

FY2021 Investigation Summary

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

Prepared for:



**Minnesota Pollution
Control Agency**

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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:

- 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

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

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.

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 ($\mu\text{g/L}$) to 16.7 $\mu\text{g/L}$ (estimated), above the MDH action level of 1 $\mu\text{g/L}$. 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 $\mu\text{g/L}$) but above the Minnesota PCA HRL level of PFOA (0.035 $\mu\text{g/L}$). Per USEPA guidance, when PFOS and PFOA are both present, their concentrations should be combined and compared to the 0.070 $\mu\text{g/L}$ 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.

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 near 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.

Figures

Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG 01 SW134 Site Location Map.mxd

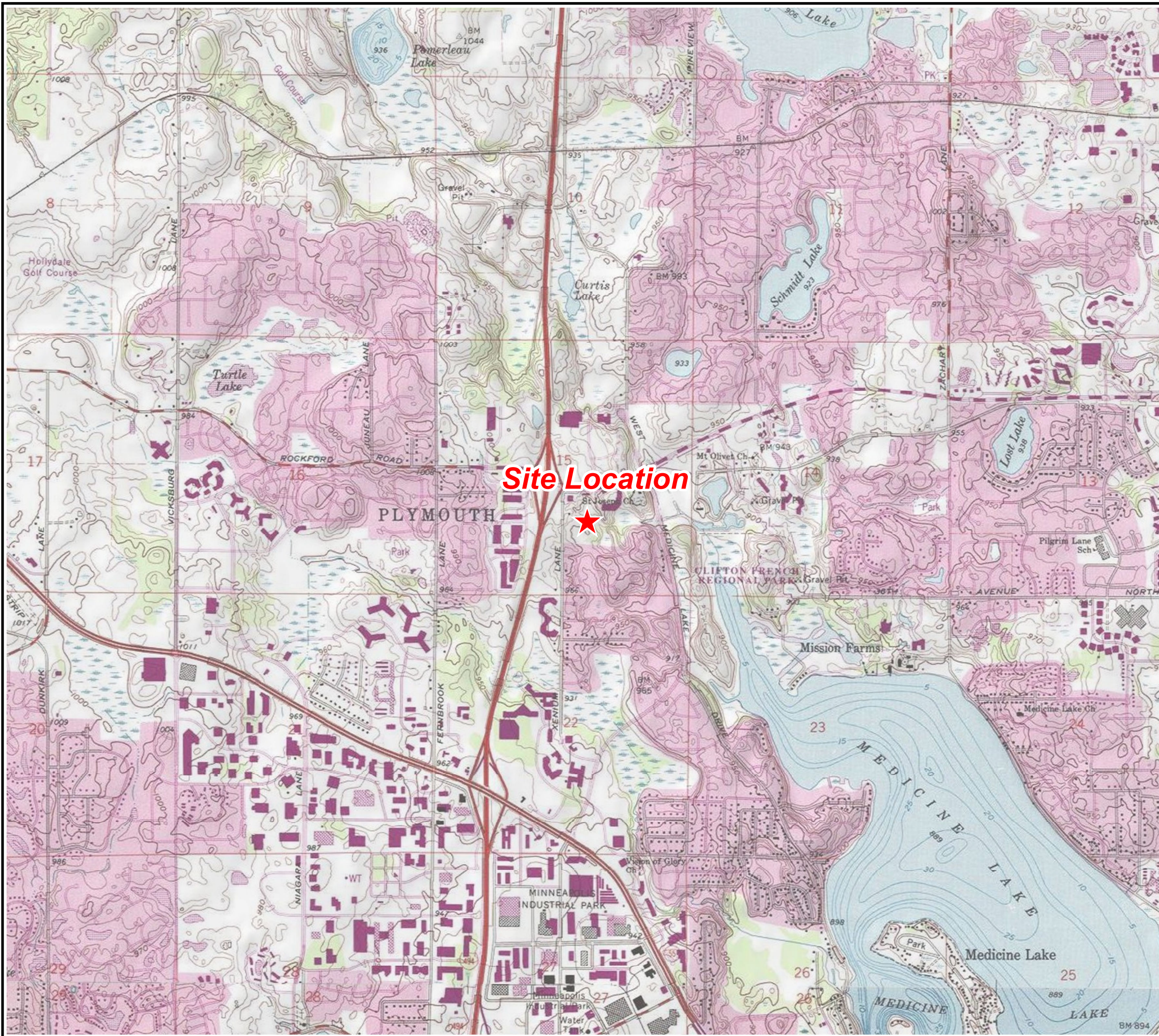
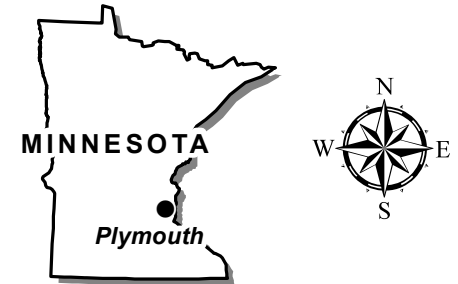


Figure 1

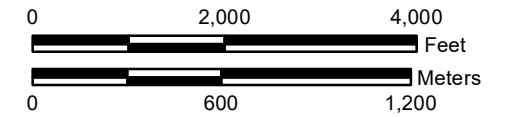
Site Location Map

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



★ Site Location



Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG 02 SW134 Site Map.mxd

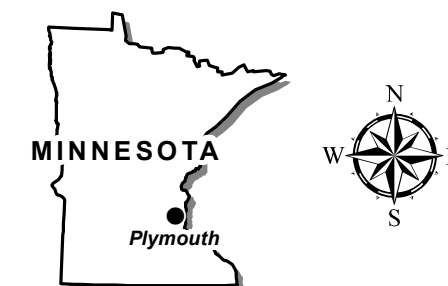


Figure 2

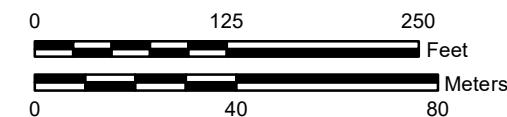
Site Map

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.



Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG X SW134 Cross Section Location Map.mxd

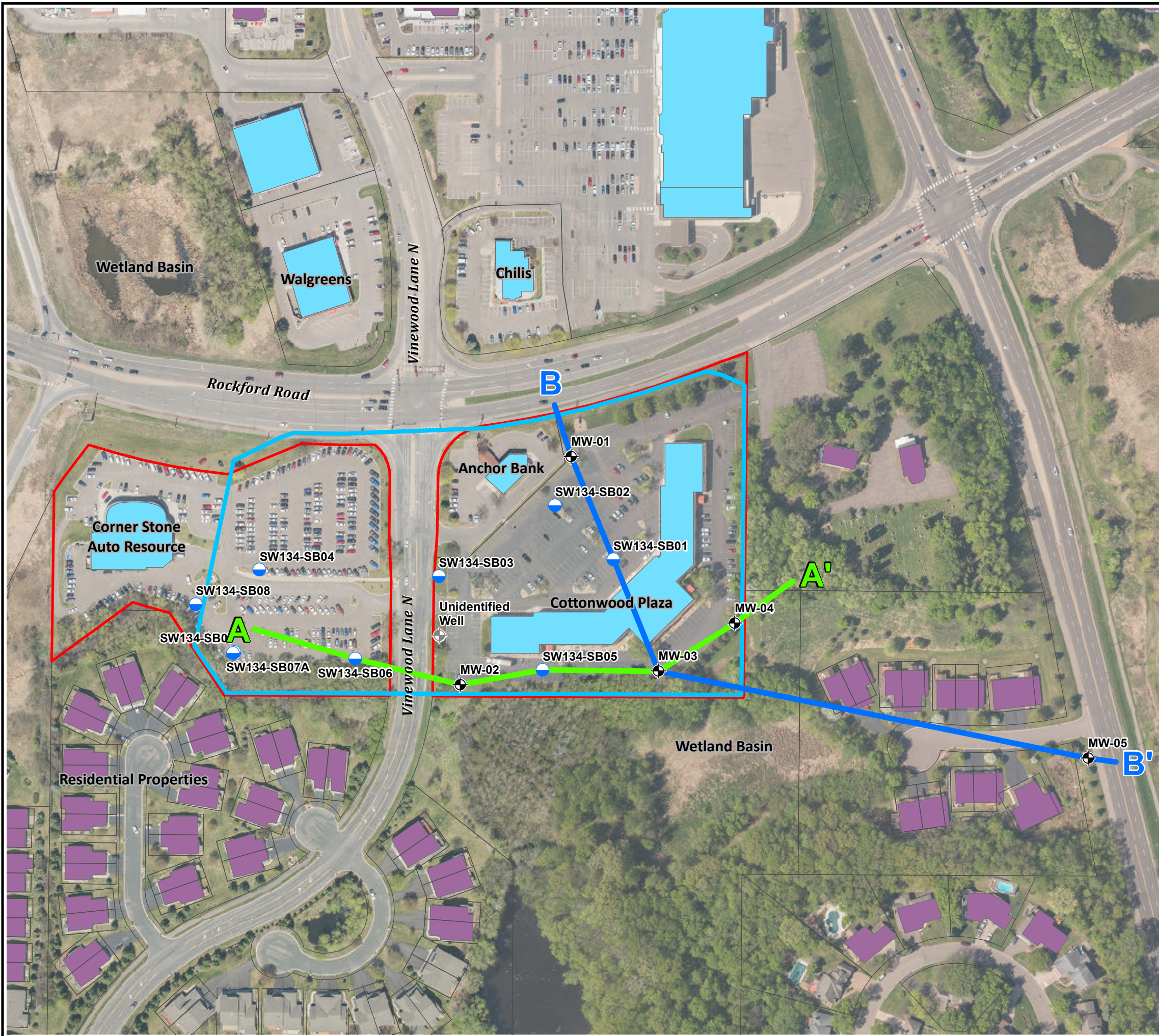
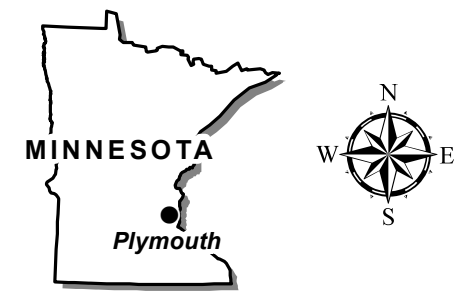


Figure 3

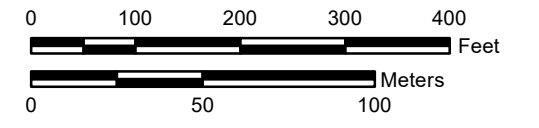
Cross Section Location Map

SW#134 - Begin Demolition Landfill

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



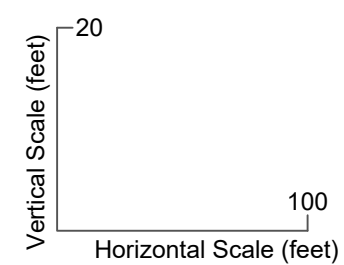
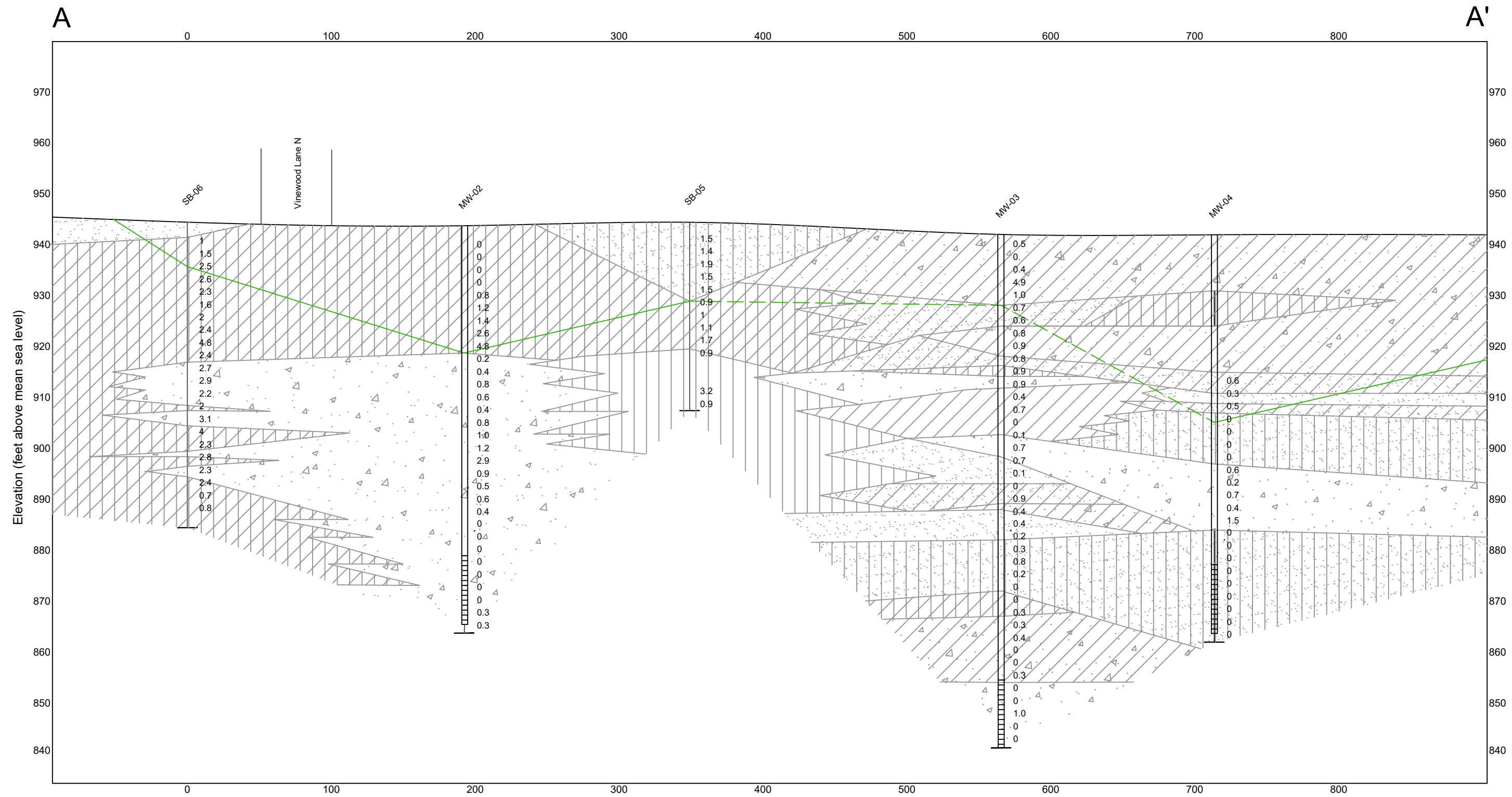
Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: Hennepin County Aerial Imagery, 2018



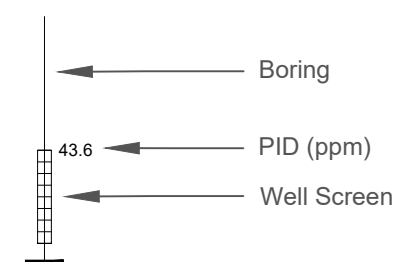
- Soil Boring (Bay West)
- Monitoring Well
- Unidentified Well (Sealed 6/7/21)
- Cross Section Line A to A'
- Cross Section Line B to B'
- Estimated Dump Site
- Site Boundary
- Parcel Boundaries
- Commercial or Industrial Properties
- Residential



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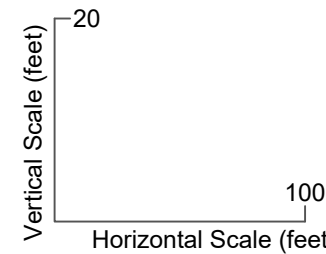
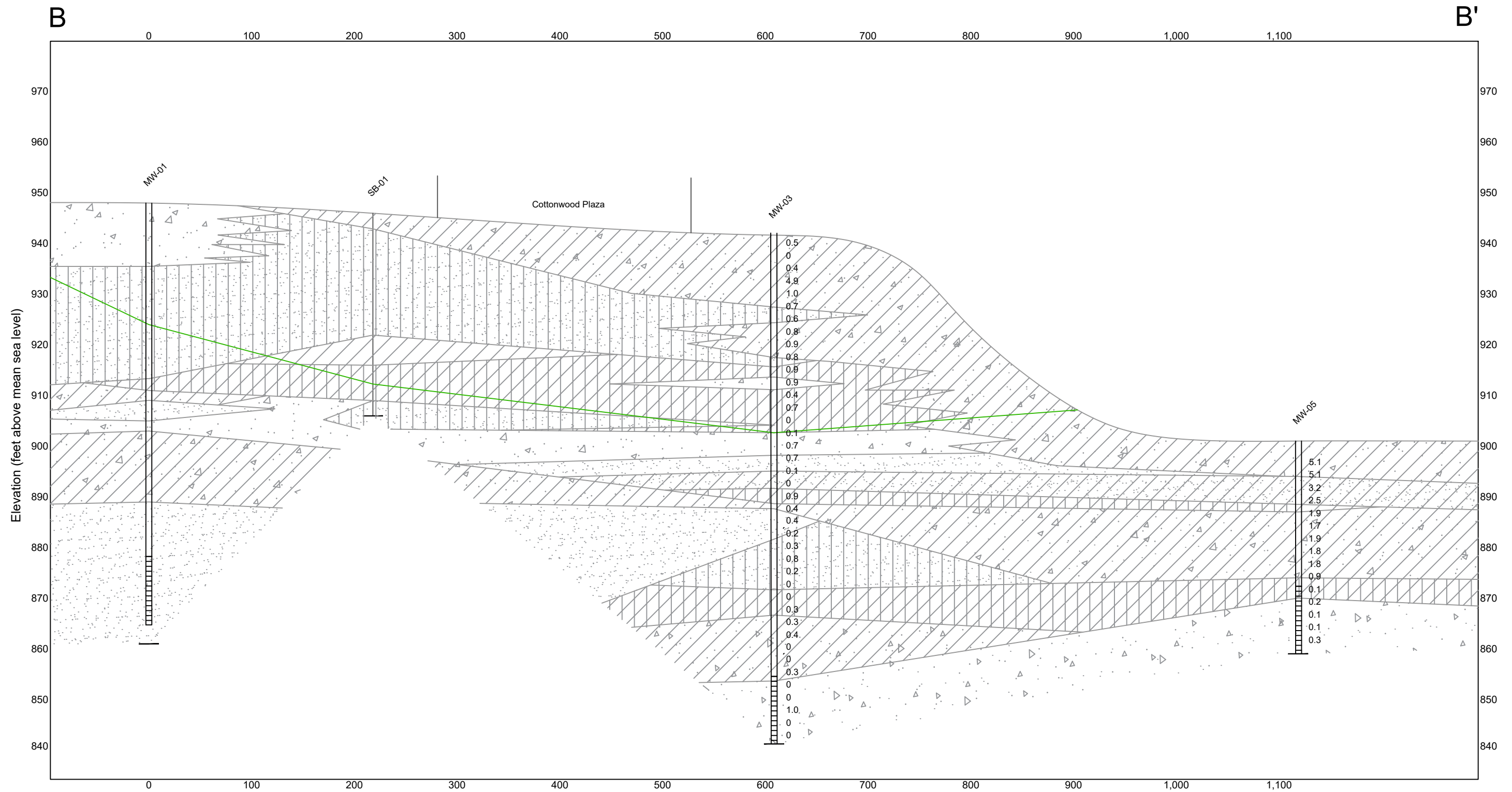


- Clay
- Sand and Clay
- Silt
- Gravel and Clay
- Sand and Gravel
- Silt and Clay
- Sand
- Sand and Silt
- ▼ Groundwater Elevation
- Limit of Found Landfill Material



ENGR'G	PLS	 Bay West Customer-Focused Environmental & Industrial Solutions
DRAWN	7-Jun-21	
REV.	v5	
PROJECT NAME		SW#134 Begin Landfill
TITLE		CROSS SECTION A - A'
DWG. NO.	SCALE	FIGURE # 4A
SW134 Begin 20210524.dwg	AS SHOWN	

Z:\Commercial\MPCASW134 Begin Landfill\SW134 Begin 20210524.dwg



- Clay
- Sand and Clay
- Silt
- Gravel and Clay
- Sand and Gravel
- Silt and Clay
- Sand
- Sand and Silt
- ▼ Groundwater Elevation
- Limit of Found Landfill Material
- Boring
- PID (ppm)
- Well Screen

ENGR'G	PLS	 Bay West <small>Customer-Focused Environmental & Industrial Solutions</small>
DRAWN	7-Jun-21	
REV.	v5	
PROJECT NAME		SW#134 Begin Landfill
TITLE		CROSS SECTION B - B'
DWG. NO.	SCALE	FIGURE # 4B
SW134 Begin 20210524.dwg	AS SHOWN	

Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408001_FY_2021\J200408 FIG 03 SW134 Groundwater Analytical Results.mxd

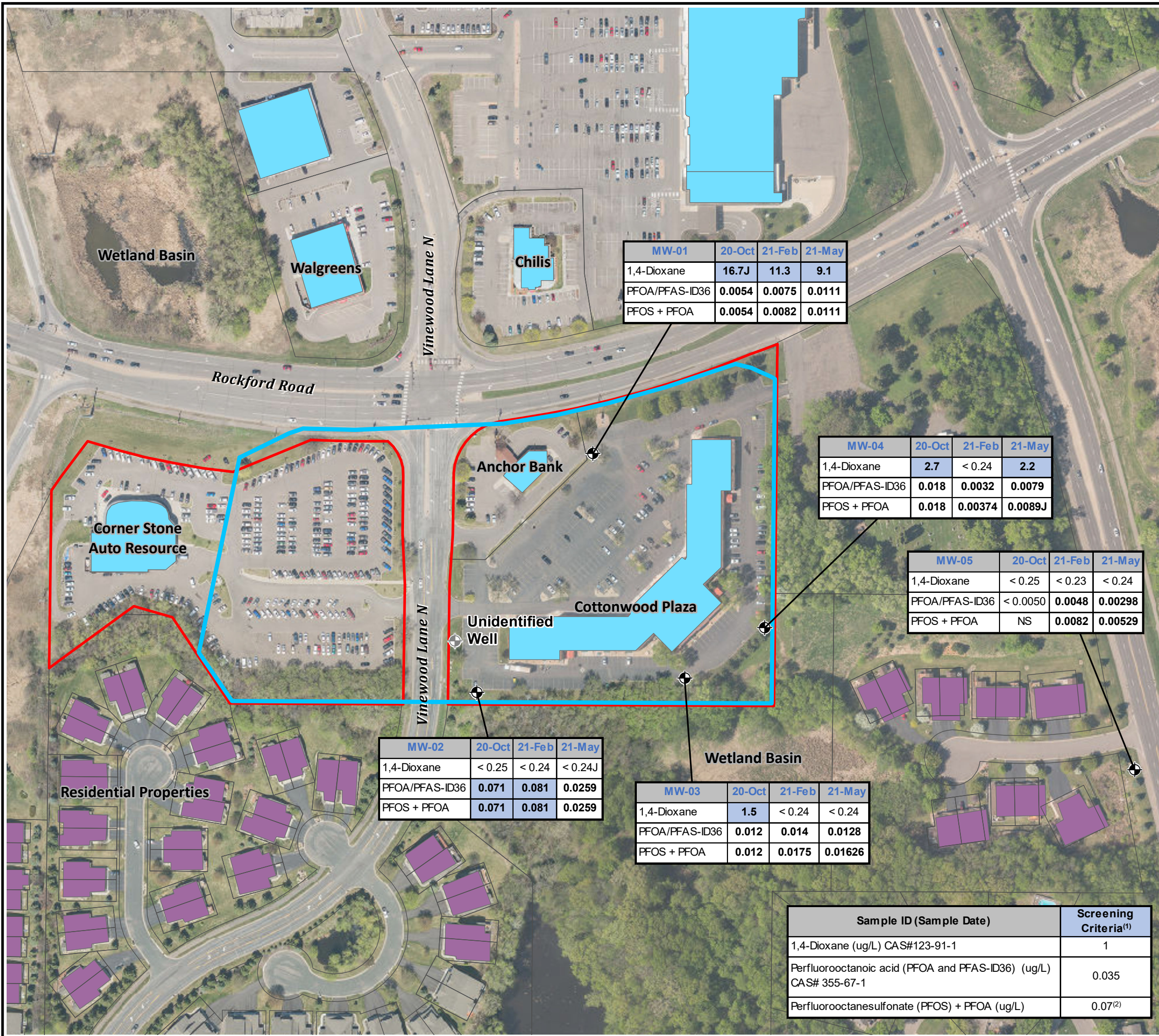
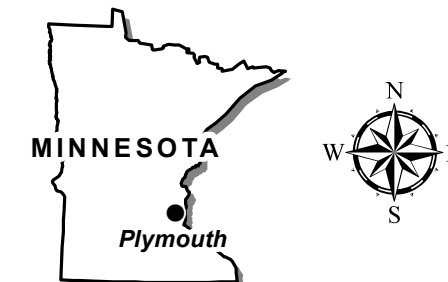


Figure 5

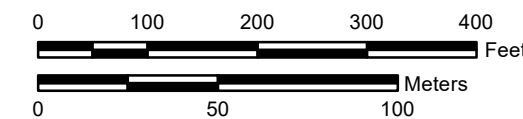
Groundwater Analytical Results

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
Underlined result = The detection limit exceeds the low est applicable screening criteria
 NA = Not Established
 NS = Not tested for that analyte
 mg/L = milligrams per liter
 ug/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
 RAA = MDH Risk Assessment Advice
⁽¹⁾Results were compared to the low est applicable MDH HRL, HBV, or RAA, or other applicable screening criteria.
⁽²⁾US Environmental Protection Agency (USEPA) health advisory level (HAL) for PFOS + PFOA (November 2016).
 Blue shading = Result exceeds applicable screening criteria



Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG 04A SW134 Groundwater Elevation Contour Map (October 2020).mxd

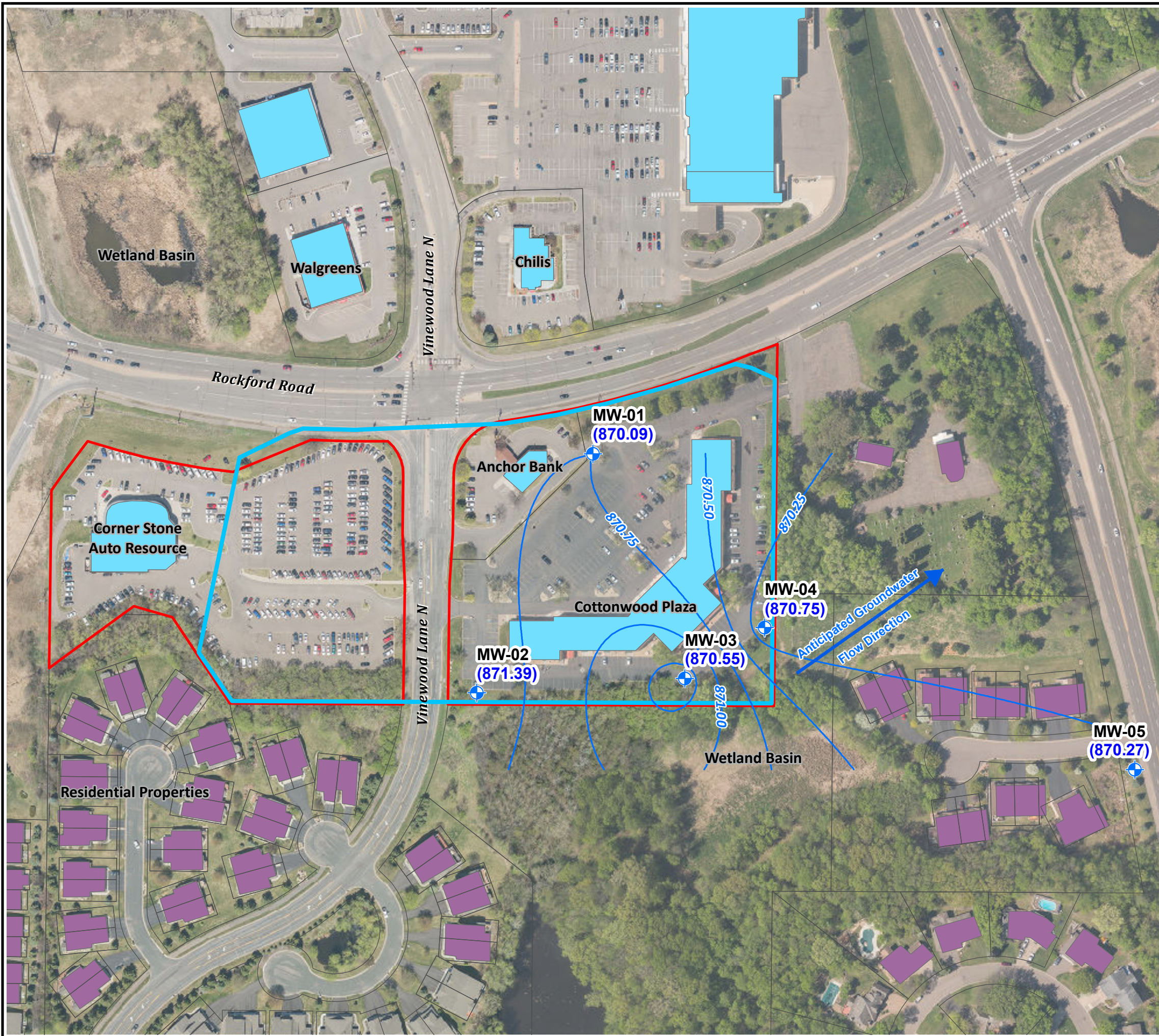
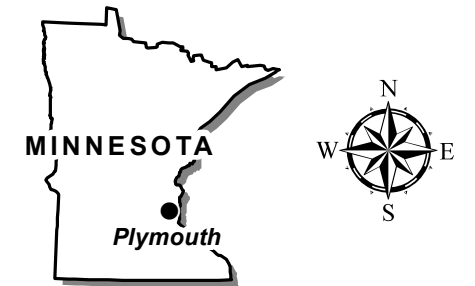


Figure 6A

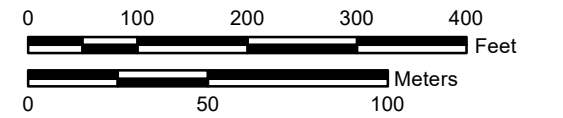
Groundwater Elevation Contour Map (October 2020)


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



Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG 04B SW134 Groundwater Elevation Contour Map (February 2021).mxd

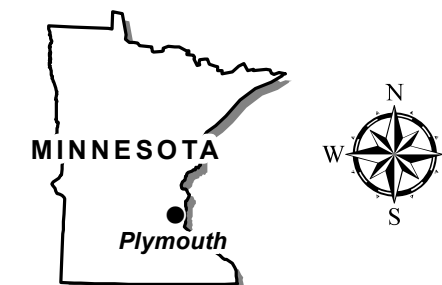


Figure 6B

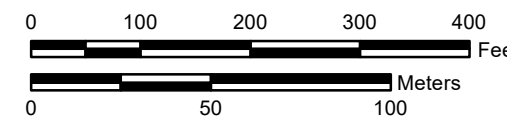
Groundwater Elevation Contour Map (February 2021)

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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



Y:\Clients\MPCA\SW_134_Begin_Demolition_Landfill\MapDocs\J200408\001_FY_2021\J200408 FIG 04C SW134 Groundwater Elevation Contour Map (May 2021).mxd

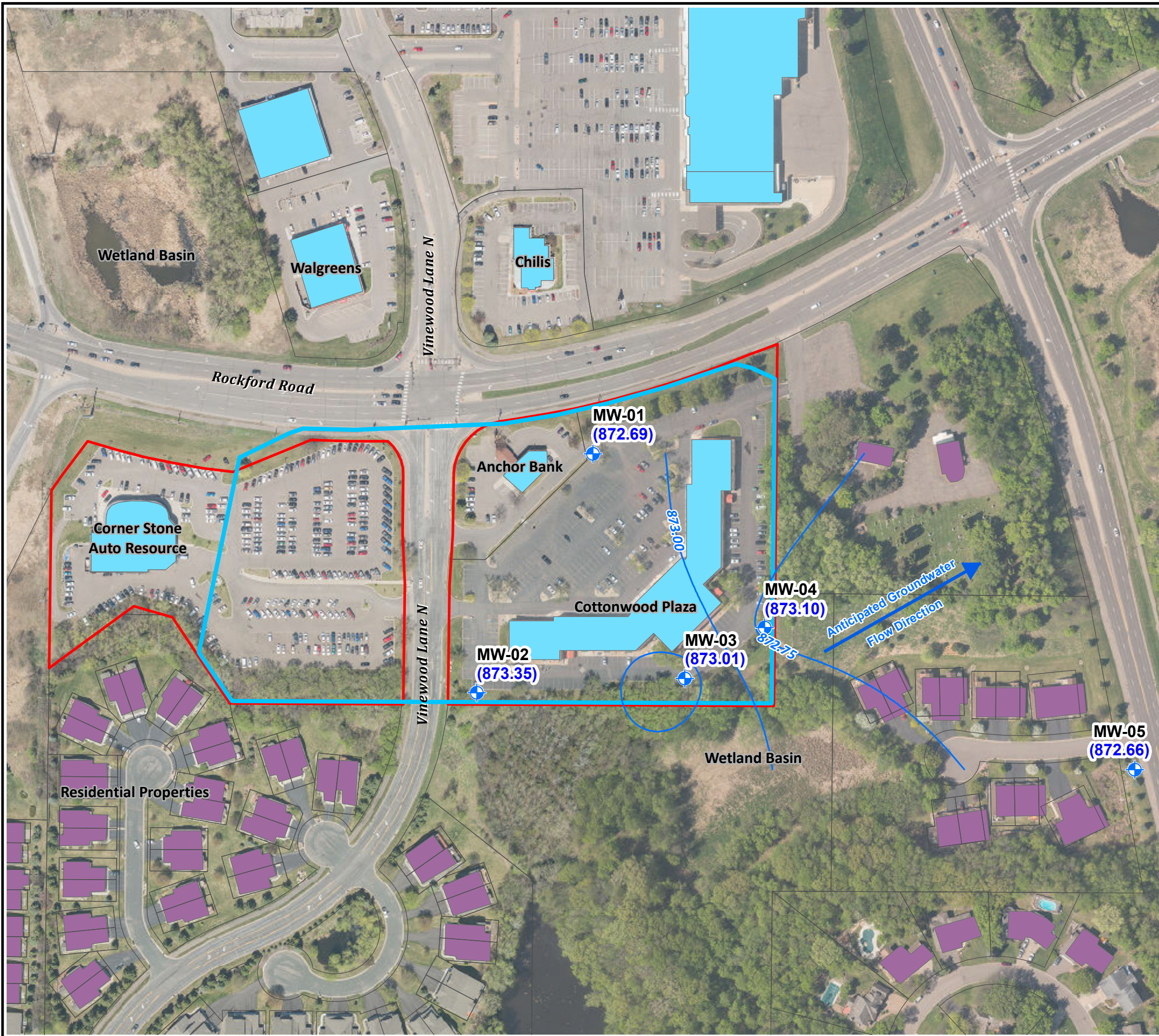
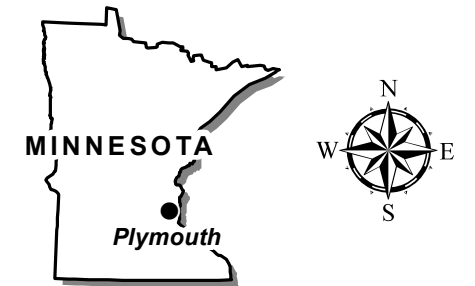


Figure 6C

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



Tables

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



Depth (ft bgs)	Sample ID				
	SB/MW-04	SB/MW-03	SB/MW-02	SB/MW-01	SB/MW-05
	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	0.8	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		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			
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		
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



Well ID	Northing	Easting	Elevation (meters)	Elevation (feet)	Top of Casing Cover (ft)	Bottom of Casing (ft)	Date	Depth to GW (TBOC) (ft)	GW Elevation (ft)
MW-1	4986121	464737	289.77	950.69	950.896	947.913	October-21	80.60	870.09
							February-21	77.12	873.57
							May-21	78.00	872.69
MW-2	4985991	464673	288.43	946.29	946.621	943.681	October-21	74.90	871.39
							February-21	72.30	873.99
							May-21	72.94	873.35
MW-3	4985998	464787	287.87	944.46	944.790	941.969	October-21	73.91	870.55
							February-21	69.65	874.81
							May-21	71.45	873.01
MW-4	4986026	464830	287.91	944.58	944.675	941.906	October-21	73.83	870.75
							February-21	70.65	873.93
							May-21	71.48	873.10
MW-5	4985949	465032	275.49	903.85	904.02	900.94	October-21	33.58	870.27
							February-21	31.35	872.50
							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 Results
SW134 Begin Demolition Landfill
3900, 3901, and 3950 Vinewood Lane North, Plymouth, MN
Bay West Job J200408

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

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



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

Source Sample Name Sample Date	CAS #	HRL / HBV / RAA ⁽¹⁾	Unit	Bay West 2020															
				MW-01			MW-02			MW-03			MW-04			MW-05			
				#####	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	
EPA Method 8290 dioxins (pg/L)																			
2,3,7,8-TCDF	51207-31-9	NE	pg/L	< 1.3	---	---	< 1.5	---	---	---	---	---	< 1.2	---	---	< 1.3	---	---	
2,3,7,8-TCDD	1746-01-6	NE	pg/L	< 1.6	< 0.87	< 1.38	< 1.7	< 0.72	< 0.838	---	< 1.1	< 0.651	< 1.2	< 1.1	< 1.35	< 1.0	< 0.89	< 1.96	
1,2,3,7,8-PeCDF	57117-41-6	NE	pg/L	< 0.76	---	---	< 0.71	---	---	---	---	---	< 1.1	---	---	< 0.69	---	---	
2,3,4,7,8-PeCDF	57117-31-4	NE	pg/L	< 0.59	---	---	< 0.38	---	---	---	---	---	< 0.62	---	---	< 0.42	---	---	
1,2,3,7,8-PeCDD	40321-76-4	NE	pg/L	< 0.63	---	---	< 0.92	---	---	---	---	---	< 1.1	---	---	< 0.9	---	---	
1,2,3,4,7,8-HxCDF	70648-26-9	NE	pg/L	< 0.45	---	---	< 0.69	---	---	---	---	---	< 0.88	---	---	< 0.57	---	---	
1,2,3,6,7,8-HxCDF	57117-44-9	NE	pg/L	< 0.71	---	---	< 0.57	---	---	---	---	---	< 0.48	---	---	< 0.50	---	---	
2,3,4,6,7,8-HxCDF	60851-34-5	NE	pg/L	< 0.55	---	---	< 0.68	---	---	---	---	---	< 0.49	---	---	< 0.49	---	---	
1,2,3,7,8,9-HxCDF	72918-21-9	NE	pg/L	< 0.66	---	---	< 0.93	---	---	---	---	---	< 0.98	---	---	< 0.65	---	---	
1,2,3,4,7,8-HxCDD	39227-28-6	NE	pg/L	< 1.1	---	---	< 0.56	---	---	---	---	---	< 0.87	---	---	< 0.99	---	---	
1,2,3,6,7,8-HxCDD	57653-85-7	NE	pg/L	< 0.85	---	---	< 0.64	---	---	---	---	---	< 0.90	---	---	< 0.76	---	---	
1,2,3,7,8,9-HxCDD	19408-74-3	NE	pg/L	< 0.80	---	---	< 1.0	---	---	---	---	---	< 0.43	---	---	< 0.48	---	---	
1,2,3,4,6,7,8-HpCDF	67562-39-4	NE	pg/L	< 0.86	---	---	< 0.86	---	---	---	---	---	< 0.79	---	---	< 0.52	---	---	
1,2,3,4,7,8,9-HpCDF	55673-89-7	NE	pg/L	< 1.9	---	---	< 1.1	---	---	---	---	---	< 1.3	---	---	< 0.84	---	---	
1,2,3,4,6,7,8-HpCDD	35822-46-9	NE	pg/L	< 1.6	---	---	< 2.1	---	---	---	---	---	< 0.88	---	---	< 1.3	---	---	
OCDF	39001-02-0	NE	pg/L	< 2.6	---	---	< 2.8	---	---	---	---	---	< 1.7	---	---	< 1.8	---	---	
OCDD	3268-87-9	NE	pg/L	< 4.3	---	---	< 4.5	---	---	---	---	---	< 1.8	---	---	< 2.2	---	---	
Total TCDF	30402-14-3	NE	pg/L	< 1.3	---	---	< 1.5	---	---	---	---	---	< 1.2	---	---	< 1.3	---	---	
Total TCDD	41903-57-5	NE	pg/L	< 1.6	---	---	< 1.7	---	---	---	---	---	< 1.2	---	---	< 1.0	---	---	
Total PeCDF	30402-15-4	NE	pg/L	< 0.68	---	---	< 0.55	---	---	---	---	---	< 0.84	---	---	< 0.56	---	---	
Total PeCDD	36088-22-9	NE	pg/L	< 0.63	---	---	< 0.92	---	---	---	---	---	< 1.1	---	---	< 0.90	---	---	
Total HxCDF	55684-94-1	NE	pg/L	< 0.59	---	---	< 0.72	---	---	---	---	---	< 0.71	---	---	< 0.55	---	---	
Total HxCDD	34465-46-8	NE	pg/L	< 0.93	---	---	< 0.73	---	---	---	---	---	< 0.74	---	---	< 0.75	---	---	
Total HpCDF	38998-75-3	NE	pg/L	< 1.4	---	---	< 1.0	---	---	---	---	---	< 1.0	---	---	< 0.68	---	---	
Total HpCDD	37871-00-4	NE	pg/L	< 1.6	---	---	< 2.1	---	---	---	---	---	< 0.88	---	---	< 1.3	---	---	
TEQ	E17134024	NE	pg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,4-Dioxane EPA 8270E by SIM (ug/L)																			
1,4-Dioxane	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)																			
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	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	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	mg/L	< 0.02	0.018J	0.094	0.57	0.24	0.089	0.034	0.053J	0.038	< 0.02	0.076J	0.056	< 0.02	< 0.10	0.013J	
WI MOD DRO (mg/L)																			
WDRO C10-C28	WDRO C10-C28	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 METHOD MLA-041 Rev 09 unless otherwise noted (ug/L)																			
10:2 fluorotelomersulfonic acid (10:2 FT)	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-chloroicosafafluoro-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-hexafluoroethyl)perfluorooctanesulfonic acid (2:2 FT)	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-dioxo-3H-perfluorooctanesulfonic acid (4:8 FT)	919005-14-4	NE	ug/L	---	< 0.00049J	< 0.00049	---	< 0.00048	< 0.00047	---	< 0.00097	< 0.00083	---	< 0.00047	< 0.00048	---	< 0.00096	< 0.00093	
4:2 fluorotelomersulfonic acid (4:2 FT)	757124-72-4	NE	ug/L	---	< 0.00048J	< 0.00048	---	< 0.00047J	< 0.00046	---	< 0.00096	< 0.00082	---	< 0.00047J	< 0.00048	---	< 0.00095J	< 0.00092	
6:2 fluorotelomersulfonic acid (6:2 FT)	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 FT)	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-oxanone	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-Ethylperfluorooctanesulfonamide	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-Ethylperfluorooctanesulfonamideol	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-Methylperfluorooctanesulfonamide	2355-31-9	NE	ug/L	---	< 0.00051J	< 0.00052	---	< 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-Methylperfluorooctanesulfonamide	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-ID36]	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-ID36]	335-77-3	NE	ug/L	---	< 0.00050J	< 0.00050	---	< 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	< 0.00052	---	< 0.00050	< 0.00050	---	< 0.0010	< 0.00088	---	< 0.00050	< 0.00051	---	< 0.001J	< 0.00098	
Perfluorododecanesulfonic acid (PFDA)	79780-39-5	NE	ug/L	---	< 0.00050	< 0.00050	---	< 0.00049	< 0.00048	---	< 0.00099	< 0.00085	---	< 0.00049J	< 0.00049	---	< 0.00098	< 0.00095	
Perfluorododecanoic acid [PFAS-ID36]	307-55-1	NE	ug/L	---	< 0.00051	< 0.00052	---	< 0.00050	< 0.00050	---	< 0.001J	< 0.00088	---	< 0.00050	< 0.00051	---	< 0.0010	< 0.00098	
Perfluorohexanesulfonic acid [PFAS-ID36]	375-92-8	NE	ug/L	---	< 0.00049	< 0.00049	---	< 0.00048	< 0.00047	---	< 0.00097J	< 0.00083	---	< 0.00048J	< 0.00048	---	< 0.00096J	< 0.00093	
Perfluorohexanoic acid [PFAS-ID36]	375-85-9	NE	ug/L	---	0.0024	0.00269	---												

Appendix A

Investigation Derived Waste

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
(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc



REPORT OF LABORATORY ANALYSIS

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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 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 ().

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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)

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides, TCLP									
Analytical Method: EPA 8081B Preparation Method: EPA Mod. 3510C									
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	
Heptachlor epoxide	<5.0	ug/L	5.0	0.073	10	10/18/20 12:03	10/20/20 07:28	1024-57-3	
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	ug/L	150	4.5	10	10/18/20 12:03	10/20/20 07:28	8001-35-2	
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	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	2.4J	ug/L	50.0	1.6	1	10/18/20 11:06	10/19/20 09:38	7440-43-9	
Chromium	10.4J	ug/L	500	3.3	1	10/18/20 11:06	10/19/20 09:38	7440-47-3	
Lead	<0.50	mg/L	0.50	0.0098	1	10/18/20 11:06	10/19/20 09:38	7439-92-1	
Selenium	<100	ug/L	100	29.0	1	10/18/20 11:06	10/19/20 09:38	7782-49-2	
Silver	<100	ug/L	100	2.9	1	10/18/20 11:06	10/19/20 09:38	7440-22-4	
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	1	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									
1,4-Dichlorobenzene	<100	ug/L	100	19.6	1	10/18/20 10:19	10/19/20 14:30	106-46-7	
2,4-Dinitrotoluene	<100	ug/L	100	16.3	1	10/18/20 10:19	10/19/20 14:30	121-14-2	
Hexachloro-1,3-butadiene	<100	ug/L	100	23.1	1	10/18/20 10:19	10/19/20 14:30	87-68-3	
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	1	10/18/20 10:19	10/19/20 14:30		
Nitrobenzene	<100	ug/L	100	16.5	1	10/18/20 10:19	10/19/20 14:30	98-95-3	
Pentachlorophenol	<200	ug/L	200	58.9	1	10/18/20 10:19	10/19/20 14:30	87-86-5	
Pyridine	<100	ug/L	100	19.5	1	10/18/20 10:19	10/19/20 14:30	110-86-1	
2,4,5-Trichlorophenol	<100	ug/L	100	8.6	1	10/18/20 10:19	10/19/20 14:30	95-95-4	
2,4,6-Trichlorophenol	<100	ug/L	100	10.1	1	10/18/20 10:19	10/19/20 14:30	88-06-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

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

Parameters	Results	Units	Report 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									
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	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

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

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260D MSV TCLP									
Analytical Method: EPA 8260D Leachate Method/Date: EPA 1311; 10/29/20 13:59									
Pace Analytical Services - Minneapolis									
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	B
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	
1,4-Dichlorobenzene	<25.0	ug/L	25.0	2.0	1		11/02/20 13:15	106-46-7	
1,2-Dichloroethane	<25.0	ug/L	25.0	6.4	1		11/02/20 13:15	107-06-2	
1,1-Dichloroethene	<25.0	ug/L	25.0	3.2	1		11/02/20 13:15	75-35-4	
Tetrachloroethene	<25.0	ug/L	25.0	4.4	1		11/02/20 13:15	127-18-4	
Trichloroethene	<10.0	ug/L	10.0	3.7	1		11/02/20 13:15	79-01-6	
Vinyl chloride	<5.0	ug/L	5.0	2.5	1		11/02/20 13:15	75-01-4	
Surrogates									
1,2-Dichloroethane-d4 (S)	92	%	75-125		1		11/02/20 13:15	17060-07-0	
Toluene-d8 (S)	96	%	75-125		1		11/02/20 13:15	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125		1		11/02/20 13:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

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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

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.60	0.60	0.24	10/19/20 16:20	

LABORATORY CONTROL SAMPLE: 3767314

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3767315 3767316

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10534464005 Result	Spike Conc.	Spike Conc.	Result						
Mercury	ug/L	<0.24	15	15	15.5	15.4	103	103	80-120	1	20

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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

Parameter	Units	Blank Result	Reporting 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

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

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	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

LABORATORY CONTROL SAMPLE: 3767318

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% 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 DUPLICATE: 3767319 3767320

Parameter	Units	10534464005		MS		MSD		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
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		

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QUALITY CONTROL DATA

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

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	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

LABORATORY CONTROL SAMPLE: 3783524

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	500	430	86	58-131	
1,2-Dichloroethane	ug/L	500	442	88	69-125	
1,4-Dichlorobenzene	ug/L	500	501	100	75-125	
2-Butanone (MEK)	ug/L	2500	2200	88	54-125	
Benzene	ug/L	500	471	94	69-125	
Carbon tetrachloride	ug/L	500	405	81	68-128	
Chlorobenzene	ug/L	500	508	102	71-136	
Chloroform	ug/L	500	447	89	70-125	
Tetrachloroethene	ug/L	500	501	100	70-126	
Trichloroethene	ug/L	500	497	99	73-127	
Vinyl chloride	ug/L	500	402	80	59-136	
1,2-Dichloroethane-d4 (S)	%			89	75-125	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3790001 3790002

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10537858001 Result	Spike Conc.	Spike Conc.	Result								
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				

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QUALITY CONTROL DATA

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

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
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 SPIKE DUPLICATE: 3767707 3767708

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		10535472001 Result	Spike Conc.	Spike Conc.	Result							
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	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

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

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	500	229	46	30-125	
2,4,5-Trichlorophenol	ug/L	500	453	91	65-125	
2,4,6-Trichlorophenol	ug/L	500	464	93	64-125	
2,4-Dinitrotoluene	ug/L	500	483	97	60-125	
2-Methylphenol(o-Cresol)	ug/L	500	418	84	45-125	
3&4-Methylphenol(m&p Cresol)	ug/L	500	424	85	37-125	
Hexachloro-1,3-butadiene	ug/L	500	216	43	30-125	
Hexachlorobenzene	ug/L	500	450	90	67-125	
Hexachloroethane	ug/L	500	208	42	30-125	
Nitrobenzene	ug/L	500	436	87	57-125	
Pentachlorophenol	ug/L	500	458	92	40-125	
Pyridine	ug/L	500	265	53	30-125	
2,4,6-Tribromophenol (S)	%			92	57-125	
2-Fluorobiphenyl (S)	%			74	38-125	
2-Fluorophenol (S)	%			76	30-125	
Nitrobenzene-d5 (S)	%			92	41-125	
p-Terphenyl-d14 (S)	%			93	69-125	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535048

LABORATORY CONTROL SAMPLE: 3767659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenol-d6 (S)	%.			58	10-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3767660 3767661

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10534464005 Result	Spike Conc.	Spike Conc.	MS Result						
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		
p-Terphenyl-d14 (S)	%.						88	94	69-125		
Phenol-d6 (S)	%.						35	31	10-125		

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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

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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10535048

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		

REPORT OF LABORATORY ANALYSIS

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



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	1700 Elm St. Minneapolis MN, 55414	Work Order Number:	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:	PRJ.07786
Phone:	651-291-3493	Copy To:	thansch@baywest.com					Program Code	
Copy To:	Eweaver@baywest.com	Copy To:							

ITEM #	Location Unique ID	Sample Common ID	Sample Type Code (MPCA ONLY)	SAMPLER TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date	Time	# of Cont.	Requested Analysis				Comments
											TCLP Semivolatiles (EPA 8270D/1311)	TCLP Metals (RCRA) (EPA 6010C) (1311,1470)	TCLP Pesticides (EPA 8081B/1311)	TCLP VOCs (EPA 8260B/1311)	
1		SW134 - Disposal	Sample	G	SO	SD	Soil-Sub	10/9/20	1505		X	X	X	X	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

WO#: 10535048

ADDITIONAL COMMENTS:		RELINQUISHED BY / AFFILIATION:		DATE:		TIME:		SAMPLE CONDITIONS:	
		Apace		10/9/20		1632		M.S. Y N Y	
								Received on Ice (Y/N)	
								Custody Sealed Cooler (Y/N)	
								Samples Intact (Y/N)	
								Temp (C)	

SAMPLER NAME AND SIGNATURE: Erik Nimlos
 PRINT Name of SAMPLER: Erik Nimlos
 SIGNATURE of SAMPLER: Erik Nimlos
 DATE Signed (MM/DD/YYYY): 10/9/20



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:
Bay West

Project #:

WO# : 10535048

PM: CL1 Due Date: 10/23/20
CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace SpeeDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 9.8 °C Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 4.9 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: MKZ 10-9-20

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Sample #
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> pH Paper Lot# <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): _____
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____

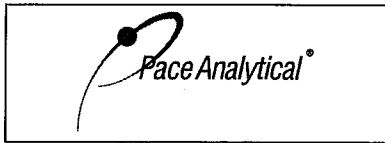
Comments/Resolution: _____

Field Data Required? Yes No

Project Manager Review: [Signature] 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 hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: MKZ Page 24 of 26



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: Bay west
Project #:

WO#: 10537005

PM: CL1 Due Date: 11/11/20
CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace SpeeDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No **Were All Container Temps Taken?** Yes No N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 4.1 °C **Average Corrected Temp (no temp blank only):** 4.2 °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: 40.1 **Cooler Temp Corrected w/temp blank:** 4.2 in 10/27/20 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 10/27/20

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ **Field Data Required?** Yes No

Comments/Resolution: _____

Project Manager Review:

[Signature]

Date: 10/29/20

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

Labeled by: *MK20* Page 26 of 26

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number NONHAZARDOUS	2. Page 1 of 1	3. Emergency Response Phone 3E: 800-451-8346	4. Waste Tracking Number J200408-SRR
	5. Generator's Name and Mailing Address MPCA-SW134 Begin Landfill 520 Lafayette Road North St. Paul, MN 55155		Generator's Site Address (if different than mailing address) MPCA-SW134 Begin Landfill Cottonwood Plaza 3900 Vinewood Ln N. Plymouth, 55441	
6. Transporter 1 Company Name BAY WEST LLC		7. Transporter 2 Company Name Veolia ES Technical Solutions-NJ		U.S. EPA ID Number MND982205437
8. Designated Facility Name and Site Address Veolia ES Technical Solutions - SRR CWD 2501 Infirmity Road West Carrollton, OH 45440		U.S. EPA ID Number NJD080631369		U.S. EPA ID Number WID003967148
9. Waste Shipping Name and Description Non DOT, Non RCRA Hazardous Waste, Soil Cuttings.		10. Containers No. 28	Type DM	11. Total Quantity 11,200
12. Unit Wt./Vol. P		13. Special Handling Instructions and Additional Information 1) WIP842603-IDW soil cuttings DM55 X 28 ER Phone# is contracted by Bay West W/3E/Verisk (Contract# 5567) Job#: J200408 CWPDRCMHS		
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.				
Generator's/Offorer's Printed/Typed Name Andrew Eddy		Signature 		Month Day Year 3 31 21
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:				
16. Transporter Acknowledgment of Receipt of Materials				
Transporter 1 Printed/Typed Name Eric Murray		Signature 		Month Day Year 4 8 21
Transporter 2 Printed/Typed Name J Gensler		Signature 		Month Day Year 4 8 21
17. Discrepancy				
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection				
Manifest Reference Number:				
17b. Alternate Facility (or Generator)		U.S. EPA ID Number		
Facility's Phone:				
17c. Signature of Alternate Facility (or Generator)		Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a				
Printed/Typed Name		Signature		Month Day Year

GENERATOR
 TRANSPORTER
 INT'L
 TRANSPORTER
 DESIGNATED FACILITY

Appendix B

Monitoring Point Repairs



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

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

DAILY DIARY

To be completed by Crew Leader

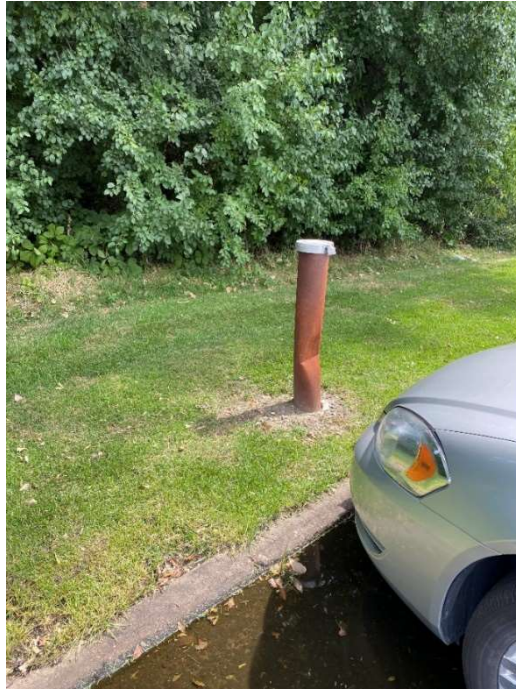
_ 1 _ of _ 1 _

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 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.		
10:30 – Drillers had difficulty removing the concrete around the well, Brady left the site to go get more tools.		
10:38 – Bronson began the removal process of the unknown well.		
11:02 – Brady came back with necessary tools.		
11:15 – Unknown well was sealed with Benseal 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 provided by Bay West.		
14:00 – Drillers cleaned around wells and loaded equipment, left site.		
15:15 – Arrived back at Bay West and unloaded equipment.		
Waste Generated:		
None		
Change in Conditions (if any):		
None		
Sample Summary:		
Samples Taken: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No. of Samples 0	COC #: N/A
Sample Destination:		
N/A		
Size and Type of Sample:		
N/A		

Signature Megan Hutchinson Date 6/7/2021

PROJECT MANAGER/FILE

DOCS#9287



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



**Photo 2: PSG-06 vault in
foreground facing east**



**Photo 3: Unidentified well along
Vinewood Lane facing west**



**Photo 4: Location of unidentified
well following removal and sealing**



**Photo 5: Complete replacement
of PSG-03 facing south**



**Photo 6: Completed replacement
of PSG-06 vault**

Appendix C

Sampling and Construction Logs

WELL CONSTRUCTION LOG



See Figure

BOREHOLE NO. SB-01		WELL CONSTRUCTION LOG	
PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill		LOCATION Cottonwood Plaza	
APPROVED BY Erik Nimlos		LOGGED BY Ethan Engstrom	
DRILLING CONTRACTOR / DRILLER Midwestern / Tucker		DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push	
DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push		SIZE / TYPE OF BIT 2 inch	SAMPLING METHOD Macrocore
CASING MAT. / DIA. PVC / 2		SCREEN: TYPE MAT PVC	TOTAL LENGTH 10
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING	TOP & BOTTOM SCREEN
(FT. ABOVE MSL)			GW SURFACE
			GW DATE
			START-FINISH DATE 10/7/20-10/8/20
			SLOT SIZE 0.01

Depth, ft bgs	Stick Up	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
1			Topsoil			
2			Concrete			
3			Sand, brown, fine-grained, trace gravel			
4			Concrete, wood debris			
5			Gravelly sand, brown, well graded, medium grained	5	5	
6			Concrete and fill			
7						
8						
9						
10						
11			Wood, concrete debris, trace sand			
12						
13			Sandy clay, gray, trace gravel, moist, no odor			
14						
15					15	
16						
17						
18						
19			Fill materials: debris, concrete, wood			
20					20	
21						
22						
23						
24						
25					25	
26			Silty-sand, gray, fine-grained, moist, no odor			
27						
28						
29						
30						
31			Gravelly sand, grey, well graded, no odor			
32			Silty sand, grey/brown, very fine grained, saturated, slight odor			
33						
34						
35					35	

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-01

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

APPROVED BY
Erik Nimlos

LOCATION
Cottonwood Plaza

Plymouth, MN

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
36			Silty clay, brown, high plasticity, saturated, no odor			
37						
38			Gravelly clay, brown, high plasticity, moist			
39						
40		40	Sand, brown, fine grained, trace gravel, moist, no odor	<u>40</u>		
41						
42						
43						
44			Gravelly sand, brown, fine-medium grained, saturated, no odor			
45		45		<u>45</u>		
46			Gravelly clay, brown, low plasticity, saturated, no odor			
47						
48						
49						
50		50		<u>50</u>		
51						
52						
53						
54						
55		55		<u>55</u>		
56						
57						
58						
59						
60		60	Sand, brown, fine-grained, trace gravel, moist, no odor	<u>60</u>		
61						
62						
63						
64						
65		65		<u>65</u>		
66						
67						
68						
69						
70		70		<u>70</u>		
71						
72						
73						
74						
75		75		<u>75</u>		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

Cement

2" Sch 40 PVC Riser

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-01

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

LOCATION
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					
81					
82					
83					
84					
85					
86					
87					

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

BOREHOLE LOCATION SKETCH MAP
 See Figure
 N

WELL CONSTRUCTION LOG

BOREHOLE NO. SB-02		PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill		LOCATION Cottonwood Plaza	
APPROVED BY Erik Nimlos		DRILLING CONTRACTOR / DRILLER Midwestern / Tucker		LOGGED BY Ethan Engstrom	
DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push		SIZE / TYPE OF BIT 2 inch		SAMPLING METHOD Macrocore	
CASING MAT. / DIA. PVC / 2		SCREEN: TYPE MAT PVC		TOTAL LENGTH 10	
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING		TOP & BOTTOM SCREEN	
(FT. ABOVE MSL)				GW SURFACE	
				GW DATE	
				START-FINISH DATE 10/5/20-10/6/20	
				SLOT SIZE 0.01	

Depth, ft bgs	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
1	Cement	TOPSOIL			
2		Brown silty clay, trace gravel, moist, no odor, low plasticity			
3					
4		Wood debris			
5		Brown silty clay, trace gravel, moist, no odor, low plasticity			
6					
7					
8					
9		Asphalt			
10					
11		Light brown clay, trace gravel, low plasticity			
12		Light gray silty clay, trace sand, moist, low plasticity, trace wood debris			
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26		Gravelly brown sand, poorly graded, no odor, moist			
27					
28					
29					
30					
31		Gravelly brown sand, poorly graded, no odor, saturated fine grained			
32					
33	Cement				
34		Gravelly brown sand, poorly graded, no odor, moist, trace rock fine grained			
35					

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-02

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

APPROVED BY
Erik Nimlos

LOCATION
Cottonwood Plaza

Plymouth, MN

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
36			Gravelly brown sand, poorly graded, no odor, highly saturated, trace rock fine grained, end of landfill			
37						
38						
39			Gravelly brown sand, coarse grained, large trace rocks, well graded, no odor			
40				<u>40</u>		
41						
42						
43						
44						
45				<u>45</u>		
46			Gravelly brown sand, coarse grained, trace rocks, well graded, moist, no odor			
47						
48						
49						
50				<u>50</u>		
51						
52						
53						
54						
55				<u>55</u>		
56			Fine grained sand, brown, poorly graded, moist, trace rock, no odor			
57						
58						
59						
60			Gravelly brown sand, coarse grained, trace rock, wellgraded, moist, no odor			
61				<u>60</u>		
62						
63						
64						
65				<u>65</u>		
66						
67						
68						
69						
70				<u>70</u>		
71						
72						
73						
74						
75				<u>75</u>		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

2" Sch 40 PVC Riser

2" PVC 10-slot

WELL CONSTRUCTION LOG

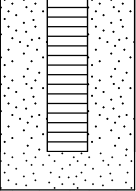

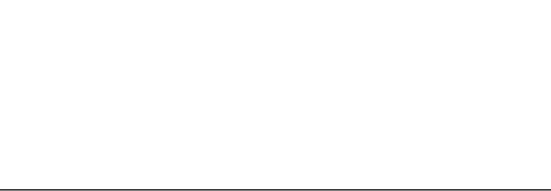



BOREHOLE NO.
SB-02

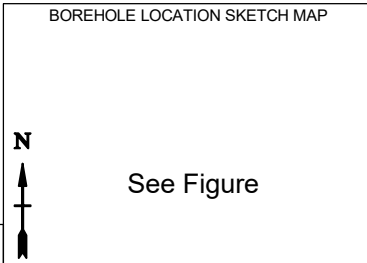
PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

APPROVED BY
Erik Nimlos

LOCATION
Cottonwood Plaza

Plymouth, MN

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
76						
77						
78						
79						
80						



WELL CONSTRUCTION LOG

BOREHOLE NO. SB-03		PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill		LOCATION Cottonwood Plaza	
APPROVED BY Erik Nimlos		DRILLING CONTRACTOR / DRILLER Midwestern / Tucker		LOGGED BY Ethan Engstrom	
DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push		SIZE / TYPE OF BIT 2 inch		SAMPLING METHOD Macrocore	
CASING MAT. / DIA. PVC / 2		SCREEN: TYPE MAT PVC		TOTAL LENGTH 10	
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING		DIA. 2 inch	
(FT. ABOVE MSL)		TOP & BOTTOM SCREEN		SLOT SIZE 0.01	
		/		START-FINISH DATE 9/22/20-9/24/20	

Depth, ft bgs	Stick Up	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
1			TOPSOIL			
2			Gravel			
3			Gravelly sand, rust colored, fine grained, dry, no odor			
4			Asphalt			
5			Gravelly clay, brown, moist, high plasticity		5	
6						
7			Gray silty clay, medium plasticity, slight odor, very moist, trace gavel, wood debris, color darkens as boring descends			
8						
9						
10					10	
11						
12			Silty clay, gray, high plasticity, moist, no odor, trace pebbles			
13						
14						
15					15	
16			Brown sandy clay, fine grained, trace rock, very moist, low odor, high plasticity			
17						
18			Brown gravelly clay, fine grained, trace rock, no odor, very moist, high plasticity			
19						
20					20	
21						
22			Color turns gray, lower plasticity, more gravelly			
23						
24						
25			Gray silty clay, trace gravel, moist, low plasticity, no odor		25	
26						
27			Black silty clay, low plasticity, trace roots, trace rock, low moisture			
28			Gray silty clay, trace gravel, medium plasticity, moist, no odor			
29						
30			Black gravelly sand, saturated, well graded		30	
31						
32			Gray silty clay, saturated, high plasticity, trace roots, no odor, compact			
33						
34						
35					35	

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

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

Depth, ft bgs	Well Summary	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
36						
37						
38			Gray silty sand, low plasticity, fine grained, trace gravel, moist			
39			Gray clay trace gravel, silty moist, high plasticity			
40			Black sand, trace rock, fine grained, small glass debris, end of fill	40		
41			Gray gravelly sand, saturated, odor, trace gravel, low plasticity			
42						
43						
44			Black sand, fine grained, lots of trace organics, moist, odor			
45				45		
46						
47						
48						
49						
50			Sandy clay, gray, trace rocks, moist, no odor, medium plasticity	50		
51			Gray silty clay, moist, high plasticity, no odor			
52						
53			Gravelly clay, low plasticity, moist, no odor			
54			Gray fine grained sand, compact, poorly graded, moist, no odor	55		
55						
56						
57						
58						
59						
60			Silty brown sand, compact, moist, fine grained, trace rock	60		
61						
62						
63						
64						
65				65		
66						
67						
68						
69						
70				70		
71			Silty gray clay, low plasticity, trace rock, moist			
72						
73						
74						
75				75		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-03

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

APPROVED BY
Erik Nimlos

LOCATION
Cottonwood Plaza

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 rock				
77							
78							
79							
80					80	<u>80</u>	
81							
82							
83				2" Sch 40 PVC Riser			
84							
85					85	<u>85</u>	
86			Brown gravelly sand, well graded, saturated, angular, coarse grained				
87							
88							
89							
90				2" PVC 10-slot	90	<u>90</u>	
91							
92							
93							
94							
95					95	<u>95</u>	

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG



See Figure

BOREHOLE NO. SB-04		WELL CONSTRUCTION LOG	
PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill		LOCATION Cottonwood Plaza	
APPROVED BY Erik Nimlos		PLYMOUTH, MN	
DRILLING CONTRACTOR / DRILLER Midwestern / Tucker		LOGGED BY Ethan Engstrom	
DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push		SIZE / TYPE OF BIT 2 inch	SAMPLING METHOD Macrocore
CASING MAT. / DIA. PVC / 2		SCREEN: TYPE MAT PVC	
ELEVATION OF: GROUND SURFACE		TOTAL LENGTH 10	DIA. 2 inch SLOT SIZE 0.01
(FT. ABOVE MSL)		TOP OF WELL CASING	TOP & BOTTOM SCREEN GW SURFACE GW DATE
		/	
		START-FINISH DATE 9/21/20-9/22/20	

Depth, ft bgs	Stick Up	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
1			TOPSOIL			
2			Gravel, trace sands			
3			Gravelly sand, fine grained, brown, dry, no odor			
4						
5				5		
6			Gravelly clay, brown, moist, high plasticity			
7						
8						
9						
10				10		
11			Gray silty clay, medium plasticity, slight odor, very moist			
12						
13						
14						
15				15		
16			Brown sandy clay, fine grained, trace rock, very moist, high plasticity, low odor			
17						
18			Gravelly clay, fine grained, moist, high plasticity, brown			
19						
20				20		
21						
22			Gravelly clay turns gray, lower plasticity			
23						
24						
25				25		
26			Brown sandy clay, fine grained, low plasticity, low odor, moist			
27						
28						
29						
30				30		
31			Brown sand, fine grained, poorly graded, trace rock			
32						
33						
34			Silty brown sand, very fine grained			
35			Compact gray/brown clay, low plasticity, fill, trace rock, no odor, moist, concrete	35		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO. SB-04	PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill	LOCATION 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)
36			Silty brown sand, very fine grained, well graded, trace rocks, trace debris, moist, compact, no odor			
37						
38						
39						
40		40	End of landfill	40		
41			Silty brown sand, very fine grained, well graded, trace rocks, trace debris, moist, compact, no odor			
42						
43						
44						
45		45	Fine grained brown sand, trace gravel, highly saturated, no odor	45		
46						
47						
48			Gravelly sand, well graded, brown, trace rocks, fine grained, moist, no odor			
49						
50		50		50		
51						
52						
53						
54						
55		55		55		
56						
57						
58						
59			Gray silty sand, trace gravel, moist, no odor			
60		60		60		
61						
62						
63						
64						
65		65		65		
66						
67			2" Sch 40 PVC Riser			
68						
69						
70		70		70		
71						
72						
73			2" PVC 10-slot			
74						
75		75		75		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-04

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

LOCATION
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				80		

WELL CONSTRUCTION LOG



See Figure

BOREHOLE NO. SB-05		PROJECT NO. / NAME J200408 / SW# 134 Begin Demolition Landfill		LOCATION Cottonwood Plaza	
APPROVED BY Erik Nimlos		DRILLING CONTRACTOR / DRILLER Midwestern / Tucker		LOGGED BY Ethan Engstrom	
DRILLING EQUIPMENT / METHOD GeoProbe / Direct Push		SIZE / TYPE OF BIT 2 inch		SAMPLING METHOD Macrocore	
CASING MAT. / DIA. PVC / 2		SCREEN: TYPE MAT PVC		TOTAL LENGTH 10	
ELEVATION OF: GROUND SURFACE		TOP OF WELL CASING		TOP & BOTTOM SCREEN	
(FT. ABOVE MSL)				DIA. 2 inch	
				SLOT SIZE 0.01	
				START-FINISH DATE 10/9/20-10/9/20	

Depth, ft bgs	Stick Up	Graphic Log	Visual Description	Analytical Sample Number	Interval	PID Headspace Values (ppm)
1			Topsoil			
2			Gravelly sand, brown, medium-grained sand, dry, no odor			
3			Gravelly clay, grey, very low plasticity, moist, no odor			
4						
5				<u>5</u>		
6						
7						
8			Sandy clay, dark brown, high plasticity, moist, no odor			
9						
10				<u>10</u>		
11						
12			Sand, gray, fine grained, trace gravel, saturated, no odor			
13						
14			Silty clay, gray, saturated, high plasticity, saturated, no odor			
15			Gravelly clay, gray, medium plasticity, trace gravel, saturated, no odor	<u>15</u>		
16						
17						
18						
19						
20				<u>20</u>		
21						
22						
23						
24						
25				<u>25</u>		
26						
27						
28			Silty clay, brown, trace gravel, low plasticity, saturated, no odor			
29						
30				<u>30</u>		
31						
32			Gravelly sand, grey, coarse grained, poorly graded, saturated, no odor			
33						
34						
35				<u>35</u>		

WELL CONSTRUCTION LOG MPCA_SW134 BEGIN_J200408.GPJ ENV LOG #1.GDT 4/22/21

WELL CONSTRUCTION LOG

BOREHOLE NO.
SB-05

PROJECT NO. / NAME
J200408 / SW# 134 Begin Demolition Landfill

LOCATION
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)
36	<p>2" PVC 10-slot</p>				
37		
38		
39		
40				<u>40</u>		
41		
42		

WELL OR BORING LOCATION

County Name

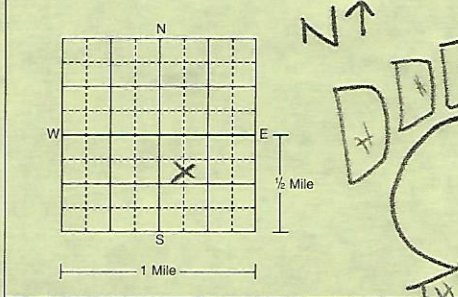
Hennepin

Township Name *City of Plymouth* Township No. *118* Range No. *22* Section No. *15* Fraction (sm. → lg.) *SE/ NW/ SW*

GPS LOCATION — decimal degrees (to four decimal places).
Latitude *45° 01' 35" N* Longitude *93° 26' 37" W*

House Number, Street Name, City, and ZIP Code of Well Location
12920 39th Ave N, Plymouth MN 55441

Show exact location of well/boring in section grid with "X".



PROPERTY OWNER'S NAME/COMPANY NAME

Vineyard Acquisition LLC

Property owner's mailing address if different than well location address indicated above.

*6390 Carlson Dr.
Eden Prairie, MN 55346*

WELL OWNER'S NAME/COMPANY NAME

MPLA (Andy Eddy)

Well/boring owner's mailing address if different than property owner's address indicated above.

*520 Lafayette Rd N
St. Paul, MN 55155*

WELL/BORING DEPTH (completed)

40' ft.

DATE WORK COMPLETED

10/9/20

DRILLING METHOD

Cable Tool Driven Dual Rotary
 Auger Rotary Rotasonic
 Other

DRILLING FLUID

NA

WELL HYDROFRACTURED? Yes No

USE

Domestic Monitoring Heating/Cooling
 Noncommunity PWS Environ. Bore Hole Industry/Commercial
 Community PWS Irrigation Remedial
 Elevator Dewatering

CASING MATERIAL

Steel Drive Shoe? Yes No
 Plastic Threaded Welded

CASING Diameter

2 in. To *30* ft. *1245* lbs./ft. *PVC*

HOLE DIAM.

8 in. To *40* ft.

SCREEN

Yes
Make *Johnson* Type *PVC* Slot/Gauze *1010* Set between *30* ft. and *40* ft. Length *10'* FITTINGS *Flush Thread*

OPEN HOLE

From *0* ft. To *40* ft.

STATIC WATER LEVEL

35 ft. Below Above land surface

Measured from *grade* Date measured *10/9/20* Dry hole Yes No

PUMPING LEVEL (below land surface)

NA ft. after hrs. pumping g.p.m.

WELLHEAD COMPLETION

Pitless/adaptor manufacturer Model
 Casing protection 2 in. above grade
 At-grade Well House Hand Pump

GROUT INFORMATION (specify bentonite, cement-sand, neat-cement, concrete, cuttings, or other)

Material *Bentonite* From *0* To *28* ft. *10* Yds. Bags

Material From To ft. Yds. Bags

Material From To ft. Yds. Bags

Driven casing seal From To Bags One bag = 94 lbs. cement or 50 lbs. bentonite

NEAREST KNOWN SOURCE OF CONTAMINATION

Well is *NA* feet direction from type

Well disinfected upon completion? Yes No

PUMP

Not installed Date installed *NA*

Manufacturer's name

Model Number HP Volts

Length of drop pipe ft. Capacity g.p.m.

Type: Submersible L.S. Turbine Reciprocating Jet

ABANDONED WELLS

Does property have any not in use and not sealed well(s)? Yes No

VARIANCE

Was a variance granted from the MDH for this well? Yes No TN#

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

Use a second sheet, if needed.

Glacial Drift *BRN* *med* *0* *42'*

midwestern Drilling LLC 2910

Licensee Business Name Lic. or Reg. No.

Tucker Beltram *2925 10/16/20*

Certified Representative Signature Certified Rep. No. Date

Tucker Beltram

Name of Driller

IMPORTANT - FILE WITH PROPERTY PAPERS WELL OWNER COPY

834635

ID #52603

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

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING CONSTRUCTION RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL
AND BORING NO.

834635

FIELD SAMPLING DATA SHEET



Page: 1 of 1

PROJECT NAME: Begin Demolition Landfill	PROJECT #: J200408 J200408
ADDRESS: 3900, 3901 and 3950 Vinewood Ln N	SAMPLE ID: MW-01
CITY, STATE, ZIP: Plymouth, MN 55441	DATE: 10-26-20
SAMPLER: John Connelly & Zach Berghorst	ANALYTICAL LABORATORY:
COMPANY: Bay West	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: MW-1	PURGE / SAMPLE METHOD: Bladder
CASING MATERIAL: PVC	PUMP CONTROLLER SETTING: 11 (0.71) 9 DIS. 45 PSI
WELL DIAMETER (in): 2	PURGE RATE (gpm): 0.22 L/min → 0.36 L/min
WELL DEPTH, TOTAL (ft): 89.10	PURGE START TIME: 1345
DEPTH TO WATER (toc): 60.60 DATE: 10-26-20	PURGE END TIME: 1435
WATER COLUMN HEIGHT (ft): 8.5	SAMPLING BEGIN / END TIME: 1436 / 1445
WELL VOLUME (gal): 1.36	PUMP ID #: 27640101 WATER LEVEL ID #: 23010101

VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1350		10.37	1.86	0.78	6.70	-87	980	80.6
2	1355		10.95	1.80	0.99	6.67	-91	943	80.54
3	1400		11.18	1.75	1.16	6.64	-71	795	80.55
4	1405		11.56	1.74	1.24	6.63	-58	621	80.56
5	1410		11.52	1.74	1.05	6.63	-48	415	80.56
6	1415		11.48	1.74	0.95	6.62	-40	283	80.57
7	1420		11.48	1.74	0.63	6.61	-40	226	80.57
8	1425		11.46	1.75	0.49	6.59	-39	215	80.58
9	1430		11.47	1.75	0.45	6.60	-36	205	80.50
10	1435		11.48	1.75	0.44	6.59	-32	212	80.56

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): 13840	DRO:
# OF WELL VOLUMES PURGED: 10-13269	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C): 11.48	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY: 1.75	PFAS:
STAB. D.O.: 0.44	Nitrogen, Total Organic
STAB. pH: 6.59	Nitrate + Nitrite:
STAB. ORP: -32	
STAB. TURBIDITY: 212	

SAMPLE TIME: **1436** SAMPLE FIELD FILTERED?: Yes / (No)

FIELD BLANK? Yes / (No) ? (name/time/comments):

DUPLICATE SAMPLE? Yes / (No) ? (name/time/comments):

MS/MSD? Yes / (No) ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Brown** ODOR: **Petro**

OBSERVATIONS: **Set 9 84.0' BTOC ; Sheen in purge water**

* Switched flow rate from 0.22 L/min to 0.36 L/min

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

WEATHER DATA: TEMP.: **30°F** SKY: **Partly Sunny** WIND: **NW 8mph**

||||| + 840m

FIELD SAMPLING DATA SHEET



Page: 1 of 2

PROJECT NAME: **Begin Demolition Landfill** PROJECT #: J200408
 ADDRESS: **3900, 3901 and 3950 Vinewood Ln N** SAMPLE ID: MW-2
 CITY, STATE, ZIP: **Plymouth, MN 55441** DATE: 10-27-20

SAMPLER: **John Connelly & Zach Berghorst** ANALYTICAL LABORATORY:
 COMPANY: Bay West CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: <u>MW-2</u>	PURGE / SAMPLE METHOD: <u>Bladder</u>
CASING MATERIAL: <u>PVC</u>	PUMP CONTROLLER SETTING: <u>3 CPM @ 1.0 PSI 11.0 B.</u>
WELL DIAMETER (in): <u>2</u>	PURGE RATE (gpm): <u>0.2 L/min → 0.4 L/min</u>
WELL DEPTH, TOTAL (ft): <u>81.35</u>	PURGE START TIME: <u>0917</u>
DEPTH TO WATER (toc): <u>74.90</u> DATE: <u>10-27-20</u>	PURGE END TIME: <u>1012</u>
WATER COLUMN HEIGHT (ft): <u>6.45</u>	SAMPLING BEGIN / END TIME: <u>1013 11033</u>
WELL VOLUME (gal): <u>1.03</u>	PUMP ID #: <u>27610101</u> WATER LEVEL ID #: <u>23010101</u>
VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	0922	840	12.84	0.778	8.11	8.13	207	134	74.95
2	0927	2200	13.27	0.895	7.00	7.50	233	122	74.84
3	0932	3600	13.33	1.01	6.06	7.14	237	97.8	74.89
4	0937	5000	13.19	1.09	5.48	6.99	238	102	74.93
5	0942	6900	13.33	1.12	5.05	6.93	239	71.2	74.89
6	0947	7125	13.34	1.15	5.04	6.86	239	58.2	74.92
7	0952	8620	13.27	1.19	4.67	6.83	238	40.9	74.92
8	0957	10010	13.39	1.20	4.71	6.82	238	30.5	74.90
9	1002	11900	13.31	1.21	4.50	6.80	236	9.8	74.90
10	1007	13780	13.27	1.22	4.44	6.80	234	2.5	74.92

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) - mL: <u>15380</u>	DRO:
# OF WELL VOLUMES PURGED: <u>3.94</u>	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C): <u>13.21</u>	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY: <u>1.82</u>	PFAS:
STAB. D.O.: <u>4.31</u>	Nitrogen, Total Organic
STAB. pH: <u>6.79</u>	Nitrate + Nitrite:
STAB. ORP: <u>231</u>	
STAB. TURBIDITY: <u>0.0</u>	

SAMPLE TIME: 1013 SAMPLE FIELD FILTERED?: Yes / No

FIELD BLANK? Yes / No? (name/time/comments):
 DUPLICATE SAMPLE? Yes / No? (name/time/comments):
 MS/MSD? Yes / No? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: ODOR: Petro / Diesel
 OBSERVATIONS: @ 77ft, shen in water
* Change from 2 to 3 CPM at 0.4 L/min

Sample tubing left in well at completion? (Yes or No):
 WEATHER DATA: TEMP.: 30 SKY: shiny WIND: 13 mph SW

NW NW NW + 360m

FIELD SAMPLING DATA SHEET



PROJECT NAME : Begin Demolition Landfill		PROJECT # : J200408
ADDRESS : 3900, 3901 and 3950 Vinewood Ln N		SAMPLE ID: MW-2
CITY, STATE, ZIP : Plymouth, MN 55441		DATE: 10-27-20
SAMPLER : John Connelly & Zach Berghorst		ANALYTICAL LABORATORY :
COMPANY :		CHAIN OF CUSTODY # :
WELL DATA		PURGE DATA
WELL NAME : MW-2		PURGE / SAMPLE METHOD : Bladder
CASING MATERIAL : PVC		PUMP CONTROLLER SETTING : 5CPM 912511 1 disk
WELL DIAMETER (in) : 2		PURGE RATE (gpm) : 0.4 min
WELL DEPTH, TOTAL (ft) : 81.35		PURGE START TIME : 0917
DEPTH TO WATER (toc) : 74.90 DATE: 10-27-20		PURGE END TIME : 1012
WATER COLUMN HEIGHT (ft) : 6.45		SAMPLING BEGIN / END TIME : 1013 / 1033
WELL VOLUME (gal) : 1.03		PUMP ID # : WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"		

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal/mL)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1012	15140	13.21	1.22	4.31	6.79	231	0.0	74.92
2									
3									
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): 15380	DRO:
# OF WELL VOLUMES PURGED: 3.94	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C): 13.21	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY: 1.22	PFAS:
STAB. D.O. : 4.31	Nitrogen, Total Organic
STAB. pH : 6.79	Nitrate + Nitrite:
STAB. ORP : 231	
STAB. TURBIDITY: 0.0	

SAMPLE TIME : **1013** SAMPLE FIELD FILTERED ? : Yes / **No**

FIELD BLANK? Yes / **No** ? (name/time/comments):

DUPLICATE SAMPLE? Yes / **No** ? (name/time/comments):

MS/MSD? Yes / **No** ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: ODOR: **Petro / Diesel**

OBSERVATIONS : **9 TT ; Sheen on Water**

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

WEATHER DATA : TEMP: **30** SKY: **Sunny** WIND: **13 mph SW**

FIELD SAMPLING DATA SHEET



Page: of

PROJECT NAME: Begin Demolition Landfill	PROJECT #: J200408
ADDRESS: 3900, 3901 and 3950 Vinewood Ln N	SAMPLE ID: MW-3
CITY, STATE, ZIP: Plymouth, MN 55441	DATE: 10-27-20
SAMPLER: John Connelly & Zach Berghorst	ANALYTICAL LABORATORY:
COMPANY: Bay West	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: MW-3	PURGE / SAMPLE METHOD: Bladder
CASING MATERIAL: PVC	PUMP CONTROLLER SETTING:
WELL DIAMETER (in): 2	PURGE RATE (gpm): 0.41 4min → 0.12 L/min
WELL DEPTH, TOTAL (ft): 97.25	PURGE START TIME: 1416
DEPTH TO WATER (toc): 73.91 DATE: 10-27-20	PURGE END TIME: 1446
WATER COLUMN HEIGHT (ft): 23.34	SAMPLING BEGIN / END TIME: 1520 / 1532
WELL VOLUME (gal): 3.73	PUMP ID #: 27640101 WATER LEVEL ID #: 230101

VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal) / ml	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1421	1680	9.25	3.24	2.30	7.12	-132	245	77.94
2	1426	3680	9.38	3.25	5.18	7.18	-128	215	81.00
3	1431	5160	9.44	3.25	6.70	7.23	-121	217	83.70
4	1436	6040	8.97	3.25	6.82	7.23	-114	180	85.01
5	1441	6710	8.91	3.25	7.01	7.24	-111	138	86.02
6	1446	7420	8.96	3.24	6.41	7.24	-109	127	87.32
7									
8	Wasted 30 minutes with no recharge.								
9	Spoke with E. Mimlos and sampler without								
10	Stability being reached								

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): 7700	DRO:
# OF WELL VOLUMES PURGED: 0.552-06	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C):	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY:	PFAS:
STAB. D.O.:	Nitrogen, Total Organic
STAB. pH:	Nitrate + Nitrite:
STAB. ORP:	
STAB. TURBIDITY:	

SAMPLE TIME: **1520** SAMPLE FIELD FILTERED?: Yes / **No**

FIELD BLANK? Yes / **No**? (name/time/comments):

DUPLICATE SAMPLE? Yes / **No**? (name/time/comments):

MS/MSD? Yes / **No**? (name/time/comments):

COMMENTS
SAMPLE DESCRIPTION (Begin / End): COLOR: gray ODOR: slight diesel
OBSERVATIONS: @ 90' BToc ; Sheen on water ; grayish sediment
* Drawdown severe, switched to 0.12 L/min
Sample tubing left in well at completion? (Yes or No):

WEATHER DATA: TEMP.: **30** SKY: **Sunny** WIND: **13 mph S-SW**

11 + 700 ml

FIELD SAMPLING DATA SHEET



Page: of

PROJECT NAME : Begin Demolition Landfill	PROJECT # : J200408
ADDRESS : 3900, 3901 and 3950 Vinewood Ln N	SAMPLE ID: MW-4
CITY, STATE, ZIP : Plymouth, MN 55441	DATE: 10-27-20

SAMPLER : John Connelly & Zach Berghorst	ANALYTICAL LABORATORY :
COMPANY : Bay west	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : mw-4	PURGE / SAMPLE METHOD : Bladder
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING:
WELL DIAMETER (in) : 2	PURGE RATE (gpm) : 0.42 4min
WELL DEPTH, TOTAL (ft) : 80.65	PURGE START TIME : 1152
DEPTH TO WATER (toc) : 73.83 DATE: 10-27-20	PURGE END TIME : 1232
WATER COLUMN HEIGHT (ft) : 6.82	SAMPLING BEGIN / END TIME : 1233 1124
WELL VOLUME (gal) : 1.09	PUMP ID # : 27640101 WATER LEVEL ID # : 23010101
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal) mL	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1157	1485	9.79	1.68	0.69	6.92	14	22.6	73.80
2	1202	2150	9.75	1.68	0.57	6.92	7	14.2	73.80
3	1207	4980	9.78	1.68	0.57	6.94	9	34.0	73.80
4	1212	7220	9.74	1.67	0.59	6.93	2	08.3	73.80
5	1212	8140	9.71	1.67	0.47	6.93	-4	11.3	73.80
6	1222	10200	9.64	1.67	0.39	6.93	-5	0.40	73.80
7	1227	12090	9.63	1.67	0.36	6.94	-5	0.40	73.81
8	1232	13840	9.61	1.67	0.32	6.92	-3	0.0	73.80
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): mL 14100	DRO:
# OF WELL VOLUMES PURGED: 3.41	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C): 9.61	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY: 1.67	PFAS:
STAB. D.O. : 0.32	Nitrogen, Total Organic
STAB. pH : 6.92	Nitrate + Nitrite:
STAB. ORP : -3	
STAB. TURBIDITY: 0.0	

SAMPLE TIME : **1233** SAMPLE FIELD FILTERED ? : Yes / **(No)**

FIELD BLANK? **(Yes)** / No ? (name/time/comments):

DUPLICATE SAMPLE? **(No)** / Yes ? (name/time/comments): **(a) 1243 MW-4 Dup**

MS/MSD? Yes / **(No)** ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **clear** ODOR: **Slight diesel**

OBSERVATIONS : **(a) 76 77' ; Shem on water**

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

WEATHER DATA : TEMP.: **30°** SKY: **Sunny** WIND: **S-SW 13mph**

|||||

FIELD SAMPLING DATA SHEET



PROJECT NAME : Begin Demolition Landfill	PROJECT # : <u>J200408</u> J200408
ADDRESS : 3900, 3901 and 3950 Vinewood Ln N	SAMPLE ID : <u>MW-5</u>
CITY, STATE, ZIP : Plymouth, MN 55441	DATE : <u>10-26-20</u>
SAMPLER : John Connelly & Zach Berghorst	ANALYTICAL LABORATORY :
COMPANY :	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
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STABILIZATION READINGS

READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1131		10.14	1.10	0.70	6.77	-42	1000	33.45
2	1136		10.33	1.10	0.81	6.86	-42	838	33.45
3	1141		10.17	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	1151		10.33	1.12	0.61	6.89	-40	372	33.45
6	1156		10.37	1.12	0.51	6.91	-42	331	33.45
7	1201		10.21	1.13	0.26	6.90	-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	" "
10	1216		10.26	1.14	0.00	6.88	-47	139	" "

STABILIZATION DATA	SAMPLE CONTAINERS
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TOTAL VOLUME (gal): <u>14720</u> mL	DRO:
# OF WELL VOLUMES PURGED: <u>9.95263</u>	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C):	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY:	PFAS:
STAB. D.O.:	Nitrogen, Total Organic
STAB. pH:	Nitrate + Nitrite:
STAB. ORP:	
STAB. TURBIDITY:	

SAMPLE TIME : 1227 SAMPLE FIELD FILTERED? : Yes / No

FIELD BLANK? Yes No (name/time/comments):

DUPLICATE SAMPLE? Yes No (name/time/comments):

MS/MSD? Yes No (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: Cloudy / Light Brown ODOR: Petro

OBSERVATIONS : Pump set @ 40 ft

see beads Shoen A beads of oil in purge water

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

WEATHER DATA : TEMP.: 30 SKY: Partly Sunny WIND: NW 5 mph

+++ +++ +++ +720ml

FIELD SAMPLING DATA SHEET



PROJECT NAME : Begin Demolition Landfill	PROJECT # : J200408
ADDRESS : 3900, 3901 and 3950 Vinewood Ln N	SAMPLE ID : MW-5
CITY, STATE, ZIP : Plymouth, MN 55441	DATE : 10-26-20
SAMPLER : John Connelly & Zach Berghorst	ANALYTICAL LABORATORY :
COMPANY :	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-5	PURGE / SAMPLE METHOD : Bladder
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING : 60' R=20, d=10
WELL DIAMETER (in) : 2	PURGE RATE (gpm) : 0.24
WELL DEPTH, TOTAL (ft) : 42.78	PURGE START TIME : 1126
DEPTH TO WATER (toc) : 33.58 DATE : 10-26-20	PURGE END TIME : 1226
WATER COLUMN HEIGHT (ft) : 9.2	SAMPLING BEGIN / END TIME : 1227 / 1235
WELL VOLUME (gal) : 1.46	PUMP ID # : WATER LEVEL ID # :

VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			± 3%	± 3%	± 10% or <0.5	± 0.1	± 10	± 10% or <5	
1	1221		10.22	1.15	0.00	6.87	-48	110	33.45
2	1226		10.26	1.15	0.00	6.90	-49	86.0	" "
3									
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) : 14780	DRO:
# OF WELL VOLUMES PURGED: 9.73	2, 3, 7, 8 TCDD (Dioxin):
STAB. TEMP (C) :	1, 4 Dioxane:
STAB. Sp. CONDUCTIVITY :	PFAS:
STAB. D.O. :	Nitrogen, Total Organic
STAB. pH :	Nitrate + Nitrite:
STAB. ORP :	
STAB. TURBIDITY :	

Could not stabilize due to Turbidity

SAMPLE TIME : **1227** SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments):

DUPLICATE SAMPLE? Yes / No ? (name/time/comments):

MS/MSD? Yes / No ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **cloudy / light brown** ODOR: **Petro**

OBSERVATIONS : **Pump set @ 40'**
Sheen + beads of oil in purge water

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

WEATHER DATA : TEMP.: **30** SKY: **partly sunny** WIND: **NW 5mph**

FIELD SAMPLING DATA SHEET



Page: 1 of 2

PROJECT NAME: BEGIN LANDFILL	PROJECT #: J200408
ADDRESS: 3900 VINEWOOD LANE	SAMPLE ID: MW-01
CITY, STATE, ZIP: PLYMOUTH, MN	DATE: 2/8/21
SAMPLER: ZACH M. ETHAN E	ANALYTICAL LABORATORY: PAGE
COMPANY: BAYWEST	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: MW-01	PURGE / SAMPLE METHOD: BLADDER
CASING MATERIAL: PVC	PUMP CONTROLLER SETTING: 2CPM 20 REILL 10 DISCHARGE
WELL DIAMETER (in): 2"	PURGE RATE (gpm): 0.30 LPM
WELL DEPTH, TOTAL (ft): 89.45	PURGE START TIME: 1140
DEPTH TO WATER (toc): 77.12 DATE: 2/8/21	PURGE END TIME: 1240
WATER COLUMN HEIGHT (ft): 12.33	SAMPLING BEGIN / END TIME: 1245 /
WELL VOLUME (gal): 1.97	PUMP ID #: WATER LEVEL ID #:

VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME ml (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	1140	0	3.20	1.40	3.30	7.57	196	225	77.15
2	1145	1500	3.68	1.47	2.70	7.40	208	210	77.15
3	1150	3000	3.60	1.47	2.46	7.25	206	183	77.15
4	1155	4500	3.56	1.47	2.29	7.16	224	156	77.15
5	1200	6000	3.44	1.47	2.08	7.15	229	141	77.15
6	1205	7500	3.32	1.48	1.82	7.11	239	127	77.15
7	1210	9000	4.01	1.48	1.61	7.07	250	113	77.15
8	1215	10500	4.45	1.47	1.52	7.07	260	101	77.15
9	1220	12000	4.35	1.49	1.41	7.05	264	88.1	77.15
10	1225	14500	3.93	1.46	1.29	7.03	270	76.0	77.15

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal):	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C):	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY:	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O.:	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH: 6.60 NOT	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP: STABILIZE	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME: **1245** SAMPLE FIELD FILTERED? : Yes / **No**

FIELD BLANK? Yes / **No** (name/time/comments):

DUPLICATE SAMPLE? Yes / **No** (name/time/comments):

MS/MSD? Yes / **No** (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **CLEAR** ODOR: **NONE**

OBSERVATIONS:

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

WEATHER DATA: TEMP.: **-6°** SKY: **CLEAR** WIND: **6 mph NW**

FIELD SAMPLING DATA SHEET



PROJECT NAME : <u>BEGW LANDFILL</u>	PROJECT # : <u>J200408</u>
ADDRESS : <u>3900 VINEWOOD LN</u>	SAMPLE ID : <u>MW-02</u>
CITY, STATE, ZIP : <u>PLYMOUTH, MA</u>	DATE : <u>2/10/21</u>
SAMPLER : <u>ZACH M, ETDRAN E</u>	ANALYTICAL LABORATORY : <u>PACE</u>
COMPANY : <u>BAYWEST</u>	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : <u>MW-02</u>	PURGE / SAMPLE METHOD : <u>BLADDER</u>
CASING MATERIAL : <u>PVC</u>	PUMP CONTROLLER SETTING: <u>30PM 10.5 REFILL 9.5 DFKH.</u>
WELL DIAMETER (in) : <u>2"</u>	PURGE RATE (gpm) : <u>0.20 LPM</u>
WELL DEPTH, TOTAL (ft) : <u>81.38</u>	PURGE START TIME : <u>0955</u>
DEPTH TO WATER (toc) : <u>72.28</u> DATE: <u>2/11/21</u>	PURGE END TIME : <u>1055</u>
WATER COLUMN HEIGHT (ft) : <u>9.13</u>	SAMPLING BEGIN / END TIME : <u>1100 /</u>
WELL VOLUME (gal) : <u>1.46</u>	PUMP ID # : WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME ML (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	<u>0955</u>	<u>0</u>	<u>2.01</u>	<u>0.819</u>	<u>6.67</u>	<u>7.47</u>	<u>101</u>	<u>542</u>	<u>72.30</u>
2	<u>1000</u>	<u>1500</u>	<u>7.79</u>	<u>0.811</u>	<u>4.86</u>	<u>7.03</u>	<u>283</u>	<u>381</u>	<u>72.35</u>
3	<u>1005</u>	<u>3000</u>	<u>6.70</u>	<u>0.811</u>	<u>4.40</u>	<u>7.03</u>	<u>296</u>	<u>301</u>	<u>72.35</u>
4	<u>1010</u>	<u>4500</u>	<u>6.76</u>	<u>0.722</u>	<u>4.47</u>	<u>7.01</u>	<u>302</u>	<u>204</u>	<u>72.35</u>
5	<u>1015</u>	<u>6000</u>	<u>9.53</u>	<u>0.697</u>	<u>4.92</u>	<u>7.16</u>	<u>305</u>	<u>192.2</u>	<u>72.35</u>
6	<u>1020</u>	<u>7500</u>	<u>8.97</u>	<u>0.732</u>	<u>4.36</u>	<u>7.22</u>	<u>304</u>	<u>63.3</u>	<u>72.35</u>
7	<u>1025</u>	<u>9000</u>	<u>8.93</u>	<u>0.770</u>	<u>3.84</u>	<u>7.16</u>	<u>297</u>	<u>46.3</u>	<u>72.35</u>
8	<u>1030</u>	<u>10500</u>	<u>9.01</u>	<u>0.786</u>	<u>3.70</u>	<u>7.12</u>	<u>295</u>	<u>50.2</u>	<u>72.35</u>
9	<u>1035</u>	<u>12000</u>	<u>9.00</u>	<u>0.800</u>	<u>3.52</u>	<u>7.09</u>	<u>296</u>	<u>43.0</u>	<u>72.35</u>
10	<u>1040</u>	<u>13500</u>	<u>8.88</u>	<u>0.800</u>	<u>3.69</u>	<u>7.10</u>	<u>296</u>	<u>39.3</u>	<u>72.35</u>

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C) :	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY :	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O. :	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH : <u>COND NOT STABILIZED</u>	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP :	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY :	

SAMPLE TIME : 1100 SAMPLE FIELD FILTERED ? : Yes No

FIELD BLANK? Yes / No (name/time/comments):

DUPLICATE SAMPLE? Yes / No (name/time/comments):

MS/MSD? Yes / No (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: CLEAR ODOR: NONE

OBSERVATIONS :

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

WEATHER DATA : TEMP.: -8° SKY: CLEAR WIND: 5 MPH N

FIELD SAMPLING DATA SHEET



PROJECT NAME :				PROJECT # :							
ADDRESS :				SAMPLE ID :							
CITY, STATE, ZIP :				DATE :							
SAMPLER :				ANALYTICAL LABORATORY :							
COMPANY :				CHAIN OF CUSTODY # :							
WELL DATA				PURGE DATA							
WELL NAME : <i>MW - 02</i>				PURGE / SAMPLE METHOD :							
CASING MATERIAL :				PUMP CONTROLLER SETTING:							
WELL DIAMETER (in) :				PURGE RATE (gpm) :							
WELL DEPTH, TOTAL (ft) :				PURGE START TIME :							
DEPTH TO WATER (toc):				DATE:		PURGE END TIME :					
WATER COLUMN HEIGHT (ft):				SAMPLING BEGIN / END TIME : <i>1100</i> /							
WELL VOLUME (gal) :				PUMP ID # :		WATER LEVEL ID # :					
VOLUME CONVERSION FACTOR :				.16 - 2"		.65 - 4"		1.47 - 6"		2.61 - 8"	
STABILIZATION READINGS											
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)		
Stabilization Parameters											
1	<i>1045</i>	<i>15000</i>	<i>8.81</i>	<i>0.796</i>	<i>3.20</i>	<i>7.12</i>	<i>300</i>	<i>30.1</i>	<i>72.35</i>		
2	<i>1050</i>	<i>16500</i>	<i>8.64</i>	<i>0.780</i>	<i>3.49</i>	<i>7.14</i>	<i>305</i>	<i>24.6</i>	<i>72.35</i>		
3	<i>1055</i>	<i>18000</i>	<i>8.46</i>	<i>0.765</i>	<i>3.68</i>	<i>7.15</i>	<i>308</i>	<i>18.7</i>	<i>72.35</i>		
4											
5											
6											
7											
8											
9											
10											
STABILIZATION DATA				SAMPLE CONTAINERS							
TOTAL VOLUME (gal) :				VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)							
# OF WELL VOLUMES PURGED:				GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)							
STAB. TEMP (C) :				DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)							
STAB. Sp. CONDUCTIVITY :				SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)							
STAB. D.O. :				Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)							
STAB. pH :				Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)							
STAB. ORP :				Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)							
STAB. TURBIDITY:											
SAMPLE TIME :				SAMPLE FIELD FILTERED ? : Yes / No							
FIELD BLANK? Yes / No ? (name/time/comments):											
DUPLICATE SAMPLE? Yes / No ? (name/time/comments):											
MS/MSD? Yes / No ? (name/time/comments):											
COMMENTS											
SAMPLE DESCRIPTION (Begin / End):				COLOR:				ODOR :			
OBSERVATIONS :											
Sample tubing left in well at completion? (Yes or No):											
WEATHER DATA : TEMP.:				SKY :				WIND :			

FIELD SAMPLING DATA SHEET



PROJECT NAME : BEGIN LANDFILL	PROJECT # : 5240408
ADDRESS : 3900 VINEWOOD LN	SAMPLE ID : MW-03
CITY, STATE, ZIP : PLYMOUTH MN	DATE : 2/9/21
SAMPLER : ZACH M. ETHAN E	ANALYTICAL LABORATORY : PACE
COMPANY : DAYWEST	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-03	PURGE / SAMPLE METHOD : BLADDER
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING: 3cpm 10.5 RET 9.5 IN
WELL DIAMETER (in) : 2"	PURGE RATE (gpm) : 1.25 0.40 lpm
WELL DEPTH, TOTAL (ft) : 97.05	PURGE START TIME : 1405
DEPTH TO WATER (toc) : 69.65 DATE : 2/9/21	PURGE END TIME : 1505
WATER COLUMN HEIGHT (ft) : 27.4	SAMPLING BEGIN / END TIME : 1510 /
WELL VOLUME (gal) : 4.38	PUMP ID # : WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME ML(gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	1405	0	5.95	2.62	5.22	7.26	59	240	76.55
2	1410	2000	5.57	2.64	4.82	7.28	59	240	76.55
3	1425	4000	4.83	2.68	4.36	7.29	69	224	76.55
4	1420	6000	4.51	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	1430	10000	5.36	2.62	3.97	7.27	91	229	76.55
7	1435	12000	6.85	2.6	4.45	7.26	100	213	76.55
8	1440	14000	6.96	2.67	4.85	7.33	102	273	76.55
9	1445	16000	7.23	2.67	5.01	7.33	107	243	76.55
10	1450	18000	7.24	2.67	5.24	7.35	114	236	76.55

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C) :	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY :	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O. :	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH :	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP :	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME : **1510** SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No? (name/time/comments):

DUPLICATE SAMPLE? Yes / No? (name/time/comments):

MS/MSD? Yes / No? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **CLEAR** ODOR: **NONE**

OBSERVATIONS :

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

WEATHER DATA : TEMP.: **-6°** SKY: **CLEAR** WIND: **3 mph**

FIELD SAMPLING DATA SHEET



PROJECT NAME: <u>BEGIN LANDFILL</u>	PROJECT #: <u>5200408</u>
ADDRESS: <u>3900 VIMENUSD LN</u>	SAMPLE ID: <u>MW-04</u>
CITY, STATE, ZIP: <u>PLYMOUTH MN</u>	DATE: <u>2/9/21</u>
SAMPLER: <u>ZACH M, ETHAN E</u>	ANALYTICAL LABORATORY:
COMPANY:	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: <u>MW-04</u>	PURGE / SAMPLE METHOD: <u>BLADDER</u>
CASING MATERIAL: <u>PVC</u>	PUMP CONTROLLER SETTING: <u>3 GPM 10.5 PRESS 9.5 DISC</u>
WELL DIAMETER (in): <u>2"</u>	PURGE RATE (gpm): <u>0.402 GPM</u>
WELL DEPTH, TOTAL (ft): <u>82</u>	PURGE START TIME: <u>0905</u>
DEPTH TO WATER (toc): <u>70.65</u> DATE: <u>2/9/21</u>	PURGE END TIME: <u>1005</u>
WATER COLUMN HEIGHT (ft): <u>11.35</u>	SAMPLING BEGIN / END TIME: <u>1010 /</u>
WELL VOLUME (gal): <u>1.81</u>	PUMP ID #: WATER LEVEL ID #:
VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME ml (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	0905	0	3.49	1.33	1.21	7.18	169	151	70.65
2	0910	2000	5.01	1.28	0.17	7.08	160	88.1	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	0925	8000	3.71	1.27	0.0	7.06	63	23.3	70.65
6	0930	10000	3.75	1.26	0.0	7.05	63	17.5	70.65
7	0935	12000	3.62	1.26	0.0	7.03	64	12.8	70.65
8	0940	14000	3.17	1.26	0.0	7.06	69	10.6	70.65
9	0945	16000	3.40	1.27	0.0	7.08	74	9.0	70.65
10	0950	18000	3.88	1.26	0.0	7.06	81	7.9	70.65

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal):	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C):	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY:	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O.:	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH: <u>COULD NOT STABILIZE</u>	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP:	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME: 1010 SAMPLE FIELD FILTERED?: Yes / No

FIELD BLANK? Yes / No? (name/time/comments):

DUPLICATE SAMPLE? Yes / No? (name/time/comments): MW-04-D @ 1010

MS/MSD? Yes / No? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: CLEAR ODOR: NONE

OBSERVATIONS:

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

WEATHER DATA: TEMP.: -5° SKY: CLEAR WIND: 10 mph N

FIELD SAMPLING DATA SHEET



Page: 2 of 2

PROJECT NAME :	PROJECT # :
ADDRESS :	SAMPLE ID :
CITY, STATE, ZIP :	DATE :
SAMPLER :	ANALYTICAL LABORATORY :
COMPANY :	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : <u>MWR-04</u>	PURGE / SAMPLE METHOD :
CASING MATERIAL :	PUMP CONTROLLER SETTING:
WELL DIAMETER (in) :	PURGE RATE (gpm) :
WELL DEPTH, TOTAL (ft) :	PURGE START TIME :
DEPTH TO WATER (toc): DATE:	PURGE END TIME :
WATER COLUMN HEIGHT (ft):	SAMPLING BEGIN / END TIME : /
WELL VOLUME (gal) :	PUMP ID # : WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME <small>ml (gal)</small>	TEMP <small>(C)</small>	COND <small>(mS/cm)</small>	D.O. <small>(mg/L)</small>	pH	ORP <small>(mV)</small>	TURBIDITY <small>(ntu)</small>	WATER LEVEL <small>(ft BTOC)</small>
Stabilization Parameters									
1	0955	2000	4.75	1.26	0.0	7.07	84	7.4	70.65
2	1000	2200	4.20	1.27	0.0	7.02	90	6.6	70.65
3	1005	2400	4.64	1.27	0.0	7.6	95	5.7	70.65
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C) :	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY :	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O. :	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH :	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP :	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME : _____ SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments): _____

DUPLICATE SAMPLE? Yes / No ? (name/time/comments): _____

MS/MSD? Yes / No ? (name/time/comments): _____

COMMENTS	
SAMPLE DESCRIPTION (Begin / End):	COLOR: ODOR :
OBSERVATIONS :	
Sample tubing left in well at completion? (Yes or No):	
WEATHER DATA : TEMP.:	SKY : WIND :

FIELD SAMPLING DATA SHEET



Page: 1 of 2

PROJECT NAME: <u>BEGIN LANAFILL</u>	PROJECT #: <u>T200408</u>
ADDRESS: <u>3900 VINEWOOD LN</u>	SAMPLE ID: <u>MW-05</u>
CITY, STATE, ZIP: <u>PLYMOUTH, MN</u>	DATE: <u>2/8/21</u>
SAMPLER: <u>ZACH M., ETHAN E.</u>	ANALYTICAL LABORATORY: <u>PACE</u>
COMPANY: <u>BUTCHER</u>	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: <u>MW-05</u>	PURGE / SAMPLE METHOD:
CASING MATERIAL: <u>PVC</u>	PUMP CONTROLLER SETTING:
WELL DIAMETER (in): <u>2"</u>	PURGE RATE (gpm): <u>2 LPM 20 REFILL 10 DISCH</u>
WELL DEPTH, TOTAL (ft): <u>42.75</u>	PURGE START TIME: <u>1625</u>
DEPTH TO WATER (toc): <u>31.35</u> DATE: <u>2/8/21</u>	PURGE END TIME: <u>1725</u>
WATER COLUMN HEIGHT (ft): <u>11.35</u>	SAMPLING BEGIN / END TIME: <u>1730 /</u>
WELL VOLUME (gal): <u>1.81</u>	PUMP ID #: WATER LEVEL ID #:

VOLUME CONVERSION FACTOR: .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME ML(gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	1625	0	8.85	1.08	0.15	7.25	147	183	31.35
2	1630	2000	9.45	1.07	0.0	7.29	101	150	31.40
3	1635	4000	9.62	1.07	0.0	7.22	107	110	31.40
4	1640	6000	9.61	1.07	0.0	7.23	107	92.2	31.40
5	1645	8000	9.62	1.07	0.0	7.24	70	71.5	31.40
6	1650	10000	9.59	1.07	0.0	7.23	67	48.6	31.40
7	1655	12000	9.53	1.07	0.0	7.20	64	40.9	31.40
8	1700	14000	9.45	1.07	0.0	7.21	66	19.2	31.40
9	1705	16000	9.45	1.07	0.0	7.19	69	10.6	31.40
10	1710	18000	9.45	1.07	0.0	7.20	69	4.2	31.40

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): <u>3</u>	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C):	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY:	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O.:	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH:	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP:	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME: 1730 SAMPLE FIELD FILTERED?: Yes / No

FIELD BLANK? Yes / No (name/time/comments):

DUPLICATE SAMPLE? Yes / No (name/time/comments):

MS/MSD? Yes / No (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: CLEAR ODOR: NONE

OBSERVATIONS:

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

WEATHER DATA: TEMP.: -7° SKY: CLEAR WIND: 6 mph NW

FIELD SAMPLING DATA SHEET



PROJECT NAME :	PROJECT # :
ADDRESS :	SAMPLE ID :
CITY, STATE, ZIP :	DATE :
SAMPLER :	ANALYTICAL LABORATORY :
COMPANY :	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : <u>MW-05</u>	PURGE / SAMPLE METHOD :
CASING MATERIAL :	PUMP CONTROLLER SETTING:
WELL DIAMETER (in) :	PURGE RATE (gpm) :
WELL DEPTH, TOTAL (ft) :	PURGE START TIME :
DEPTH TO WATER (toc): DATE:	PURGE END TIME :
WATER COLUMN HEIGHT (ft):	SAMPLING BEGIN / END TIME : <u>1730</u> /
WELL VOLUME (gal) :	PUMP ID # : WATER LEVEL ID # :

VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"

STABILIZATION READINGS									
READING #	TIME	VOLUME <i>ML (gal)</i>	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters									
1	<u>1715</u>	<u>2000</u>	<u>9.45</u>	<u>1.07</u>	<u>0.0</u>	<u>7.21</u>	<u>70</u>	<u>5.0</u>	<u>31.40</u>
2	<u>1720</u>	<u>2200</u>	<u>9.45</u>	<u>1.07</u>	<u>0.0</u>	<u>7.20</u>	<u>69</u>	<u>5.0</u>	<u>31.40</u>
3	<u>1725</u>	<u>2400</u>	<u>9.45</u>	<u>1.07</u>	<u>0.0</u>	<u>7.22</u>	<u>70</u>	<u>4.9</u>	<u>31.40</u>
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	VOC: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
# OF WELL VOLUMES PURGED:	GRO: _____ - 40 ml vials w/HCL preserved (3 vials per sample)
STAB. TEMP (C) :	DRO: _____ - 1 L amber glass w/HCL preserved (1 liter jar per sample)
STAB. Sp. CONDUCTIVITY :	SVOC: _____ - 1 L amber glass, unpreserved (1 liter jar per sample)
STAB. D.O. :	Diss. Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (field filtered)
STAB. pH :	Total Pb / As / Zn: _____ - 250 ml plastic w/HNO ₃ preserved (non-field filtered)
STAB. ORP :	Dioxins: _____ - 1 L amber glass, unpreserved (2 liter jars per sample)
STAB. TURBIDITY:	

SAMPLE TIME : SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments):

DUPLICATE SAMPLE? Yes / No ? (name/time/comments):

MS/MSD? Yes / No ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: ODOR :

OBSERVATIONS :

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

WEATHER DATA : TEMP.: SKY: WIND :

FIELD SAMPLING DATA SHEET



Page: 1 of 2

PROJECT NAME: Begin Landfill SW#134	PROJECT #: J200408
ADDRESS: 39XX Vinewood Lane N	SAMPLE ID: MW-1
CITY, STATE, ZIP: Plymouth, MN 55441	DATE: 5/3/12
SAMPLER: Ted Toegel	ANALYTICAL LABORATORY:
COMPANY: Bay West	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: MW-1	PURGE / SAMPLE METHOD: Bladder pump
CASING MATERIAL: PVC	PUMP CONTROLLER SETTING: Rel 14, dial 3rpm
WELL DIAMETER (in): 2	PURGE RATE (gpm): 200 ml/min / 45psi
WELL DEPTH, TOTAL (ft): 87.90	PURGE START TIME: 1255 1400
DEPTH TO WATER (toc): 78.00 DATE: 5/3/12	PURGE END TIME: 1520
WATER COLUMN HEIGHT (ft): 9.9	SAMPLING BEGIN / END TIME: 1525 / 1400
WELL VOLUME (gal): 1.58	PUMP ID #: PFAS WATER LEVEL ID #: PFAS
VOLUME CONVERSION FACTOR: 6-2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal) L	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	
1	1420	—	16.20	1.83	9.35	7.22	107	440	78.0
2	1425	1.0	13.92	1.85	9.07	6.58	105	897	78.0
3	1430	2.0	13.52	1.85	8.47	6.51	97	434	78.0
4	1435	3.0	13.52	1.86	8.24	6.56	94	269	78.0
5	1440	4.0	13.45	1.86	8.07	6.55	96	215	78.0
6	1445	5.0	13.58	1.87	7.95	6.49	99	180	79.0
7	1450	6.0	13.49	1.87	7.81	6.48	101	151	78.0
8	1455	7.0	13.37	1.87	7.44	6.48	103	134	78.0
9	1500	8.0	13.34	1.87	7.34	6.46	105	130	78.0
10	1505	9.0	13.43	1.87	7.10	6.39	108	117	78.0

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): 3.17	
# OF WELL VOLUMES PURGED: 2.01	
STAB. TEMP (C):	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY:	PFAS
STAB. D.O.:	2,3,7,8 TCDD
STAB. pH:	1,4-dioxane
STAB. ORP:	total organic N
STAB. TURBIDITY:	

SAMPLE TIME: **1525** SAMPLE FIELD FILTERED?: Yes / No

FIELD BLANK? Yes / No? (name/time/comments):

DUPLICATE SAMPLE? Yes / No? (name/time/comments):

MS/MSD? Yes / No? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Clear/brown** ODOR: **none**

OBSERVATIONS: **set bottom of pump @ 83'**

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

WEATHER DATA: TEMP.: **64° F** SKY: **cloudy** WIND: **5-10 mph**

FIELD SAMPLING DATA SHEET



Page: 2 of 2

PROJECT NAME : Begin Landfill SW#134	PROJECT # : J200408
ADDRESS : 39XX Vinewood Lane N	SAMPLE ID: MW-1
CITY, STATE, ZIP : Plymouth, MN 55441	DATE:
SAMPLER : Ted Toegel	ANALYTICAL LABORATORY :
COMPANY : Bay West	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-1	PURGE / SAMPLE METHOD :
CASING MATERIAL :	PUMP CONTROLLER SETTING:
WELL DIAMETER (in) :	PURGE RATE (gpm) :
WELL DEPTH, TOTAL (ft) :	PURGE START TIME :
DEPTH TO WATER (toc): DATE: 5/3/21	PURGE END TIME :
WATER COLUMN HEIGHT (ft):	SAMPLING BEGIN / END TIME : 1
WELL VOLUME (gal) :	PUMP ID # : WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10% < 0.5	±0.1	±10	±10% < 5	
1	1510	10.0	13.41	1.86	6.87	6.41	108	112	78.0
2	1515	11.0	13.51	1.86	6.71	6.31	113	102	78.0
3	1520	12.0	13.48	1.81	6.60	6.29	113	96	78.0
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	
# OF WELL VOLUMES PURGED:	
STAB. TEMP (C) :	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY :	PFAS
STAB. D.O. :	2,3,7,8 TCDD
STAB. pH :	1,4-dioxane
STAB. ORP :	total organic N
STAB. TURBIDITY:	

SAMPLE TIME : SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments):

DUPLICATE SAMPLE? Yes / No ? (name/time/comments):

MS/MSD? Yes / No ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: ODOR :

OBSERVATIONS :

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

WEATHER DATA : TEMP.: SKY : WIND :

FIELD SAMPLING DATA SHEET



Page: of

PROJECT NAME : Begin Landfill SW#134	PROJECT # : J200408
ADDRESS : 39XX Vinewood Lane N	SAMPLE ID: MW-2
CITY, STATE, ZIP : Plymouth, MN 55441	DATE: 5/14/12
SAMPLER : Ted Toegel	ANALYTICAL LABORATORY :
COMPANY : Bay West	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-2	PURGE / SAMPLE METHOD : Bladder pump
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING: 30cm re 14 dia 40ps
WELL DIAMETER (in) : 2	PURGE RATE (gpm) : 200 ml/min
WELL DEPTH, TOTAL (ft) : 81.30	PURGE START TIME : 0900
DEPTH TO WATER (toc): 72.94 DATE: 5/13/12	PURGE END TIME : 0950
WATER COLUMN HEIGHT (ft): 8.36	SAMPLING BEGIN / END TIME : 0950 / 1020
WELL VOLUME (gal) : 1.34	PUMP ID # : PFAS WATER LEVEL ID # : PFAS
VOLUME CONVERSION FACTOR : (.16-2) .65-4" 1.47-6" 2.61-8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	
1	0905	~	12.27	1.36	2.17	6.81	216	259	72.99
2	0910	1.0	10.78	1.37	0.48	6.40	230	148	72.99
3	0915	2.0	10.73	1.37	0.68	6.38	227	70.3	72.99
4	0920	3.0	10.69	1.37	0.75	6.36	226	49.4	72.99
5	0925	4.0	10.70	1.37	0.74	6.36	221	24.5	72.99
6	0930	5.0	10.72	1.37	0.75	6.36	214	11.2	72.99
7	0935	6.0	10.75	1.38	0.76	6.37	207	4.7	72.99
8	0940	7.0	10.76	1.37	0.78	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									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) : 2.11	
# OF WELL VOLUMES PURGED: 1.57	
STAB. TEMP (C) : 10.75	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY : 1.37	PFAS
STAB. D.O. : 0.77	2,3,7,8 TCDD
STAB. pH : 6.41	1,4-dioxane
STAB. ORP : 201	total organic N
STAB. TURBIDITY: 0.0	

SAMPLE TIME : **0950** SAMPLE FIELD FILTERED ? : Yes / **No**

FIELD BLANK? Yes / **No**? (name/time/comments):

DUPLICATE SAMPLE? Yes / **No**? (name/time/comments):

MS/MSD? Yes / **No**? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Clear** ODOR: **none**

OBSERVATIONS : **set bottom of pump @ 77'**

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

WEATHER DATA : TEMP.: **45° F** SKY: **Clear** WIND: **5-10 mph**

FIELD SAMPLING DATA SHEET



Page: 1 of 2

PROJECT NAME: Begin Landfill SW#134	PROJECT #: J200408
ADDRESS: 39XX Vinewood Lane N	SAMPLE ID: MW-3
CITY, STATE, ZIP: Plymouth, MN 55441	DATE: 5/14/21
SAMPLER: Ted Toegel	ANALYTICAL LABORATORY: PACE
COMPANY: Bay West	CHAIN OF CUSTODY #:

WELL DATA	PURGE DATA
WELL NAME: MW-3	PURGE / SAMPLE METHOD: Bladder Pump
CASING MATERIAL: PVC	PUMP CONTROLLER SETTING: 3CON 18" red led. 50psi
WELL DIAMETER (in): 2	PURGE RATE (gpm): 200 mL/min
WELL DEPTH, TOTAL (ft): 96.93	PURGE START TIME: 1110
DEPTH TO WATER (toc): 71.45 DATE: 5/13/21	PURGE END TIME: 1220
WATER COLUMN HEIGHT (ft): 25.48	SAMPLING BEGIN / END TIME: 1225 / 1400
WELL VOLUME (gal): 4.56	PUMP ID #: PFAS WATER LEVEL ID #: PFAS
VOLUME CONVERSION FACTOR: (.16-2)" .65-4" 1.47-6" 2.61-8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal) L	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10% / <0.5	±0.1	±10	±10% / <5	
1	1120	—	14.58	2.17	7.64	7.03	-21	76.2	71.35
2	1125	1.0	11.46	2.31	0.45	7.14	-114	72.0	74.65
3	1130	2.0	11.49	2.31	0.59	7.15	-117	63.8	74.90
4	1135	3.0	11.52	2.30	1.02	7.15	-115	61.7	75.45
5	1140	4.0	11.26	2.32	1.51	7.14	-111	52.1	76.80
6	1145	5.0	11.09	2.32	1.91	7.08	-105	52.0	79.2
7	1150	6.0	11.08	2.33	2.47	7.07	-100	55.0	80.95
8	1155	7.0	11.08	2.33	2.80	7.06	-96	51.8	82.70
9	1200	8.0	11.02	2.33	3.13	7.07	-93	55.6	84.30
10	1205	9.0	11.06	2.34	4.16	7.02	-89	57.2	86.20

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal): 3.17	
# OF WELL VOLUMES PURGED: 0.70	
STAB. TEMP (C): 	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY: 	PFAS
STAB. D.O.: 	2,3,7,8 TCDD
STAB. pH: 	1,4-dioxane
STAB. ORP: 	total organic N
STAB. TURBIDITY: 	

SAMPLE TIME: **1225** SAMPLE FIELD FILTERED?: Yes / **No**

FIELD BLANK? Yes / **No** (name/time/comments):

DUPLICATE SAMPLE? Yes / **No** (name/time/comments):

MS/MSD? Yes / **No** (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Clear** ODOR: **NONE**

OBSERVATIONS: **Set bottom of pump @ 91' - had to move lower, well dried up, only able to get 1 of each sample type**

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

WEATHER DATA: TEMP.: **51° F** SKY: **Clear** WIND: **0-5 mph**

FIELD SAMPLING DATA SHEET



PROJECT NAME : Begin Landfill SW#134	PROJECT # : J200408
ADDRESS : 39XX Vinewood Lane N	SAMPLE ID: MW-3
CITY, STATE, ZIP : Plymouth, MN 55441	DATE:
SAMPLER : Ted Toegel	ANALYTICAL LABORATORY :
COMPANY : Bay West	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-3	PURGE / SAMPLE METHOD :
CASING MATERIAL :	PUMP CONTROLLER SETTING:
WELL DIAMETER (in) :	PURGE RATE (gpm) :
WELL DEPTH, TOTAL (ft) :	PURGE START TIME :
DEPTH TO WATER (toc):	PURGE END TIME : -TT 5/4/21
DATE:	SAMPLING BEGIN / END TIME :
WATER COLUMN HEIGHT (ft):	PUMP ID # :
WELL VOLUME (gal) :	WATER LEVEL ID # :
VOLUME CONVERSION FACTOR : .16 - 2" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10%<0.5	±0.1	±10	±10%<5	
1	1210	10.0	11.43	2.32	3.79	7.04	-88	60.4	87.35
2	1215	11.0	11.68	2.32	4.05	7.04	-88	66.5	88.16
3	1220	12.0	11.49	2.31	4.06	7.04	-87	65.4	88.85
4									
5									
6									
7									
8									
9									
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) :	
# OF WELL VOLUMES PURGED:	
STAB. TEMP (C) :	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY :	PFAS
STAB. D.O. :	2,3,7,8 TCDD
STAB. pH :	1,4-dioxane
STAB. ORP :	total organic N
STAB. TURBIDITY:	

SAMPLE TIME : _____ SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments): _____

DUPLICATE SAMPLE? Yes / No ? (name/time/comments): _____

MS/MSD? Yes / No ? (name/time/comments): _____

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: _____ ODOR : _____

OBSERVATIONS : _____

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

WEATHER DATA : TEMP.: _____ SKY : _____ WIND : _____

FIELD SAMPLING DATA SHEET



Page: _____ of _____

PROJECT NAME : Begin Landfill SW#134	PROJECT # : J200408
ADDRESS : 39XX Vinewood Lane N	SAMPLE ID: MW-4
CITY, STATE, ZIP : Plymouth, MN 55441	DATE: 5/4/21
SAMPLER : Ted Toegel	ANALYTICAL LABORATORY :
COMPANY : Bay West	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-4	PURGE / SAMPLE METHOD : Bladder pump
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING: 30pm dike Bell
WELL DIAMETER (in) : 2	PURGE RATE (gpm): 200 mL/min
WELL DEPTH, TOTAL (ft) : 80.68	PURGE START TIME : 1450
DEPTH TO WATER (toc): 71.48 DATE: 5/3/21	PURGE END TIME : 1535
WATER COLUMN HEIGHT (ft): 9.2	SAMPLING BEGIN / END TIME : 1540 / 1620
WELL VOLUME (gal) : 1.47	PUMP ID # : PFAS WATER LEVEL ID # : PFAS
VOLUME CONVERSION FACTOR : (16.2)" .65 - 4" 1.47 - 6" 2.61 - 8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal) L	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	
1	1455	-	12.83	1.57	2.53	6.97	111	5.0	71.50
2	1500	1.0	11.24	1.61	0.37	6.66	104	0.0	71.50
3	1505	2.0	11.02	1.63	0.51	6.61	104	0.0	71.50
4	1510	3.0	11.02	1.65	0.63	6.56	105	0.0	71.50
5	1515	4.0	11.05	1.66	0.70	6.53	106	0.0	71.50
6	1520	5.0	10.95	1.66	0.61	6.52	108	0.0	71.50
7	1525	6.0	10.90	1.67	0.48	6.55	107	0.0	71.50
8	1530	7.0	10.87	1.68	0.42	6.57	105	0.0	71.50
9	1535	8.0	10.91	1.67	0.36	6.62	101	0.0	71.50
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) : 2.11	
# OF WELL VOLUMES PURGED: 1.44	
STAB. TEMP (C) : 10.91	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY : 1.67	PFAS
STAB. D.O. : 0.36	2,3,7,8 TCDD
STAB. pH : 6.62	1,4-dioxane
STAB. ORP : 101	total organic N
STAB. TURBIDITY: 0.0	

SAMPLE TIME : **1540** SAMPLE FIELD FILTERED ? : Yes / **No**

FIELD BLANK? Yes / No ? (name/time/comments): **EB-1 @ 1700**

DUPLICATE SAMPLE? Yes / No ? (name/time/comments): **MW-4-D @ 1600**

MS/MSD? Yes / **No**? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Clear** ODOR :

OBSERVATIONS : **set bottom of pump @ 76'**

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

WEATHER DATA : TEMP.: **56° F** SKY: **Clear** WIND: **5-10 mph**

FIELD SAMPLING DATA SHEET



Page: of

PROJECT NAME : Begin Landfill SW#134	PROJECT # : J200408
ADDRESS : 39XX Vinewood Lane N	SAMPLE ID: MW-5
CITY, STATE, ZIP : Plymouth, MN 55441	DATE: 5/5/21
SAMPLER : Ted Toegel	ANALYTICAL LABORATORY :
COMPANY : Bay West	CHAIN OF CUSTODY # :

WELL DATA	PURGE DATA
WELL NAME : MW-5	PURGE / SAMPLE METHOD : Bladder Pump
CASING MATERIAL : PVC	PUMP CONTROLLER SETTING: 3cpm 20psi
WELL DIAMETER (in) : 2	PURGE RATE (gpm) : 250 ml/min 2.16 di 4
WELL DEPTH, TOTAL (ft) : 42.78	PURGE START TIME : 0945
DEPTH TO WATER (toc) : 31.19 DATE: 5/3/21	PURGE END TIME : 1020
WATER COLUMN HEIGHT (ft) : 11.59	SAMPLING BEGIN / END TIME : 1025 / 1045
WELL VOLUME (gal) : 1.85	PUMP ID # : PFAS WATER LEVEL ID # : PFAS
VOLUME CONVERSION FACTOR : 16-2" .65-4" 1.47-6" 2.61-8"	

STABILIZATION READINGS									
READING #	TIME	VOLUME (gal)	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (ntu)	WATER LEVEL (ft BTOC)
Stabilization Parameters			±3%	±3%	±10%/<0.5	±0.1	±10	±10%/<5	
1	0950	-	13.45	1.12	2.44	6.47	-27	19.6	31.45
2	0955	1.25	11.49	1.15	2.19	6.72	-73	7.1	31.45
3	1000	2.5	11.33	1.16	2.19	6.74	-76	0.0	31.45
4	1005	3.75	11.15	1.16	2.18	6.72	-79	0.0	31.45
5	1010	5.0	11.02	1.16	2.16	6.72	-80	0.0	31.45
6	1015	6.25	11.03	1.17	2.19	6.71	-81	0.0	31.45
7	1020	7.5	11.06	1.17	2.20	6.72	-82	0.0	31.45
8		8.75							
9		10.0						-H	5/5/21
10									

STABILIZATION DATA	SAMPLE CONTAINERS
TOTAL VOLUME (gal) : 1.98	
# OF WELL VOLUMES PURGED: 1.07	
STAB. TEMP (C) : 11.06	DRO w/ silica gel Nitrate +Nitrite
STAB. Sp. CONDUCTIVITY : 1.17	PFAS
STAB. D.O. : 2.20	2,3,7,8 TCDD
STAB. pH : 6.72	1,4-dioxane
STAB. ORP : -82	total organic N
STAB. TURBIDITY: 0.0	

SAMPLE TIME : **1025** SAMPLE FIELD FILTERED ? : Yes / No

FIELD BLANK? Yes / No ? (name/time/comments):

DUPLICATE SAMPLE? Yes / No ? (name/time/comments):

MS/MSD? Yes / No ? (name/time/comments):

COMMENTS

SAMPLE DESCRIPTION (Begin / End): COLOR: **Clear** ODOR: **none**

OBSERVATIONS : **set bottom of pump @ 38'**

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

WEATHER DATA : TEMP.: **52°F** SKY: **Clear & y** WIND: **0-5 mph**



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

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

DAILY DIARY

To be completed by Crew Leader

_ 1 _ of _ 1 _

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 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.		
10:30 – Drillers had difficulty removing the concrete around the well, Brady left the site to go get more tools.		
10:38 – Bronson began the removal process of the unknown well.		
11:02 – Brady came back with necessary tools.		
11:15 – Unknown well was sealed with Benseal 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 provided by Bay West.		
14:00 – Drillers cleaned around wells and loaded equipment, left site.		
15:15 – Arrived back at Bay West and unloaded equipment.		
Waste Generated:		
None		
Change in Conditions (if any):		
None		
Sample Summary:		
Samples Taken: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No. of Samples 0	COC #: N/A
Sample Destination:		
N/A		
Size and Type of Sample:		
N/A		

Signature Megan Hutchinson Date 6/7/2021

PROJECT MANAGER/FILE

DOCS#9287

Appendix D

Laboratory Analytical Reports

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
(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc



REPORT OF LABORATORY ANALYSIS

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

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 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

REPORT OF LABORATORY ANALYSIS

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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

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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

REPORT OF LABORATORY ANALYSIS

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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

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ANALYTICAL RESULTS

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

Sample: SB-04 (37-40) **Lab ID: 10533248001** Collected: 09/22/20 10:00 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.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis								
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 Analytical Services - Minneapolis								
Percent Moisture	9.8	%	0.10	0.10	1		10/02/20 14:42		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

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.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis								
WDRO C10-C28	4.6J	mg/kg	9.0	2.4	1	09/29/20 15:31	10/01/20 20:56		
Surrogates n-Triacontane (S)	81	%	30-150		1	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	1		10/02/20 14:43		N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 Begin Dump-Borings

Pace Project No.: 10533248

QC Batch: 702101

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: 10533248001, 10533248002

SAMPLE DUPLICATE: 3750823

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

SAMPLE DUPLICATE: 3750824

Parameter	Units	10533248002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	22.6	22.1	2	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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 Begin Dump-Borings
Pace Project No.: 10533248

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

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

LABORATORY CONTROL SAMPLE & LCSD: 3745971

Parameter	Units	3745972							Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD		
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.

REPORT OF LABORATORY ANALYSIS

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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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 Begin Dump-Borings
Pace Project No.: 10533248

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		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	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:	Collin 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:	651-291-3493	Copy To:						Program Code	
Copy To:	Eweaver@baywest.com	Copy To:							

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	End Depth ft	Sample Type Code	Sample Type (MPCA ONLY)	SAMPLE TYPE (G=GRAB G=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date	Time	# of Cont.	DRG with silica gel cleanup WI DRO	EPA 1613B/8290A	PFS	Comments
1	W1	SB-04 (27-40)	37	40	Sample	Sample	G	SO	SD	Soil-Sub	9/22/2020	1000	5	X	X	X	
2	W2	SB-03 (35-40)	35	40	Sample	Sample	G	SO	SD	Soil-Sub	9/23/2020	1445	5	X	X	X	Dry weight
3					Sample	Sample	G	SO	SD	Soil-Sub				X	X	X	
4					Sample	Sample	G	SO	SD	Soil-Sub				X	X	X	
5					Sample	Sample	G	SO	SD	Soil-Sub				X	X	X	
6					QC-FR	QC-FR	G	SO	SD	Soil-Sub				X	X	X	
7					QC-EB	QC-EB	G	SO	SD	Soil-Sub				X	X	X	
8																	
9																	
10																	
11																	
12																	

WO#: 10533248

ADDITIONAL COMMENTS		TECHNICIAN BY / AFFILIATION		DATE		TIME		AGREED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
[Signature]		[Signature]		9/25/20		1033		[Signature]		9/25/20		1033		Temp (C) 3.4	
[Signature]		[Signature]		9/25/20		1033		[Signature]		9/25/20		1033		Received on Ice (Y/N)	
[Signature]		[Signature]		9/25/20		1033		[Signature]		9/25/20		1033		Custody Sealed Cooler (Y/N)	
[Signature]		[Signature]		9/25/20		1033		[Signature]		9/25/20		1033		Samples Intact (Y/N)	

Sample Condition Upon Receipt

Client Name:

Project #:

WO# : 10533248

Courier:

Fed Ex UPS USPS Client
 Pace Speedee Commercial

PM: CL1 **Due Date: 10/09/20**
CLIENT: BW-BAY WEST

Tracking Number:

See Exceptions
 ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present?

Yes No

Seals Intact?

Yes No

Biological Tissue Frozen?

Yes No N/A

Packing Material:

Bubble Wrap Bubble Bags None Other: _____

Temp Blank?

Yes No

Thermometer:

T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489)

Type of Ice:

Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No

Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C

Cooler Temp Read w/temp blank: 3.3 °C

Average Corrected Temp (no temp blank only): _____ °C

See Exceptions
 ENV-FRM-MIN4-0142
 1 Container

Correction Factor: +0.1

Cooler Temp Corrected w/temp blank: 3.4 °C

USDA Regulated Soil: N/A, water sample/Other: _____

Date/Initials of Person Examining Contents: 9/25/20

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
	pH Paper Lot#
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____

Date/Time: _____

Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: [Signature]

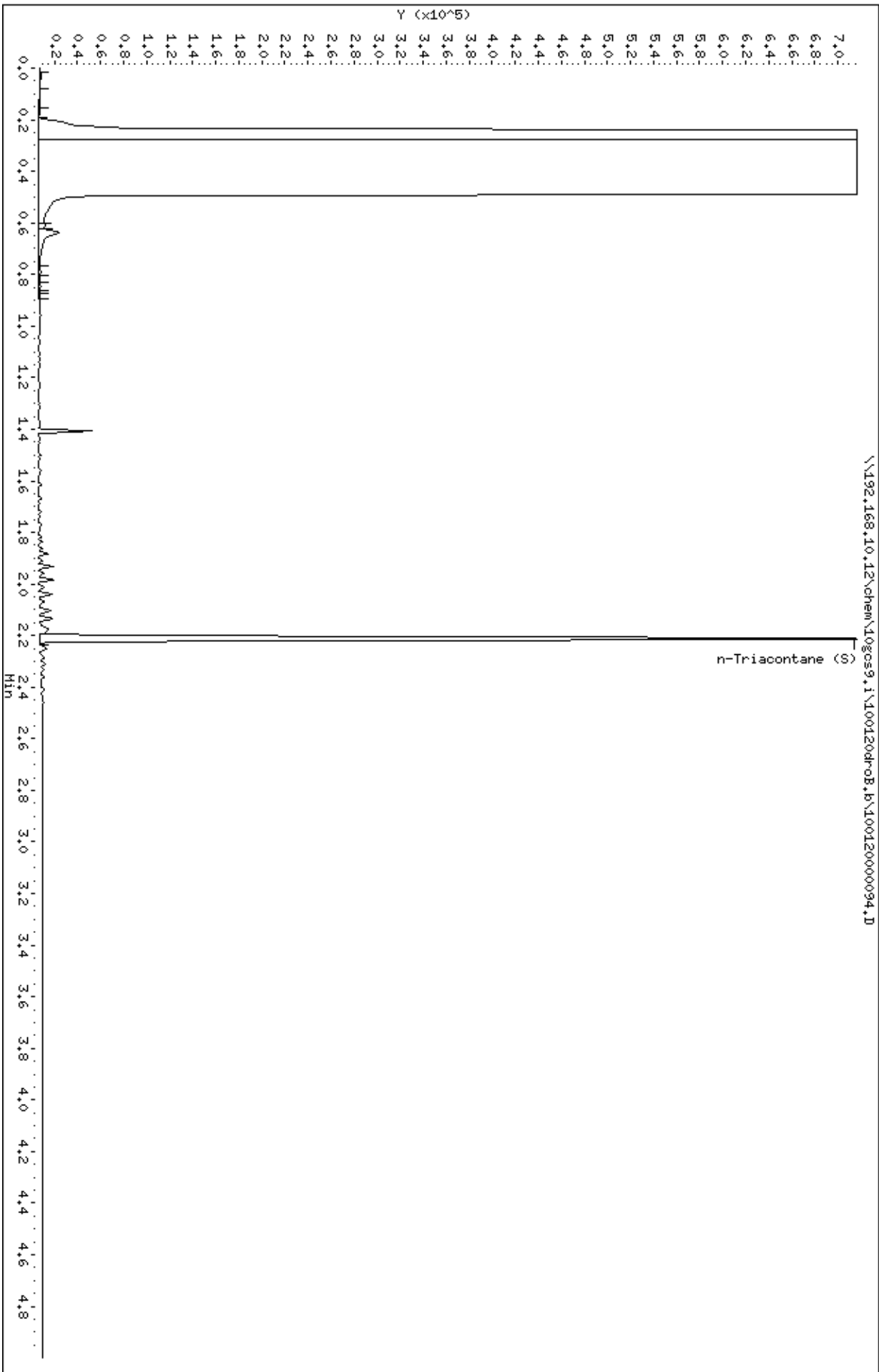
Date: 9/25/20

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

Labeled by: [Signature]

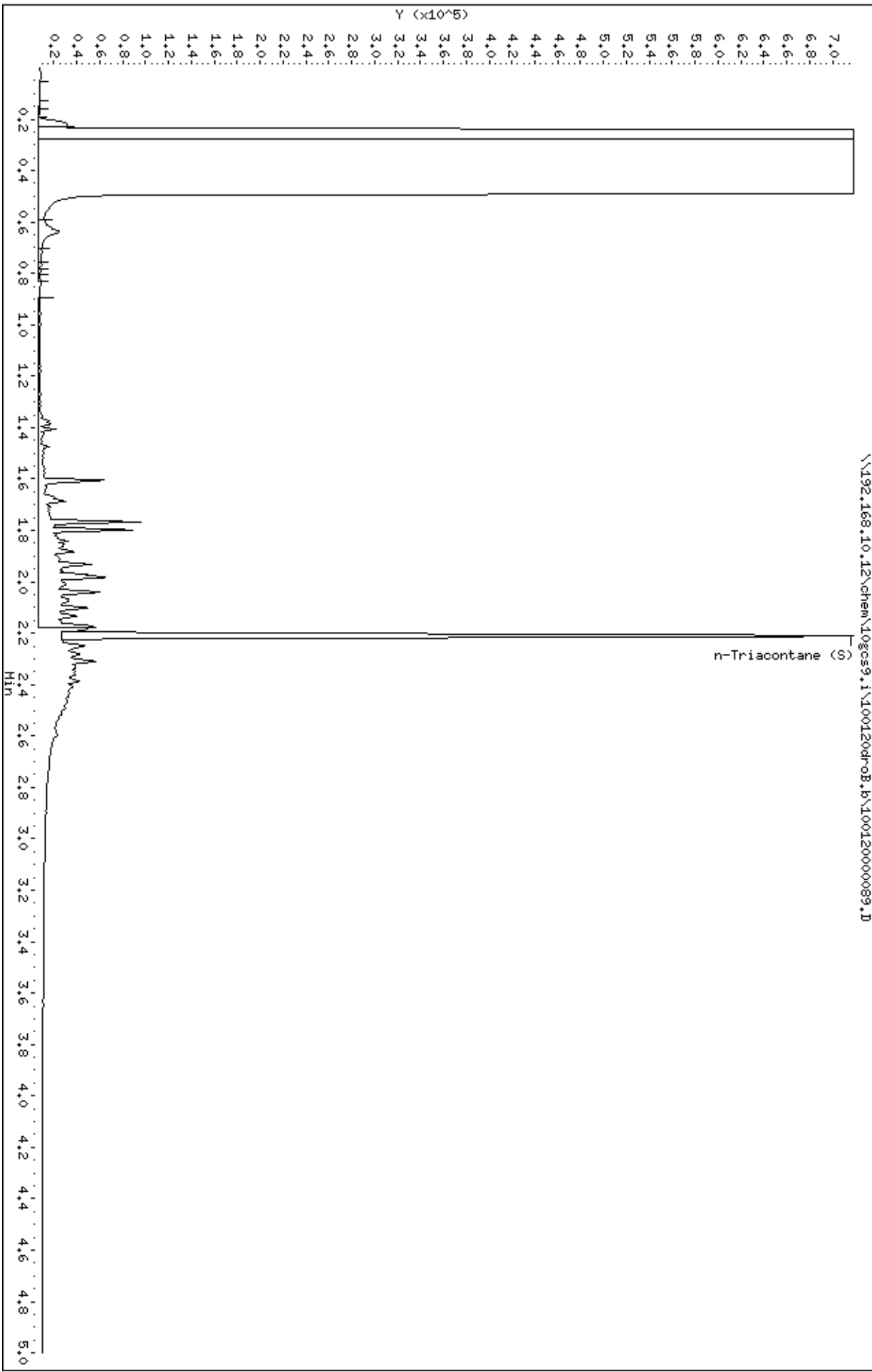
Date : 01-OCT-2020 21:31
Client ID: SB-04 (37-40)
Sample Info: 10533248001
Volume Injected (uL): 1.0
Column phase: DB-5-MS20240029

Instrument: 10gos9.i
Operator: TT2
Column diameter: 0.32



Date : 01-OCT-2020 20:56
Client ID: SB-03 (35-40)
Sample Info: 10533248002
Volume Injected (uL): 1.0
Column phase: DB-5-MS20240029

Instrument: 10gos9.1
Operator: TT2
Column diameter: 0.32



Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

October 7, 2020

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

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

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

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.

Report No.: 10533249_MPCA_DFR

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information		Section E MPCA Information	
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	Address:	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:	651-291-3493	Copy To:						Program Code	
Copy To:	Eweaver@baywest.com	Copy To:							

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	End Depth ft	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMPI)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date	Time	# of Cont.	PRESERVATION				Comments
													DRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1613B/8290A	PFAS	DRY WEIGHT	
1	W1	SB-04 (27-40)	37	40	Sample	G	SO	SD	Soil-Sub	9/22/2020	1000	5	x	x	x	X	
2	W2	SB-03 (35-40)	35	40	Sample	G	SO	SD	Soil-Sub	9/23/2020	1445	5	x	x	x	X	
3					Sample	G	SO	SD	Soil-Sub				x	x	x		
4					Sample	G	SO	SD	Soil-Sub				x				
5					Sample	G	SO	SD	Soil-Sub				x				
6					QC-FR	G	SO	SD	Soil-Sub				x				
7	Equipment Blank	EB01			QC-EB	G	SO	SD	Soil-Sub				x				

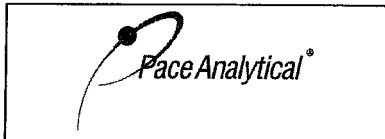
WO# : 10533249

10533249

ADDITIONAL COMMENTS	REQUISITION BY (AFFILIATION)	DATE	TIME	APPROVED BY (AFFILIATION)	DATE	TIME	SAMPLE CONDITIONS			
	<i>Zach Mason</i>	9/25/20	1033	TN/Pace	9/25/20	1033	3.4	Y	N	Y

SAMPLER NAME AND SIGNATURE		Temp (°C)	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>ZACH MASON</i>				
SIGNATURE of SAMPLER:	<i>Zach Mason</i>	DATE Signed (MM/DD/YY):	9/25/20		

Page 5 of 14



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: Bay West Project #: _____

WO#: 10533249

PM: KNH Due Date: 10/09/20
 CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 3.3 °C Average Corrected Temp (no temp blank only): _____ °C
 Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 3.4 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 9/28/20

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot#
Extra labels present on soil VOA or WIDRO containers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. See Exception <input type="checkbox"/> ENV-FRM-MIN4-0140
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: Kirsten Hooper 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).

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	SB-04 (37-40)	Date Extracted	09/30/2020
Lab Sample ID	10533249001	Total Amount Extracted	2.03 g
Filename	W200930C_009	% Moisture	0
Matrix	Soil	Dry Weight Extracted	2.03 g
Collected	09/22/2020	Starting CCal	W200930C_003
Received	09/25/2020	Ending CCal	W200930C_013
		Method Blank Filename	W200930C_005

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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
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



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	SB-03 (35-40)	Date Extracted	09/30/2020
Lab Sample ID	10533249002	Total Amount Extracted	2.01 g
Filename	W200930C_010	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.01 g
Collected	09/23/2020	Starting CCal	W200930C_003
Received	09/25/2020	Ending CCal	W200930C_013
		Method Blank Filename	W200930C_005

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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
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



MPCA Guidance PFCs Blank Analysis Summary

Lab Sample ID	BLANK-82856	Date Extracted	09/30/2020
Filename	W200930C_005	Total Amount Extracted	2.00 g
Matrix	Soil	% Moisture	N/A
		Dry Weight Extracted	2.00 g
		Starting CCal	W200930C_003
		Ending CCal	W200930C_013

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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
13C2_PFOA	481962	292314 - 876943	330389 - 660777	Pass
13C4_PFOS	989131	589769 - 1769307	671177 - 1342354	Pass
d3-MeFOSAA	520639	292778 - 878335	355023 - 710046	Pass

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID	LCS-82857	Matrix	Soil
LCS Filename	W200930C_006	Dilution	1
Total Amount Extracted	2.02g	Extracted	09/30/2020
ICAL ID	200928C04	Analyzed	09/30/2020 20:36
Start CCal Filename	W200930C_003	Injected By	NH
End CCal Filename	W200930C_013		
Method Blank Filename	W200930C_005		

Compound	Spiked (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



MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID	10533249001-MS	Matrix	Soil
MS Filename	W200930C_007	Dilution	1
Total Amount Extracted	2.01g	Extracted	09/30/2020
ICAL ID	200928C04	Analyzed	09/30/2020 20:45
Start CCal Filename	W200930C_003	Injected By	NH
End CCal Filename	W200930C_013		
Method Blank Filename	W200930C_005		

Compound	Spike (ug/Kg)	Sample (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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Matrix Spike Sample Duplicate (MSD)

MSD Lab Sample ID	10533249001-MSD	MS Filename	W200930C_007
MSD Filename	W200930C_008	Matrix	Soil
Total Amount Extracted	2.01g	Dilution	1
ICAL ID	200928C04	Extracted	09/30/2020
Start CCal Filename	W200930C_003	Analyzed	09/30/2020 20:53
End CCal Filename	W200930C_013	Injected By	NH
Method Blank Filename	W200930C_005		

Compound	Spike (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	0	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

50-150% of Ical area

70-140% of the preceding CCV area

Report Prepared for:

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

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

Report Information:

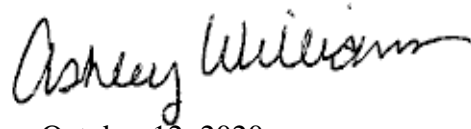
Pace Project #: 10533250
Sample Receipt Date: 09/25/2020
Client Project #: 200408
Client Sub PO #: 205946
State Cert #: 027-053-137

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

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

Report Prepared Date:

October 12, 2020



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

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.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	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:	651-291-3493	Copy To:						Program Code:	
Copy To:	Eweaver@baywest.com	Copy To:							

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	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.	Preservatives				Comments
													DRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1613B/0230A	PFAS	DRY WEIGHT	
1	W1	SB-04 (27-40)	37	40	Sample	G	SO	SD	Soil-Sub	9/22/2020	1000	5	X	X	X	X	
2	W2	SB-03 (35-40)	35	40	Sample	G	SO	SD	Soil-Sub	9/23/2020	1445	5	X	X	X	X	
3					Sample	G	SO	SD	Soil-Sub				X	X	X		
4					Sample	G	SO	SD	Soil-Sub				X	X	X		
5					Sample	G	SO	SD	Soil-Sub				X	X	X		
6					QC-FR	G	SO	SD	Soil-Sub				X	X	X		
7	Equipment Blank	EB-01			QC-EB	G	SO	SD	Soil-Sub				X	X	X		
8																	
9																	
10																	
11																	
12																	

WO# : 10533250

10533250

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>[Signature]</i>	9/25/20	1033	TN/Pace	9/25/20	1035	3.4	Y	N	Y

SAMPLER NAME AND SIGNATURE:		Temp (°C)	Received on Ice (Y/N)	Custody Sealed/Cooled (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	ZACH MASON				
SIGNATURE of SAMPLER:	<i>[Signature]</i>	DATE Signed (MM/DD/YYYY):	9/25/20		

Report No.....10533250_8290FC_R1_DFRRevision 1

Page 5 of 17



Document Name:
Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020

Page 1 of 1

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

Pace Analytical Services -
Minneapolis

Sample Condition
Upon Receipt

Client Name:

Project #:

Bay West

WO#: **10533250**

Courier:

Fed Ex UPS USPS Client
 Pace Speedee Commercial

PM: AW1

Due Date: 10/09/20

CLIENT: BW-BAY WEST

Tracking Number:

See Exceptions
ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No

Seals Intact? Yes No

Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____

Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489)

Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No

Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C

Cooler Temp Read w/temp blank: 3.3 °C

Average Corrected Temp (no temp blank only): _____ °C
 See Exceptions ENV-FRM-MIN4-0142
 1 Container

Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 3.4 °C

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: 9/25/20

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine <input type="checkbox"/> 0-6 Roll <input type="checkbox"/> 0-6 Strip <input type="checkbox"/> 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____

Date/Time: _____

Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: Ashley Williams

Date: 09/28/2020

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).



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	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:	651-291-3493	Copy To:						Program Code:	
Copy To:	Eweaver@baywest.com	Copy To:							

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	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.	Preservatives				Comments
													DRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1613B/0200A	PFAS	DRY WEIGHT	
	AW1	MW-04 (35-40)	40		Sample	G	SO	SD	Soil-Sub	9/22/2020	1000	5	x	x	x	X	
1	W1	SB 01 (37-41)	37	40	Sample	G	SO	SD	Soil-Sub	9/23/2020	1445	5	x	x	x	X	
2	W2	SB 02 (35-40)	35	40	Sample	G	SO	SD	Soil-Sub				x	x	x		
3		MW-03 (35-40)			Sample	G	SO	SD	Soil-Sub				x	x	x		
4					Sample	G	SO	SD	Soil-Sub				x	x	x		
5					Sample	G	SO	SD	Soil-Sub				x	x	x		
6					QC-FR	G	SO	SD	Soil-Sub				x	x	x		
7	Equipment Blank	EB-01			QC-EB	G	SO	SD	Soil-Sub				x	x	x		

WO# : 10533250

10533250

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>[Signature]</i>	9/25/20	1033	TN/Pace	9/25/20	1035	3.4	Y	N	Y

SAMPLER NAME AND SIGNATURE:		Temp (°C)	Received on Ice (Y/N)	Custody Sealed/Cooled (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	ZACH MASON				
SIGNATURE of SAMPLER:	<i>[Signature]</i>	DATE Signed (MM/DD/YYYY):	9/25/20		

Report No.....10533250_8290FC_R1_DFRRevision 1

Page 7 of 17



Document Name:
Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020

Page 1 of 1

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

Pace Analytical Services -
Minneapolis

Sample Condition
Upon Receipt

Client Name:

Project #:

Bay West

WO#: **10533250**

PM: AW1

Due Date: 10/09/20

CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial

See Exceptions
ENV-FRM-MIN4-0142

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 3.3 °C

Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 3.4 °C

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: 9/25/20

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
		Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____
Comments/Resolution: _____

Field Data Required? Yes No

Date/Time: _____

Project Manager Review: Ashley Williams

Date: 09/28/2020

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).

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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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	9.57 g	Collected	09/22/2020 10:00	
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 06:20	

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

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

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

REPORT OF LABORATORY ANALYSIS

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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	Matrix	Soil	
% Moisture	22.1	Dilution	NA	
Dry Weight Extracted	8.12 g	Collected	09/23/2020 14:45	
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	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.35	2,3,7,8-TCDF-13C	2.00	85
Total TCDF	ND	----	0.35	2,3,7,8-TCDD-13C	2.00	85
				1,2,3,7,8-PeCDF-13C	2.00	86
2,3,7,8-TCDD	ND	----	0.23	2,3,4,7,8-PeCDF-13C	2.00	87
Total TCDD	2.9	----	0.23	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	0.33	1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	----	0.22	2,3,4,6,7,8-HxCDF-13C	2.00	84
Total PeCDF	0.85	----	0.22 J	1,2,3,7,8,9-HxCDF-13C	2.00	86
				1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	ND	----	0.31	1,2,3,6,7,8-HxCDD-13C	2.00	75
Total PeCDD	0.84	----	0.31 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	80
1,2,3,4,7,8-HxCDF	ND	----	0.18	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	ND	----	0.15	OCDD-13C	4.00	77
2,3,4,6,7,8-HxCDF	0.18	----	0.16 J			
1,2,3,7,8,9-HxCDF	ND	----	0.073	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	2.2	----	0.073 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.31	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	----	0.28	0.20 U			
1,2,3,7,8,9-HxCDD	ND	----	0.20			
Total HxCDD	3.8	----	0.20 J			
1,2,3,4,6,7,8-HpCDF	----	1.4	0.22 U	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.28	Equivalence: 0.15 ng/Kg		
Total HpCDF	3.8	----	0.22 J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	6.4	----	0.30 B			
Total HpCDD	13	----	0.30 B			
OCDF	6.5	----	0.39 J			
OCDD	65	----	0.42 B			

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

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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Blank Analysis Results

Lab Sample Name	DFBLKRY	Matrix	Solid
Lab Sample ID	BLANK-82831	Dilution	NA
Filename	U200930B_25	Extracted	09/28/2020 15:30
Total Amount Extracted	10.0 g	Analyzed	10/01/2020 07:31
ICAL ID	U200930	Injected By	BAL
CCal Filename(s)	U200930B_09 & U200930B_27		

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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCS-82832	Matrix	Solid
Filename	U200930B_14	Dilution	NA
Total Amount Extracted	10.0 g	Extracted	09/28/2020 15:30
ICAL ID	U200930	Analyzed	09/30/2020 23:49
CCal Filename(s)	U200930B_09 & U200930B_27	Injected By	BAL
Method Blank ID	BLANK-82831		

Native Isomers	Qs (ng)	Qm (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	2.0	100
Total TCDF				2,3,7,8-TCDD-13C	2.0	97
				1,2,3,7,8-PeCDF-13C	2.0	114
2,3,7,8-TCDD	0.20	0.18	91	2,3,4,7,8-PeCDF-13C	2.0	129
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	129
				1,2,3,4,7,8-HxCDF-13C	2.0	87
1,2,3,7,8-PeCDF	1.0	0.90	90	1,2,3,6,7,8-HxCDF-13C	2.0	92
2,3,4,7,8-PeCDF	1.0	0.88	88	2,3,4,6,7,8-HxCDF-13C	2.0	93
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	96
				1,2,3,4,7,8-HxCDD-13C	2.0	94
1,2,3,7,8-PeCDD	1.0	0.83	83	1,2,3,6,7,8-HxCDD-13C	2.0	83
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	90
				1,2,3,4,7,8,9-HpCDF-13C	2.0	97
1,2,3,4,7,8-HxCDF	1.0	0.96	96	1,2,3,4,6,7,8-HpCDD-13C	2.0	113
1,2,3,6,7,8-HxCDF	1.0	0.93	93	OCDD-13C	4.0	103
2,3,4,6,7,8-HxCDF	1.0	0.93	93			
1,2,3,7,8,9-HxCDF	1.0	0.87	87	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	0.88	88	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	1.0	0.99	99			
1,2,3,7,8,9-HxCDD	1.0	0.94	94			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	0.88	88			
1,2,3,4,7,8,9-HpCDF	1.0	0.84	84			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.84	84			
Total HpCDD						
OCDF	2.0	1.7	86			
OCDD	2.0	2.0	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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Spiked Sample Report

Client - Bay West, LLC

Client's Sample ID	MW-04 (35-40)-MS	Matrix	Soil
Lab Sample ID	10533250001-MS	Dilution	NA
Filename	Y201001A_03	Extracted	09/28/2020 15:30
Total Amount Extracted	10.6 g	Analyzed	10/01/2020 00:49
ICAL ID	Y200611	Injected By	BAL
CCal Filename(s)	Y200930B_19 & Y201001A_18		
Method Blank ID	BLANK-82831		

Native Isomers	Qs (ng)	Qm (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	2.00	79
				2,3,7,8-TCDD-13C	2.00	79
				1,2,3,7,8-PeCDF-13C	2.00	86
2,3,7,8-TCDD	0.20	0.19	93	2,3,4,7,8-PeCDF-13C	2.00	83
				1,2,3,7,8-PeCDD-13C	2.00	89
				1,2,3,4,7,8-HxCDF-13C	2.00	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	2.00	86
				1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	1.00	0.88	88	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	1.00	0.93	93			
1,2,3,7,8,9-HxCDF	1.00	0.95	95	1,2,3,4-TCDD-13C	2.00	NA
				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	0.88	88			
1,2,3,4,6,7,8-HpCDD	1.00	0.92	92			
OCDF	2.00	2.07	103			
OCDD	2.00	1.96	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.

REPORT OF LABORATORY ANALYSIS

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Method 8290A Spiked Sample Report

Client - Bay West, LLC

Client's Sample ID	MW-04 (35-40)-MSD	Matrix	Soil
Lab Sample ID	10533250001-MSD	Dilution	NA
Filename	Y201001A_04	Extracted	09/28/2020 15:30
Total Amount Extracted	10.5 g	Analyzed	10/01/2020 01:31
ICAL ID	Y200611	Injected By	BAL
CCal Filename(s)	Y200930B_19 & Y201001A_18		
Method Blank ID	BLANK-82831		

Native Isomers	Qs (ng)	Qm (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	2.00	70
				2,3,7,8-TCDD-13C	2.00	71
				1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	0.20	0.19	96	2,3,4,7,8-PeCDF-13C	2.00	74
				1,2,3,7,8-PeCDD-13C	2.00	78
				1,2,3,4,7,8-HxCDF-13C	2.00	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	74
				1,2,3,4,6,7,8-HpCDF-13C	2.00	78
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	1.00	1.02	102	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	1.00	0.91	91	OCDD-13C	4.00	75
2,3,4,6,7,8-HxCDF	1.00	0.93	93			
1,2,3,7,8,9-HxCDF	1.00	0.93	93	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
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			
1,2,3,7,8,9-HxCDD	1.00	0.93	93			
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			
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.

REPORT OF LABORATORY ANALYSIS

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Method 8290 Spike Sample Results

Client - Bay West, LLC

Client Sample ID	MW-04 (35-40)			<u>Dry Weights</u>	
Lab Sample ID	10533250001	Sample Filename	Y201001A_11	Sample Amount	9.57 g
MS ID	10533250001-MS	MS Filename	Y201001A_03	MS Amount	9.5 g
MSD ID	10533250001-MSD	MSD Filename	Y201001A_04	MSD Amount	9.4 g

Analyte	Sample Qm (ng)	MS/MSD Qs (ng)	MS Qm (ng)	MSD Qm (ng)	RPD	Background Subtracted		RPD
						MS % Rec.	MSD % Rec.	
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	CDD = Chlorinated dibenzo-p-dioxin
MSD = Matrix Spike Duplicate	CDF = Chlorinated dibenzo-p-furan
Qm = Quantity Measured	T = Tetra
Qs = Quantity Spiked	Pe = Penta
% Rec. = Percent Recovery	Hx = Hexa
RPD = Relative Percent Difference	Hp = Hepta
NA = Not Applicable	O = Octa
NC = Not Calculated	

Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

October 19, 2020

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

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

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

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#: 10535097



001

Report No.: 10535097_MPCA_DFR

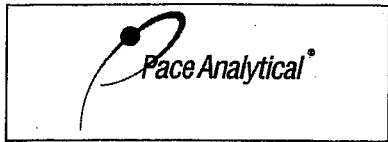
Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory:	
Company: Bay West	Project Name: SW#134 Begin Dump - Borings	Attention: Accounts Payable	Lab Name: Pace	COC ID:			
Address: 5 Empire Dr. St. Paul MN, 55103	Project Number: 200408	Company Name: Bay West LLC	Address: 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: 651-291-3493	Copy To:			Program Code			
Copy To: Eweaver@baywest.com	Copy To:						

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	End Depth ft	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMPI)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code (MPCA ONLY)	Date	Time	# of Cont.	Preservatives				Comments
													DRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1613B/8290A	PFAS		
1	2001007374	MW-01	15	20	Sample	G	SO	SD	Soil-Sub	10/7/20	1045	5	X	X	X		001
2	2001007375	MW-02	35	40	Sample	G	SO	SD	Soil-Sub	10/5/20	1630	5	X	X	X		002
3	2001007376	MW-03			Sample	G	SO	SD	Soil-Sub				X	X	X	OMIT	
4	2001007377	MW-04			Sample	G	SO	SD	Soil-Sub				X	X	X	OMIT	
5	834635	MW-05	30	35	Sample	G	SO	SD	Soil-Sub	10/9/20	930	5	X	X	X		003
6	2001007375	MW-02-D	35	40	QC-FR	G	SO	SD	Soil-Sub	10/5/20	1640	5	X	X	X		004
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACQUIRED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
				<i>[Signature]</i>	10/9/20	1032	4-9	Y	N	Y	

SAMPLER NAME AND SIGNATURE		Temp (°C)	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>Ethan Everspoon</i>	SIGNATURE OF SAMPLER: <i>[Signature]</i>				
DATE Signed (MM/DD/YY): 10/9/20					

Page 5 of 17



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:
Bay West

Project #:

WO#: 10535097

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial

PM: KNH Due Date: 10/23/20
 CLIENT: BW-BAY WEST

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

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
 T4(0254) T5(0489)

Did Samples Originate in West Virginia? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Were All Container Temps Taken? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>9.8</u> °C
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>4.9</u> °C
Average Corrected Temp (no temp blank only): _____ °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: M/K 10-9-20

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. If no, write ID/ Date/Time on Container Below: <u>Sample IDs do not match.</u> <u>001 has collection date of 10/8/20 on container</u>
Is sufficient information available to reconcile the samples to the COC? <u>M/K 10-9-20</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Exception <input checked="" type="checkbox"/> ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	12. Sample #
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot#
Extra labels present on soil VOA or WIDRO containers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased):
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: Kirsten Hopper Date: 10/12/2020

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).

SCUR Exceptions: *Sample IDs do not match*

Workorder #:

Sample IDs <i>Out-of-Temp Sample IDs</i>	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No
<i>Sample IDs on COC</i>			If yes, indicate who was contacted/date/time. If no, indicate reason why.
<i>MW-01</i>		<i>5</i>	
<i>MW-02</i>		<i>5</i>	
<i>MW-05</i>		<i>5</i>	
<i>MW-02-D</i>		<i>5</i>	
<i>Sample ID on samples themselves</i>			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.
<i>SB-01</i>		<i>5</i>	
<i>SB-02</i>		<i>5</i>	
<i>SB-05</i>		<i>5</i>	
<i>SB-02-D</i>		<i>5</i>	

No Temp Blank		
Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature

Issue Type:	Container Type	# of Containers
Sample ID		

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-01	Date Extracted	10/14/2020
Lab Sample ID	10535097001	Total Amount Extracted	2.00 g
Filename	W201015A_012	% Moisture	0
Matrix	Soil	Dry Weight Extracted	2.00 g
Collected	10/07/2020	Starting CCal	W201015A_006
Received	10/09/2020	Ending CCal	W201015A_018
		Method Blank Filename	W201015A_008

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-02	Date Extracted	10/14/2020
Lab Sample ID	10535097002	Total Amount Extracted	2.02 g
Filename	W201015A_013	% Moisture	0
Matrix	Soil	Dry Weight Extracted	2.02 g
Collected	10/05/2020	Starting CCal	W201015A_006
Received	10/09/2020	Ending CCal	W201015A_018
		Method Blank Filename	W201015A_008

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-05	Date Extracted	10/14/2020
Lab Sample ID	10535097003	Total Amount Extracted	2.00 g
Filename	W201015A_014	% Moisture	0
Matrix	Soil	Dry Weight Extracted	2.00 g
Collected	10/09/2020	Starting CCal	W201015A_006
Received	10/09/2020	Ending CCal	W201015A_018
		Method Blank Filename	W201015A_008

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-02-D	Date Extracted	10/14/2020
Lab Sample ID	10535097004	Total Amount Extracted	2.00 g
Filename	W201015A_015	% Moisture	0
Matrix	Soil	Dry Weight Extracted	2.00 g
Collected	10/05/2020	Starting CCal	W201015A_006
Received	10/09/2020	Ending CCal	W201015A_018
		Method Blank Filename	W201015A_008

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Blank Analysis Summary

Lab Sample ID	BLANK-83225	Date Extracted	10/14/2020
Filename	W201015A_008	Total Amount Extracted	2.00 g
Matrix	Soil	% Moisture	N/A
		Dry Weight Extracted	2.00 g
		Starting CCal	W201015A_006
		Ending CCal	W201015A_018

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID	LCS-83226	Matrix	Soil
LCS Filename	W201015A_009	Dilution	1
Total Amount Extracted	2.01g	Extracted	10/14/2020
ICAL ID	201012B04	Analyzed	10/15/2020 08:43
Start CCal Filename	W201015A_006	Injected By	NH
End CCal Filename	W201015A_018		
Method Blank Filename	W201015A_008		

Compound	Spiked (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

Internal Standards

IS 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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID	10535097003-MS	Matrix	Soil
MS Filename	W201015A_010	Dilution	1
Total Amount Extracted	2.01g	Extracted	10/14/2020
ICAL ID	201012B04	Analyzed	10/15/2020 08:51
Start CCal Filename	W201015A_006	Injected By	NH
End CCal Filename	W201015A_018		
Method Blank Filename	W201015A_008		

Compound	Spike (ug/Kg)	Sample (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits	Flags
PFBA	2.5	0	2.4	96	50.0 - 150.0	
PFPeA	2.5	0	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	0	2.5	100	50.0 - 150.0	
PFOS	2.4	0	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

Internal Standards

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

50-150% of Ical area
 70-140% of the preceding CCV area



MPCA Guidance PFCs Matrix Spike Sample Duplicate (MSD)

MSD Lab Sample ID	10535097003-MSD	MS Filename	W201015A_010
MSD Filename	W201015A_011	Matrix	Soil
Total Amount Extracted	2.01g	Dilution	1
ICAL ID	201012B04	Extracted	10/14/2020
Start CCal Filename	W201015A_006	Analyzed	10/15/2020 08:59
End CCal Filename	W201015A_018	Injected By	NH
Method Blank Filename	W201015A_008		

Compound	Spike (ug/Kg)	Sample (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	0	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

Internal Standards

IS 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

50-150% of Ical area

70-140% of the preceding CCV area

Report Prepared for:

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

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

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:



November 06, 2020

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.

Report Prepared Date:

November 6, 2020

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

REPORT OF LABORATORY ANALYSIS

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Report No.....10535098

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

Report No.: 10535098_8290FC_DFR

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
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	Address: 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: 651-291-3493	Copy To:			Program Code	
Copy To: Eweaver@baywest.com	Copy To:				

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	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.	Preservatives						Comments			
													DRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1631B/6280A	PFAS	Requested Analysis						
1	2001007374	MW-01	15	20	Sample	G	SO	SD	Soil-Sub	10/7/20	1045	5	x	x	x						001	
2	2001007375	MW-02	35	40	Sample	G	SO	SD	Soil-Sub	10/5/20	1630	5	x	x	x							002
3	2001007376	MW-03			Sample	G	SO	SD	Soil-Sub				x	x	x							
4	2001007377	MW-04			Sample	G	SO	SD	Soil-Sub				x	x	x							
5	834635	MW-05	30	35	Sample	G	SO	SD	Soil-Sub	10/9/20	930	5	x	x	x							003
6	2001007375	MW-02-D	35	40	QC-FR	G	SO	SD	Soil-Sub	10/5/20	1640	5	x	x	x							004
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
				<i>[Signature]</i>	10/9/20	1032	1-9	Y	N	Y	

SAMPLER NAME AND SIGNATURE		Temp (°C)	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>Ethan Elvstrom</i>	SIGNATURE of SAMPLER: <i>[Signature]</i>				
DATE Signed (MM/DD/YY): 10/9/20					

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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: Bay West Project #: _____

WO# : 10535098
 PM: AW1 Due Date: 10/23/20
 CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial
 Tracking Number: _____ See Exceptions
 ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A
 Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No
 Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A
 Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 9.8 °C Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container
 Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 4.9 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: MLK 10-9-20
 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 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No
 If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <u>MLK 10-9-20</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	11. If no, write ID/Date/Time on Container Below: <u>Sample IDs do not match.</u> See Exception <input checked="" type="checkbox"/> ENV-FRM-MIN4-0142 <u>001 has collection date of 10/8/20 on container</u>
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/> ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____ Field Data Required? Yes No

Project Manager Review: Asheley Williams Date: 10/12/2020
 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).



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: *Sample IDs do not match*

Workorder #:

Sample IDs Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No
<i>Sample IDs on COC</i>			If yes, indicate who was contacted/date/time. If no, indicate reason why.
<i>MW-01</i>		<i>5</i>	
<i>MW-02</i>		<i>5</i>	
<i>MW-05</i>		<i>5</i>	
<i>MW-02-D</i>		<i>5</i>	
<i>Sample ID on samples themselves</i>			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.
<i>SB-01</i>		<i>5</i>	
<i>SB-02</i>		<i>5</i>	
<i>SB-05</i>		<i>5</i>	
<i>SB-02-D</i>		<i>5</i>	

No Temp Blank		
Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature	

Issue Type:	Container Type	# of Containers
Sample ID	Type	

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials

Comments:

Pace Container Order #692419

Addresses		Ship To :	Return To:
Order By :		Company Bay West	Company Pace Analytical Minnesota
Company Bay West Inc		Contact Erik Nimlos	Contact Lynch, Colin
Contact Ryan Riley		Email enimlos@baywest.com	Email colin.lynch@pacelab\$\$.com
Email RyanR@BAYWEST.com		Address 5 Empire Drive	Address 1700 Elm Street
Address 5 Empire Drive		Address 2	Address 2 Suite 200
Address 2		City St. Paul	City Minneapolis
City St. Paul		State MN Zip 55103	State MN Zip 55414
State MN Zip 55103		Phone (651) 291-3493	Phone (612)607-1700
Phone 651-291-3432			

Info			
Project Name 200408 SW#134 Begin Dump - Borings	Due Date 09/15/2020	Profile 39034	Quote 3000027123
Project Manager Lynch, Colin	Return Date	Carrier Pace Courier	Location MN

Trip Blanks

Include Trip Blanks

Bottle Labels

Blank

Pre-Printed No Sample IDs

Pre-Printed With Sample IDs

Bottles

Boxed Cases

Individually Wrapped

Grouped By Sample ID/Matrix

Return Shipping Labels

No Shipper

With Shipper

Misc

Sampling Instructions

Custody Seal

Temp. Blanks

Coolers

Syringes

Extra Bubble Wrap

Short Hold/Rush Stickers

DI Water

USDA Regulated Soils

COC Options

Number of Blanks

Pre-Printed

# of Samples	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 unpres	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, unpreserved (AG1U)	2	0	081720-1DDN	
1	WT	TCLP VOC	2 x 1 Liter amber glass, unpreserved (AG1U)	2	0	081720-1DDN	
1	WT	TCLP SVOC/8270	2 x 1 Liter amber glass, unpreserved (AG1U)	2	0	081720-1DDN	

Hazard Shipping Placard In Place : NO

LAB USE:

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

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

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

*Payment term are net 30 days.

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

Ship Date :	09/15/2020
Prepared By:	HWF
Verified By:	

Sample

CLIENT USE (Optional):

Date Rec'd:	
Received By:	
Verified By:	

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Report No.....10535098

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	8.47 g	Collected	10/07/2020 10:45
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	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	----	0.32	0.20	U	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	3.7	----	0.20		2,3,7,8-TCDD-13C	2.00	60
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	0.38	----	0.17	J	2,3,4,7,8-PeCDF-13C	2.00	65
Total TCDD	1.7	----	0.17		1,2,3,7,8-PeCDD-13C	2.00	65
					1,2,3,4,7,8-HxCDF-13C	2.00	59
1,2,3,7,8-PeCDF	ND	----	0.12		1,2,3,6,7,8-HxCDF-13C	2.00	57
2,3,4,7,8-PeCDF	0.61	----	0.095	J	2,3,4,6,7,8-HxCDF-13C	2.00	60
Total PeCDF	6.6	----	0.095		1,2,3,7,8,9-HxCDF-13C	2.00	62
					1,2,3,4,7,8-HxCDD-13C	2.00	58
1,2,3,7,8-PeCDD	0.20	----	0.13	J	1,2,3,6,7,8-HxCDD-13C	2.00	55
Total PeCDD	2.6	----	0.13	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	52
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	0.80	----	0.10	BJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	60
1,2,3,6,7,8-HxCDF	0.39	----	0.13	BJ	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	0.44	----	0.11	J			
1,2,3,7,8,9-HxCDF	ND	----	0.13		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	7.7	----	0.10	B	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.17		2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	0.55	----	0.21	J			
1,2,3,7,8,9-HxCDD	0.46	----	0.20	J			
Total HxCDD	7.3	----	0.17				
1,2,3,4,6,7,8-HpCDF	4.7	----	0.18	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.27	0.24	U	Equivalence: 1.3 ng/Kg		
Total HpCDF	4.7	----	0.18	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	14	----	0.10				
Total HpCDD	27	----	0.10				
OCDF	8.5	----	0.21	J			
OCDD	150	----	0.29				

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

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

REPORT OF LABORATORY ANALYSIS

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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	8.95 g	Collected	10/05/2020 16:30	
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	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.12		2,3,7,8-TCDF-13C	2.00	81
Total TCDF	0.19	----	0.12	BJ	2,3,7,8-TCDD-13C	2.00	72
					1,2,3,7,8-PeCDF-13C	2.00	87
2,3,7,8-TCDD	ND	----	0.15		2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	0.27	----	0.15	J	1,2,3,7,8-PeCDD-13C	2.00	87
					1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.063		1,2,3,6,7,8-HxCDF-13C	2.00	80
2,3,4,7,8-PeCDF	ND	----	0.061		2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	0.53	----	0.061	BJ	1,2,3,7,8,9-HxCDF-13C	2.00	83
					1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	ND	----	0.16		1,2,3,6,7,8-HxCDD-13C	2.00	68
Total PeCDD	1.3	----	0.16	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	67
					1,2,3,4,7,8,9-HpCDF-13C	2.00	76
1,2,3,4,7,8-HxCDF	ND	----	0.10		1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	ND	----	0.12		OCDD-13C	4.00	70
2,3,4,6,7,8-HxCDF	ND	----	0.11				
1,2,3,7,8,9-HxCDF	ND	----	0.13		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.51	----	0.10	BJ	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.19		2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	ND	----	0.13				
1,2,3,7,8,9-HxCDD	ND	----	0.15				
Total HxCDD	1.5	----	0.13	J			
1,2,3,4,6,7,8-HpCDF	----	0.35	0.095	U	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.12		Equivalence: 0.0069 ng/Kg		
Total HpCDF	ND	----	0.095		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.28	0.15	U			
Total HpCDD	ND	----	0.15				
OCDF	ND	----	0.18				
OCDD	2.0	----	0.39	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

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

REPORT OF LABORATORY ANALYSIS

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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	Matrix	Soil
% Moisture	11.9	Dilution	NA
Dry Weight Extracted	9.00 g	Collected	10/09/2020 09:30
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	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.15		2,3,7,8-TCDF-13C	2.00	92
Total TCDF	0.41	----	0.15	BJ	2,3,7,8-TCDD-13C	2.00	82
					1,2,3,7,8-PeCDF-13C	2.00	101
2,3,7,8-TCDD	ND	----	0.14		2,3,4,7,8-PeCDF-13C	2.00	100
Total TCDD	1.3	----	0.14		1,2,3,7,8-PeCDD-13C	2.00	105
					1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	0.079		1,2,3,6,7,8-HxCDF-13C	2.00	84
2,3,4,7,8-PeCDF	ND	----	0.042		2,3,4,6,7,8-HxCDF-13C	2.00	90
Total PeCDF	0.23	----	0.042	BJ	1,2,3,7,8,9-HxCDF-13C	2.00	93
					1,2,3,4,7,8-HxCDD-13C	2.00	83
1,2,3,7,8-PeCDD	ND	----	0.13		1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	1.8	----	0.13	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	79
					1,2,3,4,7,8,9-HpCDF-13C	2.00	95
1,2,3,4,7,8-HxCDF	ND	----	0.098		1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	----	0.091	0.068	U	OCDD-13C	4.00	84
2,3,4,6,7,8-HxCDF	0.062	----	0.060	J			
1,2,3,7,8,9-HxCDF	ND	----	0.12		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.41	----	0.060	BJ	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.15		2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	ND	----	0.12				
1,2,3,7,8,9-HxCDD	ND	----	0.099				
Total HxCDD	1.5	----	0.099	J			
1,2,3,4,6,7,8-HpCDF	0.38	----	0.11	BJ	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.093		Equivalence: 0.022 ng/Kg		
Total HpCDF	0.38	----	0.093	BJ	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.25	0.095	U			
Total HpCDD	0.45	----	0.095	J			
OCDF	ND	----	0.24				
OCDD	1.9	----	0.27	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

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

REPORT OF LABORATORY ANALYSIS

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

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

REPORT OF LABORATORY ANALYSIS

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Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKZP	Matrix	Solid
Lab Sample ID	BLANK-83281	Dilution	NA
Filename	F201019A_12	Extracted	10/15/2020 15:05
Total Amount Extracted	10.0 g	Analyzed	10/19/2020 17:47
ICAL ID	F200714	Injected By	SMT
CCal Filename(s)	F201019A_01 & F201019B_01		

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

REPORT OF LABORATORY ANALYSIS

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Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKGC	Matrix	Solid
Lab Sample ID	BLANK-83733	Dilution	NA
Filename	F201105B_06	Extracted	11/03/2020 14:03
Total Amount Extracted	10.1 g	Analyzed	11/05/2020 17:45
ICAL ID	F200714	Injected By	SMT
CCal Filename(s)	F201105B_01 & F201106A_01		

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

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-83282	Matrix	Solid
Filename	F201019A_10	Dilution	NA
Total Amount Extracted	10.0 g	Extracted	10/15/2020 15:05
ICAL ID	F200714	Analyzed	10/19/2020 16:16
CCal Filename(s)	F201019A_01 & F201019B_01	Injected By	SMT
Method Blank ID	BLANK-83281		

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

REPORT OF LABORATORY ANALYSIS

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-83734	Matrix	Solid
Filename	F201105B_03	Dilution	NA
Total Amount Extracted	10.5 g	Extracted	11/03/2020 14:03
ICAL ID	F200714	Analyzed	11/05/2020 15:28
CCal Filename(s)	F201105B_01 & F201106A_01	Injected By	SMT
Method Blank ID	BLANK-83733		

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

REPORT OF LABORATORY ANALYSIS

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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
(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc



REPORT OF LABORATORY ANALYSIS

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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 #: 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 ().

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Sample: MW-01 **Lab ID: 10535103001** Collected: 10/07/20 10:45 Received: 10/09/20 16:32 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis								
WDRO C10-C28	5.9J	mg/kg	8.0	2.1	1	10/12/20 13:56	10/13/20 14:28		
Surrogates 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	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:07		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Sample: MW-02 **Lab ID: 10535103002** Collected: 10/05/20 16:30 Received: 10/09/20 16:32 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis								
WDRO C10-C28	<9.9	mg/kg	9.9	2.6	1	10/12/20 13:56	10/13/20 15:45		
Surrogates 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	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:08		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Sample: MW-05 **Lab ID: 10535103003** Collected: 10/09/20 09:30 Received: 10/09/20 16:32 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<7.6	mg/kg	7.6	2.0	1	10/12/20 13:56	10/13/20 15:52		
Surrogates 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 Analytical Services - Minneapolis									
Percent Moisture	11.1	%	0.10	0.10	1		10/19/20 14:08		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

Sample: MW-02-D **Lab ID: 10535103004** Collected: 10/05/20 16:40 Received: 10/09/20 16:32 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<8.1	mg/kg	8.1	2.2	1	10/12/20 13:56	10/13/20 15:59		
Surrogates									
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									
Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis									
Percent Moisture	13.7	%	0.10	0.10	1		10/19/20 14:08		N2

REPORT OF LABORATORY ANALYSIS

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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	RPD	Max RPD	Qualifiers
Percent Moisture	%	13.7	13.1	4	30	N2

SAMPLE DUPLICATE: 3768320

Parameter	Units	10534988001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.5	2.6	4	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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

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

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

Parameter	Units	3760544		3760545			% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec				
WDRO C10-C28	mg/kg	80	72.7	71.2	91	89	66-125	2	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.

REPORT OF LABORATORY ANALYSIS

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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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10535103

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		

REPORT OF LABORATORY ANALYSIS

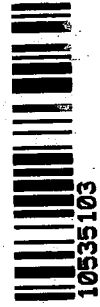
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CHAIN-OF-CUSTODY / Analytical Request Document

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

WO#: 10535103



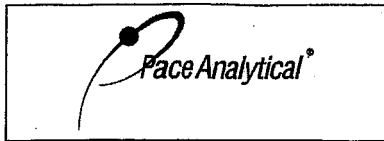
Section A
 Required Client Information:
 Company: Bay West
 Address: 5 Empire Dr. St. Paul, MN, 55103
 Project Manager: Erik Nimlos
 Email To: enimlos@baywest.com
 Phone: 651-291-3493
 Copy To: Eweaver@baywest.com

Section B
 Required Project Information:
 Project Name: SW#134 Begin Dump - Borings
 Project Number: 200408
 Turnaround Time: Standard
 Site Location (State): MN
 Copy To: Eweaver@baywest.com

Section C
 Invoices Information:
 Accounts Payable: Bay West LLC
 Address: 5 Empire Dr. St. Paul, MN 55103
 Purchase Order No. 205946

Section D
 MPCA Information:
 Lab Name: Pace
 Address: 1700 Elm St. Minneapolis, MN, 55414
 Lab Project Manager: Colin Lynch
 Lab Phone: 612-656-2286
 Project Task Code: PRJ07786
 Program Code:

ITEM #	Location Unique ID	Sample Common ID	Start Depth ft	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.	REQUIRED ANALYSIS				Comments
													PRO with silica gel cleanup W/ DRO	2,3,7,8 TCDD (Dioxin) EPA 1615B/230A	PFAS		
1	2001007374	MW-01	15	20	Sample	G	SO	SD	Soil-Sub	10/7/20	1045	5	X	X	X	001	
2	2001007375	MW-02	35	40	Sample	G	SO	SD	Soil-Sub	10/5/20	1630	5	X	X	X	002	
3	2001007376	MW-03			Sample	G	SO	SD	Soil-Sub				X	X	X		
4	2001007377	MW-04			Sample	G	SO	SD	Soil-Sub				X	X	X		
5	834635	MW-05	30	35	Sample	G	SO	SD	Soil-Sub	10/4/20	930	5	X	X	X	003	
6	2001007375	MW-02-D	35	40	QC-FR	G	SO	SD	Soil-Sub	10/5/20	1640	5	X	X	X	004	
7																	
8																	
9																	
10																	
11																	
12																	



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:
Bay West

Project #:

WO#: 10535103
 PM: CL1 Due Date: 10/23/20
 CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A
 Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 9.8 °C Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container
 Correction Factor: +0.1 Cooler Temp Corrected w/temp blank: 4.9 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: MKL 10-9-20

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>MKL 10-9-20</u>	11. If no, write ID/ Date/Time on Container Below: <u>Sample IDs do not match.</u> <u>001 has collection date of 10/5/20 on container.</u> See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No Chlorine? <input type="checkbox"/> No pH Paper Lot#
Extra labels present on soil VOA or WIDRO containers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	0-6 Roll
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	0-6 Strip
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	0-14 Strip
		13. See Exception <input type="checkbox"/> ENV-FRM-MIN4-0140
		14. Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No
 Comments/Resolution: _____

Project Manager Review:

[Signature]

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

Labeled by: AFI ① Page 15 of 20

SCUR Exceptions: *Sample IDs do not match*

Workorder #:

<i>Sample IDs</i> Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
<i>Sample IDs on COC</i>			If yes, indicate who was contacted/date/time. If no, indicate reason why.																		
<i>MW-01</i>		<i>5</i>																			
<i>MW-02</i>		<i>5</i>																			
<i>MW-05</i>		<i>5</i>																			
<i>MW-02-D</i>		<i>5</i>																			
<i>Sample ID on samples themselves</i>			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																		
<i>SB-01</i>		<i>5</i>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th style="width:33%;">Read Temp</th> <th style="width:33%;">Corrected Temp</th> <th style="width:33%;">Average Temp</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp												
No Temp Blank																					
Read Temp	Corrected Temp	Average Temp																			
<i>SB-02</i>		<i>5</i>																			
<i>SB-05</i>		<i>5</i>																			
<i>SB-02-D</i>		<i>5</i>																			

Tracking Number/Temperature	

Issue Type:	Container Type	# of Containers
Sample ID	Type	

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

Date : 13-OCT-2020 14:28

Instrument: 10gos9.i

Client ID: HM-01

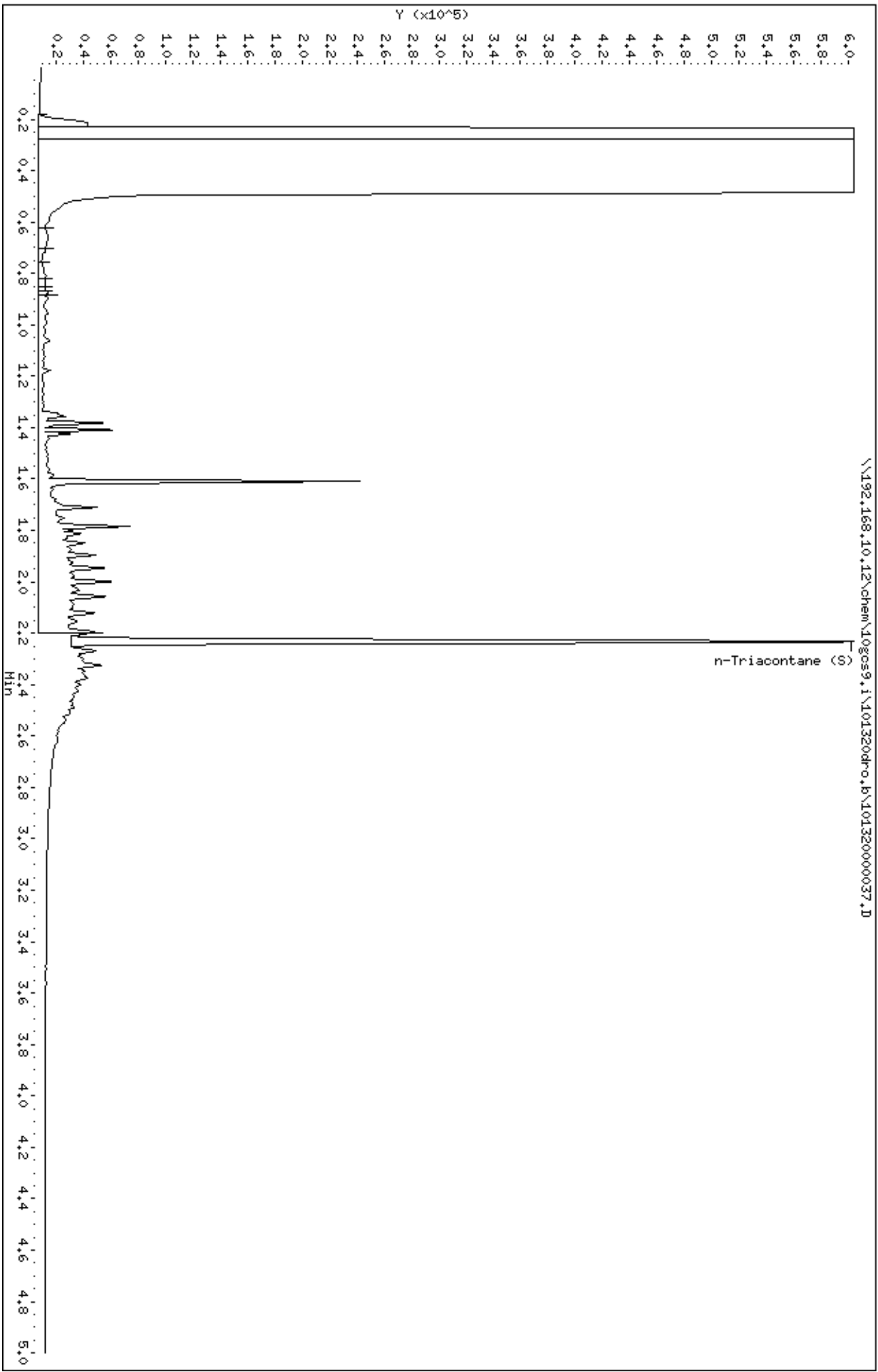
Operator: TT2

Sample Info: 10535103001

Column diameter: 0.32

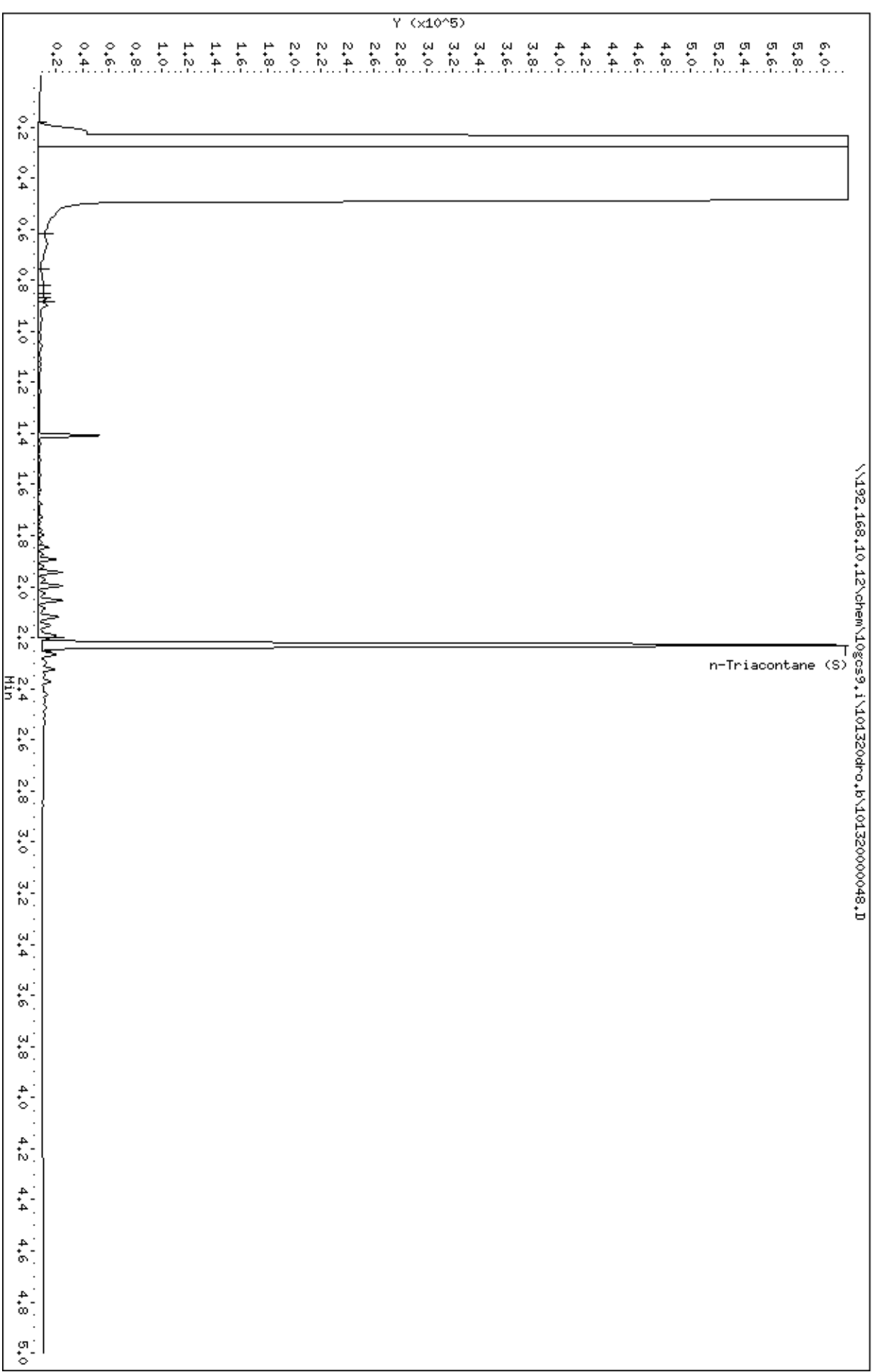
Volume Injected (uL): 1.0

Column phase: DB-5-MS20240029



Data File: \\192.168.10.12\chem\10gos9.i\101320dr.o.b\101320000048.D
Date : 13-OCT-2020 15:45
Client ID: MM-02
Sample Info: 10535103002
Volume Injected (uL): 1.0
Column phase: DB-5-MS20240029

Instrument: 10gos9.i
Operator: TT2
Column diameter: 0.32



Date : 13-OCT-2020 15:52

Client ID: HM-05

Sample Info: 10535103003

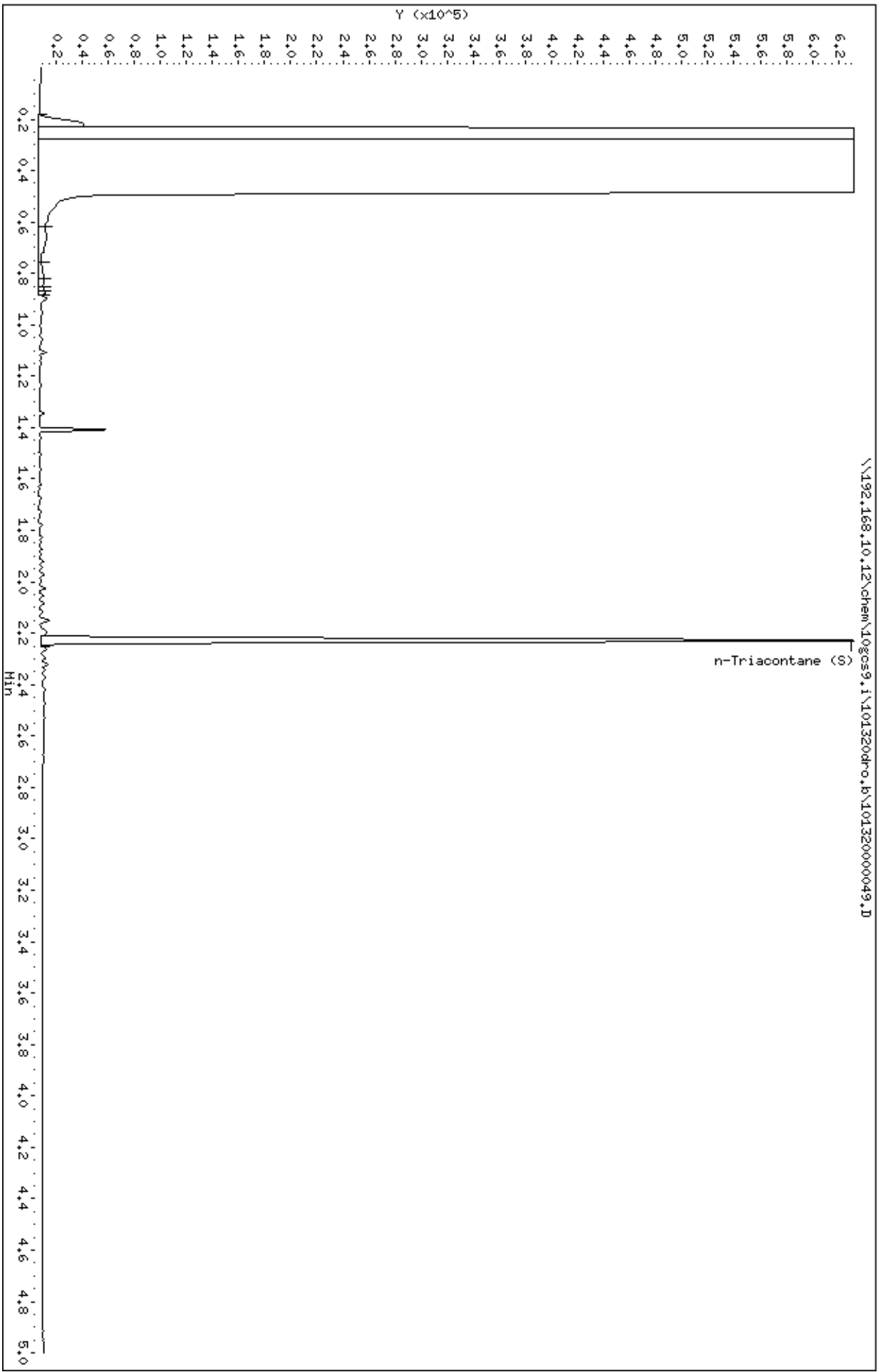
Volume Injected (uL): 1.0

Column phase: DB-5-MS20240029

Instrument: 10gos9.i

Operator: TT2

Column diameter: 0.32



Date : 13-OCT-2020 15:59

Client ID: MM-02-D

Sample Info: 10535103004

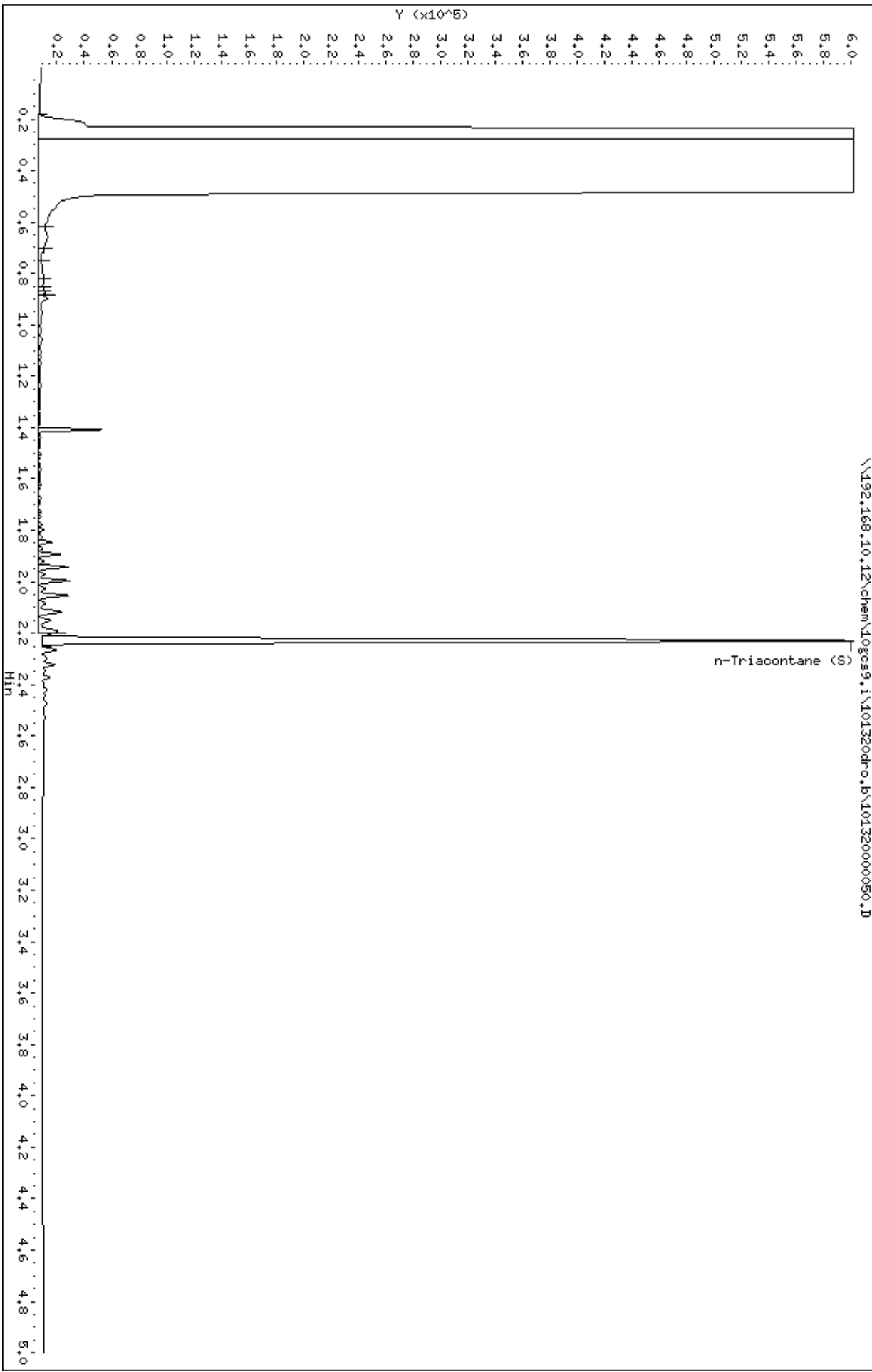
Volume Injected (uL): 1.0

Column phase: DB-5-MS20240029

Instrument: 10gos9.i

Operator: TT2

Column diameter: 0.32



Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

November 11, 2020

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.

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 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".

Minnesota Laboratory Certifications

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

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.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	1700 Elm St. Minneapolis MN, 55414	Work Order Number:	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:	651-291-3493	Copy To:	tharsch@baywest.com					Program Code:	
Copy To:	Eweaver@baywest.com	Copy To:							

WO#: 10537024



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 Codes Wtr-Ground=Ground Water WTR-Surf=Surface Water QC-Blank=Artificial Blank Water Leachate=Leachate Sample Soil-Surf= Soil Surface Soil-Sub= Soil Subsurface	Sample Type Codes Sample=Routine Sample S-CWOP=Composite Sample S-IVP=Integrated Vertical Profile Sample QC-FB=Field Blank Sample QC-FR=Field Replicate Sample QC-TB=Trip Blank Sample
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ITEM #	Location Unique ID	Sample Common ID	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.	Request Analysis						Comments	
											DRO with silica gel Cleanup (W/ DRO)	2,3,7,8 TCDD (Dioxin) EPA 1613(B)(230A)	1,4-Dioxane (8270 SIM)	PFAS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N (SM 4500 NO3-H)		
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	10-26-20	1436	10	X	X	X	X	X	X		001
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	10-27-20	1013	10	X	X	X	X	X	X		002
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	10-27-20	1520	10	X	X	X	X	X	X		003
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	10-27-20	1233	10	X	X	X	X	X	X		004
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	10-26-20	1827	10	X	X	X	X	X	X		005
6	2001007377	MW-4 Dup	QC-FR	G	WG	NW	Wtr-Ground	10-27-20	1243	10	X	X	X	X	X	X		006
7	Equipment Blank	EB-01	QC-FB	G	WG	NW	Wtr-Ground	10-27-20	1335	10	X	X	X	X	X	X		007

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
	Zach Bagheri / Bay West	10-27-20	1702	TN / Pace	10-27-20	1702	115		
							2.2		
							0.0		
							4.8		

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: John Connolly	
SIGNATURE of SAMPLER: <i>[Signature]</i>	DATE Signed (MM/DD/YYYY): 10/27/20



Document Name: Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020

Page 1 of 1

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

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name:

Project #:

WO#: 10537024

PM: KNH

Due Date: 11/11/20

CLIENT: BW-BAY WEST

Courier:

Fed Ex, UPS, USPS, Client, Pace, SpeedDee, Commercial

Tracking Number:

See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present?

Yes, No

Seals Intact?

Yes, No

Biological Tissue Frozen? Yes, No, N/A

Packing Material:

Bubble Wrap, Bubble Bags, None, Other

Temp Blank? Yes, No

Thermometer:

T1(0461), T2(1336), T3(0459), T4(0254), T5(0489)

Type of Ice: Wet, Blue, None, Dry, Melted

Did Samples Originate in West Virginia? Yes, No

Were All Container Temps Taken? Yes, No, N/A

Temp should be above freezing to 6°C

Cooler Temp Read w/temp blank: 1.5, 2.2, 0.0, 0.1 °C

Average Corrected Temp (no temp blank only): °C

See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: true

Cooler Temp Corrected w/temp blank: 1.5, 2.2, 0.0, 0.1 °C

USDA Regulated Soil: N/A, water sample/Other:

Date/Initials of Person Examining Content: 10/27/20

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Questions and COMMENTS. Contains 14 rows of questions regarding custody, analysis, and packaging.

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes, No

Person Contacted: Comments/Resolution:

Date/Time:

Project Manager Review:

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).

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-01	Date Extracted	10/29/2020
Lab Sample ID	10537024001	Total Amount Extracted	100 mL
Filename	A201030B_023	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/26/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	25	5.0	0.94	1	10/30/2020 13:05	375-22-4	
PFPeA	ND	5.0	1.3	1	10/30/2020 13:05	2706-90-3	
PFBS	ND	4.4	1.1	1	10/30/2020 13:05	375-73-5	
PFHxA	5.2	5.0	1.1	1	10/30/2020 13:05	307-24-4	
PFHxS	ND	4.7	0.85	1	10/30/2020 13:05	355-46-4	
PFOA	5.4	5.0	1.2	1	10/30/2020 13:05	335-67-1	
PFOS	ND	4.8	0.80	1	10/30/2020 13:05	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-02	Date Extracted	10/29/2020
Lab Sample ID	10537024002	Total Amount Extracted	246 mL
Filename	A201030B_017	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	18	2.0	0.38	1	10/30/2020 12:17	375-22-4	
PFPeA	4.3	2.0	0.55	1	10/30/2020 12:17	2706-90-3	
PFBS	2.1	1.8	0.43	1	10/30/2020 12:17	375-73-5	
PFHxA	6.5	2.0	0.44	1	10/30/2020 12:17	307-24-4	
PFHxS	5.0	1.9	0.34	1	10/30/2020 12:17	355-46-4	
PFOA	71	2.0	0.47	1	10/30/2020 12:17	335-67-1	
PFOS	ND	1.9	0.33	1	10/30/2020 12:17	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-02-DUP	Date Extracted	10/29/2020
Lab Sample ID	10537024002-DUP	Total Amount Extracted	247 mL
Filename	A201030B_025	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	18	2.0	0.38	1	10/30/2020 13:20	375-22-4	
PFPeA	4.4	2.0	0.55	1	10/30/2020 13:20	2706-90-3	
PFBS	ND	1.8	0.43	1	10/30/2020 13:20	375-73-5	
PFHxA	7.8	2.0	0.44	1	10/30/2020 13:20	307-24-4	
PFHxS	5.0	1.9	0.34	1	10/30/2020 13:20	355-46-4	
PFOA	75	2.0	0.47	1	10/30/2020 13:20	335-67-1	
PFOS	ND	1.9	0.33	1	10/30/2020 13:20	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-03	Date Extracted	10/29/2020
Lab Sample ID	10537024003	Total Amount Extracted	102 mL
Filename	A201030B_018	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	31	4.9	0.92	1	10/30/2020 12:25	375-22-4	
PFPeA	11	4.9	1.3	1	10/30/2020 12:25	2706-90-3	
PFBS	ND	4.3	1.0	1	10/30/2020 12:25	375-73-5	
PFHxA	8.5	4.9	1.1	1	10/30/2020 12:25	307-24-4	
PFHxS	ND	4.6	0.83	1	10/30/2020 12:25	355-46-4	
PFOA	12	4.9	1.1	1	10/30/2020 12:25	335-67-1	
PFOS	ND	4.7	0.79	1	10/30/2020 12:25	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-04	Date Extracted	10/29/2020
Lab Sample ID	10537024004	Total Amount Extracted	236 mL
Filename	A201030B_019	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	26	2.1	0.40	1	10/30/2020 12:33	375-22-4	
PFPeA	6.9	2.1	0.57	1	10/30/2020 12:33	2706-90-3	
PFBS	3.8	1.9	0.45	1	10/30/2020 12:33	375-73-5	
PFHxA	7.3	2.1	0.46	1	10/30/2020 12:33	307-24-4	
PFHxS	2.6	2.0	0.36	1	10/30/2020 12:33	355-46-4	
PFOA	18	2.1	0.50	1	10/30/2020 12:33	335-67-1	
PFOS	ND	2.0	0.34	1	10/30/2020 12:33	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-05	Date Extracted	10/29/2020
Lab Sample ID	10537024005	Total Amount Extracted	100 mL
Filename	A201030B_020	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/26/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	19	5.0	0.94	1	10/30/2020 12:41	375-22-4	
PFPeA	ND	5.0	1.4	1	10/30/2020 12:41	2706-90-3	
PFBS	ND	4.4	1.1	1	10/30/2020 12:41	375-73-5	
PFHxA	ND	5.0	1.1	1	10/30/2020 12:41	307-24-4	
PFHxS	ND	4.7	0.85	1	10/30/2020 12:41	355-46-4	
PFOA	ND	5.0	1.2	1	10/30/2020 12:41	335-67-1	
PFOS	ND	4.8	0.80	1	10/30/2020 12:41	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	MW-4 Dup	Date Extracted	10/29/2020
Lab Sample ID	10537024006	Total Amount Extracted	249 mL
Filename	A201030B_021	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	23	2.0	0.38	1	10/30/2020 12:49	375-22-4	
PFPeA	7.0	2.0	0.54	1	10/30/2020 12:49	2706-90-3	
PFBS	3.6	1.8	0.43	1	10/30/2020 12:49	375-73-5	
PFHxA	7.7	2.0	0.44	1	10/30/2020 12:49	307-24-4	
PFHxS	2.7	1.9	0.34	1	10/30/2020 12:49	355-46-4	
PFOA	17	2.0	0.47	1	10/30/2020 12:49	335-67-1	
PFOS	ND	1.9	0.32	1	10/30/2020 12:49	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs
Sample Analysis Summary

Client's Sample ID	EB-01	Date Extracted	10/29/2020
Lab Sample ID	10537024007	Total Amount Extracted	256 mL
Filename	A201030B_022	ICAL ID	201030A03
Matrix	Ground_Water	Starting CCal	A201030B_016
Collected	10/27/2020	Ending CCal	A201030B_027
Received	10/27/2020	Method Blank Filename	A201030B_004

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.37	1	10/30/2020 12:57	375-22-4	
PFPeA	ND	2.0	0.53	1	10/30/2020 12:57	2706-90-3	
PFBS	2.2	1.7	0.41	1	10/30/2020 12:57	375-73-5	
PFHxA	ND	2.0	0.43	1	10/30/2020 12:57	307-24-4	
PFHxS	ND	1.8	0.33	1	10/30/2020 12:57	355-46-4	
PFOA	ND	2.0	0.46	1	10/30/2020 12:57	335-67-1	
PFOS	ND	1.9	0.31	1	10/30/2020 12:57	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Blank Analysis Summary

Lab Sample ID	BLANK-83490	Total Amount Extracted	251 mL
Filename	A201030B_004	ICAL ID	201030A03
Matrix	Water	Starting CCal	A201030B_002
Date Extracted	10/29/2020	Ending CCal	A201030B_016

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	0.079 J	2.0	0.37	1	10/30/2020 10:35	375-22-4	
PFPeA	0.038 J	2.0	0.54	1	10/30/2020 10:35	2706-90-3	
PFBS	0.024 J	1.8	0.42	1	10/30/2020 10:35	375-73-5	
PFHxA	0.065 J	2.0	0.44	1	10/30/2020 10:35	307-24-4	
PFHxS	0.0035 J	1.9	0.34	1	10/30/2020 10:35	355-46-4	
PFOA	0.13 J	2.0	0.47	1	10/30/2020 10:35	335-67-1	
PFOS	0.048 J	1.9	0.32	1	10/30/2020 10:35	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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Laboratory Control Sample (LCS)

LCS Lab Sample ID	LCS-83491	Matrix	Water
LCS Filename	A201030B_005	Dilution	1
Total Amount Extracted	249mL	Extracted	10/29/2020
ICAL ID	201030A03	Analyzed	10/30/2020 10:43
Start CCal Filename	A201030B_002	Injected By	NH
End CCal Filename	A201030B_016		
Method Blank Filename	A201030B_004		

Compound	Spiked (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



MPCA Guidance PFCs Laboratory Control Sample Duplicate (LCSD)

LCSD Lab Sample ID	LCSD-83492	LCS Filename	A201030B_005
LCSD Filename	A201030B_006	Matrix	Water
Total Amount Extracted	253mL	Dilution	1
ICAL ID	201030A03	Extracted	10/29/2020
Start CCal Filename	A201030B_002	Analyzed	10/30/2020 10:50
End CCal Filename	A201030B_016	Injected By	NH
Method Blank Filename	A201030B_004		

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

Internal Standards

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

50-150% of Ical area

70-140% of the preceding CCV area



MPCA Guidance PFCs Matrix Spike Sample (MS)

MS Lab Sample ID	10537024004-MS	Matrix	Ground_Water
MS Filename	A201030B_024	Dilution	1
Total Amount Extracted	248mL	Extracted	10/29/2020
ICAL ID	201030A03	Analyzed	10/30/2020 13:13
Start CCal Filename	A201030B_016	Injected By	NH
End CCal Filename	A201030B_027		
Method Blank Filename	A201030B_004		

Compound	Spike (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

70-140% of the preceding CCV area

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:



November 11, 2020

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.

Report Prepared Date:

November 10, 2020



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

REPORT OF LABORATORY ANALYSIS

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Report No.....10537025

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.

REPORT NO.: 0537025-0290FC-DFR

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address: 1700 Elm St. Minneapolis MN, 55414	Work Order Number: 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: 651-291-3493	Copy To: tharsch@baywest.com			Program Code					
Copy To: Eweaver@baywest.com	Copy To:								

ITEM #	Location Unique ID	Sample Common ID	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.	Preservatives						Comments	
											DRO with silica gel cleanup (W/DRO)	2,3,7,8 TCDD (Dioxin/EPA 1613B/8290A)	1,4-Dioxane (8270 SIM)	PFAS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N (SM 4500 NO3-H)		
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	10-26-20	1436	10	X	X	X	X	X	X		301
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	10-27-20	1013	10	X	X	X	X	X	X		202
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	10-27-20	1520	10	X	X	X	X	X	X		203
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	10-27-20	1233	10	X	X	X	X	X	X		204
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	10-26-20	1227	10	X		X	X		X		205
6	2001007377	MW-4 Dup	QC-FR	G	WG	NW	Wtr-Ground	10-27-20	1243	10	X	X	X	X	X	X		206
7	Equipment Blank	EB-01	QC-TB	G	WG	NW	Wtr-Ground	10-27-20	1335	10	X	X	X	X	X	X		207
8																		
9																		
10																		
11																		
12																		

WO#: 10537025

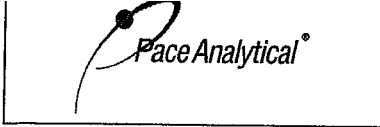
10537025

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
	Zach Beahm / Bay West	10-27-20	1702	TN / Pace	10-27-20	1702	115		
							22		
							0.0		
							4.8		

SAMPLER NAME AND SIGNATURE:		
PRINT Name of SAMPLER: John Connolly		
SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY): 10/27/20	

Page 5 of 18

Temp (C)	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
115			
22			
0.0			
4.8			



Sample Condition Upon Receipt

Client Name: Bay West **Project #:** _____

WO# : 10537025
PM: AW1 **Due Date: 11/11/20**
CLIENT: BW-BAY WEST

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A
Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No
Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No **Were All Container Temps Taken?** Yes No N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 15.2, 2.2, 0.0, 4.1 °C **Average Corrected Temp (no temp blank only):** _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container
Correction Factor: true **Cooler Temp Corrected w/temp blank:** 1.5, 2.2, 6.0, 4.1 °C

USDA Regulated Soil: N/A, water sample/Other: _____ **Date/Initials of Person Examining Contents:** 11/10/20
 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 **Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?** Yes No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. <u>Some containers in MW-5 empty</u>
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <u>1-5. 2/2</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine <u>0-6 Roll 205120</u> <u>0-6 Strip</u> <u>0-14 Strip</u>
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ **Date/Time:** _____ **Field Data Required?** Yes No
Comments/Resolution: _____

Project Manager Review: Ashley Williams

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).

Labeled by: TK

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Report No.....10537025

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

REPORT OF LABORATORY ANALYSIS

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

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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	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.2	2,3,7,8-TCDF-13C	2.00	85
Total TCDF	ND	----	1.2	2,3,7,8-TCDD-13C	2.00	82
				1,2,3,7,8-PeCDF-13C	2.00	94
2,3,7,8-TCDD	ND	----	1.2	2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	ND	----	1.2	1,2,3,7,8-PeCDD-13C	2.00	98
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	1.1	1,2,3,6,7,8-HxCDF-13C	2.00	98
2,3,4,7,8-PeCDF	ND	----	0.62	2,3,4,6,7,8-HxCDF-13C	2.00	95
Total PeCDF	ND	----	0.62	1,2,3,7,8,9-HxCDF-13C	2.00	92
				1,2,3,4,7,8-HxCDD-13C	2.00	86
1,2,3,7,8-PeCDD	ND	----	1.1	1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	ND	----	1.1	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	ND	----	0.88	1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	ND	----	0.48	OCDD-13C	4.00	104 Y
2,3,4,6,7,8-HxCDF	ND	----	0.49			
1,2,3,7,8,9-HxCDF	ND	----	0.98	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.48	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.87	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	----	0.90			
1,2,3,7,8,9-HxCDD	ND	----	0.43			
Total HxCDD	ND	----	0.43			
1,2,3,4,6,7,8-HpCDF	----	1.0	0.79 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.3	Equivalence: 0.013 pg/L		
Total HpCDF	ND	----	0.79	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.88			
Total HpCDD	ND	----	0.88			
OCDF	----	2.3	1.7 J			
OCDD	4.9	----	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
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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	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.3	2,3,7,8-TCDF-13C	2.00	80
Total TCDF	ND	----	1.3	2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	87
2,3,7,8-TCDD	ND	----	1.0	2,3,4,7,8-PeCDF-13C	2.00	90
Total TCDD	ND	----	1.0	1,2,3,7,8-PeCDD-13C	2.00	94
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.69	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	ND	----	0.42	2,3,4,6,7,8-HxCDF-13C	2.00	89
Total PeCDF	ND	----	0.42	1,2,3,7,8,9-HxCDF-13C	2.00	88
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	----	0.90	1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	0.90	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	ND	----	0.57	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	ND	----	0.50	OCDD-13C	4.00	106 Y
2,3,4,6,7,8-HxCDF	ND	----	0.49			
1,2,3,7,8,9-HxCDF	ND	----	0.65	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.49	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.99	2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,6,7,8-HxCDD	ND	----	0.76			
1,2,3,7,8,9-HxCDD	ND	----	0.48			
Total HxCDD	ND	----	0.48			
1,2,3,4,6,7,8-HpCDF	1.4	----	0.52 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.84	Equivalence: 0.016 pg/L		
Total HpCDF	1.4	----	0.52 J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	1.3			
Total HpCDD	ND	----	1.3			
OCDF	----	2.8	1.8 U			
OCDD	3.9	----	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

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 B = Less than 10x higher than method blank level
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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	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.2	2,3,7,8-TCDF-13C	2.00	82
Total TCDF	ND	----	1.2	2,3,7,8-TCDD-13C	2.00	78
				1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	----	1.3	2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	ND	----	1.3	1,2,3,7,8-PeCDD-13C	2.00	95
				1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.74	1,2,3,6,7,8-HxCDF-13C	2.00	89
2,3,4,7,8-PeCDF	ND	----	0.70	2,3,4,6,7,8-HxCDF-13C	2.00	88
Total PeCDF	ND	----	0.70	1,2,3,7,8,9-HxCDF-13C	2.00	85
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	ND	----	0.63	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	----	0.63	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	----	0.83	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	ND	----	0.67	OCDD-13C	4.00	88 Y
2,3,4,6,7,8-HxCDF	ND	----	0.50			
1,2,3,7,8,9-HxCDF	ND	----	0.61	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.50	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.59	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	----	0.61			
1,2,3,7,8,9-HxCDD	ND	----	0.39			
Total HxCDD	ND	----	0.39			
1,2,3,4,6,7,8-HpCDF	----	1.5	1.1 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.6	Equivalence: 0.017 pg/L		
Total HpCDF	ND	----	1.1	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	1.3			
Total HpCDD	ND	----	1.3			
OCDF	3.8	----	2.5 J			
OCDD	----	3.2	2.8 J			

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

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
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 NC = Not Calculated

J = Estimated value
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Method 8290A Blank Analysis Results

Lab Sample Name	DFBLKER	Matrix	Water
Lab Sample ID	BLANK-83647	Dilution	NA
Filename	U201104B_13	Extracted	10/29/2020 13:04
Total Amount Extracted	1040 mL	Analyzed	11/04/2020 23:45
ICAL ID	U201013	Injected By	SMT
CCal Filename(s)	U201104A_19 & U201104B_18		

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

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

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCS-83648	Matrix	Water
Filename	U201104B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	10/29/2020 13:04
ICAL ID	U201013	Analyzed	11/04/2020 16:58
CCal Filename(s)	U201104A_19 & U201104B_18	Injected By	SMT
Method Blank ID	BLANK-83647		

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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCSD-83649	Matrix	Water
Filename	U201104B_04	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	10/29/2020 13:04
ICAL ID	U201013	Analyzed	11/04/2020 17:39
CCal Filename(s)	U201104A_19 & U201104B_18	Injected By	SMT
Method Blank ID	BLANK-83647		

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

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Method 8290A

Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

Spike 1 ID LCS-83648
 Spike 1 Filename U201104B_03

Spike 2 ID LCSD-83649
 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

REPORT OF LABORATORY ANALYSIS

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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
(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc



REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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	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
10537026002	MW-02	EPA 353.2	JFP	1	PASI-M
		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
10537026003	MW-03	EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
		WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
10537026004	MW-04	EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
		WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
10537026005	MW-05	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
		WI MOD DRO	JVM	2	PASI-M
10537026006	MW-4 Dup	EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
		WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		TKN-NH3 Calculation	NMJ	1	PASI-V
10537026007	EB-01	EPA 350.1	DMB	1	PASI-V
		EPA 351.2	DMB	1	PASI-V
		EPA 353.2	JFP	1	PASI-M
		WI MOD DRO	JVM	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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)

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PROJECT NARRATIVE

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.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Method: EPA 350.1

Description: 350.1 Ammonia

Client: Bay West LLC

Date: 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

Additional Comments:

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PROJECT NARRATIVE

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.

Additional Comments:

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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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Sample: MW-01		Lab ID: 10537026001		Collected: 10/26/20 14:36		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis							
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		Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis							
1,4-Dioxane (SIM)	16.7	ug/L	0.23	0.097	1	11/05/20 18:45	11/09/20 02:00	123-91-1	1M
Surrogates									
1,4-Dioxane-d8 (S)	36	%	30-125		1	11/05/20 18:45	11/09/20 02:00		
Total Organic Nitrogen Calc.		Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Virginia							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia		Analytical Method: EPA 350.1 Pace Analytical Services - Virginia							
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		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Virginia							
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		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 10:59		FS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

Sample: MW-02		Lab ID: 10537026002		Collected: 10/27/20 10:13		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis							
WDRO C10-C28	<0.10	mg/L	0.10	0.034	1	10/29/20 15:47	10/30/20 18:06		
Surrogates									
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		Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis							
1,4-Dioxane (SIM)	0.11J	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:02	123-91-1	
Surrogates									
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.		Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Virginia							
Total Organic Nitrogen	0.47J	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia		Analytical Method: EPA 350.1 Pace Analytical Services - Virginia							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:34	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Virginia							
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		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	0.57	mg/L	0.020	0.018	1		10/30/20 11:01		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

Sample: MW-03		Lab ID: 10537026003		Collected: 10/27/20 15:20		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	0.10J	mg/L	0.11	0.037	1	10/29/20 15:47	10/30/20 18:14		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	1.5	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:23	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%.	30-125		1	11/02/20 17:19	11/04/20 04:23		H5
Total Organic Nitrogen Calc.									
Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Virginia									
Total Organic Nitrogen	1.0	mg/L	0.69	0.40	1		11/10/20 09:26		
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Virginia									
Nitrogen, Ammonia	2.6	mg/L	0.10	0.042	1		11/05/20 10:39	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Virginia									
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									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.034	mg/L	0.020	0.018	1		11/11/20 11:01		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Sample: MW-04		Lab ID: 10537026004		Collected: 10/27/20 12:33		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.11	mg/L	0.11	0.037	1	10/29/20 15:47	10/30/20 18:21		
Surrogates									
n-Triacontane (S)	92	%	42-125		1	10/29/20 15:47	10/30/20 18:21	638-68-6	
8270E MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C									
Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	2.7	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 04:43	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	31	%	30-125		1	11/02/20 17:19	11/04/20 04:43		H5
Total Organic Nitrogen Calc.									
Analytical Method: TKN-NH3 Calculation									
Pace Analytical Services - Virginia									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
350.1 Ammonia									
Analytical Method: EPA 350.1									
Pace Analytical Services - Virginia									
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:35	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Pace Analytical Services - Virginia									
Nitrogen, Kjeldahl, Total	<0.50	mg/L	0.50	0.15	1	11/06/20 10:04	11/09/20 08:15	7727-37-9	
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:02		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

Sample: MW-05		Lab ID: 10537026005		Collected: 10/26/20 12:27		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.098	mg/L	0.098	0.033	1	10/29/20 15:47	10/30/20 18:28		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C									
Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	<0.25	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 03:41	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%	30-125		1	11/02/20 17:19	11/04/20 03:41		2M
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Pace Analytical Services - Minneapolis									
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

Sample: MW-4 Dup		Lab ID: 10537026006		Collected: 10/27/20 12:43		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis							
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	10/29/20 15:47	10/30/20 18:36		
Surrogates									
n-Triacontane (S)	82	%	42-125		1	10/29/20 15:47	10/30/20 18:36	638-68-6	
8270E MSSV 14 Dioxane By SIM		Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis							
1,4-Dioxane (SIM)	2.6	ug/L	0.25	0.11	1	11/02/20 17:19	11/04/20 05:04	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%	30-125		1	11/02/20 17:19	11/04/20 05:04		H5
Total Organic Nitrogen Calc.		Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Virginia							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
350.1 Ammonia		Analytical Method: EPA 350.1 Pace Analytical Services - Virginia							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:37	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Virginia							
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		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:04		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

Sample: EB-01		Lab ID: 10537026007		Collected: 10/27/20 13:35		Received: 10/27/20 17:02		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO LV GCS Silica Gel		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis							
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	10/29/20 15:47	10/30/20 18:43		
Surrogates									
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		Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis							
1,4-Dioxane (SIM)	0.17J	ug/L	0.23	0.097	1	11/05/20 18:45	11/09/20 04:05	123-91-1	1M
Surrogates									
1,4-Dioxane-d8 (S)	31	%	30-125		1	11/05/20 18:45	11/09/20 04:05		
Total Organic Nitrogen Calc.		Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Virginia							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		11/10/20 09:27		
350.1 Ammonia		Analytical Method: EPA 350.1 Pace Analytical Services - Virginia							
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.042	1		11/05/20 10:38	7664-41-7	
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Virginia							
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		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.018	1		10/30/20 11:05		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (SIM)	ug/L	<0.25	0.25	0.11	11/04/20 01:57	
1,4-Dioxane-d8 (S)	%.	38	30-125		11/04/20 01:57	

Parameter	Units	3783615		3783616			% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec				
1,4-Dioxane (SIM)	ug/L	10	10.7	11.5	107	115	32-128	7	20	
1,4-Dioxane-d8 (S)	%.				31	29	30-125			S0

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (SIM)	ug/L	<0.25	0.25	0.11	11/08/20 21:51	
1,4-Dioxane-d8 (S)	%.	30	30-125		11/08/20 21:51	

LABORATORY CONTROL SAMPLE & LCSD: 3788574

3788575

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,4-Dioxane (SIM)	ug/L	10	8.8	10.1	88	101	32-128	13	20	
1,4-Dioxane-d8 (S)	%.				37	31	30-125			

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
WDRO C10-C28	mg/L	<0.10	0.10	0.034	10/30/20 17:45	
n-Triacontane (S)	%.	97	42-125		10/30/20 17:45	

LABORATORY CONTROL SAMPLE & LCSD: 3780134

3780135

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
WDRO C10-C28	mg/L	0.8	0.66	0.66	82	83	54-125	1	20	
n-Triacontane (S)	%.				92	86	42-125			

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	0.10	0.042	11/05/20 10:29	

LABORATORY CONTROL SAMPLE: 799655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	2	1.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 799656 799657

Parameter	Units	10537026001		799657		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, Ammonia	mg/L	<0.10	2	2	1.7	1.7	86	86	90-110	0	20 M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 799658 799659

Parameter	Units	12153049005		799659		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, Ammonia	mg/L	ND	2	2	1.7	1.8	86	88	90-110	2	20 M1

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

QC Batch: 202459 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.50	0.50	0.15	11/09/20 08:09	

LABORATORY CONTROL SAMPLE: 800073

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.1	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 800074 800075

Parameter	Units	800074		800075		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Kjeldahl, Total	mg/L	<0.50	10	10.2	10.2	102	102	90-110	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 800076 800077

Parameter	Units	800076		800077		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Kjeldahl, Total	mg/L	3.8	10	13.0	13.1	92	92	90-110	1	15	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

QC Batch: 707737 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: 10537026001, 10537026002, 10537026004, 10537026005, 10537026006, 10537026007

METHOD BLANK: 3781465 Matrix: Water
Associated Lab Samples: 10537026001, 10537026002, 10537026004, 10537026005, 10537026006, 10537026007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.020	0.020	0.018	10/30/20 11:11	FS

LABORATORY CONTROL SAMPLE: 3781466

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.90	90	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3781467 3781468

Parameter	Units	10535955007		3781467		3781468		% Rec Limits	RPD	Max RPD	Qual		
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec						
Nitrogen, NO2 plus NO3	mg/L	0.18	1	1	1	1.2	1.1	99	92	90-110	6	20	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3781469 3781470

Parameter	Units	10535955008		3781469		3781470		% Rec Limits	RPD	Max RPD	Qual		
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec						
Nitrogen, NO2 plus NO3	mg/L	<0.020	1	1	1	1.1	1.1	109	106	90-110	3	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10537026

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

Parameter	Units	Blank Result	Reporting 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 Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	103	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3793390 3793391

Parameter	Units	3793390		3793391		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10538096002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, NO2 plus NO3	mg/L	7.0	10	10	17.8	18.2	108	112	90-110	2	20 M6

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10537026

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10537026001	MW-01	WI MOD DRO	707537	WI MOD DRO	707900
10537026002	MW-02	WI MOD DRO	707537	WI MOD DRO	707900
10537026003	MW-03	WI MOD DRO	707537	WI MOD DRO	707900
10537026004	MW-04	WI MOD DRO	707537	WI MOD DRO	707900
10537026005	MW-05	WI MOD DRO	707537	WI MOD DRO	707900
10537026006	MW-4 Dup	WI MOD DRO	707537	WI MOD DRO	707900
10537026007	EB-01	WI MOD DRO	707537	WI MOD DRO	707900
10537026001	MW-01	EPA Mod. 3510C	709186	EPA 8270E by SIM	709571
10537026002	MW-02	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
10537026003	MW-03	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
10537026004	MW-04	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
10537026005	MW-05	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
10537026006	MW-4 Dup	EPA Mod. 3510C	708185	EPA 8270E by SIM	708625
10537026007	EB-01	EPA Mod. 3510C	709186	EPA 8270E by SIM	709571
10537026001	MW-01	TKN-NH3 Calculation			
10537026002	MW-02	TKN-NH3 Calculation			
10537026003	MW-03	TKN-NH3 Calculation			
10537026004	MW-04	TKN-NH3 Calculation			
10537026006	MW-4 Dup	TKN-NH3 Calculation			
10537026007	EB-01	TKN-NH3 Calculation			
10537026001	MW-01	EPA 350.1	202346		
10537026002	MW-02	EPA 350.1	202346		
10537026003	MW-03	EPA 350.1	202346		
10537026004	MW-04	EPA 350.1	202346		
10537026006	MW-4 Dup	EPA 350.1	202346		
10537026007	EB-01	EPA 350.1	202346		
10537026001	MW-01	EPA 351.2	202459	EPA 351.2	202476
10537026002	MW-02	EPA 351.2	202459	EPA 351.2	202476
10537026003	MW-03	EPA 351.2	202459	EPA 351.2	202476
10537026004	MW-04	EPA 351.2	202459	EPA 351.2	202476
10537026006	MW-4 Dup	EPA 351.2	202459	EPA 351.2	202476
10537026007	EB-01	EPA 351.2	202459	EPA 351.2	202476
10537026001	MW-01	EPA 353.2	707737		
10537026002	MW-02	EPA 353.2	707737		
10537026003	MW-03	EPA 353.2	710202		
10537026004	MW-04	EPA 353.2	707737		
10537026005	MW-05	EPA 353.2	707737		
10537026006	MW-4 Dup	EPA 353.2	707737		
10537026007	EB-01	EPA 353.2	707737		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
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	Address:	1700 Elm St. Minneapolis MN, 55414	Work Order Number:	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:	651-291-3493	Copy To:	tharsch@baywest.com					Program Code	
Copy To:	Eweaver@baywest.com								

WO#: 10537026

10537026

ITEM #	Location Unique ID	Sample Common ID	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 (W/ DRO)	2,3,7,8 TCDD (Dioxin/EPA 1613B/0290A)	1,4-Dioxane (0270 SIM)	PFAS	Nitrogen Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N(SM 4500 NO3-H)	Comments
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	10-26-20	1436	10	X	X	X	X	X	X	001
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	10-27-20	1013	10	X	X	X	X	X	X	002
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	10-27-20	1520	10	X	X	X	X	X	X	003
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	10-27-20	1233	10	X	X	X	X	X	X	004
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	10-26-20	1827	10	X	X	X	X	X	X	005
6	2011001374 MW-4 Dup	QC-FR	QC-FR	G	WG	NW	Wtr-Ground	10-27-20	1243	10	X	X	X	X	X	X	006
7	Equipment Blank	EB-01	QC-FR	G	WG	NW	Wtr-Ground	10-07-20	1335	10	X	X	X	X	X	X	007

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		AGREED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
		Zachary Bay West		10/27/20		1702		TN / Pace		10/27/20		1702		Temp (C) 11.5	
														Received on Ice (Y/N)	
														Custody Sealed Cooler (Y/N)	
														Samples Intact (Y/N)	

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: John Conroy
 SIGNATURE of SAMPLER: *[Signature]*
 DATE Signed (MM/DD/YYYY): 10/27/20



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# : 10537026

Courier:

Fed Ex UPS USPS Client
 Pace SpeeDee Commercial

PM: CL1 Due Date: 11/11/20
 CLIENT: BW-BAY WEST

Tracking Number:

See Exceptions
 ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 1.5, 2.2, 0.0, 0.1 °C Average Corrected Temp (no temp blank only): °C See Exceptions ENV-FRM-MIN4-0142 1 Container
 Correction Factor: true Cooler Temp Corrected w/temp blank: 1.5, 2.2, 6.0, 0.1 °C

USDA Regulated Soil: N/A, water sample/Other: Date/Initials of Person Examining Contents: 10/27/20

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. <u>Some contained in mw-5</u>
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-5 2/2</u> <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DR/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142 pH Paper Lot# Res. Chlorine <u>0-6 Roll 105120</u> <u>0-6 Strip</u> <u>0-14 Strip</u>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased):
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____
 Comments/Resolution: _____

Field Data Required? Yes No

Date/Time: _____

Project Manager Review: [Signature]

Date: 10/29/20

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

Labeled by: RMC

Internal Transfer Chain of Custody

Samples Pre-Logged into eCOC.

Workorder: 10537026 Workorder Name: 200408 SW#134 Begin Dump

State Of Origin: MN-ADMIN
 Cert. Needed: Yes No
 Owner Received Date: 10/27/2020 Results Requested By: 11/11/2020

Report To: Colin Lynch
 Pace Analytical Minnesota
 1700 Elm Street
 Suite 200
 Minneapolis, MN 55414
 Phone (612)607-1700

Subcontract To: Pace Analytical Virginia MN
 315 Chestnut Street
 Virginia, MN 55792
 Phone (218)742-1042

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Total Organic Nitrogen (351.2-350.1)	LAB USE ONLY
						H2SO4	BP3S		
1	MW-01	PS	10/26/2020 14:36	10537026001	Water	1		X	
2	MW-02	PS	10/27/2020 10:13	10537026002	Water	1		X	
3	MW-03	PS	10/27/2020 15:20	10537026003	Water	1		X	
4	MW-04	PS	10/27/2020 12:33	10537026004	Water	1		X	
5	MW-4 Dup	PS	10/27/2020 12:43	10537026006	Water	1		X	
6	EB-01	PS	10/27/2020 13:35	10537026007	Water	1		X	

Transfers	Released By	Date/Time	Received By	Date/Time	Cooler Temperature on Receipt	°C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	Y or N
1	<i>[Signature]</i>	10/29/20	<i>[Signature]</i>	10/29/20	2.0		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
2	<i>[Signature]</i>	10/29/20	<i>[Signature]</i>	10/30/20	2.0		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
3												

***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

Sample Condition Upon Receipt

Client Name: Pace MN

Project #: **WO# : 12152934**

PM: LM2 Due Date: 11/11/20

CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.7 Cooler Temp Corrected °C: 2.0 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6 °C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 10/29/20 DC

Comments: Bm 10/30/20

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

SEE EXCEPTION FORM Y N

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Nikki Jarve Date: 11/02/20

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

Date : 30-OCT-2020 17:59

Client ID: HM-01

Sample Info: 10537026001

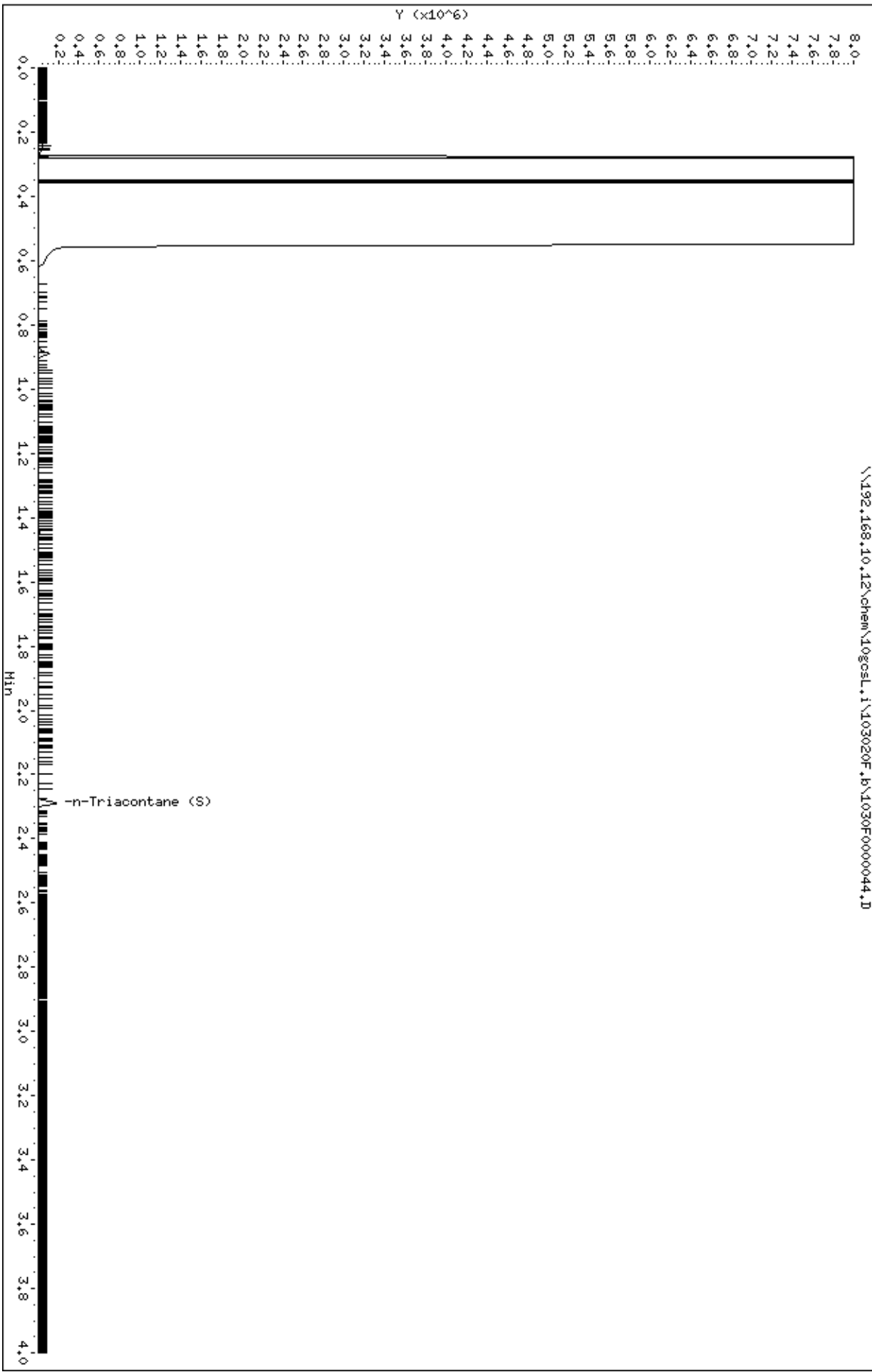
Volume Injected (uL): 1.0

Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32



Date : 30-OCT-2020 18:06

Client ID: HM-02

Sample Info: 10537026002

Volume Injected (uL): 1.0

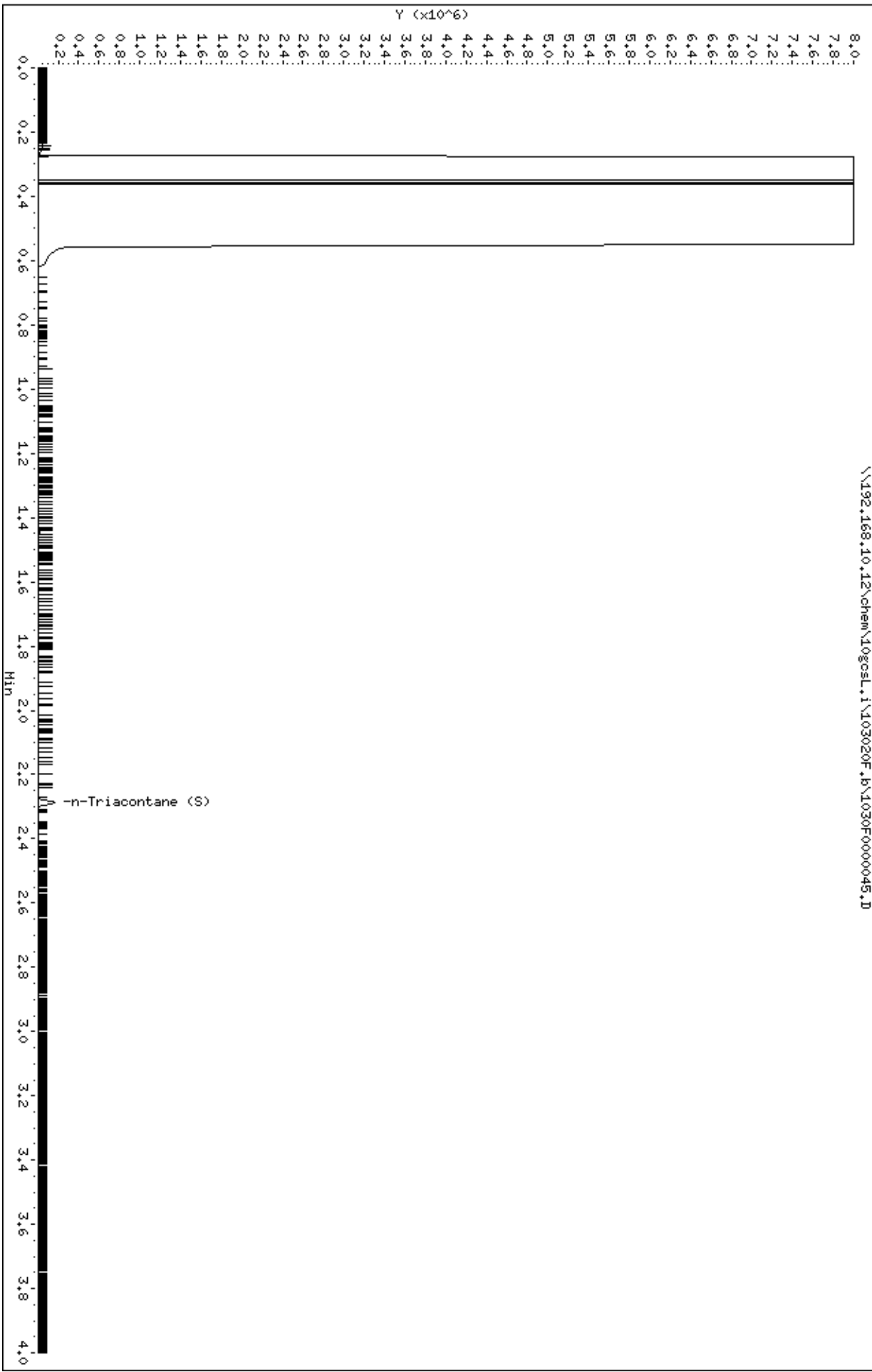
Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32

\\192.168.10.12\chem\10gosl.i\103020F.b\1030F0000045.D



Date : 30-OCT-2020 18:14

Client ID: HM-03

Sample Info: 10537026003

Volume Injected (uL): 1.0

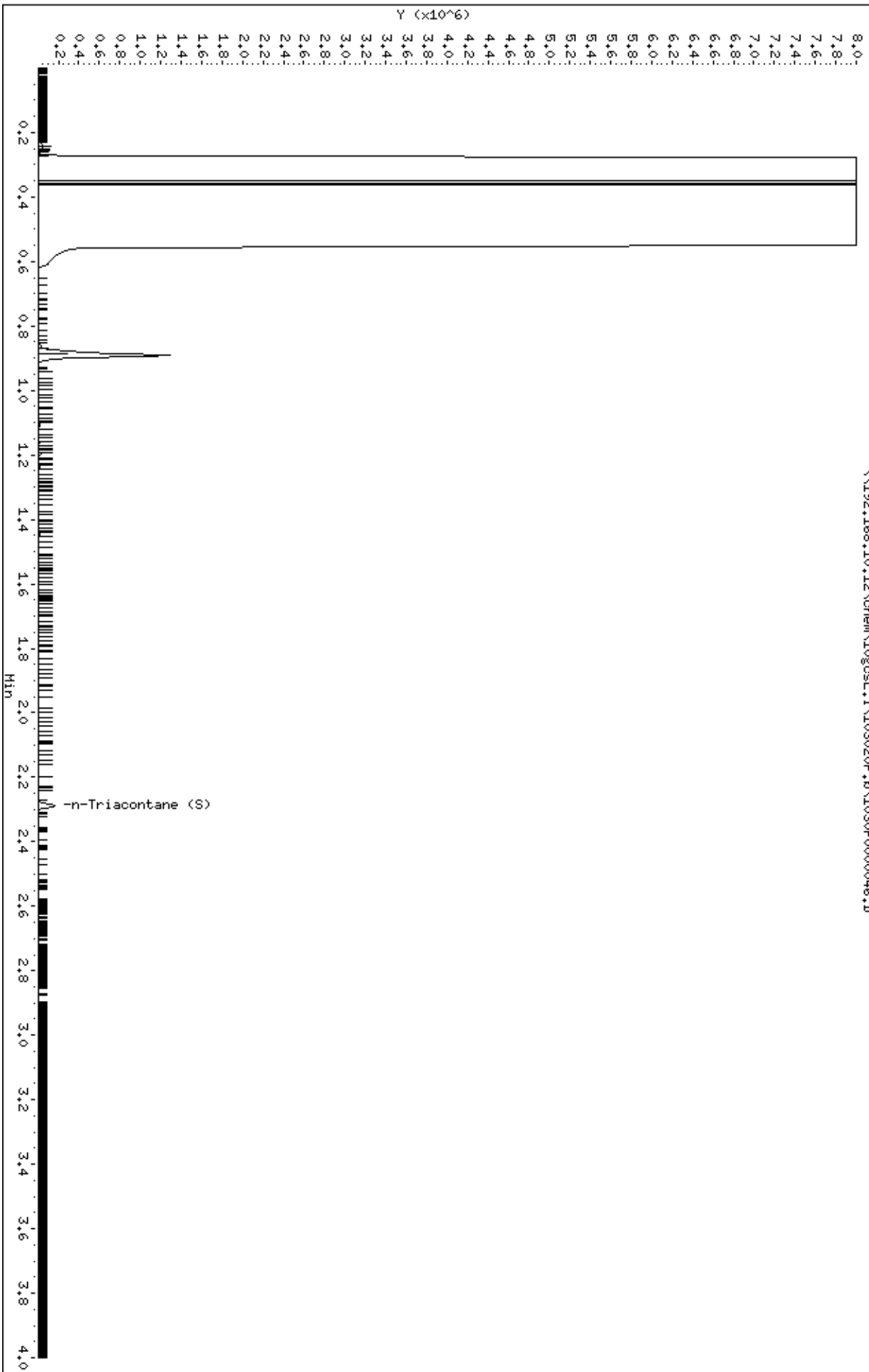
Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32

\\192.168.10.12\chem\10gosl.i\103020F.b\1030F0000046.D



Date : 30-OCT-2020 18:21

Client ID: HM-04

Sample Info: 10537026004

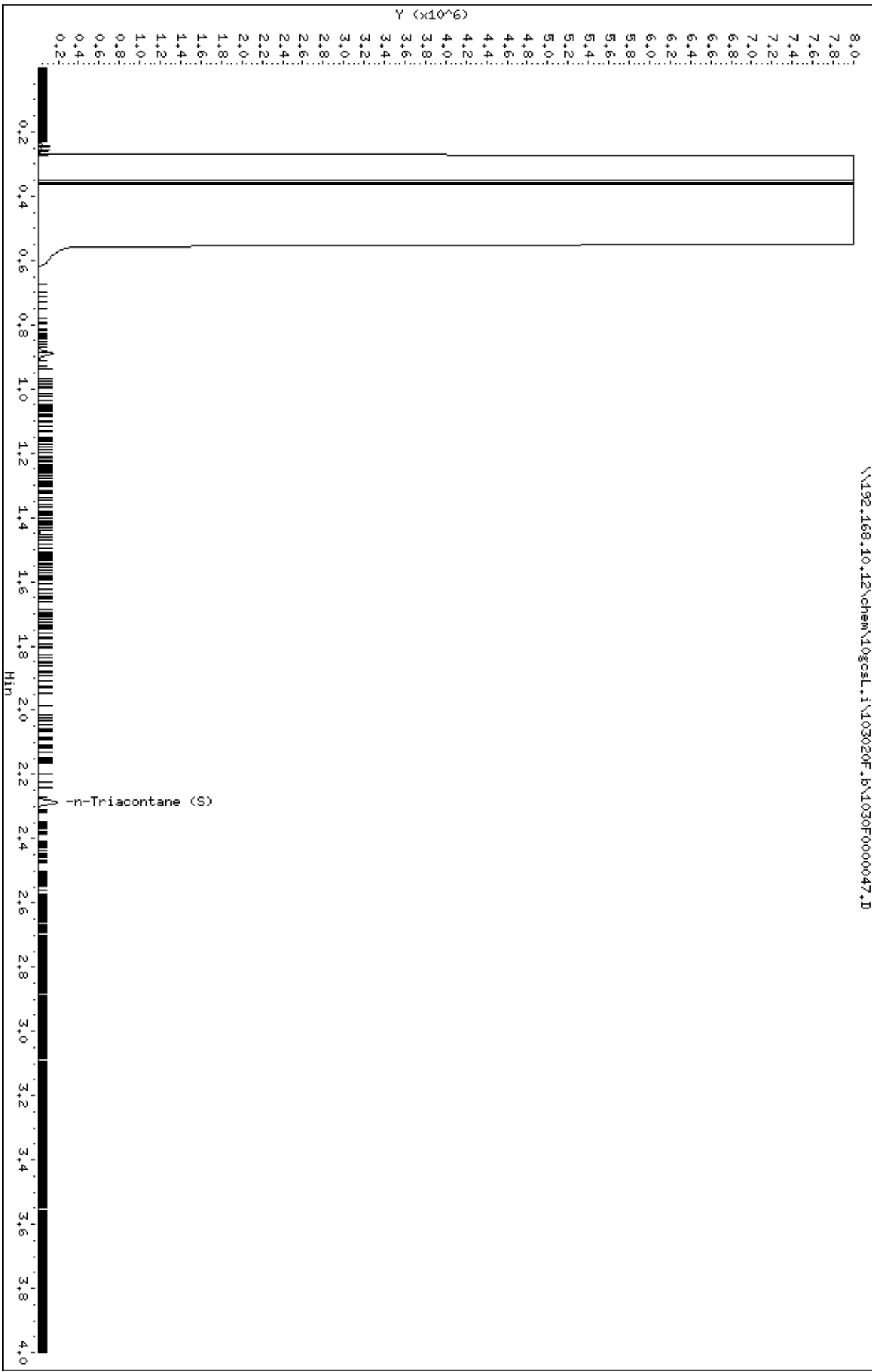
Volume Injected (uL): 1.0

Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32



Date : 30-OCT-2020 18:28

Client ID: HM-05

Sample Info: 10537026005

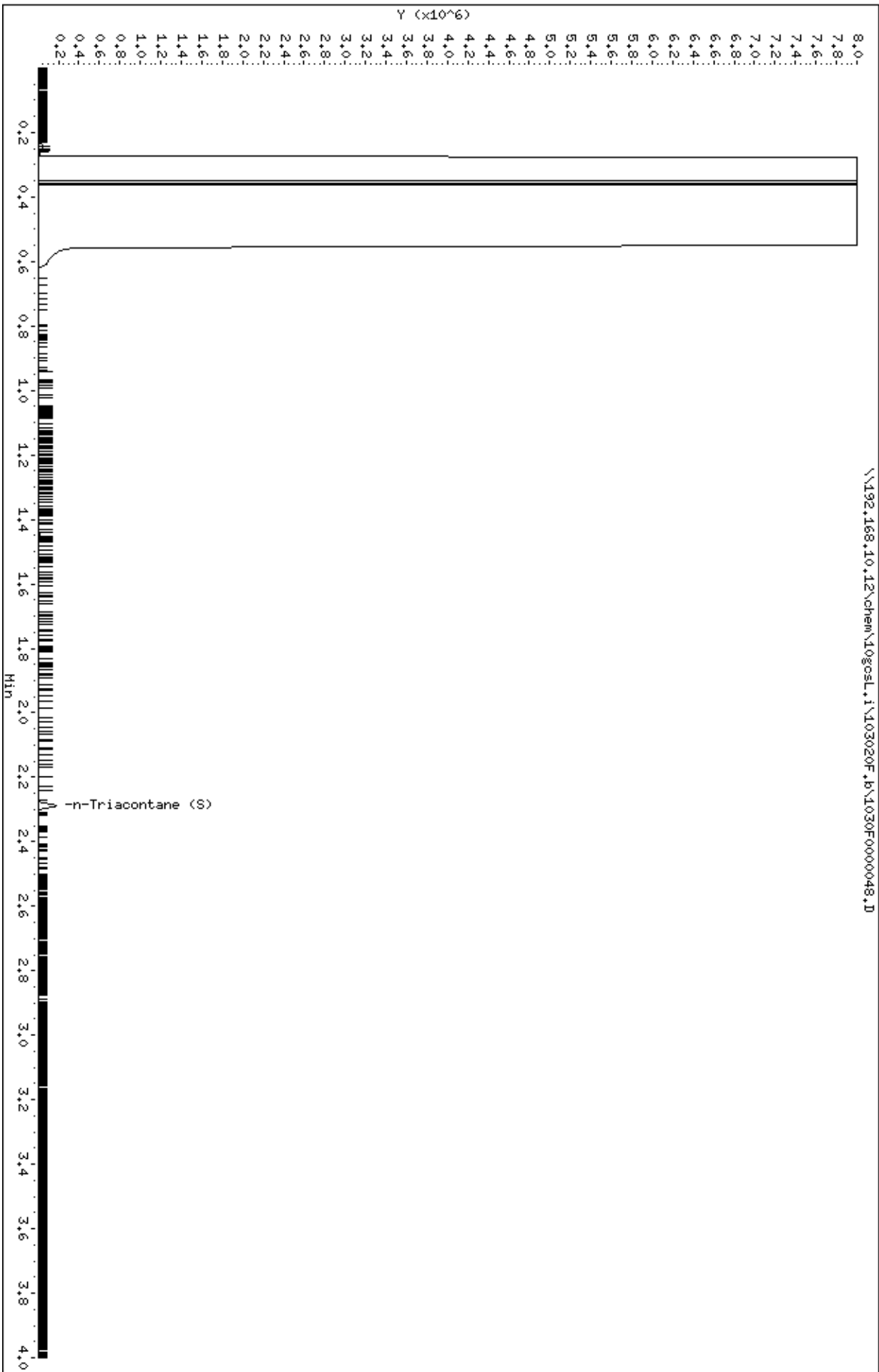
Volume Injected (uL): 1.0

Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32



Date: 30-OCT-2020 18:36

Client ID: MH-4 Dup

Sample Info: 10537026006

Volume Injected (uL): 1.0

Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JWH

Column diameter: 0.32

\\192.168.10.12\chem\10gosl.i\103020F.b\1030F0000049.D



Date : 30-OCT-2020 18:43

Client ID: EB-01

Sample Info: 10537026007

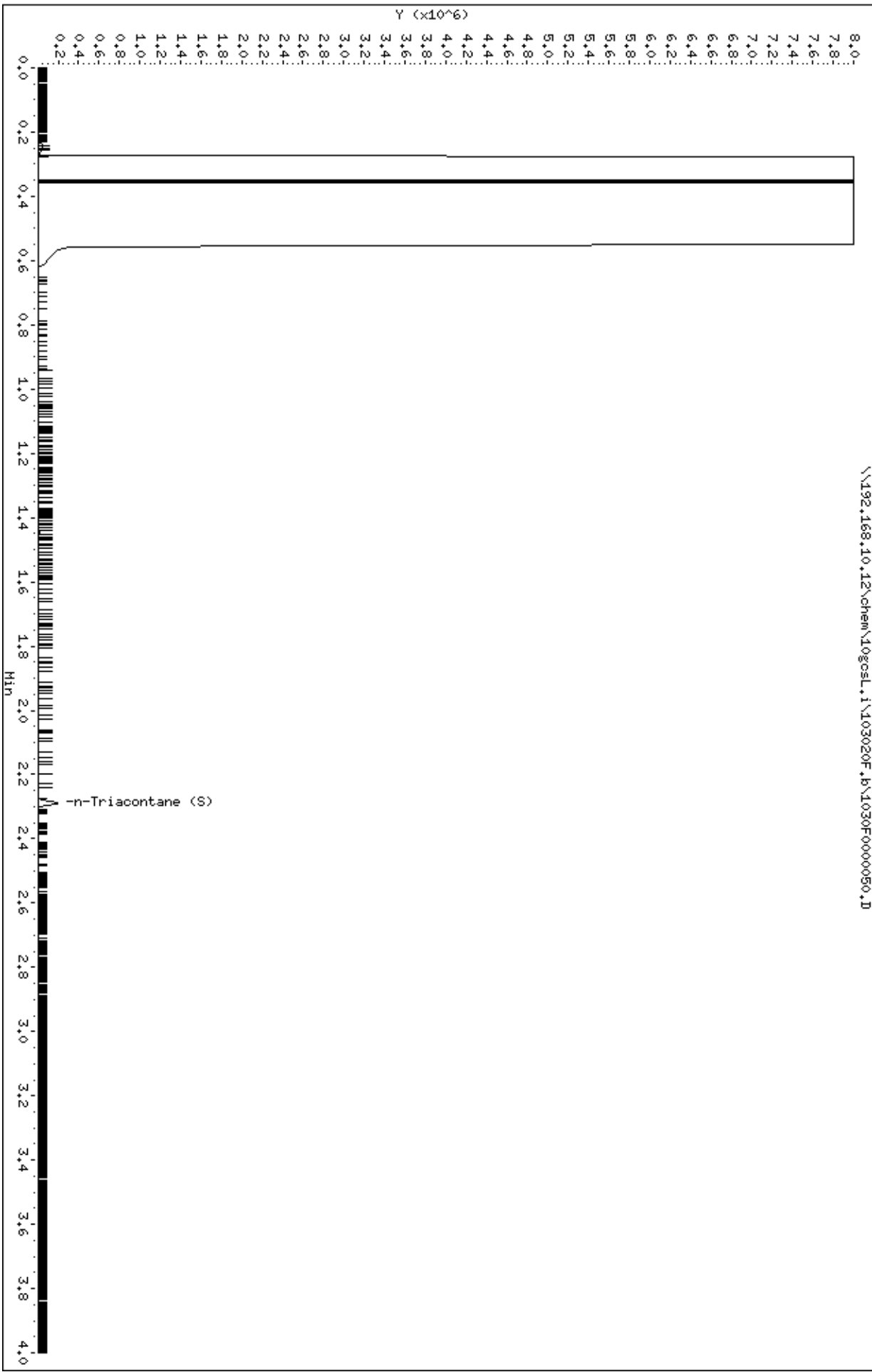
Volume Injected (uL): 1.0

Column phase: DB-5-MS20120014

Instrument: 10gosl.i

Operator: JVH

Column diameter: 0.32



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

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

Report Prepared Date:

February 26, 2021

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.

REPORT OF LABORATORY ANALYSIS

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

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.

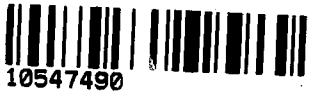
Report No.: 10547490_82907CDD_DFR

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 - GW Sampling	Attention:	Accounts Payable	Lab Name:	Pace	COC ID:	
Address:	5 Empire Dr. St. Paul MN, 55103	Project Number:	200408	Company Name:	Bay West LLC	Address:	1700 Elm St. Minneapolis MN, 55414	Work Order Number:	3000027123
Project Manager:	Erik Nimlos	Turnaround Time:	Standard	Address:	5 Empire Dr. St. Paul, MN 55103	Lab Project Manager:	Colin Lynch	Facility Code:	SW-134
Email To:	enimlos@baywest.com	Site Location (State):	MN	Purchase Order No.:	205946	Lab Phone:	612-656-2286	Project Task Code:	PRJ07913
Phone:	651-291-3493	Copy To:	ryanr@baywest.com					Program Code:	
Copy To:	Eweaver@baywest.com	Copy To:	gvanderwaal@baywest.com						

ITEM #	Location Unique ID	Sample Common ID	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.	Preservatives						Comments					
											HCL	H2SO4	H2SO4									
												Requested Analysis										
												DRO with silica gel cleanup (MI DRO)	2,3,7,8 TCDD (Dioxin) (EPA 1613B/8290A)	1,4-Dioxane (8270 SIM)	PFAS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N (SM 4500 NO3-H)					
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	2/8/21	1245	10	X	X	X	X	X	X					DU1	
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	2/10/21	1100	1	X	X	X	X	X	X					DU2	
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	2/9/21	1510	1	X	X	X	X	X	X					DU3	
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	2/5/21	1010	1	X	X	X	X	X	X					DU4	
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	2/8/21	1730	1	X	X	X	X	X	X					DU5	
6	834636	MW-04 - D	QC-FR	G	WG	NW	Wtr-Ground	2/9/21	1245 1040	1	X	X	X	X	X	X					DU6	
7	Equipment Blank	EB-01	QC-EB	G	WG	NW	Wtr-Ground	2/9/21	1715	1	X	X	X	X	X	X					DU7	
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>[Signature]</i>	2/10/21	1315	TK Pace	2/10/21	1315		Y	N	Y

WO#: 10547490



SAMPLER NAME AND SIGNATURE		DATE Signed (MM/DD/YYYY):
PRINT Name of SAMPLER:	<i>ZACH MASON</i>	
SIGNATURE of SAMPLER:	<i>[Signature]</i>	2/10/21

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
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 Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt **Client Name:** Bay West **Project #:** WO# : 10547490

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial

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

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1A36) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No **Were All Container Temps Taken?** Yes No N/A

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 See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: +0.1 **Cooler Temp Corrected w/temp blank:** 1.7, 3.0, 0.2, 4.3 °C

USDA Regulated Soil: N/A, water sample/Other: _____ **Date/Initials of Person Examining Contents:** ED 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 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>001-007</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO₃, H₂SO₄, <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate ^{2/2}
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/B015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142 pH Paper Lot# Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip <u>221419</u>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. See Exception <input type="checkbox"/> ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

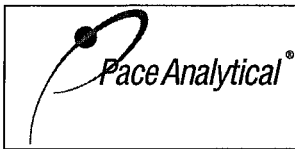
CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: [Signature] **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).



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:

Workorder #: 10547490

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																		
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																		
			<table border="1"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp												
No Temp Blank																					
Read Temp	Corrected Temp	Average Temp																			

Tracking Number/Temperature	

Issue Type: <i>frozen</i>		
Sample ID	Container Type	# of Containers
MW-03	BP3S	1
MW-03	BP3U	1
MW-04	BP3U	1
MW-05	BP3U	1
MW-04-D	BP3U	2
MW-04-D	BP3S	1

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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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	Conc pg/L	EMPC pg/L	EDL 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

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 NC = Not Calculated

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 E = Exceeds calibration range

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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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	Conc pg/L	EMPC pg/L	EDL 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

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 E = Exceeds calibration range

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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
Dry Weight Extracted	NA	Collected	02/08/2021 17:30
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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

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 E = Exceeds calibration range

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
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 E = Exceeds calibration range

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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
CCal Filename(s)	U210225B_02 & U210225B_19	Extracted	02/16/2021 10:00
Method Blank ID	BLANK-87109	Analyzed	02/26/2021 03:33

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent 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

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
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Method 8290A Blank Analysis Results

Lab Sample Name	DFBLKOF	Matrix	Water
Lab Sample ID	BLANK-87109	Dilution	NA
Filename	F210225B_04	Extracted	02/16/2021 10:00
Total Amount Extracted	1010 mL	Analyzed	02/25/2021 23:57
ICAL ID	F210105	Injected By	SMT
CCal Filename(s)	F210225B_01 & F210225B_17		

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCS-87110	Matrix	Water
Filename	F210225B_02	Dilution	NA
Total Amount Extracted	1010 mL	Extracted	02/16/2021 10:00
ICAL ID	F210105	Analyzed	02/25/2021 22:23
CCal Filename(s)	F210225B_01 & F210225B_17	Injected By	SMT
Method Blank ID	BLANK-87109		

Native Isomers	Qs (ng)	Qm (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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCSD-87111	Matrix	Water
Filename	F210225B_03	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	02/16/2021 10:00
ICAL ID	F210105	Analyzed	02/25/2021 23:10
CCal Filename(s)	F210225B_01 & F210225B_17	Injected By	SMT
Method Blank ID	BLANK-87109		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	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

REPORT OF LABORATORY ANALYSIS

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Method 8290A

Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

Spike 1 ID LCS-87110
Spike 1 Filename F210225B_02

Spike 2 ID LCSD-87111
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

REPORT OF LABORATORY ANALYSIS

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Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

March 10, 2021

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

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

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 #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

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Report No.....10547875

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.

1.7, 3.0, 0.2, 4.3

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
Company:	Bay West	Project Name:	SW#134 Begin Dump - GW Sampling	Company Name:	Bay West LLC	Lab Name:	1700 Elm St. Minneapolis MN, 55414	COC ID:	
Address:	5 Empire Dr. St. Paul MN, 55103	Project Number:	200408	Address:	5 Empire Dr. St. Paul, MN 55103	Address:	1700 Elm St. Minneapolis MN, 55414	Work Order Number:	3000027123
Project Manager:	Erik Nimlos	Turnaround Time:	Standard	Address:	5 Empire Dr. St. Paul, MN 55103	Lab Project Manager:	Colin Lynch	Facility Code:	SW-134
Email To:	enimlos@baywest.com	Site Location (State):	MN	Purchase Order No.:	205946	Lab Phone:	612-656-2286	Project Task Code:	PRJ07913
Phone:	651-291-3493	Copy To:	ivanr@baywest.com					Program Code	
Copy To:	Eweaver@baywest.com	Copy To:	gvandenwaal@baywest.com						

ITEM #	Location Unique ID	Sample Common ID	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.	Comments
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	2/8/21	1245	10	001
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	2/10/21	1100		002
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	2/9/21	1510		003
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	2/9/21	1010		004
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	2/8/21	1730		005
6	834636	MW-04-D	QC-FR	G	WG	NW	Wtr-Ground	2/9/21	1040		006
7	Equipment Blank	EB-01	QC-EB	G	WG	NW	Wtr-Ground	2/9/21	1715		007
8											
9											
10											
11											
12											

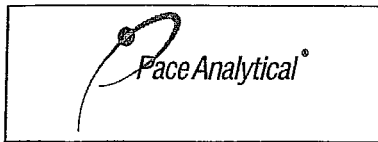
ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		2/10/21	1315		2/10/21	1315	Y N Y
							Received on Ice (Y/N)
							Custody Sealed Cooler (Y/N)
							Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Brett Panson
SIGNATURE of SAMPLER:	<i>[Signature]</i>
DATE Signed (MM/DD/YYYY):	2/10/21

WO#: 10547491



10547491



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:

Bay West

Project #:

WO# : 10547491

Courier:

Fed Ex UPS USPS Client
 Pace SpeeDee Commercial

PM: KAC

Due Date: 02/24/21

CLIENT: BW-BAY WEST

Tracking Number:

See Exceptions
 ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present?

Yes No

Seals Intact?

Yes No

Biological Tissue Frozen?

Yes No N/A

Packing Material:

Bubble Wrap Bubble Bags None Other: _____

Temp Blank?

Yes No

Thermometer:

T1(0461) T2(1A36) T3(0459)
 T4(0254) T5(0489)

Type of Ice:

Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No

Were All Container Temps Taken? Yes No N/A

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

See Exceptions ENV-FRM-MIN4-0142
 1 Container

Correction Factor: +0.1

Cooler Temp Corrected w/temp blank: 1.7, 3.0, 0.2, 4.3 °C

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: ED 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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>001-007</u> <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate <u>2/2</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/B015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	pH Paper Lot# Res. Chlorine 0-6 Roll <u>221419</u> 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____
 Comments/Resolution: _____

Field Data Required? Yes No

Date/Time: _____

Project Manager Review: [Signature]

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).



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:

Workorder #: 10547491

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																		
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																		
			<table border="1"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp												
No Temp Blank																					
Read Temp	Corrected Temp	Average Temp																			

Tracking Number/Temperature

Issue Type: <i>frozen</i>		
Sample ID	Container Type	# of Containers
MW-03	BP3S	1
MW-03	BP3U	1
MW-04	BP3U	1
MW-05	BP3U	1
MW-04-D	BP3U	2
MW-04-D	BP3S	1

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Report No.....10547875

Appendix B

Sample Analysis Summary



Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	Q210303B_004
Collected	02/08/2021 12:45	Ending CCal File	Q210303B_008
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	
PFTTrDA	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

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
Matrix	Industrial_Water	CCal File	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	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

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
Matrix	Industrial_Water	CCal File	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	Q210303B_004
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-Cl-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-Cl-PF3OUdS	0.000	0.0280	0.00	12.52	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	A210301D_003
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	
PFTTrDA	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
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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	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_PFOA	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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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	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	5.26	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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	A210301D_003
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-Cl-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-Cl-PF3OUdS	0.000	0.0170	0.00	8.57	
PFTTrDA	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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	A210301D_003
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	
PFTTrDA	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
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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	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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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

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-Cl-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-Cl-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	

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Sample Analysis Summary
 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
Matrix	Industrial_Water	CCal File	A210301D_003
Collected	02/09/2021 10:10	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	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	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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

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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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

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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	A210301D_003
Collected	02/09/2021 10:10	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	0.340	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-Cl-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-Cl-PF3OUdS	0.000	0.0170	8.54	8.57	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	A210301D_003
Collected	02/08/2021 17:30	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	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	
PFTTrDA	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

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
Matrix	Industrial_Water	CCal File	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	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_PFOA	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
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	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

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
Matrix	Industrial_Water	CCal File	A210301D_003
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-Cl-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-Cl-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	

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04-D	Extraction Date	02/25/2021 16:37
Lab Sample ID	10547491006	Total Amount Extracted	486mL
Lab File ID	A210301D_016	Ical ID	210301A03
Matrix	Industrial_Water	CCal File	A210301D_003
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	
PFTTrDA	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

Client Sample ID	MW-04-D	Extraction Date	02/25/2021 16:37
Lab Sample ID	10547491006	Total Amount Extracted	486mL
Lab File ID	A210301D_016	Ical ID	210301A03
Matrix	Industrial_Water	CCal File	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	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
 MPCA Guidance PFCs

Client Sample ID	MW-04-D	Extraction Date	02/25/2021 16:37
Lab Sample ID	10547491006	Total Amount Extracted	486mL
Lab File ID	A210301D_016	Ical ID	210301A03
Matrix	Industrial_Water	CCal File	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04-D	Extraction Date	02/25/2021 16:37
Lab Sample ID	10547491006	Total Amount Extracted	486mL
Lab File ID	A210301D_016	Ical ID	210301A03
Matrix	Industrial_Water	CCal File	A210301D_003
Collected	02/09/2021 10:40	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	3.59	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-Cl-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-Cl-PF3OUdS	0.000	0.0170	8.52	8.57	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	Q210303B_004
Collected	02/09/2021 17:15	Ending CCal File	Q210303B_008
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	ND	0.51	0.51	0.076	1	375-22-4	
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	
PFTTrDA	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

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
Matrix	Industrial_Water	CCal File	Q210303B_004
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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	Q210303B_004
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	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	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Industrial_Water	CCal File	Q210303B_004
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-Cl-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-Cl-PF3OUdS	0.000	0.0280	0.00	12.52	
PFTTrDA	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	

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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	

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	
PFTTrDA	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

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

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

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

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

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	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference 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	
8:2 FTS	0.000	1.25	0.00	6.76	
9-Cl-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	
NMeFOSAA	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-Cl-PF3OUdS	0.000	60.3	8.52	8.57	
PFTTrDA	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	

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LCS Analysis Summary
 MPCA Guidance PFCs

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_PFBFA	10	11	107	50-200	
13C5_PFPeA	10	10	101	50-200	
13C3_PFBFS	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_PFOA	10	9.2	92	50-200	
d5-EtFOSAA	10	9.7	97	50-200	
13C7_PFUdA	10	10	100	50-200	
13C2_PFDaA	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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-87503
 Run File Name A210301D_006
 Analyzed 03/01/2021 23:09
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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
PFTTrDA	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		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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-87503
 Run File Name A210301D_006
 Analyzed 03/01/2021 23:09
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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	

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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-87503
 Run File Name A210301D_006
 Analyzed 03/01/2021 23:09
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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	
PFTTrDA	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

Lab Sample ID LCSD-87510
 Run File Name A210301D_007
 Analyzed 03/01/2021 23:24
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 Level L

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_PFDaA	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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LCSD Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCSD-87510
 Run File Name A210301D_007
 Analyzed 03/01/2021 23:24
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 Level L

Native Analytes

Compound	Known Conc.	LCS Conc. Found	LCS Rec. %	LCSD Conc. Found	LCSD Rec. %	RPD %	Recovery Limits	Qualifiers
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	
PFTTrDA	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 Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID	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 Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCSD-87510
 Run File Name A210301D_007
 Analyzed 03/01/2021 23:24
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 Level L

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	
PFTTrDA	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	

REPORT OF LABORATORY ANALYSIS

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MS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID 10547491005-MS
 Run File Name A210301D_024
 Analyzed 03/02/2021 03:46
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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_PFBFS	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	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
 1700 Elm Street, Suite 200
 Minneapolis, MN 55414
 Phone: 612.607.1700
 Fax: 612.607.6444
 www.pacelabs.com

MS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID 10547491005-MS
 Run File Name A210301D_024
 Analyzed 03/02/2021 03:46
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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
PFTTrDA	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

REPORT OF LABORATORY ANALYSIS

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MS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID 10547491005-MS
 Run File Name A210301D_024
 Analyzed 03/02/2021 03:46
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 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

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MS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID 10547491005-MS
 Run File Name A210301D_024
 Analyzed 03/02/2021 03:46
 Injected By QL

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210301A03
 Level

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	0.48	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	
PFTDA	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

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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
(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc
Gerrit Vanderwaal



REPORT OF LABORATORY ANALYSIS

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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 #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086*
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064*
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137*
Minnesota Dept of Ag 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 #: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 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

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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

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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
10547494002	MW-02	EPA 353.2	JFP	1	PASI-M
		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
10547494003	MW-03	EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
		EPA 351.2-350.1	NMJ	1	PASI-DUL
10547494004	MW-04	WI MOD DRO	TT2	2	PASI-M
		EPA 8270E by SIM	ZT	2	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 350.1	KJD	1	PASI-DUL
		EPA 351.2	BT1	1	PASI-DUL
10547494005	MW-05	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
		EPA 350.1	KJD	1	PASI-DUL
10547494006	MW-04-D	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 350.1	KJD	1	PASI-DUL
10547494007	EB-01	EPA 353.2	JFP	1	PASI-M
		EPA 350.1	KJD	1	PASI-DUL

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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

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PROJECT NARRATIVE

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

Method: EPA 351.2

Description: 351.2 Total Kjeldahl 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:

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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:

REPORT OF LABORATORY ANALYSIS

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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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-01		Lab ID: 10547494001		Collected: 02/08/21 12:45	Received: 02/10/21 13:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:09	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	0.21J	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.035	1	02/10/21 16:36	02/11/21 12:48		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	11.3	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 19:00	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	36	%	30-125		1	02/10/21 16:38	02/12/21 19:00		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.018J	mg/L	0.10	0.018	1		02/11/21 14:26		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-02		Lab ID: 10547494002		Collected: 02/10/21 11:00		Received: 02/10/21 13:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:28	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	0.29J	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	02/10/21 16:36	02/11/21 12:55		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	<0.24	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:17	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%	30-125		1	02/10/21 16:38	02/12/21 19:17		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.24	mg/L	0.10	0.018	1		02/11/21 14:29		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-03		Lab ID: 10547494003		Collected: 02/09/21 15:10	Received: 02/10/21 13:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	2.5	mg/L	0.10	0.029	1		02/19/21 13:24	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	0.91	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	0.10J	mg/L	0.10	0.035	1	02/10/21 16:36	02/11/21 13:02		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	0.82	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:34	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%	30-125		1	02/10/21 16:38	02/12/21 19:34		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.053J	mg/L	0.10	0.018	1		02/11/21 14:35		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-04		Lab ID: 10547494004		Collected: 02/09/21 10:10	Received: 02/10/21 13:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	0.040J	mg/L	0.10	0.029	1		02/19/21 13:13	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:25		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	02/10/21 16:36	02/11/21 13:09		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	0.97	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 19:52	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	32	%	30-125		1	02/10/21 16:38	02/12/21 19:52		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.076J	mg/L	0.10	0.018	1		02/11/21 14:36		

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-05		Lab ID: 10547494005		Collected: 02/08/21 17:30		Received: 02/10/21 13:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	0.070J	mg/L	0.10	0.029	1		02/19/21 13:11	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.036	1	02/10/21 16:36	02/11/21 13:16		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	0.10J	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 20:09	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	37	%	30-125		1	02/10/21 16:38	02/12/21 20:09		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	<0.10	mg/L	0.10	0.018	1		02/11/21 14:37		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: MW-04-D		Lab ID: 10547494006		Collected: 02/09/21 10:40	Received: 02/10/21 13:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	0.041J	mg/L	0.10	0.029	1		02/19/21 13:22	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.034	1	02/10/21 16:36	02/11/21 13:22		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	0.92	ug/L	0.23	0.097	1	02/10/21 16:38	02/12/21 20:27	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	38	%	30-125		1	02/10/21 16:38	02/12/21 20:27		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	0.083J	mg/L	0.10	0.018	1		02/11/21 14:38		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Sample: EB-01		Lab ID: 10547494007		Collected: 02/09/21 17:15	Received: 02/10/21 13:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	<0.10	mg/L	0.10	0.029	1		02/19/21 13:26	7664-41-7	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth									
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.									
Analytical Method: EPA 351.2-350.1 Pace Analytical Services - Duluth									
Total Organic Nitrogen	<0.60	mg/L	0.60	0.20	1		02/22/21 08:26		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.10	mg/L	0.10	0.035	1	02/10/21 16:36	02/11/21 13:29		
Surrogates									
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									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	0.61	ug/L	0.24	0.10	1	02/10/21 16:38	02/12/21 20:44	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	43	%	30-125		1	02/10/21 16:38	02/12/21 20:44		
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis									
Nitrogen, NO2 plus NO3	<0.10	mg/L	0.10	0.018	1		02/11/21 14:39		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	0.10	0.029	02/19/21 12:57	

LABORATORY CONTROL SAMPLE: 817189

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 817191 817192

Parameter	Units	12156083002		MS		MSD		% Rec		Limits		Max		Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec	RPD	RPD			
Nitrogen, Ammonia	mg/L	ND	5	5	5	5.1	5.2	102	104	90-110	1	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 817193 817194

Parameter	Units	12156103002		MS		MSD		% Rec		Limits		Max		Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec	RPD	RPD			
Nitrogen, Ammonia	mg/L	28.0	25	25	25	53.2	55.2	101	109	90-110	4	10	E	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.50	0.50	0.50	02/12/21 17:43	

LABORATORY CONTROL SAMPLE: 816411

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 816413 816414

Parameter	Units	816413		816414		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Kjeldahl, Total	mg/L	1.2	10	11.5	11.2	103	100	90-110	3	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 816415 816416

Parameter	Units	816415		816416		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Kjeldahl, Total	mg/L	<0.50	10	10.2	10.2	102	102	90-110	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (SIM)	ug/L	<0.25	0.25	0.11	02/12/21 18:08	
1,4-Dioxane-d8 (S)	%.	39	30-125		02/12/21 18:08	

LABORATORY CONTROL SAMPLE & LCSD: 3863002

3863003

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
WDRO C10-C28	mg/L	<0.10	0.10	0.034	02/11/21 12:34	
n-Triacontane (S)	%.	44	34-125		02/11/21 12:34	

LABORATORY CONTROL SAMPLE & LCSD: 3862998 3862999

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump

Pace Project No.: 10547494

QC Batch: 724928 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: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

METHOD BLANK: 3863777 Matrix: Water
 Associated Lab Samples: 10547494001, 10547494002, 10547494003, 10547494004, 10547494005, 10547494006, 10547494007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.10	0.10	0.018	02/11/21 14:40	

LABORATORY CONTROL SAMPLE: 3863778

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3863779 3863780

Parameter	Units	10547494001		3863779		3863780		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Nitrogen, NO2 plus NO3	mg/L	0.018J	1	1	1.0	1.0	101	102	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3863781 3863782

Parameter	Units	10547494002		3863781		3863782		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Nitrogen, NO2 plus NO3	mg/L	0.24	1	1	1.3	1.3	105	105	90-110	0	20

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

REPORT OF LABORATORY ANALYSIS

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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

E Analyte concentration exceeded the calibration range. The reported result is estimated.

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump
Pace Project No.: 10547494

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10547494001	MW-01	EPA 350.1	207336		
10547494002	MW-02	EPA 350.1	207336		
10547494003	MW-03	EPA 350.1	207336		
10547494004	MW-04	EPA 350.1	207336		
10547494005	MW-05	EPA 350.1	207336		
10547494006	MW-04-D	EPA 350.1	207336		
10547494007	EB-01	EPA 350.1	207336		
10547494001	MW-01	EPA 351.2	207085	EPA 351.2	207139
10547494002	MW-02	EPA 351.2	207085	EPA 351.2	207139
10547494003	MW-03	EPA 351.2	207085	EPA 351.2	207139
10547494004	MW-04	EPA 351.2	207085	EPA 351.2	207139
10547494005	MW-05	EPA 351.2	207085	EPA 351.2	207139
10547494006	MW-04-D	EPA 351.2	207085	EPA 351.2	207139
10547494007	EB-01	EPA 351.2	207085	EPA 351.2	207139
10547494001	MW-01	EPA 351.2-350.1			
10547494002	MW-02	EPA 351.2-350.1			
10547494003	MW-03	EPA 351.2-350.1			
10547494004	MW-04	EPA 351.2-350.1			
10547494005	MW-05	EPA 351.2-350.1			
10547494006	MW-04-D	EPA 351.2-350.1			
10547494007	EB-01	EPA 351.2-350.1			
10547494001	MW-01	WI MOD DRO	724769	WI MOD DRO	724915
10547494002	MW-02	WI MOD DRO	724769	WI MOD DRO	724915
10547494003	MW-03	WI MOD DRO	724769	WI MOD DRO	724915
10547494004	MW-04	WI MOD DRO	724769	WI MOD DRO	724915
10547494005	MW-05	WI MOD DRO	724769	WI MOD DRO	724915
10547494006	MW-04-D	WI MOD DRO	724769	WI MOD DRO	724915
10547494007	EB-01	WI MOD DRO	724769	WI MOD DRO	724915
10547494001	MW-01	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494002	MW-02	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494003	MW-03	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494004	MW-04	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494005	MW-05	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494006	MW-04-D	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494007	EB-01	EPA Mod. 3510C	724770	EPA 8270E by SIM	725143
10547494001	MW-01	EPA 353.2	724928		
10547494002	MW-02	EPA 353.2	724928		
10547494003	MW-03	EPA 353.2	724928		
10547494004	MW-04	EPA 353.2	724928		
10547494005	MW-05	EPA 353.2	724928		
10547494006	MW-04-D	EPA 353.2	724928		
10547494007	EB-01	EPA 353.2	724928		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
Company:	Bay West	Project Name:	SW#134 Begin Dump - GW Sampling	Company Name:	Bay West LLC	Lab Name:	Peace	Work Order Number:	3000027123
Address:	5 Empire Dr. St. Paul, MN, 55103	Project Number:	200408	Address:	5 Empire Dr. St. Paul, MN 55103	Address:	1700 Elm St. Minneapolis, MN, 55414	Facility Code:	SW-134
Project Manager:	Erik Nimios	Turnaround Time:	Standard	Address:	5 Empire Dr. St. Paul, MN 55103	Lab Project Manager:	Colin Lynch	Project Task Code:	PRJ07913
Email To:	enimios@baywest.com	Site Location (State):	MN	Purchase Order No.	205946	Lab Phone:	612-656-2286	Program Code:	
Phone:	651-291-3493	Copy To:	ivant@baywest.com						
Copy To:	Eweaver@baywest.com	Copy To:	gvanderwaal@baywest.com						

Item #	Location Unique ID	Sample Common ID	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.	Requested Analysis	Comments
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	2/8/21	1245	10	Nitrate + Nitrite, as N(SM 4500 NO3-H)	001
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	2/10/21	1100		Nitrogen, Total Organic (351.2 + 350.1)	002
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	2/9/21	1510		PFAS	003
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	2/5/21	1010		1,4-Dioxane (8270 SIM)	004
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	2/8/21	1730		2,3,7,8 TCDD (Kokh)(EPA 1613B/8290A)	005
6	834636	MW-04 - D	QC-FR	G	WG	NW	Wtr-Ground	2/9/21	1010		DR0 with silica gel cleanup (WI DRO)	006
7	Equipment Blank	EB-01	QC-EB	G	WG	NW	Wtr-Ground	2/9/21	1715			007
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		2/10/21	1315	TK POSE	2/10/21	1315	Y N Y
							Received on Ice (Y/N)
							Custody Sealed Cooler (Y/N)
							Samples Intact (Y/N)

NO# : 10547494

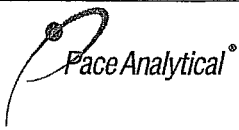
SAMPLER NAME AND SIGNATURE: *BETH MASON*

PRINT Name of SAMPLER: BETH MASON

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed (MM/DD/YYYY): 2/10/21

1.7, 3.0, 0.2, 4.3



Document Name:
Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 12Aug2020
Page 1 of 1

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

Pace Analytical Services -
Minneapolis

Sample Condition
Upon Receipt

Client Name:

Project #:

Bay West

WO#: 10547494

PM: CL1

Due Date: 02/24/21

CLIENT: BW-BAY WEST

Courier:

Fed Ex UPS USPS Client
 Pace SpeedDee Commercial

Tracking Number:

See Exceptions
ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present?

Yes No

Seals Intact?

Yes No

Biological Tissue Frozen?

Yes No N/A

Packing Material:

Bubble Wrap Bubble Bags None Other:

Temp Blank?

Yes No

Thermometer:

T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489)

Type of Ice:

Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No

Were All Container Temps Taken? Yes No N/A

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

See Exceptions
ENV-FRM-MIN4-0142
 1 Container

Correction Factor: +0.1

Cooler Temp Corrected w/temp blank: 1.7, 3.0, 0.2, 4.3 °C

USDA Regulated Soil: N/A, water sample/Other: _____

Date/Initials of Person Examining Contents: ED 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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # 001-007 <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate 2/2
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception Chlorine? <input type="checkbox"/> No <input type="checkbox"/> pH Paper Lot# ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/B015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 221419 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted:

Date/Time:

Field Data Required? Yes No

Comments/Resolution:

Project Manager Review:

Date: 2/10/21

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:

EDD



SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																											
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																											
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																											
<table border="1" style="width:100%; text-align:center;"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>				No Temp Blank			Read Temp	Corrected Temp	Average Temp																					
No Temp Blank																														
Read Temp	Corrected Temp	Average Temp																												

Tracking Number/Temperature

Issue Type: <i>frozen</i>		Container Type	# of Containers
Sample ID			
MW-03		BP3S	1
MW-03		BP3U	1
MW-04		BP3U	1
MW-05		BP3U	1
MW-04-D		BP3U	2
MW-04-D		BP3S	1

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

Internal Transfer Chain of Custody

MO#: 12156128



Samples Pre-Logged into eCOC.

State Of Origin: MN-ADMIN
 Cert. Needed: Yes No

PM: LM2 Due Date: 02/24/21
 CLIENT: PACE MPLS

Workorder: 10547494 Workorder Name: 200408 SW#134 Begin Dump

Owner Received Date: 2/10/2021 Results Requested By: 2/24/2021

Report To: Colin Lynch
 Pace Analytical Minnesota
 1700 Elm Street
 Suite 200
 Minneapolis, MN 55414
 Phone (612)607-1700

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HS04 BP3S	Preserved Containers	LAB USE ONLY
1	MW-U01	PS	2/8/2021 12:45	10547494001	Water	1	X	
2	MW-U02	PS	2/10/2021 11:00	10547494002	Water	1	X	
3	MW-U03	PS	2/9/2021 15:10	10547494003	Water	1	X	
4	MW-U04	PS	2/9/2021 10:10	10547494004	Water	1	X	
5	MW-U05	PS	2/8/2021 17:30	10547494005	Water	1	X	
6	MW-U04-D	PS	2/9/2021 10:40	10547494006	Water	1	X	
7	EB-01	PS	2/9/2021 17:15	10547494007	Water	1	X	
TON (351.2 / 350.1)								
Comments								
Transfers		Released By	Date/Time	Received By	Date/Time			
1		<i>[Signature]</i>	2/11/21 14:00	<i>[Signature]</i>	2/11/21	1845		
2		<i>[Signature]</i>	2/11/21	<i>[Signature]</i>				
3								
Cooler Temperature on Receipt		0.2 °C	Custody Seal	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	Received on Ice	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	Samples Intact	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> 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.

Sample Condition Upon Receipt

Client Name:

Project #:

WO# : 12156128

Pace MN

Courier: Fed Ex UPS USPS Client
 Speedee Pace Other: _____

PM: LM2 Due Date: 02/24/21
CLIENT: PACE MPLS

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No


Packing Material: Bubble Wrap Bubble Bags None Other: _____

Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Is there evidence of ice formation in samples? Yes No Biological Tissue Frozen? Yes No NA

Temp Blank? Yes No Thermometer Used: 01339252/1710 122639816 Correction Factor °C: 0

Temp should be above freezing to 6 °C Cooler Temp Read °C: 0.2 Cooler Temp Corrected °C: 0.2

Date and Initials of Person Examining Contents: 2/11/21 DC 02/12/2021 

Comments: _____

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers:
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION:

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE: Y N

TEMPERATURE WAIVER ON FILE: Y N

Project Manager Review: Leah Morehouse

Date: 02/12/2021

Date: 11-FEB-2021 12:48

Client ID: HM-01

Sample Info: 10547494001

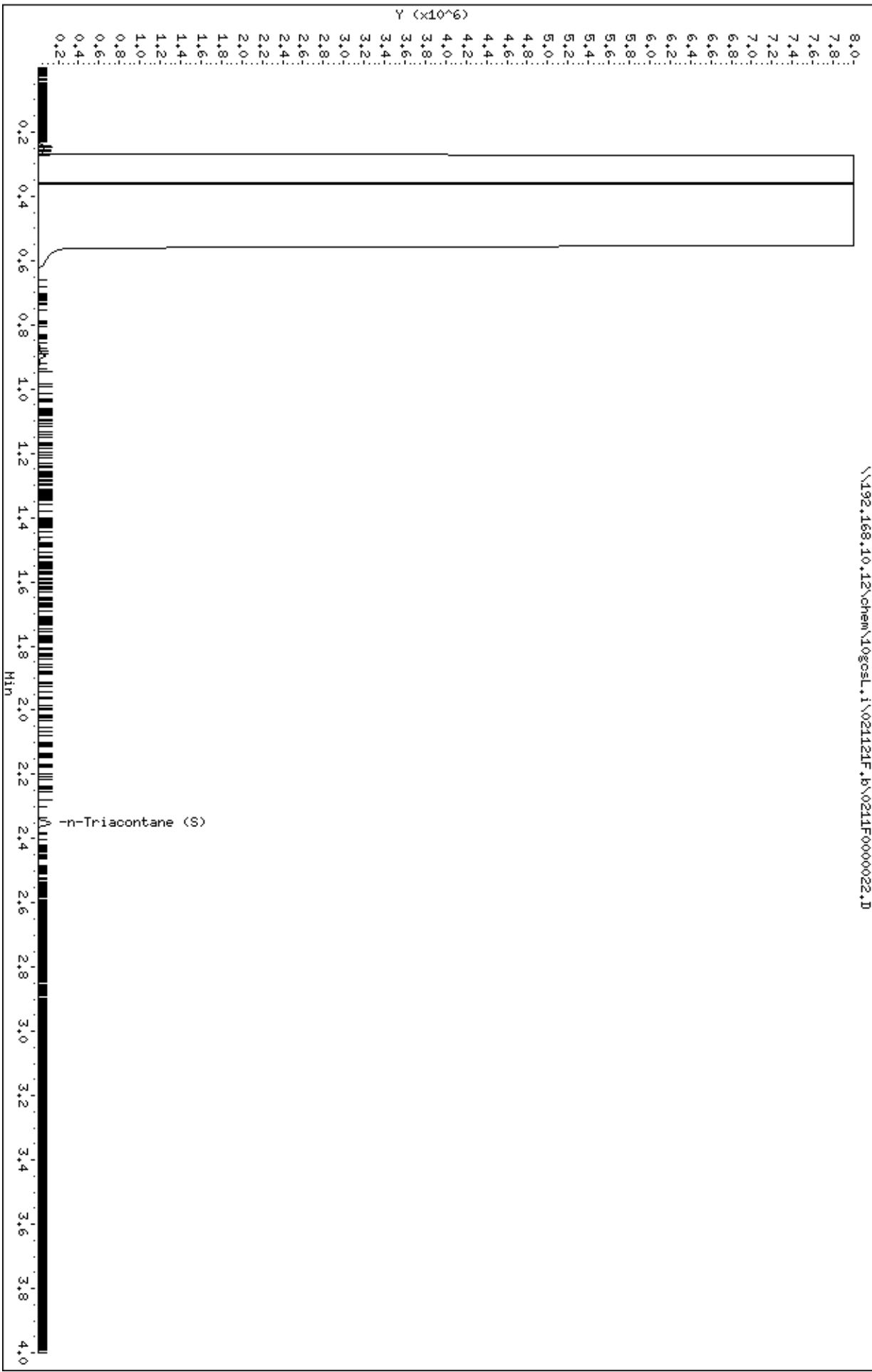
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 11-FEB-2021 12:55

Client ID: HM-02

Sample Info: 10547494002

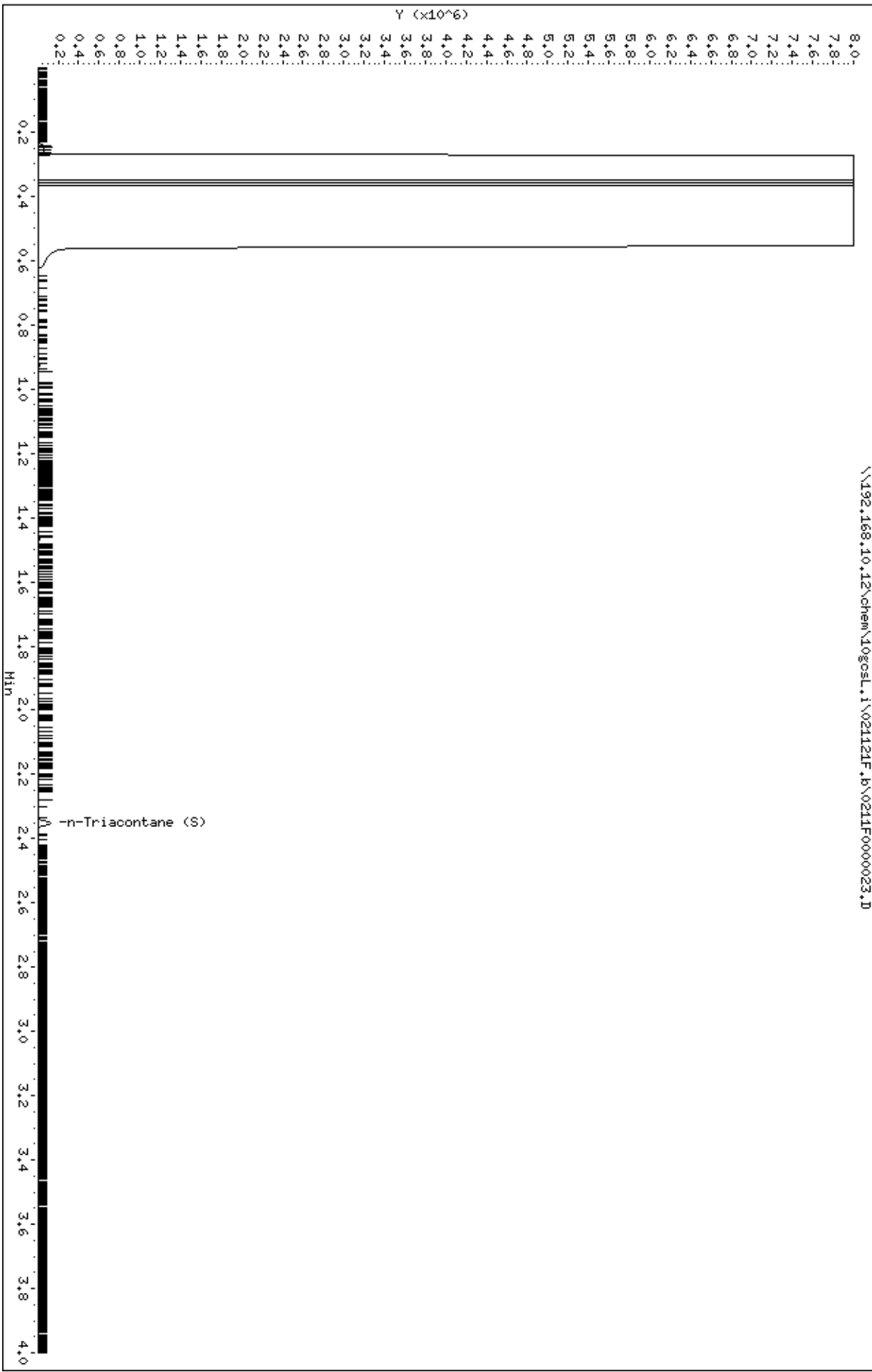
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 11-FEB-2021 13:02

Client ID: MM-03

Sample Info: 10547494003

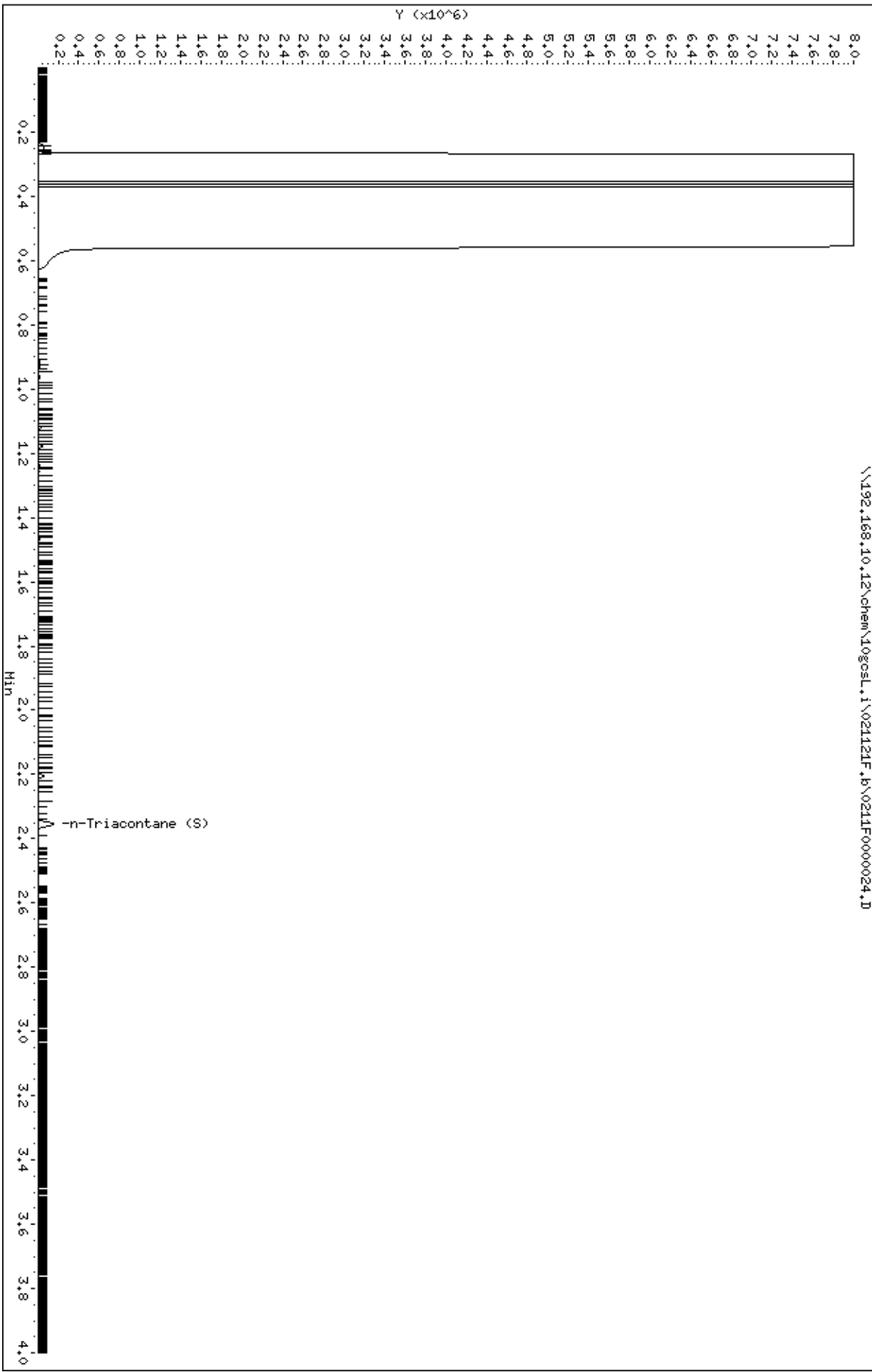
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 11-FEB-2021 13:09

Client ID: HM-04

Sample Info: 10547494004

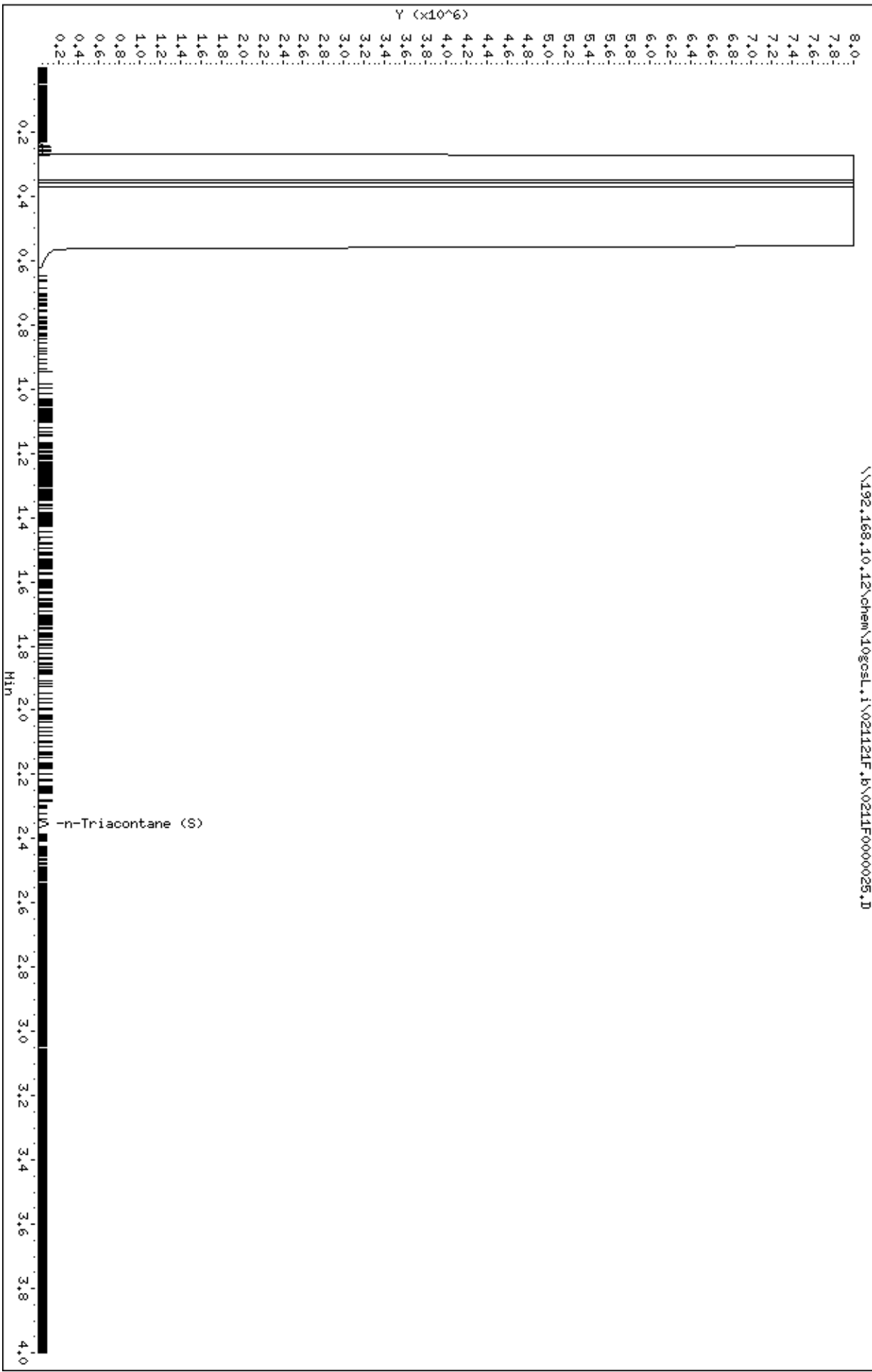
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 11-FEB-2021 13:16

Client ID: HM-05

Sample Info: 10547494005

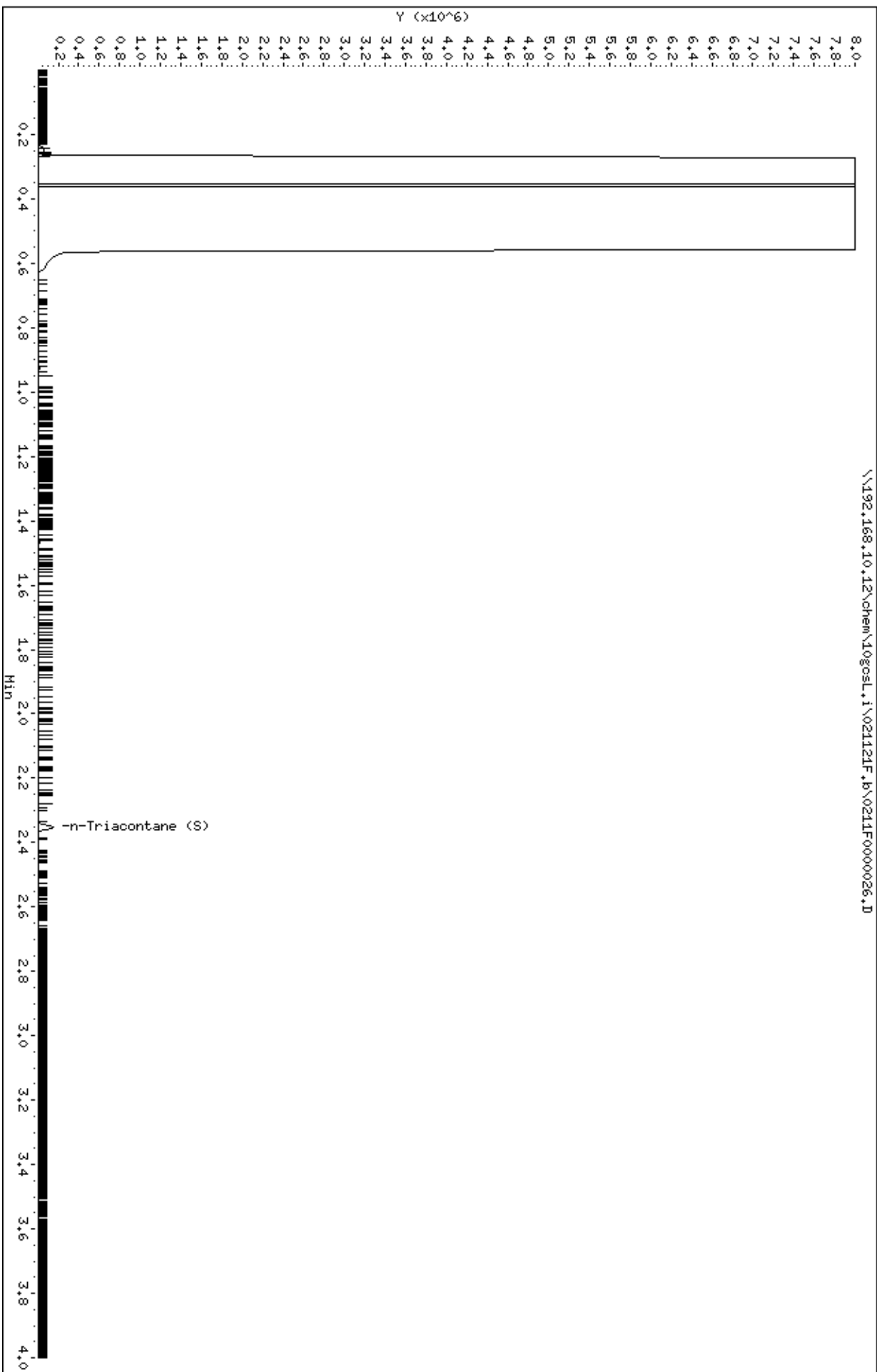
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date: 11-FEB-2021 13:22

Client ID: HM-04-D

Sample Info: 10547494006

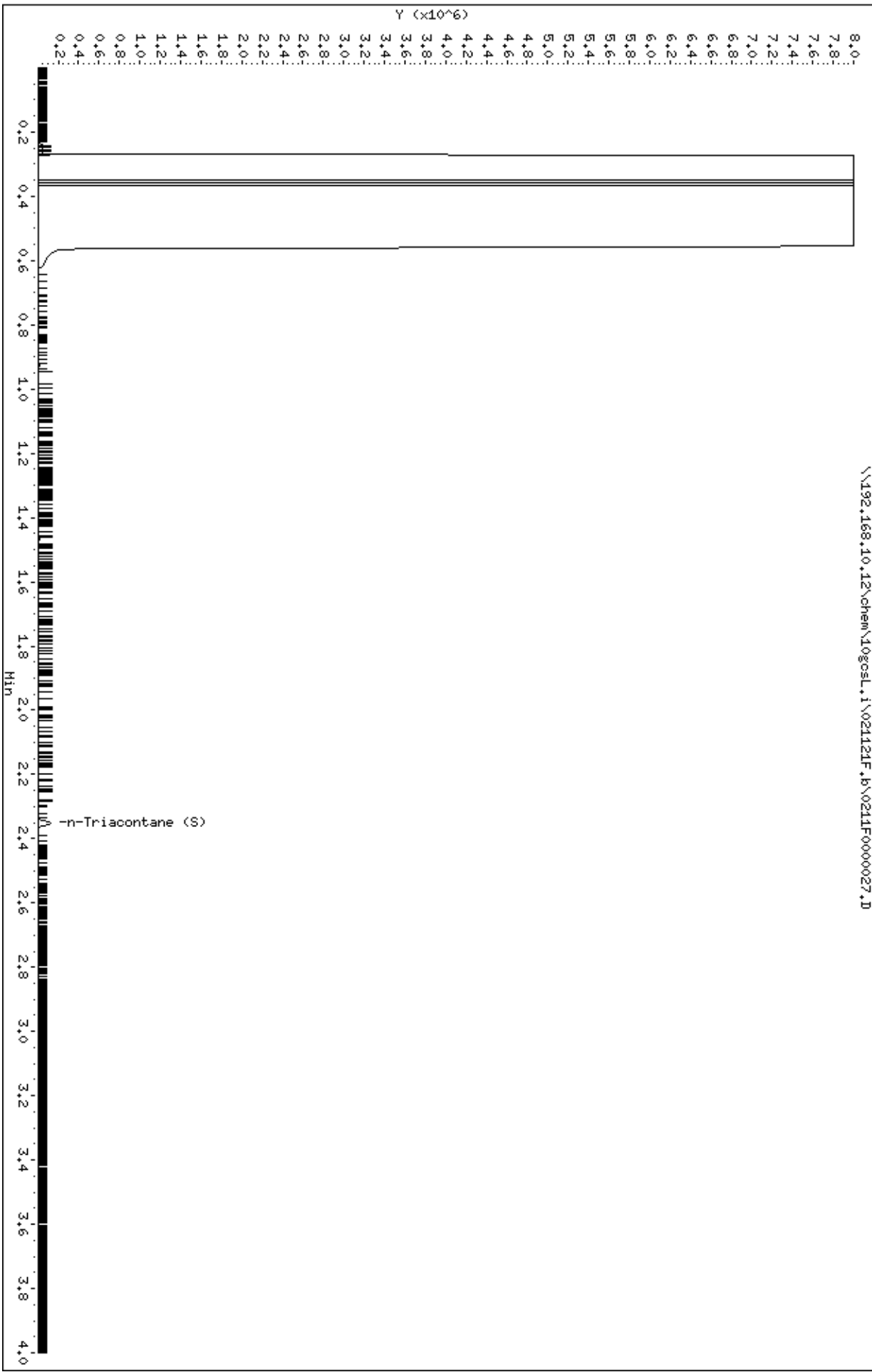
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date: 11-FEB-2021 13:29

Client ID: EB-01

Sample Info: 10547494007

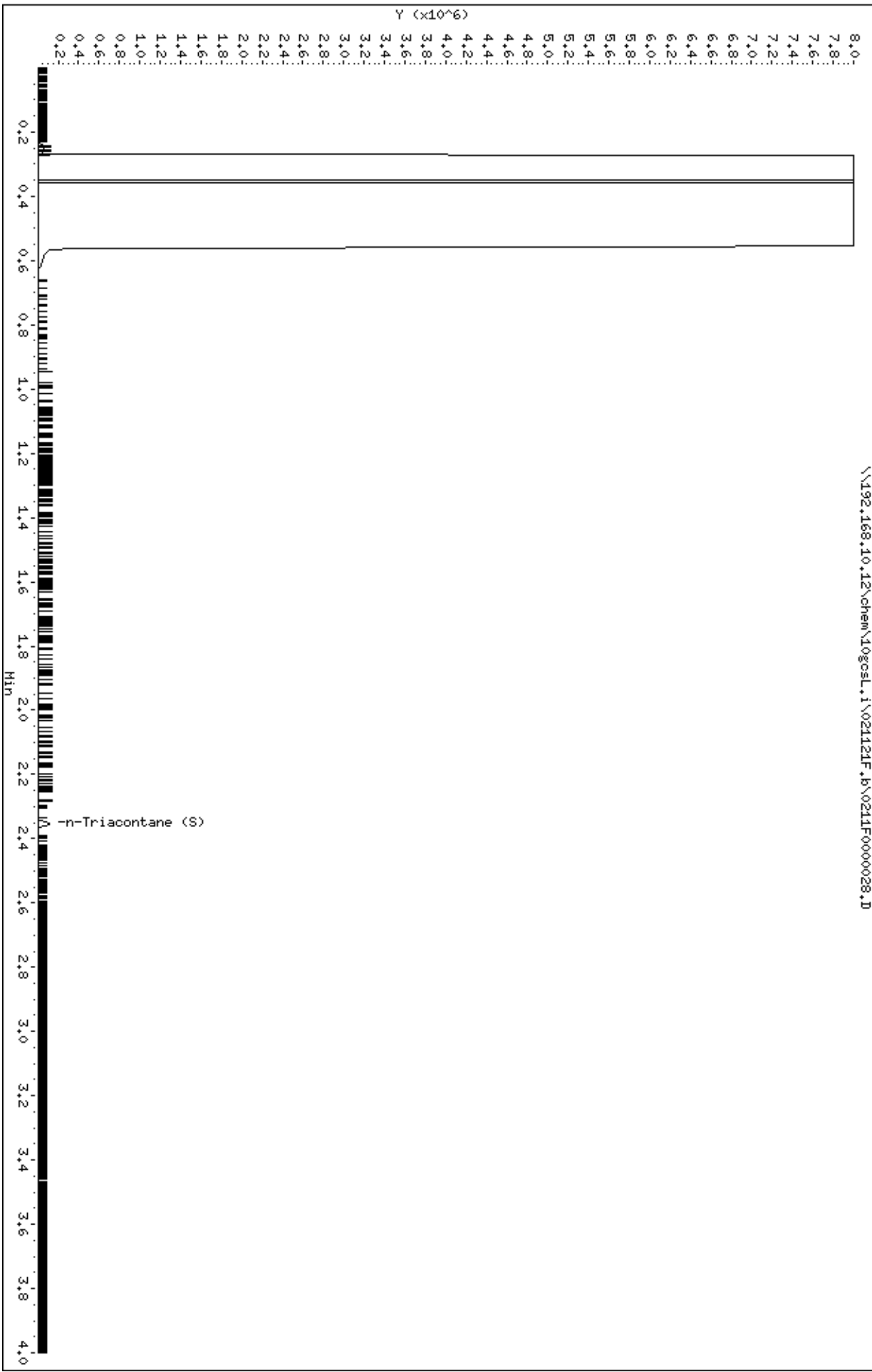
Volume Injected (uL): 1.0

Column phase: DB-5-MS20410007

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



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
1(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc
Gerrit Vanderwaal, Bay West



REPORT OF LABORATORY ANALYSIS

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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 #: AI-03086*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137*

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

Minnesota Petrofund Registration #: 1240*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081*

New Jersey Certification #: MN002

New York Certification #: 11647*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110*

Oklahoma Certification #: 9507*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001*

Pennsylvania Certification #: 68-00563*

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192*

Utah Certification #: MN00064*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163*

Washington Certification #: C486*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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

Pace Analytical Services, LLC - Duluth MN

4730 Oneota Street, Duluth, MN 55807

Minnesota Certification #: 027-137-152

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

Minnesota Petrofund Registration #: 1240

Montana Certification #: CERT0102

Nevada Certification #: MN00037

North Dakota Certification #: R-105

Wisconsin Certification #: 999446800

Wisconsin Dept of Ag Certification: 480341

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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	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
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

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SAMPLE ANALYTE COUNT

Project: 200408 SW#134 Begin Dump-GW
Pace Project No.: 10558462

Lab ID	Sample ID	Method	Analysts	Analytes Reported
---------------	------------------	---------------	-----------------	--------------------------

PASI-DU = Pace Analytical Services - Duluth, MN
PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: MW-01		Lab ID: 10558462001		Collected: 05/03/21 15:25		Received: 05/04/21 18:29		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth, MN									
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 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN									
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 353.2 Pace Analytical Services - Duluth, MN									
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-NH3 Calculation Pace Analytical Services - Duluth, MN									
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 MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	0.065J	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:04		B
Surrogates 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 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	9.1	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 15:02	123-91-1	
Surrogates 1,4-Dioxane-d8 (S)	35	%	30-125		1	05/05/21 15:58	05/06/21 15:02		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: MW-02		Lab ID: 10558462002		Collected: 05/04/21 09:50		Received: 05/04/21 18:29		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1									
Pace Analytical Services - Duluth, MN									
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:28	7664-41-7	
351.2 TKN Water DU									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Pace Analytical Services - Duluth, MN									
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									
Analytical Method: EPA 353.2									
Pace Analytical Services - Duluth, MN									
Nitrogen, NO2 plus NO3	0.089	mg/L	0.020	0.0089	1		05/06/21 09:35		
Total Organic Nitrogen Calc.DU									
Analytical Method: TKN-NH3 Calculation									
Pace Analytical Services - Duluth, MN									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:11		
Surrogates									
n-Triacontane (S)	72	%.	34-125		1	05/06/21 17:08	05/10/21 09:11		
8270E MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C									
Pace Analytical Services - Minneapolis									
1,4-Dioxane (SIM)	<0.24	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 15:20	123-91-1	C6
Surrogates									
1,4-Dioxane-d8 (S)	27	%.	30-125		1	05/05/21 15:58	05/06/21 15:20		S0

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: MW-03		Lab ID: 10558462003		Collected: 05/04/21 12:25		Received: 05/04/21 18:29		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth, MN									
Nitrogen, Ammonia	1.9	mg/L	0.20	0.089	1		05/08/21 12:30	7664-41-7	
351.2 TKN Water DU									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN									
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									
Analytical Method: EPA 353.2 Pace Analytical Services - Duluth, MN									
Nitrogen, NO2 plus NO3	0.038	mg/L	0.020	0.0089	1		05/06/21 09:37		
Total Organic Nitrogen Calc.DU									
Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Duluth, MN									
Total Organic Nitrogen	1.3	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	0.039J	mg/L	0.10	0.029	1	05/06/21 17:08	05/10/21 09:18		B
Surrogates n-Triacontane (S)	53	%	34-125		1	05/06/21 17:08	05/10/21 09:18		
8270E MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
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	
Surrogates 1,4-Dioxane-d8 (S)	31	%	30-125		1	05/05/21 15:58	05/06/21 15:38		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: MW-04		Lab ID: 10558462004		Collected: 05/04/21 15:40		Received: 05/04/21 18:29		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1									
Pace Analytical Services - Duluth, MN									
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:36	7664-41-7	
351.2 TKN Water DU									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Pace Analytical Services - Duluth, MN									
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									
Analytical Method: EPA 353.2									
Pace Analytical Services - Duluth, MN									
Nitrogen, NO2 plus NO3	0.056	mg/L	0.020	0.0089	1		05/06/21 09:38		
Total Organic Nitrogen Calc.DU									
Analytical Method: TKN-NH3 Calculation									
Pace Analytical Services - Duluth, MN									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:52		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Pace Analytical Services - Minneapolis									
WDRO C10-C28	0.038J	mg/L	0.098	0.028	1	05/11/21 14:42	05/13/21 09:54		
Surrogates									
n-Triacontane (S)	80	%	34-125		1	05/11/21 14:42	05/13/21 09:54		
8270E MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C									
Pace Analytical Services - Minneapolis									
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	
Surrogates									
1,4-Dioxane-d8 (S)	39	%	30-125		1	05/05/21 15:58	05/06/21 15:56		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: MW-04-D		Lab ID: 10558462005		Collected: 05/04/21 16:00		Received: 05/04/21 18:29		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1									
Pace Analytical Services - Duluth, MN									
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:44	7664-41-7	
351.2 TKN Water DU									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Pace Analytical Services - Duluth, MN									
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									
Analytical Method: EPA 353.2									
Pace Analytical Services - Duluth, MN									
Nitrogen, NO2 plus NO3	0.062	mg/L	0.020	0.0089	1		05/06/21 09:41		
Total Organic Nitrogen Calc.DU									
Analytical Method: TKN-NH3 Calculation									
Pace Analytical Services - Duluth, MN									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:53		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:32		
Surrogates									
n-Triacontane (S)	64	%	34-125		1	05/06/21 17:08	05/10/21 09:32		
8270E MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C									
Pace Analytical Services - Minneapolis									
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	
Surrogates									
1,4-Dioxane-d8 (S)	39	%	30-125		1	05/05/21 15:58	05/06/21 16:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Sample: EB-01		Lab ID: 10558462006		Collected: 05/04/21 17:00	Received: 05/04/21 18:29	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU		Analytical Method: EPA 350.1 Pace Analytical Services - Duluth, MN							
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 12:46	7664-41-7	
351.2 TKN Water DU		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN							
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		Analytical Method: EPA 353.2 Pace Analytical Services - Duluth, MN							
Nitrogen, NO2 plus NO3	<0.020	mg/L	0.020	0.0089	1		05/06/21 09:45		
Total Organic Nitrogen Calc.DU		Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Duluth, MN							
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 10:53		
WIDRO LV GCS Silica Gel		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis							
WDRO C10-C28	0.030J	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:39		B
Surrogates n-Triacontane (S)	79	%.	34-125		1	05/06/21 17:08	05/10/21 09:39		
8270E MSSV 14 Dioxane By SIM		Analytical Method: EPA 8270E by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis							
1,4-Dioxane (SIM)	<0.24	ug/L	0.24	0.10	1	05/05/21 15:58	05/06/21 16:31	123-91-1	
Surrogates 1,4-Dioxane-d8 (S)	44	%.	30-125		1	05/05/21 15:58	05/06/21 16:31		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW
Pace Project No.: 10558462

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.20	0.20	0.089	05/08/21 11:55	

LABORATORY CONTROL SAMPLE: 3950023

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950024 3950025

Parameter	Units	10557872005		3950024		3950025		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result					
Nitrogen, Ammonia	mg/L	6.2	5	5	5	11.7	11.5	110	106	90-110	2	10 E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950026 3950027

Parameter	Units	10558462003		3950026		3950027		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result					
Nitrogen, Ammonia	mg/L	1.9	5	5	5	6.7	6.9	98	101	90-110	2	10

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

QC Batch: 740257

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: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3948018

Matrix: Water

Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.50	0.50	0.18	05/08/21 18:19	

LABORATORY CONTROL SAMPLE: 3948019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948020 3948021

Parameter	Units	10557080004		3948021		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, Kjeldahl, Total	mg/L	2280	10	10	2270	2180	-30	-918	90-110	4	10 M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948022 3948023

Parameter	Units	10558462003		3948023		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, Kjeldahl, Total	mg/L	3.1	10	10	13.5	13.4	103	102	90-110	1	10

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

QC Batch: 740057 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: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

METHOD BLANK: 3947053 Matrix: Water
 Associated Lab Samples: 10558462001, 10558462002, 10558462003, 10558462004, 10558462005, 10558462006

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	0.5	0.52	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3947055 3947056

Parameter	Units	10553360001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.045	0.5	0.5	0.43	0.43	76	78	90-110	2	10	H3,M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3947057 3947058

Parameter	Units	10558462004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.056	0.5	0.5	0.57	0.58	103	106	90-110	3	10	

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (SIM)	ug/L	<0.25	0.25	0.11	05/06/21 08:50	
1,4-Dioxane-d8 (S)	%.	42	30-125		05/06/21 08:50	

LABORATORY CONTROL SAMPLE & LCSD: 3945801

3945802

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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			

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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 & LCSD: 3947400

3947401

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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			

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

QC Batch: 741242

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: 10558462004

METHOD BLANK: 3952653

Matrix: Water

Associated Lab Samples: 10558462004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
WDRO C10-C28	mg/L	0.8	0.49	0.58	61	72	42-125	17	20	
n-Triacontane (S)	%.				67	78	34-125			

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REPORT OF LABORATORY ANALYSIS

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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

B Analyte was detected in the associated method 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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump-GW

Pace Project No.: 10558462

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10558462001	MW-01	EPA 350.1	740623		
10558462002	MW-02	EPA 350.1	740623		
10558462003	MW-03	EPA 350.1	740623		
10558462004	MW-04	EPA 350.1	740623		
10558462005	MW-04-D	EPA 350.1	740623		
10558462006	EB-01	EPA 350.1	740623		
10558462001	MW-01	EPA 351.2	740257	EPA 351.2	740521
10558462002	MW-02	EPA 351.2	740257	EPA 351.2	740521
10558462003	MW-03	EPA 351.2	740257	EPA 351.2	740521
10558462004	MW-04	EPA 351.2	740257	EPA 351.2	740521
10558462005	MW-04-D	EPA 351.2	740257	EPA 351.2	740521
10558462006	EB-01	EPA 351.2	740257	EPA 351.2	740521
10558462001	MW-01	EPA 353.2	740057		
10558462002	MW-02	EPA 353.2	740057		
10558462003	MW-03	EPA 353.2	740057		
10558462004	MW-04	EPA 353.2	740057		
10558462005	MW-04-D	EPA 353.2	740057		
10558462006	EB-01	EPA 353.2	740057		
10558462001	MW-01	TKN-NH3 Calculation			
10558462002	MW-02	TKN-NH3 Calculation			
10558462003	MW-03	TKN-NH3 Calculation			
10558462004	MW-04	TKN-NH3 Calculation			
10558462005	MW-04-D	TKN-NH3 Calculation			
10558462006	EB-01	TKN-NH3 Calculation			
10558462001	MW-01	WI MOD DRO	740117	WI MOD DRO	740492
10558462002	MW-02	WI MOD DRO	740117	WI MOD DRO	740492
10558462003	MW-03	WI MOD DRO	740117	WI MOD DRO	740492
10558462004	MW-04	WI MOD DRO	741242	WI MOD DRO	741690
10558462005	MW-04-D	WI MOD DRO	740117	WI MOD DRO	740492
10558462006	EB-01	WI MOD DRO	740117	WI MOD DRO	740492
10558462001	MW-01	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
10558462002	MW-02	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
10558462003	MW-03	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
10558462004	MW-04	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
10558462005	MW-04-D	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078
10558462006	EB-01	EPA Mod. 3510C	739879	EPA 8270E by SIM	740078

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information

Company:	Bay West	Project Name:	SW#134 Begin Dump - GW Sampling	Accounts Payable:	Bay West LLC	Lab Name:	1700 Elm St. Minneapolis MN, 55414	COC ID:	3000027123
Address:	5 Empire Dr. St. Paul MN, 55103	Project Number:	200408	Company Name:	5 Empire Dr. St. Paul, MN 55103	Address:	Sylvia Hunter	Work Order Number:	SW-134
Project Manager:	Erik Nimlos	Turnaround Time:	Standard	Address:	5 Empire Dr. St. Paul, MN 55103	Lab Project Manager:	612-607-6347	Facility Code:	PRJ07913
Email To:	enimlos@baywest.com	Site Location (State):	MN	Purchase Order No.:	203946	Lab Phone:		Project Task Code:	
Phone:	651-291-3493	Copy To:	lphant@baywest.com					Program Code:	
Copy To:	Eweaver@baywest.com	Copy To:	evandenwal@baywest.com						

Section B Required Project Information

Matrix Code	Lab Matrix Codes	Field Matrix Codes	Sample Type Codes	Requested Analysis	Preservatives
SE=Seiment SO=Soil QC=Soil QC WA=Water WG=Groundwater S=Surface	DW=Drinking Water NW=Non-potable Water SP=Soil/Solid WP=Type AR=Air BL=Biological Material OT=Other	WR=Groundwater WTR=Surface Water OC=Blank/Artificial Blank Water L=Leachate S=Soil SOL=Soil Substrate	S=Sample S-CWOP=Composite Sample S-N/P=Integrated Vertical Profile Sample OC=Field Blank Sample OC-FR=Field Replicate Sample OC-TB=Top Blank Sample	ORO with silica gel cleanup (WI DRO) 2,3,7,8 TCDD (Dioxin) (EPA 1613B/6290A) 1,4-Dioxane (8270 SIM) PFAS Nitrogen, Total Organic (351.2 + 350.1) Nitrate + Nitrite, as N (SM 4500 NO3-H)	HCl None None None H ₂ SO ₄ H ₂ SO ₄

ITEM #	Location Unique ID	Sample Common ID	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.	ORO with silica gel cleanup (WI DRO)	2,3,7,8 TCDD (Dioxin) (EPA 1613B/6290A)	1,4-Dioxane (8270 SIM)	PFAS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N (SM 4500 NO3-H)	Comments
1	2001007374	MW-01	Sample	G	WG	NW	WR-Ground	5/13/21	1525	10	X	X	X	X	X	X	1
2	2001007375	MW-02	Sample	G	WG	NW	WR-Ground	5/19/21	0950	10	X	X	X	X	X	X	2
3	2001007376	MW-03	Sample	G	WG	NW	WR-Ground	5/14/21	1225	10	X	X	X	X	X	X	3
4	2001007377	MW-04	Sample	G	WG	NW	WR-Ground	5/14/21	1540	10	X	X	X	X	X	X	4
5	834636	MW-05	Sample	G	WG	NW	WR-Ground	5/14/21	1600	10	X	X	X	X	X	X	5
6	834636	MW-04-D	QC-FR	G	WG	NW	WR-Ground	5/14/21	1700	10	X	X	X	X	X	X	6
7	Blank	EB-01	QC-EB	G	WG	NW	WR-Ground				X	X	X	X	X	X	
8																	
9																	
10																	
11																	
12																	

RELINQUISHED BY / AFFILIATION: T&T / Bay West 5/14/21 1829

ACCEPTED BY / AFFILIATION: TS PACE 5/14/21 1829

DATE	TIME	DATE	TIME	Temp (C)	Ice (Y/N)	Cooler
5/14/21	1829	5/14/21	1829	5.0	Y	Y

SAMPLER NAME AND SIGNATURE: T&T T&T

PRINT Name of SAMPLER: T&T T&T

SIGNATURE of SAMPLER: T&T T&T

DATE signed (MM/DD/YYYY): 5/14/21

MO#: 10558462

10558462



Document Name: Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 14Apr2021

Page 1 of 1

Document No.: ENV-FRM-MIN4-0150 Rev.02

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name:

Bay West

Project #:

WO#: 10558462

Courier:

FedEx, UPS, USPS, Client, Pace, SpeeDee, Commercial

PM: SH1

Due Date: 05/19/21

CLIENT: BW-BAY WEST

Tracking Number:

See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap, Bubble Bags, None, Other Temp Blank? Yes No

Thermometer: T1(0461), T2(1336), T3(0459), OS418-LS, T4(0254), T5(0489), 160285052 Type of Ice: Wet, Blue, None, Dry, Melted

Did Samples Originate in West Virginia? Were All Container Temps Taken?

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 4.2 2.4 4.0 °C

Average Corrected Temp (no temp blank only): °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: 4.2 Cooler Temp Corrected w/temp blank: 4.4 2.6 5.0 °C

USDA Regulated Soil: (N/A, water sample/Other)

Date/Initials of Person Examining Contents: JJS-LV

Did samples originate in a quarantine zone within the United States... Did samples originate from a foreign source...

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Questions and COMMENTS. Contains 14 numbered rows of questions and handwritten answers.

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Comments/Resolution:

Field Data Required? Yes No

Date/Time:

Project Manager Review:

Signature of Project Manager

Date: 5/5/21

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...

Labeled by:

Ca TJ (02) Page 28 of 36



Intra-Regional Chain of Custody

WO#: 10558462

PM: SH1 Due Date: 05/19/21
 CLIENT: BW-BAY WEST



Workorder: 10558462 Workorder Name: 200408 SW#134 Begin Dump-GW

Owner Received Date: 5/4/2021

Due Date: 5/19/2021

Received at:
 Pace Analytical Minnesota
 1700 Elm Street
 Minneapolis, MN 55414
 Phone 1(612)607-1700

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

Report To:
 Sylvia Hunter

BP3S (2 ea)

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Requested Analysis				LAB USE ONLY
						H2SO4		EPA 353.2	EPA 351.2	EPA 350.1	TKN-NH3 Calculation	
1	MM-01	PS	5/3/2021 15:25	10558462001	Water	2		X	X	X	X	
2	MM-02	PS	5/4/2021 09:50	10558462002	Water	1		X	X	X	X	
3	MM-03	PS	5/4/2021 12:25	10558462003	Water	2		X	X	X	X	
4	MM-04	PS	5/4/2021 15:40	10558462004	Water	2		X	X	X	X	
5	MM-04-D	PS	5/4/2021 16:00	10558462005	Water	2		X	X	X	X	
6	EB-01	PS	5/4/2021 17:00	10558462006	Water	1		X	X	X	X	

Transfers	Released By	Date/Time	Received By	Date/Time	Cooler Temperature on Receipt °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N
1	<i>[Signature]</i>	5/5/21 16:55	<i>[Signature]</i>	5/5/21	21.0	Y	Y	Y
2	<i>[Signature]</i>	5/5/21	<i>[Signature]</i>	5/6/21 07:50				
3								
4								

**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.

Sample Condition Upon Receipt Client Name: Pace MN Project #: **WO#: 10558462**

Courier: Fed Ex UPS USPS Client Pace Other: _____

PM: SH1 Due Date: 05/19/21
CLIENT: BW-BAY WEST

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No


Packing Material: Bubble Wrap Bubble Bags None Other: _____

Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Is there evidence of ice formation in samples? Yes No Biological Tissue Frozen? Yes No N/A

Temp Blank? Yes No Thermometer Used: 01339252/1710 122639816 Correction Factor °C: -0.2

Temp should be above freezing to 6 °C Cooler Temp Read °C: 0.6 Cooler Temp Corrected °C: 0.4

Date and Initials of Person Examining Contents: 5/5/21 DC 05/06/2021 

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers:
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

CLIENT NOTIFICATION/RESOLUTION: Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE: Y N TEMPERATURE WAIVER ON FILE: Y N

Project Manager Review: _____ Date: _____

Date : 10-MAY-2021 09:04

Client ID: MM-01

Sample Info: 10558462001

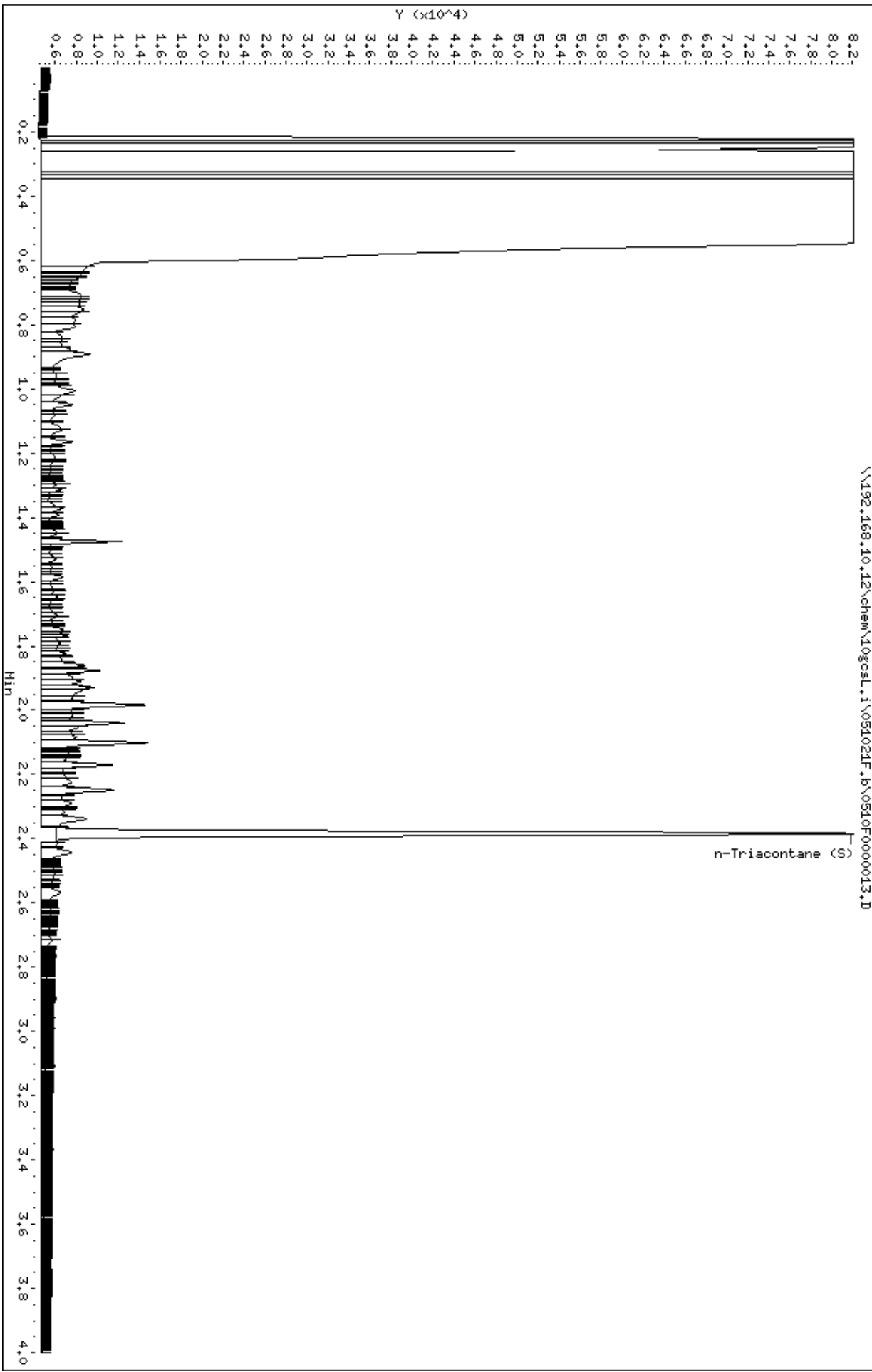
Volume Injected (uL): 1.0

Column phase: DB-5-MS205000046

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 10-MAY-2021 09:11

Client ID: MM-02

Sample Info: 10558462002

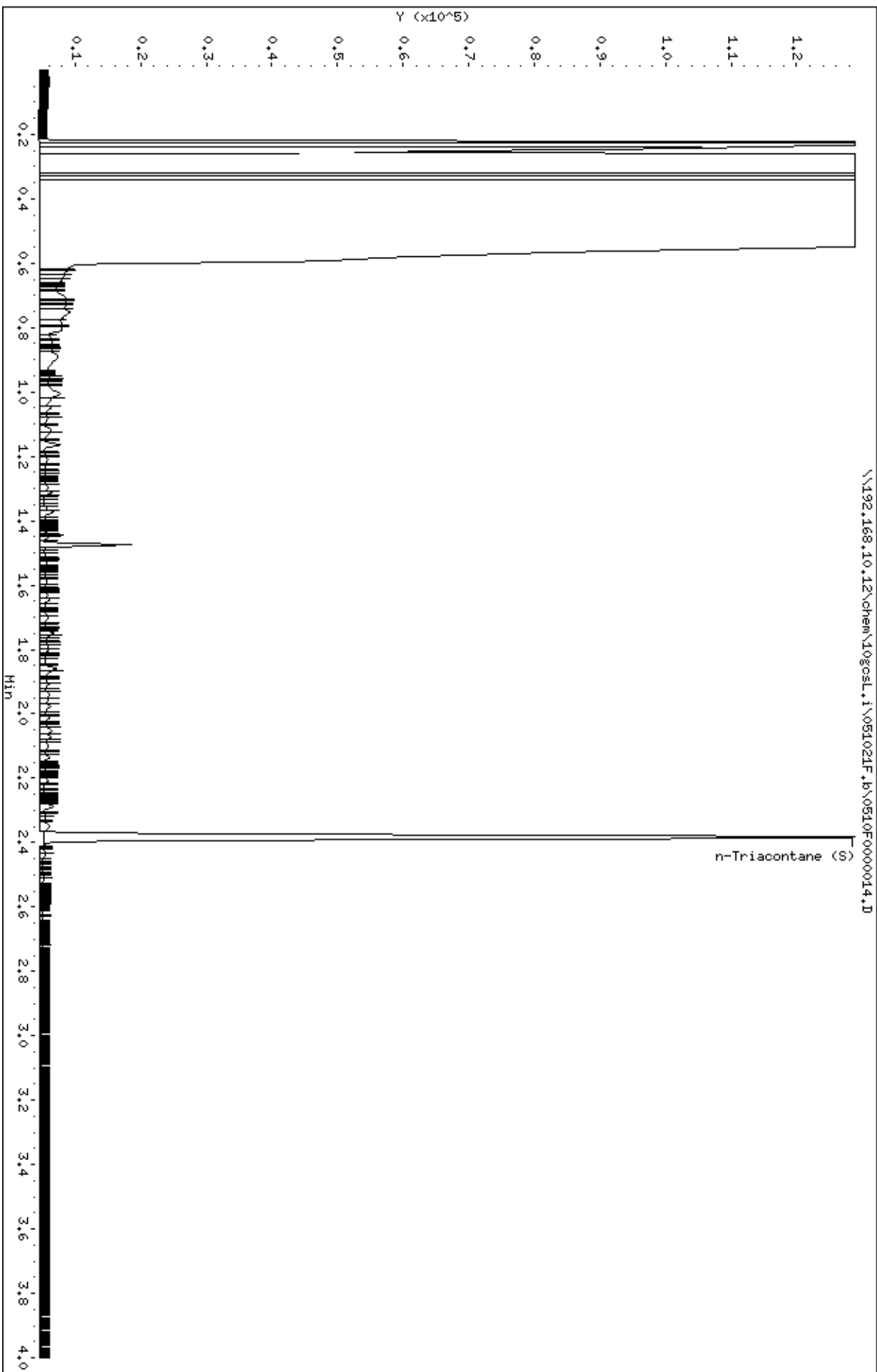
Volume Injected (uL): 1.0

Column phase: DB-5-MS205000046

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 10-MAY-2021 09:18

Client ID: MM-03

Sample Info: 10558462003

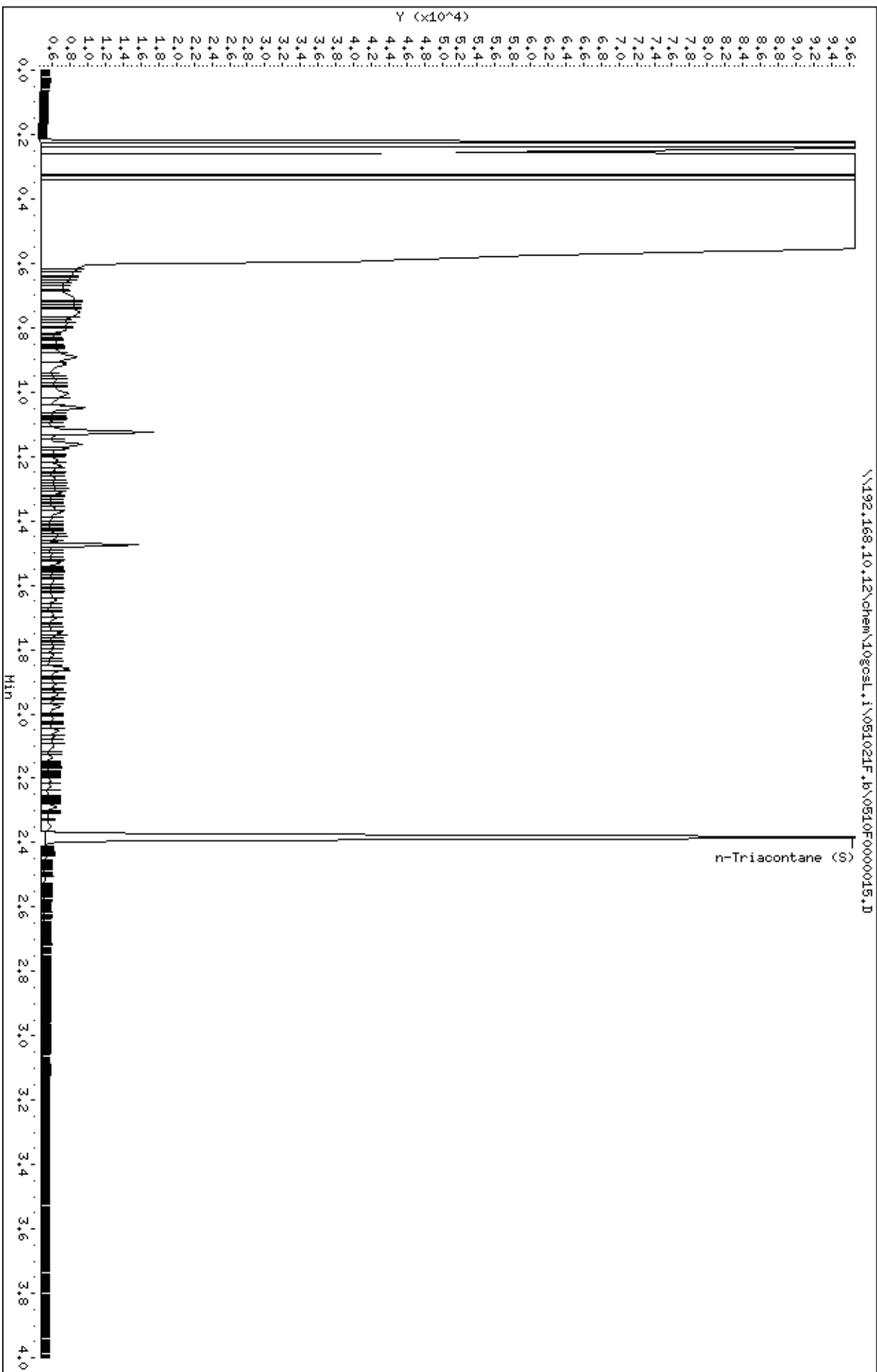
Volume Injected (uL): 1.0

Column phase: DB-5-MS20500046

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Date : 13-MAY-2021 09:54

Client ID: MM-04

Sample Info: 10558462004

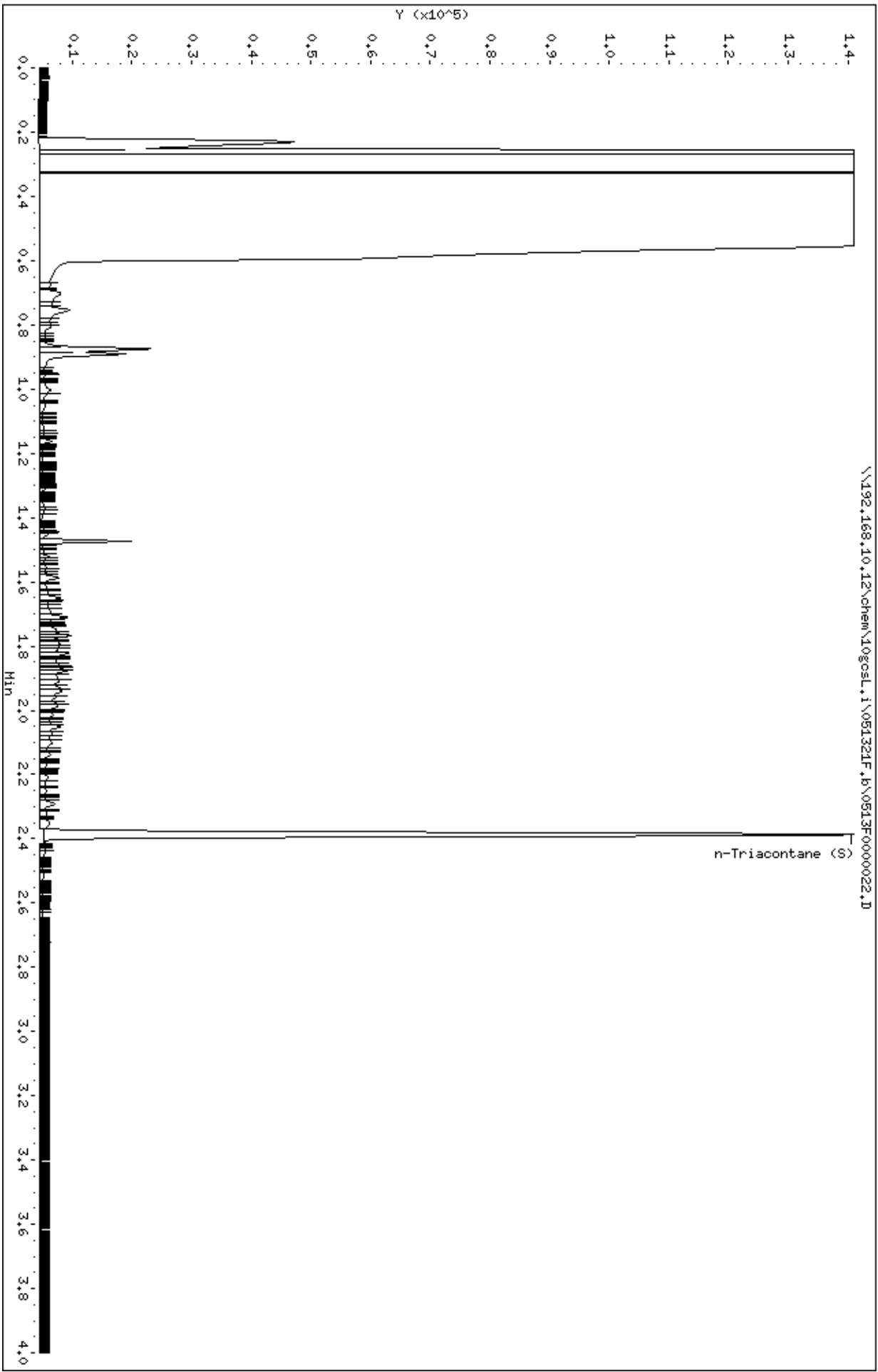
Volume Injected (uL): 1.0

Column phase: DB-5-MS205000046

Instrument: 10gosl.i

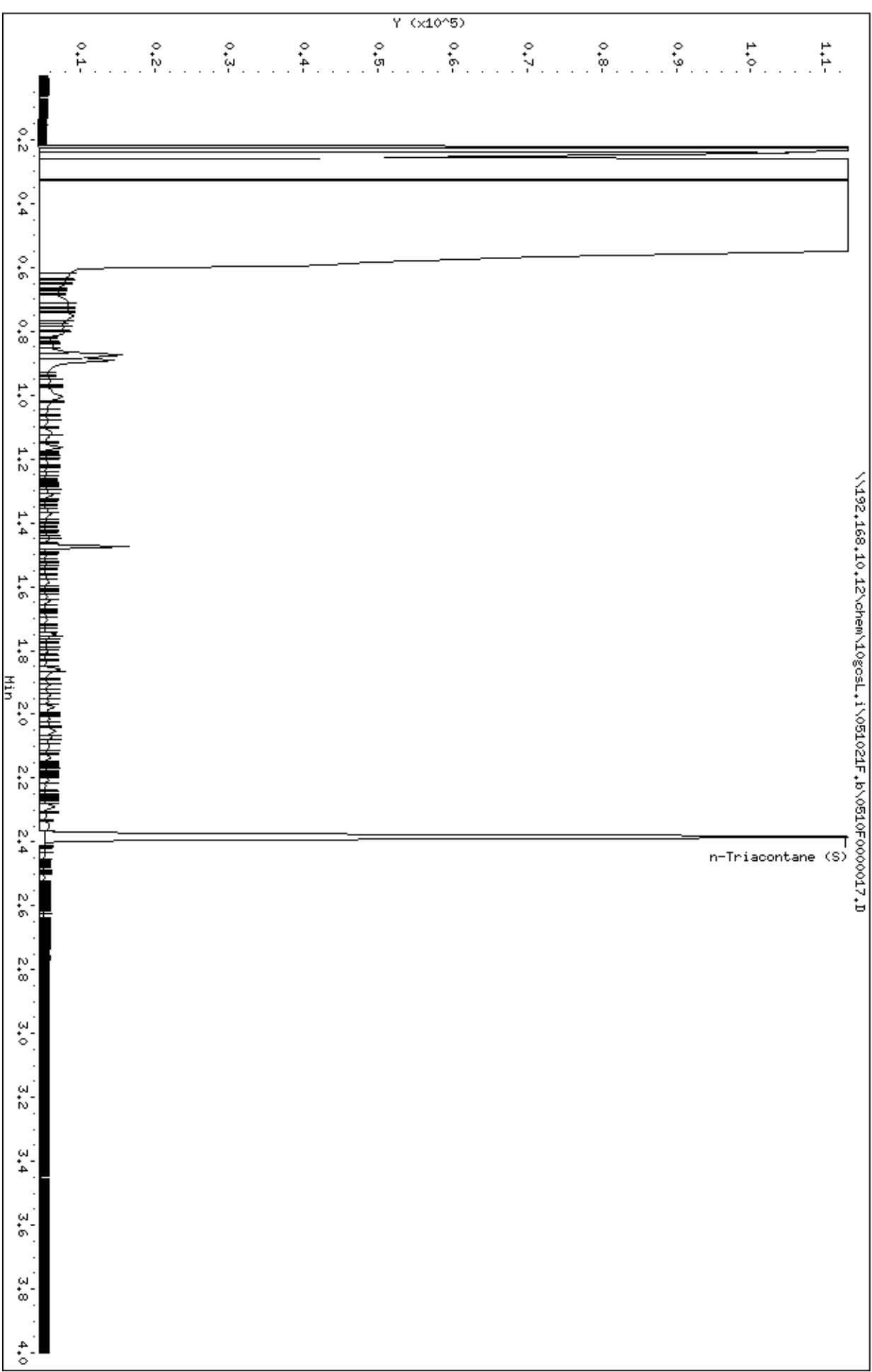
Operator: TT2

Column diameter: 0.32



Data File: \\192.168.10.12\chem\10gosl.i\051021F.b\0510F0000017.D
Date: 10-MAY-2021 09:32
Client ID: MM-04-D
Sample Info: 10558462005
Volume Injected (uL): 1.0
Column phase: DB-5-MS205000046

Instrument: 10gosl.i
Operator: TT2
Column diameter: 0.32



Date : 10-MAY-2021 09:39

Client ID: EB-01

Sample Info: 10558462006

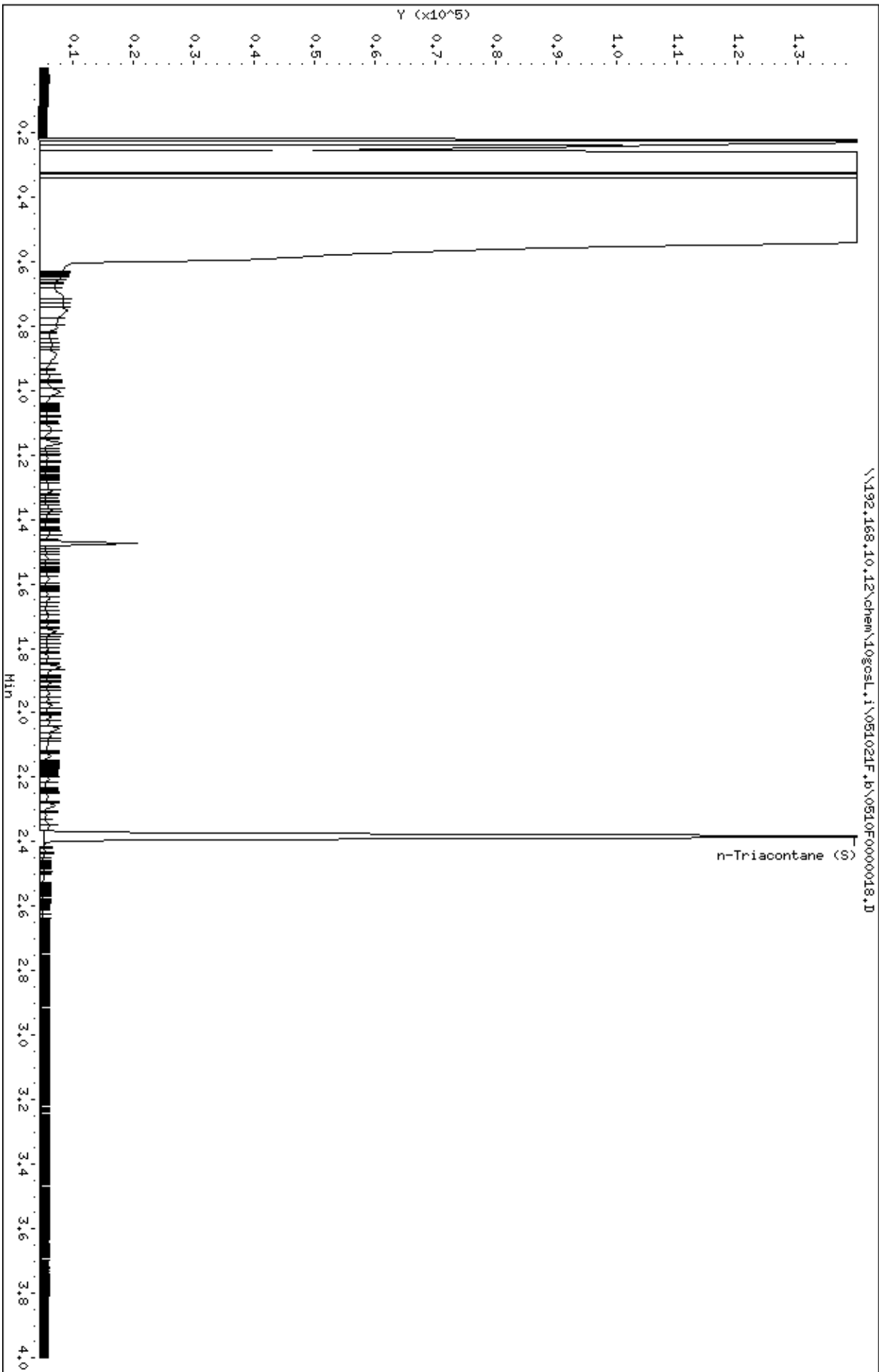
Volume Injected (uL): 1.0

Column phase: DB-5-MS20500046

Instrument: 10gosl.i

Operator: TT2

Column diameter: 0.32



Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS FOR
TCDD**

Report Information:

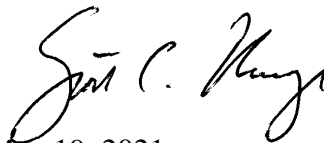
PaceProject#: 10558465
Sample Receipt Date: 05/04/2021
Client Project #: 200408 SW#134 Begin D
Client Sub PO #: 205946
State Cert #: N/A

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 Prepared Date:

May 17, 2021



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.

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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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

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Report No.....10558465

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.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
Company:	Bay West	Project Name:	SW#134 Begin Dump - CW Sampling	Company Name:	Bay West LLC	Lab Name:	1700 Elm St. Minneapolis MN, 55414	COC ID:	3000027123
Address:	5 Empire Dr. St. Paul MN, 55103	Project Number:	200408	Address:	5 Empire Dr. St. Paul, MN 55103	Address:	Sylwia Hunter	Facility Code:	SW-134
Project Manager:	Erik Nimios	Turnaround Time:	Standard	Purchase Order No.:	205946	Lab Phone:	612-607-6347	Project Task Code:	PRJ07913
Email To:	enimios@baywest.com	Site Location (State):	MN	Copy To:	evantr@baywest.com	Program Code:			
Phone:	651-291-3493	Copy To:	evantr@baywest.com						
Copy To:	Eweaver@baywest.com	Copy To:	gvandervaal@baywest.com						

ITEM #	Location Unique ID	Sample Common ID	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.	Requested Analysis						Comments			
											DRO with silica gel cleanup (WI DRO)	2,3,7,8 TCDD (Dioxin/EPA 1613B/8290A)	1,4-Dioxane (8270 SIM)	PAS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N (SM 4500 NO3-H)		Preservatives	None	None
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	5/13/21	1525	10	X	X	X	X	X	X	X	X	X	1
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	5/14/21	0950	10	X	X	X	X	X	X	X	X	X	2
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	5/14/21	1225	10	X	X	X	X	X	X	X	X	X	only 1 container of each - 3
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	5/14/21	1540	10	X	X	X	X	X	X	X	X	X	4
5	034635	MW-05	Sample	G	WG	NW	Wtr-Ground	5/14/21	1600	10	X	X	X	X	X	X	X	X	X	omit-1
6	834636	MW-04 - D	QC-FFR	G	WG	NW	Wtr-Ground	5/14/21	1700	10	X	X	X	X	X	X	X	X	X	5
7	Equipment Blank	EB-01	QC-EB	G	WG	NW	Wtr-Ground	5/14/21		10	X	X	X	X	X	X	X	X	X	6

ADDITIONAL COMMENTS:		RELINQUISHED BY/AFFILIATION:		DATE:		TIME:		ACCEPTED BY/AFFILIATION:		DATE:		TIME:		SAMPLE CONDITIONS:					
Ted T / Bay West		Ted T / Bay West		5/14/21		1829		Ted T / Bay West		5-14-21		1829		Temp (°C) 4.4 2.6 5.0					
SAMPLE NAME AND SIGNATURE:														Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)	
PRINT Name of SAMPLER: Ted T / Bay West														Y		Y		Y	
SIGNATURE OF SAMPLER: Ted T / Bay West														N		N		N	
DATE Signed (MM/DD/YYYY): 5/14/21																			

WO# : 105558465

105558465



Document Name: Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 14Apr2021

Page 1 of 1

Document No.: ENV-FRM-MIN4-0150 Rev.02

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name:

Bay West

Project #:

WO#: 10558465

Courier: FedEx, UPS, USPS, Client, Pace, Speedee, Commercial

PM: KAC Due Date: 05/19/21 CLIENT: BW-BAY WEST

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

Custody Seal on Cooler/Box Present? Seals Intact? Biological Tissue Frozen?

Packing Material: Bubble Wrap, Bubble Bags, None, Other; Temp Blank?

Thermometer: T1, T2, T3, OS418-LS, T4, T5, 160285052; Type of Ice: Wet, Blue, None, Dry, Melted

Did Samples Originate in West Virginia? Were All Container Temps Taken?

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 4.2, 2.4, 4.8 °C Average Corrected Temp (no temp blank only): 4.4, 2.6, 5.0 °C

USDA Regulated Soil: N/A, water sample/Other; Date/Initials of Person Examining Contents: Co 05-04-21

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Question/Requirement and COMMENTS. Rows include Chain of Custody, Short Hold Time Analysis, Rush Turn Around Time, Field Filtered Volume, and Trip Blank Present.

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Date/Time: Field Data Required? Yes No

Project Manager Review: [Signature] 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: [Signature]

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Report No.....10558465

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	Conc pg/L	EMPC pg/L	EDL 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

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

R = Recovery outside target range
 E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

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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	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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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	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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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

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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Method 8290A Blank Analysis Results

Lab Sample Name	DFBLKXO	Matrix	Water
Lab Sample ID	BLANK-89810	Dilution	NA
Filename	Y210515B_03	Extracted	05/06/2021 13:00
Total Amount Extracted	1000 mL	Analyzed	05/15/2021 22:55
ICAL ID	Y210504	Injected By	BAL
CCal Filename(s)	Y210515A_17		

Native Isomers	Conc pg/L	EMPC pg/L	EDL 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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCS-89811	Matrix	Water
Filename	Y210515B_01	Dilution	NA
Total Amount Extracted	983 mL	Extracted	05/06/2021 13:00
ICAL ID	Y210504	Analyzed	05/15/2021 21:26
CCal Filename(s)	Y210515A_17	Injected By	BAL
Method Blank ID	BLANK-89810		

Native Isomers	Qs (ng)	Qm (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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCSD-89812	Matrix	Water
Filename	Y210515B_02	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	05/06/2021 13:00
ICAL ID	Y210504	Analyzed	05/15/2021 22:11
CCal Filename(s)	Y210515A_17	Injected By	BAL
Method Blank ID	BLANK-89810		

Native Isomers	Qs (ng)	Qm (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

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Method 8290A

Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

Spike 1 ID LCS-89811
Spike 1 Filename Y210515B_01

Spike 2 ID LCSD-89812
Spike 2 Filename Y210515B_02

Compound	Spike 1 %REC	Spike 2 %REC	%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

REPORT OF LABORATORY ANALYSIS

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Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

May 17, 2021

Report Information:

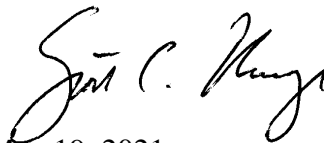
Pace Project #: 10558465
Sample Receipt Date: 05/04/2021
Client Project #: 200408 SW#134 Begin Dump-G
Client Sub PO #: 205946
State Cert #: N/A

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

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

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 #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management



Document Name:
Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 14Apr2021

Page 1 of 1

Document No.:
ENV-FRM-MIN4-0150 Rev.02

Pace Analytical Services -
Minneapolis

Sample Condition
Upon Receipt

Client Name:

Bay West

Project #:

WO# : 10558465

Courier: Fed. Ex UPS USPS Client
 Pace SpeeDee Commercial

PM: KAC Due Date: 05/19/21
CLIENT: BW-BAY WEST

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1386) T3(0459) OS418-LS T4(0254) T5(0489) 160285052 Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 4.2, 2.4, 4.8 °C

Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: 10.2 Cooler Temp Corrected w/temp blank: 4.4, 2.6, 5.0 °C

USDA Regulated Soil: N/A (water sample/Other: _____)

Date/Initials of Person Examining Contents: Ca 05-04-21

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
		pH Paper Lot#
		Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____

Date/Time: _____

Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: [Signature]

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: [Signature]

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-01	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465001	Total Amount Extracted	483mL
Lab File ID	A210512B_016	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_003
Collected	05/03/2021 15:25	Ending CCal File	A210512B_018
Received	05/04/2021 18:29	Blank File	A210512B_005

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	31.7	0.517	0.517	0.155	1	375-22-4	
PFPeA	3.97	0.517	0.517	0.102	1	2706-90-3	
HFPO-DA	ND	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	
PFTTrDA	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

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-01	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465001	Total Amount Extracted	483mL
Lab File ID	A210512B_016	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_003
Collected	05/03/2021 15:25	Ending CCal File	A210512B_018
Received	05/04/2021 18:29	Blank File	A210512B_005

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	10.3	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_PFBFA	10.3	8.95	87	50-200	
13C5_PFPeA	10.3	9.04	87	50-200	
13C3_PFBFS	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

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-01	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465001	Total Amount Extracted	483mL
Lab File ID	A210512B_016	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_003
Collected	05/03/2021 15:25	Ending CCal File	A210512B_018
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	5.02	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

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-01	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465001	Total Amount Extracted	483mL
Lab File ID	A210512B_016	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_003
Collected	05/03/2021 15:25	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	0.330	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-Cl-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-Cl-PF3OUdS	0.000	0.0150	8.44	8.44	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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

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	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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

Injection Internal Standards

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_PFBFA	9.89	10.8	110	50-200	
13C5_PFPeA	9.89	9.88	100	50-200	
13C3_PFBFS	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_PFOA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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

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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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-Cl-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-Cl-PF3OUdS	0.000	0.0150	8.45	8.44	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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

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	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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

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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Sample Analysis Summary
 MPCA Guidance PFCs

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

Injection Internal Standards

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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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-Cl-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-Cl-PF3OUdS	0.000	0.0130	8.45	8.44	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465004	Total Amount Extracted	491mL
Lab File ID	A210512B_020	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_018
Collected	05/04/2021 15:40	Ending CCal File	A210512B_027
Received	05/04/2021 18:29	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	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	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465004	Total Amount Extracted	491mL
Lab File ID	A210512B_020	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_018
Collected	05/04/2021 15:40	Ending CCal File	A210512B_027
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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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465004	Total Amount Extracted	491mL
Lab File ID	A210512B_020	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_018
Collected	05/04/2021 15:40	Ending CCal File	A210512B_027
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	5.02	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

Client Sample ID	MW-04	Extraction Date	05/05/2021 18:45
Lab Sample ID	10558465004	Total Amount Extracted	491mL
Lab File ID	A210512B_020	Ical ID	210512A03
Matrix	Water	CCal File	A210512B_018
Collected	05/04/2021 15:40	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	0.320	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	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-Cl-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-Cl-PF3OUdS	0.000	0.0130	8.45	8.44	
PFTTrDA	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

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

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	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	
PFTTrDA	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	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary
 MPCA Guidance PFCs

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

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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Sample Analysis Summary
 MPCA Guidance PFCs

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

Injection Internal Standards

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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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	I
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-Cl-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-Cl-PF3OUdS	0.000	0.0130	8.44	8.44	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
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

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	
PFTTrDA	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
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

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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
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

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	7.26	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	

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Sample Analysis Summary
 MPCA Guidance PFCs

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
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. 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	0.480	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-Cl-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-Cl-PF3OUdS	0.000	0.0150	8.45	8.44	
PFTTrDA	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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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	

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	
PFTTrDA	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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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	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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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	

REPORT OF LABORATORY ANALYSIS

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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	

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-Cl-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-Cl-PF3OUdS	0.000	0.0150	8.44	8.44	
PFTTrDA	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

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_PFOA	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	

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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-89806
 Run File Name A210513A_029
 Analyzed 05/13/2021 15:54
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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
PFTTrDA	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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-89806
 Run File Name A210513A_029
 Analyzed 05/13/2021 15:54
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-89806
 Run File Name A210513A_029
 Analyzed 05/13/2021 15:54
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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	0.46	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

Lab Sample ID LCSD-89821
 Run File Name A210513A_030
 Analyzed 05/13/2021 16:09
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 Level L

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	

REPORT OF LABORATORY ANALYSIS

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LCSD Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCSD-89821
 Run File Name A210513A_030
 Analyzed 05/13/2021 16:09
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 Level L

Native Analytes

Compound	Known Conc.	LCS Conc. Found	LCS Rec. %	LCSD Conc. Found	LCSD Rec. %	RPD %	Recovery 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	
PFTTrDA	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	

REPORT OF LABORATORY ANALYSIS

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LCSD Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCSD-89821
 Run File Name A210513A_030
 Analyzed 05/13/2021 16:09
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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	

REPORT OF LABORATORY ANALYSIS

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LCSD Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID	LCSD-89821	Instrument ID	10LCMS03
Run File Name	A210513A_030	Column ID	112EB00094
Analyzed	05/13/2021 16:09	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	3.56	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

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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#: 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

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

Report Prepared Date:

May 17, 2021

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

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

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Report No.....10558675

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.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Laboratory Information:		Section E MPCA Information:	
Company:	Bay West	Project Name:	SW#134 Begin Dump - GW Sampling	Accounts Payable:	Bay West LLC	Lab Name:	1700 Elm St. Minneapolis MN, 55414	COC ID:	3000027123
Address:	5 Empire Dr. St. Paul MN, 55103	Project Number:	200408	Company Name:	5 Empire Dr. St. Paul, MN 55103	Address:	Sylvia Hunter	Work Order Number:	SW-134
Project Manager:	Erik Nimlos	Turnaround Time:	Standard	Address:	Purchase Order No. 205946	Lab Project Manager:	612-607-6347	Facility Code:	PR107913
Email To:	enimlos@baywest.com	Site Location (State):	MN	Copy To:	rvantr@baywest.com	Lab Phone:		Project Task Code:	
Phone:	651-291-3493	Copy To:	gvanderweal@baywest.com	Copy To:				Program Code	

ITEM #	Location Unique ID	Sample Common ID	Sample Type Code	Sample Type Codes	Lab Matrix Code	Field Matrix Code	Date	Time	# of Cont.	Requested Analysis	Comments
1	2001007374	MW-01	Sample	Field Matrix Codes Wtr-Ground=Ground Water WTR-Surf=Surface Water S-CWOP=Composite Sample S-IVP=Integrated Vertical Profile Sample QC-Blank=Artificial Blank Water Leachate=Leachate Sample Soil-Surf= Soil Surface Soil-Sub= Soil Subsurface OT=Other	Lab Matrix Codes DW=Drinking Water NW=Non-potable Water SD=Soil/Solid WA=Aqueous WP=Wipe AR=Air BL=Biological Material S=Surface	Sample Type Codes Wtr-Ground=Ground Water S-CWOP=Composite Sample S-IVP=Integrated Vertical Profile Sample QC-Blank=Artificial Blank Water Leachate=Leachate Sample Soil-Surf= Soil Surface Soil-Sub= Soil Subsurface OT=Other	5/15/21	1025	10	DR with silica gel cleanup (w/ DR) 2,3,7,8 TCDD (toxin)(EPA 1613B/8290A) 1,4-Dioxane (8270 SIM) PFAS Nitrogen, Total Organic (351.2 + 350.1) Nitrate + Nitrite, as N(SM 4500 NO3-H)	OMI-1 gwa-1 gwa-2 gwa-3 gwa-4 gwa-5
2	2001007375	MW-02	Sample								
3	2001007376	MW-03	Sample								
4	2001007377	MW-04	Sample								
5	834635	MW-05	Sample								
6	834636	MW-04-D	QC-ER								
7	Equipment Blank	EB-01	QC-EB								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Ted T / Bay West 5/15/21 1157		5/15/21	1157	PAICE	5/15/21	1200	Temp (C) 4.2 Received on Ice (Y/N) Y Custody Sealed Cooler (Y/N) Y Samples Intact (Y/N) Y
<p>DATE SIGNED (MM/DD/YYYY): 5/15/21</p> <p>SAMPLER NAME AND SIGNATURE: Ted Tager</p> <p>PRINT Name of SAMPLER: Ted Tager</p> <p>SIGNATURE of SAMPLER: Ted Tager</p>							

WO#: 10558675

10558675



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:

Bay West

Project #:

WO# : 10558675

PM: KAC

Due Date: 05/19/21

CLIENT: BW-BAY WEST

Courier: Fed.Ex UPS USPS Client
 Pace SpeeDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) OS418-LS Type Wet Blue None Dry Melted
 T4(0254) T5(0489) 160285052 of Ice: Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 4.0 °C Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: 4.02 Cooler Temp Corrected w/temp blank: 4.2 °C

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: 5/5/21 RS2

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

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
		pH Paper Lot#
		Res. Chlorine 0-6 Roll 221419 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____

Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: KAC

Date: 05/06/21

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Report No.....10558675

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	Extracted	05/10/2021 14:30
Method Blank ID	BLANK-89897	Analyzed	05/13/2021 20:25

Native Isomers	Conc pg/L	EMPC pg/L	EDL 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

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

R = Recovery outside target range
 E = Exceeds calibration range

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Method 8290A Blank Analysis Results

Lab Sample Name	DFBLKZE	Matrix	Water
Lab Sample ID	BLANK-89897	Dilution	NA
Filename	U210514A_04	Extracted	05/10/2021 14:30
Total Amount Extracted	1010 mL	Analyzed	05/14/2021 01:58
ICAL ID	U210423	Injected By	SMT
CCal Filename(s)	U210514A_01 & U210514A_14		

Native Isomers	Conc pg/L	EMPC pg/L	EDL 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

REPORT OF LABORATORY ANALYSIS

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCS-89898	Matrix	Water
Filename	U210514A_02	Dilution	NA
Total Amount Extracted	1010 mL	Extracted	05/10/2021 14:30
ICAL ID	U210423	Analyzed	05/14/2021 00:29
CCal Filename(s)	U210514A_01 & U210514A_14	Injected By	SMT
Method Blank ID	BLANK-89897		

Native Isomers	Qs (ng)	Qm (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

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Method 8290A Laboratory Control Spike Results

Lab Sample ID	LCSD-89899	Matrix	Water
Filename	U210514A_03	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	05/10/2021 14:30
ICAL ID	U210423	Analyzed	05/14/2021 01:13
CCal Filename(s)	U210514A_01 & U210514A_14	Injected By	SMT
Method Blank ID	BLANK-89897		

Native Isomers	Qs (ng)	Qm (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

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Method 8290A

Spike Recovery Relative Percent Difference (RPD) Results

Client Bay West, LLC

Spike 1 ID LCS-89898
Spike 1 Filename U210514A_02

Spike 2 ID LCSD-89899
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

REPORT OF LABORATORY ANALYSIS

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Report Prepared for:

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

**REPORT OF
LABORATORY
ANALYSIS
FOR PFAAs**

Report Prepared Date:

May 19, 2021

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

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

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 that 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 #
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-DW	41244
Georgia	959	Ohio-VAP (170	CL101
Hawaii	MN00064	Ohio-VAP (180	CL110
Idaho	MN00064	Oklahoma	9507
Illinois	200011	Oregon- rimary	MN300001
Indiana	C-MN-01	Oregon-Second	MN200001
Iowa	368	Pennsylvania	68-00563
Kansas	E-10167	Puerto Rico	MN00064
Kentucky-DW	90062	South Carolina	74003
Kentucky-WW	90062	Tennessee	TN02818
Louisiana-DEQ	AI-84596	Texas	T104704192
Louisiana-DW	MN00064	Utah	MN00064
Maine	MN00064	Vermont	VT-027053137
Maryland	322	Virginia	460163
Michigan	9909	Washington	C486
Minnesota	027-053-137	West Virginia-D	382
Minnesota-Ag	via MN 027-053	West Virginia-D	9952C
Minnesota-Petr	1240	Wisconsin	999407970
Mississippi	MN00064	Wyoming-UST	via A2LA 2926.

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.

Section A Required Client Information:				Section B Required Project Information:				Section C Invoice Information:				Section D Laboratory Information:				Section E MPCA Information:			
Company:	Bay West	Project Name:	SW#134 Begin Dump - GW Sampling	Attention:	Accounts Payable	Lab Name:	Pace	Work Order Number:	3000027123	Facility Code:	SW-134	Project Task Code:	PRJ07913	Program Code:					
Address:	5 Empire Dr. St. Paul, MN, 55103	Project Number:	200408	Company Name:	Bay West LLC	Address:	1700 Elm St. Minneapolis, MN, 55414												
Project Manager:	Erik Nimlos	Turnaround Time:	Standard	Address:	5 Empire Dr. St. Paul, MN 55103	Lab Project Manager:	Sylvia Hunter												
Email To:	enimilos@baywest.com	Site Location (State):	MN	Purchase Order No.:	205946	Lab Phone:	612-607-6347												
Phone:	651-291-3493	Copy To:	evanr@baywest.com																
Copy To:	Eweaver@baywest.com	Copy To:	evanderwaal@baywest.com																

ITEM #	Location Unique ID	Sample Common ID	Sample Type Code (MPCA ONLY)	SAMPLE TYPE (G=GRAB C=COMP)	Matrix Code	Lab Matrix Code (MPCA ONLY)	Field Matrix Code	Date	Time	# of Cont.	Requested Analysis												Comments			
											DRO with silica gel cleanup (WI DRO)	2,3,7,8 TCDD (Dioxin/EPA 1613B/8290A)	1,4-Dioxane (8270 SIM)	PFS	Nitrogen, Total Organic (351.2 + 350.1)	Nitrate + Nitrite, as N(SM 4500 NO3-H)	Preservatives									
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	5/15/21	1025	10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	834636	MW-04-D	QC-EB	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	Equipment Blank	EB-04	QC-EB	G	WG	NW	Wtr-Ground				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Ted T / Bay West 5/15/21 1157		5/15/21	1157	Sylvia	5/15/21	1200	4.2 Y Y Y Y

WO# : 10558676 10558676		SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: Ted T SIGNATURE of SAMPLER: Ted T	DATE Signed (MM/DD/YYYY): 5/15/21
---------------------------------------	--	--	-----------------------------------

	Document Name: Sample Condition Upon Receipt (SCUR) - MN	Document Revised: 14Apr2021 Page 1 of 1
	Document No.: ENV-FRM-MIN4-0150 Rev.02	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name: Bay West Project #: _____

WO# : 10558676

Courier: FedEx UPS USPS Client
 Pace Speedee Commercial

PM: KAC Due Date: 05/19/21
 CLIENT: BW-BAY WEST

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) OS418-LS T4(0254) T5(0489) 160285052 Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Were All Container Temps Taken? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: <u>4.0</u> °C	Average Corrected Temp (no temp blank only): _____ °C
Correction Factor: <u>1.02</u> Cooler Temp Corrected w/temp blank: <u>4.2</u> °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 5/5/21 QJ2

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot#
	Res. Chlorine 0-6 Roll <u>221419</u> 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No
 Comments/Resolution: _____

Project Manager Review: [Signature] Date: 05/06/21

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 = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- 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
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Non_Potable_Water	CCal File	A210513A_003
Collected	05/05/2021 10:25	Ending CCal File	A210513A_013
Received	05/05/2021 12:00	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	
PFTTrDA	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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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Non_Potable_Water	CCal File	A210513A_003
Collected	05/05/2021 10:25	Ending CCal File	A210513A_013
Received	05/05/2021 12:00	Blank File	A210512B_028

Injection Internal Standards

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

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Non_Potable_Water	CCal File	A210513A_003
Collected	05/05/2021 10:25	Ending CCal File	A210513A_013
Received	05/05/2021 12:00	Blank File	A210512B_028

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	3.56	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

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Sample Analysis Summary
 MPCA Guidance PFCs

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
Matrix	Non_Potable_Water	CCal File	A210513A_003
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-Cl-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-Cl-PF3OUdS	0.000	0.0140	8.44	8.44	
PFTTrDA	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

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	

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	
PFPeA	ND	0.49	0.49	0.097	1	2706-90-3	
HFPO-DA	ND	0.49	0.49	0.092	1	13252-13-6	
PFBS	ND	0.44	0.44	0.10	1	375-73-5	
PFHxA	ND	0.49	0.49	0.11	1	307-24-4	
4:2 FTS	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	0.13	1	1691-99-2	
11-CI-PF3OUdS	ND	0.46	0.46	0.12	1	763051-92-9	
PFTTrDA	ND	0.49	0.49	0.16	1	72629-94-8	
PFDoS	ND	0.48	0.48	0.12	1	79780-39-5	
PFTDA	ND	0.49	0.49	0.081	1	376-06-7	
PFHXDA	ND	0.49	0.49	0.12	1	67905-19-5	
PFODA	ND	0.49	0.49	0.16	1	16517-11-6	

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Method Blank Analysis Summary
 MPCA Guidance PFCs

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

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	

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Method Blank Analysis Summary
 MPCA Guidance PFCs

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

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	

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Method Blank Analysis Summary
 MPCA Guidance PFCs

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	

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-Cl-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-Cl-PF3OUdS	0.000	0.0140	8.45	8.44	
PFTTrDA	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	

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LCS Analysis Summary
 MPCA Guidance PFCs

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_PFOA	9.9	11	115	50-200	
d5-EtFOSAA	9.9	12	118	50-200	
13C7_PFUdA	9.9	13	136	50-200	
13C2_PFDaA	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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LCS Analysis Summary
 MPCA Guidance PFCs

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Lab Sample ID LCS-89877
 Run File Name A210512B_029
 Analyzed 05/13/2021 04:56
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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
PFTTrDA	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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-89877
 Run File Name A210512B_029
 Analyzed 05/13/2021 04:56
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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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LCS Analysis Summary
 MPCA Guidance PFCs

Lab Sample ID LCS-89877
 Run File Name A210512B_029
 Analyzed 05/13/2021 04:56
 Injected By NH

Instrument ID 10LCMS03
 Column ID 112EB00094
 Ical ID 210512A03
 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

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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
1(612)607-1700
Project Manager

Enclosures

cc: Ryan Riley, Bay West LLC
Jeff Smith, Pace Analytical Services, Inc
Gerrit Vanderwaal, Bay West



REPORT OF LABORATORY ANALYSIS

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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 DEQ Certification #: AI-03086*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137*

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

Minnesota Petrofund Registration #: 1240*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081*

New Jersey Certification #: MN002

New York Certification #: 11647*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110*

Oklahoma Certification #: 9507*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001*

Pennsylvania Certification #: 68-00563*

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192*

Utah Certification #: MN00064*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163*

Washington Certification #: C486*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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

Pace Analytical Services, LLC - Duluth MN

4730 Oneota Street, Duluth, MN 55807

Minnesota Certification #: 027-137-152

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

Minnesota Petrofund Registration #: 1240

Montana Certification #: CERT0102

Nevada Certification #: MN00037

North Dakota Certification #: R-105

Wisconsin Certification #: 999446800

Wisconsin Dept of Ag Certification: 480341

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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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

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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

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PROJECT NARRATIVE

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:

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PROJECT NARRATIVE

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

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.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

Sample: MW-05		Lab ID: 10558678001		Collected: 05/05/21 10:25		Received: 05/05/21 12:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Waters DU									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth, MN									
Nitrogen, Ammonia	<0.20	mg/L	0.20	0.089	1		05/08/21 13:15	7664-41-7	
351.2 TKN Water DU									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Duluth, MN									
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									
Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Duluth, MN									
Total Organic Nitrogen	<0.69	mg/L	0.69	0.40	1		05/11/21 15:10		
WIDRO LV GCS Silica Gel									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO Pace Analytical Services - Minneapolis									
WDRO C10-C28	<0.098	mg/L	0.098	0.028	1	05/06/21 17:08	05/10/21 09:46		
Surrogates									
n-Triacontane (S)	67	%.	34-125		1	05/06/21 17:08	05/10/21 09:46		
8270D MSSV 14 Dioxane By SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C Pace Analytical Services - Minneapolis									
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		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump - GW
Pace Project No.: 10558678

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.20	0.20	0.089	05/08/21 13:01	

LABORATORY CONTROL SAMPLE: 3950029

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950030 3950031

Parameter	Units	10558592007		3950031		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Nitrogen, Ammonia	mg/L	<0.089	5	5	5.1	5.1	102	101	90-110	1	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.50	0.50	0.18	05/11/21 09:39	

LABORATORY CONTROL SAMPLE: 3950753

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950754 3950755

Parameter	Units	10558175001		3950754		3950755		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec				
Nitrogen, Kjeldahl, Total	mg/L	0.50J	10	10	10.6	10.6	101	101	90-110	0	10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950756 3950757

Parameter	Units	10558766001		3950756		3950757		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec				
Nitrogen, Kjeldahl, Total	mg/L	ND	10	10	6.4	5.6	63	55	90-110	13	10 M1,R1

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

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

Parameter	Units	Blank Result	Reporting 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

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	0.5	0.52	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950214 3950215

Parameter	Units	3950214		3950215		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
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

Parameter	Units	3950216		3950217		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, NO2 plus NO3	mg/L	40.8	25	25	65.1	65.0	97	97	90-110	0	10 E

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 200408 SW#134 Begin Dump - GW

Pace Project No.: 10558678

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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 & LCSD: 3947400

3947401

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max 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			

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REPORT OF LABORATORY ANALYSIS

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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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 200408 SW#134 Begin Dump - GW
Pace Project No.: 10558678

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

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information: Company: Bay West Address: 5 Empire Dr. St. Paul MN, 55103 Project Manager: Erik Nimios Email To: enimios@baywest.com Phone: 651-291-3493 Copy To: Eweaver@baywest.com		Section B Required Project Information: Project Name: SW#134 Begin Dump - GW Sampling Project Number: 200408 Turnaround Time: Standard Site Location (State): MN Copy To: njvanr@baywest.com Copy To: elvandenvaal@baywest.com		Section C Invoice Information: Accounts Payable: Bay West LLC Company Name: 5 Empire Dr. St. Paul, MN 55103 Address: 1700 Elm St. Minneapolis MN, 55414 Lab Name: Sylvia Hunter Lab Phone: 612-607-6347 Purchase Order No.: 205946		Section D Laboratory Information: Lab Name: Pace Address: 1700 Elm St. Minneapolis MN, 55414 Lab Project Manager: Sylvia Hunter Lab Phone: 612-607-6347		Section E MPCA Information: COC ID: Work Order Number: 3000027123 Facility Code: SW-134 Project Task Code: PRJ07913 Program Code:	
---	--	--	--	--	--	---	--	--	--

ITEM #	Location Unique ID	Sample Common ID	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	Requested Analysis							Comments		
											DRP 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)	Nitrate + Nitrite, as N(SM 4500 NO3-H)				
1	2001007374	MW-01	Sample	G	WG	NW	Wtr-Ground	5/15/21	1025	10	X	X	X	X	X	X	X	X	X	OMY - R
2	2001007375	MW-02	Sample	G	WG	NW	Wtr-Ground	5/15/21	1157	17	X	X	X	X	X	X	X	X	X	OMY - R
3	2001007376	MW-03	Sample	G	WG	NW	Wtr-Ground	5/15/21	1157	17	X	X	X	X	X	X	X	X	X	OMY - R
4	2001007377	MW-04	Sample	G	WG	NW	Wtr-Ground	5/15/21	1025	10	X	X	X	X	X	X	X	X	X	OMY - R
5	834635	MW-05	Sample	G	WG	NW	Wtr-Ground	5/15/21	1025	10	X	X	X	X	X	X	X	X	X	OMY - R
6	834636	MW-04 - D	QC-ER	G	WG	NW	Wtr-Ground	5/15/21	1157	17	X	X	X	X	X	X	X	X	X	OMY - R
7	Equipment Blank	EB-01	QC-EB	G	WG	NW	Wtr-Ground	5/15/21	1157	17	X	X	X	X	X	X	X	X	X	OMY - R


ADDITIONAL COMMENTS Ted T / Bay West 5/15/21 1157		RELINQUISHED BY / AFFILIATION Ted T / Bay West 5/15/21 1157		ACCEPTED BY / AFFILIATION Pace		DATE 5/15/21		TIME 1200		SAMPLE CONDITIONS Temp (C): 4.2 Received on Ice (Y/N): Custody Sealed Cooler (Y/N): Samples Intact (Y/N):	
---	--	---	--	--	--	------------------------	--	---------------------	--	--	--

WO#: 10558678

DATE Signed (MM/DD/YYYY): 5/15/21

SIGNATURE OF SAMPLER: Ted Tager

SIGNATURE OF SAMPLER: Ted Tager

	Document Name: Sample Condition Upon Receipt (SCUR) - MN	Document Revised: 14Apr2021 Page 1 of 1
	Document No.: ENV-FRM-MIN4-0150 Rev.02	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name: Bay West Project #: _____

WO# : 10558678
 PM: SH1 Due Date: 05/19/21
 CLIENT: BW-BAY WEST

Courier: Fed,Ex UPS USPS Client
 Pace SpeedDee Commercial

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

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) OS418-LS T4(0254) T5(0489) 160285052 Type of ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 4.0 °C Average Corrected Temp (no temp blank only): _____ °C See Exceptions ENV-FRM-MIN4-0142 1 Container

Correction Factor: 4.02 Cooler Temp Corrected w/temp blank: 4.2 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 5/5/21 AS2

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

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate <u>4/2</u>
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	pH Paper Lot# Res. Chlorine: 0-6 Roll <u>221414</u> 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No
 Comments/Resolution: _____

Project Manager Review: [Signature]

Date: 5/6/21

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: [Signature]

Intra-Regional Chain of Custody



MO# : 10558678

PM: SH1 Due Date: 05/19/21
 CLIENT: BW-BAY WEST



Workorder: 10558678 Workorder Name: 200408 SW#134 Begin Dump - GW Owner Received Date: 5/5/2021 Due Date: 5/19/2021

Received at: Pace Analytical Minnesota
 1700 Elm Street
 Minneapolis, MN 55414
 Phone 1(612)607-1700

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


Report To: Sylvia Hunter

BP3S (2)

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				Comments	
						EPA 353.2	EPA 351.2	EPA 350.1	TKN-NH3 Calculation		
1	MMW-05	PS	5/5/2021 10:25	10558678001	Water		X	X	X	X	LAB USE ONLY
2											
3											
4											
5											

Transfers	Released By	Date/Time	Received By	Date/Time	Cooler Temperature on Receipt	°C	Custody Seal	(Y) or N	Received on Ice	(Y) or N	Samples Intact	(Y) or N
1												
2		5/6/21		5/6/21								
3				5/7/21								
4												

***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 Revised: 17 June 2019 Page 1 of 1
	Document No.: F-DUL-C-001-rev.07	Issuing Authority: Pace Duluth Minnesota Quality Office

Sample Condition Upon Receipt	Client Name: <u>Pace MN</u>	Project #: WO# : 10558678
	Courier: <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> SpeedDee <input checked="" type="checkbox"/> Pace <input type="checkbox"/> Other: _____	PM: SH1 Due Date: 05/19/21 CLIENT: BW-BAY WEST
Tracking Number: _____		

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
 Packing Material: Bubble Wrap Bubble Bags None Other: _____
 Type of Ice: Wet Blue None Samples on ice, cooling process has begun
 Is there evidence of ice formation in samples? Yes No Biological Tissue Frozen? Yes No N/A
 Temp Blank? Yes No Thermometer Used: 01339252/1710 122639816 Correction Factor °C: -0.3
 Temp should be above freezing to 6 °C Cooler Temp Read °C: 0.5 Cooler Temp Corrected °C: 0.2
 Date and Initials of Person Examining Contents: 5/16/21 JL 05/07/2021

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers:
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION: Field Data Required? Yes No
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

FECAL WAIVER ON FILE: Y N TEMPERATURE WAIVER ON FILE: Y N
 Project Manager Review: _____ Date: _____

Data File: \\192.168.10.12\chem\10gosl.i\051021F.b\0510F0000019.D
Date: 10-MAY-2021 09:46
Client ID: MM-05
Sample Info: 10558678001
Volume Injected (uL): 1.0
Column phase: DB-5-MS20500046

Instrument: 10gosl.i
Operator: TT2
Column diameter: 0.32

