIL 9.5 DB		
	METER (in) :				PURGE RA	TE (gpm):	0.30 1	Pm			
		(ft): 81.28	,			ART TIME :					
	WATER (toc):	-	DATE: 2		PURGE EN		1055				
		IT (ft): 9.13	271121	77707		BEGIN / EN		66	/		
	UME (gal) :	1 46			PUMP ID #			R LEVEL ID#:			
		N FACTOR :	.16 - 2" .6			61 - 8"					
OLUME (	JOINVEROID	MINOTON.		STABILIZATI							
READING	TIME	VOLUME	TEMP	COND	D.O.	pH	ORP	TURBIDITY	WATER LEV		
#		MC (gal)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	( ft BTOC)		
Stabilizatio	on Paramete	ers	Photography and the second				La Fille				
1	09.85	0	2.01	0.819	6.67	7.47	101	543	72,30		
2	1000	1500	7.79	0.811	4.86	7.03	283	38/	72.35		
3	1005	3000	6.70	0.811	4.40	7.03	296	301	72.35		
4	1010	The state of the s	6.26	0.722	947	7.01	302	204	72.35		
	T-	6000	9.03	0.697		7.16	305	192.2	72.35		
5	1015			<u> </u>	492						
6	1620	7500	8.97	6.732	9.36	7.2	304	633	35.35		
7	1025	9000	8.93	0.770	3.84	7.16	297	46.3	772.35		
8	1030	10500	9.01	6,786	3.70	7112	295	\$6.2	7235		
9	1035	12000	9.00	0.800	3.52	7.69	296	43.0	72.35		
10	10-10	13500	8.80	0.800		7.10	296	39.3	72.35		
	STABILIZAT						CONTAIN		<u> </u>		
	LUME (gal) :			VOC:	- 40 m			(3 vials per sa	ımple)		
	L VOLUMES			GRO:				(3 vials per sa			
STAB. TEN				DRO:				erved (1 liter ja			
	CONDUCT	ATTY:	0	SVOC:				d (1 liter jar pe			
STAB. D.O				Diss. Pb / As				preserved (fiel			
STAB. pH		N	गमका वर	Total Pb / As		<u> </u>		preserved (no			
STAB ORI				Dioxins:	1La	mber glass,	unpreserve	d (2 liter jars p	er sampie)		
SAMPLE T	100000	20		SAMDIEER	I D FII TEP	ED 2 · Va	e Atm				
		name/time/c	comments).	SAIVIFLE FIE	PLE FIELD FILTERED ?: Yes No						
ILLU DLA	MAIN: 162	ame/ume/c	omments).								
DUPLICAT	E SAMPLE	Yes / War in	name/time/comments)	 ):							
//S/MSD?	Yes / No (n	ame/time/comme	nts):								
				COMMENTS			-				
SAMPLE D	ESCRIPTIO	N (Begin / End	d): COLOR:	CLIAN		ODOR: /	vone				
OBSERVA	TIONS :										
	.,										
Sample tub	oing left in we	II at completion	on? (Yes or N	<b>≱</b>							

<b>Ba</b>	y Wes	Ī						Page: 2	of 2		
PROJECT	ironmental & Industrial Soluti	one			PROJECT #:						
					SAMPLE ID						
ADDRESS CITY, STA		•			DATE:						
CITT, STA	Γ <u></u> Ε, ΖΙΡ .										
SAMPLER	:				ANALYTICAL LABORATORY :						
COMPANY	<b>'</b> :				CHAIN OF	CUSTODY#		_			
		WELL DA	4				PURGE I	DATA			
WELL NAM	ΛE: /	nn - 0'	2		PURGE / S.	AMPLE MET	HOD:				
CASING M	ATERIAL:				PUMP CON	ITROLLER S	SETTING:				
WELL DIA	METER (in):				PURGE RA	TE (gpm): •					
WELL DEF	PTH, TOTAL	(ft) :			PURGE ST.	ART TIME :	4 (/2)				
DEPTH TO	WATER (toc):		DATE:		PURGE EN	D TIME :					
	LUMN HEIGH		**		SAMPLING	BEGIN / EN	D TIME :	100	/		
WELL VOL			- 1 <sup>†</sup>		PUMP ID#			R LEVEL ID#:			
	-	N FACTOR :	.16 - 2"	.65 - 4" 1.4	1	.61 - 8"			<del></del>		
VOLUME C	JOHNEROIG			STABILIZAT			1112311				
READING	TIME	VOLUME	TEMP	COND	D.O.	pН	ORP	TURBIDITY	WATER LEVEL		
#		(gal)	(C)	(mS/cm)	(mg/L)	F	(mV)	(ntu)	(ft BTOC)		
Stabilization	on Paramete			HELET ELLER	FAMILY.	F161-53 1-1	HARAL		B 製版 E B K III		
1	1045	15000	8.81	0.796	3.20	7.12	300	30.1	72.35		
2	1050	16500	8.64	0.780	3.49	7.14	305	24.6	72.35		
						5					
3	1055	18000	8.46	0.765	3.68	1.15	308	18.7	72.35		
4						-					
5	,										
6											
7									12		
8											
9											
10											
	STABILIZAT	ION DATA				SAMPLE	CONTAINE	RS	itus III v oraș		
	LUME (gal) :			VOC:	- 40 m			(3 vials per sa	mple)		
	L VOLUMES			GRO:				(3 vials per sa			
STAB. TEN			FINESTY.	DRO:				erved (1 liter ja			
	CONDUCTA	/ITY: /	0	SVOC:				d (1 liter jar pe			
STAB. D.O		1000	20-	Diss. Pb / A	s / Zn:	- 250 ml plas	stic w/HNO <sub>3</sub>	preserved (field	d filtered)		
STAB. pH		NOT 5	1431 C172E	Total Pb / As	s / Zn:	- 250 ml plas	stic w/HNO <sub>3 l</sub>	preserved (nor	n-field filtered)		
STAB OR	o :			Dioxins:	1 L a	mber glass,	unpreserve	d (2 liter jars p	er sample)		
STAB. TUF	RBIDITY:		n lo travelle nere								
SAMPLE T	IME :			SAMPLE FI	ELD FILTER	ED?: Ye	s / No				
FIELD BLA	NK? Yes / N	o ? (name/time/c	comments):								
DUPLICAT	E SAMPLE?	? Yes / No ? (n	ame/time/comment	ts):							
MO/MODO	V (N) 0 :										
MS/MSD?	Yes / No ? (n	ame/time/commer	nts):								
				COMMENT							
SAMDLED	ESCRIPTIO	N (Begin / End	4/- COLOB-	COMMENTS	· ·	ODOR:					
OBSERVA		N (Begill / Elic	i). COLOR.			ODOK.					
ODGERVA	TIONS .										
Sample tub	oing left in we	ell at completion	on? (Yes or N	o ):							
	DATA: TE			SKY:		10/1	IND :				
▮◂◂┗╱┤┤╎╚╚	LUMIM. IL	-IVII		21 X 1 (8)		V V I	1 NP 2				

⊕ Ba	<i>y wes</i>							Page: /	of 5		
PROJECT	NAME: I	BEGIN U	AND CILL		PROJECT #	#: 520	1425	r ago.	0.		
		VINEL-067	14		SAMPLE ID	-					
CITY, STA		UMOUTS			DATE: 2						
dr.			THAN E		ANALYTICAL LABORATORY : PACE						
COMPANY		WEST T	MAN E			CUSTODY #		rice			
OOWII 7 WY	VPEY	WELL DAT	ΓΔ		OT IJ III T OT	0001001 #	PURGE	DATA			
WELL NAM	ΛF· r	nw - 0"	-		PURGE / S	AMPLE MET					
	ATERIAL:				1				Ret 9.5 11		
	METER (in):							0.40 LAN			
		(ft): 97.0	1				1405				
		65.105		2/9/21	PURGE EN		1505				
		HT (ft): 27.1/		1 10		BEGIN / EN		1710	1		
	.UME (gal):				PUMP ID#			R LEVEL ID#	į.		
VOLUME C	CONVERSIO	N FACTOR :	.16 - 2" .	65 - 4" 1.4	7 - 6" 2.	.61 - 8"					
				STABILIZATI		IGS					
READING	TIME	VOLUME	TEMP	COND	D.O.	рН	ORP	TURBIDITY	12 22		
# Stabilization	on Paramete	ML(gat)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	( ft BTOC)		
	1905	0	5.95	2/2	5.22	7.26	59	240	16.55		
1		2000		2.64	V/ d1	7.28	59	240	76.35		
2	14(0	9000	5.57		4.36		69	224			
									76.55		
4 1420 4000 451 2.69 3.92 7.28 75 224 76.55											
5	1425	8000	4.29	2.69	3.03	7.28	81	225	76.55		
6	430	15000	5.36	2.62	3 97	7.27	91	229	16.58		
7	1435	12000	6.85	26	4.45	7.26	[00	213	76.55		
8	1440	14000	6.96	2.67	4.85	7.33	102	273	76.55		
9	144	16000	7.23	2.42	5.01	7.33	107	243	74.55		
10	1450	18000	7-24	2.47	5.24	7.35	114	236	76.55		
	STABILIZAT	ION DATA				SAMPLE	CONTAIN	ERS			
	LUME (gal)		` `	VOC:				l (3 vials per sa			
	L VOLUMES	PURGED:		GRO:				(3 vials per sa			
STAB. TEN		UTV :		DRO: SVOC:				erved (1 liter ja			
STAB. Sp.	CONDUCT	VIIY		Diss. Pb / As		- 250 ml plas	tic w/HNO <sub>2</sub>	ed (1 liter jar pe preserved (fiel	d filtered)		
STAB. pH:				Total Pb / As			_	preserved (no			
STAB. OR				Dioxins:	1La	mber glass,	unpreserve	ed (2 liter jars p	er sample)		
STAB. TUF											
SAMPLE T		510		SAMPLE FI	ELD FILTER	ED?: Ye	s / 🐠				
FIELD BLA	NK? Yes /€	(name/time/c	omments):								
DUBLICAT	E SAMDLE	2 Vac / No 2 (n	ame/time/comments	e).							
DOI LIONT	- ONIVIELL	. 1007	ame/unie/comment	~ <i>/</i> ·							
MS/MSD?	Yes / 40? (n	ame/time/commer	nts):								
						=== 10			101 /0.0		
				COMMENT	S	0000					
SAMPLE D	ESCRIPTIO	N (Begin / End	I): COLOR: (	rom		ODOR:	South				
OBSERVA	TIONS :										
Sample tubing left in well at completion? (Yes or No.											
							0				
WEATHER	WEATHER DATA: TEMP .: - 6 SKY: CLEM WIND: 3 mp of										

	iy wes							Dogo: 10	of 7		
PROJECT	NAME ·	dns			PROJECT	# -		Page: 2	01 2		
ADDRESS			990		SAMPLE ID						
CITY, STA					DATE:	J.					
					ļ — —						
SAMPLER						AL LABORA					
COMPANY	<b>'</b> :				CHAIN OF	CUSTODY#			Market Market Street		
	40	WELL DA	ΓA				PURGE	DATA			
WELL NAM		V-03			•	AMPLE MET					
	IATERIAL :				PUMP CONTROLLER SETTING:						
	METER (in):				PURGE RATE (gpm):						
WELL DEF	PTH, TOTAL	(ft)			1	ART TIME:					
	WATER (toc):		DATE:		PURGE END TIME :						
	LUMN HEIGH	IT (ft):			SAMPLING BEGIN / END TIME :, /						
	.UME (gai):				PUMP ID#		WATE	R LEVEL ID#	:		
VOLUME (	CONVERSIO	N FACTOR :	.16 - 2"	.65 - 4" 1.4	<b>47 - 6"</b> 2	.61 - 8"					
				STABILIZAT							
READING	TIME	VOLUME	TEMP	COND	D.O.	pН	ORP	TURBIDITY			
#	on Paramete	ML (gal)	(C)	(mS/cm)	(mg/L)	100-000	(mV)	(ntu)	( ft BTOC)		
	1	2000	7.10	2.48	5.32	7.35	118	229	20		
1	1453								76.55		
2	1500	2200	7.11	2.47							
3	1505	24000	7.08	2.48	8 5.21 7.36 126 220 The						
4											
5											
6											
7											
8											
				+		-					
9				-							
10											
	STABILIZAT			1/00:	40		CONTAIN				
-	LUME (gal) : L VOLUMES			VOC:				l (3 vials per sa l (3 vials per sa			
STAB. TEN		FUNGLU.		DRO:					ar per sample)		
	CONDUCTIV	/ITY:		SVOC:				ed (1 liter jar pe			
STAB. D.O				Diss. Pb / As	s / Zn:	- 250 ml plas	stic w/HNO <sub>3</sub>	preserved (fie	d filtered)		
STAB. pH				Total Pb / A	s / Zn:	- 250 ml plas	tic w/HNO <sub>3</sub>	preserved (no	n-field filtered)		
STAB. ORI			Hen Arealth	Dioxins:	1L a	amber glass,	unpreserve	ed (2 liter jars p	er sample)		
STAB. TUF											
SAMPLE T				SAMPLE FII	ELD FILTER	ED?: Ye	s / No				
FIELD BLA	NK? Yes / N	o ? (name/time/o	omments):								
DUBLICAT	E SAMPLES	2 Ves / No 2 /n	ame/time/comment	te\.							
DOI LIOAT	L OAM LL:	1037140: (11	ame/time/comment	13).							
MS/MSD?	Yes / No ? (n	ame/time/commer	nts):								
	`										
				COMMENT	S						
SAMPLE D	ESCRIPTIO	N (Begin / End	f): COLOR:			ODOR:					
OBSERVA	TIONS :										
Sample tub	oing left in we	ell at completion	n? (Yes or N	o ):							
MEATHER	DATA: TE	MD	c	SKY:	,	\\/\	ND:				

DDO JECT 1	onmentar & Industrial Soluti	EGIN LA	10111		IDDO IECT :	#: +200	0	Page:	of 7
ADDRESS	20	COIN UN	WIFICE			mw-			
		VINEWU LYMU VIH	70 00		DATE:	7/9/21			
0111,01711	2	COMO VIP			-	4/11/1	50.50		
		m, 57	HAN E			AL LABORAT			
COMPANY	:				CHAIN OF	CUSTODY #	M/ I have the		
		WELL DA	ГА				PURGE		
	E: MY					AMPLE MET			
	ATERIAL:								PETIN 9.50
	METER (in):	2"			-	TE (gpm):		m	
	TH, TOTAL			. 7.1.1		ART TIME :			
		70.65	DATE:	2/9/21	<del></del>	ID TIME : /			
		IT (ft): 11.3	5			BEGIN / EN			1
WELL VOL		1.81			PUMP ID#		WATE	R LEVEL ID#	
VOLUME C	ONVERSIO	N FACTOR :	.16 - 2"		11 - 12 / 2 / 1 / 2 / 2	.61 <b>-</b> 8"			
		I		STABILIZAT		*	1	T = 1 = 2 = 2 = 2	T
READING	TIME	VOLUME	TEMP	COND (mS/om)	D.O.	pН	ORP	TURBIDITY	WATER LEVE
# Stabilizatio	n Paramete	ML (gal)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	( ft BTOC)
1	0905	0	3.49	1.33	1.21	7.18	169	151	70.65
		2000		1.28	0.17		972 kG/S	88.1	
2	09/0		5.01			7.68	165		70.65
3	0915	4000	4.48	1.27	0.0	7.03	104	38.9	70.65
4	0920	6000	3,92	1.27	0.0	7.09	77	32,4	70.65
5	5 0925 8000 3.71				0.0	7.06	63	23.3	70.65
6	0930	10000	3.75	1.26	6,0	7.05	63	17.5	70.65
7	0935	12000	3.62	1.26	0.0	7.08	621	12.8	70.65
8	092/1	14/000	3.17	1.26	0.0	7.06	69	10.6	7065
9	0945	16 060	3.40	1.27	0.0	7.08	7-	9.0	70 65
10	0950		3.88	1.26	0.0	7.00	81	20000119	
	TABILIZAT	18600	1.08	1.00	0.0	10	CONTAIN	CONTRACTOR OF THE PARTY OF THE	70,60
	LUME (gal) :			VOC:	- 40 m			d (3 vials per sa	mnle)
	VOLUMES			GRO:				d (3 vials per sa	
STAB. TEM		TOROLD.		DRO:				served (1 liter ja	
	CONDUCTI	UPY:		SVOC:				ed (1 liter jar pe	
STAB. D.O.		Cour	NOT	Diss. Pb / A				preserved (field	
STAB. pH :		Sma	11120	Total Pb / A				preserved (nor	
STAB ORP		MA	IL ITE	Dioxins:	1La	amber glass,	unpreserve	ed (2 liter jars p	er sample)
STAB. TUR				CAMPI E EI		ED 0	- 1750		
SAMPLE TI	NK2 Voc /	(name/time/c	ommorto).	DAMPLE FI	ELD FILTER	⊏U?: Ye	s / (No)		
TELD BLAI	INIC: TEST	(name/time/d	omments).						
DUPLICATE	E SAMPLE?	Pres No? (n	ame/time/commer	its): ML-	01-2	e 164	0		
					0, 0	0 10 7			
MS/MSD? Y	res / No-3 (n	ame/time/commer	nts):						
				COMMENT	S				
SAMPLE DI	ESCRIPTIO	N (Begin / End	i): COLOR:	CLEAR		ODOR: ^	10NE		
OBSERVAT	TIONS :								
Sample tubi			n?(Yes or 6	<b>3</b> ):					
WEATHER					AR				



Gustamur-Fragued Env	y WG3 Ironmental & Industrial Solu	Natis						Page: 7	of 1		
PROJECT	NAME :	(Account)			PROJECT#	# :		1 J			
ADDRESS	:				SAMPLE ID	);					
CITY, STA					DATE:						
SAMPLER						AL LABORAT	OPV ·				
COMPANY						CUSTODY #					
COMPANI		WELL DAT	ΓΛ		CHAINOL	0001001#	PURGE	DATA			
MACTEL A NAM	4E . MA		I A		DUDOE ( Ó	ANADLE NACT		DATA			
WELL NAN		W-04			<del></del>	AMPLE MET					
CASING M						TROLLER S	ETTING:				
	METER (in)				PURGE RATE (gpm):						
	TH, TOTAL				PURGE START TIME :						
	WATER (toc)		DATE:		PURGE END TIME :						
	LUMN HEIGH	-d⊤ (ft):			SAMPLING BEGIN / END TIME : /						
WELL VOL					PUMP ID #: WATER LEVEL ID #:						
VOLUME C	CONVERSIO	N FACTOR :			1.47 - 6" 2.61 - 8"						
DEADING	T. T. 15	LVOLUME		STABILIZATI			ODB	TUDDIDITY	LWATERLEVEL		
READING #	TIME	VOLUME (ML(gat)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pН	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)		
	on Paramet		(0)	(IIIS/GIII)	(IIIg/L)		(IIIV)	(ntu)	(ILBIOC)		
1	0955	20160	7.75	1.26		7.07	84	7.4	70.65		
		22000	94.20	1.27	22 0.0 7.07 90 6.0 Fo.						
2	1000										
3	1005	24/000	4.64	1.27	27 6.0 7.6 95 5.7 70.						
4											
5											
6					·						
7											
8											
9				-				(4)			
10	DEADU IZAZ	TON DATA		·		CAMBUE	CONTAIN				
	<b>STABILIZA</b> 1 LUME (gal)			VOC:	40 m		CONTAIN	(3 vials per sa	mnle)		
	_ VOLUMES			GRO:				(3 vials per sa			
STAB. TEN		T ORGED.		DRO:				erved (1 liter ja			
	CONDUCTI	VITY:	GMITTEE	SVOC:				d (1 liter jar pe			
STAB. D.O	.:			Diss. Pb / As				preserved (fiel			
STAB. pH :				Total Pb / As				preserved (no			
STAB. ORF				Dioxins:	1La	mber glass,	unpreserve	d (2 liter jars p	er sample)		
STAB. TUF				No. of the last of							
SAMPLE T		1-0:		SAMPLE FIE	LD FILTER	ED?: Ye	s / No				
LIELD BLA	INK ? Yes / N	lo ? (name/time/c	omments):								
DUPLICAT	F SAMPLE	? Yes / No ? (n:	ame/time/comments	:)·							
00. 2.0.											
MS/MSD?	Yes / No ? (r	name/time/commer	its):								
				COMMENTS	3						
SAMPLE D	ESCRIPTIO	N (Begin / End	): COLOR:			ODOR:					
OBSERVA <sup>-</sup>	TIONS										
Sample tub	ing left in we	ell at completio	n? (Yes or No	):							
  WEATHER	DATA: TE	EMP.:	s	KY:		WI	ND :				

Customer Focused Environme	Wes	ns.						Page: )	of 7		
PROJECT NA	ME: B	EGIN LA	mafill		PROJECT:	#: 720	0408				
ADDRESS :		VINEVO		•	SAMPLE ID						
CITY, STATE,		GARRETH,			DATE:	2/8/21					
SAMPLER:	BACH	16			ANALYTICA	AL LABORAT	rory: D	ACE			
COMPANY:	Boffer		,,,,,,			CUSTODY #		100			
	0.17	WELL DAT	Ά				PURGE	DATA			
WELL NAME	ě	MW- 05		(\$)	PURGE / S.	AMPLE MET					
CASING MAT		PUC			PUMP CON	NTROLLER S	SETTING:		,		
WELL DIAME		211			PURGE RA	TE (gpm): 2	CPM 24	> 2 ELILL	O DIKH		
WELL DEPTH	I, TOTAL (	(ft): 42.75				ART TIME :					
DEPTH TO WA		3135	DATE: 1	18/21	PURGE EN	ID TIME :	725				
WATER COLUI				1 41	SAMPLING	BEGIN / EN	D TIME :	730	1		
WELL VOLUM		1 31			PUMP ID#			R LEVEL ID#	:		
VOLUME CON	NVERSIO	AND RESIDENCE OF THE PERSON NAMED IN COLUMN 1	.16 - 2" .6	65 <b>-</b> 4" 1.4	17 - 6" 2	.61 - 8"					
				STABILIZAT	ION READIN	IGS					
READING	TIME	VOLUME	TEMP	COND	D.O.	рН	ORP	TURBIDITY	WATER LEVE		
# Stabilization	Dorom of	ML(gat)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	(ft BTOC)		
	raramete	v v	8.85	1 . 12	15	7~	147	183	31,35		
1 !	(10)			1.68	0.15	7.25	-				
2 /	630	2000	9.45	1.07	0.0	7.29	101	1,50	31.40		
3 /	1071	4000	9.62	107	0.0	7.22	10+	110	31.40		
	640	6000	01.61	1.07	0.0	7.23	107	92.2	31.40		
	645	8000	9.42	1.07	0.0	7.24	70	71.5	31.40		
6 )	650	10000	9.51	1.07	0.0	7.23	67	486	31.40		
7 1	655	12000	9 53	1.07	0.0	720	64	44.9	31.40		
8 1	700	1400	9.45	1-07	0.0 7.21 66 19.2 31.90						
9 1	705	16000	9.45	1.07	0.0 7.19 69 10.6 31.40						
10 1	710	18000	9.45	1.07	0.0 7.20 69 4.2 31.40						
100	ABILIZAT	ON DATA					CONTAINE				
TOTAL VOLUI	ME (gal):	3		VOC:		nl vials w/HCl	preserved	(3 vials per sa			
# OF WELL V		PURGED:		GRO:	40 m	nl vials w/HCl	_ preserved	(3 vials per sa	ample)		
STAB. TEMP	~~~		1 BATE 1 BAY	DRO:					ar per sample)		
STAB. Sp. CO STAB. D.O. :	NDUCT	HTY		SVOC:				d (1 liter jar pe preserved (fiel			
STAB. D.O. :	19	Chor	NOT.	Total Pb / A					n-field filtered)		
STAB. ORP	//	W .		Dioxins:				d (2 liter jars p			
STAB. TURBII	DITY:					. 3,3,		, jene p	. ,		
SAMPLE TIME		30		SAMPLE FI	ELD FILTER	ED?: Ye	s / (Nó)				
FIELD BLANK	(? Yes /N	(name/time/c	omments):								
DUBLICATE	0.11.15. ==	V 100									
DUPLICATE !	SAMPLE?	Yes No 2 na	ame/time/comments	):							
	1	ame/time/common	ts)·								
MS/MSD? Yes	S NO In	a,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	·~ /·								
MS/MSD? Yes	s No? (na										
MS/MSD? Yes	s NO? (na			COMMENT	S						
			): COLOR: (		S	ODOR: /	VONE				
	CRIPTION		): COLOR: (		S	ODOR:	VUNE				
	CRIPTION		): COLOR: (		S	ODOR:	VUNE				
SAMPLE DES	CRIPTION		): COLOR: (		S	ODOR:	VONE				
SAMPLE DES OBSERVATIC	CRIPTION DNS	N (Begin / End	): COLOR: (	(em-	S	ODOR: /	VONE				

⊕ Ba	<i>y Wes</i>	<i>I</i>						Page: Z	of Z		
PROJECT	NAME :	ona:			PROJECT	#:		i ago.	٠. ح		
ADDRESS					SAMPLE ID						
CITY, STA					DATE:						
SAMPLER						AL LABORA	LUBA .				
COMPANY						CUSTODY#		¥			
COMM 7 HTT		WELL DAT	ΓΔ		0117111101	00010511	PURGE	DATA			
WELL NAM	ΛΕ *	MW-05			PURGE / S	AMPLE MET					
CASING M		7-(00 - )			PUMP CONTROLLER SETTING:						
	METER (in) :				PURGE RATE (gpm):						
	TH, TOTAL	(ft) ©			PURGE START TIME :						
	WATER (toc):		DATE:		PURGE END TIME :						
	LUMN HEIGH		2731		SAMPLING BEGIN / END TIME: 1736 /						
WELL VOL					PUMP ID # : WATER LEVEL ID # :						
VOLUME C	CONVERSIO	N FACTOR :	.16 - 2" .	.65 - 4" 1.4	1.47 - 6" 2.61 - 8"						
				STABILIZATI	ION READIN	IGS					
READING	TIME	VOLUME	TEMP	COND	D.O.	pН	ORP	TURBIDITY	WATER LEVEL		
#	Donomoti	Mc (gal)	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	(ft BTOC)		
	on Paramete	20000	9.45	1 47	7 0.0 7.21 70 5.0 31.						
1	1715			1.07		7.21	69		31.40		
2	1720	33,000	9.45	1.07	7 8.8 7.20 69 5.8 8						
3	1125	221000	9.45	1.07	0.0	7.22	70	4.9	3140		
4											
5											
6											
7											
8											
9											
10			-4								
	STABILIZAT	ION DATA	Control of the Control			SAMPLE	CONTAIN	ERS			
TOTAL VO	LUME (gal) :			VOC:	40 m	nl vials w/HCl	L preserved	l (3 vials per sa	imple)		
# OF WELL	L VOLUMES	PURGED:		GRO:				l (3 vials per sa			
STAB. TEM		11776		DRO:				erved (1 liter ja			
STAB. Sp.	CONDUCTIV	MY:		SVOC: Diss. Pb / As				d (1 liter jar pe preserved (fiel			
STAB. pH:				Total Pb / As					n-field filtered)		
STAB. ORF				Dioxins:				d (2 liter jars p			
STAB. TUR	RBIDITY:										
SAMPLE T				SAMPLE FI	ELD FILTER	ED?: Ye	s / No				
FIELD BLA	NK? Yes / N	lo ? (name/time/c	omments):								
DUDLICAT	E CAMPLE	2 Vaa / Na 2 (-	ame/time/comments								
DOPLICAT	E SAIVIFLE	: 162/140 : (N	ame/ume/commenu	5).							
MS/MSD?	Yes / No ? (n	ame/time/commer	nts):								
				COMMENTS	S						
SAMPLE D	ESCRIPTIO	N (Begin / End	I): COLOR:			ODOR:					
OBSERVA <sup>-</sup>	TIONS :										
	<del></del>										
Sample tub	oing left in we	ell at completio	on? (Yes or No	o ):							
WEATHER	DATA: TE	MP.:	S	SKY:		, WI	ND:				

Page	of	
	-	· -



### GROUNDWATER GAUGING FORM

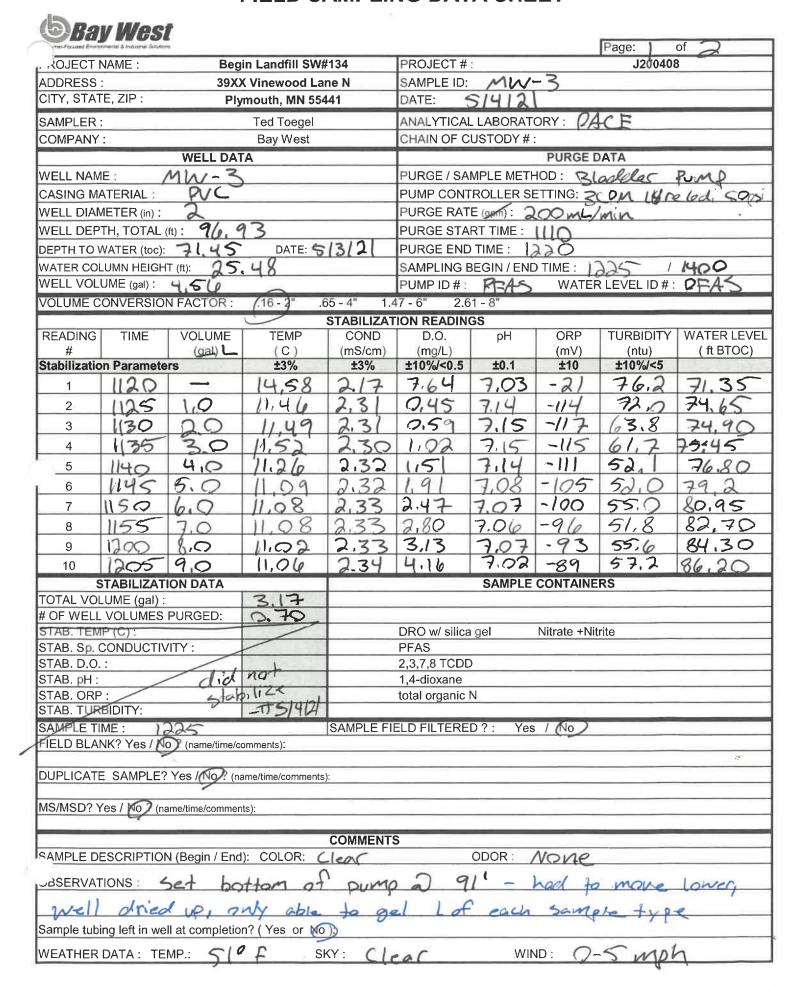
PROJECT NAME:	Begin Landfill SW#134	DATE: 513121
PROJECT NUMBER:	J200408	PERSONNEL: Ted Toegel
		GW INDICATOR USED: TW # PFAS

Well	ID	Time	Water Level	Depth to Bottom	Comments: (Missing Cover/Lock, Broken Ballards,etc.)
	MW-1	10:39	78.00	87.90	No tubing, no well id
	MW-2	10:20	72.94	81.30	No tubing, no well id
	MW-3	10:50	71.45	96.93	1/
	MW-4	19:40	71.48	80.68	no tubing, no well id
334635			31.19	42.78	no tubing
	7				

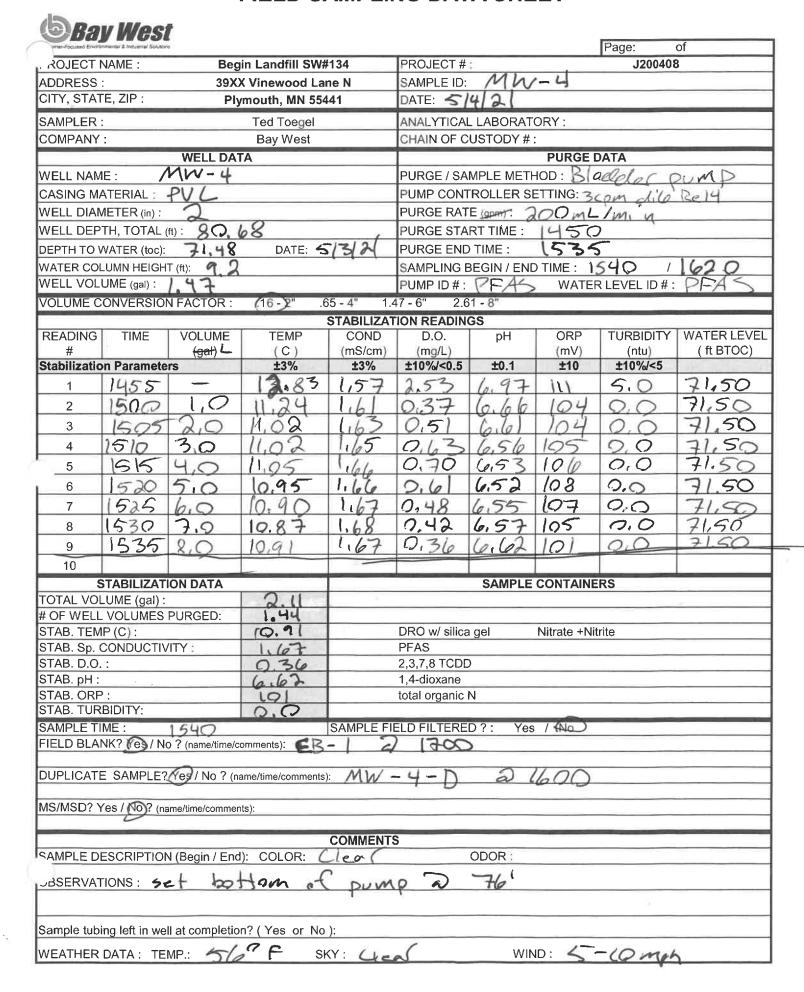
	WELL DAT	90 00 DATE: 6	ne N 41	ANALYTICAL CHAIN OF C PURGE / SA PUMP CONT PURGE RAT	LABORAT USTODY # MPLE METH ROLLER SI	ORY:  PURGE I  HOD: BLA  ETTING: R	dder pu	mp						
EERIAL:  ETER (in):  H, TOTAL (f  ATER (toc):  JMN HEIGHT  ME (gal):  DNVERSION	WELL DAT  W - 1  PU (  1): 87.  78.0  (ff): 9.	Ted Toegel Bay West  A  DATE: 6	41	DATE: 51 ANALYTICAL CHAIN OF C PURGE / SA PUMP CONT PURGE RAT	LABORAT USTODY# MPLE METH	ORY:  PURGE I  HOD: BLA  ETTING: R	dder pu							
EERIAL:  ETER (in):  H, TOTAL (f  ATER (toc):  JMN HEIGHT  ME (gal):  DNVERSION	WELL DAT W-1 PVC. 3.3 78.0 (fi): 9.0	Ted Toegel Bay West  A  DATE: 6		ANALYTICAL CHAIN OF C PURGE / SA PUMP CONT PURGE RAT	LABORATI USTODY# MPLE METH ROLLER SI	PURGE I HOD : BLA ETTING: R	dder pu							
TERIAL: ETER (in): H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	W-1 PVC 3 78.0 (fi): 9.1	Bay West	13/2	CHAIN OF C PURGE / SA PUMP CONT PURGE RAT	USTODY # MPLE METH	PURGE I HOD : BLA ETTING: R	dder pu							
TERIAL: ETER (in): H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	W-1 PVC 3 78.0 (fi): 9.1	Bay West	13/2	CHAIN OF C PURGE / SA PUMP CONT PURGE RAT	USTODY # MPLE METH	PURGE I HOD : BLA ETTING: R	dder pu							
TERIAL: ETER (in): H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	W-1 PVC 3 78.0 (fi): 9.1	90 DATE: 6	13/2	PUMP CONT	ROLLER SI	HOD: BLA	dder pu							
TERIAL: ETER (in): H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	W-1 PVC 3 78.0 (fi): 9.1	90 00 DATE: 6	13/2	PUMP CONT	ROLLER SI	ETTING: R								
TERIAL: ETER (in): H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	78.0 (f): 9.0 (.58	DATE: 6	13/2	PUMP CONT	ROLLER SI	ETTING: R								
H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal):	78.0 (f): 9.0 (.58	DATE: 6	13/2	PURGE RAT			A Section of the last of the l	PUMP CONTROLLER SETTING: Re 14 dile 3com						
H, TOTAL (f ATER (toc): JMN HEIGHT ME (gal) : DNVERSION	78.0 (f): 9.0 (.58	DATE: 6	13/2		PURGE RATE (gpm): 200 mL/min 4525									
ATER (toc): JMN HEIGHT ME (gal) : DNVERSION	78.0 (f): 9.0 (.58	DATE: 6	13/2	PURGE START TIME: 1255 / 1400										
JMN HEIGHT ME (gal) : DNVERSION	(ft): 9.°	_	1010	PURGE END		1520								
ME (gal) : DNVERSION	1.58	-		SAMPLING BEGIN / END TIME: 1525 / 1400										
NVERSION				PUMP ID#: PFAS WATER LEVEL ID#: PFAS										
		.46-2" .6	65 - 4" 1.4		1 - 8"									
TIME				ION READING										
	VOLUME	TEMP	COND	D.O.	рН	ORP	TURBIDITY	WATER LEV						
	(g <del>al)</del>	(C)	(mS/cm)	(mg/L)	,	(mV)	(ntu)	( ft BTOC						
Parameter	rs	±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5							
1420	_	16.20	1.83	9.35	7.22	107	440	78.0						
1425	1,0	13.92	1.85	9,07	6.58	105	897	78.0						
1430	20	1352	1,85	8,47	57 (c) 20 (c)	97	434	780						
	-	13.52						78.						
		in i			the state of the s	9/0		78.0						
112								78.0						
1				7		, ,								
						1 -		78.0						
1455	7,0	1537					1	78.0						
500	8,0	13.34	1.87	7.34	6.46	105	130	78.0						
1505	9,0	13,43	1.87	7.10	6.39	108	117	78,0						
	ON DATA				SAMPLE	CONTAINE	RS							
		3.17												
	PURGED:	2.01												
	IT) (				gel	Nitrate +Ni	trite							
	IIY:				`									
	1id	122			,									
-/	Apt	10 tuch	-		N									
	1	reas -TT		5. 361110										
	525		SAMPLE FIE	ELD FILTERE	D?: Yes	(NO)								
		omments):												
SAMPLE?	Yes / No? (na	ame/time/comments)	:				,							
-1122	n	, )												
es / pro (na	me/time/commen	its):												
-			COMMENTS											
SCRIPTION	l (Beain / Fnd	): COLOR: /			ODOR	no 1 -								
	1.		-EMC / 500			· C) re								
ONS: 50	to bot	tom of	pump	9 8	5									
			f. a.											
a left in wel	Lat completie	n? ( Vac or No	<i>)</i> .											
		D					W 8 7/4							
	1425 1435 1435 1490 1495 1450 1500 1505 FABILIZATI JME (gal): VOLUMES I VOLUMES I VOLUMES I K? Yes / Wo SAMPLE? ES / WO J (na SCRIPTION ONS: 56	1425 1,0 1437 2,0 1435 3,0 1445 6,0 1445 6,0 1450 1505 7,0 1505 7,0 1505 7,0 1505 7,0 1505 1505 1505 1505 1505 1505 1506 1507 1508 1508 1508 1508 1508 1508 1508 1508	1425 1435 1435 1435 1440 14.0 13.45 1490 1495 1495 1500 13.49 1455 1500 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1505 13.34 1506 13.34 1507 13.34 13	1435 1.0 13.92 1.85 1437 2.0 13.52 1.85 1435 3.0 13.52 1.86 1490 4.0 13.45 1.86 1495 6.0 13.58 1.87 1450 6.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.39 1.87 1500 8.0 13.45 1.86 1500 8.0 13.45 1.86 1500 8.0 13.45 1.87 1500 8.0 13.45 1.86 1500 8.0 13.45 1.86 1500 8.0 13.45 1.87 1500 8	1425   10   13.92   1.85   9.07     1430   20   13.52   1.85   8.47     1435   3.0   13.52   1.86   8.24     140   4.0   13.45   1.86   8.07     1450   6.0   13.58   1.87   7.95     1450   8.0   13.37   1.87   7.34     1500   8.0   13.37   1.87   7.34     1505   9.0   13.43   1.87   7.34     1505   9.0   13.43   1.87   7.10     1506   1.87   1.87   7.10     1507   1.87   1.87   7.10     1508   1.87   1.87   7.10     1509   1.87   7.34     1509   1.87	1425 1.0 13.92 1.85 9.07 6.58 1430 20 13.52 1.85 8.47 6.51 1435 3.0 13.52 1.86 8.07 6.55 1440 4.0 13.45 1.86 8.07 6.55 1445 6.0 13.68 1.87 7.95 6.49 1450 6.0 13.37 1.87 7.81 6.48 1455 7.0 13.37 1.87 7.44 6.48 1500 8.0 13.34 1.87 7.34 6.46 1505 9.0 13.43 1.87 7.10 6.39 18BILIZATION DATA SAMPLE  JME (gal):  VOLUMES PURGED:  ONDUCTIVITY:  DRO w/ silica gel  ONDUCTIVITY:  PFAS 2,3,7,8 TCDD 1,4-dioxane total organic N  SAMPLE? Yes / 10? (name/time/comments):  SAMPLE? Yes / 10? (name/time/comments):  SAMPLE? Yes / 10? (name/time/comments):  COMMENTS  SCRIPTION (Begin / End): COLOR: Clambolication of the completion of the completion? (Yes or No.):	1425   1,0   13,92   1,85   9,07   1,58   1,05   1,430   2,0   13,52   1,85   8,44   1,65   9,4   1,45   3,0   13,52   1,86   8,07   1,55   9,6   1,445   5,0   13,58   1,87   7,95   6,49   9,9   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,01   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7,81   6,48   1,97   7	1425 1.0 13.92 1.85 9.07 (£58 105 897 1430 20 13.52 1.85 8.47 6.51 97 434 1435 3.0 13.52 1.86 8.07 6.55 96 215 1445 6.0 13.45 1.86 8.07 6.55 96 215 1445 6.0 13.58 1.87 7.95 6.49 99 180 1450 6.0 13.49 1.87 7.81 6.48 101 151 1455 7.0 13.37 1.87 7.91 6.48 103 134 1500 8.0 13.34 1.87 7.94 6.48 103 134 1500 8.0 13.34 1.87 7.10 6.39 108 112 1501 1505 9.0 13.43 1.87 7.10 6.39 108 112 1501 1505 9.0 13.43 1.87 7.10 6.39 108 112 1501 1501 1501 1501 1501 1501 1501 1501						

Sman Focused Env	Y YY GS.							Page:	of 2		
≺OJECT	NAME :	Begi	in Landfill SW#	134	PROJECT#	:		J200408			
ADDRESS			Vinewood La		SAMPLE ID:	MW-	1				
CITY, STA			mouth, MN 554		DATE:	7.100					
SAMPLER	•		Ted Toegel		ANALYTICAL	LABORAT	ORY:		100 100		
COMPANY			Bay West		CHAIN OF C						
		WELL DAT		4 =			PURGE I	DATA			
WELL NA	ME :	MM -	MW-L	2	PURGE / SA	MPLE METH					
CASING	ATERIAL :	"LATE			PUMP CONT				_		
	METER (in)			1	PURGE RATE (gpm):						
WELL DEF	PTH, TOTAL (	ft):		5 3 2	PURGE START TIME 513/2						
DEPTH TO	WATER (toc):		DATE:	ह्या	PURGE END TIME:						
	LUMM HEIGH	T (ft):			SAMPLING	EGIN / END	TIME	1			
WELL YO	UME (gal):				PUMP ID#: WATER LEVEL ID#:						
YOCUME (	CONVERSIO	V FACTOR:	.16 - 2" .6	35 - 4" 14	47 - 6" 2.61 - 8"						
	1	1			ION READIN			1	T		
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pН	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)		
	on Paramete		±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	(пвос)		
1	(510	19.0	13.41	1.86	6.87	6.41	108	112	78.0		
2	1315	11.0	13.5	1.86	(0,7)	6.31	113	102	78.0		
3	1320	12.0		186	( , -	Charles and the same of the sa	112	01			
	1300	10,0	13,48	100	6,60	6.29	115	96	78.0		
4	ļ										
_ 5											
6	-										
7							1	1			
8							451	3/21			
9								~ L			
10											
	STABILIZAT	ON DATA				SAMPLE	CONTAINE	RS			
	THME (gal):										
	L VOLUMES	PURGED:			DDO / 11		N1244 N124				
STAB. TEN	CONDUCTIV	TTV:			DRO w/ silica gel Nitrate +Nitrite						
STAB. D.C		111.			PFAS 2,3,7,8 TCDD						
STAB. pH					1,4-dioxane			H			
STAB. OR					total organic	N/		F12101			
STAB. TU								4101-1	·		
SAMPLE T		0		SAMPLE FI	LDSKTERE	D?: Yes	/ No				
FIELD BLA	ANK? Yes / No	? (name/time/co	omments):					151	<u> </u>		
DUPLICATE SAMPLE? Yes / No ? (name/time/comments):											
BOT ETOTAL	L O/ WIII EL.	1007110 : (110	/					Page			
MS/MSD?	Yes / No ? (na	ame/time/commen	ls):								
							,				
0.44451.5				COMMENTS	3						
ISAMPLE D	DESCRIPTION	N (Begin /End)	): COLOR:			ODOR:		_			
し出SERVA	TIONS :										
	/								\		
Carriel		U =4 =	-0./3/	١.							
			n? (Yes or No	):							
WEATHER	WEATHER DATA: TEMP.: SKY: WIND:										

<b>Ba</b>	y West	t						Dane	-f
. KOJECT	NAME ·	Ben	in Landfill SW#	£13Δ	PROJECT#	ri -		Page: <b>J20040</b>	of 8
ADDRESS			X Vinewood La		SAMPLE ID:	MIA	1-2	320040	0
CITY, STA			mouth, MN 554		DATE: 5	74137	- 0		
		' ')				LADODAT	00)(		
SAMPLER			Ted Toegel		ANALYTICA				
COMPANY		MELL DAT	Bay West		CHAIN OF C	.USTODY#	1000	2474	
NA/ELL NIAN	<b>1</b> 5	WELL DAT	I A		DUDOE (0.0	NADI E NAETI	PURGE I	1 0	0
WELL NAM		2000			PURGE / SA				MP
CASING M		KY C						on rely	d 6 4015
	METER (in):	2			PURGE RAT			MIN	
1	PTH, TOTAL			-13 10 1	PURGE STA		0900		
-	WATER (toc):	1-6-1	Ditt'E.	1311	PURGE END		95()		1000
	LUMN HEIGH		10		SAMPLING E				1020
WELL VOL		1,34	7.10	NE 48 4	PUMP ID#:		WAIE	R LEVEL ID#:	Y1745
VOLUME C	CONVERSIO	N FACTOR:			1167	31 - 8"			
READING	TIME	VOLUME	TEMP	STABILIZAT COND	ION READIN		I ADD	TURBIDITY	WATER LEVEL
#	1 IIVIE	(gat)	(C)	(mS/cm)	D.O. (mg/L)	рH	ORP (mV)	(ntu)	(ft BTOC)
	on Paramete		±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	(112100)
1	0905	_	12.27	1,36	2.13	6.81	21/0	259	72 99
2	0910	10	10 78	1,37	0.48	1.40	230	148	72,99
3	2915	20	10.70	1,37	0,68	10.38	227	703	72.99
									72.99
4	0121	3,0	10.69	12 1 1 0 2 0 0 0 111					100
5	0925	4,0	10.70	0 1.37 0,74 6,36 221 24,5					72,99
6	0930	5,9	10,72	137	2,75	6.36	214	11,2	72,99
7	0935	6.0	10,75	1.38	0,76	637	207	4,7	72.99
8	0940	7.0	10,76	1.37	9.78	6.39	205	0,0	72,99
9	0945	8.0	10,75	1,37	0,77	6.41	201	0.0	72,99
10									
	STABILIZAT	ON DATA	h=			SAMPLE	CONTAINE	RS	
TOTAL VO	LUME (gal) :		2.11						
	_ VOLUMES	PURGED:	1.57						
STAB. TEM			10.75		DRO w/ silica	gel	Nitrate +Nit	trite	
	CONDUCTIV	<u> </u>	1.37		PFAS				
STAB. D.O			0.73		2,3,7,8 TCDE	)			
STAB. pH : STAB. ORF			201		1,4-dioxane total organic	NI			
STAB. TUR			0.0		total organic	14			
SAMPLE T		50	7, (7	SAMPLE FI	ELD FILTERE	D?: Yes	/ (No)		
		(name/time/c	omments):						
DUPLICAT	E SAMPLE?	Yes / No? (na	ame/time/comments	):					
MS/MSD?	Yes / No.7 (na	ame/time/commer	its):						
				COMMENT					
SAMPLED	ESCRIPTION	N (Begin / End	V. COLOR:	COMMENTS	<b>-</b>	ODOR:	William Street	2	
AIVII LL D	LOCITIF HOI	V (Degill / Ello	). COLOR. Z	lear			none		
SERVA <sup>™</sup>	TIONS: 5	et bos	Hom of	bomb	2) -	7			
			0 W 1 / -						
			n? (Yes or No	100					
WEATHER	DATA: TE	MP.: 45	9 F St	KY: CLA	'NV	WIN	ND: 5-	10 MPZ	`



imer Facused Envi	JUGOL rommental & Industrial Solution							Page: 2	of 2		
⊀OJECT	NAME :	Begi	in Landfill SW#	<b>#134</b>	PROJECT # : J200408						
ADDRESS	:		( Vinewood La		SAMPLE ID: MW-3						
CITY, STA	TE, ZIP :	Ply	mouth, MN 554	141	DATE:						
SAMPLER			Ted Toegel		ANALYTICAL LABORATORY :						
COMPANY			Bay West		CHAIN OF C						
	7 - 17 - 1	WELL DAT					PURGE D	DATA			
WELL NAM	ME :	MW-			PURGE / SAI	MPLE METH					
	IATERIAL :			_	PUMP CONT	ROLLER SE	ETTING:	/			
WELL DIA	METER (in) :		PURGE RATE (gpm) :								
WELL DEF		PURGE START TIME									
	WATER (toc):		DATE:		PURGE END	THME		61412			
WATER CO	LUMN HEIGH	I (II):			SAMPLING B	BEGIN / END	TIME :	1111			
WELL VOL	-UME (gal):				PUMP ID#:		WATER	R LEVEL ID#:			
VOLUME	ONVERSIO	V FACTOR :	.16 - 2" .6	65 - 4" 1.4	7 - 6" 2.6	1 - 8"					
					ION READING						
READING	TIME	VOLUME	TEMP	COND	D.O.	рН	ORP	TURBIDITY	WATER LEVEL		
# Stabilizati	on Paramete	(gat) —	(C) ±3%	(mS/cm)	(mg/L) ±10%/<0.5	±0.1	(mV) ±10	(ntu) ±10%/<5	(ft BTOC)		
	T	V = 55	11,43	2.32	3.79	704	-88	60.4	87,35		
1	1210	10.0							00 11		
2		11.0	11.68	2 32	4.05	7,04	-88	66.5	88.16		
3	1390	120	11.49	2.31	4,06	7.04	-87	65.4	88.85		
74											
_5											
6											
7						T	-1410	1			
8						3.12	217/2				
9											
10											
	STABILIZAT	ON DATA			**	SAMPLE	CONTAINE	RS			
	LUME (gal) :										
	L VOLUMES	PURGED:			DDC / '''	RO w/ silica gel					
STAB. TEN	CONDUCTA	/ITV ·		-	DRO w/ silica	gel	Mitrate +Nii	rite			
STAB. D.O		-		<b>_</b>	2,3,7,8 TCDD						
STAB. pH					1,4-dioxana						
STAB. ORI					total organic N						
STAB. TUF				Jo.			***				
SAMPLE T		0		SAMPLE FI	LD FILTERE	D?: Yes	s / No				
FIELD BLA	ANK? Yes / No	o ? (name/time/co	omments):	$\rightarrow$			199				
DUPLICAT	F SAMPLE?	Yes / No ? (na	ame/time/comment	):		-	-17				
5 6. 210. (1	2 0/ 1111 221	1007.10 1 (110		<i>y</i>			5/4/2	1			
MS/MSD?	Yes / No ? (na	ame/time/commen	ts):				21110				
0.4451.5.5		/		COMMENTS		0000	_				
NAMPLE L	DESCRIPTION	N (Begin / End	): COLOR:			ODOR :	$\overline{}$				
್ರBSERVA	TIONS:										
								/			
Sample till	and left in wa	Il at completic	n? (Yes or No	1:				/			
				-/ <del>/</del>							
WEATHER	RDATA: TE	MP.:	SI	KY 📒 .		WIN.	ND:				



mer-Focused Envir	J MGS	25						Page:	of I		
. ROJECT	NAME :	Bea	in Landfill SW#	134	PROJECT#	8		J20040			
ADDRESS			( Vinewood Lai	SAMPLE ID: MW-5							
CITY, STA			mouth, MN 554			15/21					
SAMPLER					1		ODV				
COMPANY			Ted Toegel Bay West		ANALYTICAL LABORATORY : CHAIN OF CUSTODY #:						
COMPAINT		WELL DAT			CHAIN OF C	,031001#		ATA			
WELL NAM	/E:	MW-5			PURGE / SAMPLE METHOD: Bladdec Pine						
CASING M		PIC						1	MP	-	
	METER (in)	700			PUMP CONTROLLER SETTING: 3com 20051						
	PTH, TOTAL	(ft): 42.	. 0		PURGE START TIME: 0945						
	WATER (toc):			1311	PURGE END						
	LUMN HEIGH			13/2	SAMPLING E		020 TIME : 10	200- 1	1945		
WELL VOL		1,85			PUMP ID#:			R LEVEL ID#:			
	CONVERSION		(16-2") 6	65 - 4" 1.4	District Property and the	61 - 8"	WAIL	CLLVLL ID#.	1171		
. J. Z. GIVIE	3.17 EROIO				ION READIN					er - 1-11	
READING	TIME	VOLUME	TEMP	COND	D.O.	pH	ORP	TURBIDITY	WATER	RLEVEL	
#		(gal)1	(C)	(mS/cm)	(mg/L)		(mV)	(ntu)	(ft B	STOC)	
Stabilization	on Paramete	rs	±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5			
1	0950		13,45	1,12	2,44	6.47	-27	19.6	31.0	15	
2	0955	1,25	11.49	1.15	0.19	6.72	-73	7.1	31.	45	
3	1000	2.5	11.33	1.16	0.19	674	-76	0,0	31.	45	
4	1005	3,75	11,15	1.110	0.18	6.72	-79	2.0	31.0	15	
5	1010	5,0	11.02	1.16	0.110	10.72	-80	0.0	31,0	-	
6	1015	6.25	11,03	1.17	0,19	671	-81	20	31,4		
7	1020	7.5	1,06	1,/7	2,20		-82	0,0	31.4		
	1020		11/40	1177	1120	6.72	00	12,00	3/15		
8		8.75						- H	010	0 1	
	9 [0,0] 57572]										
10	07454474				4						
	STABILIZAT LUME (gal) :		1,98			SAMPLE	CONTAINE	RS			
	L VOLUMES		1.07								
STAB. TEM		. 0.1025.	11.00		DRO w/ silica	gel	Nitrate +Nit	rite			
	CONDUCTIV	/ITY:	1.17		PFAS						
STAB. D.O			0.20		2,3,7,8 TCDD						
STAB. pH:			6.33		1,4-dioxane						
STAB. ORF			0.0		total organic N						
SAMPLE T		1000		SAMDI E EIG	LD FILTERE	D2. Von	(100)			-	
		? (name/time/co		OAWITE TI	-LUTTERE	D:. Tes	1000				
		- (Harriovalliozot	minorito):								
DUPLICAT	E SAMPLE?	Yes (Ng? (na	me/time/comments)	:							
MS/MSD?	Yes / No.3 (na	ame/time/commen	ts):								
	<i></i>			00111111111				×=			
SAMPLED	ESCRIPTION	N (Begin / End	)· COLOP·	COMMENTS		ODOP ·	1000				
1			, COLOR. Z	lea(		ODOR: Y	1000				
JBSERVAT	TIONS :	et bo	Hom a	ot pui	mp a	38					
					1						
Sample tub	ing left in we	Il at completion	n? (Yes or No	);							
		-2	2 -		- 41-	1.8.214	ID	Sanh			
WEATHER	DATA: TE	IVIP.: 50	, SK	CY: Clar	T T Y	VVIN	ID: 0-	more			

Bay West LLC 5 Empire Drive St. Paul, Minnesota 55103-1867

651/291-0456 FAX 651/291-0099 1-800-279-0456

\_1\_\_ of \_\_\_1\_

### **DAILY DIARY**

To be completed by Crew Leader

SW#134 Begin – Monument Repairs  Project Manager Erik Nimlos  Personnel on Site (Client, Visitors, Bay West staff other than listed above)  Bronson Keller, Brady Cain with Dakota Technologies  Detailed description of work performed:  8:00 – Arrived at Bay West, calibrated equipment, printed field binder documents.  9:00 – Left Bay West for the site.  9:30 – Arrived on site, went over SSHP.  10:00 – Met with drillers (Bronson and Brady), went over SSHP and tailgate, had them sign both.  10:16 – Began repairs on PSG-06.	Job No. Date J210344 6/7/2021									
Personnel on Site (Client, Visitors, Bay West staff other than listed above)  Bronson Keller, Brady Cain with Dakota Technologies  Detailed description of work performed:  8:00 – Arrived at Bay West, calibrated equipment, printed field binder documents.  9:00 – Left Bay West for the site.  9:30 – Arrived on site, went over SSHP.  10:00 – Met with drillers (Bronson and Brady), went over SSHP and tailgate, had them sign both.	Bay West Crew									
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10:00 - Met with drillers (Bronson and Brady), went over SSHP and tailgate, had them sign both.	9:00 – Left Bay West for the site.									
	9:30 – Arrived on site, went over SSHP.									
10:16 – Began repairs on PSG-06.	went over SSHP and tailgate, had them sign both.									
10:30 - Drillers had difficulty removing the concrete around the well, Brady left the site to go get more tools.	crete around the well, Brady left the site to go get more tools.									
10:38 – Bronson began the removal process of the unknown well.	the unknown well.									
11:02 – Brady came back with necessary tools.										
11:15 - Unknown well was sealed with Benseal and completed.	and completed.									
11:20 – Began repairs on PSG-06 again.										
11:53 – PSG-06 repairs completed.										
12:03 – Began repairs on PSG-03.										
13:20 - Drillers finished replacing the outer casing of PSG-03 and filled it following the construction details	ing of PSG-03 and filled it following the construction details									
provided by Bay West.										
14:00 - Drillers cleaned around wells and loaded equipment, left site.	ed equipment, left site.									
15:15 – Arrived back at Bay West and unloaded equipment.	d equipment.									
Waste Generated:	法国际政治 原 改計 经证明 医外腺 医外腺 医水体管 医神经									
None										
Change in Conditions (if any):	2007年发生主任后的任命12年8月1日日日本									
None										
Sample Summary:	THE THE RESERVE THE PARTY OF TH									
Samples Taken: ☐ Yes ☐ No. of Samples 0 COC #: N/A	o. of Samples 0 COC #: N/A									
Sample Destination:										
N/A										
Size and Type of Sample:										
N/A										

Signature Megan Hutchinson

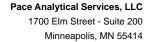
6/7/2021

Date \_\_\_\_\_



# Appendix D Laboratory Analytical Reports

June 2021 BWJ200408



(612)607-1700



October 07, 2020

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

#### Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 2020. 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.

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

• Pace Analytical Services - Minneapolis

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

Sincerely,

Colin Lynch

colin.lynch@pacelabs.com

Col fynd

(612)607-1700 Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc







#### **CERTIFICATIONS**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Pace Analytical Services - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

A2LA Certification #: 2926.01 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+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 DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: AI-03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts DWP Certification #: via MN 027-053-137

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 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 #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101

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

Vermont Certification #: VI-02/05313/
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

#### **REPORT OF LABORATORY ANALYSIS**





#### **SAMPLE SUMMARY**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10533248001	SB-04 (37-40)	Solid	09/22/20 10:00	09/25/20 10:33
10533248002	SB-03 (35-40)	Solid	09/23/20 14:45	09/25/20 10:33

#### **REPORT OF LABORATORY ANALYSIS**



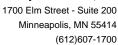
#### **SAMPLE ANALYTE COUNT**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10533248001	SB-04 (37-40)	WI MOD DRO	TT2	2
		ASTM D2974	JDL	1
10533248002	SB-03 (35-40)	WI MOD DRO	TT2	2
		ASTM D2974	JDL	1

PASI-M = Pace Analytical Services - Minneapolis





#### **PROJECT NARRATIVE**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Method: WI MOD DRO

Description: WIDRO GCS Silica Gel

Client: Bay West LLC

Date: October 07, 2020

#### **General Information:**

2 samples were analyzed for WI MOD DRO 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 WI MOD DRO 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.

QC Batch: 701244

R1: RPD value was outside control limits.

- LCSD (Lab ID: 3745972)
  - WDRO C10-C28

#### Matrix Spikes:

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

#### **Additional Comments:**

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

#### **REPORT OF LABORATORY ANALYSIS**





#### **ANALYTICAL RESULTS**

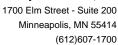
Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Date: 10/07/2020 02:30 PM

Sample: SB-04 (37-40)	Lab ID:	10533248001	Collected	d: 09/22/20	10:00	Received: 09/	25/20 10:33 Ma	atrix: Solid	
Results reported on a "dry weight"	basis and are	adjusted for	percent mo	isture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	•			•	/lethod	: WI MOD DRO			
	Pace Anal	ytical Services	- Minneapol	is					
WDRO C10-C28	<8.1	mg/kg	8.1	2.2	1	09/29/20 15:31	10/01/20 21:31		
Surrogates n-Triacontane (S)	82	%.	30-150		1	09/29/20 15:31	10/01/20 21:31	638-68-6	
Dry Weight / %M by ASTM D2974	Analytical	Method: ASTM	D2974						
	Pace Anal	ytical Services	- Minneapol	is					
Percent Moisture	9.8	%	0.10	0.10	1		10/02/20 14:42		N2

#### **REPORT OF LABORATORY ANALYSIS**





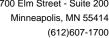
#### **ANALYTICAL RESULTS**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Date: 10/07/2020 02:30 PM

Sample: SB-03 (35-40) Lab ID: 10533248002 Collected: 09/23/20 14:45 Received: 09/25/20 10:33 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Report **Parameters** Results Units Limit MDL DF Prepared Analyzed CAS No. Qual Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO WIDRO GCS Silica Gel Pace Analytical Services - Minneapolis WDRO C10-C28 4.6J mg/kg 2.4 09/29/20 15:31 10/01/20 20:56 Surrogates n-Triacontane (S) 81 %. 09/29/20 15:31 10/01/20 20:56 638-68-6 Dry Weight / %M by ASTM D2974 Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis Percent Moisture 22.6 0.10 0.10 10/02/20 14:43 N2





#### **QUALITY CONTROL DATA**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

QC Batch Method:

QC Batch: 702101

702101 Analysis Method: ASTM D2974 Analysis Description

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory:

Pace Analytical Services - Minneapolis

**ASTM D2974** 

Associated Lab Samples: 10533248001, 10533248002

SAMPLE DUPLICATE: 3750823

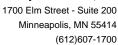
10533190027 Dup Max RPD RPD Parameter Units Result Result Qualifiers 3.8 Percent Moisture % 4.0 3 30 N2

SAMPLE DUPLICATE: 3750824

Date: 10/07/2020 02:30 PM

10533248002 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 22.6 % 2 Percent Moisture 22.1 30 N2

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





#### **QUALITY CONTROL DATA**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Date: 10/07/2020 02:30 PM

QC Batch: 701244 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO Solid GCV

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10533248001, 10533248002

METHOD BLANK: 3745970 Matrix: Solid

Associated Lab Samples: 10533248001, 10533248002

Blank Reporting Parameter Result Limit MDL Qualifiers Units Analyzed WDRO C10-C28 <10.0 10.0 2.7 10/01/20 20:42 mg/kg n-Triacontane (S) %. 81 30-150 10/01/20 20:42

LABORATORY CONTROL SAMPLE &		37	745972							
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
WDRO C10-C28	mg/kg	80	89.2	71.0	111	89	66-125	23	20	R1
n-Triacontane (S)	%.				116	98	30-150			

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

(612)607-1700



#### **QUALIFIERS**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

#### **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.

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

TNI - The NELAC Institute.

#### **ANALYTE QUALIFIERS**

Date: 10/07/2020 02:30 PM

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.

R1 RPD value was outside control limits.





#### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Date: 10/07/2020 02:30 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10533248001	SB-04 (37-40)	WI MOD DRO	701244	WI MOD DRO	702032
10533248002	SB-03 (35-40)	WI MOD DRO	701244	WI MOD DRO	702032
10533248001	SB-04 (37-40)	ASTM D2974	702101		
10533248002	SB-03 (35-40)	ASTM D2974	702101		

Page:

CHAIN-OF-CUSTODY / Analytical Request Document

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

Samples Intact (Y/V) 3000027123 SW0000134 Custody Sealed Cooler (Y/N) PRJ07786 Comments WO#:10533248 ゝ 3.4 Temp (O°) Project Task Code: Work Order No. Program Code Facility Code: Section E COC ID: 50/ 1700 Elm St. Minneapolis MN, 55414 Colin Lynch 92520 612-656-2286 9/25/20 Lab Project Manager DOW WEIGHT DATE Signed (MM/DD/YY): Lab Phone: × × Section D Lab Name Adress: ,3,7,8 TCDD (Dioxin) A0628/82181 AG × × × ORO with silica gel × × × × × × 5 Empire Dr. St. Paul, MN 55103 5 205946 # of Cont. Bay West LLC Accounts Payable MASON 0001 2445 əmiT 9/242026 2011-Sub 9/123/222 H246 Purchase Order No. Sample=Routine Sample
S-CW0P-Composite Sample
S-CW0P-Composite Sample
S-MP-Integrated Vertical Profile Sample
QC-RE-Field Blank Sample
QC-RE-Field Replicate Sample
QC-RE-Field Semple Company Name: Date 103 Attention: Address: Soil-Sub Soil-Sub Soil-Sub Soil-Sub Soil-Sub Soil-Sub (MPCA ONLY) 905p PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SW#134 Begin Dump - Borings eb Matrix Code (YLNO AD9M) SD S SD S SD SD S ၀ွ SO SO SO So So စ္တ Standard 200408 Σ AMPLE TYPE (G=GRAB (GMOD=D Ø Ö ග Ø ø Ö Ö Sample Sample OC-FR Sample Sample QC-EB Sample Sample Type Code Field Matrix Codes
With-found-discount Auter
WITh-Surface Weiter
QC-Biank-Artificial Blank Water
QC-Biank-Artificial Blank Water
Leachtaal-leachte Sample
Soil-Surface
Soil-Surface End Depth ft 40 04 Site Location (State) Turnaround Time: Project Number: Project Name: Start Depth ft 58-04-(24-40) 35 58-03(38-40) 35 Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW=Drinking Water
NW=Non-potable Water
SD=Soil/Solid WP=Wipe AR=Air BL=Biological Material OT=Other Eweaver@baywest.com enimlos@baywest.com Erik Nimlos 651-291-3493 Bay West Required Client Information: Location Unique ID Project Manager: 3 SO=Soil QC=Soil QC W=Aqueous WG=Groundw S=Surface ź Company: Address: Email To: Copy To: Phone:

# Pace Analytical®

#### **Document Name:**

#### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

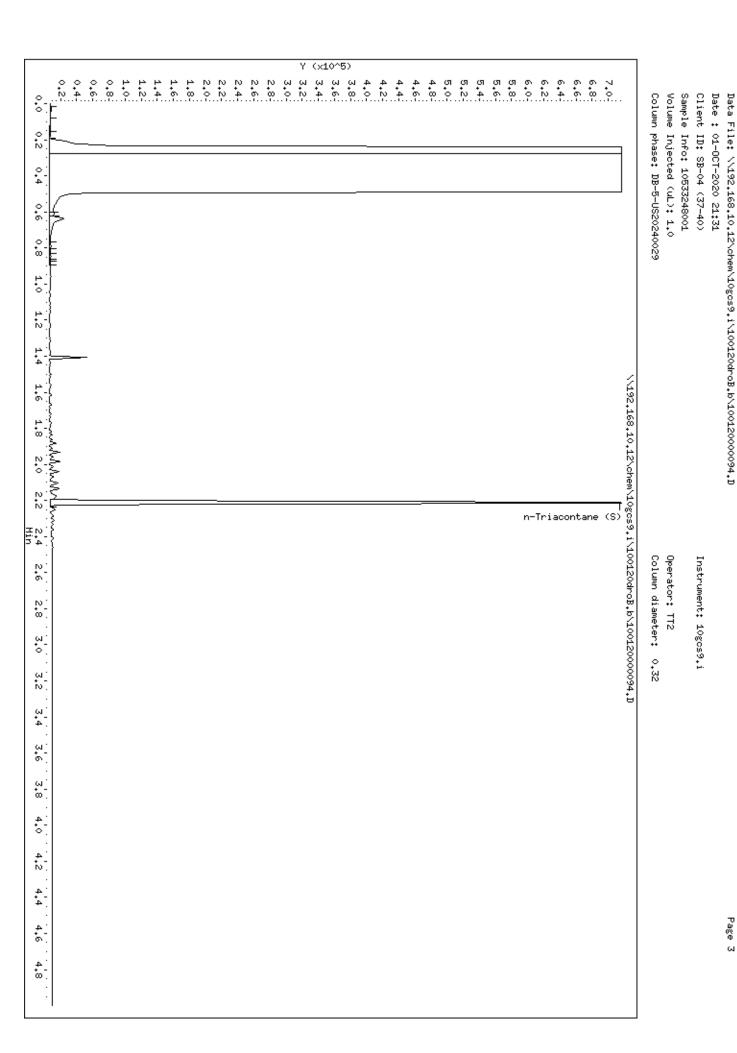
Page 1 of 1

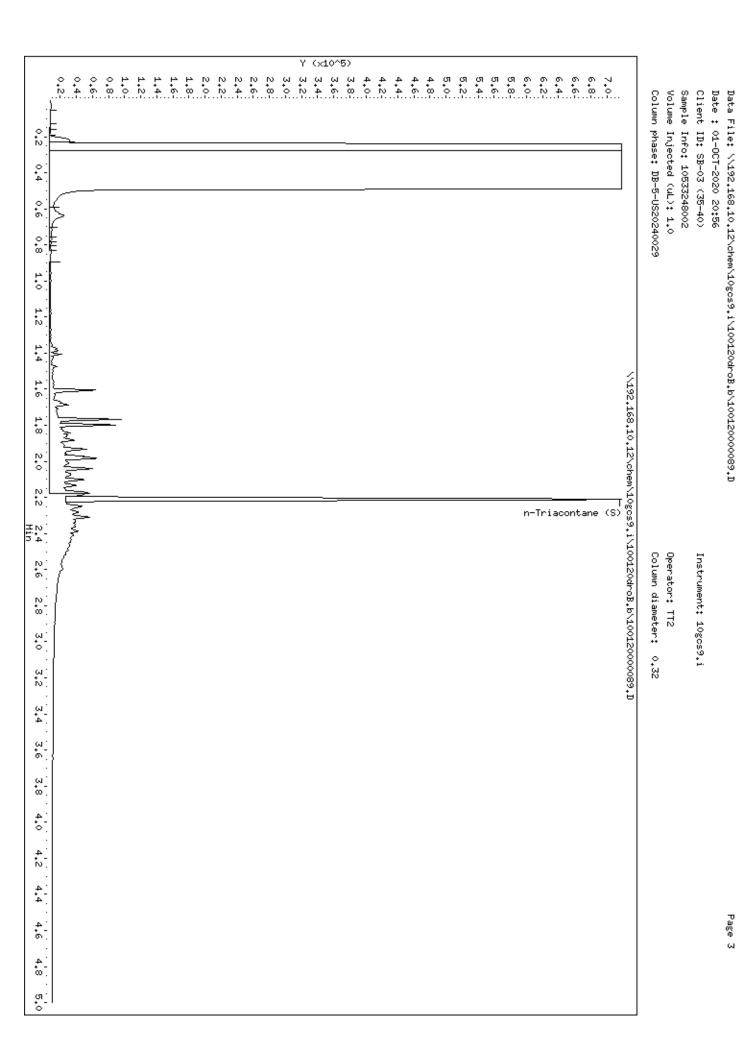
Pace Analytical Services -Minneapolis

2 Page 13 of 15

Labeled by:

Sample Condition Upon Receipt	Client Name:			Projec	t #:	h	10#::	10	533248	8
Courier:	Fed Ex UPS Pace SpeeDee	USPS Commer	7	Client			M: CL1 LIENT: BW	I-BAY	Due Date: :	10/09/20
Tracking Number:				ee Excepti NV-FRM-M					,	%e"_ /
<b>Custody Seal on Cool</b>	er/Box Present? Yes	ZNo	Se	als Intac	<b>t?</b> □Y	es 🖊	No <b>Biol</b> o	ogical Ti	issue Frozen?	Yes No N/A
Packing Material:			None	☐Oti	her:				emp Blank?	<u> </u>
Thermometer:	T1(0461)	)	Type of	Ice:	<b></b> ✓Wet	Blue	□None	□D	ry	
Did Samples Originate	in West Virginia? ☐ Yes ☐ No	We	re All Co	ontainer	Temps T	aken? □y	∕es □No ∠E	ĴN/A		
Temp should be above free	zing to 6°C Cooler Temp Re	ad w/ten	np blank	c:		. 3	oc		age Corrected (no temp blank	See Exceptions
Correction Factor:	Cooler Temp Correct	ed w/tem	ıp blank			. 9	⁰C	only):		☐1 Container
USDA Regulated Soil: ( N/A, water sample/Other: Date/Initials of Person Examining Contents:										
					ļ			COM	MENTS:	
Chain of Custody Present Chain of Custody Relinqui		Yes	□No		1.	<del></del>				
Sampler Name and/or Sig		Z Yes	∐No □No	□N/A	2. 3.					· · · · · · · · · · · · · · · · · · ·
Samples Arrived within Ho		Yes	□No		4.				· · · · · · · · · · · · · · · · · · ·	
Short Hold Time Analysis	(<72 hr)?	Yes	No		5.	Fecal Colifo	orm HPC T	otal Coli	form/E coli BOD/c	BOD Hex Chrome
Rush Turn Around Time R	lequested?	□Yes	ZNo		6.					
Sufficient Volume?		Yes	□No		7.					
Correct Containers Used? -Pace Containers Used?		Z yes Z yes	□No □No		8.					
Containers Intact?		Yes	□No		9.					
Field Filtered Volume Rece		Yes	□No	ZN/A	10. Is	sediment	visible in the	dissolve	ed container? Y	es 🔲 No
to the COC?	ailable to reconcile the samples	Yes	□No		11. If n	o, write ID/	Date/Time on	Containe	er Below:	See Exception ENV-FRM-MIN4-0142
Matrix: ☐Water Ø Soil ☐				······						
All containers needing acid checked?	d/base preservation have been	□Yes	□No	P <sup>(</sup> N/A	12. San	nple#				
compliance with EPA recor	servation are found to be in nmendation? H >9 Sulfide, NaOH>10 Cyanide)	∐Yes	□No	Øn/a		☐ NaOH	□ нм	IO₃	□H <sub>2</sub> SO <sub>4</sub>	Zinc Acetate
Exceptions: VOA, Coliform, DRO/8015 (water) and Dio		□Yes	□No	□ N/A	Positive Chlorin Res. Ch		==	рН Рар	er Lot# 0-6 Strip	See Exception ENV-FRM-MIN4-0142  0-14 Strip
P. A. J.	WOA WIEDO									0 14 Strip
Headspace in VOA Vials (gr	VOA or WIDRO containers? eater than 6mm)?	Yes Yes	□No □No	□n/a ∠□n/a	13.					See Exception ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Pr	esent?	□Yes □Yes	⊠No □No	□n/a □n/a	14. Pa	ice Trip Bla	ank Lot # (if pu	ırchase	4)·	
1	CATION/RESOLUTION			<u>,</u>		Time:				s No
Comments/Resolution:		0		<del> </del>						
		1	/	·-·-						
Project Manage		Ly	ut	_		Date:	9/25/2	20		
lote: Whenever there is a dis old, incorrect preservative, o	screpancy affecting North Carolina out of temp, incorrect containers).	complifance	e sample:	s, a copy o	of this form	n will be se	nt to the North	n Carolin	a DEHNR Certificati	on Office (i.e out of







#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

#### **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR PFAAs**

#### **Report Information:**

Pace Project #: 10533249

Sample Receipt Date: 09/25/2020 Client Project #: 200408 SW#134

Client Sub PO #: N/A State Cert #: 027-053-137

#### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kirsten Hogberg, your Pace Project Manager.

This report has been reviewed by:

October 14, 2020

Kirsten Hogberg, Project Manager (612) 607-6407

(612) 607-6444 (fax)

kirsten.hogberg@pacelabs.com



#### **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

**Report Prepared Date:** 

October 7, 2020

#### **DISCUSSION**

This report presents the results from the analyses performed on two samples, one matrix spike, and a matrix spike duplicate submitted by a representative of Bay West LLC. The samples were analyzed for six perfluorinated compounds using MPCA PFC Guidance. Reporting limits were set to the quantitation limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

A laboratory spike samples was also prepared with the sample batch. With the exception of the target analyte PFHxS in LCS-82857 (flagged "R"), the recovery results were within the method limits. However, since PFHxS was not detected in the sample material and recovery was elevated, the results were accepted.

Matrix spikes were also prepared with the sample batch using sample matrix from project samples that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits.

The recoveries of the isotopically-labeled surrogate standards in the sample extracts were within the target ranges specified in the method.

Results for the low level spikes that were below the calibration range were flagged "J".



#### Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240		

#### **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management

Page:

## CHAIN-OF-CUSTODY / Analytical Request Document

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

Report Section A Section B Section C Section D Section E Required Client Information: Required Project Information: Invoice Information Laboratory Information MPCA Information Company: **Bay West** Project Name: SW#134 Begin Dump - Borings Attention: Accounts Payable Lab Name: Pace COC ID: No.... Address: 5 Empire Dr. St.Paul MN, 55103 Project Number: 200408 Company Name: Bay West LLC Adress: 1700 Elm St. Minneapolis MN, 55414 Work Order No. 3000027123 Project Manager : Erik Nimlos Turnaround Time: Standard Address: 5 Empire Dr. St. Paul, MN 55103 Lab Project Manager Colin Lynch Facility Code: SW0000134 Email To: enimlos@baywest.com Site Location (State): MN Purchase Order No. 205946 Lab Phone: 105 612-656-2286 Project Task Code: PRJ07786 Phone: 651-291-3493 Program Code Copy To: Eweaver@baywest.com Ñ Matrix Code Lab Matrix Codes Field Matrix Codes 49 Sample Type Codes SE=Sediment DW=Drinking Water Wtr-Ground≈Ground Water Sample=Routine Sample SO=Soil NW=Non-potable Water WTR-Surf=Surface Water S-CWOP=Composite Sample QC=Soil QC SD=Soil/Solid QC-Blank=Artificial Blank Water MPCA\_DFR S-IVP=Integrated Vertical Profile Sample W=Aqueous **WP**=Wipe Leachate=Leachate Sample QC-FB=Field Blank Sample WG≕Groundw AR=Air Soil-Surf= Soil Surface QC-FR=Field Replicate Sample S=Surface BL=Biological Material Soll-Sub= Soil Subsurface QC-TB=Trip Blank Sample OT=Other Sample Type Code (MPCA ONLY) of Cont Start End Time Location Date Sample Common ID Depth Depth Unique ID Ž # Comments SB-64 (27-40) 37 SB-03(35-40) 35 1000 9/22/2026 Sample SO SD Soil-Sub х x Sample so SD х х х so Sample G SD Soil-Su х Sample G. SO SD Soil-Sub х WO#: 10533249 Sample so SD Soil-Sul х QC-FR so SD Soil-Sub QC-EB sol SD Soil-Sub SAMPLE CONDITIONS 103 Page Received on Ice (Y/N) Custody Sealed Cooler (Y/N) S ZACH MASON RINT Name of SAMPLER: SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

# Pace Analytical\*

#### **Document Name:**

#### Sample Condition Upon Receipt (SCUR) - MN

**Document No.:** 

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services -

	***			OLJO NEV.OL	<u></u>	Millieapolis	
Sample Condition Upon Receipt  Client Name:			Projec	t #:	JO#:10	053324	9
	USPS Comme	rcial	Client		PM: KNH CLIENT: BW-B	Due Date: AY WEST	10/09/20
Tracking Number:			iee Excepti :NV-FRM-M				
Custody Seal on Cooler/Box Present? Yes	ZNo	Se	als intac	t? □Yes	No <b>Biologic</b> a	Il Tissue Frozen?	Yes No N/A
Packing Material: Bubble Wrap Bubble B		None	□oti	•	•	Temp Blank?	
Thermometer: T1(0461) 72(1336) T3(0459		Type of		✓Wet □Blue	☐None [	□Dry □Melted	
Did Samples Originate in West Virginia? Yes	We	re All C	ontainer	Temps Taken? 🗌	Yes No N/A	· · · · · · · · · · · · · · · · · · ·	
Temp should be above freezing to 6°C Cooler Temp Re	ad w/ter	np blanl	k:	3,3	OC Av	erage Corrected	See Exceptions
Correction Factor: ( Cooler Temp Correct	ed w/ten	np blank	:	3.4		mp (no temp blank lly):ºC	ENV-FRM-MIN4-0142
USDA Regulated Soil: ( \sum N/A, water sample/Other:	naps)?	Yes	□No	A, Did samples o Hawaii and Po	uerto Rico)?	ign source (internation ☐ Yes	1/25/2C JJ nally, including
					co	MMENTS:	
Chain of Custody Present and Filled Out?	<b>∠</b> Yes	□No		1.			
Chain of Custody Relinquished?	<sup>7</sup> ⊠Yes	□No		2.			
Sampler Name and/or Signature on COC?	Z Yes	□No	□ N/A	3.			
Samples Arrived within Hold Time?	<b>Z</b> Yes	□No		4.			
Short Hold Time Analysis (<72 hr)?	□Yes	∕⊠No		5. Fecal Colif	orm HPC Total ( Nitrate Nitrite	Coliform/E coli BOD/ Orthophos Other_	cBOD Hex Chrome
Rush Turn Around Time Requested?	☐Yes	∠No		6.			
Sufficient Volume?	Yes	□No		7.			
Correct Containers Used?Pace Containers Used?	Z Yes Z Yes	∐No □No		8.			
Containers Intact?	✓Yes	□ No		9.			
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	ØN/A	10. Is sedimen	it visible in the diss	olved container?	Yes No
Is sufficient information available to reconcile the samples to the COC?	Yes	□No			/ Date/Time on Cont		See Exception ENV-FRM-MIN4-014
Matrix: Water Soil Oil Other							
All containers needing acid/base preservation have been checked?	□Yes	□No	Øn/a	12. Sample #			
All containers needing preservation are found to be in compliance with EPA recommendation? HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	□Yes	□No	[☑N/A	☐ NaOF		∏H₂SO₄	Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	Yes	□No	ØN/A	Positive for Res. Chlorine? Res. Chlorine	<b>声</b> "	Paper Lot# 0-6 Strip	See Exception ENV-FRM-MIN4-0142
extra labels present on soil VOA or WIDRO containers?	Yes	□No	□N/A	13.			See Exception
leadspace in VOA Vials (greater than 6mm)?	Yes	□No	√ N/A				ENV-FRM-MIN4-0140
rip Blank Present?	☐Yes	ØN₀	□N/A	14.			
rip Blank Custody Seals Present?	Yes	□No	∠N/A	Pace Trip Bi	lank Lot # (if purcha	ased):	
CLIENT NOTIFICATION/RESOLUTION					Field Da	ta Required?	as DNo

**Project Manager Review:** Date: 9/28/2020 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).

Date/Time:

Labeled by:

Field Data Required? Yes No

Person Contacted:

Comments/Resolution:



## **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# **Appendix B**

Sample Analysis Summary



#### Pace Analytical Services, LLC

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix SB-04 (37-40) 10533249001 W200930C\_009

 Matrix
 Soil

 Collected
 09/22/2020

 Received
 09/25/2020

Date Extracted
Total Amount Extracted
% Moisture

Dry Weight Extracted Starting CCal

Ending CCal Method Blank Filename 09/30/2020 2.03 g 0 2.03 g

W200930C\_003 W200930C\_013 W200930C\_005

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.093	1	09/30/202021:01	375-22-4	
PFPeA	ND	0.25	0.068	1	09/30/202021:01	2706-90-3	
PFBS	ND	0.22	0.040	1	09/30/202021:01	375-73-5	
PFHxA	ND	0.25	0.046	1	09/30/202021:01	307-24-4	
PFHxS	ND	0.23	0.051	1	09/30/202021:01	355-46-4	
PFOA	ND	0.25	0.046	1	09/30/202021:01	335-67-1	
PFOS	ND	0.24	0.047	1	09/30/202021:01	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.7	83	50 - 150	Pass	
13C2 PFDA	2.0	1.6	82	50 - 150	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
12C2 DEOA	402446	202244 076042	220200 660777	Door
13C2_PFOA	493146	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	1019926	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	518047	292778 - 878335	355023 - 710046	Pass

50-150% of Ical area

70-140% of the preceding CCV area



#### Pace Analytical Services, LLC

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix SB-03 (35-40) 10533249002 W200930C\_010

 Matrix
 Soil

 Collected
 09/23/2020

 Received
 09/25/2020

Date Extracted Total Amount Extracted % Moisture

Dry Weight Extracted Starting CCal Ending CCal

Method Blank Filename

09/30/2020 2.01 g N/A 2.01 g

W200930C\_003 W200930C\_013 W200930C\_005

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	09/30/202021:10	375-22-4	
PFPeA	ND	0.25	0.069	1	09/30/202021:10	2706-90-3	
PFBS	ND	0.22	0.041	1	09/30/202021:10	375-73-5	
PFHxA	ND	0.25	0.047	1	09/30/202021:10	307-24-4	
PFHxS	ND	0.23	0.052	1	09/30/202021:10	355-46-4	
PFOA	ND	0.25	0.047	1	09/30/202021:10	335-67-1	
PFOS	ND	0.24	0.047	1	09/30/202021:10	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.4	70	50 - 150	Pass	
13C2 PFDA	2.0	1.6	81	50 - 150	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
4000 DEOA	500050	000044 070040	000000 000777	Dana
13C2_PFOA	528059	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	1094468	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	557480	292778 - 878335	355023 - 710046	Pass

50-150% of Ical area

70-140% of the preceding CCV area



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs Blank Analysis Summary**

Lab Sample ID Filename Matrix

BLANK-82856 W200930C\_005

Soil

**Date Extracted** Total Amount Extracted % Moisture

Dry Weight Extracted

Starting CCal Ending CCal

09/30/2020 2.00 g N/A 2.00 g

W200930C\_003 W200930C\_013

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	09/30/202020:28	375-22-4	
PFPeA	ND	0.25	0.069	1	09/30/202020:28	2706-90-3	
PFBS	ND	0.22	0.041	1	09/30/202020:28	375-73-5	
PFHxA	ND	0.25	0.047	1	09/30/202020:28	307-24-4	
PFHxS	ND	0.23	0.052	1	09/30/202020:28	355-46-4	
PFOA	ND	0.25	0.047	1	09/30/202020:28	335-67-1	
PFOS	ND	0.24	0.048	1	09/30/202020:28	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	90	70 - 130	Pass	
13C2_PFDA	2.0	1.7	84	70 - 130	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
1000 BEOA	40.4000	000044 070040	00000 000777	_
13C2_PFOA	481962	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	989131	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	520639	292778 - 878335	355023 - 710046	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID LCS Filename **Total Amount Extracted** 

ICAL ID Start CCal Filename End CCal Filename

LCS-82857 W200930C\_006 2.02g

200928C04 W200930C\_003 W200930C\_013 Method Blank Filename W200930C\_005 Matrix Soil Dilution

Extracted 09/30/2020 Analyzed 09/30/2020 20:36

Injected By NH

Compound	<b>Spiked</b> (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits	
PFBA	2.5	2.4	95	80.0 - 120.0	
PFPeA	2.5	2.3	94	80.0 - 120.0	
PFBS	2.2	2.3	104	80.0 - 120.0	
PFHxA	2.5	2.4	97	80.0 - 120.0	
PFHxS	2.3	2.9 R	125	80.0 - 120.0	
PFOA	2.5	2.5	101	80.0 - 120.0	
PFOS	2.4	2.4	100	80.0 - 120.0	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	2.0	98	70 - 130	Pass	
13C2 PFDA	2.0	1.8	89	70 - 130	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	468565	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	959242	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	512170	292778 - 878335	355023 - 710046	Pass

50-150% of Ical area

70-140% of the preceding CCV area



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID MS Filename Total Amount Extracted ICAL ID

Total Amount Extracted ICAL ID
Start CCal Filename
End CCal Filename
Method Blank Filename

10533249001-MS W200930C\_007 2.01g 200928C04 W200930C\_003 W200930C\_013

W200930C\_005

Matrix Soil Dilution 1

Extracted 09/30/2020 Analyzed 09/30/2020 20:45

Injected By NH

Compound	<b>Spike</b> (ug/Kg)	<b>Sample</b> (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits	Flags
PFBA	2.5	0	1.9	76	50.0 - 150.0	
PFPeA	2.5	0	2.0	82	50.0 - 150.0	
PFBS	2.2	0	2.4	111	50.0 - 150.0	
PFHxA	2.5	0	2.0	80	50.0 - 150.0	
PFHxS	2.3	0	2.9	126	50.0 - 150.0	
PFOA	2.5	0	2.3	95	50.0 - 150.0	
PFOS	2.4	0	2.5	104	50.0 - 150.0	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.6	80	50 - 150	Pass	
13C2_PFDA	2.0	1.8	88	50 - 150	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	481812	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	974755	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	501504	292778 - 878335	355023 - 710046	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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#### MPCA Guidance PFCs Matrix Spike Sample Duplicate (MSD)

MSD Lab Sample ID MSD Filename Total Amount Extracted ICAL ID Start CCal Filename End CCal Filename Method Blank Filename 10533249001-MSD W200930C\_008 2.01g 200928C04 W200930C\_003 W200930C\_013 W200930C\_005

MS Filename Matrix Dilution Extracted Analyzed

Injected By

W200930C\_007 Soil

09/30/2020 09/30/2020 20:53

Compound	<b>Spike</b> (ug/Kg)	Sample (ug/Kg)	Recovered (ug/Kg)	Recovery %	Recovery Limits	Flags	RPD %
PFBA	2.5	0	2.1	82	50.0 - 150.0		9
PFPeA	2.5	0	2.2	88	50.0 - 150.0		8
PFBS	2.2	0	2.6	121	50.0 - 150.0		8
PFHxA	2.5	0	2.2	90	50.0 - 150.0		11
PFHxS	2.3	0	3.0	128	50.0 - 150.0		2
PFOA	2.5	0	2.5	99	50.0 - 150.0		5
PFOS	2.4	Ō	2.5	105	50.0 - 150.0		2

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.7	84	50 - 150	Pass	
13C2_PFDA	2.0	1.6	81	50 - 150	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	480691	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	966561	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	518753	292778 - 878335	355023 - 710046	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

#### **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR** PCDD/PCDF

#### **Report Information:**

Pace Project #: 10533250

Sample Receipt Date: 09/25/2020

Client Project #: 200408 Client Sub PO #: 205946 State Cert #: 027-053-137

#### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Ashley Williams, your Pace Project Manager.

This report has been reviewed by:

October 12, 2020 Ashley Williams, Project Manager (612) 346-8158

(612) 607-6444 (fax)

ashley.williams@pacelabs.com



#### **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

October 12, 2020



Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

#### **DISCUSSION**

This report presents the results from the analyses performed on two samples submitted by a representative of BayWest, LLC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations. Per request, this report was revised with changes to the sample identifications.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 74-107%. All of the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of selected congeners. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

Laboratory and matrix spike samples were also prepared using clean reference matrix or sample matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 83-110% with relative percent differences of 0.5-11.4%. These results were within the target ranges for the method.

#### **REPORT OF LABORATORY ANALYSIS**

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#### Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240	, -	

#### **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management

# Report No.....10533250\_8290FC\_R1\_DFRRevision 1



# CHAIN-OF-CUSTODY / Analytical Request Document

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

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	ction A Required Client Inform	nation:	Section B Required F	Project Informa	ation:				s	ection C				Secti							ction E					
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Pro	ject Manager :	Erik Nimlos	Turnaround 1			Stand				ddress:				Adres			lm St. Min			<del></del>	Order I			30000	27123	
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	Matrix Code SE=Sediment SO=Soil QC=Soil QC W=Aqueous WG=Groundwater S=Surface	Lab Matrix Codes DW=Drinking Water NW=Non-potable Water SD=Soil/Solid WP=Wipe AR=Air BL=Biological Material OT=Other	WTR-Surf= QC-Blank= Leachate= Soil-Surf=	ix Codes d=Ground Wate Surface Water Artificial Blank Leachate Sam Soil Surface Soil Subsurface	r k Water nple		Samp S-CW S-IVP QC-F QC-F	ple=Ro VOP=Co P=Integ B=Field R=Field	e Codes utine Samp omposite S rated Vertic d Blank Sa d Replicate Blank Sam	Sample cal Profile Sample imple a Sample			er e de la companya				Preser									
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# ace Analytical®

#### **Document Name:**

#### Sample Condition Upon Receipt (SCUR) - MN

**Document No.:** 

Document Revised: 12Aug2020

Page 1 of 1

ENV-FRM-MIN4-0150 Rev.01

Pace Analytical Services -Minneapolis

Sample Condition Upon Receipt  Client Name:			Project	:#:	M	  O#: 1	105:	33250	7)
Courier: W & S	]USPS ]Commer	cial	Client		PM	: AW1 IENT: BW	Dı	ue Date: 1	
Tracking Number:	/		ee Exceptio NV-FRM-MI		N				·
Custody Seal on Cooler/Box Present?	ZΝο		als Intact		es 📶	No Biolo	ogical Tissi	Je Frozen?	Yes No N/A
Packing Material: Bubble Wrap Bubble B		None	□Oth	_					Yes $\square$ No
Thermometer:       ☐ T1(0461) ☐ ₹2(1336) ☐ T3(0459)         ☐ T4(0254) ☐ T5(0489)	<u>,                                     </u>	Type of I	lce:	∕Wet	□Blue	□None	□Dry	☐Melted	
Did Samples Originate in West Virginia? ☐Yes ☐No	We	re Ali Co	ontainer 1	Temps T	aken? □ v	es 🗆 No 🔎	IN/A		
Temp should be above freezing to 6°C Cooler Temp Re	ad w/ten	np blank	::	3	، ځ	°C	Average	Corrected	See Exceptions
Correction Factor: ( Cooler Temp Correcte	ed w/tem	p blank	•	. 3	. 4	oc	Temp (n only): _	o temp blank ºC	ENV-FRM-MIN4-0142
USDA Regulated Soil: ( N/A, water sample/Other: Did samples originate in a quarantine zone within the Unit ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check m If Yes to either question, fill out a	aps)? [	Yes	<b>□</b> No	A, Did Hav	samples or vail and Pue	erto Rico)?	a foreign sou ∐Ye	urce (internation	Mally, including
							COMME	NTS:	
Chain of Custody Present and Filled Out?	Yes	□No		1.					
Chain of Custody Relinquished? Sampler Name and/or Signature on COC?	Yes Yes	□ No		2.			***	<u>.</u>	
Samples Arrived within Hold Time?	Z Yes	No □No	□n/a	3. 4.		W. C		**	***
Short Hold Time Analysis (<72 hr)?	Yes	No.	1101	5.	Fecal Colifo	rm HPC 1	Total Coliforn	m/E coli BOD/o	cBOD Hex Chrome
Rush Turn Around Time Requested?	□Yes	ΖNο		6.					
Sufficient Volume?	Yes	ĺ∏No	V7.0	7.					
Correct Containers Used?	<b>∠</b> yes	□No		8.					
-Pace Containers Used?	Yes	□No							n
Containers Intact?	Yes	□No		9.			·		
Field Filtered Volume Received for Dissolved Tests?	Yes	∐No	N/A	+				container? 🔲	
Is sufficient information available to reconcile the samples to the COC?  Matrix: □Water ☑Soil □Oil □Other	Yes	□No		11. If n	o, write ID/	Date/Time on	Container E	elow:	See Exception ENV-FRM-MIN4-014
All containers needing acid/base preservation have been checked?	Yes	□No	Øn/a	12. Sar	nple#	100.		18 7	
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	∐Yes	□No	ØN/A		☐ NaOH	_ 🗆 ни	NO₃	∏H₂SO4	☐Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	□Yes	□No	⊠N/A	Positive Chlorin Res. Ch		Yes No O-6 Roll	pH Paper	Lot# -6 Strip	See Exception ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	Yes Yes	□No □No	□N/A □N/A	13.		<u></u>		71- 11-1	See Exception ENV-FRM-MIN4-0140
Trip Blank Present?	Yes	ØN∘	□Ŋ/A	14.	:				
Trip Blank Custody Seals Present?	Yes	∐No	N/A	ļ Pi	ace Trip Bla	ank Lot # (if p	urchased):		
CLIENT NOTIFICATION/RESOLUTION  Person Contacted:  Comments/Resolution:	<u>-</u> -			. Date,	/Time:	Field	d Data Re	quired? 🔲 Y	es No
	1.1.	10.00			**				78.55
Project Manager Review:	<del>, llll</del>	HICK WAR	VV		Date:	09/28/2020	•		
Note: Whenever there is a discrepancy affecting North Carolina	compliance	e sample	s, a copy o	of this for		•	th Carolina I	DEHNR Certifica	tion Office (i.e out of
hold, incorrect preservative, out of temp, incorrect containers).		•							

Labeled by: \_



# CHAIN-OF-CUSTODY / Analytical Request Document

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

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Section Requi	n A red Client Informa	tion:	Section B Required i	Project Informa	ition:				S	ection C				Secti							ction E					
Compa	ny:	Bay West	Project Name	e:	SW#134	Begin I	Dump	- Borir	ngs A	ttention:	Accounts P	avable		Labor	atory Informa	ition					CA Inform	ation				
Address	s: 5 Empir	re Dr. St.Paul MN, 55103	Project Numl	ber:	-	2004				ompany Name:	Bay We			_				ace	**		DC ID:		<u> </u>		- 4	2,
Project	Manager:	Erik Nimlos	Turnaround			Stan				ddress:				Adres			m St. Mini		<del></del>		Order N			300002	27123	
Email T	o: eni	mlos@baywest.com	Site Location			MI			-	urchase Order No.	5 Empire Dr. St. Pa			+	roject Mar	nager		Colin L	ynch	Facili	ity Code:	:		SW000	00134	
Phone:		351-291-3493	Copy To:	· (Otato).		1011				urchase Order No.		205946	<u> </u>	Lab P	hone:		612-6	56-2286		Proje	ct Task	Code:		PRJ0	7786	
Сору То		eaver@baywest.com					· .		+		<u> </u>	<u> </u>		<u> </u>	<u> </u>					Progr	ram Cod	е .				
оору п	J	eavel@baywest.com	Сору То:								til skips og til ski Til skips og til skip		In 120				1 - 1							-111	: .	
SE= SO= QC= W=/ WG:	rix Code Sediment Soil Soil QC Aqueous =Groundwater urface	Lab Matrix Codes DW=Drinking Water NW=Non-potable Water SD=Soil/Solid WP=Wipe AR=Air BL=Biological Material OT=Other	WTR-Surf= QC-Blank= Leachate= Soil-Surf=	ix Codes.  Id=Ground Wa  Surface Water  Artificial Blank  Leachate Sam  Soil Surface  Soil Subsurface	r Water sple		Samp S-CW S-IVP QC-FI QC-FI	ole=Rou /OP=Co '=Integra B=Field R=Field	e Codes atine Samp mposite Sa ated Vertice Blank Sar Replicate Blank Sam	ample cal Profile Sample mple Sample			er og server og serve													
	Location Jnique ID	Sample Common 10/12/2020 MW-04 (3	Depth	End Depth ft	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date	Time	# of Cont.	DRO with silica gel	1,3,7,8 TCDD (Dioxin) PA 1613B/8290A		DRY WEIGHT								Comm	ente	
1	(L)	10 100	+37	40	Sample	G	so	SD	Soil-Sub	9122122	1000	-		N E		<del>/ </del>				+	<del>                                     </del>	=	<u> — </u>			
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						SAMI	PLER N	IAME A	ND SIGN	IATURE	MINISTERNATION CO	of the state of	Marine Co.	19604.5	er grande	54 (493)	alas Strang	n sanda s	Ad Mari	25.78K.F	2535	Temp (C)	5	on loc	Sealed (Y/N)	Intact
				4.5		PRINT	Name o	of SAM	PLER:	ZACH	MASON							-				, j= ~		Received on Ice (Y/N)	δ g	Samples Intact (Y/N)
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# Pace Analytical\*

#### **Document Name:**

#### Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020

Page 1 of 1

	Tr door mary dod	EN		cument -MIN4-0		v.01	Р	ace Analytical Services - <b>Minneapolis</b>					
Sample Condition Upon Receipt Courier:	Client Name:    Sold   Sold	USPS Commerc		Project	#:	PM:	AW1	L0533250 Due Date: 10/ -BAY WEST	′09/20				
Tracking Number:				e Exceptio IV-FRM-MIN		×							
Custody Seal on Co	oler/Box Present? Yes	Įνο	Sea	ls Intact	<b>?</b> □ Y	es 🖊 No	Biolo	gical Tissue Frozen? Tye	s □No,☑N/A				
Packing Material:	Bubble Wrap Bubb	le Bags	]None	Oth	er:		•	Temp Blank? Y	es 🗌 No				
Thermometer:	□ T1(0461) □ ₹2(1336) □ T3(0 □ T4(0254) ☑ T5(0489)	459)	Type of l	ce: Z	<b>W</b> et	Blue	□None	☐Dry ☐Melted					
Did Samples Origina	te in West Virginia? 🗆 Yes 🔻	No Wei	e Ali Co	ntainer T	emps Ta	aken? 🗆 Yes	□No ∠E	IN/A					
Temp should be above fr	eezing to 6°C Cooler Temp	Read w/tem	•		3	. 4	ºc	Temp (no temp blank 🛭 🖺	See Exceptions NV-FRM-MIN4-0142 1 Container				
Did samples originate ID, LA. MS, NC, NM, N	USDA Regulated Soil: ( N/A, water sample/Other: Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No  If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.												
								COMMENTS:	-				
Chain of Custody Prese Chain of Custody Relind Sampler Name and/or	quished?	Yes Yes	□No □No □No	□n/a	1. 2. 3.								
Samples Arrived within  Short Hold Time Analys			No	***				otal Coliform/E coli BOD/cBO	D Hex Chrome				
Rush Turn Around Time	e Requested?	□Yes	ZNo		6.								
Sufficient Volume?		Yes	No		7.								
-Pace Containers Use -Pace Containers Use Containers Intact?		Z Yes Z Yes Z Yes	□No □No □No		8. 9.				W				
	eceived for Dissolved Tests?	Yes	□No	ZÍN/A		s sediment vis	sible in the	dissolved container? Yes	□No.				
Is sufficient information to the COC?	n available to reconcile the samp		□No	N/A				Container Below:	See Exception ENV-FRM-MIN4-0142				
Matrix: ☐Water ☑Soil All containers needing a checked?	Oil Other	n 🔲 Yes	□No	Øn/a	12. San	nple#	100						

Trip Blank Present? ☐ Yes ØN₀ 14. □Ŋ/A Trip Blank Custody Seals Present? ☐ Yes Pace Trip Blank Lot # (if purchased): □No **CLIENT NOTIFICATION/RESOLUTION** Field Data Required? Yes No Person Contacted: Date/Time: Comments/Resolution: Date: 09/28/2020 **Project Manager Review:** 

□N/A

**Z**N/A

□ NaOH

Positive for Res.

Chlorine?

13.

Res. Chlorine

☐ HNO<sub>3</sub>

Νo

0-6 Roll

☐H<sub>2</sub>SO<sub>4</sub>

0-6 Strip

pH Paper Lot#

Zinc Acetate

0-14 Strip

See Exception

See Exception

ENV-FRM-MIN4-0140

ENV-FRM-MIN4-0142

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).

□No

□No

Yes Yes

abeled by:  $\frac{1}{2}$ 

All containers needing preservation are found to be in

Exceptions: VOA, Coliform, TOC/DOC Oil and Grease,

Extra labels present on soil VOA or WIDRO containers?

Headspace in VOA Vials (greater than 6mm)?

(HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)

compliance with EPA recommendation?

DRO/8015 (water) and Dioxin/PFAS



## **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X =%D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



#### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04 (35-40)
Lab Sample ID 10533250001
Filename Y201001A\_11
Injected By BAL

Total Amount Extracted 10.6 g Matrix Soil % Moisture 10.2 Dilution NA

Dry Weight Extracted Collected 09/22/2020 10:00 9.57 g ICAL ID Received 09/25/2020 10:33 Y200611 CCal Filename(s) Y200930B\_19 & Y201001A\_18 Extracted 09/28/2020 15:30 Method Blank ID BLANK-82831 Analyzed 10/01/2020 06:20

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.29 0.29	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	81 79 93
2,3,7,8-TCDD Total TCDD	ND 0.74		0.48 0.48 J	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	94 100 104
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.59 0.18 0.18	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	107 104 98 97
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.41 0.41	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	88 90 92
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.12 0.081 0.089	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	94 88
1,2,3,7,8,9-HxCDF Total HxCDF	ND 0.18		0.11 0.081 BJ	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 7.2	 	0.28 0.25 0.22 0.22	2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	0.25 	0.14 IJ 0.21 0.14	Total 2,3,7,8-TCDD Equivalence: 0.020 ng/Kg (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.2 3.1		0.53 BJ 0.53 BJ			
OCDF OCDD	 18	0.67	0.36 IJ 0.46 B			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

ND = Not Detected NA = Not Applicable

EMPC = Estimated Maximum Possible Concentration EDL = Estimated Detection Limit

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present



#### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-03 (35-40) Lab Sample ID 10533250002 Filename Y201001A\_12 Injected By BAL

**Total Amount Extracted** 10.4 g Soil Matrix % Moisture Dilution 22.1 NA

Dry Weight Extracted Collected 09/23/2020 14:45 8.12 g ICAL ID Y200611 Received 09/25/2020 10:33 CCal Filename(s) Y200930B\_19 & Y201001A\_18 Extracted 09/28/2020 15:30 Method Blank ID BLANK-82831 Analyzed 10/01/2020 07:01

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.35 0.35	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	85 85 86
2,3,7,8-TCDD Total TCDD	ND 2.9		0.23 0.23	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	87 88 83
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND 0.85		0.33 0.22 0.22 J	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.00 2.00 2.00	85 84 86
1,2,3,7,8-PeCDD Total PeCDD	ND 0.84		0.31 0.31 J	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	80 75 74 80
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND 0.18	 	0.18 0.15 0.16 J	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 2.00 4.00	81 77
1,2,3,7,8,9-HxCDF Total HxCDF	ND 2.2		0.073 0.073 J	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND  ND 3.8	0.28 	0.31 0.20 J 0.20 0.20 J	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND 3.8	1.4 	0.22 J 0.28 0.22 J	Total 2,3,7,8-TCDD Equivalence: 0.15 ng/Kg (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	6.4 13		0.30 B 0.30 B			
OCDF OCDD	6.5 65		0.39 J 0.42 B			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

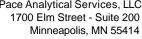
ND = Not Detected EMPC = Estimated Maximum Possible Concentration NA = Not Applicable EDL = Estimated Detection Limit NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present



#### Method 8290A Blank Analysis Results

Lab Sample Name Lab Sample ID Filename **Total Amount Extracted** 

<u> Pace Analytical</u>

**ICAL ID** 

CCal Filename(s)

**DFBLKRY** BLANK-82831 U200930B\_25 10.0 g

U200930 U200930B\_09 & U200930B\_27 Matrix Solid Dilution NA

Extracted 09/28/2020 15:30 Analyzed 10/01/2020 07:31 Injected By BAL

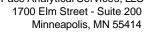
Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.069 0.069	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	93 91 113
2,3,7,8-TCDD Total TCDD	ND ND		0.076 0.076	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	124 123 89
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.086 0.048 0.048	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.00 2.00 2.00	91 94 95
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.057 0.057	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	94 80 85 89
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.053 0.053 0.042	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	102 94
1,2,3,7,8,9-HxCDF Total HxCDF	ND 0.095		0.053 0.042 J	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.060 0.067 0.060 0.060	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		0.099 0.13 0.099	Total 2,3,7,8-TCDD Equivalence: 0.0097 ng/Kg (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	0.67 1.5		0.12 J 0.12 J			
OCDF OCDD	0.41 9.4		0.14 J 0.21 J			

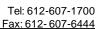
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures. J = Estimated value





## Method 8290A Laboratory Control Spike Results

Lab Sample ID Filename **Total Amount Extracted** 

<u>Pace Analytica</u>

**ICAL ID** CCal Filename(s) Method Blank ID

LCS-82832 U200930B\_14 10.0 g

U200930 U200930B\_09 & U200930B\_27 BLANK-82831

Matrix Dilution Extracted Analyzed

Solid NA

09/28/2020 15:30 09/30/2020 23:49

Injected By BAL
-----------------

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	0.20	0.19	97	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.0 2.0 2.0	100 97 114
2,3,7,8-TCDD Total TCDD	0.20	0.18	91	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.0 2.0 2.0 2.0	129 129 87
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	1.0 1.0	0.90 0.88	90 88	1,2,3,6,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.0 2.0 2.0 2.0 2.0	92 93 96 94
1,2,3,7,8-PeCDD Total PeCDD	1.0	0.83	83	1,2,3,4,7,6-1 KCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.0 2.0 2.0 2.0	83 90 97
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	1.0 1.0 1.0 1.0	0.96 0.93 0.93 0.87	96 93 93 87	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.0 4.0 2.0	113 103 NA
Total HxCDF  1,2,3,4,7,8-HxCDD  1,2,3,6,7,8-HxCDD  1,2,3,7,8,9-HxCDD  Total HxCDD	1.0 1.0 1.0	0.88 0.99 0.94	88 99 94	1,2,3,7,8,9-HxCDD-13C 2,3,7,8-TCDD-37Cl4	2.0 0.20	NA 84
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.0 1.0	0.88 0.84	88 84			
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.0	0.84	84			
OCDF OCDD	2.0 2.0	1.7 2.0	86 101			

Qs = Quantity Spiked Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis

NA = Not Applicable \* = See Discussion



### Method 8290A Spiked Sample Report

Client - Bay West, LLC

Client's Sample ID Lab Sample ID Filename

**Total Amount Extracted ICAL ID** 

CCal Filename(s) Method Blank ID

MW-04 (35-40)-MS 10533250001-MS Y201001A\_03

10.6 g Y200611

Y200930B\_19 & Y201001A\_18 BLANK-82831

Matrix Soil Dilution NA

Extracted 09/28/2020 15:30 Analyzed 10/01/2020 00:49 Injected By **BAL** 

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.19	97	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	79 79 86
2,3,7,8-TCDD	0.20	0.19	93	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	83 89 84
1,2,3,7,8-PeCDF	1.00	0.88	88	1,2,3,6,7,8-HxCDF-13C	2.00	88
2,3,4,7,8-PeCDF	1.00	0.93	93	2,3,4,6,7,8-HxCDF-13C	2.00	88
				1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00	86 82
1,2,3,7,8-PeCDD	1.00	0.88	88	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C	2.00	78
,_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				1,2,3,4,6,7,8-HpCDF-13C	2.00	87
				1,2,3,4,7,8,9-HpCDF-13C	2.00	94
1,2,3,4,7,8-HxCDF	1.00	1.04	104	1,2,3,4,6,7,8-HpCDD-13C	2.00	95
1,2,3,6,7,8-HxCDF	1.00	0.97	97	OCDD-13C	4.00	89
2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	1.00 1.00	0.93 0.95	93 95	1,2,3,4-TCDD-13C	2.00	NA
1,2,3,7,0,3-110001	1.00	0.33	90	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.01	101	2,3,7,8-TCDD-37Cl4	0.20	72
1,2,3,6,7,8-HxCDD	1.00	1.04	104	, , ,		
1,2,3,7,8,9-HxCDD	1.00	1.01	101			
1,2,3,4,6,7,8-HpCDF	1.00	0.91	91			
1,2,3,4,7,8,9-HpCDF	1.00	0.91	88			
1,2,3,4,6,7,8-HpCDD	1.00	0.92	92			
OCDF OCDD	2.00 2.00	2.07 1.96	103 98			

Qs = Quantity Spiked

Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent)

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



#### Method 8290A Spiked Sample Report

Client - Bay West, LLC

Client's Sample ID Lab Sample ID Filename

MW-04 (35-40)-MSD 10533250001-MSD Y201001A\_04 10.5 g

**Total Amount Extracted ICAL ID** 

Y200611 CCal Filename(s) Y200930B\_19 & Y201001A\_18 Method Blank ID

Matrix Soil Dilution NA

Extracted 09/28/2020 15:30 Analyzed 10/01/2020 01:31

BLANK-82831 Injected By **BAL** 

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	98	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	70 71 75
2,3,7,8-TCDD	0.20	0.19	96	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	74 78 81
1,2,3,7,8-PeCDF	1.00	0.89	89	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	1.00	0.89	89	2,3,4,6,7,8-HxCDF-13C	2.00	83
				1,2,3,7,8,9-HxCDF-13C	2.00	75
				1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	1.00	0.85	85	1,2,3,6,7,8-HxCDD-13C	2.00	<b>74</b>
				1,2,3,4,6,7,8-HpCDF-13C	2.00	<u>78</u>
10017011005	4.00	4.00	400	1,2,3,4,7,8,9-HpCDF-13C	2.00	78 25
1,2,3,4,7,8-HxCDF	1.00	1.02	102	1,2,3,4,6,7,8-HpCDD-13C	2.00	85 75
1,2,3,6,7,8-HxCDF	1.00	0.91	91	OCDD-13C	4.00	75
2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	1.00	0.93 0.93	93 93	1 2 2 4 TCDD 12C	2.00	NA
1,2,3,7,6,9-DXCDF	1.00	0.93	93	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00	NA NA
				1,2,3,7,0,9-0000-130	2.00	INA
1,2,3,4,7,8-HxCDD	1.00	0.94	94	2,3,7,8-TCDD-37Cl4	0.20	61
1,2,3,6,7,8-HxCDD	1.00	1.03	103	2,0,1,0 1022 01011	0.20	0.
1,2,3,7,8,9-HxCDD	1.00	0.93	93			
, ,-, ,-,-						
100107011005	4.00	4.00	400			
1,2,3,4,6,7,8-HpCDF	1.00	1.02	102			
1,2,3,4,7,8,9-HpCDF	1.00	0.92	92			
1,2,3,4,6,7,8-HpCDD	1.00	0.87	87			
, ,-, ,-, , <del>-</del> <del>,-</del>						
0005	0.00	0.00	440			
OCDF	2.00	2.20	110			
OCDD	2.00	1.99	100			

Qs = Quantity Spiked

Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent)

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



## Method 8290 Spike Sample Results

Client - Bay West, LLC

Client Sample ID Lab Sample ID MS ID

MSD ID

MW-04 (35-40) 10533250001 10533250001-MS 10533250001-MSD

Sample Filename MS Filename MSD Filename

Y201001A 11 Y201001A\_03 Y201001A\_04 **Dry Weights** 

Sample Amount 9.57 g 9.5 g MS Amount MSD Amount 9.4 g

	MS/MSD Qs	MS Qm	MSD Qm	Background Subtracted				
Analyte	(ng)	(ng)	(ng)	(ng)	RPD	MS % Rec.	MSD % Rec.	RPD
2,3,7,8-TCDF	0.00	0.20	0.19	0.20	1.0	97	98	1.0
2,3,7,8-TCDD	0.00	0.20	0.19	0.19	2.5	93	96	2.5
1,2,3,7,8-PeCDF	0.00	1.00	0.88	0.89	0.5	88	89	0.5
2,3,4,7,8-PeCDF	0.00	1.00	0.93	0.89	3.8	93	89	3.8
1,2,3,7,8-PeCDD	0.00	1.00	0.88	0.85	2.6	88	85	2.6
1,2,3,4,7,8-HxCDF	0.00	1.00	1.04	1.02	1.9	104	102	1.9
1,2,3,6,7,8-HxCDF	0.00	1.00	0.97	0.91	6.5	97	91	6.5
2,3,4,6,7,8-HxCDF	0.00	1.00	0.93	0.93	0.5	93	93	0.5
1,2,3,7,8,9-HxCDF	0.00	1.00	0.95	0.93	1.9	95	93	1.9
1,2,3,4,7,8-HxCDD	0.00	1.00	1.01	0.94	6.4	101	94	6.4
1,2,3,6,7,8-HxCDD	0.00	1.00	1.04	1.03	0.6	104	103	0.6
1,2,3,7,8,9-HxCDD	0.00	1.00	1.01	0.93	8.1	101	93	8.1
1,2,3,4,6,7,8-HpCDF	0.00	1.00	0.91	1.02	11.3	91	102	11.4
1,2,3,4,7,8,9-HpCDF	0.00	1.00	0.88	0.92	3.9	88	92	3.9
1,2,3,4,6,7,8-HpCDD	0.01	1.00	0.92	0.87	5.0	90	86	5.0
OCDF '	0.01	2.00	2.07	2.20	6.3	103	110	6.3
OCDD	0.17	2.00	1.96	1.99	1.8	89	91	2.0

#### **Definitions**

MS = Matrix Spike

MSD = Matrix Spike Duplicate Qm = Quantity Measured

Qs = Quantity Spiked % Rec. = Percent Recovery

RPD = Relative Percent Difference

NA = Not Applicable NC = Not Calculated CDD = Chlorinated dibenzo-p-dioxin CDF = Chlorinated dibenzo-p-furan

T = Tetra Pe = Penta Hx = HexaHp = Hepta

O = Octa



#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

## **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR PFAAs**

## **Report Information:**

Pace Project #: 10535097

Sample Receipt Date: 10/09/2020 Client Project #: 200408 SW#134

Client Sub PO #: N/A State Cert #: 027-053-137

### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kirsten Hogberg, your Pace Project Manager.

#### This report has been reviewed by:

October 21, 2020

Kirsten Hogberg, Project Manager (612) 607-6407

(612) 607-6444 (fax)

kirsten.hogberg@pacelabs.com



## **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

October 19, 2020

#### DISCUSSION

This report presents the results from the analyses performed on four samples, a matrix spike, and a matrix spike duplicate submitted by a representative of Bay West LLC. The samples were analyzed for seven perfluorinated compounds using MPCA PFC Guidance. Reporting limits were set to the quantitation limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

A laboratory spike sample and matrix spike samples were also prepared with the sample batch using clean reference matrix or sample material that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one matrix spike and its duplicate were within the method limits.

The recoveries of the isotopically-labeled surrogate standards in the sample extracts were within the target ranges specified in the method.



## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
lowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240		

## **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management



## CHAIN-OF-CUSTODY / Analytical Request Document

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

SIGNATURE of SAMPLER:

WO#: 10535097 

Œ Section A Section B Section C Section port Required Client Information: Required Project Information: Invoice Information: Laborator Company: **Bay West** Project Name: SW#134 Begin Dump - Borings Attention: Accounts Payable Lab Name: Pace COC ID: Address: 5 Empire Dr. St.Paul MN, 55103 Project Number: 200408 Company Name: Bay West LLC Adress: 1700 Elm St. Minneapolis MN, 55414 Work Order No. 3000027123 Project Manager : Erik Nimlos Turnaround Time: Standard Address: 5 Empire Dr. St. Paul, MN 55103 Lab Project Manager Colin Lynch Facility Code: SW0000134 Email To: enimlos@baywest.com Site Location (State): MN Purchase Order No. 205946 Lab Phone: 612-656-2286 Project Task Code: PRJ07786 Phone: 0 651-291-3493 Copy To: Program Code Copy To: Eweaver@baywest.com Copy To: 9 Matrix Code Lab Matrix Codes Field Matrix Codes Sample Type Codes DW=Drinking Water Wtr-Ground=Ground Water Sample=Routine Sample SO=Soil NW=Non-potable Water WTR-Surf=Surface Water S-CWOP=Composite Sample QC=Soil QC SD=Soil/Solid QC-Blank=Artificial Blank Water S-IVP=Integrated Vertical Profile Sample MPCA\_DFR W=Aqueous WP=Wipe Leachate=Leachate Sample QC-FB=Field Blank Sample WG=Groundwate **AR**≖Air Soil-Surf= Soil Surface QC-FR=Field Replicate Sample S=Surface BL≃Biological Material Soil-Sub= Soil Subsurface QC-TB=Trip Blank Sample OT=Other Sample Type Code (MPCA ONLY) 2,3,7,8 TCDD (Dioxin) EPA 1613B/8290A of Cont. Start End Code Time Location Date Sample Common ID Depth Depth **Unique ID** Matrix # Comments 15 20045 Sample so SD Soil-Sul 5 G 2001007374 MW-01 х х 001 40 630 Sample so SD 2001007375 MW-02 X х х 002 WW-03 <del>2001007370</del> Samole <del>20010</del>07377 930 30 35 5 Sample SO SD Soil-Sul 834635 MW-05 х х х 003 40 5 200/007375 1640 C-FR so SD Soil-Sul MW-UA-D 004 X х х RELINGUISHED BY / AFFILIATION ADDITIONAL COMMENTS DATE ACCEPTED BY PAREILIATION DATE SAMPLE CONDITIONS 10/9/20 1032 11.0 N ge Received on Ice (Y/N) Samples Intact (Y/N) S SAMPLER NAME AND SIGNATURE E C Ether Elespoin PRINT Name of SAMPLER:

DATE Signed (MM/DD/YY):



#### Document Name:

#### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services - Minneapolis

ENV-FRM-MIN4-0150 Rev.01 Sample Condition **Client Name:** Project #: WO#:10535097 **Upon Receipt** Courier: USPS X Client CLIENT: BW-BAY WEST SpeeDee Commercial See Exceptions **Tracking Number:** ENV-FRM-MIN4-0142 **Custody Seal on Cooler/Box Present?** ₩No Yes Seals Intact? Yes No Biological Tissue Frozen? ☐ Yes ☐ No ☑N/A Packing Material: **X** Bubble Wrap Bubble Bags None Other: Temp Blank? ☐ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) 🗶 T5(0489) Type of Ice: Thermometer: ₩et Blue None Dry Melted Did Samples Originate in West Virginia? ☐Yes No Were All Container Temps Taken? 

☐Yes □No **Z**N/A Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: **Average Corrected** See Exceptions Temp (no temp blank ENV-FRM-MIN4-0142 **Correction Factor:** 1 Container Cooler Temp Corrected w/temp blank: ٥C only): **USDA Regulated Soil:** ( N/A, water sample/Other:\_ Date/Initials of Person Examining Contents: \_ Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, Did samples originate from a foreign source (internationally, including ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ∞ X No **X**No Hawaii and Puerto Rico)? ☐Yes If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork. **COMMENTS:** Chain of Custody Present and Filled Out? □No 1. Chain of Custody Relinquished? Yes ⊠No 2. Sampler Name and/or Signature on COC? Yes □No □N/A 3. Samples Arrived within Hold Time? Yes □No 4. 5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome Short Hold Time Analysis (<72 hr)? ⊠No ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other\_ **Rush Turn Around Time Requested?** Yes XNo 6. Sufficient Volume? Yes □No 7. **Correct Containers Used?** Yes Yes □No 8. -Pace Containers Used?  $\square_{No}$ Containers Intact? Yes □No 9. Field Filtered Volume Received for Dissolved Tests? □No ☐ Yes **₩**N/A 10. Is sediment visible in the dissolved container? Yes No Is sufficient information available to reconcile the samples to the COC? 11. If no, write ID/ Date/Time on Container Below: Sample 2Ds do not match. See Exception ENV-FRM-MIN4-0142 Yes 001 has collection date of 10/8/20 on container Matrix: ☐Water Soil ☐Oil ☐Other All containers needing acid/base preservation have been TYes **⊠**N/A 12. Sample # checked? All containers needing preservation are found to be in ☐ NaOH ☐ HNO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub> Zinc Acetate Yes □No N/A compliance with EPA recommendation? (HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide) Positive for Res. Yes See Exception Exceptions: VOA, Coliform, TOC/DOC Oil and Grease. ENV-FRM-MIN4-0142 Chlorine? No pH Paper Lot# DRO/8015 (water) and Dioxin/PFAS Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip Extra labels present on soil VOA or WIDRO containers? □n/a See Exception Yes □No Headspace in VOA Vials (greater than 6mm)? N/A ENV-FRM-MIN4-0140 N/A N/A Trip Blank Present? Yes □No Trip Blank Custody Seals Present? Yes □Ne Pace Trip Blank Lot # (if purchased): **CLIENT NOTIFICATION/RESOLUTION** Field Data Required? Yes No Person Contacted: Date/Time:

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).

Comments/Resolution:

Project Manager Review:

Date: 10/12/2020



#### **Document Name:** Sample Condition Upon Receipt (SCUR) Exception Form

**Document No.:** ENV-FRM-MIN4-0142 Rev.01 Document Revised: 04Jun2020 Page 1 of 1

Pace Analytical Services -**Minneapolis** 

SCUR Exceptions: Jam	ple Il	s do not	matc	わ ー		Wo	rkord	er #:		
Sample IDS Quit of Tamp Sample 103	Container Type	# of Containers			PM N	otified? 🗌	Yes 🗌	No		
Sample IDS on COC				If yes,		vho was co			time.	
40 40			_		If no, i	ndicate re	ason w	hy.		
MWO		<u> </u>	_							
MW-02 MW-05				M	ukinla Co	oler Proje		ac Ma		
MIN-03-17		55	Multiple Cooler Project? Yes No If you answered yes, fill out information to the left.							
7424			#23445 CSF_214 (1989)	tian discersion or use by the exist area	K EPO BRONSPOOLTI VUOTROJISON	Handida karang dan menanggan			48.08.50.41.1.080.51	
Sample ID on samples the	nselves			antenni terri diperesa Alaberatuan	17 17 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No Temp	Blank			
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58-0		ک ک ک	┦							
SB-07		ヹ	┦							
58-05		5								
50-02-0										
			Issu	e Type:			Con	tainer		of
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	Туре о	pH f Upon	Date	Time	Amoun t Added	Lot#	рН	In Comp		•
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								☐Yes	□No	
									□No	
								Yes	□No	
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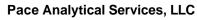


## **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix MW-01 10535097001 W201015A\_012

Soil

Collected 10/07/2020 Received 10/09/2020 Date Extracted
Total Amount Extracted
% Moisture
Dry Weight Extracted

2.00 g 0 2.00 g

10/14/2020

Starting CCal W201015A\_006
Ending CCal W201015A\_018
Method Blank Filename W201015A\_008

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	10/15/202009:08	375-22-4	
PFPeA	ND	0.25	0.069	1	10/15/202009:08	2706-90-3	
PFBS	ND	0.22	0.041	1	10/15/202009:08	375-73-5	
PFHxA	ND	0.25	0.047	1	10/15/202009:08	307-24-4	
PFHxS	ND	0.23	0.052	1	10/15/202009:08	355-46-4	
PFOA	ND	0.25	0.047	1	10/15/202009:08	335-67-1	
PFOS	ND	0.24	0.048	1	10/15/202009:08	1763-23-1	

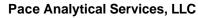
#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.7	83	50 - 150	Pass	
13C2_PFDA	2.0	1.9	97	50 - 150	Pass	
d5-EtFOSAA	8.0	7.6	95	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	682790	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1458652	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	712695	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix

MW-02 10535097002 W201015A\_013

Soil

Collected 10/05/2020 Received 10/09/2020 Date Extracted
Total Amount Extracted
% Moisture
Dry Weight Extracted

2.02 g 0 2.02 g

10/14/2020

Starting CCal W201015A\_006
Ending CCal W201015A\_018
Method Blank Filename W201015A\_008

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	10/15/202009:16	375-22-4	
PFPeA	ND	0.25	0.068	1	10/15/202009:16	2706-90-3	
PFBS	ND	0.22	0.041	1	10/15/202009:16	375-73-5	
PFHxA	ND	0.25	0.047	1	10/15/202009:16	307-24-4	
PFHxS	ND	0.23	0.051	1	10/15/202009:16	355-46-4	
PFOA	ND	0.25	0.047	1	10/15/202009:16	335-67-1	
PFOS	ND	0.24	0.047	1	10/15/202009:16	1763-23-1	

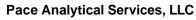
#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	90	50 - 150	Pass	
13C2_PFDA	2.0	1.9	96	50 - 150	Pass	
d5-EtFOSAA	8.0	7.8	98	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2 PFOA	620520	317465 - 952396	388388 - 776776	Pass
13C4 PFOS	1287048	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	624715	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area





#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample İD Filename Matrix

MW-05 10535097003 W201015A\_014

Soil

10/09/2020 Collected Received 10/09/2020 **Date Extracted Total Amount Extracted** % Moisture

Dry Weight Extracted Starting CCal

Ending CCal Method Blank Filename 10/14/2020 2.00 g 2.00 g

W201015A\_006 W201015A\_018 W201015A\_008

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	10/15/202009:24	375-22-4	
PFPeA	ND	0.25	0.069	1	10/15/202009:24	2706-90-3	
PFBS	ND	0.22	0.041	1	10/15/202009:24	375-73-5	
PFHxA	ND	0.25	0.047	1	10/15/202009:24	307-24-4	
PFHxS	ND	0.23	0.052	1	10/15/202009:24	355-46-4	
PFOA	ND	0.25	0.047	1	10/15/202009:24	335-67-1	
PFOS	ND	0.24	0.048	1	10/15/202009:24	1763-23-1	

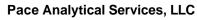
#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	89	50 - 150	Pass	
13C2_PFDA	2.0	1.9	97	50 - 150	Pass	
d5-EtFOSAA	8.0	7.8	97	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	651372	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1329687	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	653332	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

#### **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix MW-02-D 10535097004 W201015A\_015

Soil

Collected 10/05/2020 Received 10/09/2020 Date Extracted
Total Amount Extracted
% Moisture

Dry Weight Extracted Starting CCal

Ending CCal Method Blank Filename 10/14/2020 2.00 g 0 2.00 g

W201015A\_006 W201015A\_018 W201015A\_008

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	10/15/202009:33	375-22-4	
PFPeA	ND	0.25	0.069	1	10/15/202009:33	2706-90-3	
PFBS	ND	0.22	0.041	1	10/15/202009:33	375-73-5	
PFHxA	ND	0.25	0.047	1	10/15/202009:33	307-24-4	
PFHxS	ND	0.23	0.052	1	10/15/202009:33	355-46-4	
PFOA	ND	0.25	0.047	1	10/15/202009:33	335-67-1	
PFOS	ND	0.24	0.048	1	10/15/202009:33	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	92	50 - 150	Pass	
13C2_PFDA	2.0	2.0	100	50 - 150	Pass	
d5-EtFOSAA	8.0	7.6	95	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	624363	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1258670	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	619924	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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### **MPCA Guidance PFCs Blank Analysis Summary**

Lab Sample ID Filename Matrix

BLANK-83225 W201015A\_008 Soil Date Extracted Total Amount Extracted % Moisture 10/14/2020 2.00 g N/A 2.00 g

Dry Weight Extracted Starting CCal Ending CCal

W201015A\_006 W201015A\_018

Compound	Concentration (ug/Kg)	<b>PQL</b> (ug/Kg)	<b>MDL</b> (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	0.25	0.094	1	10/15/202008:34	375-22-4	
PFPeA	ND	0.25	0.069	1	10/15/202008:34	2706-90-3	
PFBS	ND	0.22	0.041	1	10/15/202008:34	375-73-5	
PFHxA	ND	0.25	0.047	1	10/15/202008:34	307-24-4	
PFHxS	ND	0.23	0.052	1	10/15/202008:34	355-46-4	
PFOA	ND	0.25	0.047	1	10/15/202008:34	335-67-1	
PFOS	ND	0.24	0.048	1	10/15/202008:34	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	90	50 - 150	Pass	
13C2_PFDA	2.0	1.9	94	50 - 150	Pass	
d5-EtFOSAA	8.0	7.8	98	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	605339	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1259809	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	569165	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



## MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID LCS Filename **Total Amount Extracted** 

ICAL ID Start CCal Filename End CCal Filename

W201015A\_009 2.01g 201012B04 W201015A\_006 W201015A\_018 Method Blank Filename W201015A\_008

LCS-83226

Matrix Soil Dilution

Extracted 10/14/2020 Analyzed 10/15/2020 08:43

Injected	Ву	NH
----------	----	----

Compound	<b>Spiked</b> (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits	
PFBA	2.5	2.4	95	80.0 - 120.0	
PFPeA	2.5	2.2	88	80.0 - 120.0	
PFBS	2.2	1.9	86	80.0 - 120.0	
PFHxA	2.5	2.1	85	80.0 - 120.0	
PFHxS	2.3	2.6	110	80.0 - 120.0	
PFOA	2.5	2.4	95	80.0 - 120.0	
PFOS	2.4	2.2	93	80.0 - 120.0	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.7	87	70 - 130	Pass	
13C2_PFDA	2.0	1.8	92	70 - 130	Pass	
d5-EtFOSAA	8.0	7.4	93	70 - 130	Pass	

IS Compound	Compound Area Ical Limits		CCV Limits	Pass/Fail
13C2_PFOA	619919	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1240530	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	591665	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



## MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID MS Filename Total Amount Extracted ICAL ID

ICAL ID Start CCal Filename End CCal Filename Method Blank Filename 10535097003-MS W201015A\_010 2.01g 201012B04 W201015A\_006 W201015A\_018

W201015A\_008

Matrix Dilution Extracted Analyzed Soil 1

ted 10/14/2020 ted 10/15/2020 08:51

Injected By NH

Compound	<b>Spike</b> (ug/Kg)	<b>Sample</b> (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits	Flags
PFBA	2.5	0	2.4	96	50.0 - 150.0	
PFPeA	2.5	Ö	2.3	92	50.0 - 150.0	
PFBS	2.2	0	2.0	89	50.0 - 150.0	
PFHxA	2.5	0	2.2	88	50.0 - 150.0	
PFHxS	2.3	0	2.5	109	50.0 - 150.0	
PFOA	2.5	Ö	2.5	100	50.0 - 150.0	
PFOS	2.4	Ö	2.4	100	50.0 - 150.0	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.7	86	50 - 150	Pass	
13C2_PFDA	2.0	2.0	99	50 - 150	Pass	
d5-EtFOSAA	8.0	7.5	93	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	639810	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1287559	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	611677	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



## MPCA Guidance PFCs Matrix Spike Sample Duplicate (MSD)

MSD Lab Sample ID MSD Filename Total Amount Extracted ICAL ID Start CCal Filename End CCal Filename Method Blank Filename 10535097003-MSD W201015A\_011 2.01g 201012B04 W201015A\_006 W201015A\_018 W201015A\_008

MS Filename Matrix Dilution Extracted Analyzed

Injected By

W201015A\_010 Soil

10/14/2020 10/15/2020 08:59 NH

Compound	<b>Spike</b> (ug/Kg)	<b>Sample</b> (ug/Kg)	Recovered (ug/Kg)	Recovery %	Recovery Limits	Flags	RPD %
PFBA	2.5	0	2.6	103	50.0 - 150.0		7
PFPeA	2.5	Ō	2.4	95	50.0 - 150.0		4
PFBS	2.2	0	2.9	132	50.0 - 150.0		39
PFHxA	2.5	0	2.3	93	50.0 - 150.0		6
PFHxS	2.3	0	2.7	117	50.0 - 150.0		8
PFOA	2.5	0	2.6	104	50.0 - 150.0		5
PFOS	2.4	0	2.4	101	50.0 - 150.0		1

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	90	50 - 150	Pass	
13C2_PFDA	2.0	2.0	98	50 - 150	Pass	
d5-EtFOSAA	8.0	7.6	96	50 - 150	Pass	

IS Compound	Compound Area Ical Limits		CCV Limits	Pass/Fail
13C2_PFOA	624698	317465 - 952396	388388 - 776776	Pass
13C4_PFOS	1304546	706943 - 2120828	867899 - 1735797	Pass
d3-MeFOSAA	618466	332660 - 997979	382098 - 764195	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

## **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Dr St. Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR** PCDD/PCDF

**Report Prepared Date:** 

November 6, 2020

## **Report Information:**

**Pace Project #: 10535098** 

Sample Receipt Date: 10/09/2020

Client Project #: 200408 Client Sub PO #: 205946 State Cert #: 027-053-137

#### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Ashley Williams, your Pace Project Manager.

#### This report has been reviewed by:

and Movember of

Ashley Williams, Project Manager

(612) 346-8158

(612) 607-6444 (fax)

ashley.williams@pacelabs.com



## **Report of Laboratory Analysis**

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The results relate only to the samples included in this report.



Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

#### **DISCUSSION**

This report presents the results from the analyses performed on four samples submitted by a representative of BayWest, LLC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 52-105%. All of the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to contain trace levels of selected congeners. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

A laboratory spike sample was also prepared with each sample batch using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 97-121%. These results were within the target ranges for the method. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from these analyses will be provided upon request.

The response obtained for the labeled OCDD in calibration standard analysis F201019B\_01 was outside the target range. As specified in our procedures for this method, the average of the daily response factors for this compound was used in the calculations for the samples from this runshift. The affected values were flagged "Y" on the results tables. It should be noted that the accuracy of the native congener determinations was not impacted by this deviation.

#### **REPORT OF LABORATORY ANALYSIS**

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## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240	, -	

## **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management



## CHAIN-OF-CUSTODY / Analytical Request Document

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

WO#:10535098

10535098

Page: 00°

Section A æ Section B Section C Required Client Information: port Required Project Information: Invoice Information: Company: **Bay West** Project Name: SW#134 Begin Dump - Borings Attention: Accounts Payable Lab Name: COC ID: Pace <u>Z</u> Address: 5 Empire Dr. St.Paul MN, 55103 Project Number: 200408 Company Name: Bay West LLC Adress: 1700 Elm St. Minneapolis MN, 55414 Work Order No. 3000027123 Project Manager: - Erik Nimlos Turnaround Time: Standard Address: 5 Empire Dr. St. Paul, MN 55103 ab Project Manager Colin Lynch Facility Code: SW0000134 Email To: enimlos@baywest.com Site Location (State): MN Purchase Order No. 205946 ab Phone: 612-656-2286 Project Task Code: PRJ07786 Phone: 651-291-3493 05 Copy To: Program Code Copy To: Eweaver@baywest.com Copy To: 35 Preservatives 098 Matrix Code Lab Matrix Codes Sample Type Codes SE=Sediment DW=Drinking Water Wtr-Ground=Ground Water Sample=Routine Sample SO=Soil NW=Non-potable Water WTR-Surf=Surface Water S-CWOP=Composite Sample QC=Soil QC SD=Soil/Solid QC-Blank=Artificial Blank Water S-IVP=Integrated Vertical Profile Sample 8290FC **W**=Aqueous WP=Wipe Leachate=Leachate Sample QC-FB=Field Blank Sample **WG**=Groundwate AR≂Air Soil-Surf= Soil Surface QC-FR=Field Replicate Sample S=Surface BL=Biological Material Soil-Sub= Soil Subsurface QC-TB=Trip Blank Sample OT=Other Requested Analysis Sample Type Code (MPCA ONLY) of Cont. DFR Start ,3,7,8 TCDD (Dlox PA 1613B/8290A End Matrix Code Time Location Date Sample Common ID Depth Depth **Unique ID** ft ft # Comments 15 20 10/7/20 045 Sample Soil-Sul 5 SO SD 2001007374 MW-01 х х х 001 35 40 630 5 Sample G so SD Soil-Sub 2001007375 MW-02 х х X 002 2001007376 Sample 2004007377 MW-04 930 5 Sample so SD Soil-Sub 003 834635 MW-05 x х 35 200 007375 40 **Q**C-FR SD Soil-Sub 5 MW-UB-D so х х 004 12 ACCEPTED BY / AFFILIATION ADDITIONAL COMMENTS DATE DATE TIME SAMPLE CONDITIONS 10/9/20 1032 4-9 N a ge Received on Ice (Y/N) Samples Intact (Y/N) Custody Sealed (Y/N) S SAMPLER NAME AND SIGNATURE ම් දිරි Ether Elespoin PRINT Name of SAMPLER: SIGNATURE of SAMPLER-DATE Signed (MM/DD/YY):



#### **Document Name:**

## Sample Condition Upon Receipt (SCUR) - MN

**Document No.:** 

Page 1 of 1 Pace Analytical Services -Minneapolis

Document Revised: 12Aug2020

## ENV-FRM-MIN4-0150 Rev.01

	USPS Commerc	cial Se	Project Client Exception	ns 🗌	PM:		Dı	35098 ue Date: 10. EST	/23/20
Custody Seal on Cooler/Box Present?	No	Sea	als Intacti	? □Ye	s 🔀 N	lo Biolo	gical Ti	ssúe Frozen? 🔲	Yes No N/A
Packing Material:         ■ Bubble Wrap         ■ Bubble Ba           Thermometer:         ■ T1(0461)         ■ T2(1336)         ■ T3(0459)           T5(0489)         ■ T5(0489)		None Type of I	□Oth	er: <b>⊈</b> Wet	□Blue	None	T∈ □Dr	e <b>mp Blank?</b> y	Yes No
Did Samples Originate in West Virginia? Yes	Wei	e All Co	ontainer 1	emps Ta	ken? □ye	es 🗆 No 🔀	N/A		
Temp should be above freezing to 6°C  Cooler Temp Reconstruction Factor: +O.) Cooler Temp Corrected	ad w/tem	ıp blank	(: <u> </u>	1.9		°c	Avera	ge Corrected (no temp blank °C	See Exceptions ENV-FRM-MIN4-0142 1 Container
USDA Regulated Soil: ( \bigcap N/A, water sample/Other: \bigcap Did samples originate in a quarantine zone within the Unit ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check materials) If Yes to either question, fill out a limit of the same	aps)?	Yes	<b>⊠</b> No	N, Did s Haw	amples ori	erto Rico)?	foreign :	source (internation Yes VANo	1/2 10-9 -
							COMN	IENTS:	·
Chain of Custody Present and Filled Out?	Yes	□No		1.					
Chain of Custody Relinquished?	☐Yes	No		2.					
Sampler Name and/or Signature on COC?	Yes	No_	□N/A	3.		·		· · · · · · · · · · · · · · · · · · ·	
Samples Arrived within Hold Time?  Short Hold Time Analysis (<72 hr)?	Yes Yes	No		4.	ecal Colifo	rm ПНРС ПТ	otal Colif	orm/E coli 🏻 BOD/o	BOD Hex Chrome
	· La res	<del>,</del> —	·····					thophos Other	- Поментом
Rush Turn Around Time Requested?	Yes	No		6.				anifest resident	
Sufficient Volume?	Yes	□No		7.	<del></del>				
Correct Containers Used?	Yes	No		8.					•
-Pace Containers Used? Containers Intact?	Yes	□No □No		9.				1000 July 1	· · · · · · · · · · · · · · · · · · ·
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	¥ZN/A		sadiment	visible in the	dissolve	ed container?	os DNo
Is sufficient information available to reconcile the samples to the COC?	1	<u> </u>		11. If no	, write ID/	Date/Time on	Containe	r Below:	See Exception X ENV-FRM-MIN4-0142
Matrix: ☐Water ☑Soil ☐Oil ☐Other	Yes	<b>(29)</b> •			-				•
All containers needing acid/base preservation have been checked?	□Yes	□No	<b>⊠</b> N/A	12. Sam		cille (trop	date 6	f 10/8/20 cm	container
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	∐Yes	□No	ZN/A	·	□ №ОН	— Пни	Ю3	∏H₂SO₄	Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease,	Yes	□No	N/A	Positive Chlorine	for Res. [ !?	Yes No .	рН Рар	er Lot#	See Exception ENV-FRM-MIN4-0142
DRO/8015 (water) and Dioxin/PFAS			• .	Res. Chi	orine	0-6 Roll	, 1	0-6 Strip	0-14 Strip
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	Yes Yes	□No □No	□N/A MN/A	13.		<u> </u>	<u>l</u>		See Exception  ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	Yes	□No	<b>№</b> N/A	14.	oo Tui- Di	n		.n.	
	Yes	□Nĕ	<b>≥</b> N/A	ı Pa	ce i rip Bla	ank Lot # (if p			
CLIENT NOTIFICATION/RESOLUTION  Person Contacted:  Comments/Resolution:				Date/	Time:	Field	d Data I	Required? Y	es No
* A	1,10	-A/	_						
Project Manager Review:	mu	evv	- -	<u></u>	Date:	10/12/2020			

Report No.....10535098\_8290FC\_DFR

hold, incorrect preservative, out of temp, incorrect containers).

Labeled by:

Pace Analytical®
------------------

#### Document Name:

#### Sample Condition Upon Receipt (SCUR) Exception Form

Document Revised: 04Jun2020 Page 1 of 1

Document No.:

ENV-FRM-MIN4-0142 Rev.01

Pace Analytical Services - Minneapolis

SCUR Exceptions: Sam	plc It	s d	o no	t n	atcl	h		Woı	rkord	er #:		
Sample 7Ds Quit of Temp Sample 10s	Container		# of				PM No	otified? 🔲	Yes 🗌	No a		
-Qut-of Temp Sample IDs	Type	Co	ntainer									
Sample IDs on COC	.,					lf yes, i		ho was co			me.	
							If no, i	ndicate rea	ason w	hy.		
MWO			<u> </u>	_								
MW-02		_	<u> </u>	- Triceranii.	MINES OF VOICE	Demonstration of the state of		nar egyetin (1960), kryekî NAS ASC AS	sastanto <u>e tark</u> at	Pulpos repair de caldin		
MW-05-D	***	<u> </u>	5 5 5	_05				oler Proje				
MW-02-D		\	<u> </u>			lt y	ou answered	yes, fill out inf	ormation	to the left.		
Sample ID on Samples the	nslama			$\dashv$ [				No Temp	Blank			
so for the sound				<b>-</b>	Re	ad Temp	Cor	rected Ter		Avei	age Te	mp
5B -OI		1		7		•						
SB-02			τ	7								
58-05		<u> </u>	<u> </u>									
5B-02-D			ς						,			
		+∼		7 '								
				_ [	Issue	e Type:			Con	tainer	#	of
Tracking Number/T	emperatur	е		7 [		Sar	nple ID		ne T	ype	Cont	ainers
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	pH Ac	liust	ment	Log	for	Preserv	ed Sam	nles				
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Sample ID	Prese	rv.	Receipt	Adju	sted	Adjusted	(mL)	Added	After	after add		Initials
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										☐ Yes	No	
										Yes	□No	
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Comments:												
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## Pace Container Order #692419

Add	dresses :			7. 7.	<del></del>	<del></del>	
Order	By:		Ship To :			Retur	n To:
Company	Bay West	Inc	Company Bay West	2.50		Company	Pace Analytical Minnesota
Contact	Ryan Riley	y	Contact Erik Nimlos			Contact	Lynch, Colin
Email	RyanR@E	BAYWEST.com	Email enimlos@baywest.c	com		Email	colin.lynch@pacelabs.com
Address	5 Empire I	Orive	Address 5 Empire Drive			Address	1700 Elm Street
Address 2			Address 2			Address 2	Suite 200
City	St. Paul		City St. Paul			City	Minneapolis
State	MN	Zip 55103	State MN Zip 551	03		State	MN · Zip 55414
Phone	651-291-3	432	Phone (651) 291-3493			Phone	(612)607-1700
Inf	fo						
Proje	ect Name	200408 SW#134 Begin Dump - Borings	Due Date 09/15/2020	Profil	e 3903	1	Quote 3000027123
Project I	Manager <u>l</u>	Lynch, Colin I	Return Date	Carrie	r Pace	Courier	Location MN
Trip B	lanks —		Bottle Labels			Вс	ottles
•	nclude Trip I	Blanks	Blank				Boxed Cases
<u> </u>			X Pre-Printed	No Samp	le IDs		Individually Wrapped
			Pre-Printed	With Sam	ple IDs		Grouped By Sample ID/Matrix
		· · · · · · · · · · · · · · · · · · ·		<del></del>	·		
<ul><li>Retur</li></ul>	rn Shippii	ng Labels ————		· · · · · · · · · · · · · · · · · · ·			
N	lo Shipper		Sampling Ins	structions			Extra Bubble Wrap
w	ith Shipper	•	X Custody Sea	ai		•	Short Hold/Rush Stickers
	0 "		Temp. Blank	s			DI Water Liter(s)
<u>.                                    </u>	Options		X Coolers	As need	ed		USDA Regulated Soils
닏.	lumber of B		Syringes				] , ,
X Pi	re-Printed	Attached		1			
of Sample	es Matrix	Test	Container	Total	# of	Lot#	Notes
7	SL	DRO by WIDRO w/silica gel clean-up	2-4oz amber jars w/ tarred weight	14	0	090720-1KN	
7	SL	Dioxin High Res 8290	4oz. Amber Wide Mouth Jar unpre-	s 7	0	081020-1KM	
7	SL	PFAS	250mL HDPE plastic unpreserved	7	0	081020-2EJC	
7	SL	Moisture/Dry Weight	Dry Weight Container	7	0	081020-5	
1	WT	TCLP 8 RCRA Metals	2 x 1 Liter amber glass, unpreserved (AG1U)	2	0	081720-1DDN	
 1	WT	TCLP Pesticides by 8081	2 x 1 Liter amber glass,	2	0	081720-1DDN	
 1	WT	TCLP VOC	unpreserved (AG1U)  2 x 1 Liter amber glass,	2	0	081720-1DDN	
			unpreserved (AG1U) 2 x 1 Liter amber glass,	<del></del>		081720-1DDN	
1	T,W	TCLP SVOC/8270	unpreserved (AG1U)	2	0		<u> </u>
Ha	zard Sl	hipping Placard In I	Place : NO			LAB	USE:
	iving hours ect manage		nd Sat 9:00am-1:00pm unless sp	ecial arra	ingemen	ts are made	Ship Date : 09/15/2020
	•		toxic, or radioactive samples to y	/OU			Prepared By: HWF
			bottles, as well as cost associate		ample st	orage/disposal.	Verified By:
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Sa	ample					CLIENT	USE (Optional):
		<b>*●</b>		· · · · · · · · · · · · · · · · · · ·			Date Rec'd:
							Received By:
							Verified By:
			Page 1 of 1				· · · · · · · · · · · · · · · · · ·



## **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X =%D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

## **Appendix B**

Sample Analysis Summary



#### Method 8290 Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-01
Lab Sample ID 10535098001
Filename F201020A\_03
Injected By SMT

Total Amount Extracted 10.1 g Matrix Soil % Moisture 15.8 Dilution NA

Dry Weight Extracted Collected 10/07/2020 10:45 8.47 g ICAL ID F200714 Received 10/09/2020 16:32 CCal Filename(s) F201020A\_01 & F201020A\_18 Extracted 10/15/2020 15:05 Method Blank ID **BLANK-83281** Analyzed 10/20/2020 10:18

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	3.7	0.32	0.20 IJ 0.20	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	65 60 67
2,3,7,8-TCDD Total TCDD	0.38 1.7		0.17 J 0.17	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	65 65 59
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND 0.61 6.6	 	0.12 0.095 J 0.095	1,2,3,4,7,6-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	57 60 62 58
1,2,3,7,8-PeCDD Total PeCDD	0.20 2.6		0.13 J 0.13 J	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	55 52 65
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	0.80 0.39 0.44		0.10 BJ 0.13 BJ 0.11 J	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	60 62
1,2,3,7,8,9-HxCDF Total HxCDF	ND 7.7		0.13 0.10 B	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND 0.55 0.46 7.3	 	0.17 0.21 J 0.20 J 0.17	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	4.7  4.7	0.27 	0.18 J 0.24 IJ 0.18 J	Total 2,3,7,8-TCDD Equivalence: 1.3 ng/Kg (Lower-bound - Using 2005 \	NHO Factor	rs)
1,2,3,4,6,7,8-HpCDD Total HpCDD	14 27		0.10 0.10			
OCDF OCDD	8.5 150		0.21 J 0.29			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

NC = Not Calculated

ND = Not Detected

NA = Not Applicable

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present



#### Method 8290 Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-02
Lab Sample ID 10535098002
Filename F201020A\_13
Injected By SMT

Total Amount Extracted 10.3 g Matrix Soil % Moisture 13.2 Dilution NA

Dry Weight Extracted Collected 10/05/2020 16:30 8.95 g ICAL ID F200714 Received 10/09/2020 16:32 CCal Filename(s) F201020A\_01 & F201020A\_18 Extracted 10/15/2020 15:05 Method Blank ID **BLANK-83281** Analyzed 10/20/2020 17:56

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND 0.19		0.12 0.12 BJ	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	81 72 87
2,3,7,8-TCDD Total TCDD	ND 0.27		0.15 0.15 J	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	85 87 72
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND 0.53	 	0.063 0.061 0.061 BJ	1,2,3,6,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	80 80 83 78
1,2,3,7,8-PeCDD Total PeCDD	ND 1.3		0.16 0.16 J	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	68 67 76
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.10 0.12 0.11	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	73 70
1,2,3,7,8,9-HxCDF Total HxCDF	ND 0.51		0.13 0.10 BJ	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 1.5		0.19 0.13 0.15 0.13 J	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	0.35 	0.095 IJ 0.12 0.095	Total 2,3,7,8-TCDD Equivalence: 0.0069 ng/Kg (Lower-bound - Using 2005 N	WHO Factor	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	 ND	0.28	0.15 J 0.15			
OCDF OCDD	ND 2.0		0.18 0.39 BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

ND = Not Detected

EMPC = Estimated Maximum Possible Concentration

NA = Not Applicable

EDL = Estimated Detection Limit

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present



#### Method 8290 Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-05
Lab Sample ID 10535098003
Filename F201020A\_14
Injected By SMT
Total Amount Extracted 10.2 g

Total Amount Extracted 10.2 g Matrix Soil % Moisture 11.9 Dilution NA

Dry Weight Extracted Collected 10/09/2020 09:30 9.00 g ICAL ID F200714 Received 10/09/2020 16:32 CCal Filename(s) F201020A\_01 & F201020A\_18 Extracted 10/15/2020 15:05 Method Blank ID **BLANK-83281** Analyzed 10/20/2020 18:41

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND 0.41		0.15 0.15 BJ	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	92 82 101
2,3,7,8-TCDD Total TCDD	ND 1.3		0.14 0.14	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	100 105 83
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND 0.23		0.079 0.042 0.042 BJ	1,2,3,4,7,6-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	90 93 83
1,2,3,7,8-PeCDD Total PeCDD	ND 1.8		0.13 0.13 J	1,2,3,4,7,8-11,CDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	81 79 95
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	ND  0.062 ND 0.41	0.091 	0.098 0.068 JJ 0.060 J 0.12 0.060 BJ	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 4.00 2.00 2.00 2.00	90 84 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 1.5		0.15 0.12 0.099 0.099 J	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	0.38 ND 0.38		0.11 BJ 0.093 0.093 BJ	Total 2,3,7,8-TCDD Equivalence: 0.022 ng/Kg (Lower-bound - Using 2005	WHO Factor	rs)
1,2,3,4,6,7,8-HpCDD Total HpCDD	0.45	0.25	0.095 J 0.095 J			
OCDF OCDD	ND 1.9		0.24 0.27 BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

ND = Not Detected

EMPC = Estimated Maximum Possible Concentration

NA = Not Applicable

EDL = Estimated Detection Limit

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present



#### Method 8290 Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-02-D Lab Sample ID 10535098004-R2 Filename F201105B\_09 Injected By SMT

**Total Amount Extracted** 12.0 g Matrix Soil % Moisture Dilution NA 14.7

Dry Weight Extracted 10.2 g Collected 10/05/2020 16:40 ICAL ID F200714 Received 10/09/2020 16:32 CCal Filename(s) F201105B\_01 & F201106A\_01 Extracted 11/03/2020 14:03 Method Blank ID BLANK-83733 Analyzed 11/05/2020 20:02

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.13 0.13	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	68 66 83
2,3,7,8-TCDD Total TCDD	ND ND		0.19 0.19	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	79 88 67
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND	 	0.083 0.060 0.060	1,2,3,4,7,6-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	76 75 67 70
1,2,3,7,8-PeCDD Total PeCDD	ND 0.64		0.13 0.13 J	1,2,3,4,7,6-HXCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	70 70 71 59
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.084 0.051 0.040	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 2.00 4.00	70 55
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.072 0.040	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 0.58	 	0.21 0.12 0.13 0.12 J	2,3,7,8-TCDD-37Cl4	0.20	58
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND	 	0.094 0.18 0.094	Total 2,3,7,8-TCDD Equivalence: 0.0052 ng/Kg (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	0.34 0.34		0.17 J 0.17 J			
OCDF OCDD	ND 1.1		0.31 0.50 BJ			

ND = Not Detected

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration NA = Not Applicable EDL = Estimated Detection Limit NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

B = Less than 10x higher than method blank level



#### Method 8290 Blank Analysis Results

Lab Sample Name
Lab Sample ID
Filename
Total Amount Extracted

Total Amount Extracted ICAL ID

CCal Filename(s)

DFBLKZP BLANK-83281 F201019A\_12 10.0 g

F200714 F201019A 01 &

F201019A\_01 & F201019B\_01

Matrix Solid Dilution NA

Extracted 10/15/2020 15:05 Analyzed 10/19/2020 17:47

Injected By SMT

Native Isomers	<b>Conc</b> ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND 0.30		0.13 0.13 J	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	68 63 76
2,3,7,8-TCDD Total TCDD	ND ND		0.074 0.074	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	77 80 62
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	 0.63	0.095 0.057 	0.059 JJ 0.041 JJ 0.041 J	1,2,3,4,7,8-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	66 68 68 60
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.050 0.050	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00	60 56 60
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	0.19 0.13 ND		0.065 J 0.060 J 0.060	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	59 61 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND 0.78		0.081 0.060 J	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.068 0.061 0.060 0.060	2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	0.31 ND 0.31		0.070 J 0.14 0.070 J	Total 2,3,7,8-TCDD Equivalence: 0.056 ng/Kg (Lower-bound - Using 2005	WHO Factor	rs)
1,2,3,4,6,7,8-HpCDD Total HpCDD	 ND	0.15	0.13 N 0.13			
OCDF OCDD	0.97	0.22	0.12 J 0.17 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

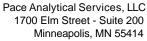
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

J = Estimated value

I = Interference present

Y = Calculated using average of daily RFs



Tel: 612-607-1700 Fax: 612-607-6444

## Method 8290 Blank Analysis Results

Lab Sample Name Lab Sample ID Filename **Total Amount Extracted** 

<u> Pace Analytical</u>

**ICAL ID** 

CCal Filename(s)

**DFBLKGC** BLANK-83733 F201105B\_06 10.1 g

F200714 F201105B\_01 & F201106A\_01 Matrix Solid Dilution NA

Extracted 11/03/2020 14:03 Analyzed 11/05/2020 17:45

Injected By **SMT** 

Native Isomers	Conc ng/Kg	<b>EMPC</b> ng/Kg	<b>EDL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.11 0.11	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	83 77 106
2,3,7,8-TCDD Total TCDD	ND ND		0.11 0.11	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	103 112 79
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.047 0.024 0.024	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	97 91 75 83
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.046 0.046	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	93 91 77
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	ND ND ND ND ND		0.024 0.028 0.016 0.033 0.016	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 4.00 2.00 2.00	88 68 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND	 	0.026 0.036 0.043 0.026	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	0.11 	0.049 U 0.090 0.049	Total 2,3,7,8-TCDD Equivalence: 0.0020 ng/Kg (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	 ND	0.068	0.051 J 0.051			
OCDF OCDD	0.25	0.44	0.11 J 0.14 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

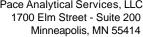
EMPC = Estimated Maximum Possible Concentration

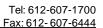
EDL = Estimated Detection Limit

 $Results \, reported \, on \, a \, total \, weight \, basis \, and \, are \, valid \, to \, no \, more \, than \, 2 \, significant \, figures.$ 

J = Estimated value

I = Interference present





## **Method 8290 Laboratory Control Spike Results**

Lab Sample ID Filename **Total Amount Extracted** 

<u>Pace Analytica</u>

**ICAL ID** CCal Filename(s) Method Blank ID

LCS-83282 F201019A\_10 10.0 g

F200714 F201019A\_01 & F201019B\_01 BLANK-83281

Matrix Dilution Extracted

Solid NA

10/15/2020 15:05 Analyzed 10/19/2020 16:16

Injected By **SMT** 

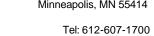
Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	0.20	0.21	107	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.0 2.0 2.0	82 77 94
2,3,7,8-TCDD Total TCDD	0.20	0.22	111	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.0 2.0 2.0 2.0	88 95 75
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	1.0 1.0	0.98 1.0	98 102	1,2,3,6,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.0 2.0 2.0 2.0 2.0	84 83 81 69
1,2,3,7,8-PeCDD Total PeCDD	1.0	0.97	97	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.0 2.0 2.0 2.0	80 71 74
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	1.0 1.0 1.0 1.0	1.1 1.0 1.0 1.00	108 105 100 100	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.0 4.0 2.0	70 77 Y NA
Total HxCDF  1,2,3,4,7,8-HxCDD  1,2,3,6,7,8-HxCDD  1,2,3,7,8,9-HxCDD  Total HxCDD	1.0 1.0 1.0	1.1 1.2 1.1	112 116 108	1,2,3,7,8,9-HxCDD-13C 2,3,7,8-TCDD-37Cl4	2.0 0.20	NA 77
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.0 1.0	1.1 1.0	107 101			
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.0	1.0	103			
OCDF OCDD	2.0 2.0	2.4 2.4	118 118			

Qs = Quantity Spiked Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis

NA = Not Applicable \* = See Discussion



Fax: 612-607-6444



## **Method 8290 Laboratory Control Spike Results**

Lab Sample ID Filename Total Amount Extracted

ICAL ID CCal Filename(s) Method Blank ID LCS-83734 F201105B\_03 10.5 g

F200714 F201105B\_01 & F201106A\_01 BLANK-83733 Matrix Solid Dilution NA Extracted 11/03

Analyzed

NA 11/03/2020 14:03 11/05/2020 15:28

11/05/2020 15:2 SMT

IIIIECIEU DY SIVII	Injected	d By	SMT
--------------------	----------	------	-----

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	0.20	0.22	110	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.0 2.0 2.0	77 76 102
2,3,7,8-TCDD Total TCDD	0.20	0.21	103	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.0 2.0 2.0 2.0	94 111 73
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	1.0 1.0	1.0 1.1	104 106	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.0 2.0 2.0	85 82 74
1,2,3,7,8-PeCDD Total PeCDD	1.0	1.0	102	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.0 2.0 2.0 2.0	79 83 83 71
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	1.0 1.0 1.0 1.0	1.1 1.1 1.1 1.0	110 108 106 101	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.0 4.0 2.0	82 67 NA
Total HxCDF  1,2,3,4,7,8-HxCDD  1,2,3,6,7,8-HxCDD  1,2,3,7,8,9-HxCDD  Total HxCDD	1.0 1.0 1.0	1.1 1.2 1.1	115 121 113	1,2,3,7,8,9-HxCDD-13C 2,3,7,8-TCDD-37Cl4	2.0 0.20	NA 68
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.0 1.0	1.1 1.0	113 104			
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.0	1.1	108			
OCDF OCDD	2.0 2.0	2.0 2.3	102 114			

Qs = Quantity Spiked Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range Y = RF averaging used in calculations Nn = Value obtained from additional analysis

NA = Not Applicable
\* = See Discussion





October 22, 2020

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

#### Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2020. 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.

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

• Pace Analytical Services - Minneapolis

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

Sincerely,

Colin Lynch

colin.lynch@pacelabs.com

Col fynd

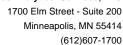
(612)607-1700 Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc







#### **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Pace Analytical Services - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

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

Lab

A2LA Certification #: 2926.01\* 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+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 #: Al-03086\*
Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\* Maryland Certification #: 322

Massachusetts DWP Certification #: via MN 027-053-137

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Certifcation #: via MN 027-053-137

Minnesota Petrofund Certification #: 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 #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101

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

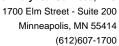
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

\*Please Note: Applicable air certifications are denoted with

an asterisk (\*).



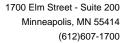


## **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10535103001	MW-01	Solid	10/07/20 10:45	10/09/20 16:32
10535103002	MW-02	Solid	10/05/20 16:30	10/09/20 16:32
10535103003	MW-05	Solid	10/09/20 09:30	10/09/20 16:32
10535103004	MW-02-D	Solid	10/05/20 16:40	10/09/20 16:32





## **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10535103001	MW-01	WI MOD DRO	TT2	2
		ASTM D2974	BTS	1
10535103002	MW-02	WI MOD DRO	TT2	2
		ASTM D2974	BTS	1
10535103003	MW-05	WI MOD DRO	TT2	2
		ASTM D2974	BTS	1
10535103004	MW-02-D	WI MOD DRO	TT2	2
		ASTM D2974	BTS	1

PASI-M = Pace Analytical Services - Minneapolis





#### **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Method: WI MOD DRO

Description: WIDRO GCS Silica Gel

Client: Bay West LLC

Date: October 22, 2020

#### **General Information:**

4 samples were analyzed for WI MOD DRO 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 WI MOD DRO 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:**

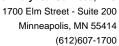
All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

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

#### **Additional Comments:**

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





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

Sample: MW-01	Lab ID:	10535103001	Collected	d: 10/07/20	10:45	Received: 10/	09/20 16:32 Ma	atrix: Solid	
Results reported on a "dry weight"	basis and ar	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	•	Method: WI		•	/lethod	: WI MOD DRO			
WDRO C10-C28 Surrogates	5.9J	mg/kg	8.0	2.1	1	10/12/20 13:56	10/13/20 14:28		
n-Triacontane (S)	74	%.	30-150		1	10/12/20 13:56	10/13/20 14:28	638-68-6	
Dry Weight / %M by ASTM D2974	,	Method: ASTM ytical Services		lis					
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:07		N2





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

Sample: MW-02	Lab ID:	10535103002	Collected	d: 10/05/20	16:30	Received: 10/	09/20 16:32 Ma	atrix: Solid	
Results reported on a "dry weight"	basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	•	Method: WI M		•	/lethod	: WI MOD DRO			
WDRO C10-C28  Surrogates	<9.9	mg/kg	9.9	2.6	1	10/12/20 13:56	10/13/20 15:45		
n-Triacontane (S)	79	%.	30-150		1	10/12/20 13:56	10/13/20 15:45	638-68-6	
Dry Weight / %M by ASTM D2974	,	Method: ASTM ytical Services		lis					
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:08		N2





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

Sample: MW-05	Lab ID:	10535103003	Collected	d: 10/09/20	09:30	Received: 10/	09/20 16:32 Ma	atrix: Solid	
Results reported on a "dry weight"	basis and are	e adjusted for	percent mo	isture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	•	Method: WI MO		•	<b>l</b> ethod	: WI MOD DRO			
WDD0 040 000		•				10/10/00 10 50	10/10/00 15 50		
WDRO C10-C28 Surrogates	<7.6	mg/kg	7.6	2.0	1	10/12/20 13:56	10/13/20 15:52		
n-Triacontane (S)	81	%.	30-150		1	10/12/20 13:56	10/13/20 15:52	638-68-6	
Dry Weight / %M by ASTM D2974	Analytical	Method: ASTM	D2974						
,	Pace Anal	ytical Services	- Minneapo	is					
Percent Moisture	11.1	%	0.10	0.10	1		10/19/20 14:08		N2



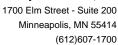


Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

Sample: MW-02-D	Lab ID:	10535103004	Collected	d: 10/05/20	16:40	Received: 10/	09/20 16:32 Ma	atrix: Solid	
Results reported on a "dry weight"	" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report			-			
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	•	Method: WI MO		•	/lethod	: WI MOD DRO			
WDRO C10-C28 Surrogates	<8.1	mg/kg	8.1	2.2	1	10/12/20 13:56	10/13/20 15:59		
n-Triacontane (S)	76	%.	30-150		1	10/12/20 13:56	10/13/20 15:59	638-68-6	
Dry Weight / %M by ASTM D2974	,	Method: ASTM lytical Services		lis					
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:08		N2





#### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

QC Batch: 705236 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: 10535103001, 10535103002, 10535103003, 10535103004

SAMPLE DUPLICATE: 3768041

 Parameter
 Units
 10535103002 Result
 Dup Result
 Max RPD
 RPD
 Qualifiers

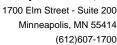
 Percent Moisture
 %
 13.7
 13.1
 4
 30 N2

SAMPLE DUPLICATE: 3768320

Date: 10/22/2020 02:19 PM

		10534988001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture	%	2.5	2.6	4	3	0 N2

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





#### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

QC Batch: 703907 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO Solid GCV

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10535103001, 10535103002, 10535103003, 10535103004

METHOD BLANK: 3760543 Matrix: Solid

Associated Lab Samples: 10535103001, 10535103002, 10535103003, 10535103004

Blank Reporting

MDL Qualifiers Parameter Units Result Limit Analyzed WDRO C10-C28 <10.0 10.0 2.7 10/13/20 14:07 mg/kg n-Triacontane (S) 83 30-150 10/13/20 14:07 %.

LABORATORY CONTROL SAMPLE & LCSD: 3760544 3760545 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD RPD** Qualifiers WDRO C10-C28 80 72.7 71.2 91 89 66-125 2 mg/kg 20 n-Triacontane (S) 85 83 30-150 %.

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

(612)607-1700



#### **QUALIFIERS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

#### **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.

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

TNI - The NELAC Institute.

#### **ANALYTE QUALIFIERS**

Date: 10/22/2020 02:19 PM

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.



## **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Date: 10/22/2020 02:19 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10535103001	MW-01	WI MOD DRO	703907	WI MOD DRO	704262
10535103002	MW-02	WI MOD DRO	703907	WI MOD DRO	704262
10535103003	MW-05	WI MOD DRO	703907	WI MOD DRO	704262
10535103004	MW-02-D	WI MOD DRO	703907	WI MOD DRO	704262
10535103001	MW-01	ASTM D2974	705236		
10535103002	MW-02	ASTM D2974	705236		
10535103003	MW-05	ASTM D2974	705236		
10535103004	MW-02-D	ASTM D2974	705236		

CHAIN-OF-CUSTODY / Analytical Request Document

Required Client Information:

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed acculrately Section C Invoice Informativ Section B Required Project Information:

WO#: 10535103

8

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Phone:	651-291-3493	Copy To:					5	ase Order No.	21	205946	Lab	ab Phone:		612-656-2286	Project	Project Task Code		00220	T
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PRINT Name of SAMPLER: SIGNATURE of SAMPLER:

Temp (O°)

## ace Analytical\*

hold, incorrect preservative, out of temp, incorrect containers).

## Document Name:

## Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020 Page 1 of 1

Pace Analytical Services -

## Document No.: ENV-FRM-MIN4-0150 Rev.01

Minneapolis Sample Condition **Client Name:** Project #: WO#:10535103 **Upon Receipt** Due Date: 10/23/20 Courier: USPS Client CLIENT: BW-BAY WEST Pace SpeeDee Commercial See Exceptions Tracking Number: ENV-FRM-MIN4-0142 **Custody Seal on Cooler/Box Present?** Biological Tissue Frozen? ☐Yes ☐No ☑N/A Yes No Seals Intact? ☐ Yes ΜNο Bubble Wrap Bubble Bags **Packing Material:** None Other: Temp Blank? No ☐ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) Type of Ice: None Dry ₩et Blue ☐ Melted Thermometer: Did Samples Originate in West Virginia? ☐Yes No Were All Container Temps Taken? ☐ Yes □No ZN/A Cooler Temp Read w/temp blank: Temp should be above freezing to 6°C Average Corrected See Exceptions ENV-FRM-MIN4-0142 Temp (no temp blank 4.9 **せ0.)** 1 Container Correction Factor: Cooler Temp Corrected w/temp blank: 0C оC **USDA Regulated Soil:** ( N/A, water sample/Other: **Date/Initials of Person Examining Contents:** Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, Did samples originate from a foreign source (internationally, including XNo Hawaii and Puerto Rico)? Yes ∞ X No ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork. **COMMENTS:** Chain of Custody Present and Filled Out? □No Yes 1. Chain of Custody Relinquished? 2. ☐ Yes ⊠No Yes Sampler Name and/or Signature on COC? □No □N/A 3. Samples Arrived within Hold Time? Yes □No 4. Fecal Coliform HPC Total Coliform/E coli BOD/cBOD Hex Chrome Short Hold Time Analysis (<72 hr)? ⊠No ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other **Rush Turn Around Time Requested?** No ☐Yes 6. Sufficient Volume? 7. Yes □No **Correct Containers Used?** 8. □No -Pace Containers Used? Yes **Z**Yes □No Containers Intact? 10. Is sediment visible in the dissolved container? Yes No Field Filtered Volume Received for Dissolved Tests? Yes ¥ZN/A Is sufficient information available to reconcile the samples to the COC? 11. If no, write ID/ Date/Time on Container Below: See Exception Sample IDS do not match. ENV-FRM-MIN4-0142 to the COC? 001 has collection date of 10/8/20 on container Matrix: ☐Water Soil ☐Oil ☐Other\_ All containers needing acid/base preservation have been 12. Sample # **⊠**N/A Yes No checked? All containers needing preservation are found to be in ☐ NaOH HNO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub> ☐Zinc Acetate Yes □No N/A compliance with EPA recommendation? (HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, <2pH, NaOH>9 Sulfide, NaOH>10 Cyanide) Positive for Res. Yes See Exception Yes ENV-FRM-MIN4-0142 Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, Chlorine? No pH Paper Lot# DRO/8015 (water) and Dioxin/PFAS Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip Extra labels present on soil VOA or WIDRO containers? Yes Yes □No □N/A 13. See Exception Headspace in VOA Vials (greater than 6mm)? **⊠**N/A □No ENV-FRM-MIN4-0140 Trip Blank Present? Yes N/A N/A □No Trip Blank Custody Seals Present? Yes □ No Pace Trip Blank Lot # (if purchased): **CLIENT NOTIFICATION/RESOLUTION** Field Data Required? Yes No Person Contacted: Comments/Resolution: **Project Manager Review:** Date: 10/12/20

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

Page 15 of 20 Labeled by:



## Document Name:

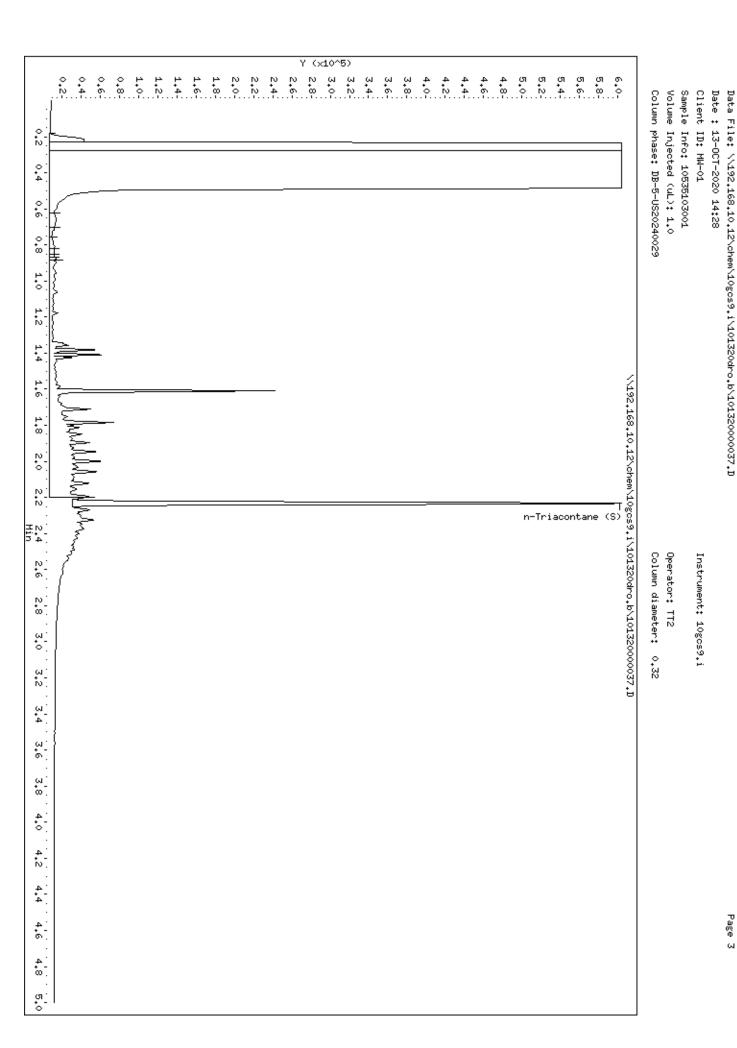
## Sample Condition Upon Receipt (SCUR) Exception Form

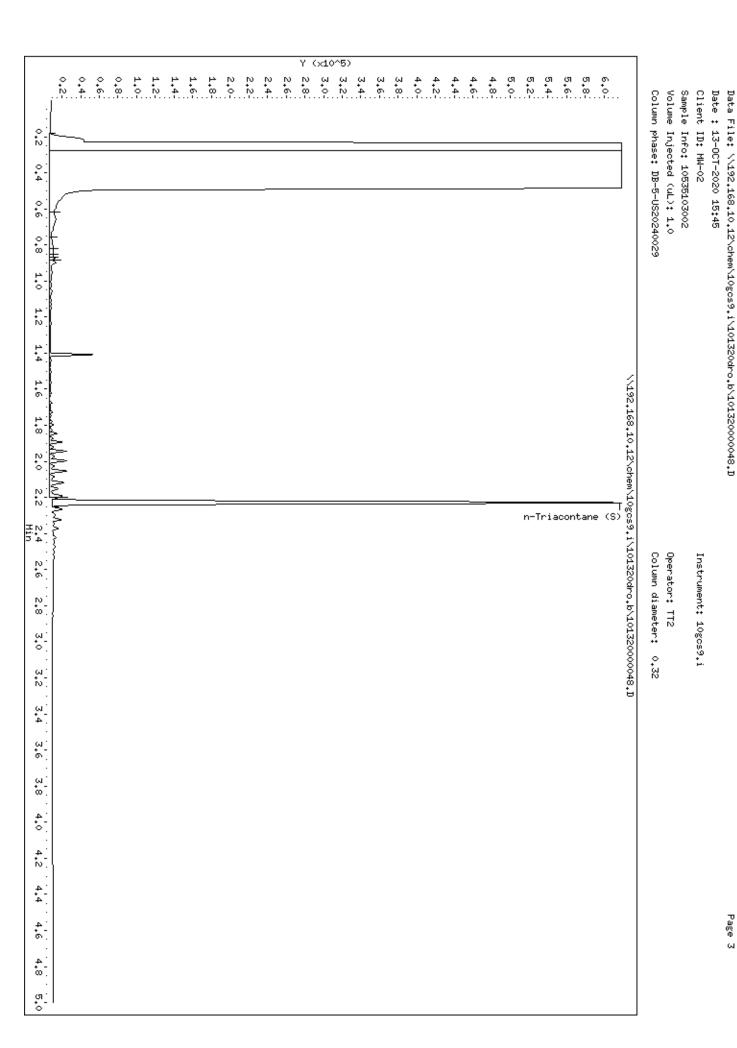
Document No.: **ENV-FRM-MIN4-0142 Rev.01**  Document Revised: 04Jun2020

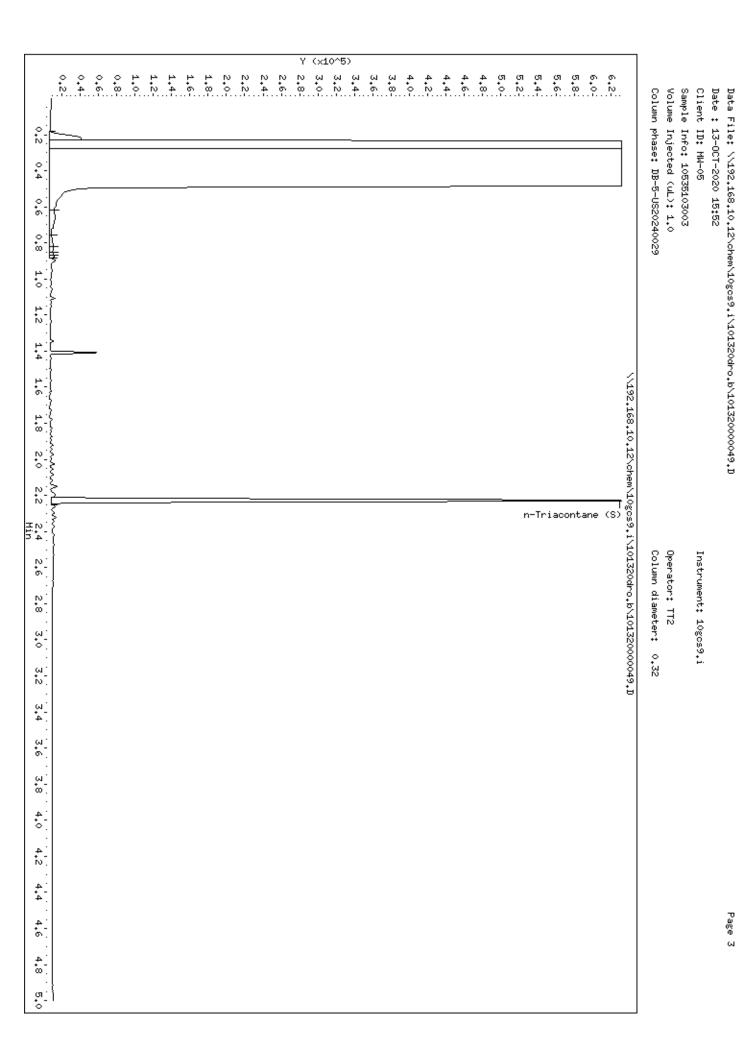
Page 1 of 1

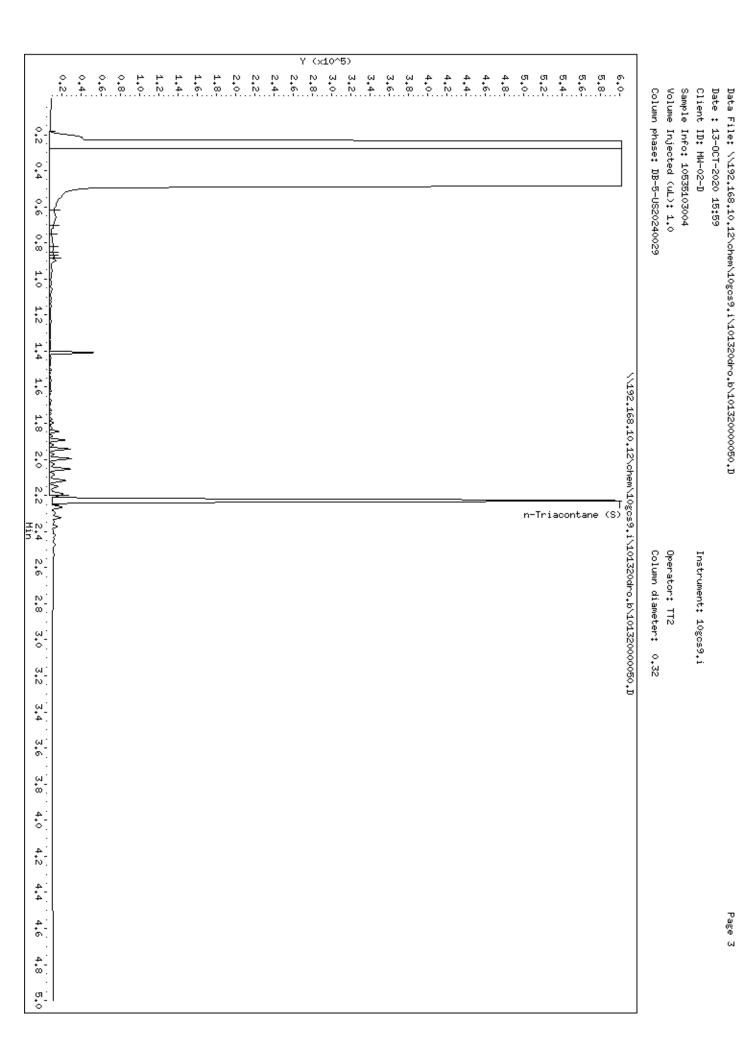
Pace Analytical Services -**Minneapolis** 

SCUR Exceptions: Jam	PIC IUS	do noi	Matc	h		Wo	rkord	ler #:		
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1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

## **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR PFAAs**

## **Report Information:**

**Pace Project #: 10537024** 

Sample Receipt Date: 10/27/2020

Client Project #: 200408 SW#134 Begin Dump

Client Sub PO #: 200408 State Cert #: 027-053-137

## **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kirsten Hogberg, your Pace Project Manager.

This report has been reviewed by:

November 11, 2020

Kirsten Hogberg, Project Manager (612) 607-6407

(612) 607-6444 (fax)

kirsten.hogberg@pacelabs.com



## **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

November 11, 2020

## **DISCUSSION**

This report presents the results from the analyses performed on seven samples, one matrix spike, and a duplicate submitted by a representative of Bay West LLC. The samples were analyzed for seven perfluorinated compounds using MPCA PFC Guidance. Reporting limits were set to the reporting limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

Laboratory spike samples samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits. These spikes indicate that extraction performed as expected.

On the matrix spike there are several analytes that are marked "R" as the recoveries are diminished from the expected levels. These deviations may be due to the presence of the affected analytes in the sample material and/or sample inhomogeneity.

The recoveries of the isotopically-labeled surrogate standards in the sample extracts were within the target ranges specified in the method.

Results that were below the calibration range were flagged "J".



Tel: 612-607-1700 Fax: 612-607-6444

## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240	· -	

## **REPORT OF LABORATORY ANALYSIS**

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

## Appendix A

Sample Management

# Bay WG... Custome-Focused Environmental & Industrial Schillens

## CHAIN-OF-CUSTODY / Analytical Request Documen

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

Page:

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<u> </u>	ction A Required Client Informa	tion:	Section B	41-6					Section C				Section	n D							Sec	tion E				
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		mlos@baywest.com	Site Location (Sta	te):			MN		Purchase C		Dr. St. Paul, MN		<del></del>		lanage	r —		Colin I	_ynch		Facilit	ty Code:	:	SWC	0000134	4
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DFR #MBIL	Location Unique ID	Sample Common II	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)		Date	Time	# of Cont.	DRO with silica gel	2,3,7,8 TCDD (Dioxin)(EPA 1613B/8290A)	1,4-Dloxane (8270 SIM)	PFAS	Vitrogen, Total Organic 7 351.2 + 350.1)	Nitrate + Nitrite, as N(SM 4500 NO3-H)	uiaiyəi				57.705.85		Com	monto	WHL.
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## **Document Name:**

## Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services -Minneapolis

Sample Condition Upon Receipt	Client Name			Project #:	WO#	: 10537024	_
Courier:	☐Fed Ex ☐Pace	UPS ☐SpeeDee	USPS Commercial	Cilient	PM: KNH		
Tracking Number:				See Exceptions ENV-FRM-MIN4-0142		· · · · · · · · · · · · · · · · · · ·	
<b>Custody Seal on Co</b>	oler/Box Prese	ent?	[ <del>Z</del> two	Seals Intact?	s <b>P</b> No	Biological Tissue Frozen? Yes Nov	M/A
Packing Material	Mauhhle Wr	an 🛣 Ruhi	ale Barre   Tillio	na Dothar		Toma Planta Tilvos Tilvos	

	USPS Commerc	cial	Glient	PM: KNH Due Date: 11/11/20 CLIENT: BW-BAY WEST
Tracking Number:			ee Exception	
Custody Seal on Cooler/Box Present?	ŠNo	Sea	als Intact?	Yes Sological Tissue Frozen? Yes Novel M/A
Packing Material: Bubble Wrap Bubble B	ags [	]None	Othe	er: Temp Blank? 💢 Yes 🗌 No
Thermometer: T4(0254) T2(1336) T3(0459)		Type of I	ce: 💆	Wet □Blue □None □Dry □Melted
Did Samples Originate in West Virginia? ☐Yes 🕍 No				emps Taken? 🗌 Yes 🔲 No 🖼 N/A
Temp should be above freezing to 6°C Cooler Temp Reconstruction Factor: Cooler Temp Corrected				Average Corrected See Exceptions Temp (no temp blank ENV-FRM-MIN4-0142 only): 0C 1 Container
USDA Regulated Soil: (N/A, water sample/Other: Did samples originate in a quarantine zone within the Unit ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check m If Yes to either question, fill out a little of the sample of	aps)?	Yes	□No	Date/Initials of Person Examining Contents 1012+120  Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No  MN-Q-338) and include with SCUR/COC paperwork.
				COMMENTS:
Chain of Custody Present and Filled Out?	Yes	□No		1.
Chain of Custody Relinquished? Sampler Name and/or Signature on COC?	Yes Yes	No □No	□N/A	3.
Samples Arrived within Hold Time?	72€ Seaves		IN/A	4.
Short Hold Time Analysis (<72 hr)?	Yes	<b>Ø</b> ‱		5. Fecal Coliform HPC Total Coliform/E coli BOD/cBOD Hex Chrome Turbidity Nitrate Nitrite Orthophos Other
Rush Turn Around Time Requested?	□Yes	<b>₩</b> v₀		6.
Sufficient Volume?	Yes	□No		7. Some contained in must empty
Correct Containers Used?Pace Containers Used?	Yes Yes	□No □No		8.
Containers Intact?	Yes	□No		9.
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	<b>⊠</b> N/A	10. Is sediment visible in the dissolved container? Yes No
Is sufficient information available to reconcile the samples to the COC?	Yes	□No	- <b></b>	11. If no, write ID/ Date/Time on Container Below:  See Exception  ENV-FRM-MIN4-0142
Matrix: Water Soil Oil Other				·
All containers needing acid/base preservation have been checked?	<b>X</b> Yes	□No	AND THE REAL PROPERTY.	12. Sample # 1-5: 7/2
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	Yes	□No	San/a)	NaOH ☐ HNO₃ 12504 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DNO/8015 (water) and Dioxin/PFAS	Yes	□No	Servin .	Positive for Res. Yes See Exception Chlorine? No pH Paper Lot# ENV-FRM-MIN4-0142  Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	□Yes □Yes	□No □No	N/A N/A	13. See Exception ENV-FRM-MIN4-0140
Frip Blank Present?	Yes	□No	<b>⊠</b> N/A	14.
CLIENT NOTIFICATION/RESOLUTION Person Contacted: Comments/Resolution:	∐Yes	□No	₩N/A	Pace Trip Blank Lot # (if purchased):
Project Manager Review: 1 14 14 14	128/11	N		Date: 10/28/2020

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). hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: TMC Page 6 of 20



## **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

## Appendix B

Sample Analysis Summary



1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

## MPCA Guidance PFCs

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected Received

MW-01 10537024001 A201030B\_023 Ground\_Water 10/26/2020 10/27/2020 Date Extracted
Total Amount Extracted
ICAL ID
Starting CCal
Ending CCal
Method Blank Filename

10/29/2020 100 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	25	5.0	0.94	1	10/30/202013:05	375-22-4	
PFPeA	ND	5.0	1.3	1	10/30/202013:05	2706-90-3	
PFBS	ND	4.4	1.1	1	10/30/202013:05	375-73-5	
PFHxA	5.2	5.0	1.1	1	10/30/202013:05	307-24-4	
PFHxS	ND	4.7	0.85	1	10/30/202013:05	355-46-4	
PFOA	5.4	5.0	1.2	1	10/30/202013:05	335-67-1	
PFOS	ND	4.8	0.80	1	10/30/202013:05	1763-23-1	

## **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.8	89	50 - 150	Pass	
13C2_PFDA	2.0	1.7	83	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	817897	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1863555	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1281353	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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## MPCA Guidance PFCs Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected Received

MW-02 10537024002 A201030B\_017 Ground\_Water 10/27/2020 10/27/2020 Date Extracted
Total Amount Extracted
ICAL ID
Starting CCal
Ending CCal
Method Blank Filename

10/29/2020 246 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	18	2.0	0.38	1	10/30/202012:17	375-22-4	
PFPeA	4.3	2.0	0.55	1	10/30/202012:17	2706-90-3	
PFBS	2.1	1.8	0.43	1	10/30/202012:17	375-73-5	
PFHxA	6.5	2.0	0.44	1	10/30/202012:17	307-24-4	
PFHxS	5.0	1.9	0.34	1	10/30/202012:17	355-46-4	
PFOA	71	2.0	0.47	1	10/30/202012:17	335-67-1	
PFOS	ND	1.9	0.33	1	10/30/202012:17	1763-23-1	

## **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.5	77	50 - 150	Pass	
13C2_PFDA	2.0	1.6	81	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	855217	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	2106947	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1300123	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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## MPCA Guidance PFCs Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected Received MW-02-DUP 10537024002-DUP A201030B\_025 Ground\_Water 10/27/2020 10/27/2020 Date Extracted
Total Amount Extracted
ICAL ID
Starting CCal
Ending CCal
Method Blank Filename

10/29/2020 247 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	18	2.0	0.38	1	10/30/202013:20	375-22-4	
PFPeA	4.4	2.0	0.55	1	10/30/202013:20	2706-90-3	
PFBS	ND	1.8	0.43	1	10/30/202013:20	375-73-5	
PFHxA	7.8	2.0	0.44	1	10/30/202013:20	307-24-4	
PFHxS	5.0	1.9	0.34	1	10/30/202013:20	355-46-4	
PFOA	75	2.0	0.47	1	10/30/202013:20	335-67-1	
PFOS	ND	1.9	0.33	1	10/30/202013:20	1763-23-1	

## **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.5	76	50 - 150	Pass	
13C2_PFDA	2.0	1.4	72	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
				_
13C2_PFOA	838470	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	2076441	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1368515	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

## MPCA Guidance PFCs Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected

Received

MW-03 10537024003 A201030B\_018 Ground\_Water 10/27/2020 10/27/2020 Date Extracted
Total Amount Extracted
ICAL ID
Starting CCal
Ending CCal
Method Blank Filename

10/29/2020 102 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	31	4.9	0.92	1	10/30/202012:25	375-22-4	
PFPeA	11	4.9	1.3	1	10/30/202012:25	2706-90-3	
PFBS	ND	4.3	1.0	1	10/30/202012:25	375-73-5	
PFHxA	8.5	4.9	1.1	1	10/30/202012:25	307-24-4	
PFHxS	ND	4.6	0.83	1	10/30/202012:25	355-46-4	
PFOA	12	4.9	1.1	1	10/30/202012:25	335-67-1	
PFOS	ND	4.7	0.79	1	10/30/202012:25	1763-23-1	

## **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.4	70	50 - 150	Pass	
13C2_PFDA	2.0	1.3	64	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	864945	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	2033558	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1637426	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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## MPCA Guidance PFCs Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix

Collected

Received

MW-04 10537024004 A201030B\_019 Ground\_Water 10/27/2020 10/27/2020 Date Extracted Total Amount Extracted ICAL ID Starting CCal Ending CCal

Method Blank Filename

10/29/2020 236 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	26	2.1	0.40	1	10/30/202012:33	375-22-4	
PFPeA	6.9	2.1	0.57	1	10/30/202012:33	2706-90-3	
PFBS	3.8	1.9	0.45	1	10/30/202012:33	375-73-5	
PFHxA	7.3	2.1	0.46	1	10/30/202012:33	307-24-4	
PFHxS	2.6	2.0	0.36	1	10/30/202012:33	355-46-4	
PFOA	18	2.1	0.50	1	10/30/202012:33	335-67-1	
PFOS	ND	2.0	0.34	1	10/30/202012:33	1763-23-1	

## **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.5	77	50 - 150	Pass	
13C2_PFDA	2.0	1.9	96	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2 PFOA	854039	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1998570	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1248974	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC

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# **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected Received

MW-05 10537024005 A201030B\_020 Ground\_Water 10/26/2020 10/27/2020 Date Extracted Total Amount Extracted ICAL ID Starting CCal Ending CCal

Method Blank Filename

10/29/2020 100 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	19	5.0	0.94	1	10/30/202012:41	375-22-4	
PFPeA	ND	5.0	1.4	1	10/30/202012:41	2706-90-3	
PFBS	ND	4.4	1.1	1	10/30/202012:41	375-73-5	
PFHxA	ND	5.0	1.1	1	10/30/202012:41	307-24-4	
PFHxS	ND	4.7	0.85	1	10/30/202012:41	355-46-4	
PFOA	ND	5.0	1.2	1	10/30/202012:41	335-67-1	
PFOS	ND	4.8	0.80	1	10/30/202012:41	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.6	79	50 - 150	Pass	
13C2_PFDA	2.0	1.4	70	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	836711	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1903018	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1355978	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC

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# **MPCA Guidance PFCs**

Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected Received MW-4 Dup 10537024006 A201030B\_021 Ground\_Water 10/27/2020 10/27/2020 Date Extracted Total Amount Extracted ICAL ID Starting CCal Ending CCal Method Blank Filename

10/29/2020 249 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	23	2.0	0.38	1	10/30/202012:49	375-22-4	
PFPeA	7.0	2.0	0.54	1	10/30/202012:49	2706-90-3	
PFBS	3.6	1.8	0.43	1	10/30/202012:49	375-73-5	
PFHxA	7.7	2.0	0.44	1	10/30/202012:49	307-24-4	
PFHxS	2.7	1.9	0.34	1	10/30/202012:49	355-46-4	
PFOA	17	2.0	0.47	1	10/30/202012:49	335-67-1	
PFOS	ND	1.9	0.32	1	10/30/202012:49	1763-23-1	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.5	75	50 - 150	Pass	
13C2_PFDA	2.0	1.7	87	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	812623	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1876409	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1260660	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC

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# MPCA Guidance PFCs Sample Analysis Summary

Client's Sample ID Lab Sample ID Filename Matrix Collected

Received

EB-01 10537024007 A201030B\_022 Ground\_Water 10/27/2020 10/27/2020 Date Extracted Total Amount Extracted ICAL ID Starting CCal Ending CCal

Method Blank Filename

10/29/2020 256 mL 201030A03 A201030B\_016 A201030B\_027 A201030B\_004

Compound	Concentration (ng/L)	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.37	1	10/30/202012:57	375-22-4	
PFPeA	ND	2.0	0.53	1	10/30/202012:57	2706-90-3	
PFBS	2.2	1.7	0.41	1	10/30/202012:57	375-73-5	
PFHxA	ND	2.0	0.43	1	10/30/202012:57	307-24-4	
PFHxS	ND	1.8	0.33	1	10/30/202012:57	355-46-4	
PFOA	ND	2.0	0.46	1	10/30/202012:57	335-67-1	
PFOS	ND	1.9	0.31	1	10/30/202012:57	1763-23-1	

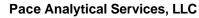
#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.9	95	50 - 150	Pass	
13C2_PFDA	2.0	1.7	85	50 - 150	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	822981	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1837355	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1383588	555975 - 1667926	869887 - 1739773	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area





1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

# **MPCA Guidance PFCs Blank Analysis Summary**

Lab Sample ID Filename Matrix Date Extracted BLANK-83490 A201030B\_004 Water

10/29/2020

Total Amount Extracted ICAL ID Starting CCal Ending CCal

251 mL 201030A03 A201030B\_002 A201030B\_016

Compound	Concentration (ng/L)	on	<b>PQL</b> (ng/L)	<b>MDL</b> (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	0.079	J	2.0	0.37	1	10/30/202010:35	375-22-4	
PFPeA	0.038	J	2.0	0.54	1	10/30/202010:35	2706-90-3	
PFBS	0.024	J	1.8	0.42	1	10/30/202010:35	375-73-5	
PFHxA	0.065	J	2.0	0.44	1	10/30/202010:35	307-24-4	
PFHxS	0.0035	J	1.9	0.34	1	10/30/202010:35	355-46-4	
PFOA	0.13	J	2.0	0.47	1	10/30/202010:35	335-67-1	
PFOS	0.048	J	1.9	0.32	1	10/30/202010:35	1763-23-1	

### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	2.0	102	70 - 130	Pass	
13C2_PFDA	2.0	1.8	91	70 - 130	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	789012	385398 - 1156194	556803 - 1113606	Pass
13C4_PFOS	1742993	838625 - 2515874	1215168 - 2430336	Pass
d3-MeFOSAA	1251132	555975 - 1667926	812053 - 1624105	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



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# MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID LCS Filename **Total Amount Extracted** ICAL ID

Start CCal Filename End CCal Filename A201030B\_016 Method Blank Filename A201030B\_004

LCS-83491 A201030B\_005 249mL 201030A03 A201030B\_002

Matrix Water Dilution

Extracted 10/29/2020 Analyzed 10/30/2020 10:43

Injected By NH

Compound	<b>Spiked</b> (ng/L)	Recovered (ng/L)	Recovery %	Limits	
PFBA	20	23	114	80.0 - 120.0	
PFPeA	20	20	100	80.0 - 120.0	
PFBS	18	18	104	80.0 - 120.0	
PFHxA	20	20	98	80.0 - 120.0	
PFHxS	19	22	116	80.0 - 120.0	
PFOA	20	21	106	80.0 - 120.0	
PFOS	19	20	103	80.0 - 120.0	

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.9	94	70 - 130	Pass	
13C2 PFDA	2.0	1.9	93	70 - 130	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	814470	385398 - 1156194	556803 - 1113606	Pass
13C4_PFOS	1699036	838625 - 2515874	1215168 - 2430336	Pass
d3-MeFOSAA	1247221	555975 - 1667926	812053 - 1624105	Pass

50-150% of Ical area

70-140% of the preceding CCV area



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# MPCA Guidance PFCs Laboratory Control Sample Duplicate (LCSD)

LCSD Lab Sample ID LCSD Filename Total Amount Extracted ICAL ID

ICAL ID Start CCal Filename End CCal Filename Method Blank Filename

ID LCSD-83492 A201030B\_006 acted 253mL 201030A03 ae A201030B\_002 e A201030B\_016 name A201030B\_004

LCS Filename A201030B\_005 Matrix Water

Dilution 1

Extracted 10/29/2020 Analyzed 10/30/2020 10:50

Injected By NH

Compound	<b>Spiked</b> (ng/L)	Recovered (ng/L)	Recovery %	Recovery Limits	RPD %
PFBA PFPeA PFBS PFHxA PFHxS PFOA PFOS	20 20 17 20 19 20	21 18 17 18 20 19	105 94 99 92 106 97 97	80.0 - 120.0 80.0 - 120.0 80.0 - 120.0 80.0 - 120.0 80.0 - 120.0 80.0 - 120.0 80.0 - 120.0	10 8 7 9 11 10 8

#### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.9	97	70 - 130	Pass	
13C2_PFDA	2.0	1.9	93	70 - 130	Pass	

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	808259	385398 - 1156194	556803 - 1113606	Pass
13C4_PFOS	1748269	838625 - 2515874	1215168 - 2430336	Pass
d3-MeFOSAA	1236590	555975 - 1667926	812053 - 1624105	Pass

<sup>50-150%</sup> of Ical area

<sup>70-140%</sup> of the preceding CCV area



Pace Analytical®

1700 Elm Street, Suite 200 Minneapolis, MN 55414 (612) 607-1700

# MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID MS Filename **Total Amount Extracted ICAL ID** 

Start CCal Filename End CCal Filename Method Blank Filename

10537024004-MS A201030B\_024 248mL 201030A03

A201030B 016 A201030B\_027 A201030B\_004

Matrix Ground\_Water Dilution

Extracted 10/29/2020 Analyzed 10/30/2020 13:13

Injected By NH

Compound	<b>Spike</b> (ng/L)	Sample (ng/L)	Recovered (ng/L)	Recovery %	Limits	Flags
PFBA	20	26	37	51	70.0 - 130.0	R
PFPeA	20	6.9	19	59	70.0 - 130.0	R
PFBS	18	3.8	20	89	70.0 - 130.0	
PFHxA	20	7.3	23	79	70.0 - 130.0	
PFHxS	19	2.6	24	113	70.0 - 130.0	
PFOA	20	18	37	91	70.0 - 130.0	
PFOS	19	0	21	106	70.0 - 130.0	

### **Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail	
13C2_PFHxA	2.0	1.6	79	50 - 150	Pass	
13C2_PFDA	2.0	1.7	85	50 - 150	Pass	

#### **Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C2_PFOA	815723	385398 - 1156194	545722 - 1091443	Pass
13C4_PFOS	1930190	838625 - 2515874	1249615 - 2499231	Pass
d3-MeFOSAA	1305302	555975 - 1667926	869887 - 1739773	Pass

50-150% of Ical area

<sup>70-140%</sup> of the preceding CCV area



#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

# **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR** PCDD/PCDF

# **Report Information:**

**Pace Project #: 10537025** 

Sample Receipt Date: 10/27/2020

Client Project #: 200408 Client Sub PO #: 205946 State Cert #: 027-053-137

# **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Ashley Williams, your Pace Project Manager.

This report has been reviewed by:

ashley William

Ashley Williams, Project Manager

(612) 346-8158

(612) 607-6444 (fax)

ashley.williams@pacelabs.com



# **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

November 10, 2020



Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

# **DISCUSSION**

This report presents the results from the analyses performed on six samples submitted by a representative of BayWest, LLC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 66-106%. All of the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of selected congeners. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 83-109% with relative percent differences of 0.0-10.2%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch.

The response obtained for the labeled OCDD in calibration standard analysis F201107B\_17 was outside the target range. As specified in our procedures for this method, the average of the daily response factors for this compound was used in the calculations for the samples from this runshift. The affected values were flagged "Y" on the results tables. It should be noted that the accuracy of the native congener determinations was not impacted by this deviation.

#### **REPORT OF LABORATORY ANALYSIS**

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# Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
A2LA	2926.01	Missouri	10100
Alabama	40770	Montana	CERT0092
Alaska-DW	MN00064	Nebraska	NE-OS-18-06
Alaska-UST	17-009	Nevada	MN00064
Arizona	AZ0014	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey	MN002
Arkansas-DW	MN00064	New York	11647
California	2929	North Carolina-	27700
Colorado	MN00064	North Carolina-	530
Connecticut	PH-0256	North Dakota	R-036
Florida	E87605	Ohio - VAP	CL101
Georgia	959	Ohio-DW	41244
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
lowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts-	via MN 027-053	West Virginia-D	382
Michigan	9909	West Virginia-D	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota-Ag	via MN 027-053	Wyoming-UST	via A2LA 2926.
Minnesota-Petr	1240		

# **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management



# CHAIN-OF-CUSTODY / Analytical Request Documer

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

<u></u>		MUM D																									
ע	ction A Required Client Informat	tion:	Section B Required Project	t Informa	tian:			Sect	ion C					Sectio								Section					
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Pro	ject Manager :	Erik Nimlos	Turnaround Time:				Standard	Addr			Dr. St. Pau		55103	Lab Pr					Colin L			Facility C		<del></del>		027123	
Em	ail To: enî	imlos@baywest.com	Site Location (Sta	te):			MN	Purc				Lab Phone: 612-656-2286						Facility Code: SW0000134  Project Task Code: PRJ07786									
Ph	one: 6	551-291-3493	Сору То:			thars	ch@baywest.con						Program Code														
₽	py To: Ewe	eaver@baywest.com	Сору То:											l							7						
7 <del>005-200</del> 5	Matrix Code SE=Sediment SO=Soil QC=Soil QC W=Aqueous WG=Groundwater S=Surface	Lab Matrix Codes DW-Drinking Water NW=Non-potable Water SD=Soil/Solid WP=Wipe AR=Air BL=Biological Material OT=Other	Field Matrix Cod Wtr-Ground=Gro WTR-Surf=Surfa- QC-Blank=Artifici Leachate=Leachx Soil-Surf= Soil St Soil-Sub= Soil St	und Water ce Water ial Blank ' ate Samp urface	Vater le		S-IVP=Integr QC-FB=Field QC-FR=Field	e Codes utine Sample omposite Sample atted Vertical Profil I Blank Sample I Replicate Sample Blank Sample	=									eservation									
TEM # CLC C	Location Unique ID	Sample Common	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date		Time	# of Cont	5	DRO with silica gel		8270 SIM)	PFAS	Vitrogen, Total Organic 351.2 + 350.1)	Nitrate + Nitrite, as N(SM 4500 NO3-H)	ilalysis						Comm	ments	
	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	10-26	Ro	1436	10	,		-		``						+	+=		<u> </u>	=	_
	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	10-27		1013	K	-8	X	X	X	Х	X	Х		$\dashv$				<del>- (</del>	<del>20</del>	2	
	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	10-27		1520	10	56	X	X	X	Х	X	X			$\dashv$		+-	<del>-</del> -	$\frac{\mathcal{W}}{\mathcal{W}}$	<u>レ</u> フ	
1400	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	10-27-		1233	10		X	Х	X	Х	Х	Х			-		+		<del>- \</del>	<u> </u>	
450	834635		Sample	G	WG	NW	Wtr-Ground	10-26-		1887	76	- 0:1	X	X	X	Х	X	_X			_			<u> </u>	<u>~</u>	4	
- A	2001007371	MW-05 MW-4 DW		G	WG	NW	Wtr-Ground	10-27-		1243			<u> </u>	₩.	X	Х	*	X		_	-				<u>(/)</u>	5_	
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# Pace Analytical®

# **Document Name:**

Sample Condition Upon Receipt (SCUR) - MN

Document No.:

Document Revised: 12Aug2020 Page 1 of 1

Pace Analytical Services -ENV-FRM-MIN4-0150 Rev.01 Minneapolis

Sample Condition Upon Receipt	Client Name:			Projec	:t #:	1.10	<b>7# · 4</b> /	WE.	37025	
	fais west			_		M/	7# · T/	<u>UJ.</u>	<u>37023</u>	
Courier:		]USPS ]Comme	rcial	Glient		l	AW1 ENT: BW-B		ue Date: 11 EST	/11/20
Tracking Number:				See Excepti :NV-FRM-M					***	
Custody Seal on Cod	oler/Box Present? Yes	∰No	Se	als Intac	t? 🔲 \	'es 🞾	No <b>Biolo</b>	gical Ti	ssue Frozen?	Yes Nov N/A
	Bubble Wrap Bubble B		None	□Ot	her:					XÎŶes □No
Thermometer.	<b>3</b> 01(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489)		Type of		Wet	□Blue	□None	D	ry Melted	
	e in West Virginia?   Yes						Yes 🗌 No 🖫	N/A		
Temp should be above fre	· ·				•			Temp	ige Corrected (no temp blank	
		ed w/tem	ıp blank	<u> </u>			, U.1 °C	only):		1 Container
Did samples originate in	(XIV)A, water sample/Other: n a quarantine zone within the Unit	ed States	· ΔΙ ΔR	) CAFIG	Date A Did	/Initials o	f Person Exar	nining (	Contents: source (internation	10/27/20
ID, LA. MS, NC, NM, NY	, OK, OR, SC, TN, TX or VA (check m Yes to either question, fill out a	aps)?	Yes	ПNо	Hav	vaii and Pu	erto Rico)?	Г	Yes No	nally, including
									MENTS:	
Chain of Custody Presen	**	Yes	□No		1.					
Chain of Custody Reling		Yes	□No		2.					
Sampler Name and/or Si Samples Arrived within I		<b>∕</b> ZVes	No	□N/A						
Short Hold Time Analysi		Yes Yes	No_		5.	Fecal Colifo	orm HPC To	otal Colif	orm/E coli BOD/	cBOD Hex Chrome
Rush Turn Around Time	Requested?	□Yes	1 <b>⊠</b> N₀		6.		NitrateNitr	iteOr	thophos Other	
Sufficient Volume?		Yes	□No			30Mas	TAO tra Mas	2 50	MW-5 e	00.075 4
Correct Containers Used	?	Yes	□No		8.	<i>)</i>	201010017-1	14 %	77(US-3 E	341610)
-Pace Containers Used	1?	Yes	□No		ь.					
Containers Intact?		Yes	□No		9.					
	ceived for Dissolved Tests?	☐Yes	□No	D <b>X</b> N/A	10. I	sediment	t visible in the	dissolve	d container?	Yes $\square$ No
Is sufficient information to the COC?	available to reconcile the samples	Yes	□No				Date/Time on (			See Exception ENV-FRM-MIN4-0142
Matrix: ₩Water ☐ Soil				$\triangle$	ļ					
All containers needing ac checked?	id/base preservation have been	Yes	□No	#ANYA	12. San	•		1-5	: 2/2	
compliance with EPA reco	eservation are found to be in ommendation? DH >9 Sulfide, NaOH>10 Cyanide)	Yes	□No	Fan A					[ <b>X</b> ]H <sub>2</sub> SO <sub>4</sub>	Zinc Acetate
Exceptions: VOA, Coliforn	n, TOC/DOC Oil and Grease,	Yes	□No	MMK	Positive Chlorin	=	Yes  No	mil Dam		See Exception ENV-FRM-MIN4-0142
DRO/8015 (water) and Di	oxin/PFAS	-1		<i>'</i> \	Res. Ch		0-6 Roll 24	pH Pape	0-6 Strip	0-14 Strip
Extra labels present on so Headspace in VOA Vials (§	oil VOA or WIDRO containers?	Yes	□No	N/A	13.		1			See Exception
Trip Blank Present?	sicater than ording:	Yes Yes	□No □No	XN/A XN/A	14.	···	77.004.44	<del></del> -		ENV-FRM-MIN4-0140
Trip Blank Custody Seals F	Present?	Yes	□No	N/A	1	ce Trip Bla	ank Lot # (if pu	rchased	t):	
<b>CLIENT NOTIF</b> Person Contacted:	ICATION/RESOLUTION			•	Date/	Timo	Field	Data F	Required?	es No
Comments/Resolution:	· · · · · · · · · · · · · · · · · · ·				Date					
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Project Manag						Date:	10/28/2020			
lote: Whenever there is a cold, incorrect preservative,	discrepancy affecting North Carolina on out of temp, incorrect containers).	compliance	e sample:	s, a copy o	of this form	n will be se	nt to the North	Carolin	a DEHNR Certificat	tion Office (i.e out of
							الماماء	TV.	(8)	
						La	beled by: _	110	<u> </u>	·



# **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# **Appendix B**

Sample Analysis Summary



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-01
Lab Sample ID 10537025001
Filename F201107B\_10
Injected By JRH

Total Amount Extracted 923 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/26/2020 14:36 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 00:07

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.3 1.3	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	70 67 80
2,3,7,8-TCDD Total TCDD	ND ND		1.6 1.6	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	78 85 73
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.76 0.59 0.59	1,2,3,4,7,6-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	73 89 85 83 79
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.63 0.63	1,2,3,4,7,6-11/CDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	79 73 69 69
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.45 0.71 0.55	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	70 87 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.66 0.45	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND	 	1.1 0.85 0.80 0.80	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	1.2	0.86 JJ 1.9 0.86	Total 2,3,7,8-TCDD Equivalence: 0.013 pg/L (Lower-bound - Using 2005	WHO Factor	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		1.6 1.6			
OCDF OCDD	4.0 ND		2.6 J 4.3			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

NC = Not Calculated

J = Estimated value I = Interference present

Y = Calculated using average of daily RFs



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-02
Lab Sample ID 10537025002
Filename F201107B\_11
Injected By JRH

Total Amount Extracted 1000 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/27/2020 10:13 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 00:52

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.5 1.5	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	71 68 82
2,3,7,8-TCDD Total TCDD	ND ND		1.7 1.7	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	78 84 79
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.71 0.38 0.38	1,2,3,4,7,8-HXCDF-13C 1,2,3,6,7,8-HXCDF-13C 2,3,4,6,7,8-HXCDF-13C 1,2,3,7,8,9-HXCDF-13C 1,2,3,4,7,8-HXCDD-13C	2.00 2.00 2.00 2.00 2.00	79 88 91 82 76
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.92 0.92	1,2,3,4,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	76 73 69
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.69 0.57 0.68	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	72 86 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.93 0.57	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.56 0.64 1.00 0.56	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	1.8 	0.86 JJ 1.1 0.86	Total 2,3,7,8-TCDD Equivalence: 0.019 pg/L (Lower-bound - Using 2005	WHO Factors	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		2.1 2.1			
OCDF OCDD	4.6 ND		2.8 J 4.5			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

NC = Not Calculated

J = Estimated value I = Interference present

Y = Calculated using average of daily RFs



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04
Lab Sample ID 10537025004
Filename F201107B\_12
Injected By JRH

Total Amount Extracted 964 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/27/2020 12:33 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 01:38

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.2 1.2	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	85 82 94
2,3,7,8-TCDD Total TCDD	ND ND		1.2 1.2	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C	2.00 2.00 2.00 2.00	91 98 83
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		1.1 0.62 0.62	1,2,3,4,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	98 95 92 86
1,2,3,7,8-PeCDD Total PeCDD	ND ND		1.1 1.1	1,2,3,4,7,8-1,000-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	85 77 83
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.88 0.48 0.49	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	83 104 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.98 0.48	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.87 0.90 0.43 0.43	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	1.0	0.79 JJ 1.3 0.79	Total 2,3,7,8-TCDD Equivalence: 0.013 pg/L (Lower-bound - Using 2005 \	WHO Factor	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		0.88 0.88			
OCDF OCDD	4.9	2.3	1.7 JJ 1.8 BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

NC = Not Calculated

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present

Y = Calculated using average of daily RFs



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-05
Lab Sample ID 10537025005
Filename F201107B\_13
Injected By JRH

Total Amount Extracted 1010 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/26/2020 12:27 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 02:23

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.3 1.3	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	80 77 87
2,3,7,8-TCDD Total TCDD	ND ND		1.0 1.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	90 94 77
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.69 0.42 0.42	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	86 89 88 75
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.90 0.90	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	73 81 77 78
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND	 	0.57 0.50 0.49	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	81 106 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.65 0.49	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.99 0.76 0.48 0.48	2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.4 ND 1.4		0.52 J 0.84 0.52 J	Total 2,3,7,8-TCDD Equivalence: 0.016 pg/L (Lower-bound - Using 2005	WHO Factors	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		1.3 1.3			
OCDF OCDD	3.9	2.8	1.8 JJ 2.2 BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

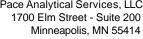
NC = Not Calculated

J = Estimated value

B = Less than 10x higher than method blank level

I = Interference present

Y = Calculated using average of daily RFs





# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-4 Dup Lab Sample ID 10537025006 Filename F201107B\_14 Injected By JRH

**Total Amount Extracted** 963 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/27/2020 12:43 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 03:09

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.2 1.2	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	82 78 89
2,3,7,8-TCDD Total TCDD	ND ND		1.3 1.3	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C	2.00 2.00 2.00 2.00	88 95 75
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		0.74 0.70 0.70	1,2,3,4,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	75 89 88 85 79
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.63 0.63	1,2,3,4,7,6-HXCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	79 80 73 72
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	ND ND ND ND	 	0.83 0.67 0.50 0.61	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 2.00 4.00	75 88 Y NA
Total HxCDF	ND		0.50	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		0.59 0.61 0.39 0.39	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	1.5 	1.1 IJ 1.6 1.1	Total 2,3,7,8-TCDD Equivalence: 0.017 pg/L (Lower-bound - Using 2005	WHO Factors	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		1.3 1.3			
OCDF OCDD	3.8	3.2	2.5 J 2.8 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

NC = Not Calculated

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J = Estimated value I = Interference present

Y = Calculated using average of daily RFs

Fax: 612-607-6444



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID EB-01 Lab Sample ID 10537025007 Filename F201107B\_15 Injected By JRH

**Total Amount Extracted** 1030 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 10/27/2020 13:35 ICAL ID F200714 Received 10/27/2020 17:02 CCal Filename(s) F201107B\_01 & F201107B\_17 Extracted 10/29/2020 13:04 Method Blank ID BLANK-83647 Analyzed 11/08/2020 03:54

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		1.1 1.1	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	78 73 83
2,3,7,8-TCDD Total TCDD	ND ND		1.1 1.1	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	83 88 70
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND	 	0.91 0.35 0.35	1,2,3,6,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	82 81 80 66
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.94 0.94	1,2,3,4,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	78 66 67
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		0.90 0.34 0.35	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	69 85 Y
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		0.54 0.34	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		1.0 1.1 0.67 0.67	2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		1.3 2.1 1.3	Total 2,3,7,8-TCDD Equivalence: 0.0032 pg/L (Lower-bound - Using 2005	WHO Factors	s)
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		2.5 2.5			
OCDF OCDD	5.1 	 5.5	3.0 J 3.5 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

ND = Not Detected NA = Not Applicable

NC = Not Calculated

J = Estimated value I = Interference present

Y = Calculated using average of daily RFs



# Method 8290A Blank Analysis Results

Lab Sample Name Lab Sample ID Filename Total Amount Extracted

Total Amount Extracted ICAL ID CCal Filename(s)

DFBLKER BLANK-83647 U201104B\_13 1040 mL U201013

U201104A\_19 & U201104B\_18

Matrix Water
Dilution NA

Extracted 10/29/2020 13:04 Analyzed 11/04/2020 23:45

Injected By SMT

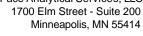
Native Isomers	Conc pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.64 0.64	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	61 63 83
2,3,7,8-TCDD Total TCDD	ND ND		1.2 1.2	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	88 99 71
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		1.3 0.62 0.62	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	76 74 73 67
1,2,3,7,8-PeCDD Total PeCDD	ND ND		0.81 0.81	1,2,3,4,7,8-11XCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	68 70 68
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	0.60 ND 0.60 ND 1.2	 	0.58 J 0.53 0.57 J 0.68 0.53 J	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 4.00 2.00 2.00	86 71 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND	 	0.72 0.83 0.89 0.72	2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND	1.0	0.75 JJ 1.1 0.75	Total 2,3,7,8-TCDD Equivalence: 0.15 pg/L (Lower-bound - Using 2005	WHO Facto	ors)
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.2 2.6		1.0 J 1.0 J			
OCDF OCDD	5.3	3.7	1.8 JJ 2.0 J			

 $Conc = Concentration \, (Totals \, include \, 2, 3, 7, 8 - substituted \, isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

J = Estimated value I = Interference present





# Method 8290A Laboratory Control Spike Results

Lab Sample ID Filename **Total Amount Extracted** 

**ICAL ID** CCal Filename(s) Method Blank ID

LCS-83648 U201104B\_03 1040 mL

U201013 U201104A\_19 & U201104B\_18 BLANK-83647

Matrix Dilution Extracted

Analyzed

Injected By

NA 10/29/2020 13:04 11/04/2020 16:58

**SMT** 

Water

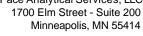
Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	0.20	0.19	93	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.0 2.0 2.0	76 80 102
2,3,7,8-TCDD Total TCDD	0.20	0.17	84	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.0 2.0 2.0 2.0	102 106 118 86
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	1.0 1.0	0.93 0.90	93 90	1,2,3,6,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.0 2.0 2.0 2.0 2.0	90 93 89 83
1,2,3,7,8-PeCDD Total PeCDD	1.0	0.83	83	1,2,3,4,7,6-11xCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.0 2.0 2.0 2.0	83 84 82 79
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	1.0 1.0 1.0 1.0	1.0 0.93 0.91 0.91	102 93 91 91	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.0 4.0 2.0 2.0	99 80 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	1.0 1.0 1.0	1.0 0.98 0.97	103 98 97	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.0 1.0	0.93 0.94	93 94			
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.0	0.86	86			
OCDF OCDD	2.0 2.0	1.9 1.9	97 96			

Qs = Quantity Spiked Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis

NA = Not Applicable \* = See Discussion





# Method 8290A Laboratory Control Spike Results

Lab Sample ID Filename **Total Amount Extracted** 

**ICAL ID** 

CCal Filename(s) Method Blank ID

LCSD-83649 U201104B\_04 1040 mL

U201013 U201104A\_19 & U201104B\_18 BLANK-83647

Matrix Water Dilution NA

Extracted 10/29/2020 13:04 Analyzed 11/04/2020 17:39 Injected By **SMT** 

				,		
Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	0.20	0.19	97	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.0 2.0 2.0	72 76 104
2,3,7,8-TCDD Total TCDD	0.20	0.19	93	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.0 2.0 2.0 2.0	107 116 88
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	1.0 1.0	0.94 0.94	94 94	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.0 2.0 2.0	90 93 92
1,2,3,7,8-PeCDD Total PeCDD	1.0	0.88	88	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.0 2.0 2.0 2.0	84 82 84 87
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	1.0 1.0 1.0	1.0 0.95 0.98	102 95 98	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.0 4.0	99 88
1,2,3,7,8,9-HxCDF Total HxCDF	1.0	0.98	98	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.0 2.0	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	1.0 1.0 1.0	1.1 1.1 1.1	109 107 105	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	1.0 1.0	0.96 0.93	96 93			
1,2,3,4,6,7,8-HpCDD Total HpCDD	1.0	0.95	95			
OCDF OCDD	2.0 2.0	2.0 2.0	100 99			

Qs = Quantity Spiked Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis

NA = Not Applicable \* = See Discussion



Fax: 612-607-6444



Method 8290A

# Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

 Spike 1 ID
 LCS-83648
 Spike 2 ID
 LCSD-83649

 Spike 1 Filename
 U201104B\_03
 Spike 2 Filename
 U201104B\_04

Compound	Spike 1 %REC	Spike 2 %REC	%RPD	
2,3,7,8-TCDF	93	97	4.2	
2,3,7,8-TCDD	84	93	10.2	
1,2,3,7,8-PeCDF	93	94	1.1	
2,3,4,7,8-PeCDF	90	94	4.3	
1,2,3,7,8-PeCDD	83	88	5.8	
1,2,3,4,7,8-HxCDF	102	102	0.0	
1,2,3,6,7,8-HxCDF	93	95	2.1	
2,3,4,6,7,8-HxCDF	91	98	7.4	
1,2,3,7,8,9-HxCDF	91	98	7.4	
1,2,3,4,7,8-HxCDD	103	109	5.7	
1,2,3,6,7,8-HxCDD	98	107	8.8	
1,2,3,7,8,9-HxCDD	97	105	7.9	
1,2,3,4,6,7,8-HpCDF	93	96	3.2	
1,2,3,4,7,8,9-HpCDF	94	93	1.1	
1,2,3,4,6,7,8-HpCDD	86	95	9.9	
OCDF	97	100	3.0	
OCDD	96	99	3.1	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value





November 12, 2020

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

#### Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2020. 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.

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

- Pace Analytical Services Minneapolis
- Pace Analytical Services Virginia

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

Sincerely,

Colin Lynch

colin.lynch@pacelabs.com

Col fyml

(612)607-1700

Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc







#### **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Pace Analytical Services - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

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

Lab

A2LA Certification #: 2926.01\* 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+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

Massachusetts DWP Certification #: via MN 027-053-137

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 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 #: R-036

Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 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 Virginia Minnesota**

315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107

Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007





#### **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10537026001	MW-01	Water	10/26/20 14:36	10/27/20 17:02
10537026002	MW-02	Water	10/27/20 10:13	10/27/20 17:02
10537026003	MW-03	Water	10/27/20 15:20	10/27/20 17:02
10537026004	MW-04	Water	10/27/20 12:33	10/27/20 17:02
10537026005	MW-05	Water	10/26/20 12:27	10/27/20 17:02
10537026006	MW-4 Dup	Water	10/27/20 12:43	10/27/20 17:02
10537026007	EB-01	Water	10/27/20 13:35	10/27/20 17:02

(612)607-1700



#### **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10537026001	MW-01	WI MOD DRO		2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
10537026002 MW-02	MW-02	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
0537026003	MW-03	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
0537026004	MW-04	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
0537026005	MW-05	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
0537026006	MW-4 Dup	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
0537026007	EB-01	WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
		EPA 350.1	DMB	1	PASI-V

#### **REPORT OF LABORATORY ANALYSIS**

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





#### **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis PASI-V = Pace Analytical Services - Virginia





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: WI MOD DRO

Description: WIDRO LV GCS Silica Gel

Client: Bay West LLC

Date: November 12, 2020

#### **General Information:**

7 samples were analyzed for WI MOD DRO 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 WI MOD DRO 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.





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: EPA 8270E by SIM

Description: 8270E MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: November 12, 2020

#### **General Information:**

7 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.

H5: Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

MW-02 (Lab ID: 10537026002)
MW-03 (Lab ID: 10537026003)
MW-04 (Lab ID: 10537026004)
MW-4 Dup (Lab ID: 10537026006)

#### Sample Preparation:

The samples were prepared in accordance with EPA Mod. 3510C 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: 708185

S0: Surrogate recovery outside laboratory control limits.

- LCSD (Lab ID: 3783616)
  - 1,4-Dioxane-d8 (S)
- MW-02 (Lab ID: 10537026002)
  - 1,4-Dioxane-d8 (S)

#### Method Blank:

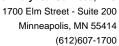
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### 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.





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: EPA 8270E by SIM

Description: 8270E MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: November 12, 2020

#### **Additional Comments:**

Analyte Comments:

QC Batch: 708185

2M: Reanalysis conducted in excess of EPA method holding time. Results do not confirm original analysis performed in hold time.

• MW-05 (Lab ID: 10537026005)

• 1,4-Dioxane-d8 (S)

QC Batch: 709186

1M: Extraction or preparation was conducted outside of the recognized method holding time. Results confirm original analysis performed in hold time.

• EB-01 (Lab ID: 10537026007)

• 1,4-Dioxane (SIM)

• MW-01 (Lab ID: 10537026001)

• 1,4-Dioxane (SIM)





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: TKN-NH3 Calculation

Description: Total Organic Nitrogen Calc.

Client: Bay West LLC

Date: November 12, 2020

#### **General Information:**

6 samples were analyzed for TKN-NH3 Calculation by Pace Analytical Services Virginia. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

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

#### Method Blank:

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

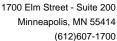
#### **Laboratory Control Spike:**

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

#### Matrix Spikes:

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







Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method:EPA 350.1Description:350.1 AmmoniaClient:Bay West LLCDate:November 12, 2020

#### **General Information:**

6 samples were analyzed for EPA 350.1 by Pace Analytical Services Virginia. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

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

#### Method Blank:

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

#### **Laboratory Control Spike:**

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

#### Matrix Spikes:

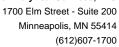
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 202346

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10537026001,12153049005

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

- MS (Lab ID: 799656)
  - Nitrogen, Ammonia
- MS (Lab ID: 799658)
  - Nitrogen, Ammonia
- MSD (Lab ID: 799657)
  - Nitrogen, Ammonia
- MSD (Lab ID: 799659)
  - Nitrogen, Ammonia





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: EPA 351.2

Description: 351.2 Total Kjeldahl Nitrogen

Client: Bay West LLC

Date: November 12, 2020

#### **General Information:**

6 samples were analyzed for EPA 351.2 by Pace Analytical Services Virginia. 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.

#### 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.





### **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite
Client: Bay West LLC
Date: November 12, 2020

### **General Information:**

7 samples were analyzed for EPA 353.2 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.

### 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: 710202

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10538096002

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

MSD (Lab ID: 3793391)Nitrogen, NO2 plus NO3

### **Additional Comments:**

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



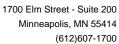


Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: MW-01	Lab ID:	10537026001	Collecte	d: 10/26/20	14:36	Received: 10/	27/20 17:02 Ma	atrix: Water	
_			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	/lethod:	WI MOD DRO			
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	10/29/20 15:47	10/30/20 17:59		
Surrogates n-Triacontane (S)	84	%.	42-125		1	10/29/20 15:47	10/30/20 17:59	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	16.7	ug/L	0.23	0.097	1	11/05/20 18:45	11/09/20 02:00	123-91-1	1M
1,4-Dioxane-d8 (S)	36	%.	30-125		1	11/05/20 18:45	11/09/20 02:00		
Total Organic Nitrogen Calc.	•	Method: TKN-I ytical Services		ation					
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:30	7664-41-7	M1
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services	•	aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:10	7727-37-9	
353.2 Nitrate + Nitrite	•	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 10:59		FS





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: MW-02	Lab ID:	10537026002	Collected:	10/27/20	10:13	Received: 10/	27/20 17:02 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
WIDRO LV GCS Silica Gel	-	Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	<0.10	mg/L	0.10	0.034	1	10/29/20 15:47	10/30/20 18:06		
n-Triacontane (S)	78	%.	42-125		1	10/29/20 15:47	10/30/20 18:06	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•		ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) Surrogates	0.11J	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:02	123-91-1	
1,4-Dioxane-d8 (S)	29	%.	30-125		1	11/02/20 17:19	11/04/20 04:02		H5,S0
Total Organic Nitrogen Calc.	•	Method: TKN-I ytical Services		ion					
Total Organic Nitrogen	0.47J	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:34	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services	•	ation Meth	od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	0.47J	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:14	7727-37-9	
353.2 Nitrate + Nitrite	,	Method: EPA 3 ytical Services		s					
Nitrogen, NO2 plus NO3	0.57	mg/L	0.020	0.018	1		10/30/20 11:01		



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: MW-03	Lab ID:	10537026003	Collecte	d: 10/27/20	15:20	Received: 10/	27/20 17:02 Ma	atrix: Water	
			Report						
Parameters	Results	Units -	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	/lethod:	WI MOD DRO			
WDRO C10-C28	0.10J	mg/L	0.11	0.037	1	10/29/20 15:47	10/30/20 18:14		
<b>Surrogates</b> n-Triacontane (S)	76	%.	42-125		1	10/29/20 15:47	10/30/20 18:14	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	1.5	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:23	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	11/02/20 17:19	11/04/20 04:23		H5
Total Organic Nitrogen Calc.	•	Method: TKN-Nytical Services		ation					
Total Organic Nitrogen	1.0	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	2.6	mg/L	0.10	0.042	1		11/05/20 10:39	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services		aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	3.6	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:19	7727-37-9	
353.2 Nitrate + Nitrite	•	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	0.034	mg/L	0.020	0.018	1		11/11/20 11:01		





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

ample: MW-04	Lab ID:	10537026004	Collected:	10/27/20	12:33	Received: 10/	27/20 17:02 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
	——————————————————————————————————————	——————————————————————————————————————		IVIDE .	DF	- Frepareu	- Analyzeu		
/IDRO LV GCS Silica Gel	•	Method: WI Mo		•	/lethod:	WI MOD DRO			
/DRO C10-C28 currogates	<0.11	mg/L	0.11	0.037	1	10/29/20 15:47	10/30/20 18:21		
-Triacontane (S)	92	%.	42-125		1	10/29/20 15:47	10/30/20 18:21	638-68-6	
270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 rtical Services	•		ion Met	hod: EPA Mod. 3	510C		
,4-Dioxane (SIM) surrogates	2.7	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:43	123-91-1	
,4-Dioxane-d8 (S)	31	%.	30-125		1	11/02/20 17:19	11/04/20 04:43		H5
otal Organic Nitrogen Calc.	•	Method: TKN-I rtical Services		ion					
otal Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
50.1 Ammonia	,	Method: EPA 3 rtical Services							
itrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:35	7664-41-7	
51.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 rtical Services	•	ation Meth	od: EP	A 351.2			
itrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:15	7727-37-9	
53.2 Nitrate + Nitrite	,	Method: EPA 3		s					
itrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:02		



Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: MW-05	Lab ID:	10537026005	Collected	d: 10/26/20	12:27	Received: 10/	27/20 17:02 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel		Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 Surrogates	<0.098	mg/L	0.098	0.033	1	10/29/20 15:47	10/30/20 18:28		
n-Triacontane (S)	86	%.	42-125		1	10/29/20 15:47	10/30/20 18:28	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	tion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	<0.25	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 03:41	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	11/02/20 17:19	11/04/20 03:41		2M
353.2 Nitrate + Nitrite	•	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:03		FS

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### **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: MW-4 Dup	Lab ID:	10537026006	Collected:	10/27/20	12:43	Received: 10/	27/20 17:02 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
WIDRO LV GCS Silica Gel		Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	<0.10	mg/L	0.10	0.036	1	10/29/20 15:47	10/30/20 18:36		
n-Triacontane (S)	82	%.	42-125		1	10/29/20 15:47	10/30/20 18:36	638-68-6	
3270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 /tical Services	•		ion Met	hod: EPA Mod. 3	510C		
I,4-Dioxane (SIM) Surrogates	2.6	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 05:04	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	11/02/20 17:19	11/04/20 05:04		H5
Total Organic Nitrogen Calc.	,	Method: TKN-I /tical Services		ion					
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
350.1 Ammonia	•	Method: EPA 3 /tical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:37	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 /tical Services	•	ation Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:16	7727-37-9	
353.2 Nitrate + Nitrite	,	Method: EPA 3 /tical Services		s					
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:04		





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Sample: EB-01	Lab ID:	10537026007	Collected	d: 10/27/20	13:35	Received: 10/	27/20 17:02 Ma	atrix: Water	
Davamatava	Daguita	l laita	Report	MDI	DE	Duananad	A a l a al	CACNI	0
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
WIDRO LV GCS Silica Gel	-	Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	<0.10	mg/L	0.10	0.036	1	10/29/20 15:47	10/30/20 18:43		
n-Triacontane (S)	90	%.	42-125		1	10/29/20 15:47	10/30/20 18:43	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•		ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <i>Surrogates</i>	0.17J	ug/L	0.23	0.097	1	11/05/20 18:45	11/09/20 04:05	123-91-1	1M
1,4-Dioxane-d8 (S)	31	%.	30-125		1	11/05/20 18:45	11/09/20 04:05		
Total Organic Nitrogen Calc.	,	Method: TKN-I ytical Services		ation					
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:38	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services	•	ration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:18	7727-37-9	
353.2 Nitrate + Nitrite	,	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:05		





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 708185 Analysis Method: EPA 8270E by SIM

QC Batch Method: EPA Mod. 3510C Analysis Description: 8270E Water 14 Dioxane by SIM

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10537026002, 10537026003, 10537026004, 10537026005, 10537026006

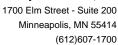
METHOD BLANK: 3783614 Matrix: Water

Associated Lab Samples: 10537026002, 10537026003, 10537026004, 10537026005, 10537026006

Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed 1,4-Dioxane (SIM) < 0.25 0.25 0.11 11/04/20 01:57 ug/L 1,4-Dioxane-d8 (S) 38 30-125 11/04/20 01:57 %.

LABORATORY CONTROL SAMPLE & LCSD: 3783615 3783616 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD** RPD Qualifiers 1.4-Dioxane (SIM) 10 10.7 11.5 107 115 32-128 7 20 ug/L 1,4-Dioxane-d8 (S) 31 29 30-125 S0 %.

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





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 709186 Analysis Method: EPA 8270E by SIM

QC Batch Method: EPA Mod. 3510C Analysis Description: 8270E Water 14 Dioxane by SIM

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10537026001, 10537026007

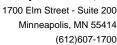
METHOD BLANK: 3788573 Matrix: Water

Associated Lab Samples: 10537026001, 10537026007

Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed 0.11 1,4-Dioxane (SIM) < 0.25 0.25 11/08/20 21:51 ug/L 1,4-Dioxane-d8 (S) 30 30-125 11/08/20 21:51 %.

LABORATORY CONTROL SAMPLE & LCSD: 3788574 3788575 Spike LCS LCSD LCS LCSD % Rec Max Conc. Parameter Units Result Result % Rec % Rec Limits **RPD RPD** Qualifiers 1.4-Dioxane (SIM) 10 88 101 32-128 13 ug/L 8.8 10.1 20 1,4-Dioxane-d8 (S) 37 31 30-125 %.

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





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 707537 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO Low Volume GCS w/Cleanup

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026005, 10537026006, 10537026007

METHOD BLANK: 3780133 Matrix: Water

Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026005, 10537026006, 10537026007

Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed WDRO C10-C28 < 0.10 0.10 0.034 10/30/20 17:45 mg/L n-Triacontane (S) 97 42-125 10/30/20 17:45 %.

LABORATORY CONTROL SAMPLE & LCSD: 3780134 3780135 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD RPD** Qualifiers WDRO C10-C28 0.8 0.66 82 83 54-125 mg/L 0.66 20 n-Triacontane (S) 92 86 42-125 %.

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

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### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 202346 Analysis Method: EPA 350.1

QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia

Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026006, 10537026007

METHOD BLANK: 799654 Matrix: Water

Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026006, 10537026007

Blank Reporting

ParameterUnitsResultLimitMDLAnalyzedQualifiersNitrogen, Ammoniamg/L<0.10</td>0.100.04211/05/20 10:29

LABORATORY CONTROL SAMPLE: 799655

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nitrogen, Ammonia 1.9 95 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 799656 799657

MSD MS 10537026001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual < 0.10 2 20 M1 Nitrogen, Ammonia mg/L 2 1.7 1.7 86 86 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 799658 799659

MS MSD 12153049005 MS MSD MS MSD % Rec Spike Spike Max RPD RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual ND 2 2 1.7 1.8 2 Nitrogen, Ammonia 86 88 90-110 20 M1 mg/L

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

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### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 202459 Analysis Method: QC Batch Method: EPA 351.2 Analysis Description

Analysis Description: 351.2 TKN

EPA 351.2

Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026006, 10537026007

METHOD BLANK: 800072 Matrix: Water

Associated Lab Samples: 10537026001, 10537026002, 10537026003, 10537026004, 10537026006, 10537026007

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, Kjeldahl, Total mg/L <0.50 0.50 0.15 11/09/20 08:09

LABORATORY CONTROL SAMPLE: 800073

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, Kjeldahl, Total mg/L 10 9.1 91 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 800074 800075

MSD MS 10537026001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Result **RPD** RPD Result Conc. Conc. % Rec % Rec Limits Qual < 0.50 Nitrogen, Kjeldahl, Total mg/L 10 10 10.2 10.2 102 102 90-110 0 15

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 800076 800077

MS MSD 12153135001 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 10 10 92 Nitrogen, Kjeldahl, Total 3.8 13.0 13.1 92 15 mg/L 90-110

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

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### **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 707737 Analysis Method:

QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved

Laboratory: Pace Analytical Services - Minneapolis

EPA 353.2

Associated Lab Samples: 10537026001, 10537026002, 10537026004, 10537026005, 10537026006, 10537026007

METHOD BLANK: 3781465 Matrix: Water

Associated Lab Samples: 10537026001, 10537026002, 10537026004, 10537026005, 10537026006, 10537026007

Blank Reporting

 Parameter
 Units
 Result
 Limit
 MDL
 Analyzed
 Qualifiers

 Nitrogen, NO2 plus NO3
 mg/L
 <0.020</td>
 0.020
 0.018
 10/30/20 11:11
 FS

LABORATORY CONTROL SAMPLE: 3781466

Spike LCS LCS % Rec Conc. Result % Rec Limits Parameter Units Qualifiers Nitrogen, NO2 plus NO3 0.90 90 90-110 FS mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3781467 3781468

MS MSD

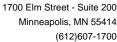
10535955007 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual Nitrogen, NO2 plus NO3 20 FS mg/L 0.18 1.2 1.1 99 92 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3781469 3781470

MS MSD

10535955008 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Nitrogen, NO2 plus NO3 1 1 < 0.020 1.1 1.1 109 106 3 20 mg/L 90-110

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





Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

QC Batch: 710202 Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10537026003

METHOD BLANK: 3793388 Matrix: Water

Associated Lab Samples: 10537026003

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, NO2 plus NO3 mg/L <0.020 0.020 0.018 11/11/20 11:17 FS

LABORATORY CONTROL SAMPLE: 3793389

Parameter Units Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers

Nitrogen, NO2 plus NO3 mg/L 1 1.0 103 90-110 FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3793390 3793391

MS MSD

10538096002 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits Nitrogen, NO2 plus NO3 7.0 10 17.8 108 20 M6 mg/L 10 18.2 112 90-110

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



### **QUALIFIERS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

### **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.

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

TNI - The NELAC Institute.

### **ANALYTE QUALIFIERS**

Date: 11/12/2020 08:32 AM

1M	Extraction or preparation was conducted outside of the recognized method holding time. Results confirm original analysis performed in hold time.
2M	Reanalysis conducted in excess of EPA method holding time. Results do not confirm original analysis performed in hold time.
FS	The sample was filtered in the laboratory prior to analysis.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
S0	Surrogate recovery outside laboratory control limits.

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### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Date: 11/12/2020 08:32 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
10537026001	MW-01	WI MOD DRO	707537	WI MOD DRO	707900
10537026002	MW-02	WI MOD DRO	707537	WI MOD DRO	707900
0537026003	MW-03	WI MOD DRO	707537	WI MOD DRO	707900
0537026004	MW-04	WI MOD DRO	707537	WI MOD DRO	707900
0537026005	MW-05	WI MOD DRO	707537	WI MOD DRO	707900
0537026006	MW-4 Dup	WI MOD DRO	707537	WI MOD DRO	707900
0537026007	EB-01	WI MOD DRO	707537	WI MOD DRO	707900
0537026001	MW-01	EPA Mod. 3510C	709186	EPA 8270E by SIM	709571
0537026002	MW-02	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
0537026003	MW-03	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
0537026004	MW-04	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
0537026005	MW-05	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
0537026006	MW-4 Dup	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
0537026007	EB-01	EPA Mod. 3510C	709186	EPA 8270E by SIM	709571
0537026001	MW-01	TKN-NH3 Calculation			
0537026002	MW-02	TKN-NH3 Calculation			
0537026003	MW-03	TKN-NH3 Calculation			
0537026004	MW-04	TKN-NH3 Calculation			
0537026006	MW-4 Dup	TKN-NH3 Calculation			
0537026007	EB-01	TKN-NH3 Calculation			
0537026001	MW-01	EPA 350.1	202346		
0537026002	MW-02	EPA 350.1	202346		
0537026003	MW-03	EPA 350.1	202346		
0537026004	MW-04	EPA 350.1	202346		
0537026006	MW-4 Dup	EPA 350.1	202346		
0537026007	EB-01	EPA 350.1	202346		
0537026001	MW-01	EPA 351.2	202459	EPA 351.2	202476
0537026002	MW-02	EPA 351.2	202459	EPA 351.2	202476
0537026003	MW-03	EPA 351.2	202459	EPA 351.2	202476
0537026004	MW-04	EPA 351.2	202459	EPA 351.2	202476
0537026006	MW-4 Dup	EPA 351.2	202459	EPA 351.2	202476
0537026007	EB-01	EPA 351.2	202459	EPA 351.2	202476
0537026001	MW-01	EPA 353.2	707737		
0537026002	MW-02	EPA 353.2	707737		
0537026003	MW-03	EPA 353.2	710202		
0537026004	MW-04	EPA 353.2	707737		
0537026005	MW-05	EPA 353.2	707737		
0537026006	MW-4 Dup	EPA 353.2	707737		
0537026007	EB-01	EPA 353.2	707737		

# CHAIN-OF-CUSTODY / Analytical Request Documen

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

Samples Intact (Y/N) 3000027123 SW0000134 なる PRJ07786 Custody Sealed Cooler (Y/N) 200 8 305 9 202 WO#: 10537026 02. 09€(0°) 57 Work Order Number Project Task Code: Program Code Facility Code: Section E SOC ID: とり// 1700 Elm St. Minneapolis MN, 55414 102720 612-656-2286 10537026 (H-EON 00S+ MS)N DATE Signed (MM/DD/YY): 10 174/30 × Vitrate + Vitrite, as oinsgen, Total Organic 551.2 + 350.1) × Lab Project Manager SAT × × 1 4-Dioxane (8270 SIM) × × Lab Name: Lab Phone: Section D Adress: A43)(nixoid 613B/8290A) × × × × × GGOT 8,7,8, ORO With silica gel 3,2 5 Empire Dr. St. Paul, MN 55103 × × 205946 Bay West LLC Accounts Payable 0 2 # of Cont. Ω 0 4 0 0 0 1833 1837 1243 John L 436 013 1335 əmiT Purchase Order No Company Name: 石の公 Sample Type Codes
Sample-Coutre-Sample-Coutre-Sample-Sc-WOP=Counposite Sample
Sc-WP=Integrated Vertical Profile Sample
QC-FB=Field Blank Sample
QC-FF=Field Replicate Sample
QC-TB=Trip Blank Sample 10-27-30 Attention: 0-72-01 10-26-20 10-87-3 10-07-00 Wt-Ground 10-26-3 Address: 10-27-20 John M SAMPLER NAME AND SIGNATURE Date 0-22-30 PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SW#134 Begin Dump - Borings tharsch@baywest.com Wfr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wfr-Ground (MPCA ONLY) Standard Zad Beahaly Belynest Σ Field Matrix Code (MPCA ONLY) ≩ Ž ≷ ≷ ≷ Š ≷ Lab Matrix Code WG WG MG WG WG WG ΜG Field Matrix Codes
Witt-Ground-Stound Water
WITK-Surf-Surface Water
QC-Blank-Artificial Blank Water
Leachteat-Leachtale Sample
Soil-Surface Soil-Surface
Soil-Surface Soil-Surface Matrix Code Required Project Information (G=GRAB C=COMP) Ø ტ ტ თ ტ Ø Ø Site Location (State): 25-FB Furnaround Time: Project Number: Sample Sample Sample QC-FR Sample Sample Project Name: Sample Type Code (MPCA ONLY) Section B Copy To: Copy To: Sample Common ID ml-4 Dup 5 Empire Dr. St.Paul MN, 55103 Lab Matrix Codess
DW-Drinking Water
NW-shon-potable Water
SD-Soil/Soilf
WP-Wipe
WR-Wipe
RAR-Air
BL-Balogical Material
OT-Cuther Eweaver@baywest.com enimlos@baywest.com MW-04 MW-02 MW-03 MW-01 EB-01 Erik Nimlos ADDITIONAL COMMENTS 651-291-3493 Bay West Required Client Information 200100737 Location Unique ID SO=Soil QC=Soil QC W=Aqueous WG=Groundwater S=Surface 2001007375 2001007376 2001007374 2001007377 roject Manager Equipment Blank 834635 Section A Company: Email To: Address: Copy To: Phone: # Mati 10 B 6

# Pace Analytical®

hold, incorrect preservative, out of temp, incorrect containers).

### Document Name:

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services - **Minneapolis** 

Sample Condition Cl	ent Name:			Project	#:	MO	#:10	)53	7026	
		USPS Commer	cial (	<b>X</b> Glient	<u></u>	PM:		Due	Date: 1	
Tracking Number:		•		e Exceptio IV-FRM-MII		ļ				
Custody Seal on Cooler	/Box Present? Yes	∯No	Sea	als Intact	? 🔲	res 🞾	No <b>Biolo</b>	gical Tis	sue Frozen?	☐Yes ☐Nov☐M/A
Packing Material:	Bubble Wrap Bubble B	ags [	_	□Oth					emp Blank?	XYes □No
Thermometer:	L(0461)		Type of I	ce: 💆	Wet	Blue	□None	□ Dr	y  Melted	•
Did Samples Originate in	West Virginia? ☐ Yes 💆 No	Wei	re All Co	ntainer 1	emps 1	「aken? ∐ Y	'es □No 😧	N/A	<del>"</del>	-
Temp should be above freezin	•				•	. '	<u>, U.1</u> 0c		ge Corrected (no temp bla ºC	See Exceptions nk ENV-FRM-MIN4-0142 1 Container
Did samples originate in a link of the lin	IN/A, water sample/Other: quarantine zone within the Unit G, OR, SC, TN, TX or VA (check m to either question, fill out a l	aps)? [	Yes	□No	N, Did Ha	d samples or waii and Pu	riginate from a erto Rico)?	foreign s	Yes 🔲 No	ionally, including
								COMM	IENTS:	
Chain of Custody Present ar Chain of Custody Relinquish		Yes	No	<del></del>	1.					
Sampler Name and/or Signa		Yes Yes	No □No	□N/A	2. 3.					
Samples Arrived within Hold		₩Yes	□No		4.					· · ·
Short Hold Time Analysis (<	72 hr)?	□Yes	<b>B</b> Nº						orm/E coli  BO	D/cBOD Hex Chrome
Rush Turn Around Time Re	quested?	Yes	™o		6.					
Sufficient Volume?	·	Yes	□No		7.	gome c	iontaine?	N .	MW-5	V-1/2
Correct Containers Used?		Yes	□No		8.					
-Pace Containers Used? Containers Intact?		Yes Yes	□ No		9.					<del></del>
Field Filtered Volume Receiv	red for Dissolved Tests?	Yes	□No	<b>I</b> N/A		ls sadimont	visible in the	discolvo	d container?	
	ilable to reconcile the samples	Yes	□No	L201N/A			Date/Time on			See Exception ENV-FRM-MIN4-014
Matrix: ₩Water Soil C										
All containers needing acid/ checked?	base preservation have been	<b>X</b> Yes	□No	□N/A	12. Sa	mple#		1-5	1/2	
All containers needing prese compliance with EPA recom (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH		Yes	□No	□N/A		☐ NaOH	□ни	O <sub>3</sub>	<b>[</b> 2504]	Zinc Acetate
Exceptions: VOA, Coliform, T	OC/DOC Oil and Grease,	Yes	□No	□n/a	Chlori			pH Pape		See Exception ENV-FRM-MIN4-0142
<u> </u>	• • • • •				nes. C	hlorine	0-6 Roll 2	0	0-6 Strip	0-14 Strip
Extra labels present on soil \ Headspace in VOA Vials (gre		□Yes □Yes	□No □No	N/A N/A	13.					See Exception ENV-FRM-MIN4-0140
Trip Blank Present?	12	□Yes	□No	<b>⊠</b> N/A	14.					
Trip Blank Custody Seals Pre		Yes	∐No	N/A	F	Pace Trip Bl	ank Lot # (if pu	urchased	d):	
Person Contacted:	ATION/RESOLUTION				Date	e/Time:	Field	d Data R	Required?	Yes No
Comments/Resolution:		ρ		/						
	//	1								

Labeled by: RMC

Page 30 of 39

# WO#: 12152934

Coc	ω	2	_	Tran		6	5	4	ω	2	7	Item	Coli Pac 170 Suit Minr Pho	Rep	Wo	$\times$	3
ler Te				Transfers		EB-01	MW-4 Dup	MW-04	MW-03	MW-02	MW-01	Sample ID	Colin Lynch Pace Analyt 1700 Elm S Suite 200 Minneapolis Phone (612	Report To	rkord	Sam	(err
Cooler Temperature on Receipt 2 · ○		100 cc	7	Released By			Oup					ble ID	Colin Lynch Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700		Workorder: 10537026	X Samples Pre-Logged into eCOC	Internal Transfer Chain of Custody
eceipt 2 · ೦ °C		10/74/20	16 / Muse	11		PS 10	PS 10	PS 10	PS 10	PS 10	PS 10	Sample Co Type Da			Workorder Nam	nto eCOC.	r Chain of
Custody Seal		233()	10/29/20 124	Date/Time		10/27/2020 13:35 105	10/27/2020 12:43 10537026006	10/27/2020 12:33 10537026004	10/27/2020 15:20 105	10/27/2020 10:13 10537026002	10/26/2020 14:36 10537026001	Collect Date/Time Lab ID	Pace Analytical Virgini 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042	Subcontract To	Workorder Name: 200408 SW#134 Begin Dump		Custody
<b>⊗</b> or	)	2 man	e C	Received By		10537026007 Water	37026006 Water	37026004 Water	10537026003 Water	37026002 Water	37026001 Water	ID Matrix	Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042		134 Begin Dump		
N Re		Ahais	10/29 120			1		1		1	1	H2SO4 BP3S	Preserved Containers			Star	
Received on Ice	•	10/30/20	1900	Date/Time		×	×	×	×	×	×	Total Orga	nic Nitrogen (351.2-350.1)		Owner Received Date:	State Of Origin: M	
⊗ or N	¥	C0100 65												Reques	(S)	N-ADMIN	
Samples Intact (96)	)				Comments									Requested Analysis	10/27/2020 Results Requested By:	12152934	
or N								1				LAB USE ONLY			11/11/2020		e 31 of 3

<sup>\*\*\*</sup>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.



### Document Name: Sample Condition Upon Receipt Form

Document No.: F-VM-C-001-rev.14 Document Revised: 25Feb2020 Page 1 of 1

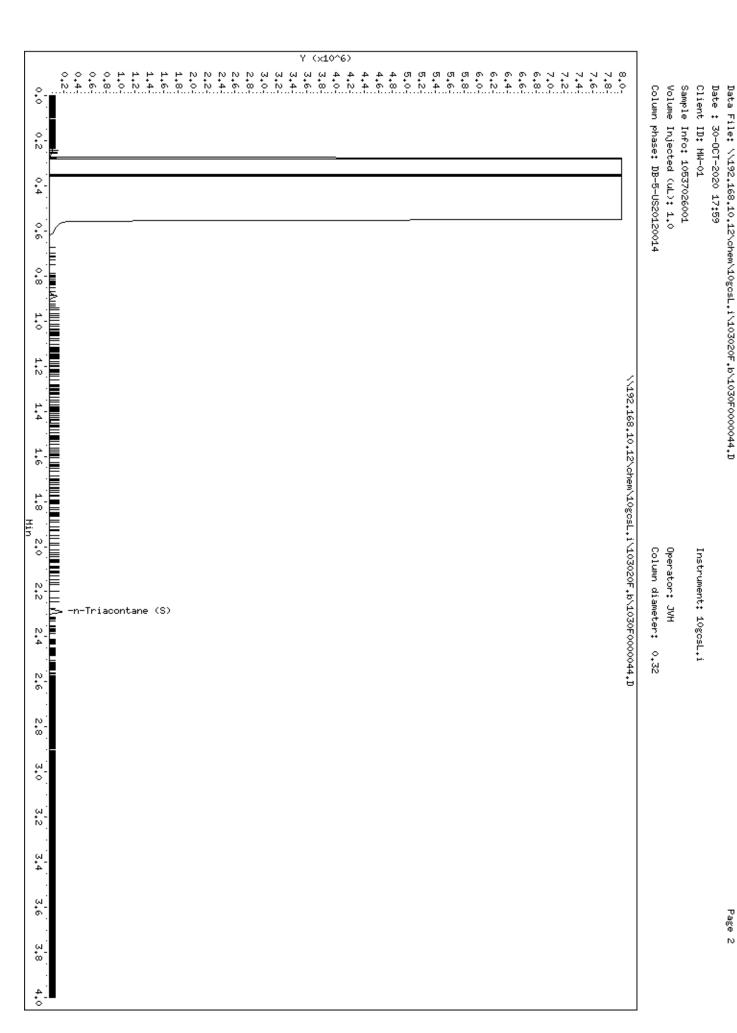
Issuing Authority:
Pace Virginia Minnesota Quality Office

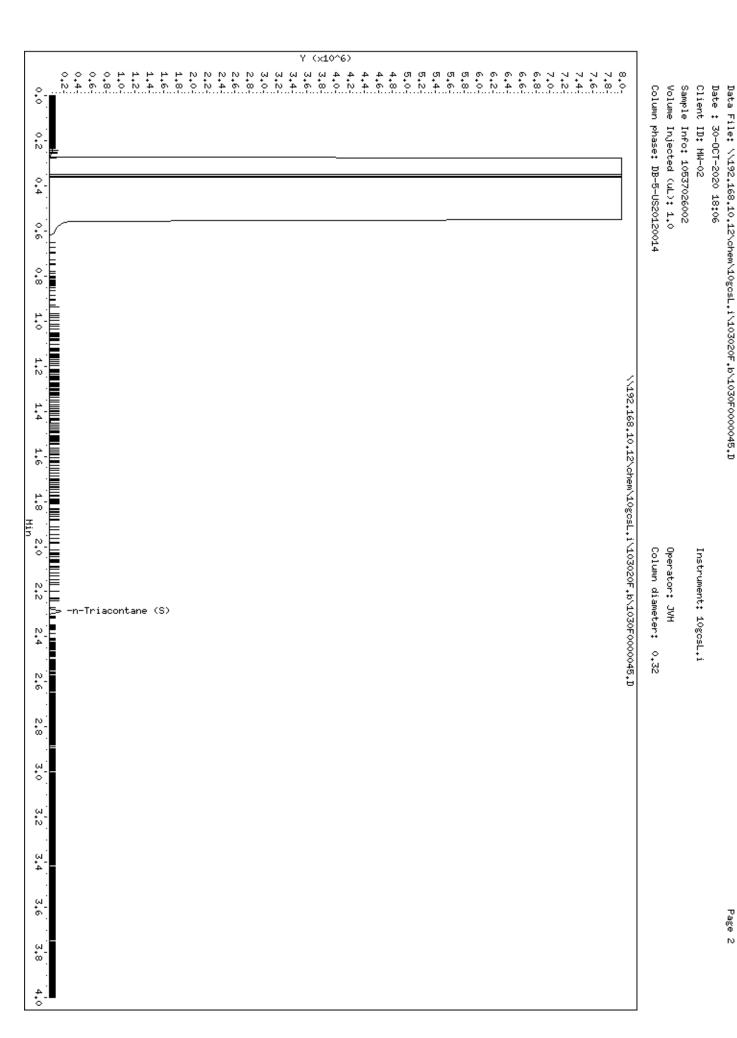
racking Number: Custody Seal on Cooler/E	Pace ]Fed Ex	MN							
racking Number: Custody Seal on Cooler/E							PM: LM2		Date: 11/11/20
racking Number:  ustody Seal on Cooler/E	Cammaraial	□UPS Pace	USPS		Client		CLIENI:	PACE MPLS	
ustody Seal on Cooler/E	]Commercial	1 Pace	Other:_						
acking Material	Box Present?	Yes [	No Seals	Intact?	∰Yes	□No	Optional:	Proj. Due Date:	Proj. Name:
Towns in ordinary	Bubble Wrap	Bubble	Bags	lone	Other:_			Temp I	Blank? ☐Yes ☐N
hermometer Used:	140792808	,	Type of I	ce:	Wet	]Blue	None	Samples on ice	, cooling process has beg
cooler Temp Read °C:	<del>_</del> _	Cooler Temp	Corrected °C		100			al Tissue Frozen?	
emp should be above fro			~			Initials			10/29/20 DC
				-		Comm		ming contents.	Bm 10/30
Chain of Custody Preser	nt?		□ ¥es	□No	□N/A	1.	ents.		privile 38
Chain of Custody Filled (			Yes	□No	□N/A	2.			
Chain of Custody Reling	100000 H00000		Ves	□No	□N/A	3.			
Sampler Name and Sign			Yes	□ No	□N/A	4.			
Samples Arrived within			Yes	□No	□N/A		Fecal: □<8 hour	rs	□ >24 hours
Short Hold Time Analys			□Yes		□N/A	6.	recan 🗀 to near		
Rush Turn Around Time	- And		□Yes	No	□N/A	7.			
Sufficient Volume?			Ves	□No	□N/A	8.			
Correct Containers Used	 }?		Yes	□No	□N/A	9.			
-Pace Containers Use			Yes	□No	□N/A				
Containers Intact?		1,000	Yes	□No	□N/A	10.			
Filtered Volume Receive	ed for Dissolved T	ests?	Yes	□No	N/A		ote if sediment is	visible in the disso	lved containers
Sample Labels Match CO			Yes	□No	□N/A	12.	ote ii seamiene is	visible in the disse	rved containers.
-Includes Date/Time/		trix: N	J						
All containers needing a			y Dyes	□No	□n/a	13. No	ote samples needi	ng adjustment:	
preserved?									
Headspace in Methyl M	82 52 3353		Yes	□No	N/A	14.			
Headspace in VOA Vials	(>6mm)?		Yes	□No	N/A	15.			
Trip Blank Present? Trip Blank Custody Seals	: Present?		∐Yes □Yes	□No □No	DN/A DN/A	16.			
Pace Trip Blank Lot # (if			□res	Пио	L⊒N/A				
							CONTRACT		
CLIENT NOTIFICATION/					-	- L /		950	I? □Yes □No
	itacted:					ate/Tin			
Comments/Reso	olution:								
SEE EXCEPTION FOR	RM Y I	N							
FECAL WAIVER ON	FILE Y N			TEN	IDEDATII	) = \A/A	IVER ON FILE	V N	
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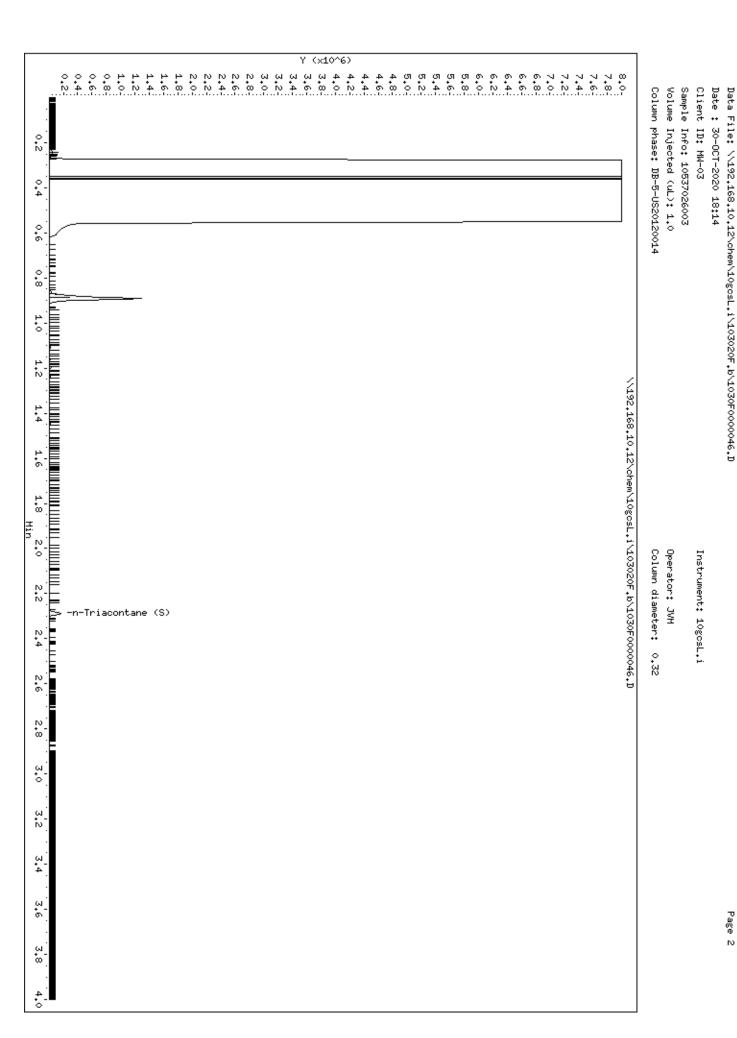
Project Manager Review: Date: ///O2/20

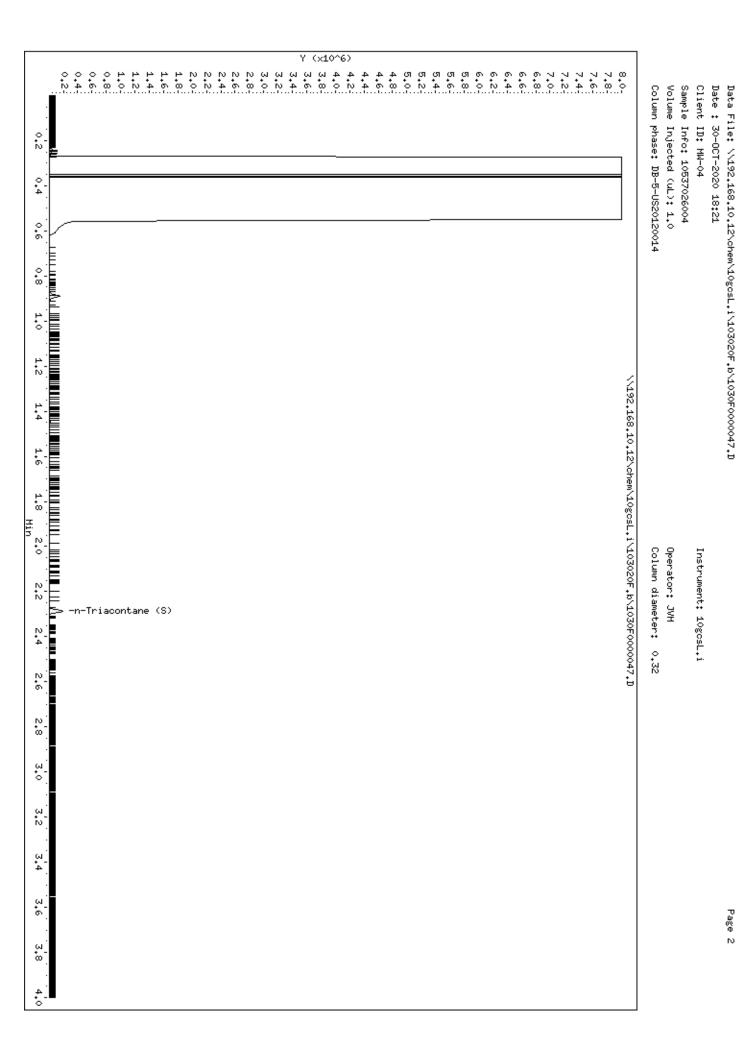
Note: Whenever there is a discrepancy affecting North Parolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

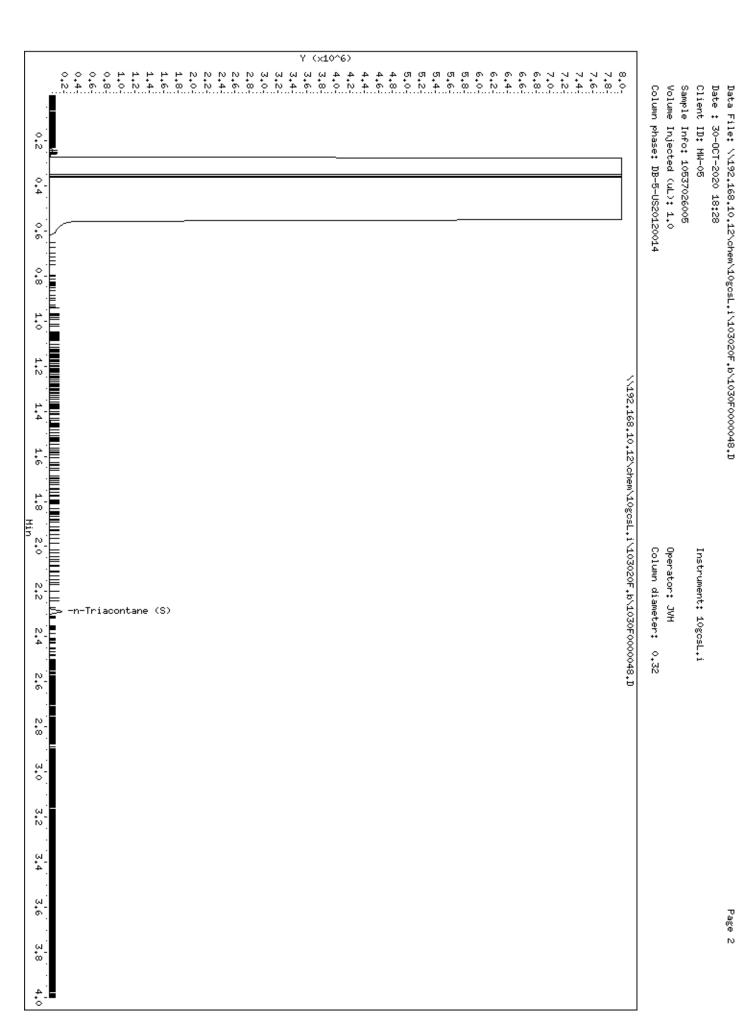
Page 32 of 39

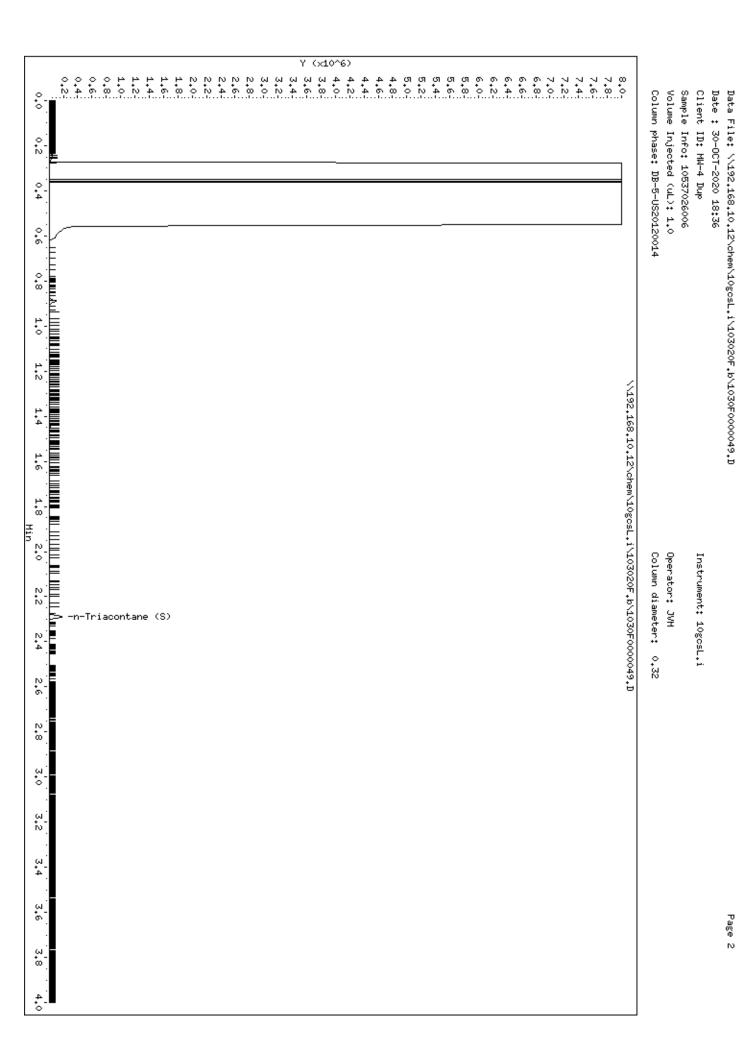


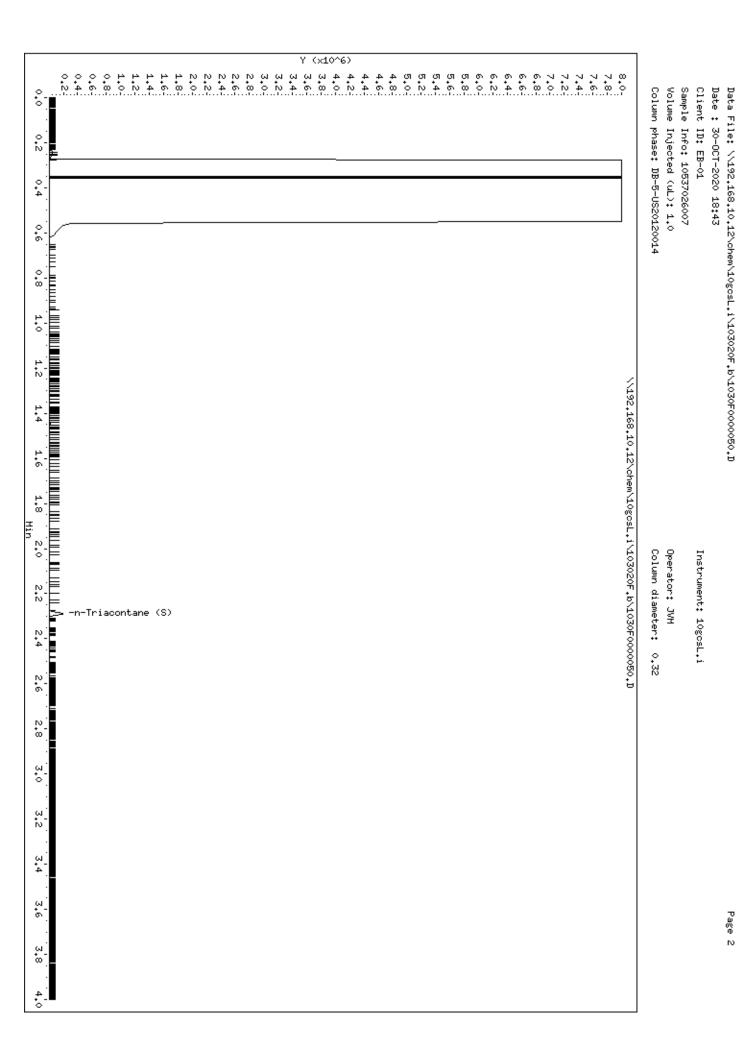














Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

### **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR TCDD**

### **Report Information:**

**PaceProject#: 10547490** 

Sample Receipt Date: 02/10/2021

Client Project #: 200408 **Client Sub PO #: 205946** State Cert#: 027-053-137

### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 2,3,7,8-TCDD Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

February 26, 2021

Krista Carlson, Project Manager

(612) 607-1700 (fax) krista.carlson@pacelabs.com



### **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

February 26, 2021



Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

### **DISCUSSION**

This report presents the results from the analysis performed on seven samples submitted by a representative of BayWest, LLC. The samples were analyzed for the presence or absence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements.

The recoveries of the isotopically-labeled TCDD internal standard in the sample extracts ranged from 48-81%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native TCDD was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show that 2,3,7,8-TCDD was not detected, indicating that the sample processing steps were free of background levels of this congener.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard material. The results show that the spiked native TCDD was recovered at 108-116% with a relative percent difference of 7.1%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch.



Tel: 612-607-1700 Fax: 612-607-6444

## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064	, ,	

### **REPORT OF LABORATORY ANALYSIS**

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

# **Appendix A**

Sample Management



# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page:

	rxinomental & Industrial Solution	s								protoc coordinatory.																
Section A Required	Client Information	<b></b>	Section B Required Project	4 1=6=====	<b>4</b> !				Section C				Section							:	Section					
	Chefit triormation	Bay West	Project Name:	linioma		134 Ro	gin Dump - GW S	Samplina	_	e Information:	- Develo		T	tory Inform	nation		Pac	Δ		<del></del>		Information				
Company: O Address:	5 Empire I	Or. St.Paul MN, 55103	Project Number:		01177	-10+ BC;	200408	Jamping	<del></del>	***************************************	s Payable		Lab Na		170	) Elm Si	t. Minnea		N 554		OC ID:					
:		Erik Nimlos	Turnaround Time:				Standard		Company N Address:	5 Empire Dr. St.	West LLC		Adress	ject Ma		J LIII S		Colin Ly		—— <u> </u>		rder Numl	<u></u>		27123	
Project Mar Email To:		os@baywest.com	Site Location (Sta	te):			MN		Purchase (		20594		Lab Ph		nayer				,		acility C			SW-	<u> </u>	_
Phone:		-291-3493	Copy To:				r@baywest.com		r di ciiase c	Jidei No.	20094		Lab Pii	one:			612-656	-2286				Fask Code	e: ——	PRJ0	7913	
		/er@baywest.com	Сору То:		gvano		@baywest.com	! 				-	-							— P	rogram	Code				
290			оору го.						<u>.                                    </u>			Sara Vijela		a nisas		Pro	eservativ	V06	ومناصورت		esc. 5 e 4	. 141. HISAT	-V///	77777	7777	777
Copy To:     Matrix C   SE=Sedi   SO=Soil   QC=Soil   W=Aque   WG=Grc   S=Surfac	iment     QC     gous   gundwater	Lab Matrix Codes DW=Drinking Water NW=Non-potable Water SD=Soil/Solid WP=Wipe AR=Air BL=Biological Material OT=Other	Field Matrix Cod Wtr-Ground=Gro WTR-Surf=Surfa QC-Blank=Artific Leachate=Leach Soil-Surf= Soil S Soil-Sub= Soil Si	und Water ce Water ial Blank \ ate Samp urface	Water		Sample Typ Sample=Ro S-CWOP=O S-IVP=Integ QC-FB=Fiel QC-FR=Fiel QC-TB=Trip	utine Samp composite S rated Vertice d Blank San d Replicate	ample al Profile Samp nple Sample	le		724		- San Ar		H2504	Soy	•								
	cation ique ID	Sample Common	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)		Date	Time	# of Cont.	DRO with silica gel cleanup (WI DRO)	2,3,7,8 TCDD (Dioxin)(EPA 1613B/8290A)	1,4-Dioxane (8270 SIM)	PFAS	Nitrogen, Total Organic (351.2 + 350.1)	ate + Nitrite, as A 4500 NO3-H)							Comn	nents	
1 20010	07374	MW-01	Sample	G	WG	NW	Wtr-Ground	2/8	121	1245	10	X	Х	х	х	Х	х				$\exists$		$\mp$	001	.,	_
2 20010	07375	MW-02	Sample	G	wg	NW	Wtr-Ground	7/10	hi	1100		X	X	X	x	X	X							U	1	
	07376	MW-03	Sample	G	wg	NW	Wtr-Ground	219	12.1	1510		X	X	x	x	^X	X					-		Cl	₹ ?	
	07377	MW-04	Sample	G	WG	NW	Wtr-Ground	9.15	12.1	1010		X	x	x	x	X	X		_	-		+	+	00	j ŧÅ	
5 83463		MW-05	Sample	G	wg	NW	Wtr-Ground	1/4	121	1730									-+	+	+	_	+	00		
6 83463		MW-04 - D	QC-FR	G	WG		Wtr-Ground	1.15	121	1040 Det 1040	Н	X	X	X	X	X	X			-+	+		+	<u> </u>		
Equip		EB-01	QC-EB	G	wg	1	Wtr-Ground	017	ilai			X	X	X	X	Х	Х		-	-+	+		+	<u> </u>		
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12																										
	ADDITIONA	L COMMENTS	RELI	NQUISHE	D BY / A	FFILIATIO		DATE	TIM				/ AFFILIA	TION		<u> 1</u> 17- s		DATE			IME		SAME	PLE COND	OITIONS	
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																			-			-		+		$\vdash$
Pag																			+					Received on Ice (Y/N)	Cooler	Į Š
ē └	IN# ·	1054	7400				SAMPLER NAMI	AND SIG	NATURE		1 337		in the		gara.				- 1	1122		. * 1.	(°C)	on Ice	Sealed (Y/N)	Intact
Page 5 of 20	IV# ·	10547	490				PRINT Name of SA	MPLER:	ZA	H MASON						_						7	<u>-</u> •	Seived	Custody S	Samples Intact (Y/N)
ö III		i diamajara a					SIGNATURE of SA	MPLER:	~	<u>-</u>		DATE S	igned (MM	/DD/YY):	2	110	121					$\neg$		Re	Cus	S.

1.7,3.0,0.2,4.3



### Document Name:

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services - Minneapolis

Sample Condition Client Name:			Project	#:			<del></del>		
Upon Receipt Bay West	•		=		- 1.16	0#:1	05	47490	<b>D</b>
Courier: Fed Ex UPS	USPS	<u>`</u>	Client					Oue Date: (	
□ Pace □ SpeeDee □	_loses ]Commer		<b>X</b> Chent			KAC			, <u> </u>
		Se	ee Exceptio		CLI	ENT: BW-	BHT	NES!	:
Tracking Number:		EN	IV-FRM-MI	N4-0142   	— , <u> </u>	,			
Custody Seal on Cooler/Box Present? Yes	οŊ	Sea	als Intact	? □Y	es 🔀	No <b>Biolo</b>	gical Ti	ssue Frozen?	Yes No XN/A
Packing Material: Bubble Wrap Bubble	Bags	None	Oth	ner:			T	emp Blank?	XYes □No
Thermometer: T1(0461) T2(1836) T3(0459)	9)	Type of I	ce:	Wet	Blue	None	□D	ry	
Did Samples Originate in West Virginia? ☐Yes 🔀 🖂	We	re All Co	ntainer 1	Temps Ta	aken? □Y	′es □No	<b>€</b> N/A		
Temp should be above freezing to 6°C Cooler Temp R	ead w/ten	np blank	: 1.6	2.9	0.1,	<u>4.2</u> .ºc	Avera	ge Corrected	See Exceptions
Correction Factor: +(). Cooler Temp Correct	ted w/tem	p blank:	17.3	. <u>O, O.</u>	2,4.	<u>ર</u> ુ <u></u>	Temp only)	o (no temp blan :°C	k ENV-FRM-MIN4-0142  1 Container
USDA Regulated Soil: (XN/A, water sample/Other:		)		Date				Contents: <u>E</u> [	
Did samples originate in a quarantine zone within the Un ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check i		: AL, AR, ∃Yes	CA, FL, GA □No		•	riginate from a erto Rico)?		source (internation	onally, including
If Yes to either question, fill out a						•	_		•
<b>V</b>							COM	MENTS:	
Chain of Custody Present and Filled Out?	es	□No		1.				-	
Chain of Custody Relinquished?	Yes	□No		2.					
Sampler Name and/or Signature on COC?	Yes	□No	□n/a	3.					
Samples Arrived within Hold Time?	Yes	□No		4. 5. 🗆	Food Colife	Пипс Па	ratal Cali	form /C call Capac	/cBOD Hex Chrome
Short Hold Time Analysis (<72 hr)?	□Yes	ΜNο						rthophos Other	
Rush Turn Around Time Requested?	Yes	XNo		6.					
Sufficient Volume?	Yes	□No		7.					
Correct Containers Used?	yes	□No		8.					
-Pace Containers Used? Containers Intact?	Yes	□ No		9.					
Field Filtered Volume Received for Dissolved Tests?	□Yes	□No	` <b>∑</b> N/A		sediment	t visible in the	dissolv	ed container?	Yes DNo
Is sufficient information available to reconcile the samples			LSC VA	<del></del>		/ Date/Time on			See Exception
to the COC?	Yes	□No				· •			ENV-FRM-MIN4-0142
Matrix: XWater ☐ Soil ☐ Oil ☐ Other	, ·								
All containers needing acid/base preservation have been checked?	Yes	□No	□N/A	12. Sar	nple# ()	01-007			
All containing monding programmatics and formula 1. 1.		·	_		□ v. c	, m	10	Musa	<b></b>
All containers needing preservation are found to be in compliance with EPA recommendation?	Yes	□No	. □n/a		NaOH	I HV	NU3	H₂SO₄	Zinc Acetate
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH>9 Sulfide, NaOH>10 Cyanide)	• •							2/2	
Transitionary VOA Collifornia TOO/DOCCII	Mar	Пма	□n/a	1	e for Res.				See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO 8015 (water) and Dioxin/PFAS	rX, es		A/AI	Chlorin Res. Ch		No □ 0-6 Roll	рн Рар	er Lot# 0-6 Strip	0-14 Strip
				nes. Cr	MINE	2214	9	o-o อแห	0-14 201b
Extra labels present on soil VOA or WIDRO containers?	Yes	□No	XIN/A	13.		······································			See Exception 🗌
Headspace in VOA Vials (greater than 6mm)?	Yes	□No	N/A	144					ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	□Yes □Yes	□No □No	N/A DN/A	14. P	ce Trin Ri	lank Lot # (if p	urchase	ed):	
CLIENT NOTIFICATION/RESOLUTION			y	8.0	DI				Yes No
Person Contacted:				\ Date	Time:	riei	u vald	nequileu: 🔲	ies Lino
Comments/Resolution:		<del></del>	<del>```</del>	· 1./2,2.0				******************	
1100	)		\ \	\ \		- 1			
Project Manager Review:			7	<u></u>	Date		10 "	DELINE OF CO	
Note: Whenever there is a discrepancy affecting North Carolin	a compliand	e sample	s, a copy o	at this for	m will be se	ent to the Nort	n Caroli	na DEHNR Certific	cation Office (i.e. out of

Report No.....10547490 8290TCDD DFR

hold, incorrect preservative, out of temp, incorrect containers).

abeled by: \_

EDO.

Page 6 of 20



### Document Name:

### Sample Condition Upon Receipt (SCUR) Exception Form

ENV-FRM-MIN4-0142 Rev.01

Document No.:

Document Revised: 04Jun2020 Page 1 of 1

Pace Analytical Services - **Minneapolis** 

CUR Exceptions:	Container	# of			DNA NA	otified?	lvar i	Na			
Out of Temp Sample IDs	Type	Containers				/tilledi:	ilies L				
Sitten filosofia (Indiana) koloniaka ka kalinetan katele katelan kialan kalinetan kalinetan kalinetan kalineta	HAR THURSDAY OF A MARK SHIP OF	1882 valuulain kuksantiis oli kuululais	#84 [M]:=0  RH:##88H:=R#8\34	lf ves. i	ndicate w	ho was co	ntacte	d/date/t	ime.	TO N. WEBS	
	**			,, .		ndicate re					
			Multiple Cooler Project? Yes No If you answered yes, fill out information to the left.								
			Re	ead Temp		<b>No Temp</b> rected Te		Ave	rage Temp		
			┨								
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							liis saonnhailitheann i	inonsus-comadonal funtifice	tersea minimisse en ancient		
Tue eldin – Bloom b e o	/T t		Issu	e Type: f			II. I COPYRECTED IN	tainer	# of		
Tracking Number	/ remperature	<u> </u>		Sample ID MW - 03				ype 3S	Containers		
·				1W - 03				3U		1	
			MW-04				<sup>2</sup> 3U				
			MW-05 BP3					1			
				WM - 0				23 U	2		
			┨	MW - 0	4-0		BH	35	1		
	-00										
			.								
		•	] [	_							
	pH Ad	justment	Log tor	Preserv	ed Sam	ples		1		T	
	Туре с		Date	Time	Amoun t Added	Lot#	рН	In Comp			
Sample ID	Preser	v. Receipt	Adjusted	Adjusted	(mL)	Added	After	after add		Initials	
								Yes	□No		
								□Yes	□No		
								Yes	□No		
omments:			······································			<del></del>		<u></u>	<u> </u>		
				•						,	



# **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X =%D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-01
Lab Sample ID 10547490001
Filename U210225B\_11
Injected By SMT

Total Amount Extracted 975 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/08/2021 12:45 ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/25/2021 23:05

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		0.87	2,3,7,8-TCDD-13C	2.00	78	
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	86	

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-02
Lab Sample ID 10547490002
Filename U210225B\_12
Injected By SMT

Total Amount Extracted 1040 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/10/2021 11:00 ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/25/2021 23:50

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		0.72	2,3,7,8-TCDD-13C	2.00	81	
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	84	

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-03 Lab Sample ID 10547490003 Filename U210225B\_13 Injected By SMT

Total Amount Extracted 963 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/09/2021 15:10 ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/26/2021 00:35

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		1.1	2,3,7,8-TCDD-13C	2.00	79	
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	87	

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04
Lab Sample ID 10547490004
Filename U210225B\_14
Injected By SMT

Total Amount Extracted 1030 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/09/2021 10:10 ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/26/2021 01:19

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		1.1	2,3,7,8-TCDD-13C	2.00	68
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-05
Lab Sample ID 10547490005
Filename U210225B\_15
Injected By SMT

Total Amount Extracted 970 mL Matrix Water % Moisture NA Dilution NA

02/08/2021 17:30 Dry Weight Extracted NA Collected ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/26/2021 02:04

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		0.89	2,3,7,8-TCDD-13C	2.00	76	
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	86	

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04-D Lab Sample ID 10547490006 Filename U210225B\_16 Injected By SMT

Total Amount Extracted 986 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/09/2021 10:40 ICAL ID U210106 Received 02/10/2021 13:15 CCal Filename(s) U210225B\_02 & U210225B\_19 Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/26/2021 02:49

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		1.6	2,3,7,8-TCDD-13C	2.00	65	
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83	

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID EB-01 Lab Sample ID 10547490007 Filename U210225B\_17

Injected By SMT

Total Amount Extracted 995 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 02/09/2021 17:15 ICAL ID U210106 Received 02/10/2021 13:15 U210225B\_02 & U210225B\_19 CCal Filename(s) Extracted 02/16/2021 10:00 Method Blank ID BLANK-87109 Analyzed 02/26/2021 03:33

**EMPC EDL** Percent **Native** Conc Internal ng's pg/L **Standards** Added **Isomers** pg/L pg/L Recovery 2,3,7,8-TCDD ND 1.4 2,3,7,8-TCDD-13C 2.00 48 Recovery Standard 1,2,3,4-TCDD-13C 2.00 NA Cleanup Standard 2,3,7,8-TCDD-37Cl4 0.20 86

 $\label{local_conc} \textit{Conc} = \textit{Concentration} \; (\textit{Totals include 2,3,7,8-substituted isomers}).$ 

EMPC = Estimated Maximum Possible Concentration

 $\mathsf{EDL} = \mathsf{Estimated} \;\; \mathsf{Detection} \;\; \mathsf{Limit}$ 

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



### Method 8290A Blank Analysis Results

Lab Sample Name Lab Sample ID Filename Total Amount Extracted

Total Amount Extracted ICAL ID CCal Filename(s)

DFBLKOF BLANK-87109 F210225B\_04 1010 mL F210105

F210225B\_01 & F210225B\_17

Matrix Water
Dilution NA
Extracted 02/16/

Extracted 02/16/2021 10:00 Analyzed 02/25/2021 23:57

Injected By SMT

Native Isomers				ng's Added	Percent Recovery	
2,3,7,8-TCDD	ND		1.7	2,3,7,8-TCDD-13C	2.00	72
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range



### **Method 8290A Laboratory Control Spike Results**

Lab Sample ID Filename Total Amount Extracted

Total Amount Extracted ICAL ID CCal Filename(s)

Method Blank ID

LCS-87110 F210225B\_02 1010 mL

F210105 F210225B\_01 & F210225B\_17 BLANK-87109 Matrix Dilution Extracted Water NA

Extracted 02/16/2021 10:00 Analyzed 02/25/2021 22:23 Injected By SMT

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	0.20	0.23	116	2,3,7,8-TCDD-13C	2.0	70
-,-,, ,				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



### **Method 8290A Laboratory Control Spike Results**

Lab Sample ID Filename **Total Amount Extracted** 

ICAL ID

CCal Filename(s) Method Blank ID

LCSD-87111 F210225B\_03 1020 mL

F210105 F210225B\_01 & F210225B\_17 BLANK-87109

Matrix Dilution Extracted

Water NA

02/16/2021 10:00 Analyzed 02/25/2021 23:10 Injected By

**SMT** 

Native Isomers	<b>Qs</b> (ng)				ng's Added	Percent Recovery	
2,3,7,8-TCDD	0.20	0.22	108	2,3,7,8-TCDD-13C	2.0	84	
				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA	
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83	

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



### Method 8290A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

 Spike 1 ID
 LCS-87110
 Spike 2 ID
 LCSD-87111

 Spike 1 Filename
 F210225B\_02
 Spike 2 Filename
 F210225B\_03

 Compound
 Spike 1 %REC
 Spike 2 %REC
 %RPD

 2,3,7,8-TCDD
 116
 108
 7.1

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value



### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

### **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR PFAAs**

### **Report Information:**

Pace Project #: 10547491

Sample Receipt Date: 02/10/2021

Client Project #: 200408 SW#134 Begin Dump -

Client Sub PO #: 205946

State Cert #: N/A

### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

March 10, 2021

Krista Carlson, Project Manager

(612) 607-1700 (fax) krista.carlson@pacelabs.com



### **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

March 10, 2021

### **DISCUSSION**

This report presents the results from the analyses performed on seven samples and one matrix spike submitted by a representative of Bay West Inc. The samples were analyzed for thirty-six perfluorinated compounds using MPCA Guidance. Reporting limits were set to the quantitation limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits. These spikes indicate that extraction performed as expected.

Diminished internal surrogate standard (IS) recovery (outside the suggested limits) were present in sample material, however, the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard.

The 10547491003 sample had an elevated internal standard recovery (outside the suggested limits) for 13C2\_4:2FTS flagged ("R"). While the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard, in the case of this FTS compound, the recoveries are anomalously high, and are adversely impacted by matrix. The results for these native compounds should be considered estimated only

The four injection internal standards (13C4 PFOA, 13C4 PFOS, 13C2\_PFDA, and 13C2\_PFHxA) pass for each analysis in the batch verifying that the instrument detector is working as expected.



## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

### **REPORT OF LABORATORY ANALYSIS**

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

Report No....10547875

# **Appendix A**

Sample Management

# CHAIN-OF-CUSTODY / Analytical Request Document

**Bay West** 

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

Samples Intact (Y/N) 3000027123 PRJ07913 Custody Sealed Cooler (Y/V) Comments SW-134 50 553 B こう Received on Ice (Y/N) (°C) Work Order Number Project Task Code: MPCA Information Program Code Facility Code: Section E COC ID: 1215 1700 Elm St. Minneapolis MN, 55414 2/10/21 612-656-2286 has 24 (H-EON 0054 MS)N × × × × × Nitrate + Nitrite, as H520H Vitrogen, Total Organic 351.2 + 350.1) × × × Lab Project Manager SYJc × × × ×  $\times$ 4-Dioxane (8270 SIM) × × Lab Phone: Section D Lab Name: Adress: A93)(nixoiD × × × ORO with silica gel 5 Empire Dr. St. Paul, MN 55103 72# 205946 SKA Bay West LLC Accounts Payable # of Cont. 1040 1730 00/ 1245 1715 00 əmiT Purchase Order No Company Name: Sample-Routine Sample-Scutine Sample-Routine Sample-Scutine Sample ScrWOP=Composite Sample Oct-Particle Blank Sample Oct-Far-Field Repkrade Sample Oct-Far-Field Repkrade Sample Oct-Far-Field Repkrade Sample Oct-Far-Field Repkrade Sample TIME Attention: Address: 5 SAMPLER NAME AND SIGNATURE 2/2/2 2/8/21 110/1 2/9/21 Date SW#134 Begin Dump - GW Sampling 2/10/11 Wtr-Ground ryanr@baywest.com Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wfr-Ground Wtr-Ground gvanderwaal@baywest.com Standard (MPCA ONLY) 200408 Z Field Matrix Code RELINQUISHED BY / AFFILIATION (MPCA ONLY) Š ≩ ≷ ≷ Š ≷ Š Lab Matrix Code WG WG WG WG ΜĞ WG WG Field Matrix Codes
WTK-Sturf-Sund-Schund Water
WTK-Surf-Sund-Schund Water
QC-Blank-Aufficiel Blank Water
GC-Blank-Stufficiel Blank Water
Soil-Surf-Soil Surface
Soil-Surf-Soil Surface Required Project Information (G=GRAB C=COMP) თ Ø თ ტ ഗ ტ ഗ Site Location (State): N Furnaround Time: Project Number: Sample Sample Sample QC-FR QC-EB Sample Sample Project Name: (MPCA ONLY) Sample Type Code Section B Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW=Drinking Water
NW=Non-potable Water
SD=Soil/Soid AR=Air BL=Biological Material OT=Other Eweaver@baywest.com MW-04 - D enimlos@baywest.com MW-02 MW-03 MW-04 MW-05 MW-01 ADDITIONAL COMMENTS 651-291-3493 Required Client Information Location Unique ID 2001007374 2001007375 2001007376 2001007377 Equipment Blank Project Manager Matrix Code SE=Sediment SO=Soil QC=Soil QC W=Aqueous WG=Groundw 834635 834636 Section A Company: Email To: Copy To: Address: Phone: 6 9 Ξ Page 5 of 53

(17,8,0,0.2,4.3

2/0//2

DATE Signed (MM/DD/YY):

174500

H282

PRINT Name of SAMPLER: SIGNATURE of SAMPLER:

JO#:10547491

# Pace Analytical®

### Document Name:

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

Document Revised: 12Aug2020

Page 1 of 1

ENV-FRM-MIN4-0150 Rev.01

Pace Analytical Services -Minneapolis

Courier:   Fed Ex
Courier:
Tracking Number:  Custody Seal on Cooler/Box Present?  Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No No Normalization of Normal
Custody Seal on Cooler/Box Present?
Packing Material: Bubble Wrap Bubble Bags None Other: Temp Blank? Yes No  Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted  Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No No  Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 1.6, 2.9, 0.1, 4.2 °C Average Corrected Temp (no temp blank only): °C Originate in Container Temps Taken? Yes No No  Correction Factor: 10. Cooler Temp Corrected w/temp blank: 1.7, 3.0, 0.2, 4.3 °C Only): °C Only:
Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted  Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No
Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No
Temp should be above freezing to 6°C  Cooler Temp Read w/temp blank: 1.6, 2.9, 0.1, 4.2 °C  Temp (no temp blank only): °C  Correction Factor: 10. Cooler Temp Corrected w/temp blank: 17, 3.0, 0.2, 4.3 °C  USDA Regulated Soil: (N/A, water sample/Other: Date/Initials of Person Examining Contents: 2/10/21  Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, Did samples originate from a foreign source (internationally, including ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No  If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.  COMMENTS:
Correction Factor: 10. Cooler Temp Corrected w/temp blank: 17, 3.0, 0.2, 4.3 °C only): °C    USDA Regulated Soil: (N/A, water sample/Other: Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paper-work.
Correction Factor: 10. Cooler Temp Corrected w/temp blank: 17.3.0, 0.2, 4.3 °C only): °C □1 Container  USDA Regulated Soil: ( N/A, water sample/Other: Date/Initials of Person Examining Contents: 2/10/21  Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? □Yes □No  If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.  COMMENTS:
Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, Did samples originate from a foreign source (internationally, including ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?
ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.  COMMENTS:
Chain of Cust ody Present and Filled Out? No 1.
Chain of Custody Relinquished?
Sampler Name and/or Signature on COC?  No No NA 3.
Samples Arrived within Hold Time?  Yes No 4.
Short Hold Time Analysis (<72 hr)?  Yes  No  5. Fecal Coliform HPC Total Coliform/E coli BOD/cBOD Hex Chrome Turbidity Nitrate Nitrite Orthophos Other
Rush Turn Around Time Requested?
Sufficient Volume? Yes No 7.
Correct Containers Used? No 8.
-Pace Containers Used?
Field Filtered Volume Received for Dissolved Tests?
to the COC?  ENV-FRM-MIN4-01
Matrix: Water Soil Oil Other
All containers needing acid/base preservation have been ves No No N/A 12. Sample # 001-007 checked?
All containers needing preservation are found to be in Yes No N/A NaOH HNO3 H2SO4 Zinc Acetate compliance with EPA recommendation?
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)
Positive for Res. Yes See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, Wes No NA Chlorine? No pH Paper Lot# ENV-FRM-MIN4-0142
DRO/8015 (water) and Dioxin/PFAS Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Estate labels respect on sell-VOA or WIDDO contribute 2
Extra labels present on soil VOA or WIDRO containers?   Yes   No   N/A   13.   See Exception   Headspace in VOA Vials (greater than 6mm)?   Yes   No   N/A   13.   See Exception   ENV-FRM-MIN4-0146
Trip Blank Present?
Trip Blank Custody Seals Present?
CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
Person Contacted: Date/Time:
Comments/Resolution:
Project Manager Review: 4 CC Date: 02/10/21
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).

Labeled by:



### Document Name:

### Sample Condition Upon Receipt (SCUR) Exception Form

Document Revised: 04Jun2020 Page 1 of 1

Document No.: ENV-FRM-MIN4-0142 Rev.01

Pace Analytical Services - **Minneapolis** 

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			R	ead Temp	Co	rrected Te	emp	Ave	erage To	emp
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# **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



Pace Analytical Services, LLC

Q210303B\_008

1700 Elm Street, Suite 200 Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444 www.pacelabs.com

### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 1 of 4

Client Sample ID MW-01

Extraction Date 02/25/2021 16:37 Total Amount Extracted 485mL

Lab Sample ID 10547491001

Pace Analytical®

Ical ID 210302A01

**Ending CCal File** 

Lab File ID Q210303B\_007 Matrix Industrial\_Water

CCal File Q210303B\_004

Collected 02/08/2021 12:45 Received 02/10/2021 13:15

Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	40	0.51	0.51	0.077	1	375-22-4	
PFPeA	4.8	0.51	0.51	0.051	1	2706-90-3	
HFPO-DA	ND	0.51	0.51	0.048	1	13252-13-6	
PFBS	2.4	0.46	0.46	0.053	1	375-73-5	
PFHxA	6.6	0.51	0.51	0.058	1	307-24-4	
4:2 FTS	ND	0.48	0.48	0.077	1	757124-72-4	
PFPeS	1.00	0.48	0.48	0.060	1	2706-91-4	
PFHpA	2.4	0.51	0.51	0.071	1	375-85-9	
DONA	ND	0.49	0.49	0.062	1	919005-14-4	
PFHxS	2.1	0.47	0.47	0.040	1	355-46-4	
PFOA	7.5	0.51	0.51	0.046	1	335-67-1	
6:2 FTS	ND	0.49	0.49	0.080	1	27619-97-2	
PFHpS	ND	0.49	0.49	0.061	1	375-92-8	
PFNA	ND	0.51	0.51	0.047	1	375-95-1	
PFOSAm	ND	0.51	0.51	0.056	1	754-91-6	
PFOS	0.74	0.48	0.48	0.047	1	1763-23-1	
MeFOSA	ND	0.51	0.51	0.083	1	31506-32-8	
PFDA	ND	0.51	0.51	0.062	1	335-76-2	
EtFOSAm	ND	0.51	0.51	0.078	1	4151-50-2	
8:2 FTS	ND	0.49	0.49	0.080	1	39108-34-4	
9-CI-PF3ON	ND	0.48	0.48	0.071	1	756426-58-1	
PFNS	ND	0.49	0.49	0.056	1	68259-12-1	
PFUnDA	ND	0.51	0.51	0.085	1	2058-94-8	
NMeFOSAA	ND	0.51	0.51	0.074	1	2355-31-9	
NEtFOSAA	ND	0.51	0.51	0.069	1	2991-50-6	
PFDS	ND	0.50	0.50	0.060	1	335-77-3	
PFDOA	ND	0.51	0.51	0.083	1	307-55-1	
MeFOSE	ND	0.51	0.51	0.056	1	24448-09-7	
10:2 FTS	ND	0.50	0.50	0.065	1	120226-60-0	
EtFOSE	ND	0.51	0.51	0.071	1	1691-99-2	
11-CI-PF3OUdS	ND	0.49	0.49	0.062	1	763051-92-9	
PFTrDA	ND	0.51	0.51	0.084	1	72629-94-8	
PFDoS	ND	0.50	0.50	0.065	1	79780-39-5	
PFTDA	ND	0.51	0.51	0.042	1	376-06-7	
PFHXDA	ND	0.51	0.51	0.064	1	67905-19-5	
PFODA	ND	0.51	0.51	0.084	1	16517-11-6	

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 2 of 4

Client Sample ID MW-01 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491001 Total Amount Extracted 485mL Lab File ID Q210303B\_007 Ical ID 210302A01 CCal File Q210303B\_004 Matrix Industrial\_Water Collected 02/08/2021 12:45 **Ending CCal File** Q210303B\_008 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	11	106	50-200	
13C4_PFOA	10	11	106	50-200	
13C2_PFDA	10	12	119	50-200	
13C4_PFOS	9.9	10	104	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	9.2	89	50-200	
13C5_PFPeA	10	13	127	50-200	
13C3_PFBS	9.6	10	106	50-200	
13C2_4:2FTS	9.6	13	136	50-200	
13C5_PFHxA	10	11	106	50-200	
13C4_PFHpA	10	12	118	50-200	
13C3_PFHxS	9.7	10	104	50-200	
13C2_6:2FTS	9.8	11	117	50-200	
13C8_PFOA	10	12	118	50-200	
13C9_PFNA	10	11	111	50-200	
13C8_PFOS	9.9	9.4	96	50-200	
13C2_8:2FTS	9.9	11	110	50-200	
13C6_PFDA	10	15	145	50-200	
d3-MeFOSAA	10	11	103	50-200	
13C8_PFOSA	10	9.5	93	50-200	
d5-EtFOSAA	10	11	111	50-200	
13C7_PFUdA	10	14	134	50-200	
13C2_PFDoA	10	12	113	50-200	
13C2_PFTeDA	10	13	125	50-200	
13C3_HFPO-DA	10	11	111	50-200	
13C2_PFHxDA	10	11	109	50-200	
d7-N-MeFOSE	10	8.8	85	50-200	
d9-N-EtFOSE	10	7.7	75	50-200	
d3-N-MeFOSA	10	7.6	73	50-200	
d5-N-EtFOSA	10	6.8	66	50-200	

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 3 of 4

Client Sample ID MW-01 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491001 Total Amount Extracted 485mL Lab File ID Ical ID 210302A01 Q210303B\_007 CCal File Matrix Industrial\_Water Q210303B\_004 Collected 02/08/2021 12:45 **Ending CCal File** Q210303B\_008 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	6.23	6.23	
13C4 PFOA	N/A	N/A	7.90	7.90	
13C2 PFDA	N/A	N/A	9.62	9.62	
13C4 PFOS	N/A	N/A	10.15	10.16	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	4.55	4.55	
13C5 PFPeA	N/A	N/A	5.44	5.44	
13C3 PFBS	N/A	N/A	6.48	6.48	
13C2 4:2FTS	N/A	N/A	5.91	5.91	
13C5 PFHxA	N/A	N/A	6.23	6.24	
13C4 PFHpA	N/A	N/A	7.06	7.06	
13C3 PFHxS	N/A	N/A	8.35	8.35	
13C2 6:2FTS	N/A	N/A	7.49	7.49	
13C8 PFOA	N/A	N/A	7.90	7.90	
13C9 PFNA	N/A	N/A	8.75	8.75	
13C8 PFOS	N/A	N/A	10.15	10.16	
13C2 8:2FTS	N/A	N/A	9.14	9.14	
13C6 PFDA	N/A	N/A	9.61	9.62	
d3-MeFOSAA	N/A	N/A	9.49	9.50	
13C8 PFOSA	N/A	N/A	12.63	12.63	
d5-EtFOSAA	N/A	N/A	9.87	9.88	
13C7_PFUdA	N/A	N/A	10.48	10.49	
13C2 PFDoA	N/A	N/A	11.35	11.36	
13C2 PFTeDA	N/A	N/A	13.03	13.03	
13C3 HFPO-DA	N/A	N/A	6.56	6.57	
13C2_PFHxDA	N/A	N/A	14.54	14.55	
d7-N-MeFOSE	N/A	N/A	15.18	15.19	
d9-N-EtFOSE	N/A	N/A	15.85	15.85	
d3-N-MeFOSA	N/A	N/A	15.48	15.48	
d5-N-EtFOSA	N/A	N/A	16.09	16.09	

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 4 of 4

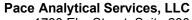
Client Sample ID MW-01 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491001 Total Amount Extracted 485mL Lab File ID Q210303B\_007 Ical ID 210302A01 CCal File Q210303B\_004 Matrix Industrial\_Water Collected 02/08/2021 12:45 **Ending CCal File** Q210303B\_008 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	4.56	4.55	
PFPeA	N/A	N/A	5.44	5.44	
HFPO-DA	0.000	0.390	6.56	6.56	
PFBS	0.350	0.380	6.48	6.48	
PFHxA	0.077	0.0930	6.24	6.23	
4:2 FTS	0.000	0.910	5.89	5.90	
PFPeS	0.480	0.440	7.43	7.43	
PFHpA	0.440	0.470	7.06	7.06	
DONA	0.000	0.470	7.38	7.37	
PFHxS	0.300	0.290	8.35	8.35	
PFOA	0.290	0.320	7.91	7.91	
6:2 FTS	1.10	1.00	7.49	7.49	
PFHpS	0.230	0.450	9.27	9.26	
PFNA	0.000	0.290	0.00	8.76	
PFOSAm	N/A	N/A	12.62	12.63	
PFOS	0.130	0.250	9.80	10.17	
MeFOSA	0.000	0.510	0.00	15.50	
PFDA	0.170	0.200	9.63	9.62	
EtFOSAm	0.000	0.500	0.00	16.13	
8:2 FTS	0.680	1.20	9.15	9.15	
9-CI-PF3ON	0.000	0.0430	0.00	10.81	
PFNS	0.000	0.230	0.00	11.05	
PFUnDA	0.000	0.220	0.00	10.50	
NMeFOSAA	0.000	0.660	9.59	9.50	
NEtFOSAA	0.000	0.480	0.00	9.89	
PFDS	0.000	0.290	11.93	11.91	
PFDOA	0.000	0.180	0.00	11.36	
MeFOSE	N/A	N/A	0.00	15.23	
10:2 FTS	0.000	1.50	0.00	10.87	
EtFOSE	0.000	0.000	0.00	15.91	
11-CI-PF3OUdS	0.000	0.0280	0.00	12.52	
PFTrDA	0.000	0.200	0.00	12.21	
PFDoS	0.000	0.240	0.00	13.52	
PFTDA	0.000	0.160	0.00	13.04	
PFHXDA	0.100	0.130	14.54	14.56	
PFODA	0.000	0.180	15.56	15.76	

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 1 of 4

Client Sample ID MW-02 **Extraction Date** 02/25/2021 16:37 10547491002 Total Amount Extracted 497mL

Lab Sample ID Lab File ID A210301D\_012 Ical ID 210301A03 Industrial\_Water CCal File A210301D\_003 Matrix Collected 02/10/2021 11:00 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	17	0.50	0.50	0.076	1	375-22-4	
PFPeA	2.8	0.50	0.50	0.050	1	2706-90-3	
HFPO-DA	ND	0.50	0.50	0.047	1	13252-13-6	
PFBS	0.99	0.45	0.45	0.051	1	375-73-5	
PFHxA	4.0	0.50	0.50	0.056	1	307-24-4	
4:2 FTS	ND	0.47	0.47	0.075	1	757124-72-4	
PFPeS	0.80	0.47	0.47	0.059	1	2706-91-4	
PFHpA	1.9	0.50	0.50	0.069	1	375-85-9	
DONA	ND	0.48	0.48	0.060	1	919005-14-4	
PFHxS	2.6	0.46	0.46	0.039	1	355-46-4	
PFOA	81	0.50	0.50	0.045	1	335-67-1	
6:2 FTS	ND	0.48	0.48	0.079	1	27619-97-2	
PFHpS	ND	0.48	0.48	0.059	1	375-92-8	
PFNA	ND	0.50	0.50	0.046	1	375-95-1	
PFOSAm	ND	0.50	0.50	0.054	1	754-91-6	
PFOS	ND	0.47	0.47	0.046	1	1763-23-1	
MeFOSA	ND	0.50	0.50	0.081	1	31506-32-8	
PFDA	ND	0.50	0.50	0.060	1	335-76-2	
EtFOSAm	ND	0.50	0.50	0.076	1	4151-50-2	
8:2 FTS	ND	0.48	0.48	0.079	1	39108-34-4	
9-CI-PF3ON	ND	0.47	0.47	0.069	1	756426-58-1	
PFNS	ND	0.48	0.48	0.054	1	68259-12-1	
PFUnDA	ND	0.50	0.50	0.084	1	2058-94-8	
NMeFOSAA	ND	0.50	0.50	0.072	1	2355-31-9	
NEtFOSAA	ND	0.50	0.50	0.067	1	2991-50-6	
PFDS	ND	0.49	0.49	0.058	1	335-77-3	
PFDOA	ND	0.50	0.50	0.082	1	307-55-1	
MeFOSE	ND	0.50	0.50	0.054	1	24448-09-7	
10:2 FTS	ND	0.49	0.49	0.064	1	120226-60-0	
EtFOSE	ND	0.50	0.50	0.069	1	1691-99-2	
11-CI-PF3OUdS	ND	0.47	0.47	0.061	1	763051-92-9	
PFTrDA	ND	0.50	0.50	0.082	1	72629-94-8	
PFDoS	ND	0.49	0.49	0.063	1	79780-39-5	
PFTDA	ND	0.50	0.50	0.042	1	376-06-7	
PFHXDA	ND	0.50	0.50	0.063	1	67905-19-5	
PFODA	ND	0.50	0.50	0.083	1	16517-11-6	

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### **Sample Analysis Summary**

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Client Sample ID MW-02 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491002 Total Amount Extracted 497mL Lab File ID A210301D\_012 Ical ID 210301A03 Industrial\_Water CCal File A210301D\_003 Matrix Collected 02/10/2021 11:00 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	12	119	50-200	
13C4_PFOA	10	11	111	50-200	
13C2_PFDA	10	12	119	50-200	
13C4_PFOS	9.6	11	115	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	13	128	50-200	
13C5_PFPeA	10	12	122	50-200	
13C3_PFBS	9.4	12	127	50-200	
13C2_4:2FTS	9.4	13	138	50-200	
13C5_PFHxA	10	12	120	50-200	
13C4_PFHpA	10	12	118	50-200	
13C3_PFHxS	9.5	12	127	50-200	
13C2_6:2FTS	9.6	11	120	50-200	
13C8_PFOA	10	12	114	50-200	
13C9_PFNA	10	12	122	50-200	
13C8_PFOS	9.6	12	126	50-200	
13C2_8:2FTS	9.6	11	113	50-200	
13C6_PFDA	10	12	124	50-200	
d3-MeFOSAA	10	13	125	50-200	
13C8_PFOSA	10	10	104	50-200	
d5-EtFOSAA	10	12	123	50-200	
13C7_PFUdA	10	13	125	50-200	
13C2_PFDoA	10	12	118	50-200	
13C2_PFTeDA	10	10	103	50-200	
13C3_HFPO-DA	10	12	118	50-200	
13C2_PFHxDA	10	8.7	86	50-200	
d7-N-MeFOSE	10	9.5	94	50-200	
d9-N-EtFOSE	10	9.3	92	50-200	
d3-N-MeFOSA	10	8.4	83	50-200	
d5-N-EtFOSA	10	7.8	77	50-200	

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Client Sample ID MW-02 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491002 Total Amount Extracted 497mL Lab File ID A210301D\_012 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/10/2021 11:00 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.99	7.02	
13C4 PFOS	N/A	N/A	7.32	7.35	

### **Extracted Internal Standards**

Compound	lon Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.59	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.26	5.27	
13C2 4:2FTS	N/A	N/A	4.84	4.84	
13C5 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFHpA	N/A	N/A	5.59	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.07	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2 8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.91	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7 PFUdA	N/A	N/A	7.45	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.77	8.81	
13C3 HFPO-DA	N/A	N/A	5.28	5.30	
13C2_PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.05	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	
d3-N-MeFOSA	N/A	N/A	10.29	10.27	
d5-N-EtFOSA	N/A	N/A	10.97	10.94	

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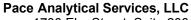
Client Sample ID MW-02 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491002 Total Amount Extracted 497mL Lab File ID A210301D\_012 Ical ID 210301A03 Industrial\_Water CCal File A210301D\_003 Matrix Collected 02/10/2021 11:00 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.60	3.60	
PFPeA	N/A	N/A	4.46	4.46	
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.370	0.320	5.26	5.28	
PFHxA	0.054	0.0640	5.07	5.08	
4:2 FTS	15.0	0.580	4.84	4.85	
PFPeS	0.380	0.330	5.85	5.87	
PFHpA	0.300	0.280	5.60	5.61	
DONA	0.000	0.510	0.00	5.79	
PFHxS	0.260	0.260	6.37	6.40	
PFOA	0.400	0.360	6.08	6.09	
6:2 FTS	0.000	0.510	0.00	5.85	
PFHpS	0.190	0.220	6.86	6.89	
PFNA	0.000	0.180	6.54	6.56	
PFOSAm	N/A	N/A	8.71	8.72	
PFOS	0.240	0.230	7.33	7.36	
MeFOSA	0.000	0.910	0.00	10.29	
PFDA	0.000	0.0970	0.00	7.02	
EtFOSAm	0.000	0.610	0.00	10.97	
8:2 FTS	0.000	0.800	0.00	6.76	
9-CI-PF3ON	0.000	0.0180	0.00	7.69	
PFNS	0.000	0.260	7.78	7.81	
PFUnDA	0.000	0.0970	0.00	7.48	
NMeFOSAA	0.000	0.620	0.00	6.94	
NEtFOSAA	0.000	0.540	0.00	7.15	
PFDS	0.000	0.260	8.21	8.26	
PFDOA	0.000	0.150	0.00	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	1.10	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	0.0170	0.00	8.57	
PFTrDA	0.000	0.190	0.00	8.38	
PFDoS	0.000	0.220	0.00	9.07	
PFTDA	0.220	0.180	8.77	8.81	
PFHXDA	0.170	0.150	9.58	9.62	
PFODA	0.000	0.120	0.00	10.88	

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Client Sample ID MW-03 **Extraction Date** 02/25/2021 16:37

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Lab Sample ID 10547491003 Total Amount Extracted 244mL Lab File ID A210301D\_013 Ical ID 210301A03 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/09/2021 15:10 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	77	1.0	1.0	0.15	1	375-22-4	
PFPeA	13	1.0	1.0	0.10	1	2706-90-3	
HFPO-DA	ND	1.0	1.0	0.096	1	13252-13-6	
PFBS	2.1	0.91	0.91	0.10	1	375-73-5	
PFHxA	12	1.0	1.0	0.11	1	307-24-4	
4:2 FTS	ND	0.96	0.96	0.15	1	757124-72-4	
PFPeS	ND	0.96	0.96	0.12	1	2706-91-4	
PFHpA	4.7	1.0	1.0	0.14	1	375-85-9	
DONA	ND	0.97	0.97	0.12	1	919005-14-4	
PFHxS	1.3	0.93	0.93	0.080	1	355-46-4	
PFOA	14	1.0	1.0	0.092	1	335-67-1	
6:2 FTS	ND	0.97	0.97	0.16	1	27619-97-2	
PFHpS	ND	0.97	0.97	0.12	1	375-92-8	
PFNA	ND	1.0	1.0	0.093	1	375-95-1	
PFOSAm	ND	1.0	1.0	0.11	1	754-91-6	
PFOS	3.5	0.95	0.95	0.093	1	1763-23-1	
MeFOSA	ND	1.0	1.0	0.17	1	31506-32-8	
PFDA	ND	1.0	1.0	0.12	1	335-76-2	
EtFOSAm	ND	1.0	1.0	0.15	1	4151-50-2	
8:2 FTS	ND	0.98	0.98	0.16	1	39108-34-4	
9-CI-PF3ON	ND	0.96	0.96	0.14	1	756426-58-1	
PFNS	ND	0.98	0.98	0.11	1	68259-12-1	
PFUnDA	ND	1.0	1.0	0.17	1	2058-94-8	
NMeFOSAA	ND	1.0	1.0	0.15	1	2355-31-9	
NEtFOSAA	ND	1.0	1.0	0.14	1	2991-50-6	
PFDS	ND	0.99	0.99	0.12	1	335-77-3	
PFDOA	ND	1.0	1.0	0.17	1	307-55-1	
MeFOSE	ND	1.0	1.0	0.11	1	24448-09-7	
10:2 FTS	ND	0.99	0.99	0.13	1	120226-60-0	
EtFOSE	ND	1.0	1.0	0.14	1	1691-99-2	
11-CI-PF3OUdS	ND	0.97	0.97	0.12	1	763051-92-9	
PFTrDA	ND	1.0	1.0	0.17	1	72629-94-8	
PFDoS	ND	0.99	0.99	0.13	1	79780-39-5	
PFTDA	ND	1.0	1.0	0.085	1	376-06-7	
PFHXDA	ND	1.0	1.0	0.13	1	67905-19-5	
PFODA	ND	1.0	1.0	0.17	1	16517-11-6	

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### **Sample Analysis Summary**

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Client Sample ID MW-03 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491003 Total Amount Extracted 244mL Lab File ID A210301D\_013 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/09/2021 15:10 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	20	25	123	50-200	
13C4_PFOA	20	25	121	50-200	
13C2_PFDA	20	26	128	50-200	
13C4_PFOS	20	25	129	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	20	20	99	50-200	
13C5_PFPeA	20	23	111	50-200	
13C3_PFBS	19	25	130	50-200	
13C2_4:2FTS	19	50	261	50-200	R
13C5_PFHxA	20	25	124	50-200	
13C4_PFHpA	20	26	129	50-200	
13C3_PFHxS	19	27	138	50-200	
13C2_6:2FTS	19	34	176	50-200	
13C8_PFOA	20	25	121	50-200	
13C9_PFNA	20	26	125	50-200	
13C8_PFOS	20	28	144	50-200	
13C2_8:2FTS	20	27	139	50-200	
13C6_PFDA	20	27	132	50-200	
d3-MeFOSAA	20	34	165	50-200	
13C8_PFOSA	20	16	77	50-200	
d5-EtFOSAA	20	28	138	50-200	
13C7_PFUdA	20	32	158	50-200	
13C2_PFDoA	20	29	141	50-200	
13C2_PFTeDA	20	18	88	50-200	
13C3_HFPO-DA	20	25	120	50-200	
13C2_PFHxDA	20	13	65	50-200	
d7-N-MeFOSE	20	10	51	50-200	
d9-N-EtFOSE	20	9.9	48	50-200	R
d3-N-MeFOSA	20	0.38	2	50-200	R
d5-N-EtFOSA	20	0.31	1	50-200	R

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### **Sample Analysis Summary**

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Client Sample ID MW-03 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491003 Total Amount Extracted 244mL Lab File ID A210301D\_013 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/09/2021 15:10 **Ending CCal File** A210301D\_018 Blank File Received 02/10/2021 13:15 A210301D\_005

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.99	7.02	
13C4 PFOS	N/A	N/A	7.32	7.35	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.60	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.26	5.27	
13C2 4:2FTS	N/A	N/A	4.84	4.84	R
13C5 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFHpA	N/A	N/A	5.60	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.08	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2 8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	7.00	7.02	
d3-MeFOSAA	N/A	N/A	6.92	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7 PFUdA	N/A	N/A	7.45	7.47	
13C2 PFDoA	N/A	N/A	7.90	7.93	
13C2 PFTeDA	N/A	N/A	8.77	8.81	
13C3 HFPO-DA	N/A	N/A	5.29	5.30	
13C2 PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.05	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	R
d3-N-MeFOSA	N/A	N/A	10.29	10.27	R
d5-N-EtFOSA	N/A	N/A	10.96	10.94	R

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Client Sample ID MW-03 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491003 Total Amount Extracted 244mL Lab File ID A210301D\_013 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/09/2021 15:10 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.60	3.60	
PFPeA	N/A	N/A	4.46	4.46	
HFPO-DA	0.000	0.470	5.30	5.33	
PFBS	0.330	0.320	5.26	5.28	
PFHxA	0.055	0.0640	5.08	5.08	
4:2 FTS	0.000	0.580	0.00	4.85	
PFPeS	0.380	0.330	5.85	5.87	
PFHpA	0.300	0.280	5.60	5.61	
DONA	0.000	0.510	0.00	5.79	
PFHxS	0.240	0.260	6.37	6.40	
PFOA	0.390	0.360	6.08	6.09	
6:2 FTS	0.000	0.510	5.84	5.85	
PFHpS	0.470	0.220	6.86	6.89	
PFNA	0.190	0.180	6.54	6.56	
PFOSAm	N/A	N/A	8.71	8.72	
PFOS	0.180	0.230	7.33	7.36	
MeFOSA	0.000	0.910	0.00	10.29	
PFDA	0.120	0.0970	7.00	7.02	
EtFOSAm	0.000	0.610	0.00	10.97	
8:2 FTS	0.000	0.800	0.00	6.76	
9-CI-PF3ON	0.000	0.0180	0.00	7.69	
PFNS	0.000	0.260	7.81	7.81	
PFUnDA	0.000	0.0970	0.00	7.48	
NMeFOSAA	0.430	0.620	6.92	6.94	
NEtFOSAA	0.000	0.540	0.00	7.15	
PFDS	0.000	0.260	8.22	8.26	
PFDOA	0.000	0.150	7.90	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	1.10	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	0.0170	8.56	8.57	
PFTrDA	0.000	0.190	0.00	8.38	
PFDoS	0.000	0.220	0.00	9.07	
PFTDA	0.110	0.180	8.77	8.81	
PFHXDA	0.140	0.150	9.58	9.58	
PFODA	0.000	0.120	0.00	10.88	

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04

10547491004

A210301D\_014

Lab File ID Matrix

Lab Sample ID

Industrial\_Water

Collected

02/09/2021 10:10

Received

02/10/2021 13:15

**Extraction Date** 

02/25/2021 16:37 499mL

Total Amount Extracted

Ical ID

210301A03

CCal File **Ending CCal File**  A210301D\_003

A210301D\_018

Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	42	0.50	0.50	0.075	1	375-22-4	
PFPeA	2.1	0.50	0.50	0.050	1	2706-90-3	
HFPO-DA	ND	0.50	0.50	0.047	1	13252-13-6	
PFBS	2.3	0.44	0.44	0.051	1	375-73-5	
PFHxA	1.5	0.50	0.50	0.056	1	307-24-4	
4:2 FTS	ND	0.47	0.47	0.075	1	757124-72-4	
PFPeS	ND	0.47	0.47	0.059	1	2706-91-4	
PFHpA	0.69	0.50	0.50	0.069	1	375-85-9	
DONA	ND	0.47	0.47	0.060	1	919005-14-4	
PFHxS	1.0	0.46	0.46	0.039	1	355-46-4	
PFOA	3.2	0.50	0.50	0.045	1	335-67-1	
6:2 FTS	ND	0.48	0.48	0.078	1	27619-97-2	
PFHpS	ND	0.48	0.48	0.059	1	375-92-8	
PFNA	ND	0.50	0.50	0.046	1	375-95-1	
PFOSAm	ND	0.50	0.50	0.054	1	754-91-6	
PFOS	0.54	0.46	0.46	0.046	1	1763-23-1	
MeFOSA	ND	0.50	0.50	0.081	1	31506-32-8	
PFDA	ND	0.50	0.50	0.060	1	335-76-2	
EtFOSAm	ND	0.50	0.50	0.076	1	4151-50-2	
8:2 FTS	ND	0.48	0.48	0.078	1	39108-34-4	
9-CI-PF3ON	ND	0.47	0.47	0.069	1	756426-58-1	
PFNS	ND	0.48	0.48	0.054	1	68259-12-1	
PFUnDA	ND	0.50	0.50	0.083	1	2058-94-8	
NMeFOSAA	ND	0.50	0.50	0.072	1	2355-31-9	
NEtFOSAA	ND	0.50	0.50	0.067	1	2991-50-6	
PFDS	ND	0.48	0.48	0.058	1	335-77-3	
PFDOA	ND	0.50	0.50	0.081	1	307-55-1	
MeFOSE	ND	0.50	0.50	0.054	1	24448-09-7	
10:2 FTS	ND	0.48	0.48	0.064	1	120226-60-0	
EtFOSE	ND	0.50	0.50	0.069	1	1691-99-2	
11-CI-PF3OUdS	ND	0.47	0.47	0.061	1	763051-92-9	
PFTrDA	ND	0.50	0.50	0.082	1	72629-94-8	
PFDoS	ND	0.49	0.49	0.063	1	79780-39-5	
PFTDA	ND	0.50	0.50	0.041	1	376-06-7	
PFHXDA	ND	0.50	0.50	0.063	1	67905-19-5	
PFODA	ND	0.50	0.50	0.082	1	16517-11-6	

### REPORT OF LABORATORY ANALYSIS



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MPCA Guidance PFCs

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Client Sample ID MW-04 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491004 Total Amount Extracted 499mL Lab File ID A210301D\_014 Ical ID 210301A03 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/09/2021 10:10 **Ending CCal File** A210301D\_018 Blank File Received 02/10/2021 13:15 A210301D\_005

### **Injection Internal Standards**

Pace Analytical®

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	11	108	50-200	
13C4_PFOA	10	11	108	50-200	
13C2_PFDA	10	11	111	50-200	
13C4_PFOS	9.6	9.6	100	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	13	125	50-200	
13C5_PFPeA	10	12	119	50-200	
13C3_PFBS	9.3	11	118	50-200	
13C2_4:2FTS	9.4	12	127	50-200	
13C5_PFHxA	10	12	117	50-200	
13C4_PFHpA	10	12	121	50-200	
13C3_PFHxS	9.5	11	118	50-200	
13C2_6:2FTS	9.5	9.9	104	50-200	
13C8_PFOA	10	11	110	50-200	
13C9_PFNA	10	12	116	50-200	
13C8_PFOS	9.6	11	118	50-200	
13C2_8:2FTS	9.6	11	115	50-200	
13C6_PFDA	10	12	117	50-200	
d3-MeFOSAA	10	11	109	50-200	
13C8_PFOSA	10	9.7	96	50-200	
d5-EtFOSAA	10	12	116	50-200	
13C7_PFUdA	10	12	119	50-200	
13C2_PFDoA	10	11	112	50-200	
13C2_PFTeDA	10	11	108	50-200	
13C3_HFPO-DA	10	12	119	50-200	
13C2_PFHxDA	10	11	105	50-200	
d7-N-MeFOSE	10	8.8	87	50-200	
d9-N-EtFOSE	10	8.5	85	50-200	
d3-N-MeFOSA	10	6.5	64	50-200	
d5-N-EtFOSA	10	6.0	60	50-200	

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Client Sample ID MW-04 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491004 Total Amount Extracted 499mL Lab File ID A210301D\_014 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/09/2021 10:10 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Pace Analytical®

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFOA	N/A	N/A	6.08	6.09	
13C2 PFDA	N/A	N/A	7.00	7.02	
13C4 PFOS	N/A	N/A	7.32	7.35	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.60	3.59	
13C5 PFPeA	N/A	N/A	4.46	4.46	
13C3 PFBS	N/A	N/A	5.26	5.27	
13C2 4:2FTS	N/A	N/A	4.84	4.84	
13C5 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFHpA	N/A	N/A	5.60	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2_6:2FTS	N/A	N/A	5.84	5.84	
13C8 PFOA	N/A	N/A	6.08	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2_8:2FTS	N/A	N/A	6.74	6.76	
13C6 PFDA	N/A	N/A	7.00	7.02	
d3-MeFOSAA	N/A	N/A	6.92	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.13	7.14	
13C7 PFUdA	N/A	N/A	7.45	7.47	
13C2 PFDoA	N/A	N/A	7.90	7.93	
13C2 PFTeDA	N/A	N/A	8.77	8.81	
13C3 HFPO-DA	N/A	N/A	5.29	5.30	
13C2_PFHxDA	N/A	N/A	9.58	9.62	
d7-N-MeFOSE	N/A	N/A	10.05	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	
d3-N-MeFOSA	N/A	N/A	10.29	10.27	
d5-N-EtFOSA	N/A	N/A	10.97	10.94	

### REPORT OF LABORATORY ANALYSIS



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Client Sample ID MW-04 Extraction Date 02/25/2021 16:37

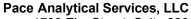
Lab Sample ID 10547491004 Total Amount Extracted 499mL Lab File ID A210301D\_014 Ical ID 210301A03 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/09/2021 10:10 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Pace Analytical®

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.60	3.60	
PFPeA	N/A	N/A	4.46 4.46		
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.340	0.320	5.27	5.28	
PFHxA	0.054	0.0640	5.08	5.08	
4:2 FTS	0.000	0.580	4.85	4.85	
PFPeS	0.310	0.330	5.86	5.87	
PFHpA	0.330	0.280	5.60	5.61	
DONA	0.000	0.510	0.00	5.79	
PFHxS	0.270	0.260	6.38	6.40	
PFOA	0.430	0.360	6.08	6.09	
6:2 FTS	0.000	0.510	0.00	5.85	
PFHpS	0.440	0.220	6.86	6.89	
PFNA	0.000	0.180	0.00	6.56	
PFOSAm	N/A	N/A	8.71	8.72	
PFOS	0.170	0.230	7.18	7.36	
MeFOSA	0.000	0.910	0.00	10.29	
PFDA	0.000	0.0970	0.00	7.02	
EtFOSAm	0.000	0.610	0.00	10.97	
8:2 FTS	0.000	0.800	0.00	6.76	
9-CI-PF3ON	0.000	0.0180	0.00	7.69	
PFNS	0.000	0.260	0.00	7.81	
PFUnDA	0.000	0.0970	7.45	7.48	
NMeFOSAA	0.000	0.620	0.00	6.94	
NEtFOSAA	0.000	0.540	0.00	7.15	
PFDS	0.000	0.260	0.00	8.26	
PFDOA	0.000	0.150	0.00	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	1.10	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	0.0170	8.54	8.57	
PFTrDA	0.000	0.190	0.00	8.38	
PFDoS	0.000	0.220	9.03	9.07	
PFTDA	0.140	0.180	8.77	8.81	
PFHXDA	0.130	0.150	9.58	9.62	
PFODA	0.000	0.120	0.00	10.88	

# REPORT OF LABORATORY ANALYSIS



02/25/2021 16:37

A210301D\_018

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### **Sample Analysis Summary**

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Client Sample ID MW-05

10547491005

Pace Analytical®

Lab File ID A21

A210301D\_015

Matrix

Lab Sample ID

Industrial\_Water

Collected

02/08/2021 17:30

Received 02/10/2021 13:15

Total Amount Extracted 246mL

**Extraction Date** 

**Ending CCal File** 

Ical ID 210301A03

CCal File A210301D\_003

Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	25	1.0	1.0	0.15	1	375-22-4	
PFPeA	5.2	1.0	1.0	0.10	1	2706-90-3	
HFPO-DA	ND	1.0	1.0	0.095	1	13252-13-6	
PFBS	3.6	0.90	0.90	0.10	1	375-73-5	
PFHxA	3.7	1.0	1.0	0.11	1	307-24-4	
4:2 FTS	ND	0.95	0.95	0.15	1	757124-72-4	
PFPeS	ND	0.95	0.95	0.12	1	2706-91-4	
PFHpA	2.1	1.0	1.0	0.14	1	375-85-9	
DONA	ND	0.96	0.96	0.12	1	919005-14-4	
PFHxS	1.3	0.92	0.92	0.079	1	355-46-4	
PFOA	4.8	1.0	1.0	0.091	1	335-67-1	
6:2 FTS	ND	0.96	0.96	0.16	1	27619-97-2	
PFHpS	ND	0.96	0.96	0.12	1	375-92-8	
PFNA	ND	1.0	1.0	0.092	1	375-95-1	
PFOSAm	ND	1.0	1.0	0.11	1	754-91-6	
PFOS	3.4	0.94	0.94	0.092	1	1763-23-1	
MeFOSA	ND	1.0	1.0	0.16	1	31506-32-8	
PFDA	ND	1.0	1.0	0.12	1	335-76-2	
EtFOSAm	ND	1.0	1.0	0.15	1	4151-50-2	
8:2 FTS	ND	0.97	0.97	0.16	1	39108-34-4	
9-CI-PF3ON	ND	0.95	0.95	0.14	1	756426-58-1	
PFNS	ND	0.97	0.97	0.11	1	68259-12-1	
PFUnDA	ND	1.0	1.0	0.17	1	2058-94-8	
NMeFOSAA	ND	1.0	1.0	0.15	1	2355-31-9	
NEtFOSAA	ND	1.0	1.0	0.14	1	2991-50-6	
PFDS	ND	0.98	0.98	0.12	1	335-77-3	
PFDOA	ND	1.0	1.0	0.16	1	307-55-1	
MeFOSE	ND	1.0	1.0	0.11	1	24448-09-7	
10:2 FTS	ND	0.98	0.98	0.13	1	120226-60-0	
EtFOSE	ND	1.0	1.0	0.14	1	1691-99-2	
11-CI-PF3OUdS	ND	0.96	0.96	0.12	1	763051-92-9	
PFTrDA	ND	1.0	1.0	0.17	1	72629-94-8	
PFDoS	ND	0.98	0.98	0.13	1	79780-39-5	
PFTDA	ND	1.0	1.0	0.084	1	376-06-7	
PFHXDA	ND	1.0	1.0	0.13	1	67905-19-5	
PFODA	ND	1.0	1.0	0.17	1	16517-11-6	

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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-05 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491005 Total Amount Extracted 246mL Lab File ID A210301D\_015 Ical ID 210301A03 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/08/2021 17:30 **Ending CCal File** A210301D\_018 Blank File Received 02/10/2021 13:15 A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	20	23	114	50-200	
13C4_PFOA	20	23	113	50-200	
13C2_PFDA	20	23	113	50-200	
13C4_PFOS	19	22	112	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	20	25	123	50-200	
13C5_PFPeA	20	22	110	50-200	
13C3_PFBS	19	22	116	50-200	
13C2_4:2FTS	19	24	126	50-200	
13C5_PFHxA	20	24	116	50-200	
13C4_PFHpA	20	22	109	50-200	
13C3_PFHxS	19	24	122	50-200	
13C2_6:2FTS	19	21	107	50-200	
13C8_PFOA	20	22	110	50-200	
13C9_PFNA	20	24	117	50-200	
13C8_PFOS	19	21	110	50-200	
13C2_8:2FTS	19	20	102	50-200	
13C6_PFDA	20	24	118	50-200	
d3-MeFOSAA	20	23	114	50-200	
13C8_PFOSA	20	19	92	50-200	
d5-EtFOSAA	20	24	116	50-200	
13C7_PFUdA	20	23	114	50-200	
13C2_PFDoA	20	23	112	50-200	
13C2_PFTeDA	20	21	102	50-200	
13C3_HFPO-DA	20	24	119	50-200	
13C2_PFHxDA	20	17	86	50-200	
d7-N-MeFOSE	20	17	82	50-200	
d9-N-EtFOSE	20	17	82	50-200	
d3-N-MeFOSA	20	16	77	50-200	
d5-N-EtFOSA	20	16	77	50-200	

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# **Sample Analysis Summary**

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Client Sample ID MW-05 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491005 Total Amount Extracted 246mL Lab File ID A210301D\_015 Ical ID 210301A03 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/08/2021 17:30 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

# **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	7.00	7.02	
13C4 PFOS	N/A	N/A	7.32	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.60	3.59	
13C5 PFPeA	N/A	N/A	4.46	4.46	
13C3 PFBS	N/A	N/A	5.26	5.27	
13C2 4:2FTS	N/A	N/A	4.84	4.84	
13C5 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFHpA	N/A	N/A	5.60	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2_6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.08	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2_8:2FTS	N/A	N/A	6.74	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.92	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7_PFUdA	N/A	N/A	7.45	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.76	8.81	
13C3 HFPO-DA	N/A	N/A	5.29	5.30	
13C2_PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.65	10.63	
d3-N-MeFOSA	N/A	N/A	10.28	10.27	
d5-N-EtFOSA	N/A	N/A	10.96	10.94	

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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-05 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491005 Total Amount Extracted 246mL Lab File ID A210301D\_015 Ical ID 210301A03 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/08/2021 17:30 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.61	3.60	
PFPeA	N/A	N/A	4.46	4.46	
HFPO-DA	0.470	0.470	5.30	5.33	
PFBS	0.330	0.320	5.26	5.28	
PFHxA	0.065	0.0640	5.08	5.08	
4:2 FTS	0.000	0.580	4.84	4.85	
PFPeS	0.310	0.330	5.85	5.87	
PFHpA	0.290	0.280	5.60	5.61	
DONA	0.000	0.510	0.00	5.79	
PFHxS	0.230	0.260	6.37	6.40	
PFOA	0.400	0.360	6.08	6.09	
6:2 FTS	0.000	0.510	0.00	5.85	
PFHpS	0.460	0.220	6.86	6.89	
PFNA	0.220	0.180	6.54	6.56	
PFOSAm	N/A	N/A	8.71	8.72	
PFOS	0.160	0.230	7.25	7.36	
MeFOSA	0.000	0.910	0.00	10.29	
PFDA	0.000	0.0970	7.01	7.02	
EtFOSAm	0.000	0.610	0.00	10.97	
8:2 FTS	0.000	0.800	0.00	6.76	
9-CI-PF3ON	0.000	0.0180	7.63	7.69	
PFNS	0.000	0.260	0.00	7.81	
PFUnDA	0.000	0.0970	0.00	7.48	
NMeFOSAA	0.000	0.620	0.00	6.94	
NEtFOSAA	0.000	0.540	0.00	7.15	
PFDS	0.000	0.260	0.00	8.26	
PFDOA	0.085	0.150	7.90	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	1.10	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	0.0170	8.52	8.57	
PFTrDA	0.000	0.190	0.00	8.38	
PFDoS	0.000	0.220	0.00	9.07	
PFTDA	0.290	0.180	8.74	8.81	
PFHXDA	0.110	0.150	9.57	9.62	
PFODA	0.000	0.120	0.00	10.88	

# REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

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Client Sample ID MW-04-D **Extraction Date** 02/25/2021 16:37 Lab Sample ID 10547491006 **Total Amount Extracted** 486mL

Lab File ID Ical ID 210301A03 A210301D\_016 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/09/2021 10:40 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	43	0.51	0.51	0.077	1	375-22-4	
PFPeA	2.2	0.51	0.51	0.051	1	2706-90-3	
HFPO-DA	ND	0.51	0.51	0.048	1	13252-13-6	
PFBS	2.3	0.45	0.45	0.052	1	375-73-5	
PFHxA	1.7	0.51	0.51	0.058	1	307-24-4	
4:2 FTS	ND	0.48	0.48	0.077	1	757124-72-4	
PFPeS	0.50	0.48	0.48	0.060	1	2706-91-4	
PFHpA	0.81	0.51	0.51	0.071	1	375-85-9	
DONA	ND	0.49	0.49	0.062	1	919005-14-4	
PFHxS	1.0	0.47	0.47	0.040	1	355-46-4	
PFOA	3.4	0.51	0.51	0.046	1	335-67-1	
6:2 FTS	ND	0.49	0.49	0.080	1	27619-97-2	
PFHpS	ND	0.49	0.49	0.061	1	375-92-8	
PFNA	ND	0.51	0.51	0.047	1	375-95-1	
PFOSAm	ND	0.51	0.51	0.056	1	754-91-6	
PFOS	ND	0.48	0.48	0.047	1	1763-23-1	
MeFOSA	ND	0.51	0.51	0.083	1	31506-32-8	
PFDA	ND	0.51	0.51	0.062	1	335-76-2	
EtFOSAm	ND	0.51	0.51	0.078	1	4151-50-2	
8:2 FTS	ND	0.49	0.49	0.080	1	39108-34-4	
9-CI-PF3ON	ND	0.48	0.48	0.070	1	756426-58-1	
PFNS	ND	0.49	0.49	0.056	1	68259-12-1	
PFUnDA	ND	0.51	0.51	0.085	1	2058-94-8	
NMeFOSAA	ND	0.51	0.51	0.074	1	2355-31-9	
NEtFOSAA	ND	0.51	0.51	0.069	1	2991-50-6	
PFDS	ND	0.50	0.50	0.060	1	335-77-3	
PFDOA	ND	0.51	0.51	0.083	1	307-55-1	
MeFOSE	ND	0.51	0.51	0.056	1	24448-09-7	
10:2 FTS	ND	0.50	0.50	0.065	1	120226-60-0	
EtFOSE	ND	0.51	0.51	0.070	1	1691-99-2	
11-CI-PF3OUdS	ND	0.48	0.48	0.062	1	763051-92-9	
PFTrDA	ND	0.51	0.51	0.084	1	72629-94-8	
PFDoS	ND	0.50	0.50	0.065	1	79780-39-5	
PFTDA	ND	0.51	0.51	0.042	1	376-06-7	
PFHXDA	ND	0.51	0.51	0.064	1	67905-19-5	
PFODA	ND	0.51	0.51	0.084	1	16517-11-6	

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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04-D Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491006 Total Amount Extracted 486mL Lab File ID Ical ID 210301A03 A210301D\_016 CCal File A210301D\_003 Matrix Industrial\_Water Collected 02/09/2021 10:40 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	12	119	50-200	
13C4_PFOA	10	12	113	50-200	
13C2_PFDA	10	12	115	50-200	
13C4_PFOS	9.8	11	108	50-200	·

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	13	131	50-200	
13C5_PFPeA	10	13	126	50-200	
13C3_PFBS	9.6	12	123	50-200	
13C2_4:2FTS	9.6	13	140	50-200	
13C5_PFHxA	10	13	129	50-200	
13C4_PFHpA	10	13	123	50-200	
13C3_PFHxS	9.7	12	118	50-200	
13C2_6:2FTS	9.8	11	115	50-200	
13C8_PFOA	10	12	119	50-200	
13C9_PFNA	10	13	125	50-200	
13C8_PFOS	9.8	12	125	50-200	
13C2_8:2FTS	9.8	11	115	50-200	
13C6_PFDA	10	13	127	50-200	
d3-MeFOSAA	10	12	116	50-200	
13C8_PFOSA	10	10	98	50-200	
d5-EtFOSAA	10	13	125	50-200	
13C7_PFUdA	10	13	124	50-200	
13C2_PFDoA	10	11	110	50-200	
13C2_PFTeDA	10	10	99	50-200	
13C3_HFPO-DA	10	13	123	50-200	
13C2_PFHxDA	10	8.8	86	50-200	
d7-N-MeFOSE	10	10	98	50-200	
d9-N-EtFOSE	10	9.6	94	50-200	
d3-N-MeFOSA	10	8.3	80	50-200	
d5-N-EtFOSA	10	8.4	82	50-200	

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# **Sample Analysis Summary**

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Client Sample ID MW-04-D Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491006 Total Amount Extracted 486mL Lab File ID Ical ID 210301A03 A210301D\_016 CCal File Matrix Industrial\_Water A210301D\_003 Collected 02/09/2021 10:40 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.99	7.02	
13C4 PFOS	N/A	N/A	7.31	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.59	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.25	5.27	
13C2 4:2FTS	N/A	N/A	4.83	4.84	
13C5 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFHpA	N/A	N/A	5.59	5.61	
13C3 PFHxS	N/A	N/A	6.36	6.39	
13C2_6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.07	6.09	
13C9 PFNA	N/A	N/A	6.53	6.56	
13C8 PFOS	N/A	N/A	7.31	7.35	
13C2_8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.91	6.93	
13C8 PFOSA	N/A	N/A	8.69	8.72	
d5-EtFOSAA	N/A	N/A	7.11	7.14	
13C7 PFUdA	N/A	N/A	7.44	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.76	8.81	
13C3 HFPO-DA	N/A	N/A	5.28	5.30	
13C2_PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	
d3-N-MeFOSA	N/A	N/A	10.29	10.27	
d5-N-EtFOSA	N/A	N/A	10.97	10.94	

# REPORT OF LABORATORY ANALYSIS



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# **Sample Analysis Summary**

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Client Sample ID MW-04-D **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491006 Total Amount Extracted 486mL Lab File ID Ical ID 210301A03 A210301D\_016 Industrial\_Water CCal File A210301D\_003 Matrix Collected 02/09/2021 10:40 **Ending CCal File** A210301D\_018 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Pace Analytical®

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.59	3.60	
PFPeA	N/A	N/A	4.45	4.46	
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.340	0.320	5.26	5.28	
PFHxA	0.062	0.0640	5.07	5.08	
4:2 FTS	0.000	0.580	4.84	4.85	
PFPeS	0.360	0.330	5.85	5.87	
PFHpA	0.280	0.280	5.59	5.61	
DONA	0.000	0.510	0.00	5.79	
PFHxS	0.240	0.260	6.37	6.40	
PFOA	0.410	0.360	6.07	6.09	
6:2 FTS	0.000	0.510	0.00	5.85	
PFHpS	0.000	0.220	6.85	6.89	
PFNA	0.220	0.180	6.53	6.56	
PFOSAm	N/A	N/A	8.70	8.72	
PFOS	0.140	0.230	7.15	7.36	
MeFOSA	0.000	0.910	0.00	10.29	
PFDA	0.000	0.0970	0.00	7.02	
EtFOSAm	0.000	0.610	0.00	10.97	
8:2 FTS	0.000	0.800	0.00	6.76	
9-CI-PF3ON	0.000	0.0180	7.65	7.69	
PFNS	0.000	0.260	0.00	7.81	
PFUnDA	0.180	0.0970	7.47	7.48	
NMeFOSAA	0.000	0.620	0.00	6.94	
NEtFOSAA	0.000	0.540	0.00	7.15	
PFDS	0.000	0.260	8.22	8.26	
PFDOA	0.000	0.150	0.00	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	1.10	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	0.0170	8.52	8.57	
PFTrDA	0.000	0.190	8.35	8.38	
PFDoS	0.000	0.220	0.00	9.07	
PFTDA	0.084	0.180	8.77	8.81	
PFHXDA	0.150	0.150	9.57	9.62	
PFODA	0.000	0.120	0.00	10.88	

# REPORT OF LABORATORY ANALYSIS



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Client Sample ID EB-01

10547491007

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Lab Sample ID Lab File ID

Q210303B\_006

Matrix

Industrial\_Water

Collected

02/09/2021 17:15

Received

02/10/2021 13:15

**Extraction Date** 

02/25/2021 16:37 491mL

Total Amount Extracted

210302A01

Ical ID CCal File

Q210303B\_004

**Ending CCal File** 

Q210303B\_008

Blank File

A210301D\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	0.51	0.51	0.076	1	375-22-4	- Quuii
PFPeA	ND	0.51	0.51	0.050	1	2706-90-3	
HFPO-DA	ND	0.51	0.51	0.048	1	13252-13-6	
PFBS	1.3	0.45	0.45	0.052	1	375-73-5	
PFHxA	ND	0.51	0.51	0.057	1	307-24-4	
4:2 FTS	ND	0.48	0.48	0.076	1	757124-72-4	
PFPeS	ND	0.48	0.48	0.060	1	2706-91-4	
PFHpA	ND	0.51	0.51	0.070	1	375-85-9	
DONA	ND	0.48	0.48	0.061	1	919005-14-4	
PFHxS	ND	0.46	0.46	0.040	1	355-46-4	
PFOA	ND	0.51	0.51	0.045	1	335-67-1	
6:2 FTS	ND	0.48	0.48	0.079	1	27619-97-2	
PFHpS	ND	0.48	0.48	0.060	1	375-92-8	
PFNA	ND	0.51	0.51	0.046	1	375-95-1	
PFOSAm	ND	0.51	0.51	0.055	1	754-91-6	
PFOS	ND	0.47	0.47	0.046	1	1763-23-1	
MeFOSA	ND	0.51	0.51	0.082	1	31506-32-8	
PFDA	ND	0.51	0.51	0.061	1	335-76-2	
EtFOSAm	ND	0.51	0.51	0.077	1	4151-50-2	
8:2 FTS	ND	0.49	0.49	0.079	1	39108-34-4	
9-CI-PF3ON	ND	0.47	0.47	0.070	1	756426-58-1	
PFNS	ND	0.49	0.49	0.055	1	68259-12-1	
PFUnDA	ND	0.51	0.51	0.085	1	2058-94-8	
NMeFOSAA	ND	0.51	0.51	0.073	1	2355-31-9	
NEtFOSAA	ND	0.51	0.51	0.068	1	2991-50-6	
PFDS	ND	0.49	0.49	0.059	1	335-77-3	
PFDOA	ND	0.51	0.51	0.082	1	307-55-1	
MeFOSE	ND	0.51	0.51	0.055	1	24448-09-7	
10:2 FTS	ND	0.49	0.49	0.065	1	120226-60-0	
EtFOSE	ND	0.51	0.51	0.070	1	1691-99-2	
11-CI-PF3OUdS	ND	0.48	0.48	0.062	1	763051-92-9	
PFTrDA	ND	0.51	0.51	0.083	1	72629-94-8	
PFDoS	ND	0.49	0.49	0.064	1	79780-39-5	
PFTDA	ND	0.51	0.51	0.042	1	376-06-7	
PFHXDA	ND	0.51	0.51	0.064	1	67905-19-5	
PFODA	ND	0.51	0.51	0.083	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID EB-01 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491007 Total Amount Extracted 491mL Lab File ID Q210303B\_006 Ical ID 210302A01 CCal File Q210303B\_004 Matrix Industrial\_Water Collected 02/09/2021 17:15 **Ending CCal File** Q210303B\_008 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	9.6	95	50-200	
13C4_PFOA	10	10	102	50-200	
13C2_PFDA	10	11	104	50-200	
13C4_PFOS	9.7	9.8	100	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	12	122	50-200	
13C5_PFPeA	10	11	112	50-200	
13C3_PFBS	9.5	9.0	96	50-200	
13C2_4:2FTS	9.5	8.1	85	50-200	
13C5_PFHxA	10	10	100	50-200	
13C4_PFHpA	10	12	121	50-200	
13C3_PFHxS	9.6	10	107	50-200	
13C2_6:2FTS	9.7	11	114	50-200	
13C8_PFOA	10	13	123	50-200	
13C9_PFNA	10	12	118	50-200	
13C8_PFOS	9.7	10	106	50-200	
13C2_8:2FTS	9.8	9.2	94	50-200	
13C6_PFDA	10	12	123	50-200	
d3-MeFOSAA	10	9.1	90	50-200	
13C8_PFOSA	10	11	110	50-200	
d5-EtFOSAA	10	9.9	97	50-200	
13C7_PFUdA	10	12	121	50-200	
13C2_PFDoA	10	11	110	50-200	
13C2_PFTeDA	10	11	106	50-200	
13C3_HFPO-DA	10	11	108	50-200	
13C2_PFHxDA	10	9.8	97	50-200	
d7-N-MeFOSE	10	9.0	88	50-200	
d9-N-EtFOSE	10	7.5	73	50-200	
d3-N-MeFOSA	10	7.3	72	50-200	
d5-N-EtFOSA	10	6.4	63	50-200	

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Client Sample ID EB-01 **Extraction Date** 02/25/2021 16:37

Lab Sample ID 10547491007 Total Amount Extracted 491mL Lab File ID Ical ID 210302A01 Q210303B\_006 CCal File Q210303B\_004 Matrix Industrial\_Water Collected 02/09/2021 17:15 **Ending CCal File** Q210303B\_008 Blank File Received 02/10/2021 13:15 A210301D\_005

### **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	6.23	6.23	
13C4 PFOA	N/A	N/A	7.90	7.90	
13C2 PFDA	N/A	N/A	9.62	9.62	
13C4 PFOS	N/A	N/A	10.16	10.16	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	4.55	4.55	
13C5 PFPeA	N/A	N/A	5.44	5.44	
13C3 PFBS	N/A	N/A	6.48	6.48	
13C2 4:2FTS	N/A	N/A	5.91	5.91	
13C5 PFHxA	N/A	N/A	6.23	6.24	
13C4 PFHpA	N/A	N/A	7.06	7.06	
13C3 PFHxS	N/A	N/A	8.35	8.35	
13C2_6:2FTS	N/A	N/A	7.48	7.49	
13C8 PFOA	N/A	N/A	7.90	7.90	
13C9 PFNA	N/A	N/A	8.75	8.75	
13C8 PFOS	N/A	N/A	10.16	10.16	
13C2_8:2FTS	N/A	N/A	9.14	9.14	
13C6 PFDA	N/A	N/A	9.62	9.62	
d3-MeFOSAA	N/A	N/A	9.49	9.50	
13C8 PFOSA	N/A	N/A	12.63	12.63	
d5-EtFOSAA	N/A	N/A	9.87	9.88	
13C7_PFUdA	N/A	N/A	10.49	10.49	
13C2 PFDoA	N/A	N/A	11.36	11.36	
13C2 PFTeDA	N/A	N/A	13.03	13.03	
13C3 HFPO-DA	N/A	N/A	6.56	6.57	
13C2 PFHxDA	N/A	N/A	14.55	14.55	
d7-N-MeFOSE	N/A	N/A	15.18	15.19	
d9-N-EtFOSE	N/A	N/A	15.85	15.85	
d3-N-MeFOSA	N/A	N/A	15.47	15.48	
d5-N-EtFOSA	N/A	N/A	16.09	16.09	

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Client Sample ID EB-01 Extraction Date 02/25/2021 16:37

Lab Sample ID 10547491007 Total Amount Extracted 491mL Lab File ID Q210303B\_006 Ical ID 210302A01 CCal File Q210303B\_004 Matrix Industrial\_Water Collected 02/09/2021 17:15 **Ending CCal File** Q210303B\_008 Received 02/10/2021 13:15 Blank File A210301D\_005

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	4.56	4.55	
PFPeA	N/A	N/A	5.44	5.44	
HFPO-DA	0.000	0.390	6.56	6.56	
PFBS	0.340	0.380	6.49	6.48	
PFHxA	0.120	0.0930	6.24	6.23	
4:2 FTS	0.000	0.910	5.93	5.90	
PFPeS	0.000	0.440	0.00	7.43	
PFHpA	0.340	0.470	7.08	7.06	
DONA	0.000	0.470	7.38	7.37	
PFHxS	0.000	0.290	8.30	8.35	
PFOA	0.000	0.320	0.00	7.91	
6:2 FTS	1.20	1.00	7.49	7.49	
PFHpS	0.000	0.450	0.00	9.26	
PFNA	0.000	0.290	0.00	8.76	
PFOSAm	N/A	N/A	12.63	12.63	
PFOS	0.066	0.250	10.17	10.17	
MeFOSA	0.000	0.510	0.00	15.50	
PFDA	0.000	0.200	9.59	9.59	
EtFOSAm	0.000	0.500	0.00	16.13	
8:2 FTS	0.000	1.20	0.00	9.15	
9-CI-PF3ON	0.000	0.0430	0.00	10.81	
PFNS	0.000	0.230	11.07	11.05	
PFUnDA	0.000	0.220	0.00	10.50	
NMeFOSAA	0.000	0.660	0.00	9.50	
NEtFOSAA	0.000	0.480	0.00	9.89	
PFDS	0.000	0.290	11.90	11.91	
PFDOA	0.000	0.180	0.00	11.36	
MeFOSE	N/A	N/A	0.00	15.23	
10:2 FTS	0.000	1.50	0.00	10.87	
EtFOSE	0.000	0.000	0.00	15.91	
11-CI-PF3OUdS	0.000	0.0280	0.00	12.52	
PFTrDA	0.000	0.200	12.22	12.21	
PFDoS	0.000	0.240	0.00	13.52	
PFTDA	0.000	0.160	0.00	13.04	
PFHXDA	0.190	0.130	14.55	14.56	
PFODA	0.000	0.180	0.00	15.76	

# REPORT OF LABORATORY ANALYSIS

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# **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID **BLKQT** 

Lab Sample ID BLANK-87502

Pace Analytical®

Lab File ID A210301D\_005

Matrix Water

Collected 02/23/2021 13:47

Received 02/23/2021 13:47 **Extraction Date** 02/25/2021 16:37 Total Amount Extracted 503mL

Ical ID 210301A03 CCal File

A210301D\_003 **Ending CCal File** A210301D\_018

Blank File

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	0.50	0.50	0.075	1	375-22-4	
PFPeA	ND	0.50	0.50	0.049	1	2706-90-3	
HFPO-DA	ND	0.50	0.50	0.047	1	13252-13-6	
PFBS	ND	0.44	0.44	0.051	1	375-73-5	
PFHxA	ND	0.50	0.50	0.056	1	307-24-4	
4:2 FTS	ND	0.47	0.47	0.075	1	757124-72-4	
PFPeS	ND	0.47	0.47	0.059	1	2706-91-4	
PFHpA	ND	0.50	0.50	0.069	1	375-85-9	
DONA	ND	0.47	0.47	0.060	1	919005-14-4	
PFHxS	ND	0.46	0.46	0.039	1	355-46-4	
PFOA	ND	0.50	0.50	0.045	1	335-67-1	
6:2 FTS	ND	0.48	0.48	0.078	1	27619-97-2	
PFHpS	ND	0.48	0.48	0.059	1	375-92-8	
PFNA	ND	0.50	0.50	0.045	1	375-95-1	
PFOSAm	ND	0.50	0.50	0.054	1	754-91-6	
PFOS	ND	0.46	0.46	0.045	1	1763-23-1	
MeFOSA	ND	0.50	0.50	0.081	1	31506-32-8	
PFDA	ND	0.50	0.50	0.060	1	335-76-2	
EtFOSAm	ND	0.50	0.50	0.076	1	4151-50-2	
8:2 FTS	ND	0.48	0.48	0.078	1	39108-34-4	
9-CI-PF3ON	ND	0.47	0.47	0.069	1	756426-58-1	
PFNS	ND	0.48	0.48	0.054	1	68259-12-1	
PFUnDA	ND	0.50	0.50	0.083	1	2058-94-8	
NMeFOSAA	ND	0.50	0.50	0.072	1	2355-31-9	
NEtFOSAA	ND	0.50	0.50	0.067	1	2991-50-6	
PFDS	ND	0.48	0.48	0.058	1	335-77-3	
PFDOA	ND	0.50	0.50	0.081	1	307-55-1	
MeFOSE	ND	0.50	0.50	0.054	1	24448-09-7	
10:2 FTS	ND	0.48	0.48	0.064	1	120226-60-0	
EtFOSE	ND	0.50	0.50	0.069	1	1691-99-2	
11-CI-PF3OUdS	ND	0.47	0.47	0.061	1	763051-92-9	
PFTrDA	ND	0.50	0.50	0.082	1	72629-94-8	
PFDoS	ND	0.48	0.48	0.063	1	79780-39-5	
PFTDA	ND	0.50	0.50	0.041	1	376-06-7	
PFHXDA	ND	0.50	0.50	0.063	1	67905-19-5	
PFODA	ND	0.50	0.50	0.082	1	16517-11-6	

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# **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID BLKQT Extraction Date 02/25/2021 16:37

 Lab Sample ID
 BLANK-87502
 Total Amount Extracted
 503mL

 Lab File ID
 A210301D\_005
 Ical ID
 210301A03

 Matrix
 Water
 CCal File
 A210301D\_003

 Collected
 02/23/2021 13:47
 Ending CCal File
 A210301D\_018

Received 02/23/2021 13:47 Blank File

### **Injection Internal Standards**

Pace Analytical®

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	11	105	50-200	
13C4_PFOA	10	10	103	50-200	
13C2_PFDA	10	11	109	50-200	
13C4_PFOS	9.6	10	105	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	12	117	50-200	
13C5_PFPeA	10	11	112	50-200	
13C3_PFBS	9.3	10	111	50-200	
13C2_4:2FTS	9.4	9.7	104	50-200	
13C5_PFHxA	10	11	107	50-200	
13C4_PFHpA	10	12	119	50-200	
13C3_PFHxS	9.5	10	108	50-200	
13C2_6:2FTS	9.5	9.0	95	50-200	
13C8_PFOA	10	11	107	50-200	
13C9_PFNA	10	11	109	50-200	
13C8_PFOS	9.6	11	110	50-200	
13C2_8:2FTS	9.6	8.9	93	50-200	
13C6_PFDA	10	10	101	50-200	
d3-MeFOSAA	10	7.6	76	50-200	
13C8_PFOSA	10	8.9	89	50-200	
d5-EtFOSAA	10	7.6	76	50-200	
13C7_PFUdA	10	7.5	75	50-200	
13C2_PFDoA	10	5.9	59	50-200	
13C2_PFTeDA	10	6.4	64	50-200	
13C3_HFPO-DA	10	11	114	50-200	
13C2_PFHxDA	10	6.9	69	50-200	
d7-N-MeFOSE	10	6.5	65	50-200	
d9-N-EtFOSE	10	6.0	60	50-200	
d3-N-MeFOSA	10	5.9	59	50-200	
d5-N-EtFOSA	10	5.6	56	50-200	

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# **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID **BLKQT Extraction Date** 02/25/2021 16:37

Lab Sample ID BLANK-87502 Total Amount Extracted 503mL Lab File ID Ical ID 210301A03 A210301D\_005 CCal File A210301D\_003 Matrix Water Collected **Ending CCal File** A210301D\_018 02/23/2021 13:47

Received 02/23/2021 13:47 Blank File

### **Injection Internal Standards**

Pace Analytical®

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.99	7.02	
13C4 PFOS	N/A	N/A	7.31	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.59	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.25	5.27	
13C2 4:2FTS	N/A	N/A	4.83	4.84	
13C5 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFHpA	N/A	N/A	5.59	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.07	6.09	
13C9 PFNA	N/A	N/A	6.53	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2 8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.91	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7 PFUdA	N/A	N/A	7.44	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.76	8.81	
13C3 HFPO-DA	N/A	N/A	5.28	5.30	
13C2 PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	
d3-N-MeFOSA	N/A	N/A	10.29	10.27	
d5-N-EtFOSA	N/A	N/A	10.97	10.94	

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# **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID BLKQT

Pace Analytical®

Lab Sample ID BLANK-87502

Lab File ID A210301D\_005

Matrix Water

Collected 02/23/2021 13:47

Received 02/23/2021 13:47

Extraction Date 02/25/2021 16:37

Total Amount Extracted 503mL lcal ID 210301A03

CCal File A210301D\_003

Ending CCal File A210301D\_018

Blank File

### **Native Analytes**

Compound	Ion Abund.	Reference	Retention	Reference	Qualifiers
Compound	Ratio	Ratio	Time	Time	Qualifiers
PFBA	N/A	N/A	0.00	3.60	
PFPeA	N/A	N/A	4.45	4.46	
HFPO-DA	0.000	2.12	0.00	5.33	
PFBS	0.390	3.13	5.26	5.28	
PFHxA	0.000	15.6	5.07	5.08	
4:2 FTS	0.000	1.72	0.00	4.85	
PFPeS	0.000	3.03	5.83	5.87	
PFHpA	0.370	3.54	5.60	5.61	
DONA	0.000	1.97	0.00	5.79	
PFHxS	0.000	3.88	6.38	6.40	
PFOA	0.580	2.77	6.08	6.09	
6:2 FTS	0.870	1.95	5.83	5.85	
PFHpS	0.000	4.45	6.90	6.89	
PFNA	0.000	5.43	0.00	6.56	
PFOSAm	N/A	N/A	8.70	8.72	
PFOS	0.180	4.43	7.33	7.36	
MeFOSA	0.000	1.10	0.00	10.29	
PFDA	0.000	10.3	0.00	7.02	
EtFOSAm	0.000	1.63	0.00	10.97	
3:2 FTS	0.000	1.25	0.00	6.76	
9-CI-PF3ON	0.000	55.0	7.66	7.69	
PFNS	0.000	3.90	0.00	7.81	
PFUnDA	0.000	10.3	0.00	7.48	
VMeFOSAA	0.000	1.60	0.00	6.94	
NEtFOSAA	0.000	1.85	0.00	7.15	
PFDS	0.000	3.87	8.22	8.26	
PFDOA	0.000	6.81	0.00	7.93	
MeFOSE	N/A	N/A	0.00	10.06	
10:2 FTS	0.000	0.924	0.00	7.66	
EtFOSE	0.000	0.000	0.00	10.69	
11-CI-PF3OUdS	0.000	60.3	8.52	8.57	
PFTrDA	0.000	5.39	0.00	8.38	
PFDoS	0.000	4.46	0.00	9.07	
PFTDA	0.260	5.55	8.77	8.81	
PFHXDA	0.190	6.81	9.57	9.62	
PFODA	0.000	8.27	0.00	10.88	

# REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-87503
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_006
 Column ID
 112EB00094

 Analyzed
 03/01/2021 23:09
 Ical ID
 210301A03

Injected By QL Level L

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	10	104	50-200	
13C4_PFOA	10	9.8	98	50-200	
13C2_PFDA	10	11	106	50-200	
13C4_PFOS	9.6	9.5	99	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	11	107	50-200	
13C5_PFPeA	10	10	101	50-200	
13C3_PFBS	9.3	9.5	102	50-200	
13C2_4:2FTS	9.4	9.6	103	50-200	
13C5_PFHxA	10	10	101	50-200	
13C4_PFHpA	10	9.9	99	50-200	
13C3_PFHxS	9.5	10.0	105	50-200	
13C2_6:2FTS	9.5	9.0	94	50-200	
13C8_PFOA	10	9.9	99	50-200	
13C9_PFNA	10	10	103	50-200	
13C8_PFOS	9.6	10	105	50-200	
13C2_8:2FTS	9.6	9.4	98	50-200	
13C6_PFDA	10	10	103	50-200	
d3-MeFOSAA	10	9.6	96	50-200	
13C8_PFOSA	10	9.2	92	50-200	
d5-EtFOSAA	10	9.7	97	50-200	
13C7_PFUdA	10	10	100	50-200	
13C2_PFDoA	10	9.8	98	50-200	
13C2_PFTeDA	10	9.1	91	50-200	
13C3_HFPO-DA	10	10	102	50-200	
13C2_PFHxDA	10	7.5	75	50-200	
d7-N-MeFOSE	10	8.0	80	50-200	
d9-N-EtFOSE	10	7.9	79	50-200	
d3-N-MeFOSA	10	6.5	65	50-200	
d5-N-EtFOSA	10	6.1	60	50-200	

# REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-87503
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_006
 Column ID
 112EB00094

 Analyzed
 03/01/2021 23:09
 Ical ID
 210301A03

Injected By QL Level L

### **Native Analytes**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	4.0	4.2	105	70-130		375-22-4
PFPeA	4.0	4.1	103	70-130		2706-90-3
HFPO-DA	4.0	4.2	104	70-130		13252-13-6
PFBS	3.5	3.8	106	70-130		375-73-5
PFHxA	4.0	4.1	102	70-130		307-24-4
4:2 FTS	3.7	3.6	97	70-130		757124-72-4
PFPeS	3.8	3.8	101	70-130		2706-91-4
PFHpA	4.0	4.3	107	70-130		375-85-9
DONA	3.8	4.1	109	70-130		919005-14-4
PFHxS	3.6	3.5	97	70-130		355-46-4
PFOA	4.0	4.3	107	70-130		335-67-1
6:2 FTS	3.8	4.0	104	70-130		27619-97-2
PFHpS	3.8	3.9	103	70-130		375-92-8
PFNA	4.0	4.3	106	70-130		375-95-1
PFOSAm	4.0	4.2	104	70-130		754-91-6
PFOS	3.7	3.7	100	70-130		1763-23-1
MeFOSA	4.0	4.1	103	70-130		31506-32-8
PFDA	4.0	4.0	100	70-130		335-76-2
EtFOSAm	4.0	4.5	112	70-130		4151-50-2
8:2 FTS	3.8	3.5	90	70-130		39108-34-4
9-CI-PF3ON	3.7	3.8	103	70-130		756426-58-1
PFNS	3.8	3.8	99	70-130		68259-12-1
PFUnDA	4.0	4.2	104	70-130		2058-94-8
NMeFOSAA	4.0	4.4	109	70-130		2355-31-9
NEtFOSAA	4.0	4.3	107	70-130		2991-50-6
PFDS	3.9	3.6	94	70-130		335-77-3
PFDOA	4.0	4.0	101	70-130		307-55-1
MeFOSE	4.0	4.3	107	70-130		24448-09-7
10:2 FTS	3.9	3.9	101	70-130		120226-60-0
EtFOSE	4.0	4.2	105	70-130		1691-99-2
11-CI-PF3OUdS	3.8	3.4	90	70-130		763051-92-9
PFTrDA	4.0	4.0	100	70-130		72629-94-8
PFDoS	3.9	3.4	87	70-130		79780-39-5
PFTDA	4.0	4.2	106	70-130	1	376-06-7
PFHXDA	4.0	4.3	107	70-130		67905-19-5
PFODA	4.0	3.0	74	70-130		16517-11-6

# REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-87503
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_006
 Column ID
 112EB00094

 Analyzed
 03/01/2021 23:09
 Ical ID
 210301A03

Injected By QL Level L

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.99	7.02	
13C4 PFOS	N/A	N/A	7.31	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.59	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.25	5.27	
13C2 4:2FTS	N/A	N/A	4.83	4.84	
13C5 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFHpA	N/A	N/A	5.59	5.61	
13C3 PFHxS	N/A	N/A	6.36	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.07	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2 8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.91	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7 PFUdA	N/A	N/A	7.44	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.76	8.81	
13C3 HFPO-DA	N/A	N/A	5.28	5.30	
13C2 PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.66	10.63	
d3-N-MeFOSA	N/A	N/A	10.28	10.27	
d5-N-EtFOSA	N/A	N/A	10.96	10.94	

# REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-87503
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_006
 Column ID
 112EB00094

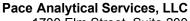
 Analyzed
 03/01/2021 23:09
 Ical ID
 210301A03

Injected By QL Level L

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.59	3.60	
PFPeA	N/A	N/A	4.45	4.46	
HFPO-DA	0.47	0.47	5.29	5.33	
PFBS	0.32	0.32	5.26	5.28	
PFHxA	0.06	0.06	5.07	5.08	
4:2 FTS	0.68	0.58	4.83	4.85	
PFPeS	0.34	0.33	5.85	5.87	
PFHpA	0.28	0.28	5.59	5.61	
DONA	0.51	0.51	5.77	5.79	
PFHxS	0.28	0.26	6.37	6.40	
PFOA	0.36	0.36	6.07	6.09	
6:2 FTS	0.60	0.51	5.83	5.85	
PFHpS	0.24	0.22	6.86	6.89	
PFNA	0.18	0.18	6.54	6.56	
PFOSAm	N/A	N/A	8.70	8.72	
PFOS	0.23	0.23	7.32	7.36	
MeFOSA	0.98	0.91	10.30	10.29	
PFDA	0.09	0.09	7.00	7.02	
EtFOSAm	0.62	0.61	11.00	10.97	
8:2 FTS	0.73	0.80	6.74	6.76	
9-CI-PF3ON	0.02	0.01	7.65	7.69	
PFNS	0.27	0.26	7.77	7.81	
PFUnDA	0.10	0.09	7.45	7.48	
NMeFOSAA	0.56	0.62	6.92	6.94	
NEtFOSAA	0.62	0.54	7.13	7.15	
PFDS	0.24	0.26	8.21	8.26	
PFDOA	0.15	0.15	7.90	7.93	
MeFOSE	N/A	N/A	10.08	10.06	
10:2 FTS	0.93	1.10	7.63	7.66	
EtFOSE	0.00	0.00	10.71	10.69	
11-CI-PF3OUdS	0.01	0.01	8.53	8.57	
PFTrDA	0.18	0.19	8.34	8.38	
PFDoS	0.21	0.22	9.03	9.07	
PFTDA	0.18	0.18	8.77	8.81	
PFHXDA	0.15	0.15	9.57	9.62	
PFODA	0.12	0.12	10.78	10.88	

# REPORT OF LABORATORY ANALYSIS



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### **LCSD Analysis Summary** MPCA Guidance PFCs

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Lab Sample ID Run File Name

LCSD-87510

Pace Analytical®

Instrument ID Column ID

10LCMS03 112EB00094

Analyzed

A210301D\_007 03/01/2021 23:24

Ical ID 210301A03

Injected By

QL

Level

### **Injection Internal Standards**

Compound	Known Conc.	LCS Conc. Found	LCS Rec. %	LCSD Conc. Found	LCSD Rec. %	RPD %	Recovery Limits	Qualifiers
13C2_PFHxA	10	10	104	10	103	1.4	50-200	
13C4_PFOA	10	9.8	98	9.9	98	0.5	50-200	
13C2_PFDA	10	11	106	9.7	97	8.9	50-200	
13C4_PFOS	9.6	9.5	99	9.2	96	3.1	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	LCS Conc. Found	LCS Rec.	LCSD Conc. Found	LCSD Rec.	RPD %	Recovery Limits	Qualifiers
13C4 PFBA	10	11	107	11	110	2.7	50-200	
13C5_PFPeA	10	10	101	11	104	3.4	50-200	
13C3_PFBS	9.4	9.5	102	9.5	101	0.8	50-200	
13C2_4:2FTS	9.4	9.6	103	9.0	95	7.1	50-200	
13C5_PFHxA	10	10	101	10	101	0.4	50-200	
13C4_PFHpA	10	9.9	99	11	107	7.4	50-200	
13C3_PFHxS	9.5	10.0	105	10.0	105	0.6	50-200	
13C2_6:2FTS	9.6	9.0	94	8.5	89	5.9	50-200	
13C8_PFOA	10	9.9	99	9.9	98	1.0	50-200	
13C9_PFNA	10	10	103	11	109	5.6	50-200	
13C8_PFOS	9.6	10	105	10.0	103	1.6	50-200	
13C2_8:2FTS	9.6	9.4	98	9.7	101	2.9	50-200	
13C6_PFDA	10	10	103	11	105	2.3	50-200	
d3-MeFOSAA	10	9.6	96	10	100	4.2	50-200	
13C8_PFOSA	10	9.2	92	9.2	91	0.8	50-200	
d5-EtFOSAA	10	9.7	97	9.5	95	2.7	50-200	
13C7_PFUdA	10	10	100	10	101	1.2	50-200	
13C2_PFDoA	10	9.8	98	10	102	4.0	50-200	
13C2_PFTeDA	10	9.1	91	9.0	90	1.4	50-200	
13C3_HFPO-DA	10	10	102	11	105	3.7	50-200	
13C2_PFHxDA	10	7.5	75	7.6	75	0.3	50-200	
d7-N-MeFOSE	10	8.0	80	7.8	77	3.0	50-200	
d9-N-EtFOSE	10	7.9	79	7.5	75	5.1	50-200	
d3-N-MeFOSA	10	6.5	65	6.2	61	6.2	50-200	
d5-N-EtFOSA	10	6.1	60	5.8	57	5.4	50-200	

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QL

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# LCSD Analysis Summary MPCA Guidance PFCs

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 Lab Sample ID
 LCSD-87510

 Run File Name
 A210301D\_007

 Analyzed
 03/01/2021 23:24

Ical ID 210301A03

10LCMS03

112EB00094

Level L

Instrument ID

Column ID

### **Native Analytes**

Injected By

Compound	Known	LCS Conc.	LCS Rec.	LCSD Conc.		RPD	Recovery	Qualifiers
Compound	Conc.	Found	%	Found	%	%	Limits	Qualificis
PFBA	4.0	4.2	105	4.1	102	2.7	70-130	
PFPeA	4.0	4.1	103	4.0	99	3.3	70-130	
HFPO-DA	4.0	4.2	104	4.2	104	0.5	70-130	
PFBS	3.6	3.8	106	3.9	110	3.6	70-130	
PFHxA	4.0	4.1	102	4.3	106	3.2	70-130	
4:2 FTS	3.8	3.6	97	4.3	113	15.6	70-130	
PFPeS	3.8	3.8	101	3.9	102	0.8	70-130	
PFHpA	4.0	4.3	107	4.2	104	3.4	70-130	
DONA	3.8	4.1	109	4.0	106	3.2	70-130	
PFHxS	3.7	3.5	97	3.7	101	3.7	70-130	
PFOA	4.0	4.3	107	4.0	99	7.7	70-130	
6:2 FTS	3.8	4.0	104	4.1	108	3.2	70-130	
PFHpS	3.8	3.9	103	3.9	102	0.6	70-130	
PFNA	4.0	4.3	106	4.0	100	6.3	70-130	
PFOSAm	4.0	4.2	104	4.1	102	1.8	70-130	
PFOS	3.7	3.7	100	3.7	99	0.8	70-130	
MeFOSA	4.0	4.1	103	4.3	107	3.5	70-130	
PFDA	4.0	4.0	100	3.8	95	4.7	70-130	
EtFOSAm	4.0	4.5	112	4.3	106	5.1	70-130	
8:2 FTS	3.9	3.5	90	3.6	92	2.8	70-130	
9-CI-PF3ON	3.8	3.8	103	3.7	98	4.1	70-130	
PFNS	3.9	3.8	99	3.8	98	0.7	70-130	
PFUnDA	4.0	4.2	104	4.1	102	1.7	70-130	
NMeFOSAA	4.0	4.4	109	4.3	106	2.9	70-130	
NEtFOSAA	4.0	4.3	107	4.3	106	1.1	70-130	
PFDS	3.9	3.6	94	3.7	96	2.7	70-130	
PFDOA	4.0	4.0	101	3.8	93	7.5	70-130	
MeFOSE	4.0	4.3	107	4.2	104	3.5	70-130	
10:2 FTS	3.9	3.9	101	4.2	109	7.1	70-130	
EtFOSE	4.0	4.2	105	4.2	104	1.0	70-130	
11-CI-PF3OUdS	3.8	3.4	90	3.4	90	0.0	70-130	
PFTrDA	4.0	4.0	100	3.7	91	9.4	70-130	
PFDoS	3.9	3.4	87	3.4	88	1.2	70-130	
PFTDA	4.0	4.2	106	4.2	105	0.6	70-130	
PFHXDA	4.0	4.3	107	4.1	102	4.4	70-130	
PFODA	4.0	3.0	74	3.2	80	7.7	70-130	

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 LCSD-87510
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_007
 Column ID
 112EB00094

 Analyzed
 03/01/2021 23:24
 Ical ID
 210301A03

Injected By QL Level L

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFOA	N/A	N/A	6.08	6.09	
13C2 PFDA	N/A	N/A	7.00	7.02	
13C4 PFOS	N/A	N/A	7.32	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.60	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.26	5.27	
13C2 4:2FTS	N/A	N/A	4.84	4.84	
13C5 PFHxA	N/A	N/A	5.07	5.07	
13C4 PFHpA	N/A	N/A	5.60	5.61	
13C3 PFHxS	N/A	N/A	6.37	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.08	6.09	
13C9 PFNA	N/A	N/A	6.54	6.56	
13C8 PFOS	N/A	N/A	7.32	7.35	
13C2 8:2FTS	N/A	N/A	6.74	6.76	
13C6 PFDA	N/A	N/A	7.00	7.02	
d3-MeFOSAA	N/A	N/A	6.92	6.93	
13C8 PFOSA	N/A	N/A	8.70	8.72	
d5-EtFOSAA	N/A	N/A	7.12	7.14	
13C7 PFUdA	N/A	N/A	7.45	7.47	
13C2 PFDoA	N/A	N/A	7.90	7.93	
13C2 PFTeDA	N/A	N/A	8.77	8.81	
13C3 HFPO-DA	N/A	N/A	5.29	5.30	
13C2 PFHxDA	N/A	N/A	9.57	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.65	10.63	
d3-N-MeFOSA	N/A	N/A	10.29	10.27	
d5-N-EtFOSA	N/A	N/A	10.96	10.94	

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 LCSD-87510
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_007
 Column ID
 112EB00094

 Analyzed
 03/01/2021 23:24
 Ical ID
 210301A03

Injected By QL Level

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.60	3.60	
PFPeA	N/A	N/A	4.46	4.46	
HFPO-DA	0.45	0.47	5.30	5.33	
PFBS	0.31	0.32	5.26	5.28	
PFHxA	0.05	0.06	5.08	5.08	
4:2 FTS	0.56	0.58	4.84	4.85	
PFPeS	0.31	0.33	5.85	5.87	
PFHpA	0.28	0.28	5.60	5.61	
DONA	0.55	0.51	5.78	5.79	
PFHxS	0.26	0.26	6.37	6.40	
PFOA	0.38	0.36	6.08	6.09	
6:2 FTS	0.54	0.51	5.84	5.85	
PFHpS	0.23	0.22	6.86	6.89	
PFNA	0.19	0.18	6.55	6.56	
PFOSAm	N/A	N/A	8.71	8.72	
PFOS	0.22	0.23	7.33	7.36	
MeFOSA	0.93	0.91	10.30	10.29	
PFDA	0.10	0.09	7.00	7.02	
EtFOSAm	0.62	0.61	10.99	10.97	
8:2 FTS	0.74	0.80	6.74	6.76	
9-CI-PF3ON	0.02	0.01	7.66	7.69	
PFNS	0.27	0.26	7.78	7.81	
PFUnDA	0.09	0.09	7.46	7.48	
NMeFOSAA	0.54	0.62	6.93	6.94	
NEtFOSAA	0.61	0.54	7.13	7.15	
PFDS	0.25	0.26	8.22	8.26	
PFDOA	0.15	0.15	7.90	7.93	
MeFOSE	N/A	N/A	10.08	10.06	
10:2 FTS	0.80	1.10	7.64	7.66	
EtFOSE	0.00	0.00	10.71	10.69	
11-CI-PF3OUdS	0.01	0.01	8.53	8.57	
PFTrDA	0.18	0.19	8.35	8.38	
PFDoS	0.20	0.22	9.03	9.07	
PFTDA	0.17	0.18	8.77	8.81	
PFHXDA	0.14	0.15	9.57	9.62	
PFODA	0.12	0.12	10.78	10.88	

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 Lab Sample ID
 10547491005-MS
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_024
 Column ID
 112EB00094

 Analyzed
 03/02/2021 03:46
 Ical ID
 210301A03

Injected By QL Level

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	20	21	102	50-200	
13C4_PFOA	20	21	103	50-200	
13C2_PFDA	20	20	100	50-200	
13C4_PFOS	20	20	102	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	20	23	111	50-200	
13C5 PFPeA	20	22	107	50-200	
13C3_PFBS	19	19	102	50-200	
13C2_4:2FTS	19	21	107	50-200	
13C5_PFHxA	20	23	111	50-200	
13C4_PFHpA	20	22	106	50-200	
13C3_PFHxS	19	21	107	50-200	
13C2_6:2FTS	19	18	92	50-200	
13C8_PFOA	20	21	104	50-200	
13C9_PFNA	20	23	112	50-200	
13C8_PFOS	20	20	105	50-200	
13C2_8:2FTS	20	20	103	50-200	
13C6_PFDA	20	21	105	50-200	
d3-MeFOSAA	20	21	103	50-200	
13C8_PFOSA	20	16	79	50-200	
d5-EtFOSAA	20	22	107	50-200	
13C7_PFUdA	20	21	103	50-200	
13C2_PFDoA	20	21	105	50-200	
13C2_PFTeDA	20	19	91	50-200	
13C3_HFPO-DA	20	22	107	50-200	
13C2_PFHxDA	20	16	78	50-200	
d7-N-MeFOSE	20	15	73	50-200	
d9-N-EtFOSE	20	15	74	50-200	
d3-N-MeFOSA	20	14	68	50-200	
d5-N-EtFOSA	20	14	71	50-200	

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 Instrument ID
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 Run File Name
 A210301D\_024
 Column ID
 112EB00094

 Analyzed
 03/02/2021 03:46
 Ical ID
 210301A03

Injected By QL Level

#### **Native Analytes**

Compound	Sample Conc.	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	25	8.2	33	91	70-130		375-22-4
PFPeA	5.2	8.2	12	83	70-130		2706-90-3
HFPO-DA	0	8.2	7.6	92	70-130		13252-13-6
PFBS	3.6	7.2	11	96	70-130		375-73-5
PFHxA	3.7	8.2	11	92	70-130		307-24-4
4:2 FTS	0	7.6	7.1	92	70-130		757124-72-4
PFPeS	0	7.7	7.4	93	70-130		2706-91-4
PFHpA	2.1	8.2	9.4	89	70-130		375-85-9
DONA	0	7.7	7.2	93	70-130		919005-14-4
PFHxS	1.3	7.4	7.7	86	70-130		355-46-4
PFOA	4.8	8.2	12	86	70-130		335-67-1
6:2 FTS	0	7.8	7.2	93	70-130		27619-97-2
PFHpS	0	7.8	7.6	97	70-130		375-92-8
PFNA	0	8.2	7.7	90	70-130		375-95-1
PFOSAm	0	8.2	7.4	90	70-130		754-91-6
PFOS	3.4	7.6	9.5	80	70-130		1763-23-1
MeFOSA	0	8.2	7.4	90	70-130		31506-32-8
PFDA	0	8.2	7.5	90	70-130		335-76-2
EtFOSAm	0	8.2	7.4	90	70-130		4151-50-2
8:2 FTS	0	7.8	6.7	85	70-130		39108-34-4
9-CI-PF3ON	0	7.6	6.8	89	70-130		756426-58-1
PFNS	0	7.8	6.6	84	70-130		68259-12-1
PFUnDA	0	8.2	7.7	95	70-130		2058-94-8
NMeFOSAA	0	8.2	8.5	104	70-130		2355-31-9
NEtFOSAA	0	8.2	6.8	83	70-130		2991-50-6
PFDS	0	7.9	6.0	77	70-130		335-77-3
PFDOA	0	8.2	6.9	84	70-130		307-55-1
MeFOSE	0	8.2	7.4	90	70-130		24448-09-7
10:2 FTS	0	7.9	6.6	84	70-130		120226-60-0
EtFOSE	0	8.2	7.4	91	70-130		1691-99-2
11-CI-PF3OUdS	0	7.7	5.8	76	70-130		763051-92-9
PFTrDA	0	8.2	6.6	80	70-130		72629-94-8
PFDoS	0	7.9	5.5	70	70-130		79780-39-5
PFTDA	0	8.2	7.5	92	70-130		376-06-7
PFHXDA	0	8.2	7.4	88	70-130		67905-19-5
PFODA	0	8.2	6.1	74	70-130		16517-11-6

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 10547491005-MS
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 Run File Name
 A210301D\_024
 Column ID
 112EB00094

 Analyzed
 03/02/2021 03:46
 Ical ID
 210301A03

Injected By QL Level

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFOA	N/A	N/A	6.07	6.09	
13C2 PFDA	N/A	N/A	6.98	7.02	
13C4 PFOS	N/A	N/A	7.31	7.35	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.59	3.59	
13C5 PFPeA	N/A	N/A	4.45	4.46	
13C3 PFBS	N/A	N/A	5.25	5.27	
13C2 4:2FTS	N/A	N/A	4.83	4.84	
13C5 PFHxA	N/A	N/A	5.06	5.07	
13C4 PFHpA	N/A	N/A	5.59	5.61	
13C3 PFHxS	N/A	N/A	6.36	6.39	
13C2 6:2FTS	N/A	N/A	5.83	5.84	
13C8 PFOA	N/A	N/A	6.07	6.09	
13C9 PFNA	N/A	N/A	6.53	6.56	
13C8 PFOS	N/A	N/A	7.31	7.35	
13C2 8:2FTS	N/A	N/A	6.73	6.76	
13C6 PFDA	N/A	N/A	6.99	7.02	
d3-MeFOSAA	N/A	N/A	6.90	6.93	
13C8 PFOSA	N/A	N/A	8.69	8.72	
d5-EtFOSAA	N/A	N/A	7.11	7.14	
13C7 PFUdA	N/A	N/A	7.44	7.47	
13C2 PFDoA	N/A	N/A	7.89	7.93	
13C2 PFTeDA	N/A	N/A	8.76	8.81	
13C3 HFPO-DA	N/A	N/A	5.28	5.30	
13C2 PFHxDA	N/A	N/A	9.56	9.62	
d7-N-MeFOSE	N/A	N/A	10.04	10.02	
d9-N-EtFOSE	N/A	N/A	10.65	10.63	
d3-N-MeFOSA	N/A	N/A	10.28	10.27	
d5-N-EtFOSA	N/A	N/A	10.96	10.94	

# REPORT OF LABORATORY ANALYSIS



Pace Analytical Services, LLC

1700 Elm Street, Suite 200 Minneapolis, MN 55414 Phone: 612.607.1700 Fax: 612.607.6444

www.pacelabs.com

Page 4 of 4

 Lab Sample ID
 10547491005-MS
 Instrument ID
 10LCMS03

 Run File Name
 A210301D\_024
 Column ID
 112EB00094

 Analyzed
 03/02/2021 03:46
 Ical ID
 210301A03

 Injected By
 QL
 Level

Native Analytes

•	lon Abund.	Reference	Retention	Reference	
Compound	Ratio	Ratio	Time	Time	Qualifiers
PFBA	N/A	N/A	3.59	3.60	
PFPeA	N/A	N/A	4.45	4.46	
HFPO-DA	0.47	0.48	5.29	5.33	
PFBS	0.34	0.34	5.26	5.28	
PFHxA	0.05	0.05	5.07	5.08	
4:2 FTS	0.55	0.64	4.83	4.85	
PFPeS	0.34	0.34	5.85	5.87	
PFHpA	0.28	0.28	5.59	5.61	
DONA	0.51	0.49	5.77	5.79	
PFHxS	0.28	0.25	6.37	6.40	
PFOA	0.38	0.38	6.07	6.09	
6:2 FTS	0.64	0.58	5.83	5.85	
PFHpS	0.21	0.24	6.85	6.89	
PFNA	0.19	0.18	6.54	6.56	
PFOSAm	N/A	N/A	8.69	8.72	
PFOS	0.21	0.24	7.32	7.36	
MeFOSA	0.96	0.87	10.29	10.29	
PFDA	0.09	0.10	6.99	7.02	
EtFOSAm	0.61	0.61	10.99	10.97	
8:2 FTS	0.66	0.82	6.73	6.76	
9-CI-PF3ON	0.02	0.02	7.64	7.69	
PFNS	0.26	0.28	7.76	7.81	
PFUnDA	0.09	0.10	7.44	7.48	
NMeFOSAA	0.55	0.59	6.91	6.94	
NEtFOSAA	0.68	0.61	7.12	7.15	
PFDS	0.26	0.25	8.21	8.26	
PFDOA	0.15	0.15	7.89	7.93	
MeFOSE	N/A	N/A	10.08	10.06	
10:2 FTS	0.82	0.75	7.62	7.66	
EtFOSE	0.00	0.00	10.71	10.69	
11-CI-PF3OUdS	0.01	0.01	8.52	8.57	
PFTrDA	0.16	0.18	8.33	8.38	
PFDoS	0.21	0.21	9.02	9.07	
PFTDA	0.17	0.18	8.76	8.81	
PFHXDA	0.14	0.15	9.56	9.62	
PFODA	0.12	0.12	10.77	10.88	

# REPORT OF LABORATORY ANALYSIS





February 22, 2021

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

#### Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on February 10, 2021. 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.

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

- Pace Analytical Services Duluth
- Pace Analytical Services Minneapolis

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

Sincerely,

Colin Lynch

colin.lynch@pacelabs.com

Col fyml

(612)607-1700

Project Manager

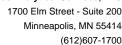
Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc

Gerrit Vanderwaal







#### **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

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

Lab

A2LA Certification #: 2926.01\* 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 #: 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 Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 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 #: 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 #: 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 Duluth Minnesota** 

4730 Oneota St., Duluth, MN 55807

Minnesota Dept of Ag Certification #: Via MN Dept of

Health 027-137-152

Montana DHHS Certification #: CERT0102
Minnesota Dept of Health Certification #: 1733125

Wisconsin Dept of Agriculture Certification #: 480341

Wisconsin DNR Certification #: 999446800

North Dakota Certification #: R-105

Nevada DCNR Certification #: MN000372019-1

#### **REPORT OF LABORATORY ANALYSIS**





#### **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10547494001	MW-01	Water	02/08/21 12:45	02/10/21 13:15
10547494002	MW-02	Water	02/10/21 11:00	02/10/21 13:15
10547494003	MW-03	Water	02/09/21 15:10	02/10/21 13:15
10547494004	MW-04	Water	02/09/21 10:10	02/10/21 13:15
10547494005	MW-05	Water	02/08/21 17:30	02/10/21 13:15
10547494006	MW-04-D	Water	02/09/21 10:40	02/10/21 13:15
10547494007	EB-01	Water	02/09/21 17:15	02/10/21 13:15

#### **REPORT OF LABORATORY ANALYSIS**



#### **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10547494001	MW-01	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
0547494002	MW-02	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
10547494003 MW-03	MW-03	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
	EPA 353.2	JFP	1	PASI-M	
0547494004	MW-04	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
0547494005	MW-05	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
0547494006	MW-04-D	EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
0547494007	EB-01	EPA 350.1	KJD	1	PASI-DUL

#### **REPORT OF LABORATORY ANALYSIS**





#### **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
		WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M

PASI-DUL = Pace Analytical Services - Duluth PASI-M = Pace Analytical Services - Minneapolis





#### **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 350.1
Description: 350.1 Ammonia
Client: Bay West LLC
Date: February 22, 2021

#### **General Information:**

7 samples were analyzed for EPA 350.1 by Pace Analytical Services Duluth. 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:**

Analyte Comments:

QC Batch: 207336

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 817193)
  - Nitrogen, Ammonia
- MSD (Lab ID: 817194)
  - Nitrogen, Ammonia

#### **REPORT OF LABORATORY ANALYSIS**



1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

#### **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 351.2

Description: 351.2 Total Kieldahl Nitrogen

Client: Bay West LLC

Date: February 22, 2021

#### **General Information:**

7 samples were analyzed for EPA 351.2 by Pace Analytical Services Duluth. 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.

#### Additional Comments:



## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 351.2-350.1

Description: Total Organic Nitrogen Calc.

Client: Bay West LLC

Date: February 22, 2021

## **General Information:**

7 samples were analyzed for EPA 351.2-350.1 by Pace Analytical Services Duluth. 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:**



## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: WI MOD DRO

Description: WIDRO LV GCS Silica Gel

Client: Bay West LLC

Date: February 22, 2021

## **General Information:**

7 samples were analyzed for WI MOD DRO 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 WI MOD DRO 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:**



## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 8270E by SIM

Description: 8270E MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: February 22, 2021

## **General Information:**

7 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 Mod. 3510C 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: 724770

S0: Surrogate recovery outside laboratory control limits.

LCS (Lab ID: 3863002)
1,4-Dioxane-d8 (S)

## Method Blank:

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

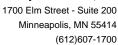
## **Laboratory Control Spike:**

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.

## **Additional Comments:**





## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite
Client: Bay West LLC
Date: February 22, 2021

## **General Information:**

7 samples were analyzed for EPA 353.2 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.

#### Method Blank:

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

#### **Laboratory Control Spike:**

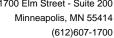
All laboratory control spike compounds were within QC limits with any exceptions noted below.

## Matrix Spikes:

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

## **Additional Comments:**

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





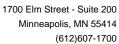
## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-01	Lab ID:	10547494001	Collecte	d: 02/08/2	12:45	Received: 02/	/10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:09	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Method: EPA 3 ytical Services		aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:51	7727-37-9	
Total Organic Nitrogen Calc.	•	Method: EPA 3 ytical Services							
Total Organic Nitrogen	0.21J	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel		Method: WI Mo			Method:	WI MOD DRO			
WDRO C10-C28 <i>Surrogates</i>	<0.10	mg/L	0.10	0.035	1		02/11/21 12:48		
n-Triacontane (S)	63	%.	34-125		1	02/10/21 16:36	02/11/21 12:48	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Met	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	11.3	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 19:00	123-91-1	
1,4-Dioxane-d8 (S)	36	%.	30-125		1	02/10/21 16:38	02/12/21 19:00		
353.2 Nitrate + Nitrite	,	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	0.018J	mg/L	0.10	0.018	1		02/11/21 14:26		





## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-02	Lab ID:	10547494002	Collected	d: 02/10/2	11:00	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA :							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:28	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 rtical Services	•	ration Meth	od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 18:00	7727-37-9	
Total Organic Nitrogen Calc.	,	Method: EPA ( rtical Services							
Total Organic Nitrogen	0.29J	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel		Method: WI M			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	<0.10	mg/L	0.10	0.036	1		02/11/21 12:55		
n-Triacontane (S)	61	%.	34-125		1	02/10/21 16:36	02/11/21 12:55	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 rtical Services	•		ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	<0.24	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:17	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	02/10/21 16:38	02/12/21 19:17		
353.2 Nitrate + Nitrite	,	Method: EPA : rtical Services		lis					
Nitrogen, NO2 plus NO3	0.24	mg/L	0.10	0.018	1		02/11/21 14:29		



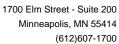
## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-03	Lab ID:	10547494003	Collected	d: 02/09/2°	15:10	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3							
Nitrogen, Ammonia	2.5	mg/L	0.10	0.029	1		02/19/21 13:24	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 rtical Services	•	ration Meth	od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	3.4	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:55	7727-37-9	
Total Organic Nitrogen Calc.	,	Method: EPA 3							
Total Organic Nitrogen	0.91	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel		Method: WI Mortical Services			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	0.10J	mg/L	0.10	0.035	1		02/11/21 13:02		
n-Triacontane (S)	76	%.	34-125		1	02/10/21 16:36	02/11/21 13:02	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 rtical Services	•	•	ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	0.82	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:34	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	02/10/21 16:38	02/12/21 19:34		
353.2 Nitrate + Nitrite	,	Method: EPA 3		lis					
Nitrogen, NO2 plus NO3	0.053J	mg/L	0.10	0.018	1		02/11/21 14:35		





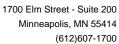
## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-04	Lab ID:	10547494004	Collecte	d: 02/09/2	10:10	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	0.040J	mg/L	0.10	0.029	1		02/19/21 13:13	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services	•	aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:53	7727-37-9	
Total Organic Nitrogen Calc.	•	Method: EPA 3 ytical Services							
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel		Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 Surrogates	<0.10	mg/L	0.10	0.036	1		02/11/21 13:09		
n-Triacontane (S)	47	%.	34-125		1	02/10/21 16:36	02/11/21 13:09	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	0.97	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:52	123-91-1	
1,4-Dioxane-d8 (S)	32	%.	30-125		1	02/10/21 16:38	02/12/21 19:52		
353.2 Nitrate + Nitrite	,	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	0.076J	mg/L	0.10	0.018	1		02/11/21 14:36		





## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-05	Lab ID:	10547494005	Collecte	d: 02/08/2	17:30	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	0.070J	mg/L	0.10	0.029	1		02/19/21 13:11	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services		aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:52	7727-37-9	
Total Organic Nitrogen Calc.	•	Method: EPA 3 ytical Services							
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel		Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 Surrogates	<0.10	mg/L	0.10	0.036	1		02/11/21 13:16		
n-Triacontane (S)	72	%.	34-125		1	02/10/21 16:36	02/11/21 13:16	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	0.10J	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 20:09	123-91-1	
1,4-Dioxane-d8 (S)	37	%.	30-125		1	02/10/21 16:38	02/12/21 20:09		
353.2 Nitrate + Nitrite	,	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	<0.10	mg/L	0.10	0.018	1		02/11/21 14:37		



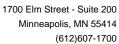
## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: MW-04-D	Lab ID:	10547494006	Collecte	d: 02/09/2	10:40	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters ———	Results	Units -	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3 ytical Services							
Nitrogen, Ammonia	0.041J	mg/L	0.10	0.029	1		02/19/21 13:22	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 ytical Services		aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:54	7727-37-9	
Total Organic Nitrogen Calc.	•	Method: EPA 3 ytical Services							
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel		Method: WI Mo			/lethod:	WI MOD DRO			
WDRO C10-C28 <i>Surrogates</i>	<0.10	mg/L	0.10	0.034	1		02/11/21 13:22		
n-Triacontane (S)	61	%.	34-125		1	02/10/21 16:36	02/11/21 13:22	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	0.92	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 20:27	123-91-1	
1,4-Dioxane-d8 (S)	38	%.	30-125		1	02/10/21 16:38	02/12/21 20:27		
353.2 Nitrate + Nitrite	•	Method: EPA 3 ytical Services		lis					
Nitrogen, NO2 plus NO3	0.083J	mg/L	0.10	0.018	1		02/11/21 14:38		





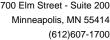
## **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Sample: EB-01	Lab ID:	10547494007	Collecte	d: 02/09/2	17:15	Received: 02/	10/21 13:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	•	Method: EPA 3 /tical Services							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:26	7664-41-7	
351.2 Total Kjeldahl Nitrogen	•	Method: EPA 3 /tical Services		aration Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.50	1	02/12/21 11:45	02/12/21 17:57	7727-37-9	
Total Organic Nitrogen Calc.	•	Method: EPA 3 /tical Services							
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel		Method: WI Mo			Method:	WI MOD DRO			
WDRO C10-C28 Surrogates	<0.10	mg/L	0.10	0.035	1		02/11/21 13:29		
n-Triacontane (S)	52	%.	34-125		1	02/10/21 16:36	02/11/21 13:29	638-68-6	
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 /tical Services	•	•	ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogate</b> s	0.61	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 20:44	123-91-1	
1,4-Dioxane-d8 (S)	43	%.	30-125		1	02/10/21 16:38	02/12/21 20:44		
353.2 Nitrate + Nitrite	•	Method: EPA 3 /tical Services		llis					
Nitrogen, NO2 plus NO3	<0.10	mg/L	0.10	0.018	1		02/11/21 14:39		





## **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

QC Batch: 207336 Analysis Method: EPA 350.1

QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia

Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

METHOD BLANK: 817190 Matrix: Water

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

Blank Reporting

ParameterUnitsResultLimitMDLAnalyzedQualifiersNitrogen, Ammoniamg/L<0.10</td>0.100.02902/19/21 12:57

LABORATORY CONTROL SAMPLE: 817189

Spike LCS LCS % Rec Conc. % Rec Limits Qualifiers Parameter Units Result Nitrogen, Ammonia 5.0 100 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 817191 817192

MSD MS 12156083002 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result RPD Result Conc. % Rec % Rec Limits **RPD** Qual ND 5 Nitrogen, Ammonia mg/L 5 5.1 5.2 102 104 90-110 10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 817193 817194

MS MSD 12156103002 MS MSD MS MSD Spike Spike % Rec Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual 28.0 25 25 Nitrogen, Ammonia 53.2 55.2 101 109 10 E mg/L 90-110

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



## **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

QC Batch: 207085 Analysis Method: EPA 351.2

QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN

Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

METHOD BLANK: 816412 Matrix: Water

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, Kjeldahl, Total mg/L <0.50 0.50 0.50 02/12/21 17:43

LABORATORY CONTROL SAMPLE: 816411

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nitrogen, Kjeldahl, Total 10 10.1 101 90-110 mg/L

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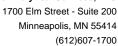
MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 816413 816414

MSD MS 12156039002 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Result **RPD** RPD Result Conc. Conc. % Rec % Rec Limits Qual Nitrogen, Kjeldahl, Total mg/L 1.2 10 10 11.5 11.2 103 100 90-110 3 10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 816415 816416

MS MSD 10547494007 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 10 10 10.2 Nitrogen, Kjeldahl, Total < 0.50 10.2 102 102 0 10 mg/L 90-110

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





## **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

QC Batch: 724770 Analysis Method: EPA 8270E by SIM

QC Batch Method: EPA Mod. 3510C Analysis Description: 8270E Water 14 Dioxane by SIM

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

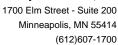
METHOD BLANK: 3863001 Matrix: Water

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

Blank Reporting Parameter Limit MDL Qualifiers Units Result Analyzed 1,4-Dioxane (SIM) < 0.25 0.25 0.11 02/12/21 18:08 ug/L 1,4-Dioxane-d8 (S) 39 30-125 02/12/21 18:08 %.

LABORATORY CONTROL SAMPLE &	LCSD: 3863002		38	363003						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,4-Dioxane (SIM)	ug/L	10	10	11.6	100	116	59-134	15	20	
1,4-Dioxane-d8 (S)	%.				28	36	30-125			S0

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





## **QUALITY CONTROL DATA**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

QC Batch: 724769 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO Low Volume GCS w/Cleanup

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

METHOD BLANK: 3862997 Matrix: Water

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

Blank Reporting Parameter Limit MDL Qualifiers Units Result Analyzed WDRO C10-C28 mg/L < 0.10 0.10 0.034 02/11/21 12:34 n-Triacontane (S) %. 34-125 02/11/21 12:34 44

LABORATORY CONTROL SAMPLE & I	_CSD: 3862998		38	362999						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
WDRO C10-C28	mg/L	0.8	0.37	0.38	46	47	42-125	3	20	
n-Triacontane (S)	%.				46	47	34-125			

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

(612)607-1700





## **QUALITY CONTROL DATA**

EPA 353.2

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

QC Batch: 724928

QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved

Laboratory: Pace Analytical Services - Minneapolis

10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007 Associated Lab Samples:

METHOD BLANK: Matrix: Water

Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

> Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers Nitrogen, NO2 plus NO3 < 0.10 0.10 0.018 02/11/21 14:40 mg/L

Analysis Method:

LABORATORY CONTROL SAMPLE: 3863778

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nitrogen, NO2 plus NO3 0.96 96 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3863779 3863780

MSD MS

10547494001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result RPD Result Conc. % Rec % Rec Limits **RPD** Qual Nitrogen, NO2 plus NO3 0.018J 20 mg/L 1.0 1.0 101 102 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3863781 3863782

> MS MSD

10547494002 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Nitrogen, NO2 plus NO3 0.24 1 1 1.3 1.3 105 105 0 20 mg/L 90-110

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

(612)607-1700



## **QUALIFIERS**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

#### **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.

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

TNI - The NELAC Institute.

## **ANALYTE QUALIFIERS**

Date: 02/22/2021 01:18 PM

E Analyte concentration exceeded the calibration range. The reported result is estimated.

S0 Surrogate recovery outside laboratory control limits.

(612)607-1700



## **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Date: 02/22/2021 01:18 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10547494001 10547494002	MW-01 MW-02	EPA 350.1 EPA 350.1	207336 207336		
10547494003	MW-03 MW-04	EPA 350.1	207336 207336		
10547494004 10547494005	MW-05	EPA 350.1 EPA 350.1	207336		
10547494005	MW-04-D	EPA 350.1	207336		
10547494007	EB-01	EPA 350.1	207336		
0547494001	MW-01	EPA 351.2	207085	EPA 351.2	207139
0547494002	MW-02	EPA 351.2	207085	EPA 351.2	207139
0547494003	MW-03	EPA 351.2	207085	EPA 351.2	207139
0547494004	MW-04	EPA 351.2	207085	EPA 351.2	207139
0547494005	MW-05	EPA 351.2	207085	EPA 351.2	207139
0547494006	MW-04-D	EPA 351.2	207085	EPA 351.2	207139
0547494007	EB-01	EPA 351.2	207085	EPA 351.2	207139
10547494001	MW-01	EPA 351.2-350.1			
0547494002	MW-02	EPA 351.2-350.1			
0547494003	MW-03	EPA 351.2-350.1			
0547494004	MW-04	EPA 351.2-350.1			
0547494005	MW-05	EPA 351.2-350.1			
0547494006	MW-04-D	EPA 351.2-350.1			
10547494007	EB-01	EPA 351.2-350.1			
0547494001	MW-01	WI MOD DRO	724769	WI MOD DRO	724915
0547494002	MW-02	WI MOD DRO	724769	WI MOD DRO	724915
0547494003	MW-03	WI MOD DRO	724769	WI MOD DRO	724915
0547494004	MW-04	WI MOD DRO	724769	WI MOD DRO	724915
0547494005	MW-05	WI MOD DRO	724769	WI MOD DRO	724915
0547494006	MW-04-D	WI MOD DRO	724769	WI MOD DRO	724915
0547494007	EB-01	WI MOD DRO	724769	WI MOD DRO	724915
0547494001	MW-01	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494002	MW-02	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494003	MW-03	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494004	MW-04	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494005	MW-05	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494006	MW-04-D	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494007	EB-01	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
0547494001	MW-01	EPA 353.2	724928		
0547494002	MW-02	EPA 353.2	724928		
0547494003	MW-03	EPA 353.2	724928		
0547494004	MW-04	EPA 353.2	724928		
0547494005	MW-05	EPA 353.2	724928		
0547494006	MW-04-D	EPA 353.2	724928		
10547494007	EB-01	EPA 353.2	724928		

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Section A

luest Document

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

3000027123 PRJ07913 (50 SW-134 005 E なつ 3 Work Order Number Project Task Code: Program Code Facility Code: Section E 000 E 1700 Elm St. Minneapolis MN, 55414 Colin Lynch 612-656-2286 Preservatives has 24 (H-EON 00St WS)N × × × × × × Mitrate + Mitrite, as H520H 751.2 + 350.1) × × × × SAF Lab Project Manager Laboratory Information × × × × × × 4-Dioxane (8270 SIM) × × Lab Phone: Section D Lab Name Adress: 2,3,7,8 TCDD A93)(nixoid) (A0628\BE131 × × × DRO with silica gel 5 Empire Dr. St. Paul, MN 55103 72# × × × 205946 Bay West LLC Accounts Payable 0 # of Cont. 1200 John 1730 1245 100 1715 010 əmiT Purchase Order No. Company Name: Sample Type Codes
Sample-Courie Sample
ScrivOP=Composie Sample
S-CWOP=Composie Sample
S-IVP=Integrated Verkical Profile Sample
QC-RE-Field Blank Sample
QC-RE-Field Replicate Sample
QC-RE-Field Replicate Sample Section C Address: Attention: Wtr-Ground **2/9/2/**Wtr-Ground **2/8/2/** 2/6/2 2/2/21 /loh/ Date SW#134 Begin Dump - GW Sampling Wtr-Ground Wtr-Ground ryanr@baywest.com Wtr-Ground Wtr-Ground Wtr-Ground gvanderwaal@baywest.com Field Matrix Code (YJNO AD9M) Standard 200408 Z ≷ (MPCA ONLY) ₹ Š ≷ Š Š Š Lab Matrix Code Νœ WG Ø Ø ΜĞ Νg ΜĠ Field Matrix Codes
WTK-forund-Zorund Weter
WTK-Surf-Esurf-Sorund-Sorund
QC-Blank-Artificial Blank Water
QC-Blank-Artificial Blank Water
Soil-Surf-Soil Surface
Soil-Surf-Soil Subsurface
Soil-Surf-Soil Subsurface Matrix Code (GRAB C=COMP) ഗ ტ ტ ഗ ဖ ტ ഗ SAMPLE TYPE Required Project Infor Site Location (State) Turnaround Time: Sample Project Number: Sample QC-FR QC-EB Sample Sample Sample Project Name: Sample Type Code Section B Copy To: Copy To: Sample Common ID 5 Empire Dr. St.Paul MN, 55103 Lab Matrix Codes
DW=Drinking Water
NW=Non-potable Water
SD=Soil/Soild
WP=Wipe AR=Air BL=Biological Material OT=Other MW-04 - D Eweaver@baywest.com enimlos@baywest.com MW-05 MW-02 MW-03 MW-04 MW-01 651-291-3493 Required Client Information Location Unique ID 2001007375 2001007376 2001007374 2001007377 Project Manager: Equipment Blank Matrix Code
SE=Sediment
SO=Soil
QC=Soil QC
W=Aqueous
WG=Groundwal
S=Surface 834635 834636 Company: Address: Email To: Copy To: Phone: ဖ 7 **∞** 유 1 6

(.7, 8,0,0,2,4,3

Samples Intact (Y/N)

Custody Sealed Cooler (Y/N)

Received on Ice (Y/V)

Temp (°C)

DATE Signed (MM/DD/YY): 2/10/2

MASON

3247

PRINT Name of SAMPLER: SIGNATURE of SAMPLER:

MO#: 10547494

SAMPLER NAME AND SIGNATURE

1215

2/10/21 DATE

ACCEPTED BY / AFFILIATION

**FOC** 

73.57

2/10/11

RELINQUISHED BY

ADDITIONAL COMMENTS

M

# Pace Analytical®

hold, incorrect preservative, out of temp, incorrect containers).

## Document Name:

## Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.01

Document Revised: 12Aug2020

Page 1 of 1

Pace Analytical Services -Minneapolis

Sample Condition Client Name:			Project	t#:	
Upon Receipt Bay West	i				WO#: 10547494
	USPS	}	- Client		PM: CL1 Due Date: 02/24/21
	]Commer		Chent		CLIENT: BW-BAY WEST
Tracking Number:	_		See Excepti		CLIENT
· ·	χnο		:NV-FRM-Mi eals intaci		es No Biological Tissue Frozen? Yes No N/A
Packing Material: Bubble Wrap Bubble E					
		None	∐Otł	ner:	Temp Blank? Yes No
Thermometer:		Type of		Wet	Blue None Dry Melted
Did Samples Originate in West Virginia? Yes No					ken? []Yes []No XN/A
Temp should be above freezing to 6°C Cooler Temp Re	ad w/ten	np blanl	k: <u>1.6</u>	2.9.	O.1. 4.2 °C Average Corrected See Exceptions Temp (no temp blank ENV-FRM-MIN4-0142
Correction Factor: +(). Cooler Temp Correct	ed w/ten	np blank	c.1.7.3	.0, 0.7	
USDA Regulated Soil: (XN/A, water sample/Other:			)	Date/	Initials of Person Examining Contents: ED 2/10/21
Did samples originate in a quarantine zone within the Uni ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check m	ted States	: AL, AR,	_	A, Did s	samples originate from a foreign source (internationally, including
			∐No hecklist (I		aii and Puerto Rico)?
				1	COMMENTS:
Chain of Cust ody Present and Filled Out?	<b>∑</b> √es	□No		1.	
Chain of Custody Relinquished?	Yes	□No		2.	
Sampler Name and/or Signature on COC?	Yes	□No	□n/a		
Samples Arrived within Hold Time?	Yes	□No		4.	
Short Hold Time Analysis (<72 hr)?	Yes	ΜNο			ecal Coliform
Rush Turn Around Time Requested?	□Yes	No		6.	
Sufficient Volume?	Yes	□No		7.	
Correct Containers Used?	Yes Yes	□No		8.	
-Pace Containers Used? Containers Intact?	Yes	□ No		9.	
Field Filtered Volume Received for Dissolved Tests?	□Yes	□No	N/A		sediment visible in the dissolved container? Yes No
Is sufficient information available to reconcile the samples			LYCVA		, write ID/ Date/Time on Container Below: See Exception
to the COC?	Yes	□No			ENV-FRM-MIN4-014
Matrix: Water Soil Oil Other					
All containers needing acid/base preservation have been	Yes	□No	□n/a	12. Sam	ple# 001-007
checked?	/ ?				
All containers needing preservation are found to be in	\ <del>\</del>	п.,	□ <b></b>		□ NaOH □ HNO₃ ☐ H2SO4 □ Zinc Acetate
compliance with EPA recommendation?	Yres	∐No	□n/a		/
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)					<sup>2</sup> /2
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease,	Wes	□No	□N/A	i .	for Res. Yes See Exception 7
DRO 8015 (water) and Dioxin/PFAS	-4.00			Chlorine Res. Chlo	,
(,)· (				Res. Chic	orine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐Yes	□No	M/A	13.	See Exception
Headspace in VOA Vials (greater than 6mm)?	☐Yes	□No	N/A		ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	□Yes □Yes	□No □No	N/A IXN/A	14. Par	ce Trip Blank Lot # (if purchased):
			γ.IN/A	Fac	
CLIENT NOTIFICATION/RESOLUTION Person Contacted:			•	Date/ī	Field Data Required? Yes No
Comments/Resolution:	<del></del>	.,		Pateri	HIIIC)
			/	<del></del>	
Project Manager Review:	du.	~ 1			Date: 2/10/21
Note: Whenever there is a discrepancy affecting North Carolina	complianc	e sample	s, a copy c	of this form	will be sent to the North Carolina DEHNR Certification Office (i.e. out of

Labeled by:

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**Comments:** 

# Document Name:

# Sample Condition Upon Receipt (SCUR) Exception Form

Document Revised: 04Jun2020 Page 1 of 1

Document No.: ENV-FRM-MIN4-0142 Rev.01

Pace Analytical Services - **Minneapolis** 

CUR Exceptions:							Wo	rkord	ier#:		
	Container	# of				PM N	otified?	Yes 🗌	]No		
Out of Temp Sample IDs	Type	Container	S.		If vas	indicate v	vho was co	ntacte	hd/date/	time	
			-		ii yes,		ndicate re			tille.	
						,					
				Multiple Cooler Project? Yes No If you answered yes, fill out information to the left.							
			S.S.	Sacrifica							
							No Temp	Blank			
					ad Temp	Corrected Temp		mp	Average Temp		
			-			-					
			<b>-   </b>				•				
				Issue		rozer	Administration of the second		tainer		of
Tracking Number/1			Sample ID MW - 0ろ					ype 3S	Cont	ainers	
		-	MW - 03					33 34	1	•	
			-		IW - 04				P3U		
					W - 05				P3U	1	
			-   -		M-0				P3U	2	•
			-	<u> </u>	1W - 0	4 - D		BF	735	1	
		·	-								
	pH Adj	ustment	Log	for F	reserv	ed Sam	ples		T		
		pН				Amoun					
Commis ID		Type of Upon		te	Time	t Added	Lot#	pН	In Comp		
Sample ID	Preserv	. Receipt	Adjus	sted	Adjusted	(mL)	Added	After	after ad	□ No	Initia
									Yes	∐No	
									Yes	No	

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Yes No

PM: LM2

Internal Transfer Chain of Custody

X Samples Pre-Logged into eCOC.

State Of Origin: MN-ADMIN

Cert. Needed: X Yes

CLIENT: PACE MPLS

Colin Lynch
Pace Analytical Minnesota Report To 1700 Elm Street Workorder: 10547494 Workorder Name: 200408 SW#134 Begin Dump Subcontract To Pace Analytical Duluth 4730 Oneota St. Duluth, MN 55807 Owner Received Date: 2/10/2021 Results Requested By: 2/24/2021

51.2 / 350.1)

Minneapolis, MN 55414 Phone (612)607-1700

Suite 200

Phone (218)727-6380

2 De 2/11/21 2115 Who Could lance Wishazi OTHO		1 2 mic/face 2/11/12/ 47/ 2006 2/11/21 1845	Transfers Released By Date/Time Received By Date/Time		7 EB-01 PS 2/9/2021 17:15 10547494007 Water 1 X	6 MW-04-D PS 2/9/2021 10:40 10547494006 Water 1 X	5 MW-05 PS 2/8/2021 17:30 10547494005 Water 1 X	4 MW-04 PS 2/9/2021 10:10 10547494004 Water 1 X	3 MW-03 PS 2/9/2021 15:10 10547494003 Water 1 X	2 MW-02 PS 2/10/2021 11:00 10547494002 Water 1 X	1 MW-01 PS 2/8/2021 12:45 10547494001 Water 1 X	Ton Sample ID Sample Collect  Sample ID Lab ID Matrix  Preserved Containers  Note: Type Date/Time Lab ID Matrix  Ton (35)
17									<u> </u>	ļ		
,	Vola Coutt 1 pace		ved By									H2SO4
	_	1845	Date/Time		×	×	×	×	×	×	×	
				Comments								
					***************************************							LAB USE ONLY

<sup>\*\*\*</sup>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



FECAL WAIVER ON FILE: Y N

Document Name: Sample Condition Upon Receipt Form

Document No.:

Document Revised: 17June2019

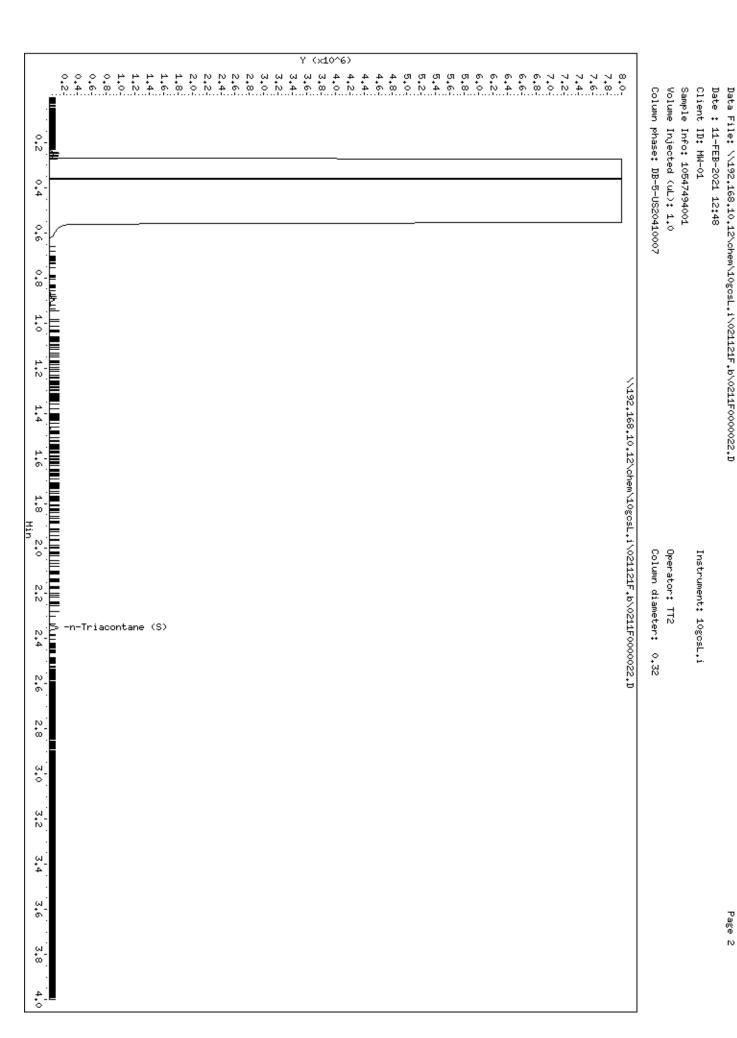
Page 1 of 1

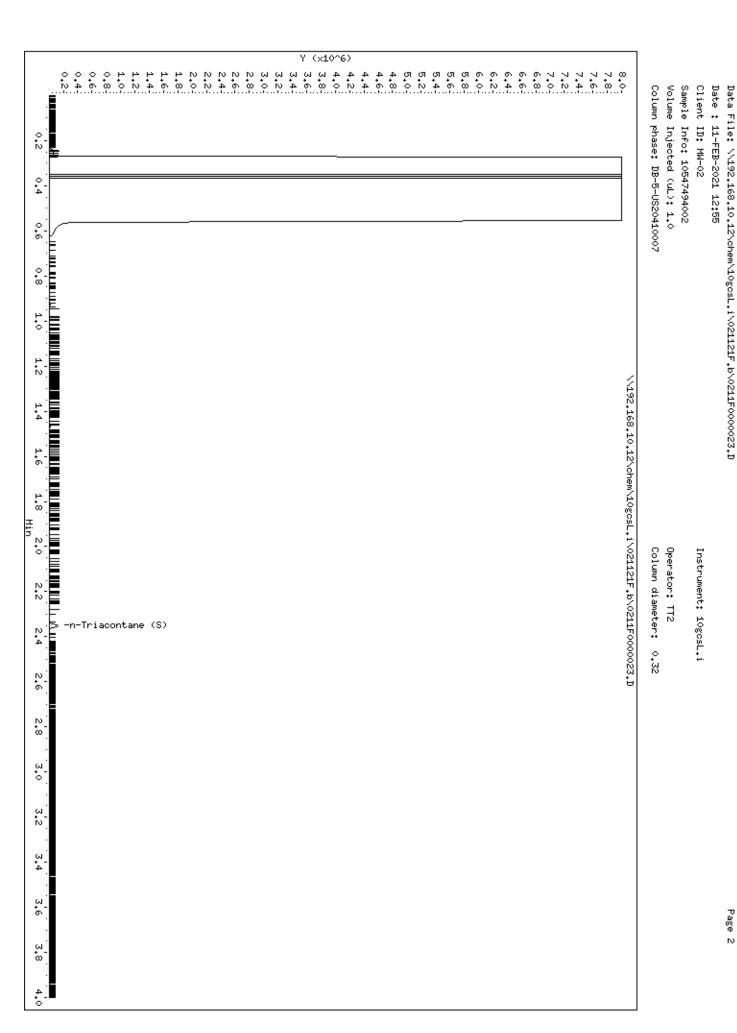
Issuing Authority:

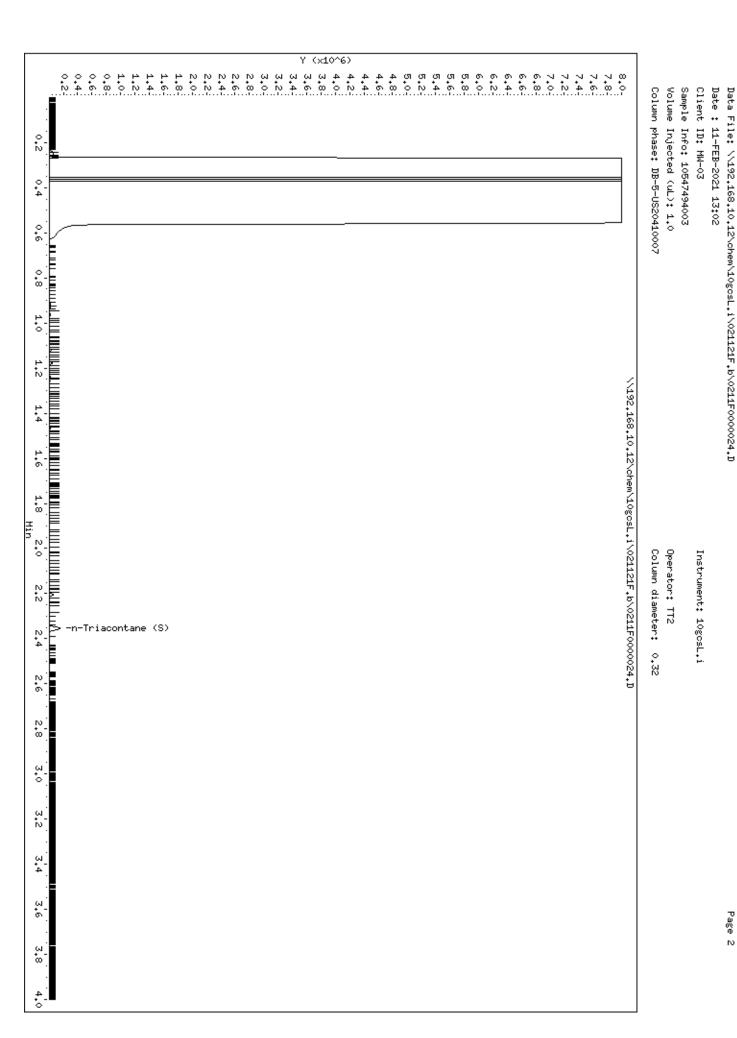
F-DUL-C-001-rev.07 Pace Duluth Minnesota Quality Office Sample Condition Client Name: Project #: WO#∶12156128 **Upon Receipt** Pare M PM: LM2 Due Date: 02/24/21 Courier: Fed Ex □ UPS **USPS** Client CLIENT: PACE MPLS Pace SpeeDee Other:\_ Tracking Number: **Custody Seal on Cooler/Box Present?** Yes □No Seals Intact? Yes No Packing Material: | Bubble Wrap Bubble Bags None Other: Samples on ice, cooling process has begun Type of Ice: Wet Blue None No. Biological Tissue Frozen? ☐Yes ☐No ☑NA Correction Factor °C: Y Yes No Temp Blank? Thermometer Used: Cooler Temp Corrected °C: 6 Temp should be above freezing to 6 °C Date and Initials of Person Examining Contents: え) いして Comments Chain of Custody Present? Yes □No □n/a Chain of Custody Filled Out? ✓Yes No □N/A 3. Chain of Custody Relinquished? Yes ∏No □N/A Sampler Name and Signature on COC? ☐Yes □No **∠**N/A Samples Arrived within Hold Time? ✓Yes □No □N/A 6. Short Hold Time Analysis (<72 hr)? Yes ΖNο □N/A Rush Turn Around Time Requested? 7. ☑No Yes □N/A Sufficient Volume? Yes □No □N/A 9. Correct Containers Used? ∠Yes □No □N/A -Pace Containers Used? ✓Yes □No □N/A Containers Intact? ✓Yes □No □N/A 11. Note if sediment is visible in the dissolved containers: Filtered Volume Received for Dissolved Tests? Yes □No **☑**N/A 12. Sample Labels Match COC? ✓ Yes □No □N/A -Includes Date/Time/ID/Analysis Matrix: All containers needing acid/base preservation properly 13. Note samples needing adjustment: **∠** Yes □N/A □No preserved? Headspace in Methyl Mercury Container ☐ Yes No ✓ N/A 14. Headspace in VOA Vials ( >6mm)? 15. ☐ Yes □No ☑N/A Trip Blank Present? 16. □Yes □No ☑N/A Trip Blank Custody Seals Present? Yes □No ØN/A Pace Trip Blank Lot # (if purchased): CLIENT NOTIFICATION/RESOLUTION: Field Data Required? Yes No Person Contacted: Date/Time: Comments/Resolution:

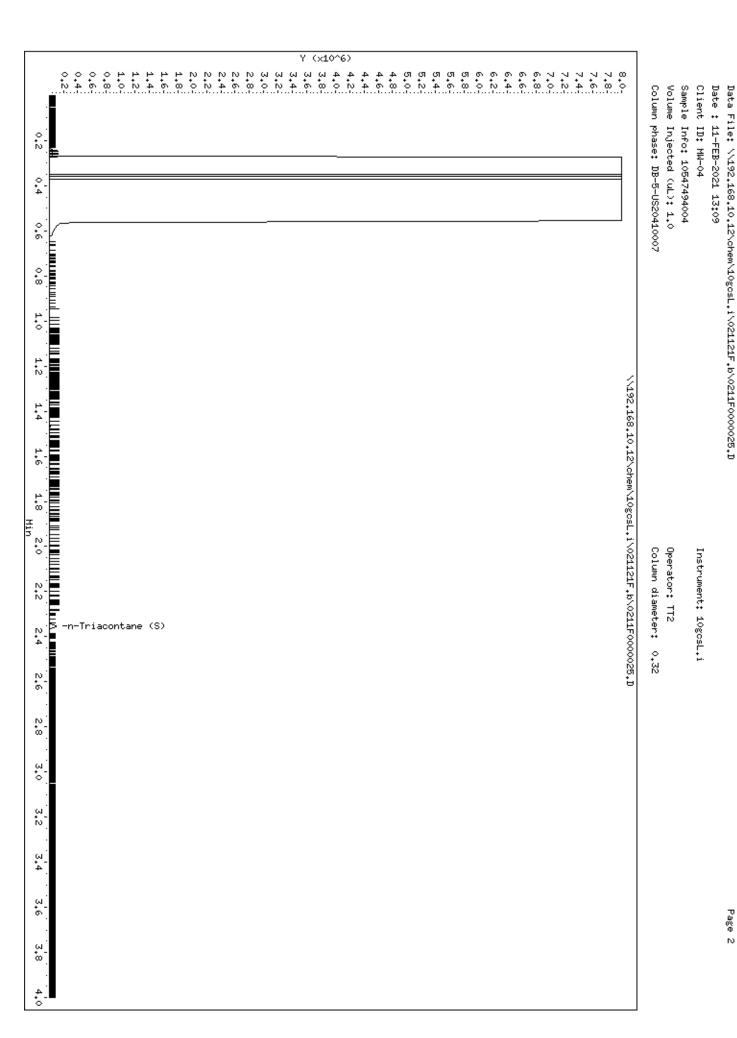
TEMPERATURE WAIVER ON FILE:

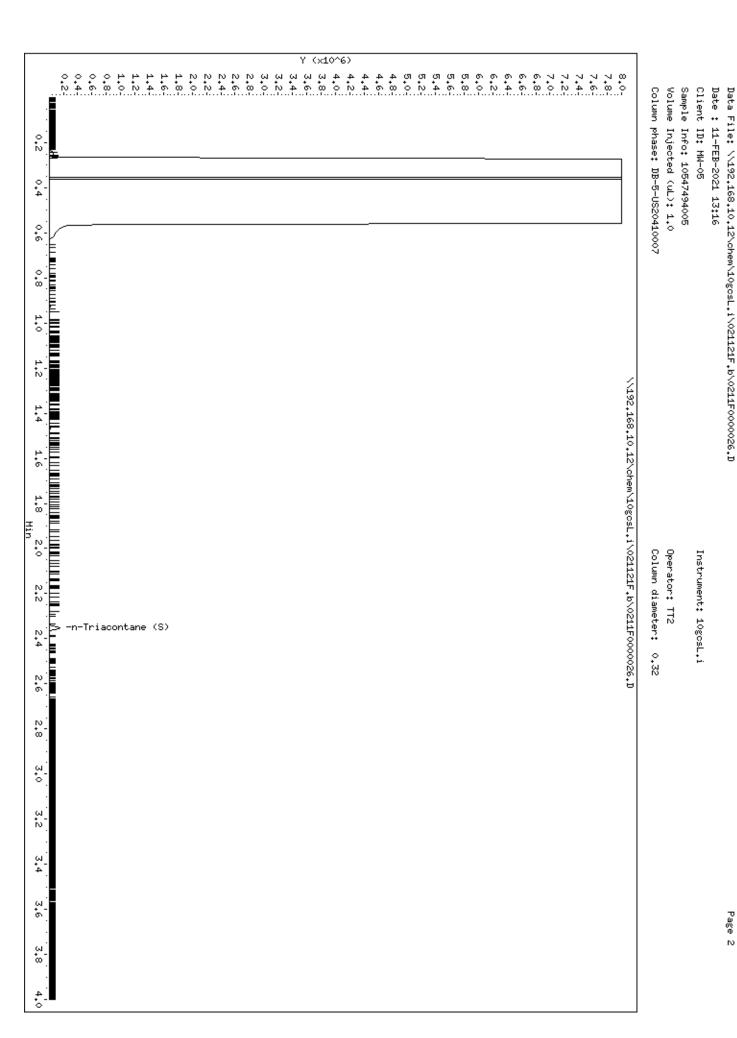
Date: 02/12/2021

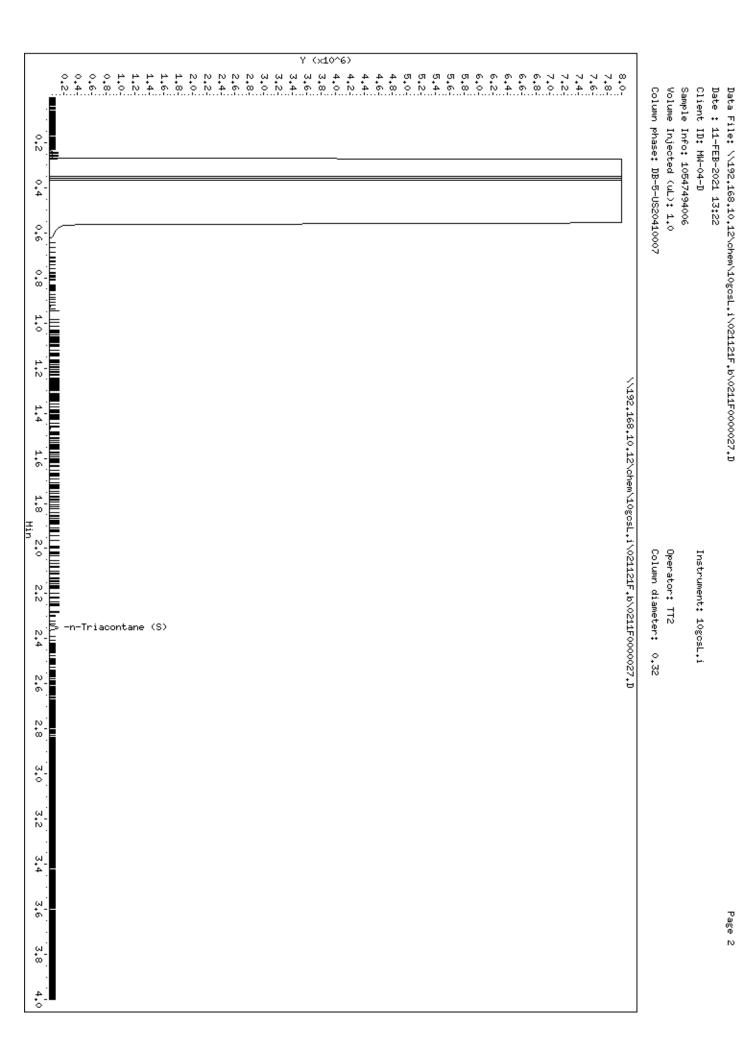


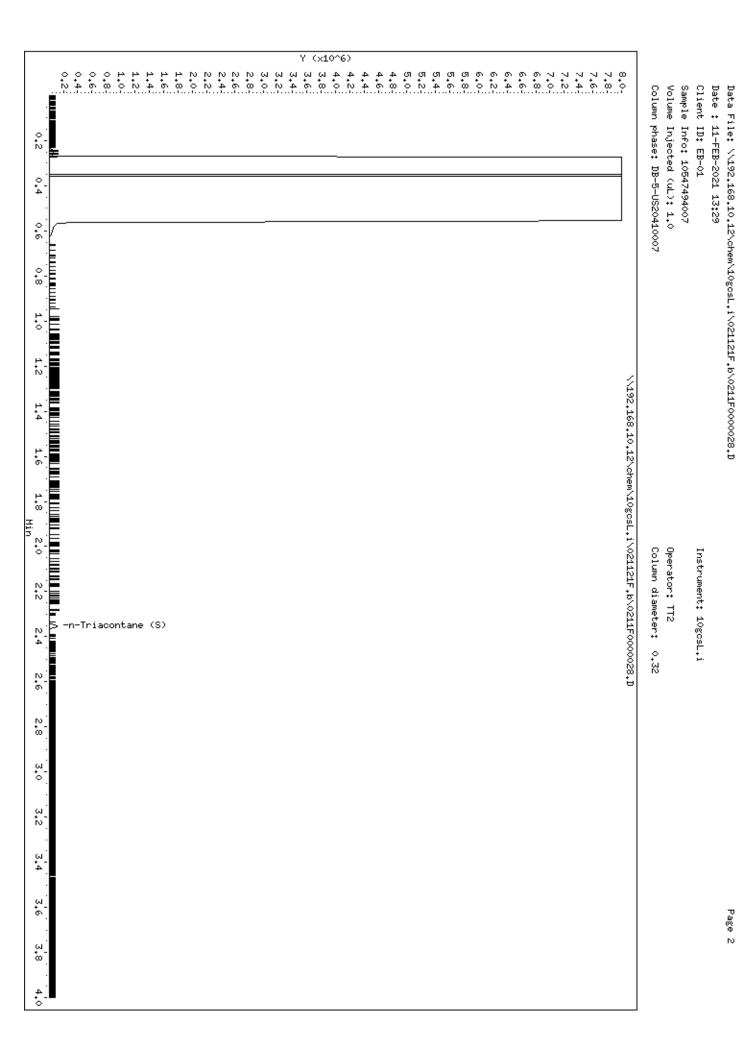
















May 20, 2021

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

## Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on May 04, 2021. 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.

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

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

Sincerely,

Sylvia Hunter

sylvia.hunter@pacelabs.com

Sylvia Hunter

1(612)607-1700

Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc

Gerrit Vanderwaal, Bay West





## **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

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 #: Al-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 #: 277

North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: 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 #: 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



## **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10558462001	MW-01	Water	05/03/21 15:25	05/04/21 18:29
10558462002	MW-02	Water	05/04/21 09:50	05/04/21 18:29
10558462003	MW-03	Water	05/04/21 12:25	05/04/21 18:29
10558462004	MW-04	Water	05/04/21 15:40	05/04/21 18:29
10558462005	MW-04-D	Water	05/04/21 16:00	05/04/21 18:29
10558462006	EB-01	Water	05/04/21 17:00	05/04/21 18:29



## **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10558462001	MW-01	EPA 350.1		1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2
10558462002	MW-02	EPA 350.1	AA2	1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2
10558462003	MW-03	EPA 350.1	AA2	1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2
10558462004	MW-04	EPA 350.1	AA2	1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2
10558462005	MW-04-D	EPA 350.1	AA2	1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2
10558462006	EB-01	EPA 350.1	AA2	1
		EPA 351.2	DW3	1
		EPA 353.2	AP2	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270E by SIM	MS4	2

## **REPORT OF LABORATORY ANALYSIS**

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





## **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Lab ID Sample ID Method Analysts Reported

PASI-DU = Pace Analytical Services - Duluth, MN PASI-M = Pace Analytical Services - Minneapolis



## **PROJECT NARRATIVE**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: EPA 350.1

Description: 350.1 Ammonia Waters DU

Client: Bay West LLC

Date: May 20, 2021

## **General Information:**

6 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.

## 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:**

Analyte Comments:

QC Batch: 740623

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3950024)Nitrogen, Ammonia
- MSD (Lab ID: 3950025)
  - Nitrogen, Ammonia



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: EPA 351.2

Description: 351.2 TKN Water DU Client: Bay West LLC Date: May 20, 2021

### **General Information:**

6 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: 740257

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10557080004,10558462003

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3948020)
  - Nitrogen, Kjeldahl, Total
- MSD (Lab ID: 3948021)
  - Nitrogen, Kjeldahl, Total

### **Additional Comments:**



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: EPA 353.2

Description: 353.2 Nitrogen N+N pres DU

Client: Bay West LLC

Date: May 20, 2021

### **General Information:**

6 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.

### 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: 740057

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10553360001,10558462004

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

• MS (Lab ID: 3947055)

Nitrogen, NO2 plus NO3

• MSD (Lab ID: 3947056)

• Nitrogen, NO2 plus NO3

### **Additional Comments:**



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: TKN-NH3 Calculation

Description: Total Organic Nitrogen Calc.DU

Client: Bay West LLC

Date: May 20, 2021

### **General Information:**

6 samples were analyzed for TKN-NH3 Calculation 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:**



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: WI MOD DRO

Description: WIDRO LV GCS Silica Gel

Client: Bay West LLC

Date: May 20, 2021

### **General Information:**

6 samples were analyzed for WI MOD DRO 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 WI MOD DRO 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.

QC Batch: 740117

B: Analyte was detected in the associated method blank.

- BLANK for HBN 740117 [OEXT/595 (Lab ID: 3947399)
  - WDRO C10-C28

### **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:**



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: EPA 8270E by SIM

Description: 8270E MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: May 20, 2021

### **General Information:**

6 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 Mod. 3510C 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: 739879

S0: Surrogate recovery outside laboratory control limits.

• MW-02 (Lab ID: 10558462002)

• 1,4-Dioxane-d8 (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: 739879

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### **Additional Comments:**



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Method: EPA 8270E by SIM

Description: 8270E MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: May 20, 2021

Analyte Comments: QC Batch: 739879

C6: Result confirmed by reanalysis conducted outside of the method specified holding time.

• MW-02 (Lab ID: 10558462002)

• 1,4-Dioxane (SIM)

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: MW-01	Lab ID:	10558462001	Collected	d: 05/03/2°	15:25	Received: 05/	04/21 18:29 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
raiameters	- Nesulis				DI		Analyzeu	- CAS NO.	_ <del>Q</del> uai
350.1 Ammonia Waters DU	•	Method: EPA 3							
	Pace Anal	ytical Services	- Duluth, M	N					
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:26	7664-41-7	
351.2 TKN Water DU	Analytical	Method: EPA 3	51.2 Prepa	aration Meth	od: EP	A 351.2			
	Pace Anal	ytical Services	- Duluth, M	N					
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:54	7727-37-9	
353.2 Nitrogen N+N pres DU	Analytical	Method: EPA 3	53.2						
	Pace Anal	ytical Services	- Duluth, M	N					
Nitrogen, NO2 plus NO3	0.094	mg/L	0.020	0.0089	1		05/06/21 09:34		
Total Organic Nitrogen Calc.DU	Analytical	Method: TKN-I	NH3 Calcula	ation					
	Pace Anal	ytical Services	- Duluth, M	N					
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:51		
WIDRO LV GCS Silica Gel	Analytical	Method: WI Mo	DD DRO Pi	reparation N	/lethod:	WI MOD DRO			
	Pace Anal	ytical Services	- Minneapo	lis					
WDRO C10-C28 Surrogates	0.065J	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:04		В
n-Triacontane (S)	45	%.	34-125		1	05/06/21 17:08	05/10/21 09:04		
8270E MSSV 14 Dioxane By SIM	Analytical	Method: EPA 8	270E by SI	M Preparat	ion Me	thod: EPA Mod. 3	510C		
	Pace Anal	ytical Services	- Minneapo	lis					
1,4-Dioxane (SIM) Surrogates	9.1	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 15:02	123-91-1	
1,4-Dioxane-d8 (S)	35	%.	30-125		1	05/05/21 15:58	05/06/21 15:02		



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: MW-02	Lab ID:	10558462002	Collected	d: 05/04/2	1 09:50	Received: 05/	04/21 18:29 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU	,	Method: EPA 3		N					
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:28	7664-41-7	
351.2 TKN Water DU	-	Method: EPA 3 ytical Services			nod: EP	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:55	7727-37-9	
353.2 Nitrogen N+N pres DU	,	Method: EPA 3 ytical Services		N					
Nitrogen, NO2 plus NO3	0.089	mg/L	0.020	0.0089	1		05/06/21 09:35		
Total Organic Nitrogen Calc.DU	•	Method: TKN-l ytical Services							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	Method:	WI MOD DRO			
WDRO C10-C28 Surrogates	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:11		
n-Triacontane (S)	72	%.	34-125		1	05/06/21 17:08	05/10/21 09:11		
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	tion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) Surrogates	<0.24	ug/L	0.24	0.10	1		05/06/21 15:20	123-91-1	C6
1,4-Dioxane-d8 (S)	27	%.	30-125		1	05/05/21 15:58	05/06/21 15:20		S0



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: MW-03	Lab ID:	10558462003	Collected	d: 05/04/2	1 12:25	Received: 05/	/04/21 18:29 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU	-	Method: EPA 3 ytical Services		N					
Nitrogen, Ammonia	1.9	mg/L	0.20	0.089	1		05/08/21 12:30	7664-41-7	
351.2 TKN Water DU	-	Method: EPA 3 ytical Services	•		od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	3.1	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:08	7727-37-9	
353.2 Nitrogen N+N pres DU	•	Method: EPA 3 ytical Services		N					
Nitrogen, NO2 plus NO3	0.038	mg/L	0.020	0.0089	1		05/06/21 09:37		
Total Organic Nitrogen Calc.DU	•	Method: TKN- ytical Services							
Total Organic Nitrogen	1.3	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel		Method: WI WI Method:			/lethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	0.039J	mg/L	0.10	0.029	1		05/10/21 09:18		В
n-Triacontane (S)	53	%.	34-125		1	05/06/21 17:08	05/10/21 09:18		
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•		tion Me	thod: EPA Mod. 3	510C		
1,4-Dioxane (SIM)	<0.24	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 15:38	123-91-1	
<b>Surrogates</b> 1,4-Dioxane-d8 (S)	31	%.	30-125		1	05/05/21 15:58	05/06/21 15:38		



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: MW-04	Lab ID:	10558462004	Collected	: 05/04/21	15:40	Received: 05/	04/21 18:29 Ma	atrix: Water	
Danamatana	Danilla	11-26-	Report	MDI	DE	Decreased	A b d	040 N	01
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU	,	Method: EPA 3 ytical Services		I					
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:36	7664-41-7	
351.2 TKN Water DU		Method: EPA 3 ytical Services			od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	0.18J	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:10	7727-37-9	
353.2 Nitrogen N+N pres DU	•	Method: EPA 3 ytical Services		I					
Nitrogen, NO2 plus NO3	0.056	mg/L	0.020	0.0089	1		05/06/21 09:38		
Total Organic Nitrogen Calc.DU	•	Method: TKN-l ytical Services							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	fethod:	WI MOD DRO			
WDRO C10-C28 <b>Surrogates</b>	0.038J	mg/L	0.098	0.028	1	05/11/21 14:42	05/13/21 09:54		
n-Triacontane (S)	80	%.	34-125		1	05/11/21 14:42	05/13/21 09:54		
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM)	2.2	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 15:56	123-91-1	
<b>Surrogates</b> 1,4-Dioxane-d8 (S)	39	%.	30-125		1	05/05/21 15:58	05/06/21 15:56		



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: MW-04-D	Lab ID:	10558462005	Collected	: 05/04/21	16:00	Received: 05/	04/21 18:29 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU	,	Method: EPA 3 ytical Services		1				-	
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:44	7664-41-7	
351.2 TKN Water DU		Method: EPA 3 ytical Services			od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:11	7727-37-9	
353.2 Nitrogen N+N pres DU	•	Method: EPA 3 ytical Services		I					
Nitrogen, NO2 plus NO3	0.062	mg/L	0.020	0.0089	1		05/06/21 09:41		
Total Organic Nitrogen Calc.DU	•	Method: TKN-l ytical Services							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:53		
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	fethod:	WI MOD DRO			
WDRO C10-C28 <i>Surrogates</i>	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08			
n-Triacontane (S)	64	%.	34-125		1	05/06/21 17:08	05/10/21 09:32		
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM)	2.6	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 16:13	123-91-1	
<b>Surrogates</b> 1,4-Dioxane-d8 (S)	39	%.	30-125		1	05/05/21 15:58	05/06/21 16:13		



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

Sample: EB-01	Lab ID:	10558462006	Collected	: 05/04/21	17:00	Received: 05/	04/21 18:29 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia Waters DU	,	Method: EPA 3		1					
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:46	7664-41-7	
351.2 TKN Water DU		Method: EPA 3 ytical Services			od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.18	1	05/07/21 08:53	05/08/21 19:12	7727-37-9	
353.2 Nitrogen N+N pres DU	,	Method: EPA 3 ytical Services		I					
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.0089	1		05/06/21 09:45		
Total Organic Nitrogen Calc.DU	•	Method: TKN-I ytical Services							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:53		
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	fethod:	WI MOD DRO			
WDRO C10-C28 Surrogates	0.030J	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:39		В
n-Triacontane (S)	79	%.	34-125		1	05/06/21 17:08	05/10/21 09:39		
8270E MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Met	hod: EPA Mod. 3	510C		
1,4-Dioxane (SIM) <b>Surrogates</b>	<0.24	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 16:31	123-91-1	
1,4-Dioxane-d8 (S)	44	%.	30-125		1	05/05/21 15:58	05/06/21 16:31		



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 740623 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: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3950022 Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, Ammonia mg/L <0.20 0.089 05/08/21 11:55

LABORATORY CONTROL SAMPLE: 3950023

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950024 3950025

MSD MS 10557872005 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual 5 10 E Nitrogen, Ammonia mg/L 6.2 5 11.7 11.5 110 106 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950026 3950027

MS MSD 10558462003 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 1.9 5 5 6.7 6.9 2 Nitrogen, Ammonia 98 101 10 mg/L 90-110

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 740257

QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN Water DU

Laboratory: Pace Analytical Services - Duluth, MN

EPA 351.2

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3948018 Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Analysis Method:

Nitrogen, Kjeldahl, Total mg/L <0.50 0.50 0.18 05/08/21 18:19

LABORATORY CONTROL SAMPLE: 3948019

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, Kjeldahl, Total mg/L 10 10.6 106 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948020 3948021

MS MSD

10557080004 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result RPD Result Conc. Conc. Result % Rec % Rec Limits **RPD** Qual 10 M6 Nitrogen, Kjeldahl, Total mg/L 2280 10 10 2270 2180 -30 -918 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948022 3948023

MS MSD 10558462003 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual

Nitrogen, Kjeldahl, Total mg/L 3.1 10 10 13.5 13.4 103 102 90-110 1 10

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 740057 Analysis Method:

QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved DU

Laboratory: Pace Analytical Services - Duluth, MN

EPA 353.2

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3947053 Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, NO2 plus NO3 mg/L <0.020 0.020 0.0089 05/06/21 10:01

LABORATORY CONTROL SAMPLE: 3947054

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, NO2 plus NO3 mg/L 0.5 0.52 104 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3947055 3947056

MS MSD

10553360001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result **RPD** RPD Result Conc. Conc. Result % Rec % Rec Limits Qual Nitrogen, NO2 plus NO3 mg/L 0.045 0.5 0.5 0.43 0.43 76 78 90-110 10 H3,M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3947057 3947058

MS MSD

10558462004 MS MSD MS MSD % Rec Spike Spike Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Nitrogen, NO2 plus NO3 0.5 0.056 0.5 0.57 0.58 103 106 3 10 mg/L 90-110

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 739879 Analysis Method: EPA 8270E by SIM

QC Batch Method: EPA Mod. 3510C Analysis Description: 8270E Water 14 Dioxane by SIM

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3945800 Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Blank Reporting Parameter MDL Qualifiers Units Result Limit Analyzed 1,4-Dioxane (SIM) < 0.25 0.25 0.11 05/06/21 08:50 ug/L 1,4-Dioxane-d8 (S) %. 42 30-125 05/06/21 08:50

LABORATORY CONTROL SAMPLE &	LCSD: 3945801		39	945802						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,4-Dioxane (SIM)	ug/L	10	9.1	10.3	91	103	59-134	12	20	
1,4-Dioxane-d8 (S)	%.				40	39	30-125			

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 740117 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO Low Volume GCS w/Cleanup

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462005, 10558462006

METHOD BLANK: 3947399 Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462005, 10558462006

Blank Reporting Parameter Limit MDL Qualifiers Units Result Analyzed WDRO C10-C28 mg/L 0.031J 0.10 0.029 05/10/21 08:50 n-Triacontane (S) %. 78 34-125 05/10/21 08:50

LABORATORY CONTROL SAMPLE & I	LCSD: 3947400		39	947401						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
WDRO C10-C28	mg/L	0.8	0.55	0.53	68	67	42-125	2	20	
n-Triacontane (S)	%.				71	69	34-125			

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



Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

QC Batch: 741242 Analysis Method:

QC Batch Method: WI MOD DRO Analysis Description: WIDRO Low Volume GCS w/Cleanup

Laboratory: Pace Analytical Services - Minneapolis

WI MOD DRO

Associated Lab Samples: 10558462004

METHOD BLANK: 3952653 Matrix: Water

Associated Lab Samples: 10558462004

Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed WDRO C10-C28 mg/L < 0.10 0.10 0.029 05/13/21 09:40 n-Triacontane (S) %. 67 34-125 05/13/21 09:40

LABORATORY CONTROL SAMPLE & LCSD: 3952654 3952655 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD RPD** Qualifiers WDRO C10-C28 0.8 0.58 61 72 42-125 17 mg/L 0.49 20 n-Triacontane (S) 67 78 34-125 %.

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



### **QUALIFIERS**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

### **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.

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

TNI - The NELAC Institute.

### **BATCH QUALIFIERS**

Batch: 740078

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### **ANALYTE QUALIFIERS**

Date: 05/20/2021 08:14 PM

B	Analyte was detected in the associated method blank.
ט	Alialyte was detected in the associated inethod blank.

C6 Result confirmed by reanalysis conducted outside of the method specified holding time.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

S0 Surrogate recovery outside laboratory control limits.



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Date: 05/20/2021 08:14 PM

_ab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
0558462001	MW-01	EPA 350.1	740623	_	
0558462002	MW-02	EPA 350.1	740623		
0558462003	MW-03	EPA 350.1	740623		
0558462004	MW-04	EPA 350.1	740623		
0558462005	MW-04-D	EPA 350.1	740623		
0558462006	EB-01	EPA 350.1	740623		
0558462001	MW-01	EPA 351.2	740257	EPA 351.2	740521
0558462002	MW-02	EPA 351.2	740257	EPA 351.2	740521
0558462003	MW-03	EPA 351.2	740257	EPA 351.2	740521
0558462004	MW-04	EPA 351.2	740257	EPA 351.2	740521
0558462005	MW-04-D	EPA 351.2	740257	EPA 351.2	740521
0558462006	EB-01	EPA 351.2	740257	EPA 351.2	740521
0558462001	MW-01	EPA 353.2	740057		
0558462002	MW-02	EPA 353.2	740057		
0558462003	MW-03	EPA 353.2	740057		
0558462004	MW-04	EPA 353.2	740057		
0558462005	MW-04-D	EPA 353.2	740057		
0558462006	EB-01	EPA 353.2	740057		
0558462001	MW-01	TKN-NH3 Calculation			
0558462002	MW-02	TKN-NH3 Calculation			
0558462003	MW-03	TKN-NH3 Calculation			
0558462004	MW-04	TKN-NH3 Calculation			
0558462005	MW-04-D	TKN-NH3 Calculation			
0558462006	EB-01	TKN-NH3 Calculation			
0558462001	MW-01	WI MOD DRO	740117	WI MOD DRO	740492
0558462002	MW-02	WI MOD DRO	740117	WI MOD DRO	740492
0558462003	MW-03	WI MOD DRO	740117	WI MOD DRO	740492
0558462004	MW-04	WI MOD DRO	741242	WI MOD DRO	741690
0558462005	MW-04-D	WI MOD DRO	740117	WI MOD DRO	740492
0558462006	EB-01	WI MOD DRO	740117	WI MOD DRO	740492
0558462001	MW-01	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
0558462002	MW-02	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
0558462003	MW-03	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
0558462004	MW-04	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
0558462005	MW-04-D	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
0558462006	EB-01	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078

Customer-Focused Environmental & Industrial Solutions	<b>Bay West</b>

# CHAIN-OF-CUSTODY / Analytical Request Document

			3	<u> </u>	3	φ	 7 D (1)	6 8		4 2	3 2	2 2	1 2	ITEM#	П	S W S S S M		Copy To:	Phone:	Email To:	Project	Address:	Compa	Section A
E 0		ADDI					Equipment Blank	834636	334635	2001007377	2001007376	2001007375	2001007374	Location Unique ID		Matrix Code SE=Sediment SO=Soil QC=Soil QC W=Aqueous WG=Groundwater S=Surface					anan	ss: 5 Empire	mony:	n A
W0#:10558462		ADDITIONAL COMMENTS					EB-01	MW-04 - D	CO-AAIAI	MW-04	MW-03	MW-02	MW-01	Sample Common ID		Lab Matrix Codes DW=Drinking Waler NW=Non-potable Waler SD=Soll/Solid WP=Wipe AR=Air BL=Biological Material OT=Other		Eweaver@bavwest.com	651-291-3493	enimlos@baywest.com	Frik Nimlos	וס	Ray West	ation.
<b>■ 84</b>	Trad			į			QC-EB	QC-FR	Sample	Sample	Sample	Sample	Sample	Sample Type Code (MPCA ONLY)	-	Field Matrix Wtr-Ground: WTR-Surf=S QC-Blank=A Leachate=Lea Soil-Surf= S Soil-Sub= S.		Сору То:	Сору То:	Site Location (State):	_	_	Project Name:	Section B
	17	RELINQUISHED					<del>ග</del>	R G	ile G	e G	e G	e G	ie G	SAMPLE TYPE (G=GRAB C=COMP)		Field Matrix Codes Witr-Ground-Ground Water WITR-Surf=Surface Water QC-Blank-Artificial Blank Water Leachate=Leachate Sample Soil-Surface Soil-Sub-Soil Subsurface				State):	me:	ä		ion B
	Bay	D BY / AFFILIATION					WG NW	WG NW	MR DW	WG NW	WG NW	WG NW	MN 9M	Matrix Code Lab Matrix Code (MPCA ONLY)	-	ater		gvanderwaa	IVa				SW#134 Be	2
SAMPLER NAME AND S PRINT Name of SAMPLER: SIGNATURE of SAMPLER:	2						Wtr-Ground	/ Wtr-Ground	/ Wtr-Ground	/ Wtr-Ground	/ Wtr-Ground	/ Wtr-Ground	/ Wtr-Ground	Field Matrix Code (MPCA ONLY)		Sample Type Codes Sample Routine Sample Scrupe Composite Sam Scrupe-Integrated Vertical is Scrupe-Integrated Blank Sample QC-FR=Fleid Replicate Sa QC-TB=Trip Blank Sample		gvanderwaal@baywest.com	ryanr@baywest.com	MN	Standard	200408	SW#134 Begin Dump - GW Sampling	
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER:	41412 (8)	DATE TR	-				514121	5/4/21		21412	514121	12/12/5	513121	Date		Sample Type Codes Sample-Southe Sample S-CWOP-Composite Sample S-LYP-Integrated Vertical Profile Sample QC-FR-Field Benk Sample QC-FR-Field Repilcate Sample QC-TB-Trip Blank Sample				Purchase Order No.	Address:	_	Attenti	Section C
1 Toppe	77	TIME					1720	0001		9451	1225	0950	1525	Time		ie .				1	5 Empire Dr. St. Paul, MN 55103			∍ Information:
	1	ACCE					$\overline{\widetilde{\mathcal{O}}}$	Ö	Ö	Ö	2	5	ō	# of Cont.						205946	St. Paul, MN	Bay West LLC	Accounts Payable	
DATE Signed (MM/DD/YY):	l lut	EPTED BY / AFFILIATION					×	×	×	×	×	×	×	DRO with silica gel cleanup (WI DRO) 2,3,7,8 TCDD		HC1				<del></del> +	_	Adress:	Lab I	Sect
(אוא/סטיייי):		ILIATION					×	×	1	×	×	×	×	(Dioxin)(EPA 1613B/8290A) 1,4-Dioxane (8270 SIM)	- -	None				Lab Phone:	Lab Project Manager	SS:	Lab Name:	Section D  Laboratory Information
5							×	×	×	×	×	×	×	PFAS Nitrogen, Total Organic (351.2 + 350.1)	Keque	HCI None None None H_504	Pres				ger	1700 Elm St.		on .
(4/2)	Str.	DĄTE					×	×	X	×	×	×	×	Nitrate + Nitrite, as N(SM 4500 NO3-H)	isted Analysis	H2504	Preservatives			612-607-6347	Sylvia Hunter	1700 Elm St. Minneapolis MN, 55414	Pace	:
	16	* 30										-							ים	P			Q	(0
	2 22								<del> </del>										Program Code	Project Task Code:	Facility Code:	Work Order Number	COC ID:	Section E  MPCA Information
7 lce (Y/	oler S	SAMPLE CONDITIONS		· ·			6		1. W.C.		<u>\$</u> .	Existence 1 AINO		Comment						le: PRJ07913	SW-134	bei 3000027123		i

Page:

001

# ace Analytical®

hold, incorrect preservative, out of temp, incorrect containers).

### **Document Name:**

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.02

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services -Minneapolis

Sample Condition Upon Receipt  Client Name:		مر ،	Project	#:	WO	#:10	558462	
Courier: Fed,Ex UPS	]USPS ]Commerc	ial	Client		PM: S	SH1 NT: BW-BAY	Due Date: 0	
Tracking Number:	1		e Exception IV-FRM-MIN		-	1		
Custody Seal on Cooler/Box Present? Yes	ŹΝο	Sea	is Intact?	Yes	ZN	o <b>Biologic</b>	al Tissue Frozen? [	∐Yes ∐No ∭N/A
Packing Material: Bubble Wrap Bubble E	ags _	None	□Oth	er:	(		Temp Blank?	∏Yes ∏No
Thermometer:		LS	Type of Ice:	Wet	□Blue	None	DryMelted	
Did Samples Originate in West Virginia? Yes	Wer	e All Co	ntainer T	emps Take	n? ∐Yes	s □No ☑N//	A	
Temp should be above freezing to 6°C Cooler Temp Re  Correction Factor: Cooler Temp Correct			•	- 2. <del>U</del>	4.S	Te	verage Corrected emp (no temp blan nly):°C	See Exceptions k ENV-FRM-MIN4-0142  1 Container
USDA Regulated Soil: ( N/A, water sample/Other:	eu w/tem	p bialik.	V (C - 1	Data/In		farmen	ing Contents:	T[1-7]
Did samples originate in a quarantine zone within the Uni ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check r If Yes to either question, fill out a	naps)?	]Yes	No	, Did sai Hawaii	mples orig	ginate from a for rto Rico)?	eign source (internati ☐Yes ☐No	,, ,
			T-100-7-10-10-10-10-10-10-10-10-10-10-10-10-10-			CC	OMMENTS:	
Chain of Custody Present and Filled Out?	Zyes	□No		1.			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Chain of Custody Relinquished? Sampler Name and/or Signature on COC?	Øyes Øyes	□No □No	□N/A	2. 3.			¥	
Samples Arrived within Hold Time?	Yes		ШМА	4.				
Short Hold Time Analysis (<72 hr)?	∐Yes	ØN₀		5.			l Coliform/E coli ☐BOI ☐Orthophos ☐Other	D/cBOD Hex Chrome
Rush Turn Around Time Requested?	☐Yes ,	✓No		6.			A	
Sufficient Volume?	<b>∑</b> Yes	□No		7.	~~~			
Correct Containers Used?	Yes	□No		8.				
-Pace Containers Used? Containers Intact?	✓ZYes ✓ZYes	∐No ∐No		9.				
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	☑N/A	10. Is se	ediment v	visible in the dis	solved container?	Yes No
Is sufficient information available to reconcile the samples to the COC?  Matrix: ☑Water □Soil □Oil □Other		□No	,	11. If no,	write ID/ I	Date/Time on Cor	ntainer Below:	See Exception ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been	<b>Z</b> ÎYes	□No	□N/A	12. Samp	e #	1 1	c - 4	
checked?			□14/A	_	_		7 全	
All containers needing preservation are found to be in compliance with EPA recommendation?  (HNO₃, H₂SO₄, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	<b>Z</b> Yes	∏No	□n/a		] NaOH	∐ HNO₃	JZ]H₂SO₄	Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	Ýes	□No	□n/a	Positive for Chlorine?		<del></del>	Paper Lot#	See Exception ENV-FRM-MIN4-0142
Water and Bloking TAS				Res. Chlo	rine	0-6 Roll 2214 (C	0-6 Strip	0-14 Strip
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	□Yes □Yes	∏No ∏No	ZN/A ZN/A	13.			<u> </u>	See Exception ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	☐Yes	∏No	ZN/A	14.	Trin Dl-	nk   at # (if n	shacad).	
· · · · · · · · · · · · · · · · · · ·	Yes	No	I/N/A	race	: пры	nk Lot # (if purc		1v
CLIENT NOTIFICATION/RESOLUTION Person Contacted:				Date/Ti	me:	rield D	Pata Required?	Yes No
Comments/Resolution:				, 11				
	11.	Ti						
Project Manager Review:	a compliance		es, a copy o	of this form	Date: will be ser		Carolina DEHNR Certifi	cation Office (i.e out of

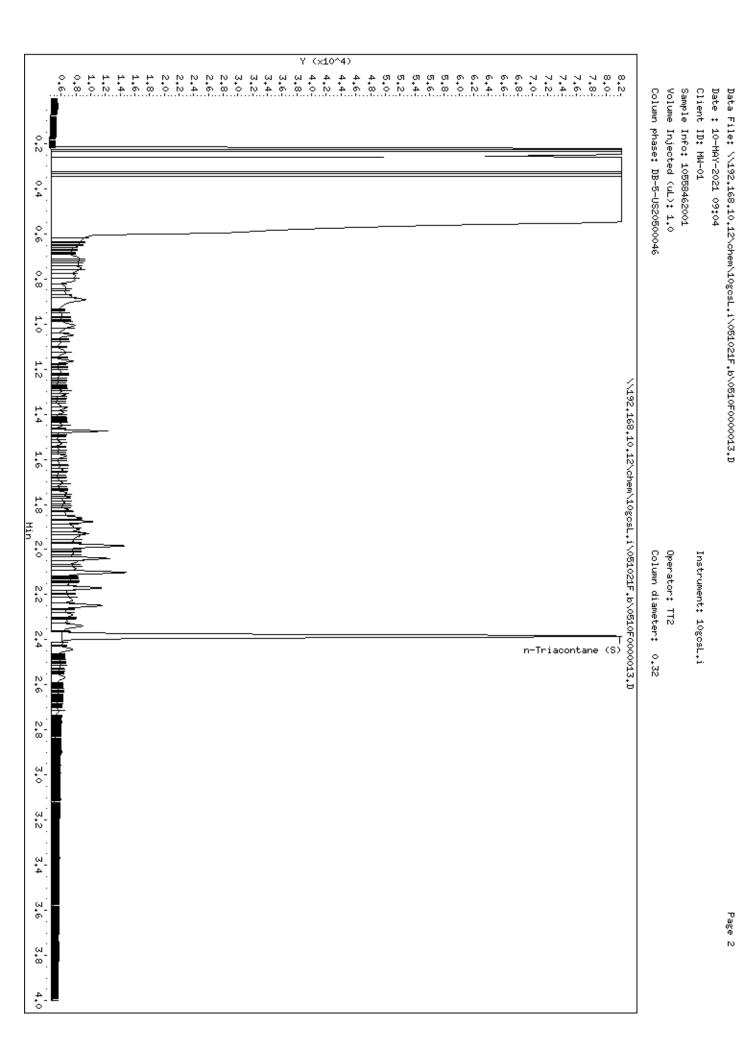
ge	29	of	3

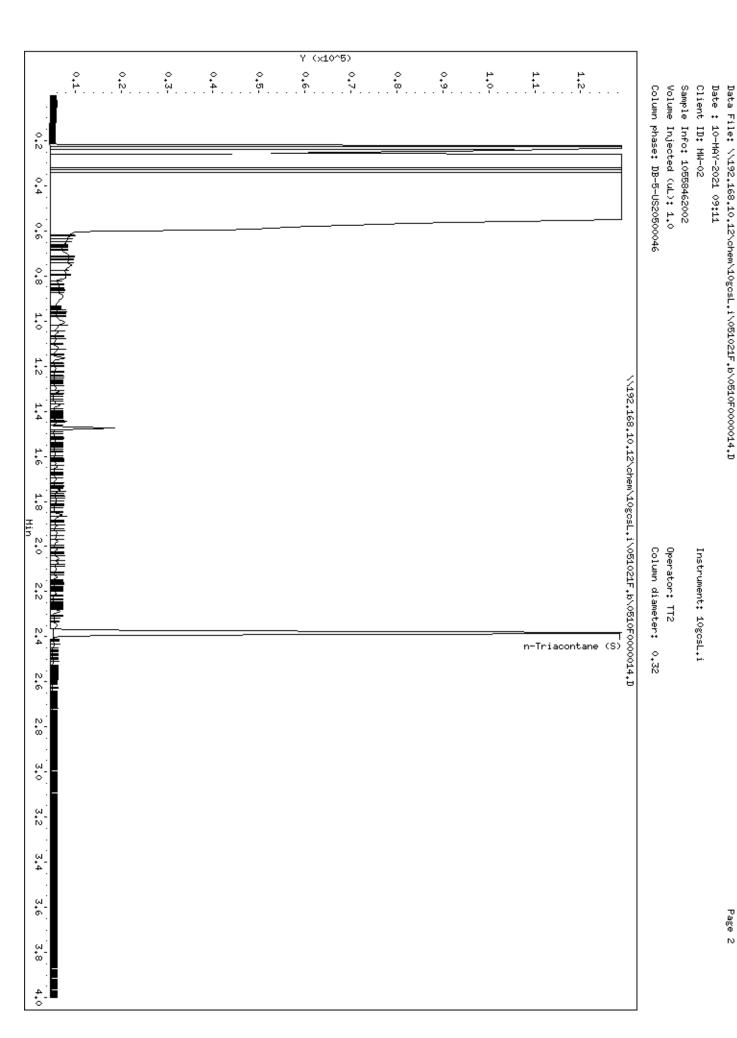
		W0#:10558462	
Intra-Regional Chain of Custody	nain of Custody —————	PM: SH1 Due Date: 05/19/21 CLIENT: BW-BAY WEST	19/21 Pace Analytical®
Workorder: 10558462	Workorder Name: 200408 SW#134 Begin Dump-GW	Owner Received Date: 5/4/2021	Due Date: 5/19/2021
Received at:	Send To Lab:	Requested Analysis	Analysis
Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone 1(612)607-1700	Pace Analytical Duluth 4730 Oneota St. Duluth, MN 55807 Phone (218) 727-6380		
Report To: Sylvia Hunter	B	BP3S (2 ea)  EPA 353.2  EPA 350.1  NH3 Calculation	
Item Sample ID	Sample Collect Type Date/Time Lab ID Matrix		LAB USE ONLY
1 MW-01	PS 5/3/2021 15:25 10558462001 Water 2	× × × ×	
2 MW-02	PS 5/4/2021 09:50 10558462002 Water 1	× × × ×	
3 MW-03	PS 5/4/2021 12:25 10558462003 Water 2	× × × ×	
4 MW-04	PS 5/4/2021 15:40 10558462004 Water 2	× × × ×	
5 MW-04-D	PS 5/4/2021 16:00 10558462005 Water 2	××××	
6 EB-01	PS 5/4/2021 17:00 10558462006 Water 1	××××	
			Comments
Transfers Released By	Date/Time Received By	Date/Time	
1	1/2 1/2/2/18/2 2 C S/S	(2)	
2	SIS121 2140 John Catt 1,	PACE 5/6/2011 00150	
3			
4			
Cooler Temperature on Receipt ${\mathscr D}$ $ eg$	eipt 🔑 🕆 °C   Custody Seal 🕎 or N	Received on Ice Y or N	Samples Intact Y or N

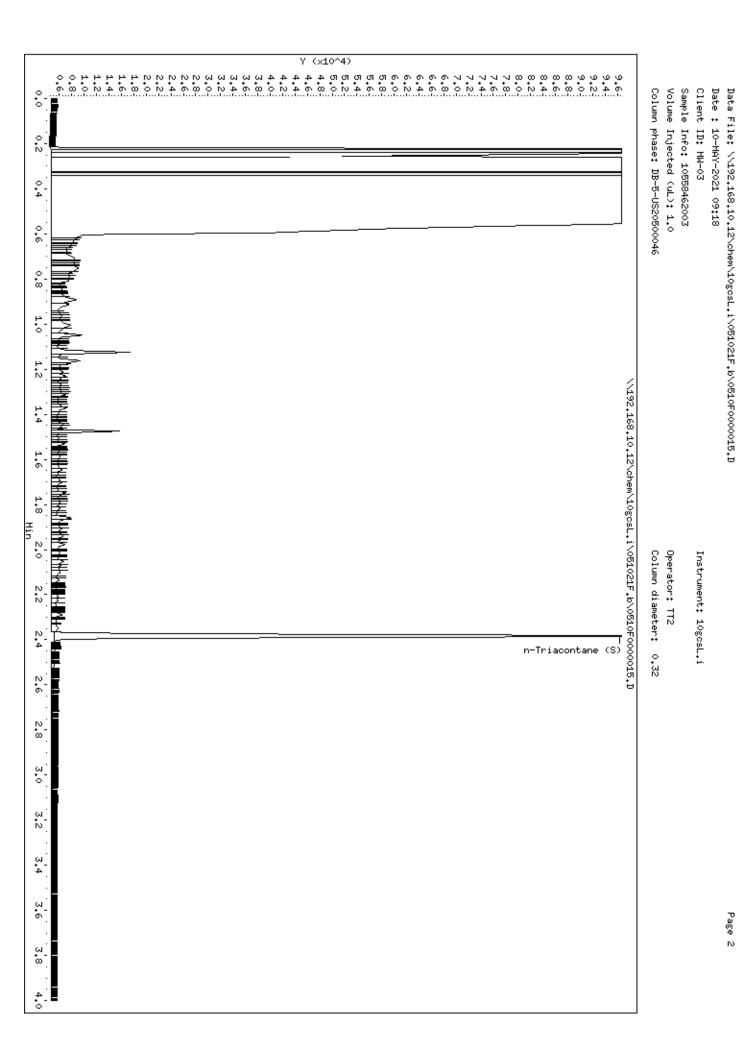
\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

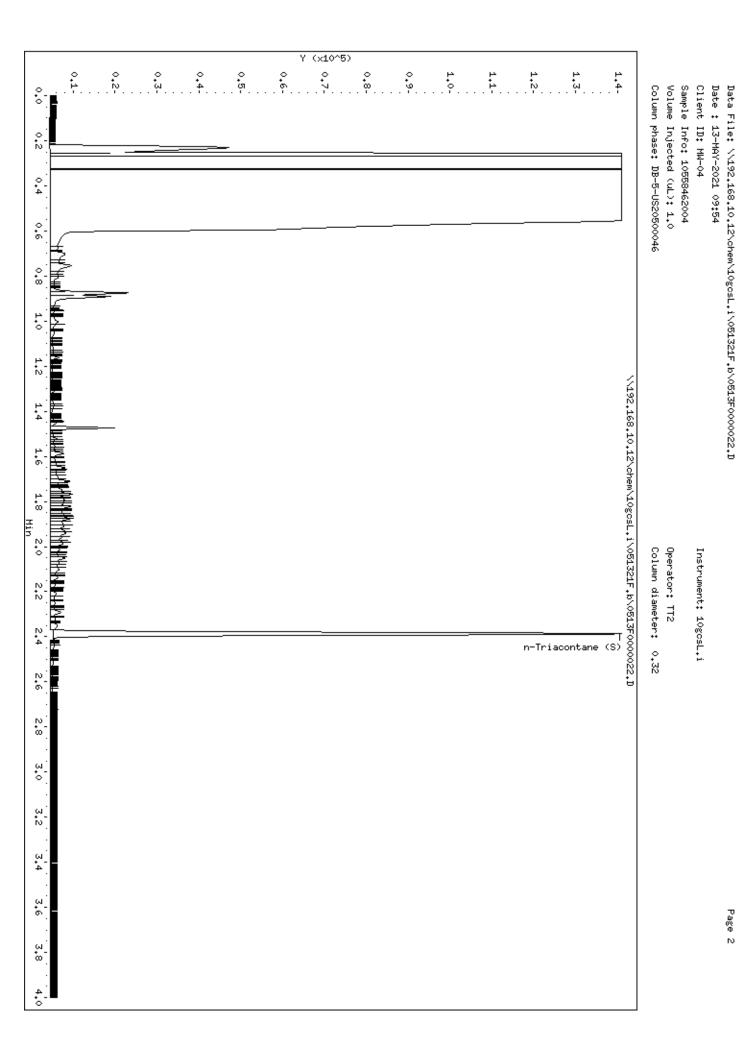
Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 17June2019 Page 1 of 1			
ace Analytical	Document No.:	Issuing Authority:			
	F-DUL-C-001-rev.07	Pace Duluth Minnesota Quality Office			

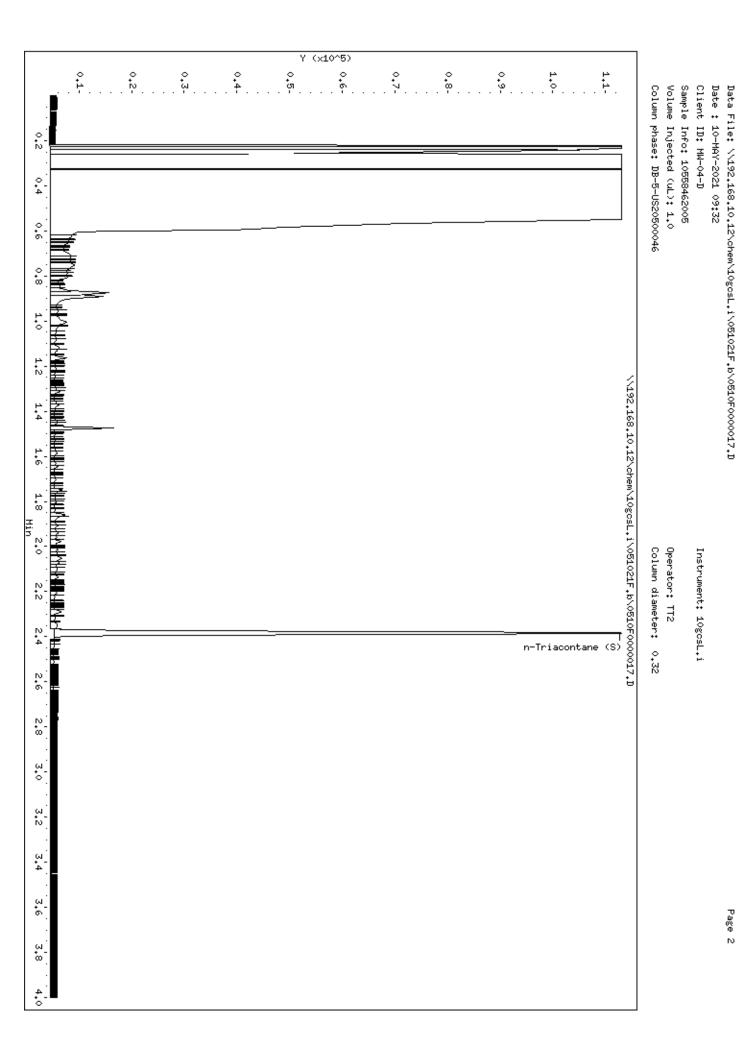
Upon Receipt Pace MN			Projec	WO#: 10558462
Courier: Fed Ex UPS SpeeDee Trace		SPS ther:	Client	PM: SH1 Due Date: 05/19/21 CLIENT: BW-BAY WEST
Tracking Number:				
Custody Seal on Cooler/Box Present?	No	Seals	Intact?	∰Yes
Packing Material: 🔀 Bubble Wrap 🔲 Bubble	Bags [	None	Othe	er:
「 <b>ype of Ice:</b>	, ]Samples	on ice, co	oling proce	ess has begun
s there evidence of ice formation in samples?	Yes 🗗	-No B	iological T	issue Frozen? 🔲 Yes 🔲 No 🕍 NA
「emp Blank? ☑ Yes ☐ No Therm	ometer Us	sed:	013392	
emp should be above freezing to 6 °C	, Coc	oler Temp	Read °C:	52/1710
Date and Initials of Person Examining Contents: $\underline{\mathcal{S}}$	<i>i</i> /			6/2*a, Comments:
Chain of Custody Present?	ŹYes	□No	□N/A	1.
hain of Custody Filled Out?	✓Yes	□No	□N/A	2.
Chain of Custody Relinquished?	✓Yes	□No	□N/A	3.
ampler Name and Signature on COC?	☐Yes	□No	☑N/A	4.
amples Arrived within Hold Time?	✓Yes	□No	□N/A	5. If Fecal:
hort Hold Time Analysis (<72 hr)?	Yes	ØNo	□N/A	6.
ush Turn Around Time Requested?	Yes	✓No	□N/A	7.
ufficient Volume?	✓Yes	□No	□N/A	8.
orrect Containers Used?	✓Yes	□No	□N/A	9.
-Pace Containers Used?	Yes	□No	□N/A	
ontainers Intact?	Yes	□No	□N/A	<ul><li>10.</li><li>11. Note if sediment is visible in the dissolved containers:</li></ul>
iltered Volume Received for Dissolved Tests?	□Yes	□No	☑N/A	11. Note it sediment is visible in the dissolved containers:
ample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix:WT	✓Yes	□No	□N/A	12.
Il containers needing acid/base preservation properly reserved?	✓Yes	□No	□n/a	13. Note samples needing adjustment:
eadspace in Methyl Mercury Container	Yes	No	Øn/a	14.
eadspace in VOA Vials ( >6mm)?	Yes	□No	Øn/a	15.
rip Blank Present?	Yes	□No	⊠n/a	16.
rip Blank Custody Seals Present?	Yes	No	ØN/A	
ace Trip Blank Lot # (if purchased):				
IENT NOTIFICATION/RESOLUTION:				Field Data Required? Yes No
Person Contacted:				Date/Time:
mments/Resolution:				
CAL WAIVER ON FILE: Y N	TEMPER	RATURE W	AIVER ON	FILE: Y N

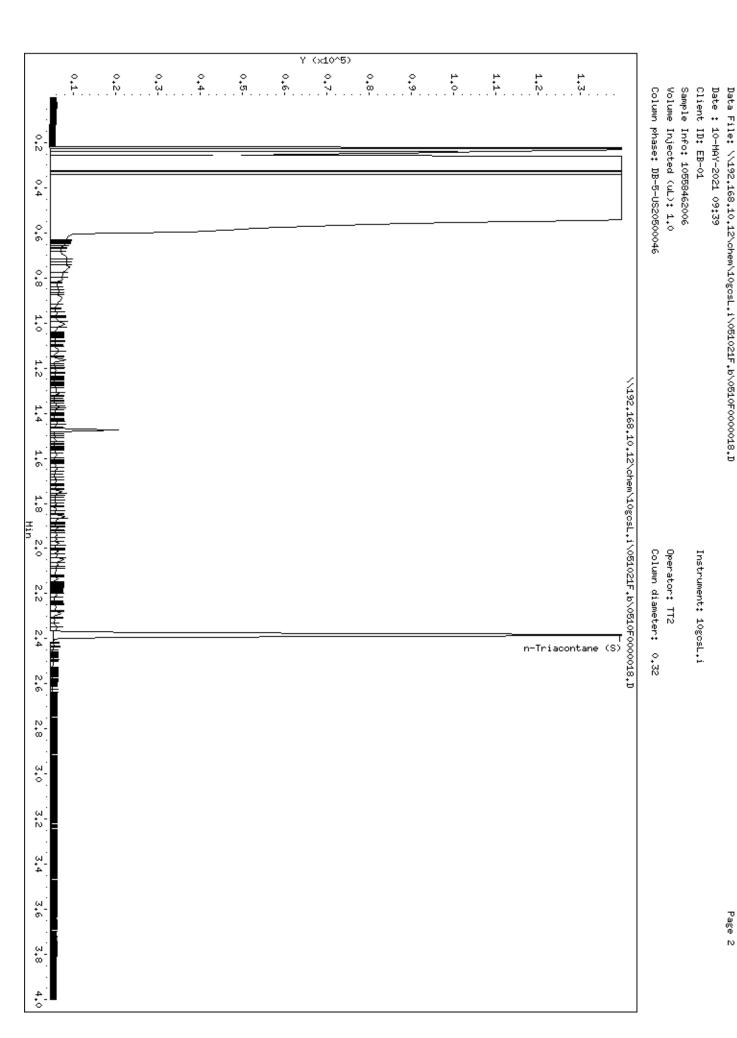














### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

## **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY ANALYSIS FOR TCDD

# **Report Information:**

**PaceProject#: 10558465** 

Sample Receipt Date: 05/04/2021

Client Project #: 200408 SW#134 Begin D

**Client Sub PO #: 205946** 

State Cert #: N/A

### **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 2,3,7,8-TCDD Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

May 19, 2021

Scott Unze, Project Manager

(612) 607-6383 (612) 607-6444 (fax)

scott.unze@pacelabs.com



# **Report of Laboratory Analysis**

 $This report should not be reproduced, except in full, \\ without the written consent of Pace Analytical Services, Inc.$ 

The results relate only to the samples included in this report.

May 17, 2021



Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

### **DISCUSSION**

This report presents the results from the analyses performed on six samples submitted by a representative of BayWest, LLC. The samples were analyzed for the presence or absence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements.

The recoveries of the isotopically-labeled TCDD internal standard in the sample extracts ranged from 64-85%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native TCDD was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show that 2,3,7,8-TCDD was not detected, indicating that the sample processing steps were free of background levels of this congener.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard material. The results show that the spiked native TCDD was recovered at 112% with a relative percent difference of 0.0%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch.

### **REPORT OF LABORATORY ANALYSIS**

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Tel: 612-607-1700 Fax: 612-607-6444

# Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

# **REPORT OF LABORATORY ANALYSIS**

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

Report No.....10558465

# Appendix A

Sample Management

Page:

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Page 5 of 18

CHAIN-OF-CUSTODY / Analytical Request Document

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

SA SALIKE only I conside ~ 3000027123 Comments PRJ07913 () SW-134 E MICH Work Order Number Project Task Code: Program Code Facility Code: Section E COC ID: 1700 Elm St. Minneapolis MN, 55414 Sylvia Hunter 612-607-6347 hoszH (H-EON 00St WS)N × Nitrate + Nitrite, as oinsgri Otal Organic 11.036 + 3.17) × × × SA7 Lab Project Manager × Such × × × Lab Phone: Section D Lab Name Adress: A93)(nixolQ (A0628\B£f3 DVVV × × × × QQDT 8,7,6, sanup (WI DRO) 5 Empire Dr. St. Paul, MN 55103 RO with silica gel × × 205946 Bay West LLC Accounts Payable C 9 9 # of Cont. 9451 748 1225 0951 0091 **9miT** Purchase Order No. Company Name Sample Type Codes
Sample-Courbos Sample-Courbos Sample-ScyWOP=Composite Sample
S-WOP=Integrated Vertical Profile Sample
QC-FB=Faled Blank Sample
QC-FB=Faled Repdicate Sample
QC-FB=Fale Repdicate Sample Section C Attention: Address: 5/4/2 ग्रनाय 3 5/4/2/ 121413 Date 5131 S SW#134 Begin Dump - GW Sampling ryanr@baywest.com Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground gvanderwaal@baywest.com Wfr.Ground Standard (MPCA ONLY) 200408 Field Matrix Code Σ (MPCA ONLY) Ž Š Š ≷ Ž ≷ MA Lab Matrix Code დ % WG WG WG WG WG Matrix Code Field Matrix Codes
Wit-Ground-Schund Water
WIR-Surf-Surface Weter
QC-Bank-Artificial Blank Water
Leachtate-Leachtale Sample
Soil-Surface
Soil-Surface
Soil-Surface Required Project Information SAMPLE TYPE (G=GRAP) ტ თ თ ത Ø d ര Site Location (State) Furnaround Time Sample Sample Sample Project Number Sample QC-EB Sample QC-FR Project Name: (MPCA ONLY) Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW=Drinking Water
NW=Non-potable Water
SD=Soit/Solid Eweaver@baywest.com BL=Biological Material OT=Other enimlos@baywest.com MW-04 - D MW-02 MW-03 MW-04 EB-01 ADDITIONAL COMMENTS Bay West 651-291-3493 AR=Air Required Client Information Location Unique ID 2001007376 2001007374 2001007375 2001007377 Matrix Code
SE=Sediment
SO=Soil
QC=Soil QC
W=Aqueous
WG=Groundwat Equipment Blank Project Manager 834636 834635 Section A Company: Email To: Address: Copy To: Phone: က # Mati 위도

DATE Signed (MM/DD/YY): 10eage C RINT Name of SAMPLER: SIGNATURE of SAMPLER:

SAMPLER NAME AND SIGNATURE

Report Nd....10558465\_8290TCDD\_DFR

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707

(X/Y) bathi selqmed

Custody Sealed Cooler (Y/N)

qmeT (0°)

20

10#:10558465



### Document Name:

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.02

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services - Minneapolis

Sample Condition	Client Name:		Project	#:	110	4 . 40	NEE	2265	
Upon Receipt	Box West		+		MU	H · T		8465	
Courier:		ISPS ommerc	 Client		PM:   CLIE		Due AY WES	Date: 05/ T	19/21
Tracking Number:			See Exceptio ENV-FRM-MII						
Custody Seal on Cod	oler/Box Present? 🔲 Yes 📈 I	No	Seals Intact	?   Yes	Z	lo <b>Biolo</b>	gical Tiss	ue Frozen? 🔲	′es □No ☑N/A
Packing Material:	Bubble Wrap Bubble Bag		None	er:			Ter	np Blank?	∫Yes □No
Thermometer:	☐ T1(0461)	OS418-l 160285		Wet	Blue	None	□Dry	☐Melted	
Did Samples Originat	t <b>e in West Virginia?</b> □Yes	Wer	e All Container 1	emps Tak	en? ∐Ye	es 🗌 No 🔽	ŽN/A		
Temp should be above fre				, 14 1,26	,4. <b>8</b> ) 5	°္ ` <i>, ()</i> ့	_	e Corrected no temp blank OC	See Exceptions ENV-FRM-MIN4-0142 1 Container
Did samples originate i ID, LA. MS, NC, NM, NY	N/A, wate sample/Other: in a quarantine zone within the Unite y, OK, OR, SC, TN, TX or VA (check ma Yes to either question, fill out a Re	ps)?	]Yes □No	A, Did sa Hawai	mples or i and Pue	erto Rico)?	foreign so	urce (internationa es ∐No	0 5-04-21 ally, including
							СОММЕ	NTS:	
Chain of Custody Preser	nt and Filled Out?	<b>∠</b> yes	□No	1.					
Chain of Custody Reling		Yes	□No	2.			¥		
Sampler Name and/or S		Zyes	□No □N/A	3.					
Samples Arrived within	Hold Time?	Yes	□No	4.					
Short Hold Time Analys	sis (<72 hr)?	∐Yes	ØN₀					m/E coli  BOD/c ophos  Other	BOD Hex Chrome
Rush Turn Around Time	e Requested?	☐Yes ,	No	6.				1	
Sufficient Volume?		Yes	□No	7.			. <del></del>		
Correct Containers Used	d?	Žу́es	∐No ·	8.					
-Pace Containers Use	ed?	Yes	No						
Containers Intact?	-	Yes	□No	9.					
Field Filtered Volume Re	eceived for Dissolved Tests?	Yes	□No □N/A	10. Is s	ediment	visible in the	dissolved	container? Y	es No
to the COC?	n available to reconcile the samples	Yes	∏No	11. If no,	write ID/	Date/Time on	Container	Below:	See Exception ENV-FRM-MIN4-0142
Matrix: ☐Water ☐Soil All containers needing a checked?	acid/base preservation have been	Yes	□No □N/A	12. Samp	le#		<del> </del>	time the state of	
compliance with EPA re	oreservation are found to be in commendation? aOH >9 Sulfide, NaOH>10 Cyanide)	∐Yes	□no ⊠n/a		NaOH	□ни	NO <sub>3</sub>	∏H₂SO₄	Zinc Acetate
Exceptions: VOA, Colifor	rm, TOC/DOC Oil and Grease,	∐Yes	□No ØN/A	Positive f	7	Yes No	рН Рареі	· Lot#	See Exception ENV-FRM-MIN4-0142
DRO/8015 (water) and I	Dioxin/PFAS		-	Res. Chlo	rine	0-6 Roll		0-6 Strip	0-14 Strip
Extra labels present on s	soil VOA or WIDRO containers?	□Yes	□No □N/A	13.		I			See Exception
Headspace in VOA Vials	(greater than 6mm)?	Yes	□No □N/A						ENV-FRM-MIN4-0140
Trip Blank Present?		∐Yes	□No ZÎN/A	14.				Andrew William Paris	
Trip Blank Custody Seals	s Present?	☐Yes	□No IN/A	Pac	e Trip Bl	ank Lot # (if p	urchased	): <u> </u>	
CLIENT NOTI	IFICATION/RESOLUTION					Fiel	d Data Re	equired? TY	es 🔲 No
Person Contacted:	•			Date/T	me:	- 10-	2	.,	
Comments/Resolution	:								·
	.420							****	
Project Man	ager Review: h. (c)				Date	: 05/17/21			

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).



# **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X =%D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-01
Lab Sample ID 10558465001
Filename Y210515B\_05
Injected By BAL

Total Amount Extracted 967 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/03/2021 15:25 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 00:23

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		1.38	2,3,7,8-TCDD-13C	2.00	70
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	73

 $\label{local_conc} \textit{Conc} = \textit{Concentration} \; (\textit{Totals include 2,3,7,8-substituted isomers}).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-02
Lab Sample ID 10558465002
Filename Y210515B\_06
Injected By BAL

Total Amount Extracted 995 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/04/2021 09:50 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 01:08

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		0.838	2,3,7,8-TCDD-13C	2.00	85
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	91

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-03 Lab Sample ID 10558465003 Filename Y210515B\_07 Injected By BAL

Total Amount Extracted 1020 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/04/2021 12:25 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 01:52

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		0.651	2,3,7,8-TCDD-13C	2.00	77
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable NC = Not Calculated



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04
Lab Sample ID 10558465004
Filename Y210515B\_08
Injected By BAL

Total Amount Extracted 998 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/04/2021 15:40 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 02:36

Native Isomers	Conc pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		1.35	2,3,7,8-TCDD-13C	2.00	64
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	80

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable NC = Not Calculated



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-04-D Lab Sample ID 10558465005 Filename Y210515B\_09 Injected By BAL

Total Amount Extracted 975 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/04/2021 16:00 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 03:21

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		0.697	2,3,7,8-TCDD-13C	2.00	70
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	85

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



## Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID EB-01

Lab Sample ID 10558465006 Filename Y210515B\_10

Injected By BAL

Total Amount Extracted 996 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/04/2021 17:00 ICAL ID Y210504 Received 05/04/2021 18:29 CCal Filename(s) Y210515A\_17 & Y210515B\_17 Extracted 05/06/2021 13:00 Method Blank ID **BLANK-89810** Analyzed 05/16/2021 04:05

Conc **EMPC EDL** Percent **Native** Internal ng's pg/L **Standards** Added **Isomers** pg/L pg/L Recovery 2,3,7,8-TCDD ND 1.03 2,3,7,8-TCDD-13C 2.00 72 Recovery Standard 1,2,3,4-TCDD-13C 2.00 NA Cleanup Standard 2,3,7,8-TCDD-37Cl4 0.20 77

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



## Method 8290A Blank Analysis Results

Lab Sample Name Lab Sample ID Filename Total Amount Extracted

ICAL ID CCal Filename(s) DFBLKXO BLANK-89810 Y210515B\_03 1000 mL Y210504 Y210515A\_17

Matrix Water Dilution NA Extracted 05/06/

Analyzed

NA 05/06/2021 13:00 05/15/2021 22:55

Injected By BAL

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		1.04	2,3,7,8-TCDD-13C	2.00	70
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	80

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range



# Method 8290A Laboratory Control Spike Results

Lab Sample ID LCS-89811
Filename Y210515B\_01
Total Amount Extracted 983 mL
ICAL ID Y210504

CCal Filename(s) Y210515A\_17 Method Blank ID BLANK-89810 Matrix Water Dilution NA

Extracted 05/06/2021 13:00 Analyzed 05/15/2021 21:26 Injected By BAL

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	0.20	0.22	112	2,3,7,8-TCDD-13C	2.0	79
				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	80

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



# **Method 8290A Laboratory Control Spike Results**

Lab Sample ID LCSD-89812
Filename Y210515B\_02
Total Amount Extracted 1020 mL
ICAL ID Y210504

CCal Filename(s) Y210515A\_17
Method Blank ID BLANK-89810

Matrix Water Dilution NA Extracted 05/06/

Analyzed

NA 05/06/2021 13:00 05/15/2021 22:11

Injected By BAL

Native Isomers	<b>Q</b> s (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	0.20	0.22	112	2,3,7,8-TCDD-13C	2.0	77
				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	84

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



#### Method 8290A

# Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

 Spike 1 ID
 LCS-89811
 Spike 2 ID
 LCSD-89812

 Spike 1 Filename
 Y210515B\_01
 Spike 2 Filename
 Y210515B\_02

 Compound
 Spike 1 %REC
 Spike 2 %RPD

 2,3,7,8-TCDD
 112
 112
 0.0

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value



#### Pace Analytical Services, LLC.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

# **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY ANALYSIS FOR PFAAs

# **Report Information:**

**Pace Project #: 10558465** 

Sample Receipt Date: 05/04/2021

Client Project #: 200408 SW#134 Begin Dump-G

**Client Sub PO #: 205946** 

State Cert #: N/A

## **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

May 19, 2021

Scott Unze, Project Manager

(612) 607-6383

(612) 607-6444 (fax)

scott.unze@pacelabs.com



# **Report of Laboratory Analysis**

 $This report should not be reproduced, except in full, \\without the written consent of Pace Analytical Services, Inc.$ 

The results relate only to the samples included in this report.

May 17, 2021

# **DISCUSSION**

This report presents the results from the analyses performed on six samples submitted by a representative of Bay West Inc. The samples were analyzed for thirty-six perfluorinated compounds using MPCA Guidance. Reporting limits were set to the quantitation limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits. These spikes indicate that extraction performed as expected.

Diminished extracted internal standard (EIS) recovery (outside the suggested limits) were present in sample material, however, the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard.

The MW-02, MW-03, MW-04, and MW-04-D had elevated EIS recovery (outside the suggested limits) for FTS flagged ("R"). While the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard, in the case of this FTS compound, the recoveries are anomalously high, and are adversely impacted by matrix. The results for these native compounds should be considered estimated only

The four injection internal standards (13C4 PFOA, 13C4 PFOS, 13C2\_PFDA, and 13C2\_PFHxA) pass for each analysis in the batch verifying that the instrument detector is working as expected.

Values were flagged "I" where incorrect isotope ratios were obtained.



# Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

# **REPORT OF LABORATORY ANALYSIS**

# Appendix A

Sample Management

Section A

CHAIN-OF-CUSTODY / Analytical Request Document

9

Page:

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

Page 5 of 44 Report Nd....10558465\_ID36\_DFR SA SALIKE only I condite (X/Y) bathi selqmed ~ 3000027123 Comments PRJ07913 () Custody Sealed Cooler (Y/N) SW-134 50 2.4 2.6 Work Order Number Project Task Code: Program Code Facility Code: Section E COC ID: 242 1700 Elm St. Minneapolis MN, 55414 Sylvia Hunter ンナナケ 612-607-6347 hoszH (H-EON 00St WS)N × Nitrate + Nitrite, as oinsgri Otal Organic 11.036 + 3.17) × × × SA7 Lab Project Manager × Such × × × Lab Phone: Section D Lab Name Adress: A93)(nixolQ (A0628\B£f3 DVVV × × × × QQDT 8,7,6, sanup (WI DRO) 5 Empire Dr. St. Paul, MN 55103 RO with silica gel × × 205946 Bay West LLC Accounts Payable C 9 9 # of Cont. 9451 h 748 1225 095 0091 **9miT** f Purchase Order No. Company Name Sample Type Codes
Sample-Courbos Sample-Courbos Sample-ScyWOP=Composite Sample
S-WOP=Integrated Vertical Profile Sample
QC-FB=Faled Blank Sample
QC-FB=Faled Repdicate Sample
QC-FB=Fale Repdicate Sample 1829 Section C Attention: Address: 5/4/2 ग्रनाय SAMPLER NAME AND SIGNATURE 3 5/4/2/ 121413 Date 5131 S SW#134 Begin Dump - GW Sampling のシンとんれば回 ryanr@baywest.com Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground Wtr-Ground gvanderwaal@baywest.com Wtr.Ground Standard (MPCA ONLY) 200408 Field Matrix Code Σ (MPCA ONLY) Ž Š Š ≷ Ž ≷ MA Lab Matrix Code დ |× WG WG WG WG WG Matrix Code Field Matrix Codes
Wit-Ground-Schund Water
WIR-Surf-Surface Weter
QC-Bank-Artificial Blank Water
Leachtate-Leachtale Sample
Soil-Surface
Soil-Surface
Soil-Surface Required Project Information SAMPLE TYPE (G=GRAP) ტ თ თ ത Ø d ര Site Location (State) Furnaround Time Sample Sample Sample Project Number Sample QC-EB Sample QC-FR 707 Project Name: (MPCA ONLY) Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW=Drinking Water
NW=Non-potable Water
SD=Soit/Solid Eweaver@baywest.com BL=Biological Material OT=Other enimlos@baywest.com MW-04 - D MW-02 MW-03 MW-04 EB-01 ADDITIONAL COMMENTS Bay West 651-291-3493 AR=Air Required Client Information Location Unique ID 2001007376 2001007374 2001007375 2001007377 Matrix Code
SE=Sediment
SO=Soil
QC=Soil QC
W=Aqueous
WG=Groundwat Equipment Blank Project Manager 834636 834635 Company: Email To: Address: Copy To: Phone: က # Mati 위도

10#:10558465

10eage C RINT Name of SAMPLER: SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

qmeT (0°)



#### Document Name:

## Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.02

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services - Minneapolis

Sample Condition Client Name:		p	roject #	#:
Upon Receipt A A A A A A			. Oject i	# WO#:10558465
Bay West				- D 1 OF /10/21
	USPS		Client	PM: KAC Due Date: 05/19/21 CLIENT: BW-BAY WEST
Pace SpeeDee 0	Commerc			
Tracking Number:			Exception FRM-MIN	
Custody Seal on Cooler/Box Present?	No	Seals	intact?	? ☐Yes ☐No Biological Tissue Frozen? ☐Yes ☐No ☐N/
Packing Material: Bubble Wrap Bubble Ba	igs [	None	Othe	er: Temp Blank? Yes \_No
Thermometer: ☐ T1(0461) ☐ T2(1356) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489)	□0S418- □160285		ype f Ice: /	Wet Blue None Dry Melted
Did Samples Originate in West Virginia? ☐Yes ☐No	Wer	re All Cont	tainer Te	「emps Taken? □Yes □No ☑N/A
Temp should be above freezing to 6°C Cooler Temp Rea			4.2,	Average Corrected See Exceptions Temp (no temp blank ENV-FRM-MIN4-01
Correction Factor: (Cooler Temp Correcte	d w/tem	p blank:	7,7	
USDA Regulated Soil: N/A, wate sample/Other: Did samples originate in a quarantine zone within the Unite ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check ma If Yes to either question, fill out a R	aps)?	Yes	□No	Date/Initials of Person Examining Contents: Co OS-O4-2( A, Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No F-MN-Q-338) and include with SCUR/COC paperwork.
				COMMENTS:
Chain of Custody Present and Filled Out?	Yes	□No		1.
Chain of Custody Relinquished?	Yes	□No		2.
Sampler Name and/or Signature on COC?	y <sub>es</sub>		□N/A	3.
Samples Arrived within Hold Time?	Yes	□No		4.
Short Hold Time Analysis (<72 hr)?	Yes	✓No		5. Fecal Coliform HPC Total Coliform/E coli BOD/cBOD Hex Chrome Turbidity Nitrate Nitrite Orthophos Other
Rush Turn Around Time Requested?	☐Yes	No		6.
Sufficient Volume?	Yes	□No		7.
Correct Containers Used?	Yes Yes	□No		8.
-Pace Containers Used? Containers Intact?	Yes	No □No	-	9.
Field Filtered Volume Received for Dissolved Tests?	Yes		N/A	10. Is sediment visible in the dissolved container? Yes No
Is sufficient information available to reconcile the samples to the COC?	Yes	□No		11. If no, write ID/ Date/Time on Container Below:  See Exception ENV-FRM-MIN4-0
Matrix: ☐Water ☐Soil ☐Oil ☐Other				
All containers needing acid/base preservation have been checked?	∐Yes	□No /	ľn/a	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	Yes	□No /	⊠N/A	☐ NaOH ☐ HNO <sub>3</sub> ☐ H <sub>2</sub> SO <sub>4</sub> ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease,	Yes	□No	ØÑ/A	Positive for Res. Yes See Exception Chlorine? No pH Paper Lot# ENV-FRM-MIN4-01
DRO/8015 (water) and Dioxin/PFAS				Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	□Yes		DN/A	13. See Exception
Headspace in VOA Vials (greater than 6mm)?	☐ Yes		N/A	13. See Exception ENV-FRM-MIN4-01
Trip Blank Present?	Yes	□No	ŹN/A	14.
Trip Blank Custody Seals Present?	□Yes	□No Ź	M/A	Pace Trip Blank Lot # (if purchased):
CLIENT NOTIFICATION/RESOLUTION				Field Data Required? Yes No
Person Contacted:				Date/Time:
Comments/Resolution:				
Duniost Monary Davison				Dah., 05/47/04
Project Manager Review: h.c.c.				Date: 05/17/21

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).

Labeled by:

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# **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X =%D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



Pace Analytical Services, LLC

1700 Elm Street, Suite 200 Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444 www.pacelabs.com

# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-01

05/05/2021 18:45

Lab Sample ID

10558465001 Total Amount Extracted

483mL

**Extraction Date** 

Lab File ID A210512B\_016 Ical ID 210512A03

Matrix Water Collected

CCal File A210512B\_003 **Ending CCal File** A210512B\_018

05/03/2021 15:25 Received 05/04/2021 18:29

Pace Analytical®

Blank File A210512B\_005

PFBA PFPeA	31.7 3.97 ND	0.517 0.517	0.517	0.155			
	ND	0.517		0.100	1	375-22-4	
LIEDO DA			0.517	0.102	1	2706-90-3	
HFPO-DA		0.517	0.517	0.097	1	13252-13-6	
PFBS	2.57	0.458	0.458	0.106	1	375-73-5	
PFHxA	6.39	0.517	0.517	0.116	1	307-24-4	
4:2 FTS	ND	0.484	0.484	0.154	1	757124-72-4	
PFPeS	0.953	0.486	0.486	0.121	1	2706-91-4	
PFHpA	2.69	0.517	0.517	0.143	1	375-85-9	
DONA	ND	0.489	0.489	0.124	1	919005-14-4	
PFHxS	2.15	0.471	0.471	0.080	1	355-46-4	
PFOA	11.1	0.517	0.517	0.092	1	335-67-1	
6:2 FTS	ND	0.491	0.491	0.161	1	27619-97-2	
PFHpS	ND	0.491	0.491	0.122	1	375-92-8	
PFNA	ND	0.517	0.517	0.093	1	375-95-1	
PFOSAm	ND	0.517	0.517	0.112	1	754-91-6	
PFOS	ND	0.478	0.478	0.093	1	1763-23-1	
MeFOSA	ND	0.517	0.517	0.167	1	31506-32-8	
PFDA	ND	0.517	0.517	0.124	1	335-76-2	
EtFOSAm	ND	0.517	0.517	0.156	1	4151-50-2	
8:2 FTS	ND	0.497	0.497	0.161	1	39108-34-4	
9-CI-PF3ON	ND	0.482	0.482	0.142	1	756426-58-1	
PFNS	ND	0.497	0.497	0.112	1	68259-12-1	
PFUnDA	ND	0.517	0.517	0.172	1	2058-94-8	
NMeFOSAA	ND	0.517	0.517	0.149	1	2355-31-9	
NEtFOSAA	ND	0.517	0.517	0.139	1	2991-50-6	
PFDS	ND	0.499	0.499	0.120	1	335-77-3	
PFDOA	ND	0.517	0.517	0.168	1	307-55-1	
MeFOSE	ND	0.517	0.517	0.112	1	24448-09-7	
10:2 FTS	ND	0.499	0.499	0.131	1	120226-60-0	
EtFOSE	ND	0.517	0.517	0.142	1	1691-99-2	
11-CI-PF3OUdS	ND	0.487	0.487	0.125	1	763051-92-9	
PFTrDA	ND	0.517	0.517	0.169	1	72629-94-8	
PFDoS	ND	0.501	0.501	0.130	1	79780-39-5	
PFTDA	ND	0.517	0.517	0.085	1	376-06-7	
PFHXDA	ND	0.517	0.517	0.129	1	67905-19-5	
PFODA	ND	0.517	0.517	0.170	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



05/05/2021 18:45

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MPCA Guidance PFCs

Page 2 of 4

Client Sample ID MW-01 **Extraction Date** 

Lab Sample ID 10558465001 Total Amount Extracted 483mL Lab File ID Ical ID 210512A03 A210512B\_016

CCal File A210512B\_003 Matrix Water

Collected **Ending CCal File** A210512B\_018 05/03/2021 15:25 Received 05/04/2021 18:29 Blank File A210512B\_005

### **Injection Internal Standards**

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Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10.3	10.2	99	50-200	
13C4_PFOA	10.3	10.9	105	50-200	
13C2_PFDA	10.3	11.9	115	50-200	
13C4_PFOS	9.90	11.6	117	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10.3	8.95	87	50-200	
13C5_PFPeA	10.3	9.04	87	50-200	
13C3_PFBS	9.61	10.1	105	50-200	
13C2_4:2FTS	9.67	18.8	195	50-200	
13C5_PFHxA	10.3	10.9	106	50-200	
13C4_PFHpA	10.3	11.4	110	50-200	
13C3_PFHxS	9.79	11.7	119	50-200	
13C2_6:2FTS	9.82	17.6	179	50-200	
13C8_PFOA	10.3	11.8	114	50-200	
13C9_PFNA	10.3	12.3	119	50-200	
13C8_PFOS	9.90	11.2	113	50-200	
13C2_8:2FTS	9.91	14.5	146	50-200	
13C6_PFDA	10.3	12.9	125	50-200	
d3-MeFOSAA	10.3	15.3	148	50-200	
13C8_PFOSA	10.3	10.3	100	50-200	
d5-EtFOSAA	10.3	13.4	130	50-200	
13C7_PFUdA	10.3	14.1	136	50-200	
13C2_PFDoA	10.3	14.3	138	50-200	
13C2_PFTeDA	10.3	12.1	117	50-200	
13C3_HFPO-DA	10.3	10.4	101	50-200	
13C2_PFHxDA	10.3	11.1	107	50-200	
d7-N-MeFOSE	10.3	8.29	80	50-200	
d9-N-EtFOSE	10.3	8.73	84	50-200	
d3-N-MeFOSA	10.3	5.36	52	50-200	
d5-N-EtFOSA	10.3	4.65	45	50-200	R

# REPORT OF LABORATORY ANALYSIS



05/05/2021 18:45

A210512B\_005

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Page 3 of 4

Client Sample ID MW-01 **Extraction Date** 

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05/04/2021 18:29

Total Amount Extracted 483mL

Blank File

Lab Sample ID 10558465001 Lab File ID Ical ID 210512A03 A210512B\_016 CCal File A210512B\_003 Matrix Water Collected **Ending CCal File** A210512B\_018 05/03/2021 15:25

### **Injection Internal Standards**

Received

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.93	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.41	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	
13C5 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.25	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.93	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.08	7.09	
13C7 PFUdA	N/A	N/A	7.38	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.67	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.43	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.23	10.23	
d5-N-EtFOSA	N/A	N/A	10.89	10.89	R

# REPORT OF LABORATORY ANALYSIS



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## **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-01

**Extraction Date** 05/05/2021 18:45 Total Amount Extracted 483mL

Lab Sample ID 10558465001

Pace Analytical®

Ical ID 210512A03

Lab File ID A210512B\_016

CCal File A210512B\_003

Matrix Water Collected

**Ending CCal File** A210512B\_018

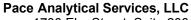
05/03/2021 15:25 Received 05/04/2021 18:29

Blank File A210512B\_005

#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.000	0.460	5.25	5.25	
PFBS	0.330	0.320	5.21	5.22	
PFHxA	0.064	0.0650	5.03	5.04	
4:2 FTS	2.20	0.600	4.79	4.80	
PFPeS	0.330	0.300	5.80	5.80	
PFHpA	0.300	0.290	5.55	5.56	
DONA	0.620	0.510	5.73	5.73	
PFHxS	0.260	0.260	6.31	6.32	
PFOA	0.450	0.380	6.02	6.03	
6:2 FTS	0.660	0.530	5.78	5.79	
PFHpS	0.320	0.240	6.79	6.80	
PFNA	0.210	0.190	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.110	0.230	7.08	7.27	
MeFOSA	1.10	0.880	10.25	10.25	
PFDA	0.084	0.0980	6.94	6.95	
EtFOSAm	0.000	0.730	0.00	10.92	
8:2 FTS	0.000	0.680	0.00	6.69	
9-CI-PF3ON	0.000	0.0240	7.59	7.59	
PFNS	0.000	0.240	0.00	7.71	
PFUnDA	0.240	0.110	7.39	7.39	
NMeFOSAA	0.760	0.570	6.88	6.89	
NEtFOSAA	0.000	0.670	0.00	7.10	
PFDS	0.430	0.250	8.14	8.14	
PFDOA	0.160	0.130	7.83	7.83	
MeFOSE	N/A	N/A	10.02	10.03	
10:2 FTS	0.000	0.650	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0150	8.44	8.44	
PFTrDA	0.092	0.150	8.27	8.26	
PFDoS	0.120	0.230	8.92	8.93	
PFTDA	0.160	0.140	8.67	8.68	
PFHXDA	0.130	0.130	9.43	9.44	
PFODA	0.120	0.110	10.52	10.53	

# REPORT OF LABORATORY ANALYSIS



A210512B\_018

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MPCA Guidance PFCs

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Client Sample ID MW-02

Lab Sample ID 10558465002

Pace Analytical®

Lab File ID A210512B\_017

Matrix Water

Collected 05/04/2021 09:50 Received 05/04/2021 18:29 **Extraction Date** 05/05/2021 18:45

Total Amount Extracted 505mL

**Ending CCal File** 

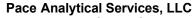
Ical ID 210512A03

CCal File A210512B\_003

Blank File A210512B\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	26.0	0.495	0.495	0.148	1	375-22-4	
PFPeA	4.50	0.495	0.495	0.097	1	2706-90-3	
HFPO-DA	ND	0.495	0.495	0.092	1	13252-13-6	
PFBS	1.51	0.438	0.438	0.101	1	375-73-5	
PFHxA	4.91	0.495	0.495	0.111	1	307-24-4	
4:2 FTS	ND	0.462	0.462	0.147	1	757124-72-4	
PFPeS	0.874	0.465	0.465	0.116	1	2706-91-4	
PFHpA	3.37	0.495	0.495	0.137	1	375-85-9	
DONA	ND	0.467	0.467	0.119	1	919005-14-4	
PFHxS	2.69	0.450	0.450	0.076	1	355-46-4	
PFOA	25.9	0.495	0.495	0.088	1	335-67-1	
6:2 FTS	ND	0.470	0.470	0.154	1	27619-97-2	
PFHpS	ND	0.470	0.470	0.117	1	375-92-8	
PFNA	ND	0.495	0.495	0.089	1	375-95-1	
PFOSAm	ND	0.495	0.495	0.107	1	754-91-6	
PFOS	ND	0.457	0.457	0.089	1	1763-23-1	
MeFOSA	ND	0.495	0.495	0.159	1	31506-32-8	
PFDA	ND	0.495	0.495	0.119	1	335-76-2	
EtFOSAm	ND	0.495	0.495	0.149	1	4151-50-2	
8:2 FTS	ND	0.475	0.475	0.154	1	39108-34-4	
9-CI-PF3ON	ND	0.461	0.461	0.136	1	756426-58-1	
PFNS	ND	0.475	0.475	0.107	1	68259-12-1	
PFUnDA	ND	0.495	0.495	0.164	1	2058-94-8	
NMeFOSAA	ND	0.495	0.495	0.142	1	2355-31-9	
NEtFOSAA	ND	0.495	0.495	0.133	1	2991-50-6	
PFDS	ND	0.477	0.477	0.115	1	335-77-3	
PFDOA	ND	0.495	0.495	0.160	1	307-55-1	
MeFOSE	ND	0.495	0.495	0.107	1	24448-09-7	
10:2 FTS	ND	0.477	0.477	0.126	1	120226-60-0	
EtFOSE	ND	0.495	0.495	0.136	1	1691-99-2	
11-CI-PF3OUdS	ND	0.466	0.466	0.120	1	763051-92-9	
PFTrDA	ND	0.495	0.495	0.161	1	72629-94-8	
PFDoS	ND	0.479	0.479	0.125	1	79780-39-5	
PFTDA	ND	0.495	0.495	0.081	1	376-06-7	
PFHXDA	ND	0.495	0.495	0.124	1	67905-19-5	
PFODA	ND	0.495	0.495	0.162	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



05/05/2021 18:45

1700 Elm Street, Suite 200 Minneapolis, MN 55414 Phone: 612.607.1700

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MPCA Guidance PFCs

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Client Sample ID MW-02

Pace Analytical®

02 Extraction Date

 10558465002
 Total Amount Extracted 505mL

 A210512B 017
 Ical ID
 210512A03

Lab File ID A210512B\_017

 Matrix
 Water
 CCal File
 A210512B\_003

 Collected
 05/04/2021 09:50
 Ending CCal File
 A210512B\_018

 Received
 05/04/2021 18:29
 Blank File
 A210512B\_005

### **Injection Internal Standards**

Lab Sample ID

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	9.89	11.2	113	50-200	
13C4_PFOA	9.89	12.3	125	50-200	
13C2_PFDA	9.89	12.6	128	50-200	
13C4_PFOS	9.47	12.5	132	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	9.89	10.8	110	50-200	
13C5_PFPeA	9.89	9.88	100	50-200	
13C3_PFBS	9.19	11.5	125	50-200	
13C2_4:2FTS	9.25	23.3	252	50-200	R
13C5_PFHxA	9.89	11.5	116	50-200	
13C4_PFHpA	9.89	12.6	127	50-200	
13C3_PFHxS	9.36	12.3	132	50-200	
13C2_6:2FTS	9.39	23.8	254	50-200	R
13C8_PFOA	9.89	12.6	128	50-200	
13C9_PFNA	9.89	13.6	138	50-200	
13C8_PFOS	9.47	13.0	137	50-200	
13C2_8:2FTS	9.48	18.7	197	50-200	
13C6_PFDA	9.89	13.0	131	50-200	
d3-MeFOSAA	9.89	15.3	155	50-200	
13C8_PFOSA	9.89	11.5	116	50-200	
d5-EtFOSAA	9.89	13.7	139	50-200	
13C7_PFUdA	9.89	14.8	149	50-200	
13C2_PFDoA	9.89	13.7	139	50-200	
13C2_PFTeDA	9.89	13.2	134	50-200	
13C3_HFPO-DA	9.89	11.4	115	50-200	
13C2_PFHxDA	9.89	12.3	125	50-200	
d7-N-MeFOSE	9.89	8.70	88	50-200	
d9-N-EtFOSE	9.89	9.44	95	50-200	
d3-N-MeFOSA	9.89	6.32	64	50-200	
d5-N-EtFOSA	9.89	5.59	56	50-200	

# REPORT OF LABORATORY ANALYSIS



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#### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-02 **Extraction Date** 05/05/2021 18:45

Lab Sample ID 10558465002 Total Amount Extracted 505mL Lab File ID Ical ID 210512A03 A210512B\_017 CCal File A210512B\_003 Matrix Water Collected **Ending CCal File** A210512B\_018 05/04/2021 09:50 Received 05/04/2021 18:29 Blank File A210512B\_005

#### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	R
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	R
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.88	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7 PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.89	10.89	

# REPORT OF LABORATORY ANALYSIS



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## **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-02 Extraction Date 05/05/2021 18:45

 Lab Sample ID
 10558465002
 Total Amount Extracted 505mL

 Lab File ID
 A210512B\_017
 Ical ID
 210512A03

Matrix Water CCal File A210512B\_003

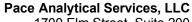
 Collected
 05/04/2021 09:50
 Ending CCal File
 A210512B\_018

 Received
 05/04/2021 18:29
 Blank File
 A210512B\_005

#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.000	0.460	5.25	5.25	
PFBS	0.310	0.320	5.22	5.22	
PFHxA	0.064	0.0650	5.03	5.04	
4:2 FTS	5.30	0.600	4.80	4.80	
PFPeS	0.310	0.300	5.80	5.80	
PFHpA	0.310	0.290	5.55	5.56	
DONA	0.660	0.510	5.73	5.73	
PFHxS	0.240	0.260	6.31	6.32	
PFOA	0.460	0.380	6.03	6.03	
6:2 FTS	0.530	0.530	5.79	5.79	
PFHpS	0.230	0.240	6.80	6.80	
PFNA	0.180	0.190	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.160	0.230	7.26	7.27	
MeFOSA	1.00	0.880	10.26	10.25	
PFDA	0.093	0.0980	6.94	6.95	
EtFOSAm	1.30	0.730	10.95	10.92	
8:2 FTS	0.000	0.680	6.68	6.69	
9-CI-PF3ON	0.000	0.0240	7.58	7.59	
PFNS	0.000	0.240	0.00	7.71	
PFUnDA	0.370	0.110	7.39	7.39	
NMeFOSAA	0.000	0.570	6.87	6.89	
NEtFOSAA	0.000	0.670	7.09	7.10	
PFDS	0.000	0.250	8.14	8.14	
PFDOA	0.180	0.130	7.84	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.650	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0150	8.45	8.44	
PFTrDA	0.260	0.150	8.27	8.26	
PFDoS	0.380	0.230	8.94	8.93	
PFTDA	0.120	0.140	8.68	8.68	
PFHXDA	0.120	0.130	9.44	9.44	
PFODA	0.120	0.110	10.52	10.53	

# REPORT OF LABORATORY ANALYSIS



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MPCA Guidance PFCs

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Client Sample ID MW-03

10558465003

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Lab File ID A210512B\_019

Matrix Water

Lab Sample ID

Collected 05/04/2021 12:25 Received 05/04/2021 18:29 **Extraction Date** 05/05/2021 18:45

Total Amount Extracted 285mL

Ical ID 210512A03

CCal File A210512B\_018 **Ending CCal File** A210512B\_027

Blank File A210512B\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	57.1	0.876	0.876	0.263	1	375-22-4	
PFPeA	9.15	0.876	0.876	0.173	1	2706-90-3	
HFPO-DA	ND	0.876	0.876	0.164	1	13252-13-6	
PFBS	1.77	0.775	0.775	0.179	1	375-73-5	
PFHxA	9.19	0.876	0.876	0.196	1	307-24-4	
4:2 FTS	ND	0.819	0.819	0.261	1	757124-72-4	
PFPeS	ND	0.823	0.823	0.205	1	2706-91-4	
PFHpA	3.69	0.876	0.876	0.242	1	375-85-9	
DONA	ND	0.828	0.828	0.210	1	919005-14-4	
PFHxS	1.29	0.797	0.797	0.136	1	355-46-4	
PFOA	12.8	0.876	0.876	0.156	1	335-67-1	
6:2 FTS	ND	0.832	0.832	0.273	1	27619-97-2	
PFHpS	ND	0.832	0.832	0.207	1	375-92-8	
PFNA	ND	0.876	0.876	0.159	1	375-95-1	
PFOSAm	ND	0.876	0.876	0.189	1	754-91-6	
PFOS	3.46	0.810	0.810	0.159	1	1763-23-1	
MeFOSA	ND	0.876	0.876	0.282	1	31506-32-8	
PFDA	ND	0.876	0.876	0.210	1	335-76-2	
EtFOSAm	ND	0.876	0.876	0.265	1	4151-50-2	
8:2 FTS	ND	0.841	0.841	0.273	1	39108-34-4	
9-CI-PF3ON	ND	0.816	0.816	0.240	1	756426-58-1	
PFNS	ND	0.841	0.841	0.189	1	68259-12-1	
PFUnDA	ND	0.876	0.876	0.291	1	2058-94-8	
NMeFOSAA	ND	0.876	0.876	0.252	1	2355-31-9	
NEtFOSAA	ND	0.876	0.876	0.235	1	2991-50-6	
PFDS	ND	0.845	0.845	0.203	1	335-77-3	
PFDOA	ND	0.876	0.876	0.284	1	307-55-1	
MeFOSE	ND	0.876	0.876	0.189	1	24448-09-7	
10:2 FTS	ND	0.845	0.845	0.223	1	120226-60-0	
EtFOSE	ND	0.876	0.876	0.240	1	1691-99-2	
11-CI-PF3OUdS	ND	0.825	0.825	0.212	1	763051-92-9	
PFTrDA	ND	0.876	0.876	0.286	1	72629-94-8	
PFDoS	ND	0.848	0.848	0.221	1	79780-39-5	
PFTDA	ND	0.876	0.876	0.145	1	376-06-7	
PFHXDA	ND	0.876	0.876	0.219	1	67905-19-5	
PFODA	ND	0.876	0.876	0.287	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



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Client Sample ID MW-03

**Extraction Date** 05/05/2021 18:45

Lab Sample ID 10558465003 Total Amount Extracted 285mL

Lab File ID A210512B\_019 Ical ID 210512A03

Matrix Water CCal File A210512B\_018

Collected 05/04/2021 12:25 **Ending CCal File** A210512B\_027

Received 05/04/2021 18:29

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Blank File A210512B\_005

#### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	17.5	14.7	84	50-200	
13C4_PFOA	17.5	21.4	122	50-200	
13C2_PFDA	17.5	22.4	128	50-200	
13C4 PFOS	16.8	20.0	119	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	17.5	9.72	55	50-200	
13C5_PFPeA	17.5	10.0	57	50-200	
13C3_PFBS	16.3	15.8	97	50-200	
13C2_4:2FTS	16.4	43.6	266	50-200	R
13C5_PFHxA	17.5	14.1	80	50-200	
13C4_PFHpA	17.5	17.9	102	50-200	
13C3_PFHxS	16.6	19.0	115	50-200	
13C2_6:2FTS	16.6	62.5	376	50-200	R
13C8_PFOA	17.5	19.2	109	50-200	
13C9_PFNA	17.5	21.1	120	50-200	
13C8_PFOS	16.8	17.5	104	50-200	
13C2_8:2FTS	16.8	53.3	317	50-200	R
13C6_PFDA	17.5	20.0	114	50-200	
d3-MeFOSAA	17.5	27.5	157	50-200	
13C8_PFOSA	17.5	20.5	117	50-200	
d5-EtFOSAA	17.5	34.1	194	50-200	
13C7_PFUdA	17.5	26.2	150	50-200	
13C2_PFDoA	17.5	19.0	108	50-200	
13C2_PFTeDA	17.5	25.5	146	50-200	
13C3_HFPO-DA	17.5	13.1	75	50-200	
13C2_PFHxDA	17.5	21.6	123	50-200	
d7-N-MeFOSE	17.5	15.3	88	50-200	
d9-N-EtFOSE	17.5	15.0	85	50-200	
d3-N-MeFOSA	17.5	12.7	72	50-200	
d5-N-EtFOSA	17.5	12.3	70	50-200	

# REPORT OF LABORATORY ANALYSIS



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MPCA Guidance PFCs

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Client Sample ID MW-03 **Extraction Date** 05/05/2021 18:45

Lab Sample ID 10558465003 Total Amount Extracted 285mL Lab File ID Ical ID 210512A03 A210512B\_019 CCal File A210512B\_018 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 12:25 Received 05/04/2021 18:29 Blank File A210512B\_005

### **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.93	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.41	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	R
13C5 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.79	5.79	R
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.25	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	R
13C6 PFDA	N/A	N/A	6.93	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7 PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

# REPORT OF LABORATORY ANALYSIS



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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-03 Extraction Date 05/05/2021 18:45

 Lab Sample ID
 10558465003
 Total Amount Extracted
 285mL

 Lab File ID
 A210512B\_019
 Ical ID
 210512A03

Matrix Water CCal File A210512B\_018

 Collected
 05/04/2021 12:25
 Ending CCal File
 A210512B\_027

 Received
 05/04/2021 18:29
 Blank File
 A210512B\_005

#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.000	0.450	5.25	5.25	
PFBS	0.330	0.320	5.21	5.22	
PFHxA	0.064	0.0660	5.03	5.04	
4:2 FTS	10.0	0.580	4.80	4.80	
PFPeS	0.340	0.330	5.80	5.80	
PFHpA	0.300	0.290	5.55	5.56	
DONA	0.450	0.510	5.73	5.73	
PFHxS	0.230	0.270	6.32	6.32	
PFOA	0.400	0.380	6.03	6.03	
6:2 FTS	0.560	0.550	5.79	5.79	
PFHpS	0.250	0.240	6.80	6.80	
PFNA	0.200	0.210	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.180	0.230	7.25	7.27	
MeFOSA	0.650	0.850	10.26	10.25	
PFDA	0.093	0.0930	6.93	6.95	
EtFOSAm	0.720	0.710	10.92	10.92	
8:2 FTS	0.000	0.700	6.69	6.69	
9-CI-PF3ON	0.000	0.0230	7.60	7.59	
PFNS	0.000	0.240	0.00	7.71	
PFUnDA	0.160	0.100	7.39	7.39	
NMeFOSAA	0.390	0.520	6.87	6.89	
NEtFOSAA	0.930	0.630	7.10	7.10	
PFDS	0.350	0.230	8.14	8.14	
PFDOA	0.070	0.140	7.83	7.83	
MeFOSE	N/A	N/A	10.04	10.03	
10:2 FTS	0.000	0.700	7.57	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0130	8.45	8.44	
PFTrDA	0.088	0.150	8.27	8.26	
PFDoS	0.180	0.230	8.93	8.93	
PFTDA	0.140	0.150	8.68	8.68	
PFHXDA	0.120	0.120	9.44	9.44	
PFODA	0.150	0.110	10.52	10.53	

# REPORT OF LABORATORY ANALYSIS



05/05/2021 18:45

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#### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04

Lab Sample ID 10558465004

Lab File ID A210512B\_020

Matrix Water

Collected 05/04/2021 15:40 Received 05/04/2021 18:29 Total Amount Extracted 491mL

**Extraction Date** 

Ical ID 210512A03

CCal File A210512B\_018 **Ending CCal File** A210512B\_027

Blank File A210512B\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	48.4	0.509	0.509	0.153	1	375-22-4	
PFPeA	4.39	0.509	0.509	0.101	1	2706-90-3	
HFPO-DA	ND	0.509	0.509	0.095	1	13252-13-6	
PFBS	2.27	0.450	0.450	0.104	1	375-73-5	
PFHxA	3.38	0.509	0.509	0.114	1	307-24-4	
4:2 FTS	ND	0.476	0.476	0.152	1	757124-72-4	
PFPeS	0.626	0.478	0.478	0.119	1	2706-91-4	
PFHpA	1.60	0.509	0.509	0.140	1	375-85-9	
DONA	ND	0.481	0.481	0.122	1	919005-14-4	
PFHxS	1.48	0.463	0.463	0.078	1	355-46-4	
PFOA	7.90	0.509	0.509	0.090	1	335-67-1	
6:2 FTS	ND	0.483	0.483	0.159	1	27619-97-2	
PFHpS	ND	0.483	0.483	0.120	1	375-92-8	
PFNA	ND	0.509	0.509	0.092	1	375-95-1	
PFOSAm	ND	0.509	0.509	0.110	1	754-91-6	
PFOS	0.999 I	0.471	0.471	0.092	1	1763-23-1	
MeFOSA	ND	0.509	0.509	0.164	1	31506-32-8	
PFDA	ND	0.509	0.509	0.122	1	335-76-2	
EtFOSAm	ND	0.509	0.509	0.154	1	4151-50-2	
8:2 FTS	ND	0.488	0.488	0.159	1	39108-34-4	
9-CI-PF3ON	ND	0.474	0.474	0.139	1	756426-58-1	
PFNS	ND	0.488	0.488	0.110	1	68259-12-1	
PFUnDA	ND	0.509	0.509	0.169	1	2058-94-8	
NMeFOSAA	ND	0.509	0.509	0.146	1	2355-31-9	
NEtFOSAA	ND	0.509	0.509	0.136	1	2991-50-6	
PFDS	ND	0.491	0.491	0.118	1	335-77-3	
PFDOA	ND	0.509	0.509	0.165	1	307-55-1	
MeFOSE	ND	0.509	0.509	0.110	1	24448-09-7	
10:2 FTS	ND	0.490	0.490	0.129	1	120226-60-0	
EtFOSE	ND	0.509	0.509	0.139	1	1691-99-2	
11-CI-PF3OUdS	ND	0.479	0.479	0.123	1	763051-92-9	
PFTrDA	ND	0.509	0.509	0.166	1	72629-94-8	
PFDoS	ND	0.492	0.492	0.128	1	79780-39-5	
PFTDA	ND	0.509	0.509	0.083	1	376-06-7	
PFHXDA	ND	0.509	0.509	0.127	1	67905-19-5	
PFODA	ND	0.509	0.509	0.167	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



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## **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04 Extraction Date 05/05/2021 18:45

Lab Sample ID 10558465004 Total Amount Extracted 491mL Lab File ID Ical ID 210512A03 A210512B\_020 CCal File A210512B\_018 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 15:40 Received 05/04/2021 18:29 Blank File A210512B\_005

# **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10.2	10.4	103	50-200	
13C4_PFOA	10.2	12.7	125	50-200	
13C2_PFDA	10.2	13.0	127	50-200	
13C4_PFOS	9.74	12.1	124	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10.2	8.87	87	50-200	
13C5_PFPeA	10.2	8.66	85	50-200	
13C3_PFBS	9.45	11.3	119	50-200	
13C2_4:2FTS	9.51	23.2	244	50-200	R
13C5_PFHxA	10.2	10.9	107	50-200	
13C4_PFHpA	10.2	12.3	121	50-200	
13C3_PFHxS	9.62	12.1	126	50-200	
13C2_6:2FTS	9.65	21.7	225	50-200	R
13C8_PFOA	10.2	12.3	121	50-200	
13C9_PFNA	10.2	12.7	125	50-200	
13C8_PFOS	9.74	12.1	124	50-200	
13C2_8:2FTS	9.75	14.8	152	50-200	
13C6_PFDA	10.2	12.6	124	50-200	
d3-MeFOSAA	10.2	15.9	156	50-200	
13C8_PFOSA	10.2	11.4	112	50-200	
d5-EtFOSAA	10.2	13.5	132	50-200	
13C7_PFUdA	10.2	13.9	137	50-200	
13C2_PFDoA	10.2	14.4	141	50-200	
13C2_PFTeDA	10.2	13.1	129	50-200	
13C3_HFPO-DA	10.2	11.3	111	50-200	
13C2_PFHxDA	10.2	12.1	119	50-200	
d7-N-MeFOSE	10.2	8.51	84	50-200	
d9-N-EtFOSE	10.2	10.0	98	50-200	
d3-N-MeFOSA	10.2	6.56	65	50-200	
d5-N-EtFOSA	10.2	5.89	58	50-200	

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MPCA Guidance PFCs

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Client Sample ID MW-04 Extraction Date 05/05/2021 18:45

Lab Sample ID 10558465004 Total Amount Extracted 491mL Lab File ID Ical ID 210512A03 A210512B\_020 CCal File A210512B\_018 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 15:40 Received 05/04/2021 18:29 Blank File A210512B\_005

# **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.93	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.55	3.56	
13C5 PFPeA	N/A	N/A	4.41	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	R
13C5 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	R
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.93	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.08	7.09	
13C7 PFUdA	N/A	N/A	7.38	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.23	10.23	
d5-N-EtFOSA	N/A	N/A	10.89	10.89	

# REPORT OF LABORATORY ANALYSIS

# Pace Analytical Services, LLC

05/05/2021 18:45

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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04

Total Amount Extracted 491mL

**Extraction Date** 

Lab Sample ID 10558465004

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Ical ID 210512A03

Lab File ID A210512B\_020 Matrix Water

CCal File A210512B\_018

Collected 05/04/2021 15:40 Received 05/04/2021 18:29 **Ending CCal File** A210512B\_027 Blank File A210512B\_005

# **Native Analytes**

Compound	Ion Abund.	Reference	Retention	Reference	Qualifiers
·	Ratio	Ratio	Time	Time	
PFBA	N/A	N/A	3.56	3.57	
<u>PFPeA</u>	N/A	N/A	4.42	4.42	
HFPO-DA	0.000	0.450	5.25	5.25	
PFBS	0.320	0.320	5.21	5.22	
PFHxA	0.068	0.0660	5.03	5.04	
4:2 FTS	8.60	0.580	4.79	4.80	
PFPeS	0.310	0.330	5.80	5.80	
PFHpA	0.290	0.290	5.55	5.56	
DONA	0.450	0.510	5.73	5.73	
PFHxS	0.250	0.270	6.31	6.32	
PFOA	0.430	0.380	6.02	6.03	
6:2 FTS	0.490	0.550	5.79	5.79	
PFHpS	0.300	0.240	6.80	6.80	
PFNA	0.150	0.210	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.098	0.230	7.08	7.27	l I
MeFOSA	0.830	0.850	10.25	10.25	
PFDA	0.082	0.0930	6.94	6.95	
EtFOSAm	0.490	0.710	10.94	10.92	
8:2 FTS	0.000	0.700	6.69	6.69	
9-CI-PF3ON	0.000	0.0230	7.58	7.59	
PFNS	0.000	0.240	7.73	7.71	
PFUnDA	0.150	0.100	7.39	7.39	
NMeFOSAA	0.720	0.520	6.87	6.89	
NEtFOSAA	0.000	0.630	7.07	7.10	
PFDS	0.000	0.230	8.14	8.14	
PFDOA	0.110	0.140	7.83	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.700	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0130	8.45	8.44	
PFTrDA	0.110	0.150	8.27	8.26	
PFDoS	0.290	0.230	8.93	8.93	
PFTDA	0.140	0.150	8.68	8.68	
PFHXDA	0.140	0.120	9.44	9.44	
PFODA	0.099	0.110	10.52	10.53	

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## **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04-D

10558465005

Lab File ID A210512B\_021

Matrix Water

Lab Sample ID

Collected 05/04/2021 16:00 Received 05/04/2021 18:29 **Extraction Date** 05/05/2021 18:45

Total Amount Extracted 493mL

Ical ID 210512A03 CCal File A210512B\_018

**Ending CCal File** A210512B\_027

Blank File A210512B\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	48.5	0.508	0.508	0.152	1	375-22-4	
PFPeA	4.31	0.508	0.508	0.100	1	2706-90-3	
HFPO-DA	ND	0.508	0.508	0.095	1	13252-13-6	
PFBS	2.22	0.449	0.449	0.104	1	375-73-5	
PFHxA	3.55	0.508	0.508	0.114	1	307-24-4	
4:2 FTS	ND	0.475	0.475	0.151	1	757124-72-4	
PFPeS	0.685	0.477	0.477	0.119	1	2706-91-4	
PFHpA	1.71	0.508	0.508	0.140	1	375-85-9	
DONA	ND	0.480	0.480	0.122	1	919005-14-4	
PFHxS	1.44	0.462	0.462	0.078	1	355-46-4	
PFOA	8.40	0.508	0.508	0.090	1	335-67-1	
6:2 FTS	ND	0.482	0.482	0.158	1	27619-97-2	
PFHpS	ND	0.482	0.482	0.120	1	375-92-8	
PFNA	ND	0.508	0.508	0.092	1	375-95-1	
PFOSAm	ND	0.508	0.508	0.110	1	754-91-6	
PFOS	0.920 I	0.469	0.469	0.092	1	1763-23-1	
MeFOSA	ND	0.508	0.508	0.163	1	31506-32-8	
PFDA	ND	0.508	0.508	0.122	1	335-76-2	
EtFOSAm	ND	0.508	0.508	0.153	1	4151-50-2	
8:2 FTS	ND	0.487	0.487	0.158	1	39108-34-4	
9-CI-PF3ON	ND	0.473	0.473	0.139	1	756426-58-1	
PFNS	ND	0.487	0.487	0.110	1	68259-12-1	
PFUnDA	ND	0.508	0.508	0.168	1	2058-94-8	
NMeFOSAA	ND	0.508	0.508	0.146	1	2355-31-9	
NEtFOSAA	ND	0.508	0.508	0.136	1	2991-50-6	
PFDS	ND	0.490	0.490	0.118	1	335-77-3	
PFDOA	ND	0.508	0.508	0.164	1	307-55-1	
MeFOSE	ND	0.508	0.508	0.110	1	24448-09-7	
10:2 FTS	ND	0.489	0.489	0.129	1	120226-60-0	
EtFOSE	ND	0.508	0.508	0.139	1	1691-99-2	
11-CI-PF3OUdS	ND	0.478	0.478	0.123	1	763051-92-9	
PFTrDA	ND	0.508	0.508	0.165	1	72629-94-8	
PFDoS	ND	0.491	0.491	0.128	1	79780-39-5	
PFTDA	ND	0.508	0.508	0.083	1	376-06-7	
PFHXDA	ND	0.508	0.508	0.127	1	67905-19-5	
PFODA	ND	0.508	0.508	0.166	1	16517-11-6	

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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04-D Extraction Date 05/05/2021 18:45

Lab Sample ID 10558465005 Total Amount Extracted 493mL Lab File ID Ical ID 210512A03 A210512B\_021 CCal File A210512B\_018 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 16:00 Blank File Received 05/04/2021 18:29 A210512B\_005

#### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10.2	10.4	103	50-200	
13C4_PFOA	10.2	12.1	119	50-200	
13C2_PFDA	10.2	12.0	118	50-200	
13C4_PFOS	9.71	11.4	117	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10.2	8.36	82	50-200	
13C5_PFPeA	10.2	8.58	84	50-200	
13C3_PFBS	9.43	10.8	114	50-200	
13C2_4:2FTS	9.49	23.1	243	50-200	R
13C5_PFHxA	10.2	10.7	105	50-200	
13C4_PFHpA	10.2	12.0	118	50-200	
13C3_PFHxS	9.60	11.5	120	50-200	
13C2_6:2FTS	9.63	19.0	197	50-200	
13C8_PFOA	10.2	11.9	117	50-200	
13C9_PFNA	10.2	12.8	126	50-200	
13C8_PFOS	9.71	11.6	119	50-200	
13C2_8:2FTS	9.72	13.7	141	50-200	
13C6_PFDA	10.2	12.2	120	50-200	
d3-MeFOSAA	10.2	13.1	129	50-200	
13C8_PFOSA	10.2	10.6	105	50-200	
d5-EtFOSAA	10.2	12.1	120	50-200	
13C7_PFUdA	10.2	12.5	123	50-200	
13C2_PFDoA	10.2	12.4	122	50-200	
13C2_PFTeDA	10.2	11.8	116	50-200	
13C3_HFPO-DA	10.2	10.9	107	50-200	
13C2_PFHxDA	10.2	11.6	114	50-200	
d7-N-MeFOSE	10.2	8.84	87	50-200	
d9-N-EtFOSE	10.2	10.2	101	50-200	
d3-N-MeFOSA	10.2	6.98	69	50-200	
d5-N-EtFOSA	10.2	6.46	64	50-200	

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Client Sample ID MW-04-D **Extraction Date** 05/05/2021 18:45

Lab Sample ID 10558465005 Total Amount Extracted 493mL Lab File ID Ical ID 210512A03 A210512B\_021 CCal File A210512B\_018 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 16:00 Received 05/04/2021 18:29 Blank File A210512B\_005

#### **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.93	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.55	3.56	
13C5 PFPeA	N/A	N/A	4.41	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	R
13C5 PFHxA	N/A	N/A	5.02	5.03	
13C4 PFHpA	N/A	N/A	5.54	5.55	
13C3 PFHxS	N/A	N/A	6.30	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.25	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.93	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.08	7.09	
13C7 PFUdA	N/A	N/A	7.38	7.39	
13C2 PFDoA	N/A	N/A	7.82	7.83	
13C2 PFTeDA	N/A	N/A	8.67	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.43	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.23	10.23	
d5-N-EtFOSA	N/A	N/A	10.89	10.89	

# REPORT OF LABORATORY ANALYSIS



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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-04-D Extraction Date 05/05/2021 18:45

 Lab Sample ID
 10558465005
 Total Amount Extracted
 493mL

 Lab File ID
 A210512B\_021
 Ical ID
 210512A03

 Matrix
 Water
 CCal File
 A210512B\_018

 Collected
 05/04/2021 16:00
 Ending CCal File
 A210512B\_027

 Received
 05/04/2021 18:29
 Blank File
 A210512B\_005

#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.41	4.42	
HFPO-DA	2.60	0.450	5.25	5.25	
PFBS	0.330	0.320	5.21	5.22	
PFHxA	0.062	0.0660	5.03	5.04	
4:2 FTS	9.80	0.580	4.80	4.80	
PFPeS	0.290	0.330	5.80	5.80	
PFHpA	0.280	0.290	5.55	5.56	
DONA	0.480	0.510	5.73	5.73	
PFHxS	0.270	0.270	6.31	6.32	
PFOA	0.420	0.380	6.02	6.03	
6:2 FTS	0.680	0.550	5.78	5.79	
PFHpS	0.240	0.240	6.79	6.80	
PFNA	0.200	0.210	6.48	6.49	
PFOSAm	N/A	N/A	8.75	8.75	
PFOS	0.100	0.230	7.08	7.27	[
MeFOSA	0.640	0.850	10.25	10.25	
PFDA	0.074	0.0930	6.94	6.95	
EtFOSAm	1.10	0.710	10.92	10.92	
8:2 FTS	0.000	0.700	6.68	6.69	
9-CI-PF3ON	0.000	0.0230	7.59	7.59	
PFNS	0.000	0.240	7.73	7.71	
PFUnDA	0.220	0.100	7.39	7.39	
NMeFOSAA	0.000	0.520	6.87	6.89	
NEtFOSAA	0.000	0.630	0.00	7.10	
PFDS	0.330	0.230	8.13	8.14	
PFDOA	0.190	0.140	7.83	7.83	
MeFOSE	N/A	N/A	10.02	10.03	
10:2 FTS	0.000	0.700	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0130	8.44	8.44	
PFTrDA	0.200	0.150	8.26	8.26	
PFDoS	0.210	0.230	8.93	8.93	
PFTDA	0.120	0.150	8.68	8.68	
PFHXDA	0.130	0.120	9.44	9.44	
PFODA	0.100	0.110	10.52	10.53	

# REPORT OF LABORATORY ANALYSIS



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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID EB-01

10558465006

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Lab File ID A210512B\_022

Matrix Water

Lab Sample ID

Collected 05/04/2021 17:00 Received 05/04/2021 18:29

Extraction Date 05/05/2021 18:45

Total Amount Extracted 510mL

Ical ID 210512A03

CCal File A210512B\_003

Ending CCal File A210512B\_027
Blank File A210512B\_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	0.490	0.490	0.147	1	375-22-4	
PFPeA	ND	0.490	0.490	0.097	1	2706-90-3	
HFPO-DA	ND	0.490	0.490	0.092	1	13252-13-6	
PFBS	ND	0.434	0.434	0.100	1	375-73-5	
PFHxA	ND	0.490	0.490	0.110	1	307-24-4	
4:2 FTS	ND	0.459	0.459	0.146	1	757124-72-4	
PFPeS	ND	0.461	0.461	0.115	1	2706-91-4	
PFHpA	ND	0.490	0.490	0.135	1	375-85-9	
DONA	ND	0.464	0.464	0.118	1	919005-14-4	
PFHxS	ND	0.446	0.446	0.076	1	355-46-4	
PFOA	ND	0.490	0.490	0.087	1	335-67-1	
6:2 FTS	ND	0.466	0.466	0.153	1	27619-97-2	
PFHpS	ND	0.466	0.466	0.116	1	375-92-8	
PFNA	ND	0.490	0.490	0.089	1	375-95-1	
PFOSAm	ND	0.490	0.490	0.106	1	754-91-6	
PFOS	ND	0.454	0.454	0.089	1	1763-23-1	
MeFOSA	ND	0.490	0.490	0.158	1	31506-32-8	
PFDA	ND	0.490	0.490	0.118	1	335-76-2	
EtFOSAm	ND	0.490	0.490	0.148	1	4151-50-2	
8:2 FTS	ND	0.471	0.471	0.153	1	39108-34-4	
9-CI-PF3ON	ND	0.457	0.457	0.134	1	756426-58-1	
PFNS	ND	0.471	0.471	0.106	1	68259-12-1	
PFUnDA	ND	0.490	0.490	0.163	1	2058-94-8	
NMeFOSAA	ND	0.490	0.490	0.141	1	2355-31-9	
NEtFOSAA	ND	0.490	0.490	0.131	1	2991-50-6	
PFDS	ND	0.473	0.473	0.114	1	335-77-3	
PFDOA	ND	0.490	0.490	0.159	1	307-55-1	
MeFOSE	ND	0.490	0.490	0.106	1	24448-09-7	
10:2 FTS	ND	0.473	0.473	0.125	1	120226-60-0	
EtFOSE	ND	0.490	0.490	0.134	1	1691-99-2	
11-CI-PF3OUdS	ND	0.462	0.462	0.119	1	763051-92-9	
PFTrDA	ND	0.490	0.490	0.160	1	72629-94-8	
PFDoS	ND	0.475	0.475	0.124	1	79780-39-5	
PFTDA	ND	0.490	0.490	0.080	1	376-06-7	
PFHXDA	ND	0.490	0.490	0.123	1	67905-19-5	
PFODA	ND	0.490	0.490	0.161	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS



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MPCA Guidance PFCs

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Client Sample ID EB-01 **Extraction Date** 

Pace Analytical®

Lab Sample ID 10558465006 Total Amount Extracted 510mL

Lab File ID Ical ID 210512A03 A210512B\_022

CCal File A210512B\_003 Matrix Water

Collected **Ending CCal File** A210512B\_027 05/04/2021 17:00

Blank File Received 05/04/2021 18:29 A210512B\_005

#### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	9.81	10.3	105	50-200	
13C4_PFOA	9.81	10.6	108	50-200	
13C2_PFDA	9.81	10.4	106	50-200	
13C4_PFOS	9.39	10.7	114	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	9.81	12.1	123	50-200	
13C5_PFPeA	9.81	10.4	106	50-200	
13C3_PFBS	9.11	10.0	110	50-200	
13C2_4:2FTS	9.17	10.6	115	50-200	
13C5_PFHxA	9.81	10.6	108	50-200	
13C4_PFHpA	9.81	10.8	111	50-200	
13C3_PFHxS	9.28	9.97	107	50-200	
13C2_6:2FTS	9.31	11.3	121	50-200	
13C8_PFOA	9.81	10.1	103	50-200	
13C9_PFNA	9.81	10.7	109	50-200	
13C8_PFOS	9.39	10.4	111	50-200	
13C2_8:2FTS	9.40	9.81	104	50-200	
13C6_PFDA	9.81	10.6	108	50-200	
d3-MeFOSAA	9.81	11.2	114	50-200	
13C8_PFOSA	9.81	10.4	106	50-200	
d5-EtFOSAA	9.81	9.87	101	50-200	
13C7_PFUdA	9.81	12.6	128	50-200	
13C2_PFDoA	9.81	12.8	130	50-200	
13C2_PFTeDA	9.81	11.6	118	50-200	
13C3_HFPO-DA	9.81	10.1	103	50-200	
13C2_PFHxDA	9.81	9.56	97	50-200	
d7-N-MeFOSE	9.81	7.58	77	50-200	
d9-N-EtFOSE	9.81	8.62	88	50-200	
d3-N-MeFOSA	9.81	5.70	58	50-200	
d5-N-EtFOSA	9.81	5.19	53	50-200	

# REPORT OF LABORATORY ANALYSIS



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Client Sample ID EB-01 **Extraction Date** 05/05/2021 18:45

Lab Sample ID 10558465006 Total Amount Extracted 510mL Lab File ID Ical ID 210512A03 A210512B\_022 CCal File A210512B\_003 Matrix Water Collected **Ending CCal File** A210512B\_027 05/04/2021 17:00 Received 05/04/2021 18:29 Blank File A210512B\_005

# **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.26	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.79	5.79	
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7_PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

# REPORT OF LABORATORY ANALYSIS



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# **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID EB-01 Extraction Date 05/05/2021 18:45

 Lab Sample ID
 10558465006
 Total Amount Extracted
 510mL

 Lab File ID
 A210512B\_022
 Ical ID
 210512A03

 Lab File ID
 A210512B\_022
 Ical ID
 210512A03

 Matrix
 Water
 CCal File
 A210512B\_0

 Matrix
 Water
 CCal File
 A210512B\_003

 Collected
 05/04/2021 17:00
 Ending CCal File
 A210512B\_027

Received 05/04/2021 18:29 Blank File A210512B\_005

#### **Native Analytes**

Compound	Ion Abund.	Reference	Retention	Reference	Qualifiers
·	Ratio	Ratio	Time	Time	·
PFBA	N/A	N/A	3.57	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.480	0.460	5.25	5.25	
PFBS	0.320	0.320	5.22	5.22	
PFHxA	0.100	0.0650	5.04	5.04	
4:2 FTS	1.60	0.600	4.81	4.80	
PFPeS	0.410	0.300	5.80	5.80	
PFHpA	0.290	0.290	5.55	5.56	
DONA	0.390	0.510	5.73	5.73	
PFHxS	0.250	0.260	6.32	6.32	
PFOA	0.680	0.380	6.03	6.03	
6:2 FTS	0.530	0.530	5.79	5.79	
PFHpS	0.430	0.240	6.80	6.80	
PFNA	0.190	0.190	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.140	0.230	7.22	7.27	
MeFOSA	0.820	0.880	10.26	10.25	
PFDA	0.000	0.0980	6.95	6.95	
EtFOSAm	0.000	0.730	0.00	10.92	
8:2 FTS	0.000	0.680	6.66	6.69	
9-CI-PF3ON	0.000	0.0240	7.60	7.59	
PFNS	0.000	0.240	0.00	7.71	
PFUnDA	0.230	0.110	7.39	7.39	
NMeFOSAA	0.000	0.570	6.88	6.89	
NEtFOSAA	0.000	0.670	7.09	7.10	
PFDS	0.350	0.250	8.14	8.14	
PFDOA	0.140	0.130	7.83	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.650	0.00	7.58	
EtFOSE	0.000	0.000	10.65	10.64	
11-CI-PF3OUdS	0.000	0.0150	8.45	8.44	
PFTrDA	0.160	0.150	8.26	8.26	
PFDoS	0.120	0.230	8.92	8.93	
PFTDA	0.160	0.140	8.68	8.68	
PFHXDA	0.130	0.130	9.44	9.44	
PFODA	0.086	0.110	10.54	10.53	

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Client Sample ID **BLKXM** 

BLANK-89805

Lab File ID A210512B\_005

Matrix

Lab Sample ID

Non\_Potable\_Water 05/05/2021 11:43

Collected Received

05/05/2021 11:43

**Extraction Date** 

Total Amount Extracted 493mL

Ical ID 210512A03 CCal File A210512B\_003

**Ending CCal File** 

A210512B\_018

05/05/2021 18:45

Blank File

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	0.51	0.51	0.15	1	375-22-4	
PFPeA	ND	0.51	0.51	0.10	1	2706-90-3	
HFPO-DA	ND	0.51	0.51	0.095	1	13252-13-6	
PFBS	ND	0.45	0.45	0.10	1	375-73-5	
PFHxA	ND	0.51	0.51	0.11	1	307-24-4	
4:2 FTS	ND	0.47	0.47	0.15	1	757124-72-4	
PFPeS	ND	0.48	0.48	0.12	1	2706-91-4	
PFHpA	ND	0.51	0.51	0.14	1	375-85-9	
DONA	ND	0.48	0.48	0.12	1	919005-14-4	
PFHxS	ND	0.46	0.46	0.079	1	355-46-4	
PFOA	ND	0.51	0.51	0.091	1	335-67-1	
6:2 FTS	ND	0.48	0.48	0.16	1	27619-97-2	
PFHpS	ND	0.48	0.48	0.12	1	375-92-8	
PFNA	ND	0.51	0.51	0.092	1	375-95-1	
PFOSAm	ND	0.51	0.51	0.11	1	754-91-6	
PFOS	ND	0.47	0.47	0.092	1	1763-23-1	
MeFOSA	ND	0.51	0.51	0.16	1	31506-32-8	
PFDA	ND	0.51	0.51	0.12	1	335-76-2	
EtFOSAm	ND	0.51	0.51	0.15	1	4151-50-2	
8:2 FTS	ND	0.49	0.49	0.16	1	39108-34-4	
9-CI-PF3ON	ND	0.47	0.47	0.14	1	756426-58-1	
PFNS	ND	0.49	0.49	0.11	1	68259-12-1	
PFUnDA	ND	0.51	0.51	0.17	1	2058-94-8	
NMeFOSAA	ND	0.51	0.51	0.15	1	2355-31-9	
NEtFOSAA	ND	0.51	0.51	0.14	1	2991-50-6	
PFDS	ND	0.49	0.49	0.12	1	335-77-3	
PFDOA	ND	0.51	0.51	0.16	1	307-55-1	
MeFOSE	ND	0.51	0.51	0.11	1	24448-09-7	
10:2 FTS	ND	0.49	0.49	0.13	1	120226-60-0	
EtFOSE	ND	0.51	0.51	0.14	1	1691-99-2	
11-CI-PF3OUdS	ND	0.48	0.48	0.12	1	763051-92-9	
PFTrDA	ND	0.51	0.51	0.17	1	72629-94-8	
PFDoS	ND	0.49	0.49	0.13	1	79780-39-5	
PFTDA	ND	0.51	0.51	0.084	1	376-06-7	
PFHXDA	ND	0.51	0.51	0.13	1	67905-19-5	
PFODA	ND	0.51	0.51	0.17	1	16517-11-6	

# REPORT OF LABORATORY ANALYSIS

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Client Sample ID BLKXM Extraction Date 05/05/2021 18:45

 Lab Sample ID
 BLANK-89805
 Total Amount Extracted
 493mL

 Lab File ID
 A210512B\_005
 Ical ID
 210512A03

 Matrix
 Non\_Potable\_Water
 CCal File
 A210512B\_003

 Collected
 05/05/2021 11:43
 Ending CCal File
 A210512B\_018

Received 05/05/2021 11:43 Blank File

#### **Injection Internal Standards**

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Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10	8.6	85	50-200	
13C4_PFOA	10	8.8	86	50-200	
13C2_PFDA	10	9.1	90	50-200	
13C4_PFOS	9.7	8.7	90	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10	10	102	50-200	
13C5_PFPeA	10	9.3	92	50-200	
13C3_PFBS	9.4	8.8	93	50-200	
13C2_4:2FTS	9.5	8.9	94	50-200	
13C5_PFHxA	10	9.3	92	50-200	
13C4_PFHpA	10	10	103	50-200	
13C3_PFHxS	9.6	8.7	91	50-200	
13C2_6:2FTS	9.6	8.9	92	50-200	
13C8_PFOA	10	9.1	90	50-200	
13C9_PFNA	10	9.6	94	50-200	
13C8_PFOS	9.7	9.0	93	50-200	
13C2_8:2FTS	9.7	8.7	89	50-200	
13C6_PFDA	10	9.1	90	50-200	
d3-MeFOSAA	10	9.2	91	50-200	
13C8_PFOSA	10	8.9	88	50-200	
d5-EtFOSAA	10	9.0	88	50-200	
13C7_PFUdA	10	9.6	94	50-200	
13C2_PFDoA	10	9.8	97	50-200	
13C2_PFTeDA	10	9.1	90	50-200	
13C3_HFPO-DA	10	8.8	87	50-200	
13C2_PFHxDA	10	8.3	81	50-200	
d7-N-MeFOSE	10	6.9	68	50-200	
d9-N-EtFOSE	10	6.8	67	50-200	
d3-N-MeFOSA	10	5.1	50	50-200	
d5-N-EtFOSA	10	5.1	50	50-200	

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Client Sample ID BLKXM Extraction Date 05/05/2021 18:45

 Lab Sample ID
 BLANK-89805
 Total Amount Extracted
 493mL

 Lab File ID
 A210512B\_005
 Ical ID
 210512A03

 Matrix
 Non\_Potable\_Water
 CCal File
 A210512B\_003

 Collected
 05/05/2021 11:43
 Ending CCal File
 A210512B\_018

Received 05/05/2021 11:43 Blank File

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.25	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.57	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.87	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7 PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.89	10.89	

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Client Sample ID BLKXM Extraction Date 05/05/2021 18:45

 Lab Sample ID
 BLANK-89805
 Total Amount Extracted
 493mL

 Lab File ID
 A210512B\_005
 Ical ID
 210512A03

 Matrix
 Non\_Potable\_Water
 CCal File
 A210512B\_003

 Collected
 05/05/2021 11:43
 Ending CCal File
 A210512B\_018

Received 05/05/2021 11:43 Blank File

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#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.57	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.420	0.460	5.25	5.25	
PFBS	0.330	0.320	5.22	5.22	
PFHxA	0.043	0.0650	5.03	5.04	
4:2 FTS	12.0	0.600	4.81	4.80	
PFPeS	0.240	0.300	5.80	5.80	
PFHpA	0.270	0.290	5.55	5.56	
DONA	0.580	0.510	5.73	5.73	
PFHxS	0.048	0.260	6.32	6.32	
PFOA	0.600	0.380	6.02	6.03	
6:2 FTS	0.580	0.530	5.79	5.79	
PFHpS	0.530	0.240	6.80	6.80	
PFNA	0.190	0.190	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.160	0.230	7.26	7.27	
MeFOSA	0.880	0.880	10.26	10.25	
PFDA	0.090	0.0980	6.95	6.95	
EtFOSAm	1.30	0.730	10.93	10.92	
8:2 FTS	0.000	0.680	0.00	6.69	
9-CI-PF3ON	0.000	0.0240	7.59	7.59	
PFNS	0.220	0.240	7.72	7.71	
PFUnDA	0.110	0.110	7.40	7.39	
NMeFOSAA	0.460	0.570	6.89	6.89	
NEtFOSAA	0.000	0.670	7.12	7.10	
PFDS	0.000	0.250	8.14	8.14	
PFDOA	0.150	0.130	7.83	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.650	0.00	7.58	
EtFOSE	0.000	0.000	10.63	10.64	
11-CI-PF3OUdS	0.000	0.0150	8.44	8.44	
PFTrDA	0.130	0.150	8.26	8.26	
PFDoS	0.420	0.230	8.93	8.93	
PFTDA	0.140	0.140	8.68	8.68	
PFHXDA	0.110	0.130	9.44	9.44	
PFODA	0.061	0.110	10.53	10.53	

# REPORT OF LABORATORY ANALYSIS



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# LCS Analysis Summary MPCA Guidance PFCs

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 Lab Sample ID
 LCS-89806
 Instrument ID
 10LCMS03

 Run File Name
 A210513A\_029
 Column ID
 112EB00094

 Analyzed
 05/13/2021 15:54
 Ical ID
 210512A03

 Injected By
 NH
 Level
 L

#### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10.6	12.0	114	50-200	
13C4_PFOA	10.6	12.5	119	50-200	
13C2_PFDA	10.6	12.0	114	50-200	
13C4_PFOS	10.1	12.7	126	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	10.6	15.3	145	50-200	
13C5_PFPeA	10.6	13.7	129	50-200	
13C3_PFBS	9.80	12.6	128	50-200	
13C2_4:2FTS	9.86	12.8	130	50-200	
13C5_PFHxA	10.6	13.6	129	50-200	
13C4_PFHpA	10.6	13.7	130	50-200	
13C3_PFHxS	9.98	12.5	125	50-200	
13C2_6:2FTS	10.0	12.8	127	50-200	
13C8_PFOA	10.6	12.7	120	50-200	
13C9_PFNA	10.6	14.6	138	50-200	
13C8_PFOS	10.1	13.1	130	50-200	
13C2_8:2FTS	10.1	12.1	120	50-200	
13C6_PFDA	10.6	13.2	125	50-200	
d3-MeFOSAA	10.6	12.6	119	50-200	
13C8_PFOSA	10.6	13.3	126	50-200	
d5-EtFOSAA	10.6	11.9	113	50-200	
13C7_PFUdA	10.6	14.5	137	50-200	
13C2_PFDoA	10.6	13.8	131	50-200	
13C2_PFTeDA	10.6	13.4	127	50-200	
13C3_HFPO-DA	10.6	13.1	124	50-200	
13C2_PFHxDA	10.6	12.1	115	50-200	
d7-N-MeFOSE	10.6	10.0	95	50-200	
d9-N-EtFOSE	10.6	9.75	92	50-200	
d3-N-MeFOSA	10.6	6.24	59	50-200	
d5-N-EtFOSA	10.6	6.32	60	50-200	

# REPORT OF LABORATORY ANALYSIS



LCS Analysis Summary
MPCA Guidance PFCs

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 Run File Name
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Injected By NH Level L

#### **Native Analytes**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	4.22	4.05	96	70-130		375-22-4
PFPeA	4.22	3.88	92	70-130		2706-90-3
HFPO-DA	4.22	4.01	95	70-130		13252-13-6
PFBS	3.73	3.65	98	70-130		375-73-5
PFHxA	4.22	4.06	96	70-130		307-24-4
4:2 FTS	3.95	3.87	98	70-130		757124-72-4
PFPeS	3.97	3.95	100	70-130		2706-91-4
PFHpA	4.22	3.77	89	70-130		375-85-9
DONA	3.99	3.96	99	70-130		919005-14-4
PFHxS	3.84	3.87	101	70-130		355-46-4
PFOA	4.22	4.16	98	70-130		335-67-1
6:2 FTS	4.01	3.92	98	70-130		27619-97-2
PFHpS	4.01	3.78	94	70-130		375-92-8
PFNA	4.22	3.84	91	70-130		375-95-1
PFOSAm	4.22	4.19	99	70-130		754-91-6
PFOS	3.90	3.83	98	70-130		1763-23-1
MeFOSA	4.22	4.32	102	70-130		31506-32-8
PFDA	4.22	3.94	93	70-130		335-76-2
EtFOSAm	4.22	3.97	94	70-130		4151-50-2
8:2 FTS	4.05	4.00	99	70-130		39108-34-4
9-CI-PF3ON	3.93	3.69	94	70-130		756426-58-1
PFNS	4.05	3.70	91	70-130		68259-12-1
PFUnDA	4.22	3.94	93	70-130		2058-94-8
NMeFOSAA	4.22	3.71	88	70-130		2355-31-9
NEtFOSAA	4.22	3.89	92	70-130		2991-50-6
PFDS	4.07	4.00	98	70-130		335-77-3
PFDOA	4.22	4.02	95	70-130		307-55-1
MeFOSE	4.22	3.98	94	70-130		24448-09-7
10:2 FTS	4.07	4.14	102	70-130		120226-60-0
EtFOSE	4.22	3.93	93	70-130		1691-99-2
11-CI-PF3OUdS	3.98	3.97	100	70-130		763051-92-9
PFTrDA	4.22	3.98	94	70-130		72629-94-8
PFDoS	4.09	3.92	96	70-130		79780-39-5
PFTDA	4.22	3.94	93	70-130		376-06-7
PFHXDA	4.22	3.90	92	70-130		67905-19-5
PFODA	4.22	4.12	98	70-130		16517-11-6

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Injected By NH Level L

#### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.04	5.03	
13C4 PFOA	N/A	N/A	6.04	6.03	
13C2 PFDA	N/A	N/A	6.96	6.94	
13C4 PFOS	N/A	N/A	7.27	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.57	3.56	
13C5 PFPeA	N/A	N/A	4.43	4.42	
13C3 PFBS	N/A	N/A	5.22	5.21	
13C2 4:2FTS	N/A	N/A	4.81	4.80	
13C5 PFHxA	N/A	N/A	5.04	5.03	
13C4 PFHpA	N/A	N/A	5.56	5.55	
13C3 PFHxS	N/A	N/A	6.33	6.31	
13C2 6:2FTS	N/A	N/A	5.80	5.79	
13C8 PFOA	N/A	N/A	6.04	6.02	
13C9 PFNA	N/A	N/A	6.50	6.49	
13C8 PFOS	N/A	N/A	7.27	7.26	
13C2 8:2FTS	N/A	N/A	6.70	6.68	
13C6 PFDA	N/A	N/A	6.96	6.94	
d3-MeFOSAA	N/A	N/A	6.90	6.88	
13C8 PFOSA	N/A	N/A	8.76	8.75	
d5-EtFOSAA	N/A	N/A	7.11	7.09	
13C7 PFUdA	N/A	N/A	7.40	7.39	
13C2 PFDoA	N/A	N/A	7.84	7.83	
13C2 PFTeDA	N/A	N/A	8.69	8.67	
13C3 HFPO-DA	N/A	N/A	5.26	5.24	
13C2 PFHxDA	N/A	N/A	9.45	9.44	
d7-N-MeFOSE	N/A	N/A	10.00	9.99	
d9-N-EtFOSE	N/A	N/A	10.60	10.59	
d3-N-MeFOSA	N/A	N/A	10.25	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

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 Injected By
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#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.57	3.57	
PFPeA	N/A	N/A	4.43	4.42	
HFPO-DA	0.46	0.47	5.27	5.25	
PFBS	0.32	0.32	5.23	5.22	
PFHxA	0.06	0.06	5.05	5.04	
4:2 FTS	0.60	0.60	4.82	4.80	
PFPeS	0.30	0.31	5.81	5.80	
PFHpA	0.30	0.30	5.57	5.56	
DONA	0.50	0.51	5.75	5.73	
PFHxS	0.27	0.26	6.33	6.32	
PFOA	0.39	0.40	6.05	6.03	
6:2 FTS	0.54	0.55	5.81	5.79	
PFHpS	0.25	0.24	6.81	6.80	
PFNA	0.20	0.20	6.51	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.22	0.22	7.28	7.27	
MeFOSA	0.85	0.87	10.27	10.25	
PFDA	0.09	0.09	6.96	6.95	
EtFOSAm	0.73	0.73	10.94	10.92	
8:2 FTS	0.66	0.65	6.71	6.69	
9-CI-PF3ON	0.02	0.02	7.60	7.59	
PFNS	0.26	0.23	7.72	7.71	
PFUnDA	0.10	0.10	7.41	7.39	
NMeFOSAA	0.58	0.57	6.90	6.89	
NEtFOSAA	0.67	0.67	7.11	7.10	
PFDS	0.23	0.24	8.15	8.14	
PFDOA	0.14	0.14	7.85	7.83	
MeFOSE	N/A	N/A	10.04	10.03	
10:2 FTS	0.63	0.65	7.59	7.58	
EtFOSE	0.00	0.00	10.66	10.64	
11-CI-PF3OUdS	0.01	0.01	8.45	8.44	
PFTrDA	0.15	0.15	8.28	8.26	
PFDoS	0.22	0.22	8.94	8.93	
PFTDA	0.14	0.14	8.69	8.68	
PFHXDA	0.13	0.12	9.45	9.44	
PFODA	0.11	0.11	10.53	10.53	

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#### **LCSD Analysis Summary** MPCA Guidance PFCs

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A210513A\_030

Column ID

Instrument ID

112EB00094

Analyzed

05/13/2021 16:09

Ical ID

210512A03

10LCMS03

Injected By

NH

Pace Analytical®

Level

#### **Injection Internal Standards**

Compound	Known Conc.	LCS Conc. Found	LCS Rec. %	LCSD Conc. Found	LCSD Rec. %	RPD %	Recovery Limits	Qualifiers
13C2_PFHxA	10.8	12.0	114	13.5	125	9.6	50-200	
13C4_PFOA	10.8	12.5	119	13.9	129	8.3	50-200	
13C2_PFDA	10.8	12.0	114	13.6	126	10.2	50-200	
13C4_PFOS	10.3	12.7	126	13.9	135	6.6	50-200	

#### **Extracted Internal Standards**

Compound	Known Conc.	LCS Conc. Found	LCS Rec.	LCSD Conc. Found	LCSD Rec. %	RPD %	Recovery Limits	Qualifiers
13C4_PFBA	10.8	15.3	145	15.7	145	0.4	50-200	
13C5_PFPeA	10.8	13.7	129	13.8	128	1.0	50-200	
13C3_PFBS	10.0	12.6	128	12.3	123	4.0	50-200	
13C2_4:2FTS	10.1	12.8	130	12.4	123	5.5	50-200	
13C5_PFHxA	10.8	13.6	129	13.9	129	0.3	50-200	
13C4_PFHpA	10.8	13.7	130	14.3	133	2.0	50-200	
13C3_PFHxS	10.2	12.5	125	12.5	123	2.0	50-200	
13C2_6:2FTS	10.2	12.8	127	14.0	136	6.8	50-200	
13C8_PFOA	10.8	12.7	120	13.4	124	3.5	50-200	
13C9_PFNA	10.8	14.6	138	14.6	136	2.0	50-200	
13C8_PFOS	10.3	13.1	130	13.2	128	1.8	50-200	
13C2_8:2FTS	10.3	12.1	120	12.7	123	2.1	50-200	
13C6_PFDA	10.8	13.2	125	14.1	130	4.2	50-200	
d3-MeFOSAA	10.8	12.6	119	14.6	135	12.7	50-200	
13C8_PFOSA	10.8	13.3	126	14.3	132	4.6	50-200	
d5-EtFOSAA	10.8	11.9	113	12.7	118	3.8	50-200	
13C7_PFUdA	10.8	14.5	137	15.1	140	1.5	50-200	
13C2_PFDoA	10.8	13.8	131	15.4	142	8.6	50-200	
13C2_PFTeDA	10.8	13.4	127	14.0	130	1.9	50-200	
13C3_HFPO-DA	10.8	13.1	124	13.5	125	0.6	50-200	
13C2_PFHxDA	10.8	12.1	115	12.0	111	3.4	50-200	
d7-N-MeFOSE	10.8	10.0	95	10.5	97	2.1	50-200	
d9-N-EtFOSE	10.8	9.75	92	10.4	97	4.6	50-200	
d3-N-MeFOSA	10.8	6.24	59	6.91	64	8.0	50-200	
d5-N-EtFOSA	10.8	6.32	60	6.55	61	1.4	50-200	

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LCSD Analysis Summary

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 Analyzed
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 Ical ID
 210512A03

Injected By NH Level L

#### **Native Analytes**

Compound	Known	LCS Conc.	LCS Rec.	LCSD Conc.		RPD	Recovery	Qualifiers
Compound	Conc.	Found	%	Found	%	%	Limits	Qualifiers
PFBA	4.32	4.05	96	4.05	94	2.1	70-130	
PFPeA	4.32	3.88	92	3.99	92	0.5	70-130	
HFPO-DA	4.32	4.01	95	4.00	93	2.6	70-130	
PFBS	3.82	3.65	98	3.85	101	2.9	70-130	
PFHxA	4.32	4.06	96	3.96	92	4.7	70-130	
4:2 FTS	4.04	3.87	98	4.17	103	5.3	70-130	
PFPeS	4.06	3.95	100	3.90	96	3.6	70-130	
PFHpA	4.32	3.77	89	3.89	90	0.8	70-130	
DONA	4.08	3.96	99	3.74	92	8.0	70-130	
PFHxS	3.93	3.87	101	3.70	94	6.8	70-130	
PFOA	4.32	4.16	98	4.09	95	3.9	70-130	
6:2 FTS	4.10	3.92	98	3.95	96	1.4	70-130	
PFHpS	4.10	3.78	94	3.95	96	2.1	70-130	
PFNA	4.32	3.84	91	4.02	93	2.3	70-130	
PFOSAm	4.32	4.19	99	4.18	97	2.5	70-130	
PFOS	3.99	3.83	98	3.68	92	6.2	70-130	
MeFOSA	4.32	4.32	102	4.09	95	7.7	70-130	
PFDA	4.32	3.94	93	3.79	88	6.1	70-130	
EtFOSAm	4.32	3.97	94	4.03	93	0.6	70-130	
8:2 FTS	4.14	4.00	99	3.90	94	4.7	70-130	
9-CI-PF3ON	4.02	3.69	94	3.78	94	0.2	70-130	
PFNS	4.14	3.70	91	3.81	92	0.6	70-130	
PFUnDA	4.32	3.94	93	3.92	91	2.9	70-130	
NMeFOSAA	4.32	3.71	88	3.81	88	0.4	70-130	
NEtFOSAA	4.32	3.89	92	4.35	101	8.8	70-130	
PFDS	4.17	4.00	98	4.22	101	3.1	70-130	
PFDOA	4.32	4.02	95	4.18	97	1.6	70-130	
MeFOSE	4.32	3.98	94	3.99	92	2.1	70-130	
10:2 FTS	4.16	4.14	102	3.99	96	5.7	70-130	
EtFOSE	4.32	3.93	93	3.74	87	7.1	70-130	
11-CI-PF3OUdS	4.07	3.97	100	3.97	98	2.3	70-130	
PFTrDA	4.32	3.98	94	3.73	86	8.7	70-130	
PFDoS	4.18	3.92	96	3.90	93	2.6	70-130	
PFTDA	4.32	3.94	93	4.00	93	0.6	70-130	
PFHXDA	4.32	3.90	92	4.03	93	1.0	70-130	
PFODA	4.32	4.12	98	5.19	120	20.7	70-130	

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 A210513A\_030
 Column ID
 112EB00094

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 Ical ID
 210512A03

 Injected By
 NH
 Level
 L

#### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.04	6.03	
13C2 PFDA	N/A	N/A	6.95	6.94	
13C4 PFOS	N/A	N/A	7.26	7.26	

#### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.81	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.56	5.55	
13C3 PFHxS	N/A	N/A	6.32	6.31	
13C2 6:2FTS	N/A	N/A	5.80	5.79	
13C8 PFOA	N/A	N/A	6.04	6.02	
13C9 PFNA	N/A	N/A	6.50	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.70	6.68	
13C6 PFDA	N/A	N/A	6.95	6.94	
d3-MeFOSAA	N/A	N/A	6.89	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.10	7.09	
13C7 PFUdA	N/A	N/A	7.40	7.39	
13C2 PFDoA	N/A	N/A	7.84	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.25	5.24	
13C2 PFHxDA	N/A	N/A	9.45	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.60	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

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 210512A03

Injected By NH Level L

#### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.46	0.47	5.26	5.25	
PFBS	0.32	0.32	5.22	5.22	
PFHxA	0.06	0.06	5.04	5.04	
4:2 FTS	0.56	0.60	4.81	4.80	
PFPeS	0.31	0.31	5.81	5.80	
PFHpA	0.29	0.30	5.56	5.56	
DONA	0.53	0.51	5.74	5.73	
PFHxS	0.27	0.26	6.33	6.32	
PFOA	0.39	0.40	6.04	6.03	
6:2 FTS	0.52	0.55	5.80	5.79	
PFHpS	0.23	0.24	6.81	6.80	
PFNA	0.20	0.20	6.50	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.23	0.22	7.27	7.27	
MeFOSA	0.87	0.87	10.26	10.25	
PFDA	0.09	0.09	6.96	6.95	
EtFOSAm	0.72	0.73	10.93	10.92	
8:2 FTS	0.67	0.65	6.70	6.69	
9-CI-PF3ON	0.02	0.02	7.59	7.59	
PFNS	0.25	0.23	7.71	7.71	
PFUnDA	0.10	0.10	7.40	7.39	
NMeFOSAA	0.54	0.57	6.90	6.89	
NEtFOSAA	0.66	0.67	7.11	7.10	
PFDS	0.23	0.24	8.14	8.14	
PFDOA	0.13	0.14	7.84	7.83	
MeFOSE	N/A	N/A	10.04	10.03	
10:2 FTS	0.69	0.65	7.58	7.58	
EtFOSE	0.00	0.00	10.65	10.64	
11-CI-PF3OUdS	0.01	0.01	8.45	8.44	
PFTrDA	0.15	0.15	8.27	8.26	
PFDoS	0.23	0.22	8.93	8.93	
PFTDA	0.14	0.14	8.68	8.68	
PFHXDA	0.12	0.12	9.45	9.44	
PFODA	0.11	0.11	10.52	10.53	

# REPORT OF LABORATORY ANALYSIS



1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

# **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY ANALYSIS FOR TCDD

# **Report Information:**

**PaceProject#: 10558675** 

Sample Receipt Date: 05/05/2021

Client Project #: 200408 SW#134 Begin D

Client Sub PO #: 205946 State Cert #: 027-053-137

# **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 2,3,7,8-TCDD Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

May 18, 2021

Krista Carlson, Project Manager

(612) 607-1700 (fax) krista.carlson@pacelabs.com



# **Report of Laboratory Analysis**

 $This report should not be reproduced, except in full, \\without the written consent of Pace Analytical Services, Inc.$ 

The results relate only to the samples included in this report.

May 17, 2021



1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700 Fax: 612.607.6444

# **DISCUSSION**

This report presents the results from the analysis performed on one sample submitted by a representative of BayWest, LLC. The sample was analyzed for the presence or absence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) using a modified version of USEPA Method 8290A. The estimated detection limits (EDLs) were based on signal-to-noise measurements.

The isotopically-labeled TCDD internal standard in the sample extract was recovered at 47%. Except for one low value, which was flagged "R" on the laboratory spike duplicate results table, the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290A. Also, since the quantification of the native TCDD was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show that 2,3,7,8-TCDD was not detected, indicating that the sample processing steps were free of background levels of this congener.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard material. The results show that the spiked native TCDD was recovered at 98% with a relative percent difference of 0.0%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch.

#### **REPORT OF LABORATORY ANALYSIS**



# Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

# **REPORT OF LABORATORY ANALYSIS**

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

Report No.....10558675

# **Appendix A**

Sample Management

Page:

CHAIN-OF-CUSTODY / Analytical Request Document

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

チャック アギア 7 Samples Inlact (Y/N) S. W.D 3000027123 4 PRJ07913 Comments SW-134 Custody Sealed Cooler (Y/V) (N/X) earling on Ice (X/V) Temp (0°) . . Work Order Numbe Project Task Code: MPCA Information Program Code Facility Code: Section E COC ID: 0921 1700 Elm St. Minneapolis MN, 55414 Sylvia Hunter 612-607-6347 lested Analys 12/5/5 (H-EON 00St WS)N × Nitrate + Nitrite, as 5/5/ litrogen, Total Organic 351.2 + 350.1) Lab Project Manager 4-Dioxane (8270 SIM) DATE Signed (MM/DD/YY): Lab Phone: Section D Lab Name Adress: A93)(nixoiO RO with silica gel 5 Empire Dr. St. Paul, MN 55103 04 205946 Bay West LLC Accounts Payable O # of Cont. 5 1025 **9miT** Purchase Order No. Company Name Sample Type Codes
Sample Fordurie Sample
ScrWOP=Composite Sample
S-WP=Integrated Vertical Profile Sample
QC-RE-Field Blank Sample
QC-RE-Field Replicate Sample
QC-TB=Trp Blank Sample Section C Attention: Address: 9 51512 SAMPLER NAME AND SIGNATURE Date SW#134 Begin Dump - GW Sampling 5(5/3) PRINT Name of SAMPLER: SIGNATURE of SAMPLER: ryanr@baywest.com Wtr.Ground Wtr-Ground Wtr-Ground Wfr-Ground gvanderwaal@baywest.com Wtr-Ground Wtr-Ground Field Matrix Code (YJNO AD4M) Standard 200408 ۲ Bay West ¥ 4 \* NW (MPCA ONLY) Š MM Lab Matrix Code Ø M WG WG 9 \$ Field Matrix Codes
W.R-Ground-Schoud Water
W.R-Surf-Surface Water
QC-Blank-Artificial Blank Water
QC-Blank-Artificial Blank Water
Leachtae-Leachtel Sample
Soil-Surface
Soil-Surface
Soil-Surface Matrix Code Required Project Information SAMPLE TYPE (9MO)=0) Ø ഗ Site Location (State): Furnaround Time: Project Number: Sample Sample DC-ER Sample Sample Project Name: Sample Type Code (MPCA ONLY) Ted MO#: 10558675 Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW≂Drinking Water
NW=Non-potable Water
SD=Soil/Solid
WP=Wipe AR≂Air BL=Biological Material OT=Other Eweaver@baywest.com enimlos@baywest.com MW-04-D MW-03 MW-04 MW-05 MW-01 14W 02 EB 94 651-291-3493 Required Client Information Unique ID Project Manager: Location 2001007375 2001007376 01007374 4 Z001007377 Equipment Blank O≕Soil C≕Soil QC S=Surface 834635 834636 Section A Company: Address: Email To: Copy To: Phone: # M31I 9 7

Report No.....10558675\_8290TCDD\_DFR

Page 5 of 13

# Pace Analytical®

#### **Document Name:**

# Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.02

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services -Minneapolis

Sample Condition Client Name:		1,0	Project	#: [	h	10# :	10	55867	5
	USPS Commerc	cial	Client		Pi	M: KAC LIENT: E		Due Date:	
Tracking Number:			e Exception V-FRM-MIN						
Custody Seal on Cooler/Box Present?	Ńο	Sea	ls Intact?	? <u> </u>	es 🖳 N	o <b>Biol</b> o	gical Tis	sue Frozen? 🔲	Yes □No □N/A
Packing Material: ☑Bubble Wrap ☑Bubble Ba	gs [	None	☐Oth	er:			, Te	mp Blank?	gYes □No
Thermometer:       ☐ T1(0461) ☐ T2(1336) ☐ T3(0459)         ☐ T4(0254) ☐ T5(0489)	□OS418- □160285		Type of Ice:	₩et	Blue	□None	□Dry	∕	
Did Samples Originate in West Virginia? ☐Yes □ No	Wei	re All Co	ntainer T		ı <b>ken?</b> ∐Ye	s 🔲 No	¶Ñ/A		
Temp should be above freezing to 6°C Cooler Temp Rea	d w/tem	p blank:	<u> </u>	4.0	)	oc		ge Corrected	See Exceptions ENV-FRM-MIN4-0142
Correction Factor: 402 Cooler Temp Correcte	d w/tem	p blank:		42		oc	only):	(no temp blank °C	☐1 Container
USDA Regulated Soil: ( N/A, wate sample/Other: ) Date/Initials of Person Examining Contents: 5/5/2/ 65/2  Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?   Yes   No   No   NY, OK, OR, SC, TN, TX or VA (check maps)?   Yes   No   No   NY, OK, OR, SC, TN, TX or VA (check maps)?   Yes   No   NY, OK, OK, OK, OK, OK, OK, OK, OK, OK, OK									
							COMM	ENIS:	
Chain of Custody Present and Filled Out? Chain of Custody Relinquished?	✓ Yes ✓ Yes	No □No		1. 2.	<del> </del>		ż		
Sampler Name and/or Signature on COC?	Yes	□No	□N/A	3.					
Samples Arrived within Hold Time?	¥€S	□No		4.					
Short Hold Time Analysis (<72 hr)?	∐Yes	∏wo						orm/E coliBOD/othor	BOD Hex Chrome
Rush Turn Around Time Requested?	☐Yes	. ⊠No		6.		<del></del>			
Sufficient Volume?	¥Yes	□No	<del></del>	7.		<del> </del>			
Correct Containers Used?	Yes	□No		8.					
-Pace Containers Used? Containers Intact?	VYes VYes	No □No		9.					
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	₩/A		s sèdiment	visible in the	e dissolve	d container?	∕es □No
Is sufficient information available to reconcile the samples to the COC?	Yes	□No		11. if n	o, write ID/	Date/Time or	Containe	r Below:	See Exception ENV-FRM-MIN4-0142
Matrix: ☑Water ☐Soil ☐Oil ☐Other		*							
All containers needing acid/base preservation have been checked?	Yes	∏No	□n/a	12. Sar	nple#				
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , $H_2SO_4$ , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	⊠Yes	∏No	□N/A		☐ NaOH	⊢⊟н	NO₃	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Zinc Acetate
Eventions VOA Coliform TOC/DOC Oil and Cross	Yes	∏No	□N/A	1	=	Yes			See Exception ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<b>A</b>			Chlorir Res. Ch		_No 0-6 Roll	pH Pape	0-6 Strip	0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	∐Yes	□No	₩/A	13.		2214	114		See Exception
Headspace in VOA Vials (greater than 6mm)?  Trip Blank Present?	Yes	□No □No	☑N/A ☑N/A	14.					ENV-FRM-MIN4-0140
Trip Blank Custody Seals Present?	Yes Yes	□No	WN/A	1	ace Trip Bla	ank Lot # (if	purchase	d):	
CLIENT NOTIFICATION/RESOLUTION	<u> </u>	· ·				Fie	ld Data I	Required? \[ \]Y	es No
Person Contacted:			**	Date	/Time:				
Comments/Resolution:				····			<del></del>		
Delegation of the Conference o		· · · · · · · · · · · · · · · · · · ·		<del> </del>		05/00/0	4		
Project Manager Review: A C C				af this far	:Date			o DEUND Cortifica	

Report No.....10558675\_8290TCDD\_DFR

hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: \_

R 52 Page Pof 13



# **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



# Method 8290A Sample Analysis Results

Client - Bay West, LLC

Client's Sample ID MW-05
Lab Sample ID 10558675001
Filename Y210513B\_02
Injected By SMT

Total Amount Extracted 998 mL Matrix Water % Moisture NA Dilution NA

Dry Weight Extracted NA Collected 05/05/2021 10:25 ICAL ID Y210504 Received 05/05/2021 12:00 CCal Filename(s) Y210513A\_17 & Y210513B\_16 05/10/2021 14:30 Extracted Method Blank ID **BLANK-89897** Analyzed 05/13/2021 20:25

Native Isomers	<b>Conc</b> pg/L	<b>EMPC</b> pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		1.96	2,3,7,8-TCDD-13C	2.00	47
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	52

 $Conc = Concentration \ (Totals \ include \ 2,3,7,8-substituted \ isomers).$ 

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range ND = Not Detected NA = Not Applicable

NC = Not Calculated



## Method 8290A Blank Analysis Results

Lab Sample Name Lab Sample ID Filename **Total Amount Extracted ICAL ID** 

CCal Filename(s)

**DFBLKZE BLANK-89897** U210514A\_04 1010 mL U210423 U210514A\_01 & U210514A\_14

Matrix Dilution Extracted Analyzed 05/14/2021 01:58

Water NA 05/10/2021 14:30

Injected By **SMT** 

Native Isomers	<b>Conc</b> pg/L	EMPC pg/L	<b>EDL</b> pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND		2.21	2,3,7,8-TCDD-13C	2.00	44
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	59

Conc = Concentration (Totals include 2, 3, 7, 8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

R = Recovery outside target range E = Exceeds calibration range



# Method 8290A Laboratory Control Spike Results

Lab Sample ID Filename **Total Amount Extracted** 

ICAL ID

CCal Filename(s) Method Blank ID

LCS-89898 U210514A\_02 1010 mL

U210423 U210514A\_01 & U210514A\_14 BLANK-89897

Matrix Dilution

Water NA

Extracted 05/10/2021 14:30 Analyzed 05/14/2021 00:29 Injected By

**SMT** 

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	0.20	0.20	98	2,3,7,8-TCDD-13C	2.0	43
				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	46

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range

Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



# **Method 8290A Laboratory Control Spike Results**

Lab Sample ID
Filename
Total Amount Extracted

Total Amount Extracted ICAL ID

CCal Filename(s) Method Blank ID LCSD-89899 U210514A\_03 1020 mL

U210423 U210514A\_01 & U210514A\_14 BLANK-89897 Matrix Dilution Water NA

Extracted 05/10/2021 14:30 Analyzed 05/14/2021 01:13

Injected By SMT

Native Isomers	<b>Qs</b> (ng)	<b>Qm</b> (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	0.20	0.20	98	2,3,7,8-TCDD-13C	2.0	38 R
				Recovery Standard 1,2,3,4-TCDD-13C	2.0	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	47

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent) R = Recovery outside of target range Y = RF averaging used in calculations Nn = Value obtained from additional analysis NA = Not Applicable \* = See Discussion



#### Method 8290A

# Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

 Spike 1 ID
 LCS-89898
 Spike 2 ID
 LCSD-89899

 Spike 1 Filename
 U210514A\_02
 Spike 2 Filename
 U210514A\_03

 Compound
 Spike 1 %REC
 Spike 2 %REC
 %RPD

 2,3,7,8-TCDD
 98
 98
 0.0

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value



1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

# **Report Prepared for:**

Erik Nimlos Bay West, LLC 5 Empire Drive Saint Paul MN 55103

> REPORT OF LABORATORY **ANALYSIS FOR PFAAs**

# **Report Information:**

**Pace Project #: 10558676** 

Sample Receipt Date: 05/05/2021

Client Project #: 200408 SW#134 Begin Dump-G

Client Sub PO #: 205946

State Cert #: N/A

## **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Krista Carlson, your Pace Project Manager.

This report has been reviewed by:

May 20, 2021

Krista Carlson, Project Manager

(612) 607-1700 (fax) krista.carlson@pacelabs.com



# **Report of Laboratory Analysis**

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

The results relate only to the samples included in this report.

May 19, 2021

## **DISCUSSION**

This report presents the results from the analyses performed on one sample submitted by a representative of Bay West Inc. The sample was analyzed for thirty-six perfluorinated compounds using MPCA Guidance. Reporting limits were set to the quantitation limits.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. The result indicates hat extraction performed as expected. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from that analysis will be provided upon request.

Diminished extracted internal standard (EIS) recovery (outside the suggested limits) were present in sample material, however, the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard.

The four injection internal standards (13C4 PFOA, 13C4 PFOS, 13C2\_PFDA, and 13C2\_PFHxA) pass for each analysis in the batch verifying that the instrument detector is working as expected.



# Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064	, ,	

# **REPORT OF LABORATORY ANALYSIS**

# Appendix A

Sample Management

CHAIN-OF-CUSTODY / Analytical Request Document

**Bay West** 

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

- James DINATE A 2 Samples Intact (Y/N) DINIT 3000027123 Comments PRJ07913 SW-134 Received on Ice (Y/N) ر (o°) 2 Work Order Number Project Task Code: Program Code Facility Code: Section E MPCA Infor COC ID: の外 1700 Elm St. Minneapolis MN, 55414 Sylvia Hunter 612-607-6347 シグン (H-EON 00S+ WS)N × Nitrate + Nitrite, as Vitrogen, Total Organic 351.2 + 350.1) Lab Project Manager × DATE Signed (MM/DD/YY): (MIC 07S8) ensxoid-l × Lab Phone: ACCEPTED BY / AFFILIATION Lab Name: Section D Adress: A93)(nixoiO (A0628\BE13 × QQDT 8,7,8, ORO with silica gel 5 Empire Dr. St. Paul, MN 55103 DA 205946 Accounts Payable # of Cont. t 1025 **9miT** Purchase Order No Company Name: Sample Type Codes
Sample Focutive Sample Scupple Composite Sample Scupple Sample Composite Sample SuP-Integrated Verifical Profile Sample Qc-FFE-Field Blank Sample QC-FFE-Field Replicate Semple QC-FFE-Field Replicate Semple = IME Section C Address: SAMPLER NAME AND SIGNATURE 51512 Date SIGNATURE of SAMPLER: SW#134 Begin Dump - GW Sampling 5/5/2 PRINT Name of SAMPLER: ryanr@baywest.com Wtr-Ground Wr-Ground Wre-Ground Wtr-Ground Wir-Ground Wtr-Ground Wtr-Ground gvanderwaal@baywest.com (MPCA ONLY) Standard 200408 Boy West Field Matrix Code Σ \* \* \* (МРСА ОИLY) ≷ 3 3 Lab Matrix Code WG ģ Field Matrix Codes
WIN-forund-Zichund Water
WIN-Surf-Suriad-Zichund Water
QC-Blank=Artificial Blank Water
Co-Blank=Artificial Blank Water
Soll-Surf- Soil Surface
Soil-Surf- Soil Surface Matrix Code Required Project Information SAMPLE TYPE (S=COMP) Q Site Location (State): JO#: 10558676 Ted T Furnaround Time: Sample Sample 90.58 Project Number: Sample Sample OC ER (MPCA ONLY) Project Name: Section B Copy To: Copy To: Sample Common ID 5 Empire Dr. St. Paul MN, 55103 Lab Matrix Codes
DW-Drinking Water
NW=Non-potable Water
SD=Soil/Solid
WP=Wipe
MR=Akir
BL =Blogical Material
OT=Cliber MW-04-D Eweaver@baywest.com MW-03 enimlos@baywest.com MW-04 MW-05 EB 04 10-WM 44V-02 Erik Nimlos ADDITIONAL COMMENTS 651-291-3493 Bay West Required Client Information Location Unique ID SO=Soil QC=Soil QC W=Aqueous WG=Croundwater :00T007374 2001007375 2001007376 Equipment Blank 2001007377 Reject Manager 834636 834635 =Surface Section A Bail To: Smpany: Copy To: ddress: Pone: Page 5 of 20 10 # Mati

# Pace Analytical®

### **Document Name:**

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

ENV-FRM-MIN4-0150 Rev.02

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services -Minneapolis

Sample Condition Upon Receipt Client Name:			Project	#:		ш. 4	ne.	E067	<b>C</b>	
Bay Wost					MO	$\mathbf{H} \cdot \mathbf{I}$	UD:	<u>5867</u>	<u> </u>	
	USPS Commerc	cial	∱Client		PM: CLIE	KAC NT: BW-	_	ue Date: EST	05/1	9/21
Tracking Number:			e Exceptio IV-FRM-MII							
Custody Seal on Cooler/Box Present?	∄No	Sea	ls Intact	?	M	Biolog	gical Tis	sue Frozen?	∐Yes	□No □N/A
Packing Material: 🔯 Bubble Wrap 🕡 Bubble Ba	ags _	None	□Oth	er:		<del></del>	Te	emp Blank?	☑Ye	s  No
Thermometer:       ☐ T1(0461) ☐ T2(1336) ☐ T3(0459)         ☐ T4(0254) ☐ T5(0489)	□OS418- □160285		Type of Ice:	₩et	Blue	□None	□Dr	y		
Did Samples Originate in West Virginia? ☐Yes ☐ Mo	Wer	re All Co	ntainer 1	Temps Take	n? ∐Yes	i ∐No ⊡	N/A			
Temp should be above freezing to 6°C Cooler Temp Re	ad w/tem	ıp blank	;	4.0		°C	Avera	ge Corrected		See Exceptions
Correction Factor: 402 Cooler Temp Correcte	ed w/tem	p blank:		4.2		oc	only):			V-FRM-MIN4-0142 1 Container
USDA Regulated Soil: ( N/A, water sample/Other:		)						Contents: <u>5/</u>		
Did samples originate in a quarantine zone within the Unit	_	AL, AR,	CA, FL, GA □No	A, Did sam	iples orig		foreign s	source (internat Yes 🔲 No	ionally,	
ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check m If Yes to either question, fill out a l		_					_			
				1			COMM			
Chain of Custody Present and Filled Out?	√Yes	∏No	,	1.						
Chain of Custody Relinquished?	¥Yes	□No		2.	<del></del>		ŕ			
Sampler Name and/or Signature on COC?	¥es	□No	□N/A	3.						
Samples Arrived within Hold Time?	☑Ýes	□No		4.						
Short Hold Time Analysis (<72 hr)?	∐Yes	<b>∏</b> ₩₀						orm/E coli □BO thophos □Othe		Hex Chrome
Rush Turn Around Time Requested?	Yes ,	MNo		6.				1		
Sufficient Volume?	₩Yes	□No		7.						
Correct Containers Used?	☑Yes	∏No		8.						
-Pace Containers Used? Containers Intact?	<u>V</u> Yes ✓Yes	∐No		9.						
									7,,	П.
Field Filtered Volume Received for Dissolved Tests?	Yes	□No	<b>√</b> N/A					ed container?		<del></del>
Is sufficient information available to reconcile the samples to the COC?	₩Yes	∏No		11. if no, w	rnte ID/ L	Pate/Time on	Containe	er Below:		See Exception [] NV-FRM-MIN4-014
Matrix: Water Soil Oil Other										
All containers needing acid/base preservation have been checked?	₩Yes	∏No	□n/a	12. Sample	e#					
All containers needing preservation are found to be in compliance with EPA recommendation?	⊠Yes	□No	□n/a		NaOH	☐ HN	O <sub>3</sub>	∐H₂SO <sub>4</sub>		Zinc Acetate
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)								2/3		
(				Positive fo	r Res.	Yes		' £		See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	Yes	∏No	∏n/a	Chlorine? Res. Chlori		7	pH Pap	er Lot# 0-6 Strip	EN	IV-FRM-MIN4-0142 0-14 Strip
						2214	14	-, - ·····TF	`	4
Extra labels present on soil VOA or WIDRO containers?	Yes	□No	₩/A	13.						See Exception
Headspace in VOA Vials (greater than 6mm)?	Yes	□No	☑N/A						EN	IV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	∐Yes ∐Yes	∐No ∐No	☑N/A ☑N/A	14.	Trin Ria	nk Lot # (if p	urchace	q).		
	res	LINO	LVIN/A	j race	TIP DIA					
CLIENT NOTIFICATION/RESOLUTION				Data /**		Field	d Data I	Required?	Yes	No
Person Contacted: Comments/Resolution:				Date/Tin	ne:					
Commency Resolution.										

hold, incorrect preservative, out of temp, incorrect containers). Report No.....10558676\_ID36\_DFR

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## **Reporting Flags**

- A = Reporting Limit based on signal to noise (EDL)
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interferencepresent
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDEInterference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = SeeDiscussion

# Appendix B

Sample Analysis Summary



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### **Sample Analysis Summary**

MPCA Guidance PFCs

Page 1 of 4

Client Sample ID MW-05

Lab Sample ID 10558676001

Lab File ID A210513A\_009

Matrix Non\_Potable\_Water

Collected 05/05/2021 10:25 Received

05/05/2021 12:00

**Extraction Date** 05/10/2021 10:36 Total Amount Extracted 255mL

Ical ID 210512A03 A210513A\_003 CCal File

**Ending CCal File** A210513A\_013

Blank File A210512B\_028

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	25.4	0.979	0.979	0.294	1	375-22-4	
PFPeA	3.23	0.979	0.979	0.194	1	2706-90-3	
HFPO-DA	ND	0.979	0.979	0.184	1	13252-13-6	
PFBS	2.93	0.866	0.866	0.200	1	375-73-5	
PFHxA	2.63	0.979	0.979	0.219	1	307-24-4	
4:2 FTS	ND	0.915	0.915	0.292	1	757124-72-4	
PFPeS	ND	0.920	0.920	0.229	1	2706-91-4	
PFHpA	1.18	0.979	0.979	0.270	1	375-85-9	
DONA	ND	0.925	0.925	0.235	1	919005-14-4	
PFHxS	1.26	0.891	0.891	0.152	1	355-46-4	
PFOA	2.98	0.979	0.979	0.175	1	335-67-1	
6:2 FTS	ND	0.930	0.930	0.305	1	27619-97-2	
PFHpS	ND	0.930	0.930	0.231	1	375-92-8	
PFNA	ND	0.979	0.979	0.178	1	375-95-1	
PFOSAm	ND	0.979	0.979	0.211	1	754-91-6	
PFOS	2.31	0.906	0.906	0.178	1	1763-23-1	
MeFOSA	ND	0.979	0.979	0.315	1	31506-32-8	
PFDA	ND	0.979	0.979	0.235	1	335-76-2	
EtFOSAm	ND	0.979	0.979	0.296	1	4151-50-2	
8:2 FTS	ND	0.940	0.940	0.305	1	39108-34-4	
9-CI-PF3ON	ND	0.912	0.912	0.268	1	756426-58-1	
PFNS	ND	0.940	0.940	0.211	1	68259-12-1	
PFUnDA	ND	0.979	0.979	0.325	1	2058-94-8	
NMeFOSAA	ND	0.979	0.979	0.282	1	2355-31-9	
NEtFOSAA	ND	0.979	0.979	0.262	1	2991-50-6	
PFDS	ND	0.945	0.945	0.227	1	335-77-3	
PFDOA	ND	0.979	0.979	0.317	1	307-55-1	
MeFOSE	ND	0.979	0.979	0.211	1	24448-09-7	
10:2 FTS	ND	0.944	0.944	0.249	1	120226-60-0	
EtFOSE	ND	0.979	0.979	0.268	1	1691-99-2	
11-CI-PF3OUdS	ND	0.922	0.922	0.237	1	763051-92-9	
PFTrDA	ND	0.979	0.979	0.319	1	72629-94-8	
PFDoS	ND	0.948	0.948	0.247	1	79780-39-5	
PFTDA	ND	0.979	0.979	0.162	1	376-06-7	
PFHXDA	ND	0.979	0.979	0.245	1	67905-19-5	
PFODA	ND	0.979	0.979	0.321	1	16517-11-6	

### REPORT OF LABORATORY ANALYSIS



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MPCA Guidance PFCs

Page 2 of 4

Client Sample ID MW-05 **Extraction Date** 05/10/2021 10:36

Lab Sample ID 10558676001 Total Amount Extracted 255mL Lab File ID A210513A\_009 Ical ID 210512A03 CCal File A210513A\_003 Matrix Non\_Potable\_Water 05/05/2021 10:25 **Ending CCal File** A210513A\_013 Collected Received 05/05/2021 12:00 Blank File A210512B\_028

### **Injection Internal Standards**

Pace Analytical®

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	19.6	26.8	137	50-200	
13C4_PFOA	19.6	26.5	135	50-200	
13C2_PFDA	19.6	30.5	156	50-200	
13C4_PFOS	18.7	29.2	156	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	19.6	28.9	148	50-200	
13C5_PFPeA	19.6	28.7	147	50-200	
13C3_PFBS	18.2	25.7	141	50-200	
13C2_4:2FTS	18.3	30.3	165	50-200	
13C5_PFHxA	19.6	28.1	144	50-200	
13C4_PFHpA	19.6	28.9	148	50-200	
13C3_PFHxS	18.5	26.8	145	50-200	
13C2_6:2FTS	18.6	31.3	169	50-200	
13C8_PFOA	19.6	26.4	135	50-200	
13C9_PFNA	19.6	28.1	144	50-200	
13C8_PFOS	18.7	28.7	153	50-200	
13C2_8:2FTS	18.8	27.4	146	50-200	
13C6_PFDA	19.6	29.3	149	50-200	
d3-MeFOSAA	19.6	39.0	199	50-200	
13C8_PFOSA	19.6	21.9	112	50-200	
d5-EtFOSAA	19.6	26.8	137	50-200	
13C7_PFUdA	19.6	32.2	164	50-200	
13C2_PFDoA	19.6	32.5	166	50-200	
13C2_PFTeDA	19.6	24.7	126	50-200	
13C3_HFPO-DA	19.6	27.0	138	50-200	
13C2_PFHxDA	19.6	24.0	122	50-200	
d7-N-MeFOSE	19.6	13.7	70	50-200	
d9-N-EtFOSE	19.6	14.0	71	50-200	
d3-N-MeFOSA	19.6	2.18	11	50-200	R
d5-N-EtFOSA	19.6	1.99	10	50-200	R

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Client Sample ID MW-05 **Extraction Date** 05/10/2021 10:36

Lab Sample ID 10558676001 Total Amount Extracted 255mL Lab File ID A210513A\_009 Ical ID 210512A03 CCal File A210513A\_003 Matrix Non\_Potable\_Water Collected 05/05/2021 10:25 **Ending CCal File** A210513A\_013 Received 05/05/2021 12:00 Blank File A210512B\_028

### **Injection Internal Standards**

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Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.03	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.26	7.26	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.79	5.79	
13C8 PFOA	N/A	N/A	6.03	6.02	
13C9 PFNA	N/A	N/A	6.49	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.69	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.88	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7 PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.25	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.59	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	R
d5-N-EtFOSA	N/A	N/A	10.90	10.89	R

### REPORT OF LABORATORY ANALYSIS



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### **Sample Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID MW-05 Extraction Date 05/10/2021 10:36

Lab Sample ID 10558676001 Total Amount Extracted 255mL Lab File ID A210513A\_009 Ical ID 210512A03 CCal File A210513A\_003 Matrix Non\_Potable\_Water Collected 05/05/2021 10:25 **Ending CCal File** A210513A\_013 Received 05/05/2021 12:00 Blank File A210512B\_028

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.410	0.470	5.26	5.25	
PFBS	0.350	0.330	5.21	5.22	
PFHxA	0.066	0.0700	5.04	5.04	
4:2 FTS	0.490	0.610	4.80	4.80	
PFPeS	0.340	0.310	5.80	5.80	
PFHpA	0.290	0.300	5.56	5.56	
DONA	0.400	0.530	5.73	5.73	
PFHxS	0.240	0.270	6.32	6.32	
PFOA	0.400	0.370	6.03	6.03	
6:2 FTS	0.550	0.530	5.79	5.79	
PFHpS	0.260	0.240	6.81	6.80	
PFNA	0.200	0.190	6.50	6.49	
PFOSAm	N/A	N/A	8.75	8.75	
PFOS	0.140	0.220	7.16	7.27	
MeFOSA	0.000	0.870	0.00	10.25	
PFDA	0.072	0.0990	6.95	6.95	
EtFOSAm	0.000	0.710	0.00	10.92	
8:2 FTS	0.000	0.730	0.00	6.69	
9-CI-PF3ON	0.000	0.0210	7.91	7.59	
PFNS	0.260	0.240	7.72	7.71	
PFUnDA	0.072	0.110	7.40	7.39	
NMeFOSAA	1.00	0.590	6.90	6.89	
NEtFOSAA	0.000	0.610	7.09	7.10	
PFDS	0.000	0.240	8.13	8.14	
PFDOA	0.057	0.140	7.83	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.670	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0140	8.44	8.44	
PFTrDA	0.062	0.150	8.27	8.26	
PFDoS	0.140	0.220	8.94	8.93	
PFTDA	0.160	0.150	8.68	8.68	
PFHXDA	0.130	0.130	9.45	9.44	
PFODA	0.028	0.110	10.54	10.53	

### REPORT OF LABORATORY ANALYSIS

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### **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID **BLKYW** 

BLANK-89876

Pace Analytical®

Lab File ID A210512B\_028

Matrix Water

Lab Sample ID

Collected 05/07/2021 18:12

Received 05/07/2021 18:12 **Extraction Date** 05/10/2021 10:36

Total Amount Extracted 508mL

Ical ID 210512A03

CCal File A210512B\_027

**Ending CCal File** 

A210512B\_036 Blank File

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	0.49	0.49	0.15	1	375-22-4	Quai.
PFPeA	ND ND	0.49	0.49	0.097	1	2706-90-3	
HFPO-DA	ND	0.49	0.49	0.097	1	13252-13-6	
PFBS	ND ND	0.49	0.49	0.092	1	375-73-5	-
PFHxA	ND ND	0.44	0.44	0.10	1	307-24-4	
					<u> </u>		
4:2 FTS	ND ND	0.46	0.46	0.15	1	757124-72-4	
PFPeS	ND	0.46	0.46	0.12	1	2706-91-4	
PFHpA	ND	0.49	0.49	0.14	1	375-85-9	
DONA	ND	0.46	0.46	0.12	1	919005-14-4	
PFHxS	ND	0.45	0.45	0.076	1	355-46-4	
PFOA	ND	0.49	0.49	0.088	1	335-67-1	
6:2 FTS	ND	0.47	0.47	0.15	1	27619-97-2	
PFHpS	ND	0.47	0.47	0.12	1	375-92-8	
PFNA	ND	0.49	0.49	0.089	1	375-95-1	
PFOSAm	ND	0.49	0.49	0.11	1	754-91-6	
PFOS	ND	0.45	0.45	0.089	1	1763-23-1	
MeFOSA	ND	0.49	0.49	0.16	1	31506-32-8	
PFDA	ND	0.49	0.49	0.12	1	335-76-2	
EtFOSAm	ND	0.49	0.49	0.15	1	4151-50-2	
8:2 FTS	ND	0.47	0.47	0.15	1	39108-34-4	
9-CI-PF3ON	ND	0.46	0.46	0.13	1	756426-58-1	
PFNS	ND	0.47	0.47	0.11	1	68259-12-1	
PFUnDA	ND	0.49	0.49	0.16	1	2058-94-8	
NMeFOSAA	ND	0.49	0.49	0.14	1	2355-31-9	
NEtFOSAA	ND	0.49	0.49	0.13	1	2991-50-6	
PFDS	ND	0.47	0.47	0.11	1	335-77-3	
PFDOA	ND	0.49	0.49	0.16	1	307-55-1	
MeFOSE	ND	0.49	0.49	0.11	1	24448-09-7	
10:2 FTS	ND	0.47	0.47	0.12	1	120226-60-0	
EtFOSE	ND	0.49	0.49	0.12	1	1691-99-2	1
11-CI-PF3OUdS	ND ND	0.46	0.46	0.12	1	763051-92-9	
PFTrDA	ND ND	0.49	0.49	0.12	1	72629-94-8	<u> </u>
PFDoS	ND ND	0.48	0.48	0.10	1	79780-39-5	
PFTDA	ND ND	0.48	0.48	0.12	1	376-06-7	1
PFHXDA	ND ND	0.49	0.49	0.061	1	67905-19-5	-
PFODA	ND ND		0.49		1	16517-11-6	-
FFUDA	ן אט	0.49	0.49	0.16		0-11-11001	

### REPORT OF LABORATORY ANALYSIS

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### **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID BLKYW Extraction Date 05/10/2021 10:36

 Lab Sample ID
 BLANK-89876
 Total Amount Extracted
 508mL

 Lab File ID
 A210512B\_028
 Ical ID
 210512A03

 Matrix
 Water
 CCal File
 A210512B\_027

 Collected
 05/07/2021 18:12
 Ending CCal File
 A210512B\_036

Received 05/07/2021 18:12 Blank File

### **Injection Internal Standards**

Pace Analytical®

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	9.8	11	115	50-200	
13C4_PFOA	9.8	11	115	50-200	
13C2_PFDA	9.8	11	117	50-200	
13C4_PFOS	9.4	11	121	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	9.8	13	137	50-200	
13C5_PFPeA	9.8	12	124	50-200	
13C3_PFBS	9.1	12	126	50-200	
13C2_4:2FTS	9.2	12	131	50-200	
13C5_PFHxA	9.8	12	120	50-200	
13C4_PFHpA	9.8	12	127	50-200	
13C3_PFHxS	9.3	11	123	50-200	
13C2_6:2FTS	9.3	12	128	50-200	
13C8_PFOA	9.8	12	118	50-200	
13C9_PFNA	9.8	13	128	50-200	
13C8_PFOS	9.4	12	130	50-200	
13C2_8:2FTS	9.4	12	126	50-200	
13C6_PFDA	9.8	12	125	50-200	
d3-MeFOSAA	9.8	12	126	50-200	
13C8_PFOSA	9.8	11	114	50-200	
d5-EtFOSAA	9.8	12	123	50-200	
13C7_PFUdA	9.8	14	144	50-200	
13C2_PFDoA	9.8	15	149	50-200	
13C2_PFTeDA	9.8	10	106	50-200	
13C3_HFPO-DA	9.8	12	122	50-200	
13C2_PFHxDA	9.8	9.7	99	50-200	
d7-N-MeFOSE	9.8	10	102	50-200	
d9-N-EtFOSE	9.8	10	102	50-200	
d3-N-MeFOSA	9.8	9.2	93	50-200	
d5-N-EtFOSA	9.8	9.2	94	50-200	

### REPORT OF LABORATORY ANALYSIS

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Fax: 612.607.6444 www.pacelabs.com



MPCA Guidance PFCs

Page 3 of 4

Client Sample ID BLKYW Extraction Date 05/10/2021 10:36

 Lab Sample ID
 BLANK-89876
 Total Amount Extracted
 508mL

 Lab File ID
 A210512B\_028
 Ical ID
 210512A03

 Matrix
 Water
 CCal File
 A210512B\_027

 Collected
 05/07/2021 18:12
 Ending CCal File
 A210512B\_036

Received 05/07/2021 18:12 Blank File

### **Injection Internal Standards**

Pace Analytical®

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.02	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.26	7.26	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.56	3.56	
13C5 PFPeA	N/A	N/A	4.42	4.42	
13C3 PFBS	N/A	N/A	5.21	5.21	
13C2 4:2FTS	N/A	N/A	4.80	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.55	5.55	
13C3 PFHxS	N/A	N/A	6.31	6.31	
13C2 6:2FTS	N/A	N/A	5.78	5.79	
13C8 PFOA	N/A	N/A	6.02	6.02	
13C9 PFNA	N/A	N/A	6.48	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.68	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.88	6.88	
13C8 PFOSA	N/A	N/A	8.75	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7_PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.24	5.24	
13C2 PFHxDA	N/A	N/A	9.44	9.44	
d7-N-MeFOSE	N/A	N/A	9.99	9.99	
d9-N-EtFOSE	N/A	N/A	10.60	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

### REPORT OF LABORATORY ANALYSIS

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### **Method Blank Analysis Summary**

MPCA Guidance PFCs

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Client Sample ID BLKYW

Pace Analytical®

Extraction Date 05/10/2021 10:36

Lab Sample ID BLANK-89876 Total Amount Extracted 508mL

Lab File ID A210512B\_028 Ical ID 210512A03

Matrix Water CCal File A210512B\_027

Collected 05/07/2021 18:12 Ending CCal File A210512B\_036

Received 05/07/2021 18:12 Blank File

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.56	3.57	
PFPeA	N/A	N/A	4.42	4.42	
HFPO-DA	0.480	0.480	5.25	5.25	
PFBS	0.310	0.330	5.22	5.22	
PFHxA	0.082	0.0680	5.04	5.04	
4:2 FTS	0.000	0.570	4.80	4.80	
PFPeS	0.280	0.290	5.80	5.80	
PFHpA	0.310	0.290	5.55	5.56	
DONA	0.600	0.540	5.73	5.73	
PFHxS	0.300	0.260	6.32	6.32	
PFOA	0.600	0.400	6.03	6.03	
6:2 FTS	0.460	0.540	5.79	5.79	
PFHpS	0.310	0.240	6.79	6.80	
PFNA	0.140	0.200	6.49	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.100	0.230	7.27	7.27	
MeFOSA	0.960	0.870	10.27	10.25	
PFDA	0.066	0.0940	6.96	6.95	
EtFOSAm	0.580	0.730	10.93	10.92	
8:2 FTS	1.10	0.640	7.10	6.69	
9-CI-PF3ON	0.000	0.0240	7.59	7.59	
PFNS	0.000	0.230	7.73	7.71	
PFUnDA	0.240	0.100	7.39	7.39	
NMeFOSAA	0.000	0.520	6.87	6.89	
NEtFOSAA	0.000	0.650	7.10	7.10	
PFDS	0.000	0.260	8.13	8.14	
PFDOA	0.091	0.150	7.83	7.83	
MeFOSE	N/A	N/A	10.03	10.03	
10:2 FTS	0.000	0.680	0.00	7.58	
EtFOSE	0.000	0.000	0.00	10.64	
11-CI-PF3OUdS	0.000	0.0140	8.45	8.44	
PFTrDA	0.079	0.150	8.27	8.26	
PFDoS	0.150	0.230	8.93	8.93	
PFTDA	0.130	0.140	8.68	8.68	
PFHXDA	0.120	0.120	9.44	9.44	
PFODA	0.150	0.110	10.53	10.53	

### REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-89877
 Instrument ID
 10LCMS03

 Run File Name
 A210512B\_029
 Column ID
 112EB00094

 Analyzed
 05/13/2021 04:56
 Ical ID
 210512A03

Injected By NH Level L

### **Injection Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	9.9	10	106	50-200	
13C4_PFOA	9.9	11	109	50-200	
13C2_PFDA	9.9	11	116	50-200	
13C4_PFOS	9.5	11	116	50-200	

### **Extracted Internal Standards**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	9.9	13	134	50-200	
13C5_PFPeA	9.9	12	120	50-200	
13C3_PFBS	9.2	11	122	50-200	
13C2_4:2FTS	9.3	12	125	50-200	
13C5_PFHxA	9.9	12	118	50-200	
13C4_PFHpA	9.9	12	124	50-200	
13C3_PFHxS	9.4	11	116	50-200	
13C2_6:2FTS	9.4	12	128	50-200	
13C8_PFOA	9.9	12	119	50-200	
13C9_PFNA	9.9	12	119	50-200	
13C8_PFOS	9.5	12	126	50-200	
13C2_8:2FTS	9.5	11	121	50-200	
13C6_PFDA	9.9	12	123	50-200	
d3-MeFOSAA	9.9	13	130	50-200	
13C8_PFOSA	9.9	11	115	50-200	
d5-EtFOSAA	9.9	12	118	50-200	
13C7_PFUdA	9.9	13	136	50-200	
13C2_PFDoA	9.9	14	142	50-200	
13C2_PFTeDA	9.9	10	106	50-200	
13C3_HFPO-DA	9.9	11	116	50-200	
13C2_PFHxDA	9.9	9.5	96	50-200	
d7-N-MeFOSE	9.9	10	104	50-200	
d9-N-EtFOSE	9.9	11	107	50-200	
d3-N-MeFOSA	9.9	8.6	87	50-200	
d5-N-EtFOSA	9.9	8.6	87	50-200	

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 Lab Sample ID
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 Instrument ID
 10LCMS03

 Run File Name
 A210512B\_029
 Column ID
 112EB00094

 Analyzed
 05/13/2021 04:56
 Ical ID
 210512A03

Injected By NH Level L

### **Native Analytes**

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	4.0	3.8	97	70-130		375-22-4
PFPeA	4.0	3.8	97	70-130		2706-90-3
HFPO-DA	4.0	3.7	95	70-130		13252-13-6
PFBS	3.5	3.3	93	70-130		375-73-5
PFHxA	4.0	3.9	98	70-130		307-24-4
4:2 FTS	3.7	3.6	96	70-130		757124-72-4
PFPeS	3.7	3.7	99	70-130		2706-91-4
PFHpA	4.0	3.5	88	70-130		375-85-9
DONA	3.7	3.6	95	70-130		919005-14-4
PFHxS	3.6	3.6	101	70-130		355-46-4
PFOA	4.0	3.7	94	70-130		335-67-1
6:2 FTS	3.8	3.5	94	70-130		27619-97-2
PFHpS	3.8	3.6	96	70-130		375-92-8
PFNA	4.0	3.9	98	70-130		375-95-1
PFOSAm	4.0	3.6	92	70-130		754-91-6
PFOS	3.7	3.4	92	70-130		1763-23-1
MeFOSA	4.0	3.7	93	70-130		31506-32-8
PFDA	4.0	3.5	88	70-130		335-76-2
EtFOSAm	4.0	3.6	91	70-130		4151-50-2
8:2 FTS	3.8	3.7	97	70-130		39108-34-4
9-CI-PF3ON	3.7	3.4	91	70-130		756426-58-1
PFNS	3.8	3.4	90	70-130		68259-12-1
PFUnDA	4.0	3.5	90	70-130		2058-94-8
NMeFOSAA	4.0	3.4	87	70-130		2355-31-9
NEtFOSAA	4.0	3.7	94	70-130		2991-50-6
PFDS	3.8	3.5	90	70-130		335-77-3
PFDOA	4.0	3.9	97	70-130		307-55-1
MeFOSE	4.0	3.7	93	70-130		24448-09-7
10:2 FTS	3.8	3.6	94	70-130		120226-60-0
EtFOSE	4.0	3.6	92	70-130		1691-99-2
11-CI-PF3OUdS	3.7	3.5	93	70-130		763051-92-9
PFTrDA	4.0	3.2	81	70-130		72629-94-8
PFDoS	3.8	3.1	81	70-130		79780-39-5
PFTDA	4.0	3.9	99	70-130		376-06-7
PFHXDA	4.0	3.7	95	70-130		67905-19-5
PFODA	4.0	4.9	123	70-130		16517-11-6

### REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-89877
 Instrument ID
 10LCMS03

 Run File Name
 A210512B\_029
 Column ID
 112EB00094

 Analyzed
 05/13/2021 04:56
 Ical ID
 210512A03

 Injected By
 NH
 Level
 L

### **Injection Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFOA	N/A	N/A	6.03	6.03	
13C2 PFDA	N/A	N/A	6.94	6.94	
13C4 PFOS	N/A	N/A	7.26	7.26	

### **Extracted Internal Standards**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4 PFBA	N/A	N/A	3.57	3.56	
13C5 PFPeA	N/A	N/A	4.42 4.42		
13C3 PFBS	N/A	N/A	5.22	5.21	
13C2 4:2FTS	N/A	N/A	4.81	4.80	
13C5 PFHxA	N/A	N/A	5.03	5.03	
13C4 PFHpA	N/A	N/A	5.56	5.55	
13C3 PFHxS	N/A	N/A	6.32	6.31	
13C2 6:2FTS	N/A	N/A	5.79	5.79	
13C8 PFOA	N/A	N/A	6.03	6.02	
13C9 PFNA	N/A	N/A	6.49	6.49	
13C8 PFOS	N/A	N/A	7.26	7.26	
13C2 8:2FTS	N/A	N/A	6.69	6.68	
13C6 PFDA	N/A	N/A	6.94	6.94	
d3-MeFOSAA	N/A	N/A	6.88	6.88	
13C8 PFOSA	N/A	N/A	8.76	8.75	
d5-EtFOSAA	N/A	N/A	7.09	7.09	
13C7 PFUdA	N/A	N/A	7.39	7.39	
13C2 PFDoA	N/A	N/A	7.83	7.83	
13C2 PFTeDA	N/A	N/A	8.68	8.67	
13C3 HFPO-DA	N/A	N/A	5.25	5.24	
13C2 PFHxDA	N/A	N/A	9.45	9.44	
d7-N-MeFOSE	N/A	N/A	10.00	9.99	
d9-N-EtFOSE	N/A	N/A	10.60	10.59	
d3-N-MeFOSA	N/A	N/A	10.24	10.23	
d5-N-EtFOSA	N/A	N/A	10.90	10.89	

### REPORT OF LABORATORY ANALYSIS



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 Lab Sample ID
 LCS-89877
 Instrument ID
 10LCMS03

 Run File Name
 A210512B\_029
 Column ID
 112EB00094

 Analyzed
 05/13/2021 04:56
 Ical ID
 210512A03

Injected By NH Level L

### **Native Analytes**

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.57	3.57	
PFPeA	N/A	N/A	4.43	4.42	
HFPO-DA	0.48	0.48	5.26	5.25	
PFBS	0.32	0.33	5.22	5.22	
PFHxA	0.06	0.06	5.04	5.04	
4:2 FTS	0.58	0.57	4.81	4.80	
PFPeS	0.31	0.29	5.81	5.80	
PFHpA	0.30	0.29	5.56	5.56	
DONA	0.51	0.54	5.74	5.73	
PFHxS	0.28	0.26	6.32	6.32	
PFOA	0.38	0.40	6.03	6.03	
6:2 FTS	0.57	0.54	5.79	5.79	
PFHpS	0.24	0.24	6.80	6.80	
PFNA	0.20	0.20	6.50	6.49	
PFOSAm	N/A	N/A	8.76	8.75	
PFOS	0.22	0.23	7.27	7.27	
MeFOSA	0.88	0.87	10.26	10.25	
PFDA	0.10	0.09	6.95	6.95	
EtFOSAm	0.72	0.73	10.93	10.92	
8:2 FTS	0.62	0.64	6.69	6.69	
9-CI-PF3ON	0.02	0.02	7.59	7.59	
PFNS	0.23	0.23	7.71	7.71	
PFUnDA	0.11	0.10	7.40	7.39	
NMeFOSAA	0.54	0.52	6.89	6.89	
NEtFOSAA	0.66	0.65	7.10	7.10	
PFDS	0.24	0.26	8.14	8.14	
PFDOA	0.14	0.15	7.84	7.83	
MeFOSE	N/A	N/A	10.04	10.03	
10:2 FTS	0.68	0.68	7.58	7.58	
EtFOSE	0.00	0.00	10.66	10.64	
11-CI-PF3OUdS	0.01	0.01	8.45	8.44	
PFTrDA	0.15	0.15	8.27	8.26	
PFDoS	0.24	0.23	8.93	8.93	
PFTDA	0.15	0.14	8.68	8.68	
PFHXDA	0.12	0.12	9.45	9.44	
PFODA	0.12	0.11	10.53	10.53	

### REPORT OF LABORATORY ANALYSIS





May 19, 2021

Erik Nimlos Bay West LLC 5 Empire Drive Saint Paul, MN 55103

RE: Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

### Dear Erik Nimlos:

Enclosed are the analytical results for sample(s) received by the laboratory on May 05, 2021. 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.

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

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

Sincerely,

Sylvia Hunter

sylvia.hunter@pacelabs.com

Sylvia Hunter

1(612)607-1700

Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC

Jeff Smith, Pace Analytical Services, Inc

Gerrit Vanderwaal, Bay West





### **CERTIFICATIONS**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

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 DW Certification #: MN00064 Maine Certification #: MN00064\* Maryland Certification #: 322 Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Louisiana DEQ Certification #: AI-03086\*

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 #: 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 #: 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





### **SAMPLE SUMMARY**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10558678001	MW-05	Water	05/05/21 10:25	05/05/21 12:00



### **SAMPLE ANALYTE COUNT**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10558678001	MW-05	EPA 350.1	— AA2	1
		EPA 351.2	AP2	1
		EPA 353.2	DW3	1
		TKN-NH3 Calculation	DB2	1
		WI MOD DRO	TT2	2
		EPA 8270D by SIM	MS4	2

PASI-DU = Pace Analytical Services - Duluth, MN PASI-M = Pace Analytical Services - Minneapolis



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: EPA 350.1

Description: 350.1 Ammonia Waters DU

Client: Bay West LLC

Date: May 19, 2021

### **General Information:**

1 sample was 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.

### 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:**



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: EPA 351.2

Description: 351.2 TKN Water DU Client: Bay West LLC Date: May 19, 2021

### **General Information:**

1 sample was 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: 740809

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10558175001,10558766001

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

- MS (Lab ID: 3950756)
  - Nitrogen, Kjeldahl, Total
- MSD (Lab ID: 3950757)
  - Nitrogen, Kjeldahl, Total

R1: RPD value was outside control limits.

- MSD (Lab ID: 3950757)
  - Nitrogen, Kjeldahl, Total





Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: EPA 351.2

Description:351.2 TKN Water DUClient:Bay West LLCDate:May 19, 2021

**Additional Comments:** 



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: EPA 353.2

Description: 353.2 Nitrogen N+N pres DU

Client: Bay West LLC

Date: May 19, 2021

### **General Information:**

1 sample was 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.

### 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:**

Analyte Comments:

QC Batch: 740635

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3950214)
  - Nitrogen, NO2 plus NO3
- MS (Lab ID: 3950216)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3950215)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3950217)
  - Nitrogen, NO2 plus NO3



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: TKN-NH3 Calculation

Description: Total Organic Nitrogen Calc.DU

Client: Bay West LLC

Date: May 19, 2021

### **General Information:**

1 sample was analyzed for TKN-NH3 Calculation 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:**



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: WI MOD DRO

Description: WIDRO LV GCS Silica Gel

Client: Bay West LLC

Date: May 19, 2021

### **General Information:**

1 sample was analyzed for WI MOD DRO 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 WI MOD DRO 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:**



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Method: EPA 8270D by SIM

Description: 8270D MSSV 14 Dioxane By SIM

Client: Bay West LLC

Date: May 19, 2021

### **General Information:**

1 sample was analyzed for EPA 8270D 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 Mod. 3510C with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

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

### **Continuing Calibration:**

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

### Internal Standards:

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

### Surrogates:

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

### Method Blank:

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

### **Laboratory Control Spike:**

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

QC Batch: 740607

R1: RPD value was outside control limits.

- LCSD (Lab ID: 3949936)
  - 1,4-Dioxane (SIM)

### Matrix Spikes:

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

QC Batch: 740607

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### **Additional Comments:**

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



### **ANALYTICAL RESULTS**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

Sample: MW-05	Lab ID:	10558678001	Collected	1: 05/05/21	10:25	Received: 05/	05/21 12:00 Ma	atrix: Water			
ъ.	D 1:	11.5	Report		5.5			0404	0 1		
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual		
350.1 Ammonia Waters DU	,	Method: EPA 3 ytical Services		١							
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 13:15	7664-41-7			
351.2 TKN Water DU	-	Method: EPA 3 ytical Services			od: EP/	A 351.2					
Nitrogen, Kjeldahl, Total	0.20J	mg/L	0.50	0.18	1	05/10/21 11:55	05/11/21 09:49	7727-37-9			
353.2 Nitrogen N+N pres DU	•	Analytical Method: EPA 353.2 Pace Analytical Services - Duluth, MN									
Nitrogen, NO2 plus NO3	0.013J	mg/L	0.020	0.0089	1		05/08/21 15:21				
Total Organic Nitrogen Calc.DU	•	Method: TKN-I ytical Services									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 15:10				
WIDRO LV GCS Silica Gel	•	Method: WI Mo		•	/lethod:	WI MOD DRO					
WDRO C10-C28 Surrogates	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:46				
n-Triacontane (S)	67	%.	34-125		1	05/06/21 17:08	05/10/21 09:46				
8270D MSSV 14 Dioxane By SIM	•	Method: EPA 8 ytical Services	•	•	ion Met	thod: EPA Mod. 3	510C				
1,4-Dioxane (SIM)	<0.24	ug/L	0.24	0.10	1	05/07/21 18:03	05/11/21 10:27	123-91-1			
Surrogates 1,4-Dioxane-d8 (S)	42	%.	30-125		1	05/07/21 18:03	05/11/21 10:27				



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

QC Batch: 740624 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: 10558678001

METHOD BLANK: 3950028 Matrix: Water

Associated Lab Samples: 10558678001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, Ammonia mg/L <0.20 0.20 0.089 05/08/21 13:01

LABORATORY CONTROL SAMPLE: 3950029

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, Ammonia mg/L 5 4.8 96 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950030 3950031

MS MSD

10558592007 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual Result <0.089 5 102 Nitrogen, Ammonia mg/L 5 5.1 5.1 101 90-110 10

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



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

QC Batch: 740809 Analysis Method: EPA 351.2

QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN Water DU

Laboratory: Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10558678001

METHOD BLANK: 3950752 Matrix: Water

Associated Lab Samples: 10558678001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, Kjeldahl, Total mg/L <0.50 0.50 0.18 05/11/21 09:39

LABORATORY CONTROL SAMPLE: 3950753

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, Kjeldahl, Total mg/L 10 10 100 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950754 3950755

MS MSD

10558175001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Result Limits Qual Nitrogen, Kjeldahl, Total 0.50J mg/L 10 10 10.6 10.6 101 101 90-110 0 10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950756 3950757

MS MSD

10558766001 MS MSD MS MSD % Rec Spike Spike Max RPD RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual ND 10 10 6.4 63 Nitrogen, Kjeldahl, Total 5.6 55 90-110 13 10 M1,R1 mg/L

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



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

QC Batch: 740635 Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved DU

Laboratory: Pace Analytical Services - Duluth, MN

Associated Lab Samples: 10558678001

METHOD BLANK: 3950212 Matrix: Water

Associated Lab Samples: 10558678001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nitrogen, NO2 plus NO3 mg/L <0.020 0.020 0.0089 05/08/21 15:03

LABORATORY CONTROL SAMPLE: 3950213

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nitrogen, NO2 plus NO3 mg/L 0.5 0.52 104 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950214 3950215

MS MSD

10558579001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec **RPD** RPD Qual Result % Rec Limits Nitrogen, NO2 plus NO3 10 E mg/L 0.93 0.5 0.5 1.4 1.4 100 102 90-110

Nitrogen, NO2 plus NO3 mg/L 0.93 0.5 0.5 1.4 1.4 100 102 90-110 1 10 E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950216 3950217

MS MSD 10558940001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual

Nitrogen, NO2 plus NO3 mg/L 40.8 25 25 65.1 65.0 97 97 90-110 0 10 E

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



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

QC Batch: 740607 Analysis Method: EPA 8270D by SIM

QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D Water 14 Dioxane by SIM

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10558678001

METHOD BLANK: 3949934 Matrix: Water

Associated Lab Samples: 10558678001

Blank Reporting Parameter Units Result Limit MDL Qualifiers Analyzed 1,4-Dioxane (SIM) ug/L < 0.25 0.25 0.11 05/11/21 09:34 1,4-Dioxane-d8 (S) %. 53 30-125 05/11/21 09:34

LABORATORY CONTROL SAMPLE & LCSD: 3949935 3949936										
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,4-Dioxane (SIM)	ug/L	10	6.1	8.2	61	82	59-134	30	20	R1
1,4-Dioxane-d8 (S)	%.				48	36	30-125			

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



Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

QC Batch: 740117 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO Low Volume GCS w/Cleanup

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10558678001

METHOD BLANK: 3947399 Matrix: Water

Associated Lab Samples: 10558678001

Blank Reporting Parameter Units Result Limit MDL Qualifiers Analyzed WDRO C10-C28 0.031J mg/L 0.10 0.029 05/10/21 08:50 n-Triacontane (S) %. 78 34-125 05/10/21 08:50

LABORATORY CONTROL SAMPLE & I	LCSD: 3947400		39	947401						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
WDRO C10-C28	mg/L	0.8	0.55	0.53	68	67	42-125	2	20	
n-Triacontane (S)	%.				71	69	34-125			

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



### **QUALIFIERS**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

### **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.

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

TNI - The NELAC Institute.

### **BATCH QUALIFIERS**

Batch: 741053

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### **ANALYTE QUALIFIERS**

Date: 05/19/2021 04:05 PM

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

R1 RPD value was outside control limits.



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Date: 05/19/2021 04:05 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10558678001	MW-05	EPA 350.1	740624		
10558678001	MW-05	EPA 351.2	740809	EPA 351.2	741109
10558678001	MW-05	EPA 353.2	740635		
10558678001	MW-05	TKN-NH3 Calculation			
10558678001	MW-05	WI MOD DRO	740117	WI MOD DRO	740492
10558678001	MW-05	EPA Mod. 3510C	740607	EPA 8270D by SIM	741053

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accura

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

	t court to													
Section A		Section B			Section C			Section D			Sec	Section E		
Required Client Information:		Required Project Information:	ation:		Invoice Information:	on:		Laboratory Information	ormation		MP	MPCA Information		
Company:	Bay West	Project Name:	SW#134 Begi	SW#134 Begin Dump - GW Sampling	ing Attention:	Accounts Payable	ayable	Lab Name:		Pace	COC ID:	Ω:		
Address: 5 Emp	5 Empire Dr. St.Paul MN, 55103	Project Number:		200408	Company Name:	Bay West LLC	st LLC	Adress:	1700 Eln	1700 Elm St. Minneapolis MN, 55414	П	Work Order Number	3000027123	e e
Project Manager:	Erik Nimlos	Turnaround Time:		Standard	Address:	5 Empire Dr. St. Paul, MN 55103	ul, MN 55103	Lab Project Manager	Manager	Sylvia Hunter		Facility Code:	SW-134	
Email To: e	enimios@baywest.com	Site Location (State):		MN	Purchase Order No.		205946	Lab Phone:		612-607-6347	Proje	Project Task Code:	PRJ07913	
Phone:	651-291-3493	Copy To:	ryanı	ryanr@baywest.com							Progr	Program Code		
Copy To:	Eweaver@baywest.com	Copy To:	gvanderwaal@baywest.com	<u>Pbaywest.com</u>										
										Preservatives				
Matrix Code SE=Sediment SO=Soil QC=Soil QC W#Aqueous WG=Croundwater S=Surface	Lab Matrix Codes DW-Drinking Water NW-Ron-roptable Water SD-Soil/Solid WP-Wipe AR-Air BL-Biological Materiel OT=CUtter	Field Martix Codes Wit-Ground-Counch Water WTR-Surr-Surface Water QC-Blenk-Artificial Blenk Water Leachtee-Bearlie Sample Soil-Surf- Soil Surface Soil-Surface	ier sr ple e	Sample Type Codes Sample=Routine Sers S-CWOP=Composite S-CWE=Integrated Ver QC-Fe=Field Blank S QC-TE=Trip Blank Se	Sumple Type Codes Sample Pour Sample S-CWOP=Composite Sample S-LWP=Integrated Vertical Profile Sample QC-FB=Field Bank Sample QC-FB=Field Replicate Sample QC-FR=Field Replicate Sample					en lected A				
									ž .		以			
Location Unique ID	Sample Common ID	Sample Type Code (MPCA ONLY)  SAMPLE TYPE (SAMP)	Matrix Code Lab Matrix Code (MPCA ONLY)	Field Matrix Code	Date	əmiT	# Of CONT. DRO with silica gel	ααοπ 8,τ,ε,ς Ασ3(πίχοια) Αοες8\αετοι	1,4-Dioxane (8270 SIM) PPAS Witrogen, Total Organic	Wiltogen, Total Organic Wiltogen, 10tal (1851,2 + 350.1) Witrafe + Witrite, as N(SM 4500 NO3-H)			Comments	10
1-2001007374	MW-01	Sample	WG NW	Wtr-Ground			* 	*   *   *					OMIS	777
	60-7000	Sample	WG DW	Wtr-Ground				*		: >				K
		Sample	Wild Con				( ) 24.48	;	; ;	;;;				1
3 2001007376	MVV-03		2 9				<u>* </u>	* :	* :	*			<b>1</b>	-
a 2001007377	MW-04	H	2	+-		<	<u>* </u>	*  *   -	*   -  -	*			6	
5 834635	MW-05		უ §		5151 al 10	725	×	×	×	· ×			)	7:
6 834636	MW-04 - D	OC-ER G	WG DW	Wtr-Ground			X	X	*	*	1		San	4
Equipment 7 Blänk	EB-01	OC EB	WC NW	Wtr-Ground			* 	*	×	×		+	de	Dr # Tall
8														
6							-0.20							
10														<u> </u>
12														
ADDI	ADDITIONAL COMMENTS	RELINGUISI	RELINQUISHED BY LAFFICIATION		TIME		ACCEPTED BY	EPTED BY / AFFILIATION		DATE	TIME		SAMPLE CONDITIONS	S
		Ted T/	Boy L	West 51673	11157	7	- 0.4	, E		115/5	091	4.2	<u>۲</u>	5
	102286/8	8/9		SAMPLER NAME AND SIGN PRINT Name of SAMPLER:	SIGNATURE						_	qme1 (0°)	ived on lc:	ples Intact
20				SIGNATURE of SAMPLER:		Service of the servic	DATES	DATE Signed (MM/DD/YY):	15/5	5/2/				
a f			-		Jaria	Jan Val	   					_		7

# Pace Analytical\*

### Document Name:

### Sample Condition Upon Receipt (SCUR) - MN

Document No.:

Document Revised: 14Apr2021

Page 1 of 1

Pace Analytical Services -

ENV-FRM-MIN4-0150 Rev.02

Pace Analytical Services -**Minneapolis** 

Sample Condition Client Name: Upon Receipt			Project	#: WO#:10558678
	USPS Commer	_	⊒€lient	PM: SH1 Due Date: 05/19/21 CLIENT: BW-BAY WEST
Tracking Number:			ee Exceptio NV-FRM-MI	
Custody Seal on Cooler/Box Present?	Νο	Sea	als Intact	? Yes No Biological Tissue Frozen? Yes No No AN/A
Packing Material: 🖟 gubble Wrap 🖟 gubble Ba	gs [	None	Oth	
Thermometer:       ☐ T1(0461) ☐ T2(1336) ☐ T3(0459)         ☐ T4(0254) ☑ T5(0489)	□0S418 □16028		Type of ice:	☑Wet ☐Blue ☐None ☐Dry ☐Melted
Did Samples Originate in West Virginia? ☐Yes ਾਹਿਮਨ	We	re All Co	ntainer 1	「emps Taken? □Yes □No ⊡Ń/A
Temp should be above freezing to 6°C Cooler Temp Rea	d w/ten	np blank	:	4.0 O Average Corrected □See Exceptions
Correction Factor: 402 Cooler Temp Correcte	d w/tem	p blank:		Temp (no temp blank only):oC
USDA Regulated Soil: ( N/A, water sample/Other:	aps)? [	Yes	□No	Hawali and Puerto Rico)?
				COMMENTS:
Chain of Custody Present and Filled Out?	√Yes	_ □No		1.
Chain of Custody Relinquished? Sampler Name and/or Signature on COC?	V Yes ✓ Yes	No □No	□N/A	2. * 3.
Samples Arrived within Hold Time?	¥Yes	□No	LINA	4.
Short Hold Time Analysis (<72 hr)?	Yes	[]No		5. Fecal Coliform HPC Total Coliform/E coli BOD/cBOD Hex Chrome Turbidity Nitrate Nitrite Orthophos Other
Rush Turn Around Time Requested?	☐Yes	. ⊡No	******	6.
Sufficient Volume?	✓Yes	□No		7.
Correct Containers Used?	Yes	∏No		8.
-Pace Containers Used? Containers Intact?	✓ Yes ✓ Yes	∐No ∐No		9.
Field Filtered Volume Received for Dissolved Tests?	☐Yes	□No	<b>☑</b> N/A	10. Is sediment visible in the dissolved container? Yes No
Is sufficient information available to reconcile the samples			<u>I</u> ✓IV/A	11. If no, write ID/ Date/Time on Container Below: See Exception
to the COC?	✓Yes	□No		ENV-FRM-MIN4-0142
Matrix: ☑Water ☐Soil ☐Oil ☐Other				
All containers needing acid/base preservation have been checked?	Ves	□No	□n/a	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH>9 Sulfide, NaOH>10 Cyanide)	⊠Yes	□No	□n/a	□ NaOH □ HNO₃ □H₂SO₄ □Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	Yes	∏No	□n/a	Positive for Res.         Yes         See Exception         See Exception           Chlorine?         No         pH Paper Lot#         ENV-FRM-MIN4-0142           Res. Chlorine         0-6 Roll         0-6 Strip         0-14 Strip
				221414 0-921h
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	∐Yes ∐Yes	□No □No	ĺ⊉N/A ĺ⊉N/A	13. See Exception ENV-FRM-MIN4-0140
Trip Blank Present? Trip Blank Custody Seals Present?	∐Yes	□No	⊠Ñ/A □UN/A	14.
CLIENT NOTIFICATION/RESOLUTION Person Contacted:	<u></u> Yes	∐No	∭N/A	Pace Trip Blank Lot # (if purchased):
Comments/Resolution:				
	11			

# Intra-Regional Chain of Custody

W0#:10558678

CLIENT: BW-BAY WEST Due Date: 05/19/21

Cooler	4	ω	2	-	Transfers		5	4	3	2	1 MW-05	Pace Analytic 1700 Elm Stre Minneapolis, I Phone 1(612) Phore To: Sylvia Hunter	Received at:	Worko
Cooler Temperature on Receipt 0. Cooler Temperature on Receipt 0. Cooler to maintain allowed to the cooler to maintain allowed to the cooler temperature on Receipt 0. Cooler temperature 0. Cooler temperature on Receipt 0. Cooler temperature 0. Cooler te			200		s Released By	_					-05	Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone 1(612)607-1700  Report To: Sylvia Hunter  Sample ID	d at:	Workorder: 10558678
ceipt 0. C °C			5/6/21								PS 5/5	Sample Co Type Da		Workorder Name: 200408 SW#134 Begin Dump - GW
Custo			2145		Date/Time						5/5/2021 10:25	Pace Analytical Duluth 4730 Oneota St. Duluth, MN 55807 Phone (218) 727-6380 Collect	Send To Lab:	ne: 200408 SV
Custody Seal (*) or			Ah (	8	Received By						10558678001 V	Ouluth -6380		₩134 Begin
or N			DOM 1PACE	- 5/6							Water 1	H2SO4 Pres		Dump - GW
Receive			1 3 S	(6/2\   i'	Dat							BP3S (2) Preserved Contains		Owne
d on Ice			had m	3/1	Date/Time						×	EPA 353.2		Owner Received Date: 5/5/2021
- 1	┟┵	F	<u> </u>								×	EPA 351.2		/ed D
(Y) or						-	_	-	_	-	×	EPA 350.1		ate:
Z						-		-	_		$\stackrel{\times}{-}$	TKN-NH3 Calculation	Rec	5/5/2
						f	1			1			Requested Analysis	021
													d Ana	
Sa						8-	_	_	_				lysis	Due
mple						Comments	-	+			$\dashv$			Date
s Inta						8	-	$\dagger$		1				Due Date: 5/19/2021
														19/20
Samples Intact 🕎 or												LAB		21
Z									- intititititititi			LAB USE ONLY		

<sup>\*\*\*</sup>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.



FECAL WAIVER ON FILE: Y N

**Project Manager Review:** 

### Document Name:

Sample Condition Upon Receipt Form

Document No.: F-DUL-C-001-rev.07 Document Revised: 17June2019

Page 1 of 1

Issuing Authority:
Pace Duluth Minnesota Quality Office

Temp Blank? Yes No Thermometer Used: 01339  Temp should be above freezing to 6 °C  Date and Initials of Person Examining Contents:	CLIENT: BW-BAY WEST
Custody Seal on Cooler/Box Present?	<del>-</del> -
Packing Material: Bubble Wrap Bubble Bags None Ott Type of Ice: Wet Blue None Samples on ice, cooling pro Is there evidence of ice formation in samples? Yes No Biological Temp Blank? Yes No Thermometer Used: 01339 Temp should be above freezing to 6 °C Date and Initials of Person Examining Contents: Office Chain of Custody Present? Yes No No Chain of Custody Filled Out? Yes No No Chain of Custody Filled Out? Yes No No Sampler Name and Signature on COC? Yes No No Samples Arrived within Hold Time? Yes No No Short Hold Time Analysis (<72 hr)? Yes No No Sufficient Volume? Yes No No Correct Containers Used? Yes No No Containers Intact? Yes No No Sample Labels Match COC? Hose No No All containers needing acid/base preservation properly Preserved? Headspace in Methyl Mercury Container Pace Trip Blank Custody Seals Present? Yes No No Pace Trip Blank Custody Seals Present?	<del>-</del> -
Type of Ice:   Wet   Blue   None   Samples on ice, cooling pro Is there evidence of ice formation in samples?   Yes   No   Biological Temp Blank?   Yes   No   Thermometer Used:   O1339  Temp should be above freezing to 6 °C   Cooler Temp Read °C    Date and Initials of Person Examining Contents:   O5   O5    Chain of Custody Present?   Yes   No   N/A    Chain of Custody Filled Out?   Yes   No   N/A    Chain of Custody Relinquished?   Yes   No   N/A    Sampler Name and Signature on COC?   Yes   No   N/A    Samples Arrived within Hold Time?   Yes   No   N/A    Short Hold Time Analysis (<72 hr)?   Yes   No   N/A    Rush Turn Around Time Requested?   Yes   No   N/A    Sufficient Volume?   Yes   No   N/A    Correct Containers Used?   Yes   No   N/A    Containers Intact?   Yes   No   N/A    Sample Labels Match COC?   Yes   No   N/A    All containers needing acid/base preservation properly   Yes   No   N/A    All containers needing acid/base preservation properly   Yes   No   N/A    Headspace in Methyl Mercury Container   Yes   No   N/A    Trip Blank Present?   Yes   No   N/A    Trip Blank Custody Seals Present?   Yes   No   N/A    Trip Blank Custody Seals Present?   Yes   No   N/A    Pace Trip Blank Lot # (if purchased):	ner:
Is there evidence of ice formation in samples? Yes No Biological Temp Blank? Yes No Thermometer Used: O1339  Temp should be above freezing to 6 °C  Date and Initials of Person Examining Contents: S/C/Z/ J/C 05/C  Chain of Custody Present? Yes No N/A  Chain of Custody Filled Out? Yes No N/A  Chain of Custody Relinquished? Yes No N/A  Sampler Name and Signature on COC? Yes No N/A  Samples Arrived within Hold Time? Yes No N/A  Short Hold Time Analysis (<72 hr)? Yes No N/A  Rush Turn Around Time Requested? Yes No N/A  Correct Containers Used? Yes No N/A  Containers Intact? Yes No N/A  Filtered Volume Received for Dissolved Tests? Yes No N/A  All containers needing acid/base preservation properly Preserved? No N/A  Headspace in Methyl Mercury Container Yes No N/A  Trip Blank Present? Yes No N/A  Trip Blank Custody Seals Present? Yes No N/A  Pace Trip Blank Lot # (if purchased):	
Temp Blank?	cess has begun
Temp Blank?	Tissue Frozen? Yes No No
Temp should be above freezing to 6 °C  Date and Initials of Person Examining Contents: S/L/7 J\ 0.5 \	252/1710 122639816 Correction Factor °C: -Ô
Chain of Custody Present?  Chain of Custody Filled Out?  Chain of Custody Filled Out?  Chain of Custody Relinquished?  Chain of Custody Relinquished?  Sampler Name and Signature on COC?  Samples Arrived within Hold Time?  Short Hold Time Analysis (<72 hr)?  Rush Turn Around Time Requested?  Correct Containers Used?  -Pace Containers Used?  Containers Intact?  Pace Containers Used?  -Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Pace Trip Blank Lot # (if purchased):	
Chain of Custody Filled Out?  Chain of Custody Relinquished?  Sampler Name and Signature on COC?  Samples Arrived within Hold Time?  Short Hold Time Analysis (<72 hr)?  Rush Turn Around Time Requested?  Sufficient Volume?  Correct Containers Used?  Pace Containers Used?  Containers Intact?  Filtered Volume Received for Dissolved Tests?  Sample Labels Match COC?  Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Pace Trip Blank Lot # (if purchased):	
Chain of Custody Relinquished?  Sampler Name and Signature on COC?  Yes No N/A  Samples Arrived within Hold Time?  Yes No N/A  Short Hold Time Analysis (<72 hr)?  Rush Turn Around Time Requested?  Yes No N/A  Sufficient Volume?  Yes No N/A  Correct Containers Used?  Yes No N/A  Containers Intact?  Yes No N/A  Containers Intact?  Yes No N/A  Filtered Volume Received for Dissolved Tests?  Yes No N/A  Sample Labels Match COC?  Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Yes No N/A  Trip Blank Present?  Yes No N/A  Trip Blank Custody Seals Present?  Yes No N/A  Pace Trip Blank Lot # (if purchased):	1.
Sampler Name and Signature on COC?  Samples Arrived within Hold Time?  Short Hold Time Analysis (<72 hr)?  Rush Turn Around Time Requested?  Yes No N/A  Sufficient Volume?  Yes No N/A  Correct Containers Used?  Yes No N/A  Pace Containers Used?  Yes No N/A  Containers Intact?  Yes No N/A  Filtered Volume Received for Dissolved Tests?  Yes No N/A  Sample Labels Match COC?  Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Yes No No/A  Pace Trip Blank Lot # (if purchased):	2.
Samples Arrived within Hold Time?    Yes	3.
Short Hold Time Analysis (<72 hr)?  Rush Turn Around Time Requested?  Sufficient Volume?  Correct Containers Used?  -Pace Trip Blank Custody Seals Present?  -Pace Trip Blank Lot # (if purchased):	4.
Rush Turn Around Time Requested?  Sufficient Volume?  Correct Containers Used?  Pace Containers Used?  Containers Intact?  Yes No No N/A  Containers Intact?  Yes No No N/A  Filtered Volume Received for Dissolved Tests?  Yes No No N/A  Sample Labels Match COC? Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Yes No No N/A  Trip Blank Present?  Yes No No N/A  Pace Trip Blank Lot # (if purchased):	5. If Fecal:<8 hours >8, <24 hours >24 hours
Sufficient Volume?    Yes	6.
Correct Containers Used?  -Pace Containers Used?  Containers Intact?  Yes No N/A  -Pace Containers Used?  Yes No N/A  Containers Intact?  Yes No N/A  Filtered Volume Received for Dissolved Tests?  Yes No N/A  Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Yes No N/A  Headspace in VOA Vials (>6mm)?  Yes No N/A  Trip Blank Present?  Yes No N/A  Pace Trip Blank Lot # (if purchased):	7.
-Pace Containers Used?  Containers Intact?  Yes No N/A  Filtered Volume Received for Dissolved Tests?  Yes No No N/A  Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Yes No No N/A  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	8.
Containers Intact?  Yes No N/A  Filtered Volume Received for Dissolved Tests?  Yes No N/A  Sample Labels Match COC? Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Yes No N/A  Trip Blank Present?  Yes No N/A  Pace Trip Blank Lot # (if purchased):	9.
Filtered Volume Received for Dissolved Tests?  Sample Labels Match COC?  -Includes Date/Time/ID/Analysis Matrix:  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Pace Trip Blank Lot # (if purchased):	
Sample Labels Match COC?  -Includes Date/Time/ID/Analysis Matrix: WT  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	10.
Sample Labels Match COC?  -Includes Date/Time/ID/Analysis Matrix:   All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials (>6mm)?  Trip Blank Present?  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	11. Note if sediment is visible in the dissolved containers:
-Includes Date/Time/ID/Analysis Matrix: WI  All containers needing acid/base preservation properly preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials ( >6mm)?  Trip Blank Present?  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	12.
Preserved?  Headspace in Methyl Mercury Container  Headspace in VOA Vials ( >6mm)?  Trip Blank Present?  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	
Headspace in VOA Vials ( >6mm)?  Trip Blank Present?  Trip Blank Custody Seals Present?  Pace Trip Blank Lot # (if purchased):	13. Note samples needing adjustment:
Trip Blank Present?	14.
Trip Blank Custody Seals Present?	15.
Pace Trip Blank Lot # (if purchased):	16.
CLIENT NOTIFICATION/RESOLUTION:	Field Data Required? Yes No
Person Contacted:	Date/Time:
Comments/Resolution:	

TEMPERATURE WAIVER ON FILE:

Y N

Date: \_

