

# Technical Memorandum



Date: Tuesday, August 01, 2023

Project: STPS 263 – 1(28)6 | UPN 6141000  
West of Missoula - NW

To: Jon Schick, HDR  
Lisa Fischer, HDR

From: Clayton Mokri, HDR  
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Subject: Soil Sampling Memorandum  
West of Missoula, Missoula, Montana

HDR, Inc (HDR) has prepared this Soil Sampling Memorandum (Memo) on behalf of the Montana Department of Transportation (MDT) to document the methods and findings from the soil sampling and laboratory analysis at Mullan Road northwest of Missoula, Montana (**Figure 1**). MDT is planning to acquire the right-of-way (ROW) and perform earth disturbing activities along Mullan Road as part of the reconstruction of the 5.1-mile rural collector.

Mullan Road is located adjacent to the former Smurfit-Stone Mill (Smurfit), which was historically used as a wood pulp mill. Remedial investigations (RI) have been conducted at Smurfit by the responsible party in accordance with an Administrative Order on Consent with the United States Environmental Protection Agency (EPA). RIs have identified metals, polychlorinated biphenyls (PCBs), dioxins/furans, semi volatile organic compounds and volatile organic compounds in shallow soil above human health screening levels at Smurfit. A general description of the three Operable Units (OUs) is presented below:

- OU1 encompasses about 1,200 acres. This area has been and continues to be used largely for agricultural purposes, including grasslands for cattle grazing and cropland irrigated for alfalfa and grain crops.
- OU2 encompasses approximately 255 acres and includes the former industrial area. This area includes the former buildings and process areas for Smurfit.
- OU3 encompasses approximately 1,700 acres of the site and includes areas where solid and aqueous wastes were treated and stored. This area includes the wastewater treatment system (settling ponds, aeration basins, polishing ponds, solid waste basins, spoils basins, holding ponds, and infiltration basins).

Review of Smurfit RI and risk assessment reports indicate that metals, PCBs and dioxins/furans are the contaminants of concern (COC) likely present in soil, which will be disturbed by MDT during construction of the rural collector.

The sampling was conducted to evaluate the concentrations of COCs in shallow soil within the planned disturbance area. Soil sample analytical results may be used by the construction contractor

for construction worker health and safety requirements and / or to determine options for management of excavated and / or excess soil.

# 1 Scope of Work

The following activities were completed as part of this investigation:

- Prepared the *Sampling and Analysis Plan* (HDR, 2023);
- Prepared Site-Specific Health and Safety Plan;
- Marked soil boring locations in white paint and notified Montana 811 Dig Alert so that buried utilities could be identified and marked by utility providers;
- Advanced 10 soil borings by a Montana licensed driller using truck mounted direct push technology drill rig. Two borings to 3 feet (ft) below ground surface (bgs) and eight to 4 ft bgs;
- Analyzed soil samples at a Montana certified laboratory; and
- Prepared this Memo to document methods and findings from these activities.

## 2 Methods

Drilling and soil sampling activities were conducted in accordance with the *Sampling and Analysis Plan* (SAP) (HDR, 2023) as documented below:

### 2.1 Permitting and Utility Clearance

Soil boring locations were marked with paint and 811 was notified. On May 5, 2023, Montana 811 Dig Alert issued tickets 23040779, 23040774, 23040768, 23040719, 23040713, 23040704, 23040699, 23040693, 23040688, and 23040663 for the 10 soil borings.

On May 9, 2023, HDR acquired MDT Encroachment Permit number 7693 for borings advanced within MDT ROW. Right of entry to private property was acquired by MDT and HDR from M2Green Redevelopment, LLC. and MLH Montanan, LLC. for borings advanced on private property.

### 2.2 Soil Sampling and Analysis

On May 10, 2023, 10 soil borings were advanced up to 4 ft bgs by West Coast Central Environmental Consultants (WCEC) (License No. MWC-764) using a truck mounted direct push technology (DPT) drill rig at locations depicted in **Figure 2**. Soil borings were continuously cored using a 4-foot-long steel dual tube sampler and polyvinyl chloride (PVC) liner. The HDR field technician was onsite to oversee the drilling activities.

Up to three soil samples were collected from each boring in laboratory supplied containers at depths ranging from near ground surface to 4 ft bgs. Soil samples were analyzed per methods listed below:

- Dioxins/Furans by EPA method 8290;
- Polychlorinated biphenyls (PCBs) by EPA method 8082A; and
- Metals by EPA method 6010B/7174A.

Samples were stored on ice in an ice chest until shipped to Pace Analytical Services, LLC (Pace Analytical) in Minneapolis, Minnesota for analysis.

## 2.3 Equipment Decontamination and Boring Decommissioning

Field equipment that contacted soil or groundwater was decontaminated before each use, and in between samples, by steam cleaning or washing in a laboratory-grade detergent solution, followed by tap water. Potable water was used for decontamination of drilling equipment. Rinse water used in the decontamination process were disposed in MDT right of way by irrigating natural vegetation.

After sampling, all borings were backfilled with cuttings generated by the soil boring.

## 2.4 Quality Assurance and Quality Control

Soil samples were collected and preserved in accordance with EPA methods and shipped via overnight courier to Pace Analytical under chain of custody control. The samples were received in good condition, analyzed within appropriate hold times and surrogate recoveries were generally within the analytical method's accepted range.

Pace Analytical qualified the analytical results as summarized below and documented in the analytical reports (**Appendix A**):

- The isotopically-labeled PCDD/PCDF internal standards in the sample extracts were recovered at 19-98%. Except for ten low values, which were flagged "R" on the results tables, the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners 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 each sample batch as part routine quality control procedures. The results show two of the four 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.
- Laboratory and matrix spike samples were prepared using clean reference matrix or sample matrix. The results show that the spiked native compounds were recovered at 86-128% with relative percent differences (RPDs) of 0.8-26.6%. The RPD value obtained for OCDF was above the 20% target upper limit and may indicate elevated variability for this congener in the associated field sample determinations.
- Based upon review of the quality control results, the data is acceptable for the intended uses.

# 3 Results

This section documents the results from the soil sampling. Laboratory analytical results of detected compounds are summarized on **Tables 1** and **2** and laboratory analytical reports are included in **Appendix A**.

Soil encountered during drilling was silty sand from 0-2 ft bgs and clay from 2-4 ft bgs. The field geologist did not encounter visual or olfactory indicators of contamination. Groundwater was not encountered.

Soil sample analytical results were compared to the following criteria:

- Toxicity characteristics established in 40 CFR 261.24.
- EPA Regional Screening Levels (RSL) for residential and industrial land use (EPA, 2023); and
- Background Threshold Values (BTVs) of inorganic constituents in Montana surface soil (DEQ, 2013).

Metals in soil were compared to EPA RSLs and BTVs of inorganic constituents in Montana surface soil. Arsenic concentrations in soil samples B-1-2, B-4-3, B-6-0, B-8-2, and B-10-0 exceeded the industrial RSLs; however, arsenic was not detected above the BTV (**Table 1**).

Soil samples were also analyzed for PCBs, dioxins, and furans. PCBs Arochlor 1254 and/or Arochlor 1260 were detected in samples collected from B-1 and B-4; but at concentrations less than RSLs. The 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) equivalence was calculated by Pace Analytical using 2005 World Health Organization (WHO) factors. The dioxins and furans were detected in each sample; but the 2,3,7,8-TCDD equivalence concentration was less than RSLs (**Table 2**).

To evaluate whether soil would be classified as hazardous waste if disposed, the laboratory analytical results were compared to the criteria presented in Chapter 40 of the Code of Federal Regulations (40 CFR), 261.24. None of the soil sample exceeded 20 times their toxicity characteristic (**Table 1**); therefore, Toxicity Characteristic Leaching Procedure (TCLP) analysis was not performed.

## 4 Conclusions

On May 10, 2023, 10 soil borings were advanced and 28 soil samples were collected from depths up to 4 ft bgs. During drilling, field observation did not identify the presence of contamination and groundwater was not encountered. Soil samples were analyzed at Pace Analytical for metals, PCBs, dioxins, and furans. Analytes detected include metals, PCBs, dioxins and furans. Arsenic was the only analyte detected above the commercial RSL; however, these exceedances did not exceed BTVs for naturally occurring arsenic in Montana.

PCBs, dioxins and furans were detected in some samples but at concentrations less than RSLs. Based on this investigation, the metals in soil are not at concentrations for the soil to be classified as hazardous waste. The landfill acceptance of this soil will need to be based upon individual landfill acceptance criteria.

## 5 References

HDR, 2023. *Sampling and Analysis Plan*, April 20, 2023.

Montana Department of Environmental Quality (DEQ), 2013. *Background Concentrations of Inorganic Constituents in Montana Surface Soils, Table 4-4.*

EPA, 2023. *Regional Screening Level Summary Table.* May 2023.

U.S. Environmental Protection Agency. (2011). 40 CFR Part 261 - Identification and Listing of Hazardous Waste. Code of Federal Regulations, Title 40, Volume 26, Section 261.24.  
<https://www.govinfo.gov/app/details/CFR-2011-title40-vol26/CFR-2011-title40-vol26-sec261-24>

Table 1. Soil Analytical Results - Inorganics  
West of Missoula  
Missoula, MT

Sample ID	Sample Date	Sample Depth (ft bgs)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
Results (mg/Kg)																			
B-1-0	5/10/2023	0-1	10,700	<1.2	2.4	126	0.16 J	0.17 J	9.2	4.1	13,400	8.8	224	0.69 J	<1.2	<0.59	<1.2	12.3	0.010 J
B-1-1	5/10/2023	1-2	3,450	<1.0	1.4	41.1	0.019 J	0.074 J	4.9	2.1	4,930	4.4	130	0.71 J	<1.0	<0.52	<1.0	5.7	<0.021
B-1-2	5/10/2023	2-3	15,400	<1.2	<b>3.8</b>	199	0.30	0.23	13.9	5.8	21,100	14.6	208	0.49 J	<1.2	<0.59	<1.2	18.4	0.020 J
B-2-0	5/10/2023	0-1	8,120	<1.1	2.5	174	0.056 J	0.28	8.9	4.6	9,060	13.8	436	0.55 J	<1.1	<0.56	<1.1	12.3	0.014 J
B-2-2	5/10/2023	2-3	7,510	<1.1	2.2	117	0.11 J	0.12 J	8.4	3.3	8,770	5.4	175	0.61 J	<1.1	<0.53	<1.1	12.0	0.0097 J
B-2-3	5/10/2023	3-4	11,700	<1.1	2.6	155	0.20 J	0.23	10.7	5.3	15,900	9.5	533	1.2	<1.1	<0.55	<1.1	14.7	0.015 J
B-3-0	5/10/2023	0-1	4,590	<1.2	1.4	242	0.023 J	0.16 J	6.7	3.4	6,620	18	308	0.73 J	<1.2	<0.58	<1.2	6.1	0.011 J
B-3-1	5/10/2023	1-2	11,100	<1.2	2.9	172	0.22 J	0.26	9.7	4.5	10,300	19.5	247	0.56 J	0.46 J	<0.60	<1.2	10.7	0.024
B-3-2	5/10/2023	2-3	17,800	<1.4	1.1 J	210	0.29 J	0.18 J	8.4	4.3	12,000	7.4	174	<1.1	<1.4	<0.70	<1.4	9.5	<0.025
B-4-0	5/10/2023	0-1	5,010	<1.1	1.3	306	0.015 J	0.19	6.8	2.8	7,360	16.7	199	0.36 J	<1.1	0.12 J	<1.1	7.2	<0.022
B-4-2	5/10/2023	2-3	12,200	<1.1	2.4	189	0.22 J	0.20	9.5	4.7	15,100	11.0	239	0.34 J	<1.1	<0.57	<1.1	14.1	0.015 J
B-4-3	5/10/2023	3-4	10,900	<1.1	<b>4.8</b>	190	0.23 J	0.15 J	10.1	4.8	14,800	7.9	196	<0.82	<1.1	<0.55	<1.1	18.2	0.019 J
B-5-0	5/10/2023	0-1	5,290	<1.1	2.1	94.1	<0.26	0.14 J	11.8	3.8	12,100	8.8	206	0.92	<1.1	<0.53	<1.1	15.4	0.014 J
B-5-2	5/10/2023	2-3	11,800	<1.1	1.4	175	0.15 J	0.15 J	8.0	4.0	10,100	7.4	250	<0.86	<1.1	<0.57	<1.1	10.7	0.015 J
B-5-3	5/10/2023	3-4	8,880	<1.1	2.1	140	0.10 J	0.14 J	7.5	3.3	9,530	10.3	195	0.40 J	<1.1	<0.55	<1.1	9.5	0.013 J
B-6-0	5/10/2023	0-1	15,700	<1.2	<b>3.0</b>	253	0.23 J	0.19	10.1	5.5	17,900	9.3	334	0.47 J	<1.2	<0.61	<1.2	14.5	0.012 J
B-6-2	5/10/2023	2-3	18,100	<2.3	2.8	280	0.33 J	0.20 J	14.8	9.4	17,300	12.1	821	0.75 J	<2.3	<1.2	<2.3	18.3	0.020
B-6-3	5/10/2023	3-4	17,900	<2.3	1.5 J	260	0.28 J	0.088 J	15.6	4.6	17,100	9.2	168	<1.7	<2.3	<1.2	<2.3	16.6	0.029
B-7-0	5/10/2023	0-1	8,640	<1.1	2.0	125	0.12 J	0.097 J	8.2	3.6	9,160	5.9	163	0.28 J	<1.1	<0.53	<1.1	12.7	0.012 J
B-7-2	5/10/2023	2-3	13,900	<1.2	<b>3.0</b>	204	0.24 J	0.17 J	11.6	5.0	18,200	8.9	298	<0.87	<1.2	<0.58	<1.2	15.7	0.022
B-7-3	5/10/2023	3-4	8,380	<1.0	2.1	119	0.17 J	0.12 J	8.0	3.6	10,500	5.7	167	0.56 J	<1.0	<0.52	<1.0	12.5	0.011 J
B-8-0	5/10/2023	0-1	10,300	<1.0	2.2	154	0.16 J	0.16	9.1	4.9	13,100	9.3	278	0.26 J	<1.0	<0.52	<1.0	11.9	0.014 J
B-8-2	5/10/2023	2-3	15,700	<2.1	<b>3.3</b>	218	0.29 J	0.17 J	11.5	6.6	15,300	11.4	357	<1.6	<2.1	<1.1	<2.1	15.7	0.019 J
B-8-3	5/10/2023	3-4	16,400	<2.2	2.7	272	0.20 J	0.20 J	11.6	7.9	15,100	11.6	589	0.58 J	<2.2	<1.1	<2.2	16.2	0.016 J
B-9-0	5/10/2023	0-1	13,000	<1.2	2.5	208	0.27 J	0.23	11.5	5.6	17,400	9.6	299	0.27 J	<1.2	<0.60	0.43 J	15.4	0.024
B-9-3	5/10/2023	3-4	12,800	<1.2	2.4	198	0.23 J	0.12 J	10.1	5.2	15,900	8.2	251	<0.86	<1.2	<0.58	<1.2	13.8	0.021
B-10-0	5/10/2023	0-1	10,000	<1.1	<b>3.4</b>	117	0.14 J	0.16 J	9.9	4.1	13,600	7.3	191	0.30 J	<1.1	<0.55	<1.1	15.5	0.012 J
B-10-3	5/10/2023	3-4	3,210	<1.0	1.5	40	0.034 J	<0.15	3.8	2.8	5,550	2.5	122	0.51 J	<1.0	<0.51	<1.0	4.4	<0.020
Background Threshold Value			25,941	0.4	22.5	429	1.1	0.7	41.7	10	24,400	29.8	880	NE	0.7	0.3	0.41	52.6	0.050
Residential RSL			7,700	3.1	0.68	1,500	16	0.71	12,000	2.3	5,500	400	180	39	39	39	0.08	39	1.1
Industrial RSL			110,000	47	3.00	22,000	230	10	180,000	35	82,000	800	2,600	580	580	580	1.20	580	4.6
20 Times TCLP			NE	NE	100	2,000	NE	20	100	NE	NE	100	NE	NE	20	100	NE	NE	4.0

Notes: mg/Kg: milligrams per kilogram  
ft bgs: feet below ground surface  
NE : Not established  
NA: not applicable  
<: not detected above reporting limit

RSL: United States Environmental Protection Agency Regional Screening Level, May 2023 (USEPA, 2023). Based on 1x10<sup>-6</sup> cancer risk and non cancer hazard quotient of 0.1.

J: estimated concentration  
Background Threshold Value: DEQ, Background Concentrations of Inorganic Constituents in Montana Surface Soils, Table 4-4 (DEQ, 2013).  
Bold: value detected greater than industrial RSL

TCLP: Toxicity Characteristic Leaching Procedure (40 CFR 261.24)

The chromium RSL and background concentration are for chromium III as this form of chromium is the most common.

Background Concentrations of Inorganic Constituents in Montana Surface Soils, Table 4-4 (DEQ, 2013) does not include a BTV for mercury; therefore, the BTV cited in DEQ Montana Risk Based Corrective Action Guidance for Petroleum Release, Table F (DEQ, 2018) was used.

Table 2. Soil Analytical Results - PCBs, Dioxins, and Furans  
West of Missoula  
Missoula, MT

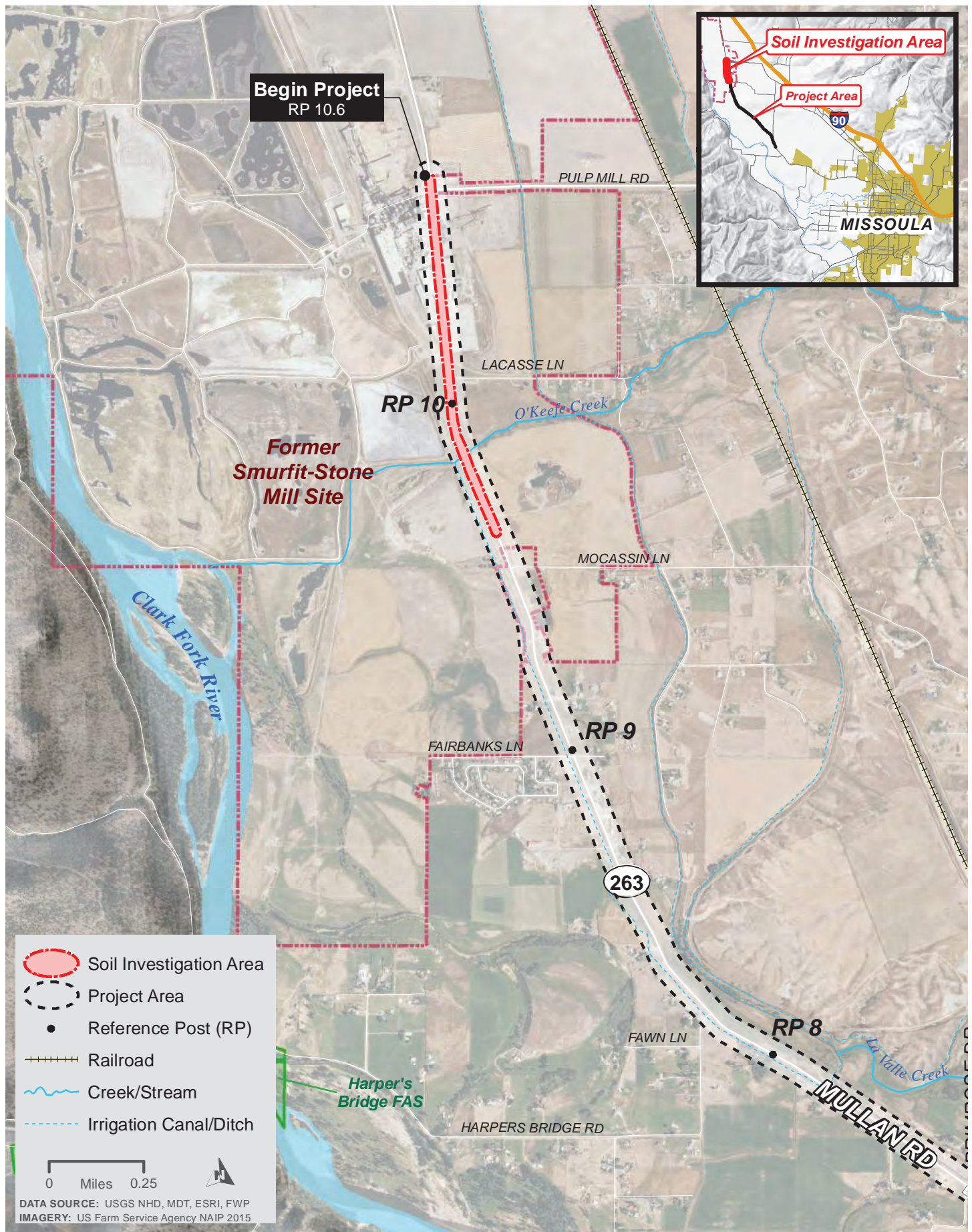
Sample ID	Sample Date	Sample Depth (ft bgs)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	2,3,7,8-TCDD Equivalent
Results (µg/Kg)										
B-1-0	5/10/2023	0-1	<59.1	<59.1	<59.1	<59.1	<59.1	<59.1	46.3 J	0.0013
B-1-1	5/10/2023	1-2	<54.1	<54.1	<54.1	<54.1	<54.1	<54.1	<54.1	0.0022
B-1-2	5/10/2023	2-3	<59.8	<59.8	<59.8	<59.8	<59.8	103	70.0	0.002
B-2-0	5/10/2023	0-1	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	0.0033
B-2-2	5/10/2023	2-3	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	0.003
B-2-3	5/10/2023	3-4	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	0.0015
B-3-0	5/10/2023	0-1	<52.2	<52.2	<52.2	<52.2	<52.2	<52.2	<52.2	0.00082
B-3-1	5/10/2023	1-2	<57.4	<57.4	<57.4	<57.4	<57.4	<57.4	<57.4	0.0018
B-3-2	5/10/2023	2-3	<59.5	<59.5	<59.5	<59.5	<59.5	<59.5	<59.5	0.00053
B-4-0	5/10/2023	0-1	<61.4	<61.4	<61.4	<61.4	<61.4	86.7	53.7 J	0.0019
B-4-2	5/10/2023	2-3	<68.6	<68.6	<68.6	<68.6	<68.6	<68.6	<68.6	0.0007
B-4-3	5/10/2023	3-4	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	0.00033
B-5-0	5/10/2023	0-1	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	0.0044
B-5-2	5/10/2023	2-3	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	<59.4	0.0014
B-5-3	5/10/2023	3-4	<54.9	<54.9	<54.9	<54.9	<54.9	<54.9	<54.9	0.0017
B-6-0	5/10/2023	0-1	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	0.0015
B-6-2	5/10/2023	2-3	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	0.00065
B-6-3	5/10/2023	3-4	<62.3	<62.3	<62.3	<62.3	<62.3	<62.3	<62.3	0.00068
B-7-0	5/10/2023	0-1	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	0.00048
B-7-2	5/10/2023	2-3	<58.7	<58.7	<58.7	<58.7	<58.7	<58.7	<58.7	0.00046
B-7-3	5/10/2023	3-4	<57.5	<57.5	<57.5	<57.5	<57.5	<57.5	<57.5	0.00049
B-8-0	5/10/2023	0-1	<59.0	<59.0	<59.0	<59.0	<59.0	<59.0	<59.0	0.0006
B-8-2	5/10/2023	2-3	<53.8	<53.8	<53.8	<53.8	<53.8	<53.8	<53.8	0.00022
B-8-3	5/10/2023	3-4	<55.7	<55.7	<55.7	<55.7	<55.7	<55.7	<55.7	0.00025
B-9-0	5/10/2023	0-1	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	0.0004
B-9-3	5/10/2023	3-4	<59.8	<59.8	<59.8	<59.8	<59.8	<59.8	<59.8	0.00042
B-10-0	5/10/2023	0-1	<62.5	<62.5	<62.5	<62.5	<62.5	<62.5	<62.5	0.0019
B-10-3	5/10/2023	3-4	<58.1	<58.1	<58.1	<58.1	<58.1	<58.1	<58.1	0.00038
Residential RSL			410	200	170	230	230	120	240	0.00480
Industrial RSL			5,100	830	720	950	940	970	990	0.02200

Notes: µg/Kg: micrograms per kilogram  
ft bgs: feet below ground surface  
J: estimated concentration  
<: not detected above reporting limit

2,3,7,8-TCDD: 2,3,7,8-tetrachlorodibenzo-p-dioxin  
2,3,7,8-TCDD Equivalent: calculated using 2005 WHO factors (WHO, 2005)

RSL: United States Environmental Protection Agency Regional Screening Level, May 2023 (USEPA, 2023). Based on  $1 \times 10^{-6}$  cancer risk and non cancer hazard quotient of 0.1.

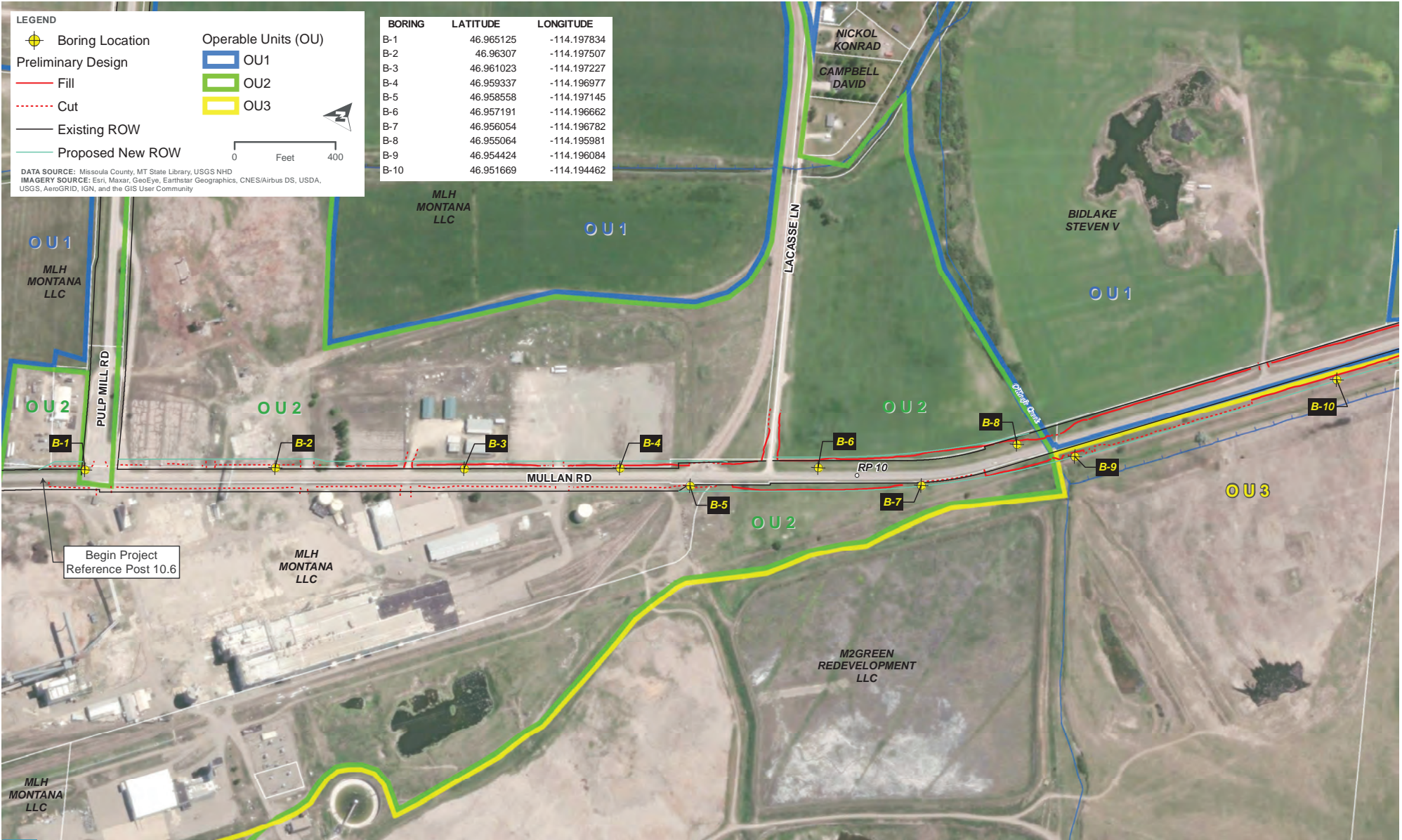




**FIGURE 1: SITE LOCATION MAP**  
**WEST OF MISSOULA - NW**  
**STPS 263 - 1(28)6 | UPN 6141000**







**FIGURE 2: SOIL BORING LOCATIONS**  
 WEST OF MISSOULA - NW | STPS 263 - 1(28)6 | UPN 6141000





# A

## Appendix A: Laboratory Analytical Reports

**Report Prepared for:**

Clayton Mokri  
HDR  
2379 Gateway Oaks Drive  
Suite 200  
Sacramento CA 95833

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

**Report Information:**

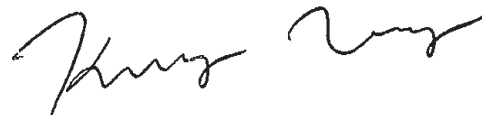
**Pace Project #: 10653077**  
**Sample Receipt Date: 05/12/2023**  
**Client Project #: 10042464-183 MDT Missoula**  
**Client Sub PO #: N/A**  
**State Cert #: N/A**

**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 Kongmeng Vang, your Pace Project Manager.

**This report has been reviewed by:**



June 14, 2023

Kongmeng Vang, Project Manager  
(612) 607-6382  
(612) 607-6444 (fax)  
kongmeng.vang@pacelabs.com



**Report of Laboratory Analysis**

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

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

**Report Prepared Date:**

June 14, 2023



## **DISCUSSION**

This report presents the results from the analyses performed on twenty-eight samples submitted by a representative of HDR. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. 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 at one-half of the reported concentrations.

The isotopically-labeled PCDD/PCDF internal standards in the sample extracts were recovered at 19-98%. Except for ten low values, which were flagged "R" on the results tables, the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for 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. Values obtained from analyses of diluted extracts were flagged "D".

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show two of the four 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.

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 86-128% with relative percent differences (RPDs) of 0.8-26.6%. The RPD value obtained for OCDF was above the 20% target upper limit and may indicate elevated variability for this congener in the associated field sample determinations. Matrix spikes were prepared with the remaining sample batches using sample materials from separate projects; results from these analyses will be provided upon request.

The responses obtained for the labeled OCDD in calibration standard analyses Y230523A\_19 and Y230601A\_18 were outside the target range. As specified in our procedures for this method, the averages of the daily response factors for this compound were used in the calculations for the samples from these runshifts. The affected values were flagged "Y" on the results tables.

## **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-Primary	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.....10653077





**Pace Analytical Services, LLC**  
1700 Elm Street, Suite 200  
Minneapolis, MN 55414  
Phone: 612.607.1700  
Fax: 612.607.6444  
[www.pacelabs.com](http://www.pacelabs.com)

## **Appendix A**

### **Sample Management**

## **REPORT OF LABORATORY ANALYSIS**

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Report No.: 10653077\_SW8290FC\_L2\_dfr



# CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix W

WO#: 10653077



10653077

ALL SHA

Container Preservative

Company: **HDR EOC**

Address: **369 Inverness Pkwy Suite 325 →**

Report To: **Clayton Mokri**

Copy To: **Alec.Binder@hdrinc.com**

Customer Project Name/Number: **MDT Missoula / 10042464-183**

State: **MT** County/City: **Missoula** Time Zone Collected: **[ ] PT [X] MT [ ] CT [ ] ET**

Phone: **530-902-7106** Site/Facility ID #: \_\_\_\_\_ Compliance Monitoring? **[ ] Yes [ ] No**

Email: **Clayton.Mokri@hdrinc.com** Collected By (print): **Alec Binder** Purchase Order #: \_\_\_\_\_ Quote #: \_\_\_\_\_ DW PWS ID #: \_\_\_\_\_ DW Location Code: \_\_\_\_\_

Collected By (signature): **ACB** Turnaround Date Required: \_\_\_\_\_ Immediately Packed on Ice: **[X] Yes [ ] No**

Sample Disposal: **[ ] Dispose as appropriate [ ] Return [ ] Archive: \_\_\_\_\_ [ ] Hold: \_\_\_\_\_** Rush: **[ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)** Field Filtered (if applicable): **[ ] Yes [ ] No** Analysis: \_\_\_\_\_

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
B-1-0	SL	G	5/10/23	0830			2	X
B-1-1	SL	G	5/10/23	0832			2	X
B-1-2	SL	G	5/10/23	0834			2	X
B-2-0	SL	G	5/10/23	0850			2	X
B-2-2	SL	G	5/10/23	0852			2	X
B-2-3	SL	G	5/10/23	0854			2	X
B-3-0	SL	G	5/10/23	0914			2	X
B-3-1	SL	G	5/10/23	0916			2	X
B-3-2	SL	G	5/10/23	0918			2	X
B-4-0	SL	G	5/10/23	0938			2	X

Dioxins/Furans by EPA method 8280

PCB's by EPA method 8082A

Metals (see comments)

Analyses	Lab Profile/Line: 45685
	Lab Sample Receipt Checklist:
	Custody Seals Present/Intact Y N NA
	Custody Signatures Present Y N NA
	Collector Signature Present Y N NA
	Bottles Intact Y N NA
	Correct Bottles Y N NA
	Sufficient Volume Y N NA
	Samples Received on Ice Y N NA
	VOA - Headspace Acceptable Y N NA
	USDA Regulated Soils Y N NA
	Samples in Holding Time Y N NA
	Residual Chlorine Present Y N NA
	Cl Strips: _____
	Sample pH Acceptable Y N NA
	pH Strips: _____
	Sulfide Present Y N NA
	Lead Acetate Strips: _____
	LAB USE ONLY:
	Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: **metals include: Al, As, Hg, Sb, Ba, Be, Cd, Cr, Co, Fe, Pb, Mo, Mn, Se, Ag, Tl, and V by EPA method 6010B/6020/7174A**

Type of Ice Used: **Wet Blue Dry None**

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

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

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

Lab Tracking #: **2846561**

Samples received via: **FEDEX UPS Client Courier Pace Courier**

Lab Sample Temperature Info:

Temp Blank Received: **Y N NA**

Therm ID#: **7**

Cooler 1 Temp Upon Receipt: **48** oC

Cooler 1 Therm Corr. Factor: **7.2** oC

Cooler 1 Corrected Temp: **49** oC

Comments: \_\_\_\_\_

Relinquished by/Company: (Signature) **ACB HDR** Date/Time: **5/11/23 0930**

Received by/Company: (Signature) **ML Per** Date/Time: **5/12/23 850**

Relinquished by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Table #: \_\_\_\_\_

Acctnum: \_\_\_\_\_

Template: \_\_\_\_\_

Prelogin: \_\_\_\_\_

PM: \_\_\_\_\_

PB: \_\_\_\_\_

Trip Blank Received: **Y N NA**

HCL MeOH TSP Other

Non Conformance(s): \_\_\_\_\_

Page: \_\_\_\_\_ of: \_\_\_\_\_

Page 5 of 52





# CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: **HOR EOC**  
 Address: **369 Inverness Pkwy, Suite 325**  
 Report To: **Clayton Mohri**  
 Copy To: **Alec.Binder@hdrinc.com**  
 Customer Project Name/Number: **MDT Missoula / 10042464-183**  
 Phone: **530-902-7106**  
 Email: **Clayton.Mohri@hdrinc.com**  
 Site Collection Info/Address: **Englewood CO 80112**  
 State: **MT** County/City: **Missoula** Time Zone Collected: **[ ] PT [X] MT [ ] CT [ ] ET**  
 Compliance Monitoring? **[ ] Yes [ ] No**  
 DW PWS ID #: **[ ]** DW Location Code: **[ ]**  
 Turnaround Date Required: **[ ]**  
 Field Filtered (if applicable): **[ ] Yes [ ] No**  
 Analysis: **[ ]**

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

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
B-4-2	SL	G	5/10/23	0940			Z	X
B-4-3	SL	G	5/10/23	0942			Z	X
B-5-0	SL	G	5/10/23	0958			Z	X
B-5-2	SL	G	5/10/23	1000			Z	X
B-5-3	SL	G	5/10/23	1002			Z	X
B-6-0	SL	G	5/10/23	1025			Z	X
B-6-2	SL	G	5/10/23	1027			Z	X
B-6-3	SL	G	5/10/23	1029			Z	X
B-7-0	SL	G	5/10/23	1115			Z	X
B-7-2	SL	G	5/10/23	1117			Z	X

Analyses

*Dioxins/Furans by EPA method 8280*  
*PCBs by EPA Method 8082A*  
*Metals (see comments)*

Lab Profile/Line: **45685**  
 Lab Sample Receipt Checklist:  
 Custody Seals Present/Intact Y N NA  
 Custody Signatures Present Y N NA  
 Collector Signature Present Y N NA  
 Bottles Intact Y N NA  
 Correct Bottles Y N NA  
 Sufficient Volume Y N NA  
 Samples Received on Ice Y N NA  
 VOA - Headspace Acceptable Y N NA  
 USDA Regulated Soils Y N NA  
 Samples in Holding Time Y N NA  
 Residual Chlorine Present Y N NA  
 Cl Strips: \_\_\_\_\_  
 Sample pH Acceptable Y N NA  
 pH Strips: \_\_\_\_\_  
 Sulfide Present Y N NA  
 Lead Acetate Strips: \_\_\_\_\_

Customer Remarks / Special Conditions / Possible Hazards:  
**Metals include: Al, As, Hg, Sb, Ba, Be, Cd, Cr, Co, Fe, Pb, Mo, Mn, Se, Ag, Tl, and V by EPA method 6010B/6020/7174A**

Type of Ice Used: **Wet** Blue Dry None  
 Packing Material Used: \_\_\_\_\_  
 Radchem sample(s) screened (<500 cpm): **Y N NA**

SHORT HOLDS PRESENT (<72 hours): **Y N N/A**  
 Lab Tracking #: **2846560**  
 Samples received via: **FEDEX UPS Client Courier Pace Courier**

Lab Sample Temperature Info:  
 Temp Blank Received: **Y N NA**  
 Therm ID#: \_\_\_\_\_  
 Cooler 1 Temp Upon Receipt: \_\_\_\_\_ oC  
 Cooler 1 Therm Corr. Factor: \_\_\_\_\_ oC  
 Cooler 1 Corrected Temp: \_\_\_\_\_ oC  
 Comments: **4.9**

Relinquished by/Company: (Signature) **Alec Binder HOR** Date/Time: **5/11/23 0930**  
 Relinquished by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by/Company: (Signature) **John Pace** Date/Time: **5-12-23 0850**  
 Received by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by/Company: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Trip Blank Received: **Y N NA**  
 HCL MeOH TSP Other  
 Non Conformance(s): **YES / NO** Page: \_\_\_\_\_ of: \_\_\_\_\_

Report No: 10653077-SW8290-C-12-011

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WO#: 10652972

KV 6/13/23



10652972

CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY- Affix Workorder/Log  
MTJLL



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

ALL SHADED ARE.

Company: **HDR EOC**  
Address: **369 Inverness Pkwy, Suite 325**  
Port To: **Clayton Mokri**  
Copy To: **Alec.Binder@hdrinc.com**  
Customer Project Name/Number: **MDT Missoula 10042464-183**

Billing Information:  
**369 Inverness Pkwy, Suite 325**  
**Englewood, CO 80112**  
Email To: **Clayton.Mokri@hdrinc.com**  
Site Collection Info/Address:  
State: **MT** County/City: **Missoula** Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET

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

Phone: **530-902-7106** Site/Facility ID #:  
Email: **Clayton.Mokri@hdrinc.com** Compliance Monitoring?  
[ ] Yes [ ] No  
Collected By (print): **Alec Binder** Purchase Order #:  
Quote #:  
Collected By (signature): **[Signature]** Turnaround Date Required:  
Immediately Packed on Ice:  
 Yes [ ] No  
Sample Disposal: [ ] Dispose as appropriate [ ] Return  
[ ] Archive: [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day  
[ ] Hold: (Expedite Charges Apply)  
Field Filtered (if applicable):  
[ ] Yes [ ] No  
Analysis:

Analyses  
Lab Profile/Line: **45685**  
Lab Sample Receipt Checklist:  
Custody Seals Present/Intact Y N NA  
Custody Signatures Present Y N NA  
Collector Signature Present Y N NA  
Bottles Intact Y N NA  
Correct Bottles Y N NA  
Sufficient Volume Y N NA  
Samples Received on Ice Y N NA  
VOA - Headspace Acceptable Y N NA  
USDA Regulated Soils Y N NA  
Samples in Holding Time Y N NA  
Residual Chlorine Present Y N NA  
Cl Strips:  
Sample pH Acceptable Y N NA  
pH Strips:  
Sulfide Present Y N NA  
Lead Acetate Strips:  
LAB USE ONLY:  
Lab Sample # / Comments:

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
B-7-3	SL	G	5/10/23	1119			Z	X
B-8-0	SL	G	5/10/23	1050			Z	X
B-8-2	SL	G	5/10/23	1052			Z	X
B-8-3	SL	G	5/10/23	1054			Z	X
B-9-0	SL	G	5/10/23	1218			Z	X
B-9-3	SL	G	5/10/23	1220			Z	X
B-10-0	SL	G	5/10/23	1200			Z	X
B-10-3	SL	G	5/10/23	1202			Z	X
								X
								X

Dioxins/Furans by EPA method 8280  
PCBs by EPA method 8082A  
Metals (see comments)

Customer Remarks / Special Conditions / Possible Hazards:  
**Metals include: Al, As, Hg, Sb, Ba, Be, Cd, Cr, Co, Fe, Pb, Mo, Mn, Se, Ag, Tl, and V by EPA method 601081602017174A**

Type of Ice Used: Wet Blue Dry None  
Packing Material Used:  
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A  
Lab Tracking #: **2846559**  
Samples received via:  
FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:  
Temp Blank Received: Y N NA  
Therm ID#: **73**  
Cooler 1 Temp Upon Receipt: **0.0** oC  
Cooler 1 Therm Corr. Factor: **-0.1** oC  
Cooler 1 Corrected Temp: **5.5** oC  
Comments:

Relinquished by/Company: (Signature)  
**[Signature] HDR**  
Date/Time: **5/11/23 0930**

Received by/Company: (Signature)  
**[Signature] PACE**  
Date/Time: **5/12/23 08:50**

Relinquished by/Company: (Signature)  
Date/Time:  
Received by/Company: (Signature)  
Date/Time:

Relinquished by/Company: (Signature)  
Date/Time:  
Received by/Company: (Signature)  
Date/Time:  
MTJLL LAB USE ONLY  
Table #:  
Acctnum:  
Template:  
Prelogin:  
PM:  
PR:

Trip Blank Received: Y N NA  
HCL MeOH TSP Other  
Non Conformance(s):  
YES / NO  
Page:  
of:

KV 6/13/23 010

Page 7 of 8



Effective Date: 4/14/2023

Sample Condition Upon Receipt Client Name: HDR EOC

Project #: WO#: 10653077 PM: KV Due Date: 06/05/23 CLIENT: HDR\_MT

Courier: [X] FedEx [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial

Tracking Number: 6092 7236 6250 [X] See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? [X] Yes [ ] No Seals Intact? [X] Yes [ ] No Biological Tissue Frozen? [ ] Yes [ ] No [X] N/A Packing Material: [ ] Bubble Wrap [X] Bubble Bags [ ] None [ ] Other Temp Blank? [X] Yes [ ] No Thermometer: [ ] T1 (0461) [ ] T2 (0436) [ ] T3 (0459) [ ] T4 (0402) [ ] T5 (0178) [ ] T6 (0235) [ ] T7 (0042) [ ] T8 (0775) [X] T9(0727) [ ] 01339252/1710 Type of Ice: [X] Wet [ ] Blue [ ] Dry [ ] None [ ] Melted

Did Samples Originate in West Virginia? [ ] Yes [X] No Were All Container Temps Taken? [ ] Yes [ ] No [X] N/A Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: 4.6, 4.5 °C Average Corrected Temp (no temp blank only): °C Correction Factor: 0.3+ Cooler Temp Corrected w/temp blank: 4.9, 4.8 °C [ ] See Exceptions ENV-FRM-MIN4-0142 [ ] 1 Container

USDA Regulated Soil: [X] N/A, water sample/other: ) Date/Initials of Person Examining Contents: AC 5-12-23 Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? [ ] Yes [X] No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [X] No

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

Table with 2 columns: Location (Check one) and COMMENTS. Rows include Chain of Custody Present and Filled Out?, Chain of Custody Relinquished?, Sampler Name and/or Signature on COC?, Samples Arrived within Hold Time?, Short Hold Time Analysis (<72 hr)?, Rush Turn Around Time Requested?, Sufficient Sample Volume?, Correct Containers Used?, -Pace Containers Used?, Containers Intact?, Field Filtered Volume Received for Dissolved Tests?, Is sufficient information available to reconcile the samples to the COC?, Matrix: [ ] Water [X] Soil [ ] Oil [ ] Other, All containers needing acid/base preservation have been checked?, All containers needing preservation are found to be in compliance with EPA recommendation?, Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS, Headspace in Methyl Mercury Container?, Extra labels present on soil VOA or WIDRO containers?, Headspace in VOA Vials (greater than 6mm)?, 3 Trip Blanks Present?, Trip Blank Custody Seals Present?.

CLIENT NOTIFICATION/RESOLUTION Person Contacted: Date/Time: Comments/Resolution: Project Manager Review: Date: 5/15/23 Field Data Required? [ ] Yes [ ] No

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: AC Line: 2





DC#\_Title: ENV-FRM-MIN4-0142 v02\_Sample Condition Upon Receipt  
(SCUR) Exception Form

Effective Date: 09/22/2022

Workorder #: \_\_\_\_\_

No Temp Blank		
Read Temp	Corrected Temp	Average temp

PM Notified of Out of Temp Cooler?  Yes  No

If yes, indicate who was contacted, date and time.  
If no, indicate reason why.

\_\_\_\_\_

Multiple Cooler Project?  Yes  No

If anything is OVER 6.0° C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature
6092 72366272	

Out of Temp Sample ID	Container Type	# of Containers

**pH Adjustment Log for Preserved Samples**

Sample ID	Type Of Preserve	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	
								<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	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

\_\_\_\_\_

\_\_\_\_\_



Effective Date: 4/14/2023

Sample Condition Upon Receipt: **HDR EOC**

Client Name:

Project #:

**WO#: 10652972**

PM: KV

Due Date: 06/05/23

CLIENT: HDR\_MT

Courier:  FedEx  UPS  USPS  Client  
 Pace  Speedee  Commercial

Tracking Number: **6092 7236 6261**  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 *not directly on ice so avg we use*  
 Type of Ice:  Wet  Blue  Dry  None  Melted

Thermometer:  T1 (0461)  T2 (0436)  T3 (0459)  T4 (0402)  T5 (0178)  
 T6 (0235)  T7 (0042)  T8 (0775)  T9(0727)  01339252/1710

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	Average Corrected Temp (no temp blank only): <b>5.5</b> °C
Correction Factor: <b>-0.1</b>	See Exceptions ENV-FRM-MIN4-0142 <input checked="" type="checkbox"/> 1 Container <input type="checkbox"/>
Cooler temp Read w/Temp Blank: <b>8.1</b> °C	Cooler Temp Corrected w/temp blank: <b>8.0</b> °C

USDA Regulated Soil:  N/A, water sample/other: \_\_\_\_\_ KV 6/5/23

Date/Initials of Person Examining Contents: **CM 5/12/23**

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

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

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

Location (Check one):	COMMENTS
<input type="checkbox"/> Duluth <input checked="" type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4. If fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E.coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrom <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Sample Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/Date/Time of container below: <i>Additional samples not on chain</i> <input checked="" type="checkbox"/> See Exceptions 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 # KV 5/15/23
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <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"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Residual Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
	pH Paper Lot #
	Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in Methyl Mercury Container? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
3 Trip Blanks Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
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: 5/15/23

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: **RNC** Line: **(3)**





DC#\_ Title: ENV-FRM-MIN4-0142 v02\_Sample Condition Upon Receipt (SCUR) Exception Form

Effective Date: 09/22/2022

Workorder #: \_\_\_\_\_

No Temp Blank		
Read Temp	Corrected Temp	Average temp
5.5	5.4	5.5
6.6	6.5	
5.0	4.9	
5.5	5.4	

PM Notified of Out of Temp Cooler?  Yes  No  
 If yes, indicate who was contacted, date and time.  
 If no, indicate reason why.  
 avg was w/in temp

Multiple Cooler Project?  Yes  No

If anything is OVER 6.0° C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature

Out-of-Temp Sample ID	Container Type	# of Containers
B-7-0 5/10/23 11:15	JGFU	2 KV 5/15/23
B-7-2 5/10/23 11:17	JGFU	2

pH Adjustment Log for Preserved Samples

Sample ID	Type Of Preserve	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	
								<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
- H2 = Extracted outside of holding time
- I = Isotope ratio out of specification
- 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

## REPORT OF LABORATORY ANALYSIS

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## **Appendix B**

### Sample Analysis Summary

## **REPORT OF LABORATORY ANALYSIS**

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-1-0		
Lab Sample ID	10653077001		
Filename	Y230601A_04		
Injected By	SMT		
Total Amount Extracted	12.8 g	Matrix	Solid
% Moisture	18.3	Dilution	NA
Dry Weight Extracted	10.4 g	Collected	05/10/2023 08:30
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 05:48

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.27	2,3,7,8-TCDF-13C	2.00	74
Total TCDF	ND	----	0.27	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	80
2,3,7,8-TCDD	ND	----	0.29	2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	ND	----	0.29	1,2,3,7,8-PeCDD-13C	2.00	86
				1,2,3,4,7,8-HxCDF-13C	2.00	86
1,2,3,7,8-PeCDF	ND	----	0.69	1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.70	2,3,4,6,7,8-HxCDF-13C	2.00	75
Total PeCDF	2.0	----	0.69 J	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	ND	----	0.89	1,2,3,6,7,8-HxCDD-13C	2.00	70
Total PeCDD	ND	----	0.89	1,2,3,4,6,7,8-HpCDF-13C	2.00	44
				1,2,3,4,7,8,9-HpCDF-13C	2.00	40
1,2,3,4,7,8-HxCDF	ND	----	0.89	1,2,3,4,6,7,8-HpCDD-13C	2.00	31 R
1,2,3,6,7,8-HxCDF	ND	----	0.92	OCDD-13C	4.00	57 Y
2,3,4,6,7,8-HxCDF	ND	----	0.79			
1,2,3,7,8,9-HxCDF	ND	----	0.88	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.9	----	0.79	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.91	2,3,7,8-TCDD-37Cl4	0.20	61
1,2,3,6,7,8-HxCDD	ND	----	0.89			
1,2,3,7,8,9-HxCDD	ND	----	0.86			
Total HxCDD	1.5	----	0.86 J			
1,2,3,4,6,7,8-HpCDF	3.6	----	0.63 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.54	Equivalence: 1.3 ng/Kg		
Total HpCDF	11	----	0.54	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	20	----	0.58			
Total HpCDD	48	----	0.58			
OCDF	11	----	1.00			
OCDD	230	----	0.62			

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  
 R = Recovery outside target range  
 Y = Calculated using average of daily RfFs

## REPORT OF LABORATORY ANALYSIS

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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-1-1			
Lab Sample ID	10653077002			
Filename	Y230601A_05			
Injected By	SMT			
Total Amount Extracted	13.5 g	Matrix	Solid	
% Moisture	8.2	Dilution	NA	
Dry Weight Extracted	12.4 g	Collected	05/10/2023 08:32	
ICAL ID	U230524	Received	05/12/2023 08:50	
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 06:27	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.59		2,3,7,8-TCDF-13C	2.00	70
Total TCDF	0.77	----	0.59	J	2,3,7,8-TCDD-13C	2.00	66
					1,2,3,7,8-PeCDF-13C	2.00	80
2,3,7,8-TCDD	ND	----	0.34		2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	0.74	----	0.34	J	1,2,3,7,8-PeCDD-13C	2.00	88
					1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	ND	----	0.42		1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	----	0.70	0.47	IJ	2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	1.8	----	0.42	J	1,2,3,7,8,9-HxCDF-13C	2.00	70
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	ND	----	0.50		1,2,3,6,7,8-HxCDD-13C	2.00	73
Total PeCDD	0.98	----	0.50	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	54
					1,2,3,4,7,8,9-HpCDF-13C	2.00	49
1,2,3,4,7,8-HxCDF	1.8	----	0.44	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	53
1,2,3,6,7,8-HxCDF	0.88	----	0.42	J	OCDD-13C	4.00	75 Y
2,3,4,6,7,8-HxCDF	0.60	----	0.52	J			
1,2,3,7,8,9-HxCDF	0.68	----	0.32	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	20	----	0.32		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.57	0.35	IJ	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	----	2.3	0.32	IJ			
1,2,3,7,8,9-HxCDD	1.1	----	0.39	J			
Total HxCDD	13	----	0.32				
1,2,3,4,6,7,8-HpCDF	9.1	----	0.45		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.80	0.43	IJ	Equivalence: 2.2 ng/Kg		
Total HpCDF	27	----	0.43		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	65	----	0.19				
Total HpCDD	120	----	0.19				
OCDF	21	----	0.53				
OCDD	800	----	0.63				

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

I = Isotope ratio out of specification

Y = Calculated using average of daily RFs

**REPORT OF LABORATORY ANALYSIS**

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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-1-2			
Lab Sample ID	10653077003			
Filename	Y230601A_06			
Injected By	SMT			
Total Amount Extracted	12.9 g	Matrix	Solid	
% Moisture	19.9	Dilution	NA	
Dry Weight Extracted	10.3 g	Collected	05/10/2023 08:34	
ICAL ID	U230524	Received	05/12/2023 08:50	
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 07:06	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	----	0.29	0.28	U	2,3,7,8-TCDF-13C	2.00	77
Total TCDF	1.7	----	0.28		2,3,7,8-TCDD-13C	2.00	74
					1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	----	0.24		2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	ND	----	0.24		1,2,3,7,8-PeCDD-13C	2.00	98
					1,2,3,4,7,8-HxCDF-13C	2.00	91
1,2,3,7,8-PeCDF	0.39	----	0.37	J	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	1.1	----	0.45	J	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF	10	----	0.37		1,2,3,7,8,9-HxCDF-13C	2.00	80
					1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	ND	----	0.19		1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	ND	----	0.19		1,2,3,4,6,7,8-HpCDF-13C	2.00	59
					1,2,3,4,7,8,9-HpCDF-13C	2.00	53
1,2,3,4,7,8-HxCDF	----	1.8	0.21	U	1,2,3,4,6,7,8-HpCDD-13C	2.00	56
1,2,3,6,7,8-HxCDF	0.82	----	0.25	J	OCDD-13C	4.00	72 Y
2,3,4,6,7,8-HxCDF	0.91	----	0.21	J			
1,2,3,7,8,9-HxCDF	0.85	----	0.27	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	19	----	0.21		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.50	0.40	U	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	2.1	----	0.34	J			
1,2,3,7,8,9-HxCDD	1.1	----	0.31	J			
Total HxCDD	11	----	0.31				
1,2,3,4,6,7,8-HpCDF	9.7	----	0.44		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.72	0.60	U	Equivalence: 2.0 ng/Kg		
Total HpCDF	25	----	0.44		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	50	----	0.22				
Total HpCDD	96	----	0.22				
OCDF	19	----	0.97				
OCDD	630	----	0.52				

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

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

J = Estimated value

I = Isotope ratio out of specification

Y = Calculated using average of daily RfFs

**REPORT OF LABORATORY ANALYSIS**

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-2-0		
Lab Sample ID	10653077004		
Filename	Y230601A_07		
Injected By	SMT		
Total Amount Extracted	12.9 g	Matrix	Solid
% Moisture	17.7	Dilution	NA
Dry Weight Extracted	10.6 g	Collected	05/10/2023 08:50
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 07:44

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.1	2,3,7,8-TCDF-13C	2.00	55
Total TCDF	ND	----	1.1	2,3,7,8-TCDD-13C	2.00	53
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.1	2,3,4,7,8-PeCDF-13C	2.00	65
Total TCDD	34	----	1.1	1,2,3,7,8-PeCDD-13C	2.00	68
				1,2,3,4,7,8-HxCDF-13C	2.00	63
1,2,3,7,8-PeCDF	ND	----	1.3	1,2,3,6,7,8-HxCDF-13C	2.00	61
2,3,4,7,8-PeCDF	ND	----	1.0	2,3,4,6,7,8-HxCDF-13C	2.00	60
Total PeCDF	4.9	----	1.0	1,2,3,7,8,9-HxCDF-13C	2.00	55
				1,2,3,4,7,8-HxCDD-13C	2.00	56
1,2,3,7,8-PeCDD	ND	----	1.8	1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	ND	----	1.8	1,2,3,4,6,7,8-HpCDF-13C	2.00	44
				1,2,3,4,7,8,9-HpCDF-13C	2.00	40
1,2,3,4,7,8-HxCDF	----	1.0	0.95 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	43
1,2,3,6,7,8-HxCDF	----	1.4	0.95 J	OCDD-13C	4.00	57 Y
2,3,4,6,7,8-HxCDF	ND	----	0.86			
1,2,3,7,8,9-HxCDF	----	1.2	0.96 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	12	----	0.86	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.3	2,3,7,8-TCDD-37Cl4	0.20	43
1,2,3,6,7,8-HxCDD	----	2.2	1.2 J			
1,2,3,7,8,9-HxCDD	1.6	----	1.2 J			
Total HxCDD	13	----	1.2			
1,2,3,4,6,7,8-HpCDF	16	----	1.1	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	2.7	Equivalence: 3.3 ng/Kg		
Total HpCDF	16	----	1.1	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	60	----	2.2			
Total HpCDD	120	----	2.2			
OCDF	42	----	3.4			
OCDD	830	----	1.7			

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  
I = Isotope ratio out of specification  
Y = Calculated using average of daily RFs

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-2-2		
Lab Sample ID	10653077005		
Filename	Y230601A_08		
Injected By	SMT		
Total Amount Extracted	13.0 g	Matrix	Solid
% Moisture	8.4	Dilution	NA
Dry Weight Extracted	11.9 g	Collected	05/10/2023 08:52
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 08:23

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.54		2,3,7,8-TCDF-13C	2.00	67
Total TCDF	2.0	----	0.54		2,3,7,8-TCDD-13C	2.00	63
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	-----	0.65	0.42	J	2,3,4,7,8-PeCDF-13C	2.00	75
Total TCDD	5.8	----	0.42		1,2,3,7,8-PeCDD-13C	2.00	80
					1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	ND	----	0.51		1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	0.81	----	0.47	J	2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	14	----	0.47		1,2,3,7,8,9-HxCDF-13C	2.00	65
					1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	1.3	----	0.69	J	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	28	----	0.69		1,2,3,4,6,7,8-HpCDF-13C	2.00	49
					1,2,3,4,7,8,9-HpCDF-13C	2.00	41
1,2,3,4,7,8-HxCDF	1.4	----	0.76	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	44
1,2,3,6,7,8-HxCDF	0.95	----	0.65	J	OCDD-13C	4.00	57 Y
2,3,4,6,7,8-HxCDF	ND	----	0.69				
1,2,3,7,8,9-HxCDF	ND	----	0.48		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	14	----	0.48		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	-----	1.0	0.53	J	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	-----	1.3	0.41	J			
1,2,3,7,8,9-HxCDD	-----	1.0	0.44	J			
Total HxCDD	43	----	0.41				
1,2,3,4,6,7,8-HpCDF	14	----	0.60		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.1	----	0.74	J	Equivalence: 3.0 ng/Kg		
Total HpCDF	39	----	0.60		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	37	----	0.25				
Total HpCDD	76	----	0.25				
OCDF	36	----	1.1				
OCDD	350	----	0.65				

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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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-2-3			
Lab Sample ID	10653077006			
Filename	Y230601A_09			
Injected By	SMT			
Total Amount Extracted	12.9 g	Matrix	Solid	
% Moisture	16.9	Dilution	NA	
Dry Weight Extracted	10.7 g	Collected	05/10/2023 08:54	
ICAL ID	U230524	Received	05/12/2023 08:50	
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 09:02	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.44		2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	0.44		2,3,7,8-TCDD-13C	2.00	60
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.34		2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.34		1,2,3,7,8-PeCDD-13C	2.00	79
					1,2,3,4,7,8-HxCDF-13C	2.00	60
1,2,3,7,8-PeCDF	ND	----	0.45		1,2,3,6,7,8-HxCDF-13C	2.00	67
2,3,4,7,8-PeCDF	----	0.43	0.40	J	2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	7.6	----	0.40		1,2,3,7,8,9-HxCDF-13C	2.00	65
					1,2,3,4,7,8-HxCDD-13C	2.00	62
1,2,3,7,8-PeCDD	ND	----	0.54		1,2,3,6,7,8-HxCDD-13C	2.00	66
Total PeCDD	3.8	----	0.54	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	49
					1,2,3,4,7,8,9-HpCDF-13C	2.00	45
1,2,3,4,7,8-HxCDF	1.3	----	0.46	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	48
1,2,3,6,7,8-HxCDF	----	0.59	0.39	J	OCDD-13C	4.00	62 Y
2,3,4,6,7,8-HxCDF	1.2	----	0.34	J			
1,2,3,7,8,9-HxCDF	0.50	----	0.41	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	27	----	0.34		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.93	0.28	J	2,3,7,8-TCDD-37Cl4	0.20	59
1,2,3,6,7,8-HxCDD	----	1.3	0.36	J			
1,2,3,7,8,9-HxCDD	----	0.79	0.25	J			
Total HxCDD	12	----	0.25				
1,2,3,4,6,7,8-HpCDF	12	----	0.52		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.69	0.64	J	Equivalence: 1.5 ng/Kg		
Total HpCDF	29	----	0.52		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	30	----	0.24				
Total HpCDD	58	----	0.24				
OCDF	16	----	0.81				
OCDD	250	----	0.46				

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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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-3-0		
Lab Sample ID	10653077007		
Filename	Y230601A_10		
Injected By	SMT		
Total Amount Extracted	12.5 g	Matrix	Solid
% Moisture	17.2	Dilution	NA
Dry Weight Extracted	10.3 g	Collected	05/10/2023 09:14
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 09:41

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.26	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	0.26	2,3,7,8-TCDD-13C	2.00	60
				1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	ND	----	0.30	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	1.5	----	0.30	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	68
1,2,3,7,8-PeCDF	ND	----	0.24	1,2,3,6,7,8-HxCDF-13C	2.00	65
2,3,4,7,8-PeCDF	ND	----	0.28	2,3,4,6,7,8-HxCDF-13C	2.00	64
Total PeCDF	2.0	----	0.24 J	1,2,3,7,8,9-HxCDF-13C	2.00	60
				1,2,3,4,7,8-HxCDD-13C	2.00	61
1,2,3,7,8-PeCDD	ND	----	0.46	1,2,3,6,7,8-HxCDD-13C	2.00	63
Total PeCDD	ND	----	0.46	1,2,3,4,6,7,8-HpCDF-13C	2.00	47
				1,2,3,4,7,8,9-HpCDF-13C	2.00	44
1,2,3,4,7,8-HxCDF	ND	----	0.26	1,2,3,4,6,7,8-HpCDD-13C	2.00	45
1,2,3,6,7,8-HxCDF	----	0.22	0.21 U	OCDD-13C	4.00	57 Y
2,3,4,6,7,8-HxCDF	ND	----	0.22			
1,2,3,7,8,9-HxCDF	ND	----	0.33	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.2	----	0.21 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.46	----	0.36 J	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	----	0.58	0.28 U			
1,2,3,7,8,9-HxCDD	----	0.45	0.26 U			
Total HxCDD	6.2	----	0.26			
1,2,3,4,6,7,8-HpCDF	2.4	----	0.37 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.55	Equivalence: 0.82 ng/Kg		
Total HpCDF	2.4	----	0.37 J	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	17	----	0.46			
Total HpCDD	39	----	0.46			
OCDF	5.5	----	0.58 J			
OCDD	140	----	0.28			

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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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-3-1		
Lab Sample ID	10653077008		
Filename	Y230601A_11		
Injected By	SMT		
Total Amount Extracted	12.1 g	Matrix	Solid
% Moisture	19.8	Dilution	NA
Dry Weight Extracted	9.70 g	Collected	05/10/2023 09:16
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 10:20

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.61	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	4.4	----	0.61	2,3,7,8-TCDD-13C	2.00	61
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.43	2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	17	----	0.43	1,2,3,7,8-PeCDD-13C	2.00	81
				1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	ND	----	0.52	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	----	0.48	0.42	2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	7.4	----	0.42	1,2,3,7,8,9-HxCDF-13C	2.00	63
				1,2,3,4,7,8-HxCDD-13C	2.00	58
1,2,3,7,8-PeCDD	ND	----	1.1	1,2,3,6,7,8-HxCDD-13C	2.00	69
Total PeCDD	20	----	1.1	1,2,3,4,6,7,8-HpCDF-13C	2.00	46
				1,2,3,4,7,8,9-HpCDF-13C	2.00	43
1,2,3,4,7,8-HxCDF	0.56	----	0.52	1,2,3,4,6,7,8-HpCDD-13C	2.00	44
1,2,3,6,7,8-HxCDF	ND	----	0.51	OCDD-13C	4.00	53 Y
2,3,4,6,7,8-HxCDF	ND	----	0.51			
1,2,3,7,8,9-HxCDF	ND	----	0.41	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	9.5	----	0.41	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	56
1,2,3,6,7,8-HxCDD	1.4	----	0.51			
1,2,3,7,8,9-HxCDD	0.96	----	0.54			
Total HxCDD	16	----	0.51			
1,2,3,4,6,7,8-HpCDF	9.0	----	1.1	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.3	Equivalence: 1.8 ng/Kg		
Total HpCDF	35	----	1.1	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	33	----	0.34			
Total HpCDD	59	----	0.34			
OCDF	55	----	0.70			
OCDD	370	----	0.51			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
EDL = Estimated Detection Limit

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

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J = Estimated value

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-3-2		
Lab Sample ID	10653077009		
Filename	Y230601A_12		
Injected By	SMT		
Total Amount Extracted	11.5 g	Matrix	Solid
% Moisture	29.1	Dilution	NA
Dry Weight Extracted	8.14 g	Collected	05/10/2023 09:18
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 10:59

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	72
Total TCDF	0.50	----	0.29 J	2,3,7,8-TCDD-13C	2.00	65
				1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	ND	----	0.31	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	ND	----	0.31	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	----	0.24	1,2,3,6,7,8-HxCDF-13C	2.00	84
2,3,4,7,8-PeCDF	ND	----	0.24	2,3,4,6,7,8-HxCDF-13C	2.00	78
Total PeCDF	ND	----	0.24	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.42	1,2,3,6,7,8-HxCDD-13C	2.00	83
Total PeCDD	ND	----	0.42	1,2,3,4,6,7,8-HpCDF-13C	2.00	59
				1,2,3,4,7,8,9-HpCDF-13C	2.00	54
1,2,3,4,7,8-HxCDF	ND	----	0.20	1,2,3,4,6,7,8-HpCDD-13C	2.00	59
1,2,3,6,7,8-HxCDF	ND	----	0.21	OCDD-13C	4.00	68 Y
2,3,4,6,7,8-HxCDF	ND	----	0.23			
1,2,3,7,8,9-HxCDF	ND	----	0.38	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.20	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.29	2,3,7,8-TCDD-37Cl4	0.20	62
1,2,3,6,7,8-HxCDD	ND	----	0.30			
1,2,3,7,8,9-HxCDD	ND	----	0.29			
Total HxCDD	ND	----	0.29			
1,2,3,4,6,7,8-HpCDF	ND	----	0.30	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.46	Equivalence: 0.53 ng/Kg		
Total HpCDF	ND	----	0.30	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	0.65	----	0.26 J			
Total HpCDD	1.4	----	0.26 J			
OCDF	ND	----	0.58			
OCDD	3.4	----	1.1 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
EDL = Estimated Detection Limit

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

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J = Estimated value

Y = Calculated using average of daily RfFs

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-4-0			
Lab Sample ID	10653077010			
Filename	Y230601A_13			
Injected By	SMT			
Total Amount Extracted	12.3 g	Matrix	Solid	
% Moisture	11.0	Dilution	NA	
Dry Weight Extracted	11.0 g	Collected	05/10/2023 09:38	
ICAL ID	U230524	Received	05/12/2023 08:50	
CCal Filename(s)	Y230531A_23 & Y230601A_18	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 11:38	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.59		2,3,7,8-TCDF-13C	2.00	48
Total TCDF	ND	----	0.59		2,3,7,8-TCDD-13C	2.00	46
					1,2,3,7,8-PeCDF-13C	2.00	56
2,3,7,8-TCDD	ND	----	0.49		2,3,4,7,8-PeCDF-13C	2.00	57
Total TCDD	ND	----	0.49		1,2,3,7,8-PeCDD-13C	2.00	58
					1,2,3,4,7,8-HxCDF-13C	2.00	51
1,2,3,7,8-PeCDF	ND	----	0.44		1,2,3,6,7,8-HxCDF-13C	2.00	53
2,3,4,7,8-PeCDF	ND	----	0.51		2,3,4,6,7,8-HxCDF-13C	2.00	48
Total PeCDF	2.5	----	0.44	J	1,2,3,7,8,9-HxCDF-13C	2.00	47
					1,2,3,4,7,8-HxCDD-13C	2.00	45
1,2,3,7,8-PeCDD	ND	----	0.84		1,2,3,6,7,8-HxCDD-13C	2.00	48
Total PeCDD	1.0	----	0.84	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	35 R
					1,2,3,4,7,8,9-HpCDF-13C	2.00	32 R
1,2,3,4,7,8-HxCDF	ND	----	0.47		1,2,3,4,6,7,8-HpCDD-13C	2.00	33 R
1,2,3,6,7,8-HxCDF	ND	----	0.42		OCDD-13C	4.00	42 Y
2,3,4,6,7,8-HxCDF	ND	----	0.40				
1,2,3,7,8,9-HxCDF	ND	----	0.36		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	9.6	----	0.36		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.87	0.62	U	2,3,7,8-TCDD-37Cl4	0.20	42
1,2,3,6,7,8-HxCDD	1.6	----	0.73	J			
1,2,3,7,8,9-HxCDD	----	1.3	0.46	U			
Total HxCDD	20	----	0.46				
1,2,3,4,6,7,8-HpCDF	7.3	----	0.70		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.1		Equivalence: 1.9 ng/Kg		
Total HpCDF	19	----	0.70		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	54	----	0.27				
Total HpCDD	160	----	0.27				
OCDF	20	----	1.3				
OCDD	450	----	2.4				

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  
R = Recovery outside target range  
I = Isotope ratio out of specification  
Y = Calculated using average of daily RFs

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-4-2			
Lab Sample ID	10653077011			
Filename	Y230601B_03			
Injected By	SMT			
Total Amount Extracted	12.6 g	Matrix	Solid	
% Moisture	17.2	Dilution	NA	
Dry Weight Extracted	10.4 g	Collected	05/10/2023 09:40	
ICAL ID	Y211220	Received	05/12/2023 08:50	
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 17:31	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.23	2,3,7,8-TCDF-13C	2.00	70
Total TCDF	0.72	----	0.23 J	2,3,7,8-TCDD-13C	2.00	66
				1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	ND	----	0.18	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	1.6	----	0.18	1,2,3,7,8-PeCDD-13C	2.00	84
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	0.20	1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	----	0.26	0.22 IJ	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	4.0	----	0.20 J	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.54	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.54	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	ND	----	0.23	1,2,3,4,6,7,8-HpCDD-13C	2.00	74
1,2,3,6,7,8-HxCDF	ND	----	0.24	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	0.34	----	0.18 J			
1,2,3,7,8,9-HxCDF	----	0.23	0.13 IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	2.1	----	0.13 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.27	2,3,7,8-TCDD-37Cl4	0.20	59
1,2,3,6,7,8-HxCDD	0.39	----	0.24 J			
1,2,3,7,8,9-HxCDD	0.37	----	0.21 J			
Total HxCDD	3.5	----	0.21 J			
1,2,3,4,6,7,8-HpCDF	2.1	----	0.29 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.42	Equivalence: 0.70 ng/Kg		
Total HpCDF	4.9	----	0.29	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	8.0	----	0.48			
Total HpCDD	17	----	0.48			
OCDF	5.5	----	0.46 J			
OCDD	69	----	0.065			

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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I = Isotope ratio out of specification

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-4-3			
Lab Sample ID	10653077012			
Filename	Y230601B_04			
Injected By	SMT			
Total Amount Extracted	12.6 g	Matrix	Solid	
% Moisture	16.5	Dilution	NA	
Dry Weight Extracted	10.5 g	Collected	05/10/2023 09:42	
ICAL ID	Y211220	Received	05/12/2023 08:50	
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/16/2023 14:00	
Method Blank ID	BLANK-106162	Analyzed	06/01/2023 18:10	

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	68
Total TCDF	ND	----	0.12	2,3,7,8-TCDD-13C	2.00	65
				1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	----	0.16	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.16	1,2,3,7,8-PeCDD-13C	2.00	84
				1,2,3,4,7,8-HxCDF-13C	2.00	73
1,2,3,7,8-PeCDF	ND	----	0.18	1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	ND	----	0.17	2,3,4,6,7,8-HxCDF-13C	2.00	75
Total PeCDF	ND	----	0.17	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.31	1,2,3,6,7,8-HxCDD-13C	2.00	86
Total PeCDD	ND	----	0.31	1,2,3,4,6,7,8-HpCDF-13C	2.00	75
				1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	----	0.096	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	ND	----	0.074	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	----	0.066			
1,2,3,7,8,9-HxCDF	0.15	----	0.13 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.15	----	0.066 J	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	62
1,2,3,6,7,8-HxCDD	ND	----	0.17			
1,2,3,7,8,9-HxCDD	ND	----	0.18			
Total HxCDD	ND	----	0.17			
1,2,3,4,6,7,8-HpCDF	ND	----	0.20	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.30	Equivalence: 0.33 ng/Kg		
Total HpCDF	ND	----	0.20	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.17			
Total HpCDD	0.44	----	0.17 J			
OCDF	ND	----	0.29			
OCDD	1.6	----	0.40 J			

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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 J = Estimated value

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-5-0		
Lab Sample ID	10653077013		
Filename	Y230601B_05		
Injected By	SMT		
Total Amount Extracted	12.1 g	Matrix	Solid
% Moisture	10.3	Dilution	NA
Dry Weight Extracted	10.9 g	Collected	05/10/2023 09:58
ICAL ID	Y211220	Received	05/12/2023 08:50
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 18:49

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.45	2,3,7,8-TCDF-13C	2.00	52
Total TCDF	ND	----	0.45	2,3,7,8-TCDD-13C	2.00	44
				1,2,3,7,8-PeCDF-13C	2.00	53
2,3,7,8-TCDD	ND	----	0.66	2,3,4,7,8-PeCDF-13C	2.00	52
Total TCDD	1.3	----	0.66	1,2,3,7,8-PeCDD-13C	2.00	60
				1,2,3,4,7,8-HxCDF-13C	2.00	57
1,2,3,7,8-PeCDF	ND	----	0.97	1,2,3,6,7,8-HxCDF-13C	2.00	54
2,3,4,7,8-PeCDF	ND	----	1.4	2,3,4,6,7,8-HxCDF-13C	2.00	51
Total PeCDF	3.6	----	0.97 J	1,2,3,7,8,9-HxCDF-13C	2.00	52
				1,2,3,4,7,8-HxCDD-13C	2.00	49
1,2,3,7,8-PeCDD	ND	----	1.8	1,2,3,6,7,8-HxCDD-13C	2.00	58
Total PeCDD	ND	----	1.8	1,2,3,4,6,7,8-HpCDF-13C	2.00	43
				1,2,3,4,7,8,9-HpCDF-13C	2.00	35 R
1,2,3,4,7,8-HxCDF	ND	----	1.1	1,2,3,4,6,7,8-HpCDD-13C	2.00	37 R
1,2,3,6,7,8-HxCDF	ND	----	1.3	OCDD-13C	4.00	19 R
2,3,4,6,7,8-HxCDF	ND	----	1.2			
1,2,3,7,8,9-HxCDF	ND	----	1.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	8.5	----	1.1	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.6	----	1.1 J	2,3,7,8-TCDD-37Cl4	0.20	39
1,2,3,6,7,8-HxCDD	3.2	----	1.0 J			
1,2,3,7,8,9-HxCDD	1.9	----	0.95 J			
Total HxCDD	62	----	0.95			
1,2,3,4,6,7,8-HpCDF	9.7	----	1.8	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	2.7	Equivalence: 4.4 ng/Kg		
Total HpCDF	36	----	1.8	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	150	----	0.97			
Total HpCDD	690	----	0.97			
OCDF	40	----	3.9			
OCDD	1400	----	2.7			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 EDL = Estimated Detection Limit

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

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 J = Estimated value  
 R = Recovery outside target range

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-5-2			
Lab Sample ID	10653077014			
Filename	Y230601B_06			
Injected By	SMT			
Total Amount Extracted	12.8 g	Matrix	Solid	
% Moisture	16.1	Dilution	NA	
Dry Weight Extracted	10.8 g	Collected	05/10/2023 10:00	
ICAL ID	Y211220	Received	05/12/2023 08:50	
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55	
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 19:28	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.33	2,3,7,8-TCDF-13C	2.00	69
Total TCDF	14	----	0.33	2,3,7,8-TCDD-13C	2.00	60
				1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	----	0.33	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.33	1,2,3,7,8-PeCDD-13C	2.00	85
				1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.67	1,2,3,6,7,8-HxCDF-13C	2.00	81
2,3,4,7,8-PeCDF	2.1	----	0.80 J	2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	42	----	0.67	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.24	1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	0.42	----	0.24 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
				1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	ND	----	0.30	1,2,3,4,6,7,8-HpCDD-13C	2.00	71
1,2,3,6,7,8-HxCDF	----	0.68	0.31 U	OCDD-13C	4.00	55
2,3,4,6,7,8-HxCDF	----	0.95	0.25 U			
1,2,3,7,8,9-HxCDF	ND	----	0.35	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	18	----	0.25	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.43	0.42 U	2,3,7,8-TCDD-37Cl4	0.20	56
1,2,3,6,7,8-HxCDD	----	0.52	0.33 U			
1,2,3,7,8,9-HxCDD	----	0.39	0.33 U			
Total HxCDD	6.0	----	0.33			
1,2,3,4,6,7,8-HpCDF	3.9	----	0.68 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.56	Equivalence: 1.4 ng/Kg		
Total HpCDF	13	----	0.56	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	23	----	0.40			
Total HpCDD	62	----	0.40			
OCDF	18	----	0.91			
OCDD	200	----	0.71			

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  
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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-5-3			
Lab Sample ID	10653077015			
Filename	Y230601B_07			
Injected By	SMT			
Total Amount Extracted	13.2 g	Matrix	Solid	
% Moisture	13.0	Dilution	NA	
Dry Weight Extracted	11.5 g	Collected	05/10/2023 10:02	
ICAL ID	Y211220	Received	05/12/2023 08:50	
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55	
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 20:07	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.34	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	0.93	----	0.34	2,3,7,8-TCDD-13C	2.00	56
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.30	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.30	1,2,3,7,8-PeCDD-13C	2.00	81
				1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.41	1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	----	0.44	2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	4.2	----	0.41 J	1,2,3,7,8,9-HxCDF-13C	2.00	68
				1,2,3,4,7,8-HxCDD-13C	2.00	67
1,2,3,7,8-PeCDD	ND	----	0.54	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	ND	----	0.54	1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	69
1,2,3,4,7,8-HxCDF	ND	----	0.44	1,2,3,4,6,7,8-HpCDD-13C	2.00	68
1,2,3,6,7,8-HxCDF	ND	----	0.35	OCDD-13C	4.00	55
2,3,4,6,7,8-HxCDF	ND	----	0.44			
1,2,3,7,8,9-HxCDF	ND	----	0.25	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	6.4	----	0.25	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.74	----	0.44 J	2,3,7,8-TCDD-37Cl4	0.20	50
1,2,3,6,7,8-HxCDD	1.1	----	0.41 J			
1,2,3,7,8,9-HxCDD	----	0.60	0.37 J			
Total HxCDD	17	----	0.37			
1,2,3,4,6,7,8-HpCDF	7.5	----	0.50	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.57	----	0.53 J	Equivalence: 1.7 ng/Kg		
Total HpCDF	26	----	0.50	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	64	----	0.17			
Total HpCDD	230	----	0.17			
OCDF	33	----	0.75			
OCDD	580	----	0.63			

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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 NC = Not Calculated

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J = Estimated value

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-6-0			
Lab Sample ID	10653077016			
Filename	Y230601B_08			
Injected By	SMT			
Total Amount Extracted	12.2 g	Matrix	Solid	
% Moisture	22.9	Dilution	NA	
Dry Weight Extracted	9.41 g	Collected	05/10/2023 10:25	
ICAL ID	Y211220	Received	05/12/2023 08:50	
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55	
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 20:45	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.58		2,3,7,8-TCDF-13C	2.00	64
Total TCDF	ND	----	0.58		2,3,7,8-TCDD-13C	2.00	22 R
					1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	ND	----	0.91		2,3,4,7,8-PeCDF-13C	2.00	72
Total TCDD	11	----	0.91		1,2,3,7,8-PeCDD-13C	2.00	83
					1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.40		1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	----	0.41		2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	3.8	----	0.40	J	1,2,3,7,8,9-HxCDF-13C	2.00	61
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.82		1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	2.2	----	0.82	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	ND	----	0.44		1,2,3,4,6,7,8-HpCDD-13C	2.00	68
1,2,3,6,7,8-HxCDF	ND	----	0.37		OCDD-13C	4.00	52
2,3,4,6,7,8-HxCDF	ND	----	0.35				
1,2,3,7,8,9-HxCDF	ND	----	0.42		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.6	----	0.35	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.56	0.41	J	2,3,7,8-TCDD-37Cl4	0.20	19
1,2,3,6,7,8-HxCDD	----	0.82	0.33	J			
1,2,3,7,8,9-HxCDD	----	0.59	0.35	J			
Total HxCDD	3.7	----	0.33	J			
1,2,3,4,6,7,8-HpCDF	5.9	----	0.58		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.49		Equivalence: 1.5 ng/Kg		
Total HpCDF	15	----	0.49		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	23	----	0.45				
Total HpCDD	45	----	0.45				
OCDF	20	----	0.72				
OCDD	210	----	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

R = Recovery outside target range

I = Isotope ratio out of specification

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-6-2		
Lab Sample ID	10653077017		
Filename	Y230601B_09		
Injected By	SMT		
Total Amount Extracted	10.1 g	Matrix	Solid
% Moisture	13.9	Dilution	NA
Dry Weight Extracted	8.72 g	Collected	05/10/2023 10:27
ICAL ID	Y211220	Received	05/12/2023 08:50
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 21:24

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.25	2,3,7,8-TCDF-13C	2.00	64
Total TCDF	1.1	----	0.25 J	2,3,7,8-TCDD-13C	2.00	40
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.32	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.32	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	73
1,2,3,7,8-PeCDF	ND	----	0.29	1,2,3,6,7,8-HxCDF-13C	2.00	80
2,3,4,7,8-PeCDF	ND	----	0.34	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	----	0.29	1,2,3,7,8,9-HxCDF-13C	2.00	65
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.65	1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	ND	----	0.65	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	76
1,2,3,4,7,8-HxCDF	ND	----	0.21	1,2,3,4,6,7,8-HpCDD-13C	2.00	77
1,2,3,6,7,8-HxCDF	ND	----	0.20	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	ND	----	0.20			
1,2,3,7,8,9-HxCDF	ND	----	0.34	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.20	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.30	2,3,7,8-TCDD-37Cl4	0.20	36
1,2,3,6,7,8-HxCDD	ND	----	0.26			
1,2,3,7,8,9-HxCDD	ND	----	0.29			
Total HxCDD	ND	----	0.26			
1,2,3,4,6,7,8-HpCDF	ND	----	0.25	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.33	Equivalence: 0.65 ng/Kg		
Total HpCDF	ND	----	0.25	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.33	0.32 J			
Total HpCDD	ND	----	0.32			
OCDF	ND	----	0.51			
OCDD	4.1	----	0.56 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
EDL = Estimated Detection Limit

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

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J = Estimated value

I = Isotope ratio out of specification

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-6-3		
Lab Sample ID	10653077018		
Filename	Y230601B_10		
Injected By	SMT		
Total Amount Extracted	11.1 g	Matrix	Solid
% Moisture	18.4	Dilution	NA
Dry Weight Extracted	9.03 g	Collected	05/10/2023 10:29
ICAL ID	Y211220	Received	05/12/2023 08:50
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/17/2023 14:55
Method Blank ID	BLANK-106211	Analyzed	06/01/2023 22:03

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.26	2,3,7,8-TCDF-13C	2.00	64
Total TCDF	0.27	----	0.26 J	2,3,7,8-TCDD-13C	2.00	33 R
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	----	0.60	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.60	1,2,3,7,8-PeCDD-13C	2.00	84
				1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.29	1,2,3,6,7,8-HxCDF-13C	2.00	80
2,3,4,7,8-PeCDF	ND	----	0.30	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	----	0.29	1,2,3,7,8,9-HxCDF-13C	2.00	68
				1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	ND	----	0.45	1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	ND	----	0.45	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
				1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	ND	----	0.18	1,2,3,4,6,7,8-HpCDD-13C	2.00	76
1,2,3,6,7,8-HxCDF	ND	----	0.16	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	----	0.15			
1,2,3,7,8,9-HxCDF	ND	----	0.30	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.15	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.29	2,3,7,8-TCDD-37Cl4	0.20	29
1,2,3,6,7,8-HxCDD	ND	----	0.26			
1,2,3,7,8,9-HxCDD	ND	----	0.28			
Total HxCDD	ND	----	0.26			
1,2,3,4,6,7,8-HpCDF	ND	----	0.28	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.39	Equivalence: 0.68 ng/Kg		
Total HpCDF	ND	----	0.28	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.40	0.32 U			
Total HpCDD	0.62	----	0.32 J			
OCDF	ND	----	0.46			
OCDD	4.0	----	0.70 J			

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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R = Recovery outside target range  
I = Isotope ratio out of specification

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-7-0		
Lab Sample ID	10653077019		
Filename	Y230601B_11		
Injected By	SMT		
Total Amount Extracted	11.3 g	Matrix	Solid
% Moisture	14.0	Dilution	NA
Dry Weight Extracted	9.76 g	Collected	05/10/2023 11:15
ICAL ID	Y211220	Received	05/12/2023 08:50
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/22/2023 14:04
Method Blank ID	BLANK-106285	Analyzed	06/01/2023 22:42

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.26	2,3,7,8-TCDF-13C	2.00	69
Total TCDF	1.1	----	0.26	2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	----	0.22	2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	ND	----	0.22	1,2,3,7,8-PeCDD-13C	2.00	89
				1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.20	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	ND	----	0.18	2,3,4,6,7,8-HxCDF-13C	2.00	82
Total PeCDF	0.26	----	0.18 J	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	ND	----	0.29	1,2,3,6,7,8-HxCDD-13C	2.00	92
Total PeCDD	ND	----	0.29	1,2,3,4,6,7,8-HpCDF-13C	2.00	79
				1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	ND	----	0.17	1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	ND	----	0.17	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	----	0.17			
1,2,3,7,8,9-HxCDF	ND	----	0.16	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.87	----	0.16 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.28	----	0.19 J	2,3,7,8-TCDD-37Cl4	0.20	71
1,2,3,6,7,8-HxCDD	----	0.21	0.19 IJ			
1,2,3,7,8,9-HxCDD	0.23	----	0.22 J			
Total HxCDD	0.93	----	0.19 J			
1,2,3,4,6,7,8-HpCDF	1.4	----	0.45 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.57	Equivalence: 0.48 ng/Kg		
Total HpCDF	4.3	----	0.45 J	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	5.2	----	0.39			
Total HpCDD	9.4	----	0.39			
OCDF	5.3	----	0.39 J			
OCDD	44	----	0.94			

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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## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-7-2		
Lab Sample ID	10653077020		
Filename	Y230601B_12		
Injected By	SMT		
Total Amount Extracted	10.9 g	Matrix	Solid
% Moisture	16.1	Dilution	NA
Dry Weight Extracted	9.18 g	Collected	05/10/2023 11:17
ICAL ID	Y211220	Received	05/12/2023 08:50
CCal Filename(s)	Y230601B_01 & Y230601B_20	Extracted	05/22/2023 14:04
Method Blank ID	BLANK-106285	Analyzed	06/01/2023 23:21

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.19	2,3,7,8-TCDF-13C	2.00	64
Total TCDF	0.42	----	0.19 J	2,3,7,8-TCDD-13C	2.00	61
				1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	ND	----	0.22	2,3,4,7,8-PeCDF-13C	2.00	68
Total TCDD	ND	----	0.22	1,2,3,7,8-PeCDD-13C	2.00	77
				1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.28	1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	----	0.23	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	----	0.23	1,2,3,7,8,9-HxCDF-13C	2.00	66
				1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	ND	----	0.47	1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	0.47	1,2,3,4,6,7,8-HpCDF-13C	2.00	71
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	ND	----	0.15	1,2,3,4,6,7,8-HpCDD-13C	2.00	69
1,2,3,6,7,8-HxCDF	ND	----	0.16	OCDD-13C	4.00	54
2,3,4,6,7,8-HxCDF	ND	----	0.16			
1,2,3,7,8,9-HxCDF	ND	----	0.19	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.15	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.24	0.19 J	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	ND	----	0.17			
1,2,3,7,8,9-HxCDD	ND	----	0.21			
Total HxCDD	ND	----	0.17			
1,2,3,4,6,7,8-HpCDF	ND	----	0.24	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.32	Equivalence: 0.46 ng/Kg		
Total HpCDF	ND	----	0.24	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.43	0.26 J			
Total HpCDD	ND	----	0.26			
OCDF	ND	----	0.34			
OCDD	3.7	----	0.52 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
EDL = Estimated Detection Limit

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

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J = Estimated value

I = Isotope ratio out of specification

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-7-3		
Lab Sample ID	10653077021		
Filename	Y230609B_06		
Injected By	AH5		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	8.1	Dilution	NA
Dry Weight Extracted	9.39 g	Collected	05/10/2023 11:19
ICAL ID	Y230607	Received	05/12/2023 08:50
CCal Filename(s)	Y230609A_19 & Y230609B_19	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/10/2023 01:53

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.20	2,3,7,8-TCDF-13C	2.00	53
Total TCDF	ND	----	0.20	2,3,7,8-TCDD-13C	2.00	50
				1,2,3,7,8-PeCDF-13C	2.00	55
2,3,7,8-TCDD	ND	----	0.41	2,3,4,7,8-PeCDF-13C	2.00	56
Total TCDD	ND	----	0.41	1,2,3,7,8-PeCDD-13C	2.00	60
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	0.18	1,2,3,6,7,8-HxCDF-13C	2.00	62
2,3,4,7,8-PeCDF	ND	----	0.13	2,3,4,6,7,8-HxCDF-13C	2.00	63
Total PeCDF	ND	----	0.13	1,2,3,7,8,9-HxCDF-13C	2.00	51
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	0.22	1,2,3,6,7,8-HxCDD-13C	2.00	60
Total PeCDD	ND	----	0.22	1,2,3,4,6,7,8-HpCDF-13C	2.00	63
				1,2,3,4,7,8,9-HpCDF-13C	2.00	57
1,2,3,4,7,8-HxCDF	ND	----	0.29	1,2,3,4,6,7,8-HpCDD-13C	2.00	69
1,2,3,6,7,8-HxCDF	ND	----	0.25	OCDD-13C	4.00	56
2,3,4,6,7,8-HxCDF	ND	----	0.29			
1,2,3,7,8,9-HxCDF	ND	----	0.39	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.25	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.49	2,3,7,8-TCDD-37Cl4	0.20	50
1,2,3,6,7,8-HxCDD	ND	----	0.40			
1,2,3,7,8,9-HxCDD	ND	----	0.38			
Total HxCDD	ND	----	0.38			
1,2,3,4,6,7,8-HpCDF	ND	----	0.37	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.54	Equivalence: 0.49 ng/Kg		
Total HpCDF	ND	----	0.37	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	1.2	----	0.64 J			
Total HpCDD	2.5	----	0.64 J			
OCDF	ND	----	0.58			
OCDD	5.9	----	1.6 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

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-8-0			
Lab Sample ID	10653077022			
Filename	Y230609B_07			
Injected By	AH5			
Total Amount Extracted	10.2 g	Matrix	Solid	
% Moisture	12.9	Dilution	NA	
Dry Weight Extracted	8.88 g	Collected	05/10/2023 10:50	
ICAL ID	Y230607	Received	05/12/2023 08:50	
CCal Filename(s)	Y230609A_19 & Y230609B_19	Extracted	06/07/2023 14:05	
Method Blank ID	BLANK-106678	Analyzed	06/10/2023 02:36	

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	61
Total TCDF	2.0	----	0.35	2,3,7,8-TCDD-13C	2.00	59
				1,2,3,7,8-PeCDF-13C	2.00	63
2,3,7,8-TCDD	ND	----	0.16	2,3,4,7,8-PeCDF-13C	2.00	66
Total TCDD	0.59	----	0.16 J	1,2,3,7,8-PeCDD-13C	2.00	71
				1,2,3,4,7,8-HxCDF-13C	2.00	66
1,2,3,7,8-PeCDF	ND	----	0.10	1,2,3,6,7,8-HxCDF-13C	2.00	62
2,3,4,7,8-PeCDF	0.29	----	0.061 J	2,3,4,6,7,8-HxCDF-13C	2.00	60
Total PeCDF	4.9	----	0.061 J	1,2,3,7,8,9-HxCDF-13C	2.00	60
				1,2,3,4,7,8-HxCDD-13C	2.00	62
1,2,3,7,8-PeCDD	0.14	----	0.090 J	1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	0.14	----	0.090 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	62
				1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	ND	----	0.11	1,2,3,4,6,7,8-HpCDD-13C	2.00	74
1,2,3,6,7,8-HxCDF	0.29	----	0.11 J	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	0.30	----	0.15 J			
1,2,3,7,8,9-HxCDF	ND	----	0.15	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	2.2	----	0.11 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.37	----	0.21 J	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	----	0.32	0.18 I			
1,2,3,7,8,9-HxCDD	0.35	----	0.17 J			
Total HxCDD	3.0	----	0.17 J			
1,2,3,4,6,7,8-HpCDF	1.7	----	0.20 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.32	----	0.25 J	Equivalence: 0.60 ng/Kg		
Total HpCDF	4.4	----	0.20 J	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	6.6	----	0.26			
Total HpCDD	12	----	0.26			
OCDF	5.2	----	0.27 J			
OCDD	61	----	0.47			

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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I = Isotope ratio out of specification

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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-8-2		
Lab Sample ID	10653077023		
Filename	Y230609B_08		
Injected By	AH5		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	10.6	Dilution	NA
Dry Weight Extracted	9.25 g	Collected	05/10/2023 10:52
ICAL ID	Y230607	Received	05/12/2023 08:50
CCal Filename(s)	Y230609A_19 & Y230609B_19	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/10/2023 03:20

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.099	2,3,7,8-TCDF-13C	2.00	66
Total TCDF	ND	----	0.099	2,3,7,8-TCDD-13C	2.00	63
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	0.14	2,3,4,7,8-PeCDF-13C	2.00	65
Total TCDD	ND	----	0.14	1,2,3,7,8-PeCDD-13C	2.00	69
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.086	1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	ND	----	0.072	2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	ND	----	0.072	1,2,3,7,8,9-HxCDF-13C	2.00	65
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	----	0.093	1,2,3,6,7,8-HxCDD-13C	2.00	73
Total PeCDD	ND	----	0.093	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
				1,2,3,4,7,8,9-HpCDF-13C	2.00	70
1,2,3,4,7,8-HxCDF	ND	----	0.086	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.11	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	ND	----	0.10			
1,2,3,7,8,9-HxCDF	ND	----	0.14	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.086	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.33	----	0.21 J	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	ND	----	0.14			
1,2,3,7,8,9-HxCDD	ND	----	0.15			
Total HxCDD	0.33	----	0.14 J			
1,2,3,4,6,7,8-HpCDF	ND	----	0.19	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.26	Equivalence: 0.22 ng/Kg		
Total HpCDF	0.30	----	0.19 J	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	1.1	----	0.23 J			
Total HpCDD	1.1	----	0.23 J			
OCDF	ND	----	0.33			
OCDD	9.3	----	0.25 BJ			

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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B = Less than 10x higher than method blank level

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-8-3		
Lab Sample ID	10653077024		
Filename	Y230609B_09		
Injected By	AH5		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	17.6	Dilution	NA
Dry Weight Extracted	8.58 g	Collected	05/10/2023 10:54
ICAL ID	Y230607	Received	05/12/2023 08:50
CCal Filename(s)	Y230609A_19 & Y230609B_19	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/10/2023 04:03

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	61
Total TCDF	8.4	----	0.13	2,3,7,8-TCDD-13C	2.00	58
				1,2,3,7,8-PeCDF-13C	2.00	64
2,3,7,8-TCDD	ND	----	0.20	2,3,4,7,8-PeCDF-13C	2.00	66
Total TCDD	ND	----	0.20	1,2,3,7,8-PeCDD-13C	2.00	71
				1,2,3,4,7,8-HxCDF-13C	2.00	80
1,2,3,7,8-PeCDF	ND	----	0.075	1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	----	0.087	2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	ND	----	0.075	1,2,3,7,8,9-HxCDF-13C	2.00	63
				1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	----	0.11	1,2,3,6,7,8-HxCDD-13C	2.00	71
Total PeCDD	ND	----	0.11	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
				1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	ND	----	0.10	1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	ND	----	0.12	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	ND	----	0.17			
1,2,3,7,8,9-HxCDF	ND	----	0.19	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.10	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.37	0.25 J	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	ND	----	0.19			
1,2,3,7,8,9-HxCDD	ND	----	0.21			
Total HxCDD	ND	----	0.19			
1,2,3,4,6,7,8-HpCDF	ND	----	0.15	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.18	Equivalence: 0.25 ng/Kg		
Total HpCDF	ND	----	0.15	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.91	0.29 J			
Total HpCDD	1.1	----	0.29 J			
OCDF	ND	----	0.26			
OCDD	6.6	----	0.67 BJ			

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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NC = Not Calculated

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-9-0			
Lab Sample ID	10653077025			
Filename	Y230609B_10			
Injected By	AH5			
Total Amount Extracted	10.2 g	Matrix	Solid	
% Moisture	20.1	Dilution	NA	
Dry Weight Extracted	8.18 g	Collected	05/10/2023 12:18	
ICAL ID	Y230607	Received	05/12/2023 08:50	
CCal Filename(s)	Y230609A_19 & Y230609B_19	Extracted	06/07/2023 14:05	
Method Blank ID	BLANK-106678	Analyzed	06/10/2023 04:46	

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	54
Total TCDF	0.79	----	0.13 J	2,3,7,8-TCDD-13C	2.00	51
				1,2,3,7,8-PeCDF-13C	2.00	59
2,3,7,8-TCDD	----	0.17	0.17 U	2,3,4,7,8-PeCDF-13C	2.00	61
Total TCDD	ND	----	0.17	1,2,3,7,8-PeCDD-13C	2.00	64
				1,2,3,4,7,8-HxCDF-13C	2.00	62
1,2,3,7,8-PeCDF	ND	----	0.11	1,2,3,6,7,8-HxCDF-13C	2.00	58
2,3,4,7,8-PeCDF	ND	----	0.081	2,3,4,6,7,8-HxCDF-13C	2.00	55
Total PeCDF	0.86	----	0.081 J	1,2,3,7,8,9-HxCDF-13C	2.00	52
				1,2,3,4,7,8-HxCDD-13C	2.00	58
1,2,3,7,8-PeCDD	----	0.16	0.11 U	1,2,3,6,7,8-HxCDD-13C	2.00	56
Total PeCDD	0.23	----	0.11 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	58
				1,2,3,4,7,8,9-HpCDF-13C	2.00	57
1,2,3,4,7,8-HxCDF	ND	----	0.14	1,2,3,4,6,7,8-HpCDD-13C	2.00	67
1,2,3,6,7,8-HxCDF	ND	----	0.11	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	ND	----	0.11			
1,2,3,7,8,9-HxCDF	----	0.18	0.17 U	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.11	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.37	----	0.15 J	2,3,7,8-TCDD-37Cl4	0.20	48
1,2,3,6,7,8-HxCDD	----	0.24	0.13 U			
1,2,3,7,8,9-HxCDD	----	0.25	0.16 U			
Total HxCDD	1.9	----	0.13 J			
1,2,3,4,6,7,8-HpCDF	0.82	----	0.17 J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.17	Equivalence: 0.40 ng/Kg		
Total HpCDF	2.1	----	0.17 J	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	8.4	----	0.12			
Total HpCDD	28	----	0.12			
OCDF	1.9	----	0.21 J			
OCDD	86	----	0.39			

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  
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**Method 8290 Sample Analysis Results**

Client - HDR

Client's Sample ID	B-9-3		
Lab Sample ID	10653077026		
Filename	U230612A_12		
Injected By	SMT		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	17.1	Dilution	NA
Dry Weight Extracted	8.48 g	Collected	05/10/2023 12:20
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	U230611B_19 & U230612A_16	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/12/2023 15:14

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.19	2,3,7,8-TCDF-13C	2.00	73
Total TCDF	1.8	----	0.19	2,3,7,8-TCDD-13C	2.00	60
				1,2,3,7,8-PeCDF-13C	2.00	90
2,3,7,8-TCDD	ND	----	0.41	2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	ND	----	0.41	1,2,3,7,8-PeCDD-13C	2.00	87
				1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	ND	----	0.15	1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	----	0.085	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	----	0.085	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	ND	----	0.22	1,2,3,6,7,8-HxCDD-13C	2.00	74
Total PeCDD	ND	----	0.22	1,2,3,4,6,7,8-HpCDF-13C	2.00	60
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	ND	----	0.19	1,2,3,4,6,7,8-HpCDD-13C	2.00	67
1,2,3,6,7,8-HxCDF	ND	----	0.18	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	ND	----	0.14			
1,2,3,7,8,9-HxCDF	ND	----	0.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.14	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.22	2,3,7,8-TCDD-37Cl4	0.20	63
1,2,3,6,7,8-HxCDD	ND	----	0.25			
1,2,3,7,8,9-HxCDD	ND	----	0.27			
Total HxCDD	ND	----	0.22			
1,2,3,4,6,7,8-HpCDF	ND	----	0.31	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.30	Equivalence: 0.42 ng/Kg		
Total HpCDF	ND	----	0.30	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.49	0.36 U			
Total HpCDD	0.61	----	0.36 J			
OCDF	ND	----	0.49			
OCDD	4.6	----	1.1 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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J = Estimated value  
B = Less than 10x higher than method blank level  
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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-10-0		
Lab Sample ID	10653077027		
Filename	U230612A_13		
Injected By	SMT		
Total Amount Extracted	10.1 g	Matrix	Solid
% Moisture	12.0	Dilution	NA
Dry Weight Extracted	8.91 g	Collected	05/10/2023 12:00
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	U230611B_19 & U230612A_16	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/12/2023 16:00

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.37		2,3,7,8-TCDF-13C	2.00	84
Total TCDF	1.1	----	0.37	J	2,3,7,8-TCDD-13C	2.00	69
					1,2,3,7,8-PeCDF-13C	2.00	98
2,3,7,8-TCDD	0.41	----	0.28	J	2,3,4,7,8-PeCDF-13C	2.00	98
Total TCDD	1.4	----	0.28		1,2,3,7,8-PeCDD-13C	2.00	97
					1,2,3,4,7,8-HxCDF-13C	2.00	80
1,2,3,7,8-PeCDF	ND	----	0.33		1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	----	0.20		2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	2.1	----	0.20	J	1,2,3,7,8,9-HxCDF-13C	2.00	77
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	----	0.37	0.32	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	77
Total PeCDD	1.4	----	0.32	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	57
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	----	0.70	0.23	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	65
1,2,3,6,7,8-HxCDF	ND	----	0.21		OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	0.63	----	0.22	J			
1,2,3,7,8,9-HxCDF	ND	----	0.27		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5.7	----	0.21		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.91	----	0.31	J	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	1.9	----	0.34	J			
1,2,3,7,8,9-HxCDD	----	1.3	0.30	IJ			
Total HxCDD	11	----	0.30				
1,2,3,4,6,7,8-HpCDF	10	----	0.50		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.3	----	0.46	J	Equivalence: 1.9 ng/Kg		
Total HpCDF	37	----	0.46		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	49	----	0.25				
Total HpCDD	92	----	0.25				
OCDF	36	----	0.55				
OCDD	500	----	0.54				

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

I = Isotope ratio out of specification

## REPORT OF LABORATORY ANALYSIS

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### Method 8290 Sample Analysis Results

Client - HDR

Client's Sample ID	B-10-3		
Lab Sample ID	10653077028		
Filename	U230612A_14		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	2.5	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	05/10/2023 12:02
ICAL ID	U230524	Received	05/12/2023 08:50
CCal Filename(s)	U230611B_19 & U230612A_16	Extracted	06/07/2023 14:05
Method Blank ID	BLANK-106678	Analyzed	06/12/2023 16:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.20	2,3,7,8-TCDF-13C	2.00	77
Total TCDF	ND	----	0.20	2,3,7,8-TCDD-13C	2.00	63
				1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	ND	----	0.34	2,3,4,7,8-PeCDF-13C	2.00	87
Total TCDD	ND	----	0.34	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.16	1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	----	0.13	2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	----	0.13	1,2,3,7,8,9-HxCDF-13C	2.00	75
				1,2,3,4,7,8-HxCDD-13C	2.00	67
1,2,3,7,8-PeCDD	ND	----	0.21	1,2,3,6,7,8-HxCDD-13C	2.00	69
Total PeCDD	ND	----	0.21	1,2,3,4,6,7,8-HpCDF-13C	2.00	55
				1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	ND	----	0.18	1,2,3,4,6,7,8-HpCDD-13C	2.00	62
1,2,3,6,7,8-HxCDF	ND	----	0.18	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	ND	----	0.14			
1,2,3,7,8,9-HxCDF	ND	----	0.21	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.14	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.24	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	ND	----	0.22			
1,2,3,7,8,9-HxCDD	ND	----	0.23			
Total HxCDD	ND	----	0.22			
1,2,3,4,6,7,8-HpCDF	ND	----	0.20	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.20	Equivalence: 0.38 ng/Kg		
Total HpCDF	ND	----	0.20	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.17			
Total HpCDD	ND	----	0.17			
OCDF	ND	----	0.34			
OCDD	----	0.76	0.61 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
EDL = Estimated Detection Limit

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

Results reported on a dry weight basis and are valid to no more than 2 significant figures.  
J = Estimated value  
I = Isotope ratio out of specification

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**Method 8290 Blank Analysis Results**

Lab Sample Name	DFBLKPK	Matrix	Solid
Lab Sample ID	BLANK-106162	Dilution	NA
Filename	U230518A_11	Extracted	05/16/2023 14:00
Total Amount Extracted	10.2 g	Analyzed	05/18/2023 18:20
ICAL ID	U230517	Injected By	SMT
CCal Filename(s)	U230517B_18 & U230518A_17		

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.19	2,3,7,8-TCDF-13C	2.00	78
Total TCDF	ND	----	0.19	2,3,7,8-TCDD-13C	2.00	72
				1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	ND	----	0.21	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	----	0.21	1,2,3,7,8-PeCDD-13C	2.00	84
				1,2,3,4,7,8-HxCDF-13C	2.00	92
1,2,3,7,8-PeCDF	ND	----	0.20	1,2,3,6,7,8-HxCDF-13C	2.00	87
2,3,4,7,8-PeCDF	ND	----	0.10	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	----	0.10	1,2,3,7,8,9-HxCDF-13C	2.00	75
				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	ND	----	0.16	1,2,3,4,6,7,8-HpCDF-13C	2.00	59
				1,2,3,4,7,8,9-HpCDF-13C	2.00	53
1,2,3,4,7,8-HxCDF	ND	----	0.14	1,2,3,4,6,7,8-HpCDD-13C	2.00	64
1,2,3,6,7,8-HxCDF	ND	----	0.15	OCDD-13C	4.00	43
2,3,4,6,7,8-HxCDF	ND	----	0.15			
1,2,3,7,8,9-HxCDF	ND	----	0.19	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.14	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.24	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,6,7,8-HxCDD	ND	----	0.22			
1,2,3,7,8,9-HxCDD	ND	----	0.21			
Total HxCDD	ND	----	0.21			
1,2,3,4,6,7,8-HpCDF	ND	----	0.19	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.31	Equivalence: 0.28 ng/Kg		
Total HpCDF	ND	----	0.19	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.24			
Total HpCDD	ND	----	0.24			
OCDF	ND	----	1.0			
OCDD	----	0.86	0.73 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 = Isotope ratio out of specification

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**Method 8290 Blank Analysis Results**

Lab Sample Name	DFBLKPV	Matrix	Solid/Wipe
Lab Sample ID	BLANK-106211	Dilution	NA
Filename	Y230523A_07	Extracted	05/17/2023 14:55
Total Amount Extracted	10.7 g	Analyzed	05/23/2023 10:51
ICAL ID	Y211220	Injected By	SM
CCal Filename(s)	Y230522B_20 & Y230523A_19		

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.094	2,3,7,8-TCDF-13C	2.00	64
Total TCDF	ND	----	0.094	2,3,7,8-TCDD-13C	2.00	32 R
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.23	2,3,4,7,8-PeCDF-13C	2.00	72
Total TCDD	ND	----	0.23	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	ND	----	0.16	1,2,3,6,7,8-HxCDF-13C	2.00	81
2,3,4,7,8-PeCDF	ND	----	0.15	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	0.15	1,2,3,7,8,9-HxCDF-13C	2.00	66
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	ND	----	0.26	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	ND	----	0.26	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
				1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	ND	----	0.11	1,2,3,4,6,7,8-HpCDD-13C	2.00	59
1,2,3,6,7,8-HxCDF	ND	----	0.098	OCDD-13C	4.00	61 Y
2,3,4,6,7,8-HxCDF	ND	----	0.089			
1,2,3,7,8,9-HxCDF	0.15	----	0.098 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.15	----	0.089 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.13	0.089 J	2,3,7,8-TCDD-37Cl4	0.20	31
1,2,3,6,7,8-HxCDD	ND	----	0.094			
1,2,3,7,8,9-HxCDD	ND	----	0.12			
Total HxCDD	ND	----	0.089			
1,2,3,4,6,7,8-HpCDF	ND	----	0.15	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.21	Equivalence: 0.33 ng/Kg		
Total HpCDF	ND	----	0.15	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	0.14	----	0.089 J			
Total HpCDD	0.14	----	0.089 J			
OCDF	ND	----	0.20			
OCDD	ND	----	0.27			

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

R = Recovery outside target range

I = Isotope ratio out of specification

Y = Calculated using average of daily RFs

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**Method 8290 Blank Analysis Results**

Lab Sample Name	DFBLKQN	Matrix	Solid
Lab Sample ID	BLANK-106285	Dilution	NA
Filename	U230601A_15	Extracted	05/22/2023 14:04
Total Amount Extracted	10.4 g	Analyzed	06/01/2023 17:55
ICAL ID	U230524	Injected By	SMT
CCal Filename(s)	U230531B_19 & U230601A_16		

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	89
Total TCDF	ND	----	0.15	2,3,7,8-TCDD-13C	2.00	83
				1,2,3,7,8-PeCDF-13C	2.00	104
2,3,7,8-TCDD	ND	----	0.34	2,3,4,7,8-PeCDF-13C	2.00	106
Total TCDD	ND	----	0.34	1,2,3,7,8-PeCDD-13C	2.00	107
				1,2,3,4,7,8-HxCDF-13C	2.00	107
1,2,3,7,8-PeCDF	ND	----	0.20	1,2,3,6,7,8-HxCDF-13C	2.00	103
2,3,4,7,8-PeCDF	ND	----	0.11	2,3,4,6,7,8-HxCDF-13C	2.00	94
Total PeCDF	ND	----	0.11	1,2,3,7,8,9-HxCDF-13C	2.00	88
				1,2,3,4,7,8-HxCDD-13C	2.00	89
1,2,3,7,8-PeCDD	ND	----	0.14	1,2,3,6,7,8-HxCDD-13C	2.00	99
Total PeCDD	ND	----	0.14	1,2,3,4,6,7,8-HpCDF-13C	2.00	67
				1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	ND	----	0.11	1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	ND	----	0.11	OCDD-13C	4.00	51
2,3,4,6,7,8-HxCDF	ND	----	0.12			
1,2,3,7,8,9-HxCDF	ND	----	0.16	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.11	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	72
1,2,3,6,7,8-HxCDD	ND	----	0.20			
1,2,3,7,8,9-HxCDD	ND	----	0.19			
Total HxCDD	ND	----	0.19			
1,2,3,4,6,7,8-HpCDF	ND	----	0.19	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.30	Equivalence: 0.33 ng/Kg		
Total HpCDF	ND	----	0.19	(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.21			
Total HpCDD	ND	----	0.21			
OCDF	ND	----	0.37			
OCDD	ND	----	0.44			

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.

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**Method 8290 Blank Analysis Results**

Lab Sample Name	DFBLKUL	Matrix	Solid
Lab Sample ID	BLANK-106678	Dilution	NA
Filename	Y230609B_05	Extracted	06/07/2023 14:05
Total Amount Extracted	10.2 g	Analyzed	06/10/2023 01:10
ICAL ID	Y230607	Injected By	AH5
CCal Filename(s)	Y230609A_19 & Y230609B_19		

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.10		2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	0.10		2,3,7,8-TCDD-13C	2.00	64
					1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	----	0.17		2,3,4,7,8-PeCDF-13C	2.00	75
Total TCDD	ND	----	0.17		1,2,3,7,8-PeCDD-13C	2.00	81
					1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	----	0.054		1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	ND	----	0.043		2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	ND	----	0.043		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.076		1,2,3,6,7,8-HxCDD-13C	2.00	74
Total PeCDD	ND	----	0.076		1,2,3,4,6,7,8-HpCDF-13C	2.00	75
					1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	----	0.065		1,2,3,4,6,7,8-HpCDD-13C	2.00	86
1,2,3,6,7,8-HxCDF	ND	----	0.065		OCDD-13C	4.00	78
2,3,4,6,7,8-HxCDF	ND	----	0.066				
1,2,3,7,8,9-HxCDF	ND	----	0.055		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.055		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.19	0.076	J	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	ND	----	0.087				
1,2,3,7,8,9-HxCDD	ND	----	0.10				
Total HxCDD	ND	----	0.076				
1,2,3,4,6,7,8-HpCDF	ND	----	0.15		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.21		Equivalence: 0.17 ng/Kg		
Total HpCDF	ND	----	0.15		(Mid-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	0.49	0.30	J			
Total HpCDD	ND	----	0.30				
OCDF	ND	----	0.29				
OCDD	2.6	----	0.37	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 = Isotope ratio out of specification

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### Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-106212	Matrix	Solid/Wipe
Filename	Y230523A_05	Dilution	NA
Total Amount Extracted	10.6 g	Extracted	05/17/2023 14:55
ICAL ID	Y211220	Analyzed	05/23/2023 09:34
CCal Filename(s)	Y230522B_20 & Y230523A_19	Injected By	SM
Method Blank ID	BLANK-106211		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	99	2,3,7,8-TCDF-13C	2.0	73
Total TCDF				2,3,7,8-TCDD-13C	2.0	41
				1,2,3,7,8-PeCDF-13C	2.0	82
2,3,7,8-TCDD	0.20	0.23	113	2,3,4,7,8-PeCDF-13C	2.0	80
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	87
				1,2,3,4,7,8-HxCDF-13C	2.0	85
1,2,3,7,8-PeCDF	1.0	1.0	101	1,2,3,6,7,8-HxCDF-13C	2.0	82
2,3,4,7,8-PeCDF	1.0	1.0	100	2,3,4,6,7,8-HxCDF-13C	2.0	80
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	77
				1,2,3,4,7,8-HxCDD-13C	2.0	79
1,2,3,7,8-PeCDD	1.0	0.96	96	1,2,3,6,7,8-HxCDD-13C	2.0	87
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	74
				1,2,3,4,7,8,9-HpCDF-13C	2.0	68
1,2,3,4,7,8-HxCDF	1.0	1.0	101	1,2,3,4,6,7,8-HpCDD-13C	2.0	63
1,2,3,6,7,8-HxCDF	1.0	1.1	108	OCDD-13C	4.0	74 Y
2,3,4,6,7,8-HxCDF	1.0	1.1	105			
1,2,3,7,8,9-HxCDF	1.0	1.0	105	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	1.2	115	2,3,7,8-TCDD-37Cl4	0.20	41
1,2,3,6,7,8-HxCDD	1.0	0.99	99			
1,2,3,7,8,9-HxCDD	1.0	1.0	102			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	111			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	113			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.1	110			
Total HpCDD						
OCDF	2.0	2.6	128			
OCDD	2.0	2.3	117			

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-106163	Matrix	Solid
Filename	U230524B_09	Dilution	NA
Total Amount Extracted	10.4 g	Extracted	05/16/2023 14:00
ICAL ID	U230524	Analyzed	05/24/2023 16:53
CCal Filename(s)	U230524B_06 & U230524B_19	Injected By	CVS
Method Blank ID	BLANK-106162		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	100	2,3,7,8-TCDF-13C	2.0	70
Total TCDF				2,3,7,8-TCDD-13C	2.0	66
				1,2,3,7,8-PeCDF-13C	2.0	80
2,3,7,8-TCDD	0.20	0.21	106	2,3,4,7,8-PeCDF-13C	2.0	80
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	86
				1,2,3,4,7,8-HxCDF-13C	2.0	75
1,2,3,7,8-PeCDF	1.0	0.96	96	1,2,3,6,7,8-HxCDF-13C	2.0	71
2,3,4,7,8-PeCDF	1.0	0.98	98	2,3,4,6,7,8-HxCDF-13C	2.0	70
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	64
				1,2,3,4,7,8-HxCDD-13C	2.0	68
1,2,3,7,8-PeCDD	1.0	0.89	89	1,2,3,6,7,8-HxCDD-13C	2.0	76
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	68
				1,2,3,4,7,8,9-HpCDF-13C	2.0	65
1,2,3,4,7,8-HxCDF	1.0	0.97	97	1,2,3,4,6,7,8-HpCDD-13C	2.0	70
1,2,3,6,7,8-HxCDF	1.0	1.0	104	OCDD-13C	4.0	65
2,3,4,6,7,8-HxCDF	1.0	1.0	102			
1,2,3,7,8,9-HxCDF	1.0	1.1	105	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	106	2,3,7,8-TCDD-37Cl4	0.20	67
1,2,3,6,7,8-HxCDD	1.0	0.96	96			
1,2,3,7,8,9-HxCDD	1.0	0.99	99			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	0.97	97			
1,2,3,4,7,8,9-HpCDF	1.0	1.0	102			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.96	96			
Total HpCDD						
OCDF	2.0	2.0	101			
OCDD	2.0	2.1	106			

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-106286	Matrix	Solid
Filename	U230601A_03	Dilution	NA
Total Amount Extracted	10.7 g	Extracted	05/22/2023 14:04
ICAL ID	U230524	Analyzed	06/01/2023 08:40
CCal Filename(s)	U230531B_19 & U230601A_16	Injected By	SMT
Method Blank ID	BLANK-106285		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	100	2,3,7,8-TCDF-13C	2.0	83
Total TCDF				2,3,7,8-TCDD-13C	2.0	77
				1,2,3,7,8-PeCDF-13C	2.0	98
2,3,7,8-TCDD	0.20	0.19	94	2,3,4,7,8-PeCDF-13C	2.0	98
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	97
				1,2,3,4,7,8-HxCDF-13C	2.0	97
1,2,3,7,8-PeCDF	1.0	0.95	95	1,2,3,6,7,8-HxCDF-13C	2.0	94
2,3,4,7,8-PeCDF	1.0	0.91	91	2,3,4,6,7,8-HxCDF-13C	2.0	91
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	87
				1,2,3,4,7,8-HxCDD-13C	2.0	83
1,2,3,7,8-PeCDD	1.0	0.91	91	1,2,3,6,7,8-HxCDD-13C	2.0	89
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	68
				1,2,3,4,7,8,9-HpCDF-13C	2.0	68
1,2,3,4,7,8-HxCDF	1.0	0.91	91	1,2,3,4,6,7,8-HpCDD-13C	2.0	75
1,2,3,6,7,8-HxCDF	1.0	0.94	94	OCDD-13C	4.0	65
2,3,4,6,7,8-HxCDF	1.0	0.94	94			
1,2,3,7,8,9-HxCDF	1.0	0.93	93	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	0.98	98	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	1.0	0.98	98			
1,2,3,7,8,9-HxCDD	1.0	1.0	100			
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	0.95	95			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.86	86			
Total HpCDD						
OCDF	2.0	2.1	104			
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 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-106679	Matrix	Solid
Filename	Y230609B_01	Dilution	NA
Total Amount Extracted	10.3 g	Extracted	06/07/2023 14:05
ICAL ID	Y230607	Analyzed	06/09/2023 22:17
CCal Filename(s)	Y230609A_19 & Y230609B_19	Injected By	AH5
Method Blank ID	BLANK-106678		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	100	2,3,7,8-TCDF-13C	2.0	61
Total TCDF				2,3,7,8-TCDD-13C	2.0	59
				1,2,3,7,8-PeCDF-13C	2.0	71
2,3,7,8-TCDD	0.20	0.20	102	2,3,4,7,8-PeCDF-13C	2.0	72
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	79
				1,2,3,4,7,8-HxCDF-13C	2.0	70
1,2,3,7,8-PeCDF	1.0	0.93	93	1,2,3,6,7,8-HxCDF-13C	2.0	68
2,3,4,7,8-PeCDF	1.0	0.89	89	2,3,4,6,7,8-HxCDF-13C	2.0	68
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	65
				1,2,3,4,7,8-HxCDD-13C	2.0	72
1,2,3,7,8-PeCDD	1.0	0.86	86	1,2,3,6,7,8-HxCDD-13C	2.0	67
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	73
				1,2,3,4,7,8,9-HpCDF-13C	2.0	71
1,2,3,4,7,8-HxCDF	1.0	0.93	93	1,2,3,4,6,7,8-HpCDD-13C	2.0	84
1,2,3,6,7,8-HxCDF	1.0	0.93	93	OCDD-13C	4.0	71
2,3,4,6,7,8-HxCDF	1.0	0.94	94			
1,2,3,7,8,9-HxCDF	1.0	0.96	96	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	0.94	94	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	1.0	0.97	97			
1,2,3,7,8,9-HxCDD	1.0	0.97	97			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	0.91	91			
1,2,3,4,7,8,9-HpCDF	1.0	1.0	103			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.89	89			
Total HpCDD						
OCDF	2.0	1.8	91			
OCDD	2.0	2.2	108			

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 Spiked Sample Report

Client - HDR

Client's Sample ID	B-7-3-MS	Matrix	Solid
Lab Sample ID	10653077021-MS	Dilution	NA
Filename	Y230609B_02	Extracted	06/07/2023 14:05
Total Amount Extracted	10.5 g	Analyzed	06/09/2023 23:00
ICAL ID	Y230607	Injected By	AH5
CCal Filename(s)	Y230609A_19 & Y230609B_19		
Method Blank ID	BLANK-106678		

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	60
				2,3,7,8-TCDD-13C	2.00	60
				1,2,3,7,8-PeCDF-13C	2.00	51
2,3,7,8-TCDD	0.20	0.21	105	2,3,4,7,8-PeCDF-13C	2.00	48
				1,2,3,7,8-PeCDD-13C	2.00	53
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	1.00	0.97	97	1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	1.00	0.96	96	2,3,4,6,7,8-HxCDF-13C	2.00	70
				1,2,3,7,8,9-HxCDF-13C	2.00	64
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	1.00	0.91	91	1,2,3,6,7,8-HxCDD-13C	2.00	72
				1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	70
1,2,3,4,7,8-HxCDF	1.00	0.96	96	1,2,3,4,6,7,8-HpCDD-13C	2.00	78
1,2,3,6,7,8-HxCDF	1.00	0.99	99	OCDD-13C	4.00	80
2,3,4,6,7,8-HxCDF	1.00	1.01	101			
1,2,3,7,8,9-HxCDF	1.00	0.97	97	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	1.04	104	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	1.00	0.96	96			
1,2,3,7,8,9-HxCDD	1.00	0.93	93			
1,2,3,4,6,7,8-HpCDF	1.00	0.97	97			
1,2,3,4,7,8,9-HpCDF	1.00	1.15	115			
1,2,3,4,6,7,8-HpCDD	1.00	0.96	95			
OCDF	2.00	1.88	94			
OCDD	2.00	2.18	106			

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 Spiked Sample Report

Client - HDR

Client's Sample ID	B-7-3-MSD		
Lab Sample ID	10653077021-MSD		
Filename	U230613A_10	Matrix	Solid
Total Amount Extracted	10.1 g	Dilution	5
ICAL ID	U230524	Extracted	06/07/2023 14:05
CCal Filename(s)	U230612B_16 & U230613A_17	Analyzed	06/13/2023 14:48
Method Blank ID	BLANK-106678	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.22	110 D	2,3,7,8-TCDF-13C	2.00	68 D
				2,3,7,8-TCDD-13C	2.00	59 D
				1,2,3,7,8-PeCDF-13C	2.00	84 D
2,3,7,8-TCDD	0.20	0.23	113 D	2,3,4,7,8-PeCDF-13C	2.00	87 D
				1,2,3,7,8-PeCDD-13C	2.00	85 D
				1,2,3,4,7,8-HxCDF-13C	2.00	72 D
1,2,3,7,8-PeCDF	1.00	1.06	106 D	1,2,3,6,7,8-HxCDF-13C	2.00	72 D
2,3,4,7,8-PeCDF	1.00	1.06	106 D	2,3,4,6,7,8-HxCDF-13C	2.00	69 D
				1,2,3,7,8,9-HxCDF-13C	2.00	67 D
				1,2,3,4,7,8-HxCDD-13C	2.00	66 D
1,2,3,7,8-PeCDD	1.00	0.98	98 D	1,2,3,6,7,8-HxCDD-13C	2.00	68 D
				1,2,3,4,6,7,8-HpCDF-13C	2.00	55 D
				1,2,3,4,7,8,9-HpCDF-13C	2.00	55 D
1,2,3,4,7,8-HxCDF	1.00	1.05	105 D	1,2,3,4,6,7,8-HpCDD-13C	2.00	55 D
1,2,3,6,7,8-HxCDF	1.00	1.11	111 D	OCDD-13C	4.00	52 D
2,3,4,6,7,8-HxCDF	1.00	1.10	110 D			
1,2,3,7,8,9-HxCDF	1.00	1.01	101 D	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 D	2,3,7,8-TCDD-37Cl4	0.20	61 D
1,2,3,6,7,8-HxCDD	1.00	1.08	108 D			
1,2,3,7,8,9-HxCDD	1.00	1.07	107 D			
1,2,3,4,6,7,8-HpCDF	1.00	1.01	101 D			
1,2,3,4,7,8,9-HpCDF	1.00	1.05	105 D			
1,2,3,4,6,7,8-HpCDD	1.00	0.97	96 D			
OCDF	2.00	2.45	123 D			
OCDD	2.00	2.37	116 D			

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.

D = Result obtained from analysis of diluted sample

## REPORT OF LABORATORY ANALYSIS

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**Method 8290 Spike Sample Results**

Client - HDR

Client Sample ID B-7-3  
 Lab Sample ID 10653077021  
 MS ID 10653077021-MS  
 MSD ID 10653077021-MSD

Sample Filename Y230609B\_06  
 MS Filename Y230609B\_02  
 MSD Filename U230613A\_10

Analyte	Quantity Spiked (ng)	Unspiked Sample Contribution		Quantity Measured		Subtracted Recovery	
		to MS (ng)	to MSD (ng)	MS (ng)	MSD (ng)	MS (%)	MSD (%)
2,3,7,8-TCDF	0.20	ND	ND	0.20	0.22	98	110
2,3,7,8-TCDD	0.20	ND	ND	0.21	0.23	105	113
1,2,3,7,8-PeCDF	1.00	ND	ND	0.97	1.06	97	106
2,3,4,7,8-PeCDF	1.00	ND	ND	0.96	1.06	96	106
1,2,3,7,8-PeCDD	1.00	ND	ND	0.91	0.98	91	98
1,2,3,4,7,8-HxCDF	1.00	ND	ND	0.96	1.05	96	105
1,2,3,6,7,8-HxCDF	1.00	ND	ND	0.99	1.11	99	111
2,3,4,6,7,8-HxCDF	1.00	ND	ND	1.01	1.10	101	110
1,2,3,7,8,9-HxCDF	1.00	ND	ND	0.97	1.01	97	101
1,2,3,4,7,8-HxCDD	1.00	ND	ND	1.04	1.01	104	101
1,2,3,6,7,8-HxCDD	1.00	ND	ND	0.96	1.08	96	108
1,2,3,7,8,9-HxCDD	1.00	ND	ND	0.93	1.07	93	107
1,2,3,4,6,7,8-HpCDF	1.00	ND	ND	0.97	1.01	97	101
1,2,3,4,7,8,9-HpCDF	1.00	ND	ND	1.15	1.05	115	105
1,2,3,4,6,7,8-HpCDD	1.00	0.0117	0.0113	0.96	0.97	95	96
OCDF	2.00	ND	ND	1.88	2.45	94	123
OCDD	2.00	0.0568	0.0549	2.18	2.37	106	116

Quantity Spiked - the amount of analyte spiked into the spiked samples  
 Unspiked Sample Contribution - calculated based on the amount found in the sample and the extracted amounts of the spiked and unspiked samples  
 Quantity Measured - the total amount of analyte measured in the spiked samples  
 RPD - the Relative Percent Difference of the spiked sample Quantity Measured values  
 Subtracted Recovery - calculated after subtracting the unspiked sample contribution

May 30, 2023

Clayton Mokri  
HDR  
2379 Gateway Oaks Drive  
Suite 200  
Sacramento, CA 95833

RE: Project: 10042464-183 MDT Missoula  
Pace Project No.: 10653080

Dear Clayton Mokri:

Enclosed are the analytical results for sample(s) received by the laboratory on May 12, 2023. 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,



Kongmeng Vang  
kongmeng.vang@pacelabs.com  
(612)607-1700  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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### **Pace Analytical Services, LLC - 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 Tribal Water Systems+Wyoming DW

Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

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

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

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

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10653080001	B-1-0	Solid	05/10/23 08:30	05/12/23 08:50
10653080002	B-1-1	Solid	05/10/23 08:32	05/12/23 08:50
10653080003	B-1-2	Solid	05/10/23 08:34	05/12/23 08:50
10653080004	B-2-0	Solid	05/10/23 08:50	05/12/23 08:50
10653080005	B-2-2	Solid	05/10/23 08:52	05/12/23 08:50
10653080006	B-2-3	Solid	05/10/23 08:54	05/12/23 08:50
10653080007	B-3-0	Solid	05/10/23 09:14	05/12/23 08:50
10653080008	B-3-1	Solid	05/10/23 09:16	05/12/23 08:50
10653080009	B-3-2	Solid	05/10/23 09:18	05/12/23 08:50
10653080010	B-4-0	Solid	05/10/23 09:38	05/12/23 08:50
10653080011	B-4-2	Solid	05/10/23 09:40	05/12/23 08:50
10653080012	B-4-3	Solid	05/10/23 09:42	05/12/23 08:50
10653080013	B-5-0	Solid	05/10/23 09:58	05/12/23 08:50
10653080014	B-5-2	Solid	05/10/23 10:00	05/12/23 08:50
10653080015	B-5-3	Solid	05/10/23 10:02	05/12/23 08:50
10653080016	B-6-0	Solid	05/10/23 10:25	05/12/23 08:50
10653080017	B-6-2	Solid	05/10/23 10:27	05/12/23 08:50
10653080018	B-6-3	Solid	05/10/23 10:29	05/12/23 08:50
10653080019	B-7-0	Solid	05/10/23 11:15	05/12/23 08:50
10653080020	B-7-2	Solid	05/10/23 11:17	05/12/23 08:50
10653080021	B-7-3	Solid	05/10/23 11:19	05/12/23 08:50
10653080022	B-8-0	Solid	05/10/23 10:50	05/12/23 08:50
10653080023	B-8-2	Solid	05/10/23 10:52	05/12/23 08:50
10653080024	B-8-3	Solid	05/10/23 10:54	05/12/23 08:50
10653080025	B-9-0	Solid	05/10/23 12:18	05/12/23 08:50
10653080026	B-9-3	Solid	05/10/23 12:20	05/12/23 08:50
10653080027	B-10-0	Solid	05/10/23 12:00	05/12/23 08:50
10653080028	B-10-3	Solid	05/10/23 12:02	05/12/23 08:50

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10653080001	B-1-0	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080002	B-1-1	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080003	B-1-2	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080004	B-2-0	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080005	B-2-2	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080006	B-2-3	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080007	B-3-0	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080008	B-3-1	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080009	B-3-2	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080010	B-4-0	EPA 8082A	RAG	9

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10653080011	B-4-2	EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080012	B-4-3	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
10653080013	B-5-0	ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080014	B-5-2	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
10653080015	B-5-3	EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080016	B-6-0	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
10653080017	B-6-2	ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
10653080018	B-6-3	EPA 8082A	RAG	9
		EPA 6010D	IP	16
		EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
10653080019	B-7-0	EPA 6010D	IP	16
		EPA 8082A	RAG	9
		ASTM D2974	JDL	1

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10653080020	B-7-2	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080021	B-7-3	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080022	B-8-0	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080023	B-8-2	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080024	B-8-3	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080025	B-9-0	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080026	B-9-3	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080027	B-10-0	EPA 7471B	LMW	1
		ASTM D2974	JDL	1
		EPA 8082A	RAG	9
		EPA 6010D	IP	16
10653080028	B-10-3	EPA 7471B	LMW	1
		EPA 6010D	IP	16
		EPA 8082A	RAG	9

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### SAMPLE ANALYTE COUNT

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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Lab ID	Sample ID	Method	Analysts	Analytes Reported
		ASTM D2974	JDL	1

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PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-1-0**      **Lab ID: 10653080001**      Collected: 05/10/23 08:30      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	11097-69-1	
PCB-1260 (Aroclor 1260)	<b>46.3J</b>	ug/kg	59.1	1	05/17/23 14:28	05/18/23 13:37	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	88	%	46-125	1	05/17/23 14:28	05/18/23 13:37	877-09-8	
Decachlorobiphenyl (S)	82	%	30-125	1	05/17/23 14:28	05/18/23 13:37	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>10700</b>	mg/kg	11.7	1	05/23/23 12:24	05/28/23 11:55	7429-90-5	P6
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 11:55	7440-36-0	M1
Arsenic	<b>2.4</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 11:55	7440-38-2	
Barium	<b>126</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7440-39-3	M1
Beryllium	<b>0.16J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 11:55	7440-41-7	
Cadmium	<b>0.17J</b>	mg/kg	0.18	1	05/23/23 12:24	05/28/23 11:55	7440-43-9	
Chromium	<b>9.2</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7440-47-3	
Cobalt	<b>4.1</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7440-48-4	
Iron	<b>13400</b>	mg/kg	29.3	5	05/23/23 12:24	05/28/23 12:52	7439-89-6	P6
Lead	<b>8.8</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7439-92-1	
Manganese	<b>224</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7439-96-5	M1
Molybdenum	<b>0.69J</b>	mg/kg	0.88	1	05/23/23 12:24	05/28/23 11:55	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 11:55	7782-49-2	M1
Silver	ND	mg/kg	0.59	1	05/23/23 12:24	05/28/23 11:55	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 11:55	7440-28-0	
Vanadium	<b>12.3</b>	mg/kg	0.88	1	05/23/23 12:24	05/28/23 11:55	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.010J</b>	mg/kg	0.023	1	05/23/23 12:36	05/25/23 13:34	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>18.3</b>	%	0.10	1		05/17/23 14:42		N2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-1-1**      **Lab ID: 10653080002**      Collected: 05/10/23 08:32      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	54.1	1	05/17/23 14:28	05/18/23 14:25	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	89	%	46-125	1	05/17/23 14:28	05/18/23 14:25	877-09-8	
Decachlorobiphenyl (S)	84	%	30-125	1	05/17/23 14:28	05/18/23 14:25	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>3450</b>	mg/kg	10.4	1	05/23/23 12:24	05/28/23 12:04	7429-90-5	
Antimony	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 12:04	7440-36-0	
Arsenic	<b>1.4</b>	mg/kg	1.0	1	05/23/23 12:24	05/28/23 12:04	7440-38-2	
Barium	<b>41.1</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7440-39-3	
Beryllium	<b>0.019J</b>	mg/kg	0.26	1	05/23/23 12:24	05/28/23 12:04	7440-41-7	
Cadmium	<b>0.074J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:04	7440-43-9	
Chromium	<b>4.9</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7440-47-3	
Cobalt	<b>2.1</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7440-48-4	
Iron	<b>4930</b>	mg/kg	5.2	1	05/23/23 12:24	05/28/23 12:04	7439-89-6	
Lead	<b>4.4</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7439-92-1	
Manganese	<b>130</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7439-96-5	
Molybdenum	<b>0.71J</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 12:04	7439-98-7	
Selenium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 12:04	7782-49-2	
Silver	ND	mg/kg	0.52	1	05/23/23 12:24	05/28/23 12:04	7440-22-4	
Thallium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 12:04	7440-28-0	
Vanadium	<b>5.7</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 12:04	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.021	1	05/23/23 12:36	05/25/23 13:40	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>8.2</b>	%	0.10	1		05/17/23 14:42		N2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-1-2**      **Lab ID: 10653080003**      Collected: 05/10/23 08:34      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	12672-29-6	
PCB-1254 (Aroclor 1254)	<b>103</b>	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	11097-69-1	
PCB-1260 (Aroclor 1260)	<b>70.0</b>	ug/kg	59.8	1	05/17/23 14:28	05/18/23 14:41	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	90	%	46-125	1	05/17/23 14:28	05/18/23 14:41	877-09-8	
Decachlorobiphenyl (S)	86	%	30-125	1	05/17/23 14:28	05/18/23 14:41	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B  
Pace Analytical Services - Minneapolis

Aluminum	<b>15400</b>	mg/kg	11.7	1	05/23/23 12:24	05/28/23 12:05	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:05	7440-36-0	
Arsenic	<b>3.8</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:05	7440-38-2	
Barium	<b>199</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7440-39-3	
Beryllium	<b>0.30</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 12:05	7440-41-7	
Cadmium	<b>0.23</b>	mg/kg	0.18	1	05/23/23 12:24	05/28/23 12:05	7440-43-9	
Chromium	<b>13.9</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7440-47-3	
Cobalt	<b>5.8</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7440-48-4	
Iron	<b>21100</b>	mg/kg	29.3	5	05/23/23 12:24	05/28/23 13:00	7439-89-6	
Lead	<b>14.6</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7439-92-1	
Manganese	<b>208</b>	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7439-96-5	
Molybdenum	<b>0.49J</b>	mg/kg	0.88	1	05/23/23 12:24	05/28/23 12:05	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:05	7782-49-2	
Silver	ND	mg/kg	0.59	1	05/23/23 12:24	05/28/23 12:05	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:05	7440-28-0	
Vanadium	<b>18.4</b>	mg/kg	0.88	1	05/23/23 12:24	05/28/23 12:05	7440-62-2	

**7471B Mercury**

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

Mercury	<b>0.020J</b>	mg/kg	0.024	1	05/23/23 12:36	05/25/23 13:42	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>19.9</b>	%	0.10	1		05/17/23 15:22		N2
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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-2-0**      **Lab ID: 10653080004**      Collected: 05/10/23 08:50      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 14:57	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	89	%	46-125	1	05/17/23 14:28	05/18/23 14:57	877-09-8	
Decachlorobiphenyl (S)	83	%	30-125	1	05/17/23 14:28	05/18/23 14:57	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>8120</b>	mg/kg	11.3	1	05/23/23 12:24	05/28/23 12:07	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:07	7440-36-0	
Arsenic	<b>2.5</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:07	7440-38-2	
Barium	<b>174</b>	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7440-39-3	
Beryllium	<b>0.056J</b>	mg/kg	0.28	1	05/23/23 12:24	05/28/23 12:07	7440-41-7	
Cadmium	<b>0.28</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:07	7440-43-9	
Chromium	<b>8.9</b>	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7440-47-3	
Cobalt	<b>4.6</b>	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7440-48-4	
Iron	<b>9060</b>	mg/kg	5.6	1	05/23/23 12:24	05/28/23 12:07	7439-89-6	
Lead	<b>13.8</b>	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7439-92-1	
Manganese	<b>436</b>	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7439-96-5	
Molybdenum	<b>0.55J</b>	mg/kg	0.84	1	05/23/23 12:24	05/28/23 12:07	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:07	7782-49-2	
Silver	ND	mg/kg	0.56	1	05/23/23 12:24	05/28/23 12:07	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:07	7440-28-0	
Vanadium	<b>12.3</b>	mg/kg	0.84	1	05/23/23 12:24	05/28/23 12:07	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.014J</b>	mg/kg	0.024	1	05/23/23 12:36	05/25/23 13:43	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>17.7</b>	%	0.10	1		05/17/23 15:22		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-2-2**      **Lab ID: 10653080005**      Collected: 05/10/23 08:52      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	52.2	1	05/17/23 14:28	05/18/23 15:12	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	90	%	46-125	1	05/17/23 14:28	05/18/23 15:12	877-09-8	
Decachlorobiphenyl (S)	88	%	30-125	1	05/17/23 14:28	05/18/23 15:12	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>7510</b>	mg/kg	10.6	1	05/23/23 12:24	05/28/23 12:09	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:09	7440-36-0	
Arsenic	<b>2.2</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:09	7440-38-2	
Barium	<b>117</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7440-39-3	
Beryllium	<b>0.11J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 12:09	7440-41-7	
Cadmium	<b>0.12J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:09	7440-43-9	
Chromium	<b>8.4</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7440-47-3	
Cobalt	<b>3.3</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7440-48-4	
Iron	<b>8770</b>	mg/kg	5.3	1	05/23/23 12:24	05/28/23 12:09	7439-89-6	
Lead	<b>5.4</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7439-92-1	
Manganese	<b>175</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7439-96-5	
Molybdenum	<b>0.61J</b>	mg/kg	0.80	1	05/23/23 12:24	05/28/23 12:09	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:09	7782-49-2	
Silver	ND	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:09	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:09	7440-28-0	
Vanadium	<b>12.0</b>	mg/kg	0.80	1	05/23/23 12:24	05/28/23 12:09	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.0097J</b>	mg/kg	0.021	1	05/23/23 12:36	05/25/23 13:59	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>8.4</b>	%	0.10	1		05/17/23 15:23		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-2-3**      **Lab ID: 10653080006**      Collected: 05/10/23 08:54      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	57.4	1	05/17/23 14:28	05/18/23 15:28	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	90	%	46-125	1	05/17/23 14:28	05/18/23 15:28	877-09-8	
Decachlorobiphenyl (S)	88	%	30-125	1	05/17/23 14:28	05/18/23 15:28	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>11700</b>	mg/kg	11.0	1	05/23/23 12:24	05/28/23 12:10	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:10	7440-36-0	
Arsenic	<b>2.6</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:10	7440-38-2	
Barium	<b>155</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7440-39-3	
Beryllium	<b>0.20J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 12:10	7440-41-7	
Cadmium	<b>0.23</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:10	7440-43-9	
Chromium	<b>10.7</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7440-47-3	
Cobalt	<b>5.3</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7440-48-4	
Iron	<b>15900</b>	mg/kg	27.4	5	05/23/23 12:24	05/28/23 13:08	7439-89-6	
Lead	<b>9.5</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7439-92-1	
Manganese	<b>533</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7439-96-5	
Molybdenum	<b>1.2</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:10	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:10	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:10	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:10	7440-28-0	
Vanadium	<b>14.7</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:10	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.015J</b>	mg/kg	0.022	1	05/23/23 12:36	05/25/23 14:01	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>16.9</b>	%	0.10	1		05/17/23 15:23		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-3-0**      **Lab ID: 10653080007**      Collected: 05/10/23 09:14      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.5	1	05/17/23 14:28	05/18/23 15:44	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	92	%	46-125	1	05/17/23 14:28	05/18/23 15:44	877-09-8	
Decachlorobiphenyl (S)	87	%	30-125	1	05/17/23 14:28	05/18/23 15:44	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>4590</b>	mg/kg	11.6	1	05/23/23 12:24	05/28/23 12:15	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:15	7440-36-0	
Arsenic	<b>1.4</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:15	7440-38-2	
Barium	<b>242</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7440-39-3	
Beryllium	<b>0.023J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 12:15	7440-41-7	
Cadmium	<b>0.16J</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:15	7440-43-9	
Chromium	<b>6.7</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7440-47-3	
Cobalt	<b>3.4</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7440-48-4	
Iron	<b>6620</b>	mg/kg	5.8	1	05/23/23 12:24	05/28/23 12:15	7439-89-6	
Lead	<b>18.0</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7439-92-1	
Manganese	<b>308</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7439-96-5	
Molybdenum	<b>0.73J</b>	mg/kg	0.87	1	05/23/23 12:24	05/28/23 12:15	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:15	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:15	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:15	7440-28-0	
Vanadium	<b>6.1</b>	mg/kg	0.87	1	05/23/23 12:24	05/28/23 12:15	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.011J</b>	mg/kg	0.022	1	05/23/23 12:36	05/25/23 14:03	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>17.2</b>	%	0.10	1		05/17/23 15:23		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-3-1**      **Lab ID: 10653080008**      Collected: 05/10/23 09:16      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	12672-29-6	
PCB-1254 (Aroclor 1254)	<b>86.7</b>	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	11097-69-1	
PCB-1260 (Aroclor 1260)	<b>53.7J</b>	ug/kg	61.4	1	05/17/23 14:28	05/18/23 16:00	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	90	%	46-125	1	05/17/23 14:28	05/18/23 16:00	877-09-8	
Decachlorobiphenyl (S)	85	%	30-125	1	05/17/23 14:28	05/18/23 16:00	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>11100</b>	mg/kg	12.0	1	05/23/23 12:24	05/28/23 12:17	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:17	7440-36-0	
Arsenic	<b>2.9</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:17	7440-38-2	
Barium	<b>172</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7440-39-3	
Beryllium	<b>0.22J</b>	mg/kg	0.30	1	05/23/23 12:24	05/28/23 12:17	7440-41-7	
Cadmium	<b>0.26</b>	mg/kg	0.18	1	05/23/23 12:24	05/28/23 12:17	7440-43-9	
Chromium	<b>9.7</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7440-47-3	
Cobalt	<b>4.5</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7440-48-4	
Iron	<b>10300</b>	mg/kg	6.0	1	05/23/23 12:24	05/28/23 12:17	7439-89-6	
Lead	<b>19.5</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7439-92-1	
Manganese	<b>247</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7439-96-5	
Molybdenum	<b>0.56J</b>	mg/kg	0.90	1	05/23/23 12:24	05/28/23 12:17	7439-98-7	
Selenium	<b>0.46J</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:17	7782-49-2	
Silver	ND	mg/kg	0.60	1	05/23/23 12:24	05/28/23 12:17	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:17	7440-28-0	
Vanadium	<b>10.7</b>	mg/kg	0.90	1	05/23/23 12:24	05/28/23 12:17	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.024</b>	mg/kg	0.023	1	05/23/23 12:36	05/25/23 14:04	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>19.8</b>	%	0.10	1		05/17/23 15:23		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-3-2**      **Lab ID: 10653080009**      Collected: 05/10/23 09:18      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	68.6	1	05/17/23 14:28	05/18/23 16:16	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	46-125	1	05/17/23 14:28	05/18/23 16:16	877-09-8	
Decachlorobiphenyl (S)	84	%	30-125	1	05/17/23 14:28	05/18/23 16:16	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>17800</b>	mg/kg	14.1	1	05/23/23 12:24	05/28/23 12:19	7429-90-5	
Antimony	ND	mg/kg	1.4	1	05/23/23 12:24	05/28/23 12:19	7440-36-0	
Arsenic	<b>1.1J</b>	mg/kg	1.4	1	05/23/23 12:24	05/28/23 12:19	7440-38-2	
Barium	<b>210</b>	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7440-39-3	
Beryllium	<b>0.29J</b>	mg/kg	0.35	1	05/23/23 12:24	05/28/23 12:19	7440-41-7	
Cadmium	<b>0.18J</b>	mg/kg	0.21	1	05/23/23 12:24	05/28/23 12:19	7440-43-9	
Chromium	<b>8.4</b>	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7440-47-3	
Cobalt	<b>4.3</b>	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7440-48-4	
Iron	<b>12000</b>	mg/kg	7.0	1	05/23/23 12:24	05/28/23 12:19	7439-89-6	
Lead	<b>7.4</b>	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7439-92-1	
Manganese	<b>174</b>	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7439-96-5	
Molybdenum	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:19	7439-98-7	
Selenium	ND	mg/kg	1.4	1	05/23/23 12:24	05/28/23 12:19	7782-49-2	
Silver	ND	mg/kg	0.70	1	05/23/23 12:24	05/28/23 12:19	7440-22-4	
Thallium	ND	mg/kg	1.4	1	05/23/23 12:24	05/28/23 12:19	7440-28-0	
Vanadium	<b>9.5</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:19	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.025	1	05/23/23 12:36	05/25/23 14:06	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>29.1</b>	%	0.10	1		05/17/23 15:24		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-4-0**      **Lab ID: 10653080010**      Collected: 05/10/23 09:38      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	55.2	1	05/17/23 14:28	05/18/23 16:31	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	90	%	46-125	1	05/17/23 14:28	05/18/23 16:31	877-09-8	
Decachlorobiphenyl (S)	87	%	30-125	1	05/17/23 14:28	05/18/23 16:31	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>5010</b>	mg/kg	11.1	1	05/23/23 12:24	05/28/23 12:20	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:20	7440-36-0	
Arsenic	<b>1.3</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:20	7440-38-2	
Barium	<b>306</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7440-39-3	
Beryllium	<b>0.015J</b>	mg/kg	0.28	1	05/23/23 12:24	05/28/23 12:20	7440-41-7	
Cadmium	<b>0.19</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:20	7440-43-9	
Chromium	<b>6.8</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7440-47-3	
Cobalt	<b>2.8</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7440-48-4	
Iron	<b>7360</b>	mg/kg	5.5	1	05/23/23 12:24	05/28/23 12:20	7439-89-6	
Lead	<b>16.7</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7439-92-1	
Manganese	<b>199</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7439-96-5	
Molybdenum	<b>0.36J</b>	mg/kg	0.83	1	05/23/23 12:24	05/28/23 12:20	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:20	7782-49-2	
Silver	<b>0.12J</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:20	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:20	7440-28-0	
Vanadium	<b>7.2</b>	mg/kg	0.83	1	05/23/23 12:24	05/28/23 12:20	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.022	1	05/23/23 12:36	05/25/23 14:08	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>11.0</b>	%	0.10	1		05/17/23 15:24		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-4-2**      **Lab ID: 10653080011**      Collected: 05/10/23 09:40      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546

Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 16:47	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	88	%	46-125	1	05/17/23 14:28	05/18/23 16:47	877-09-8	
Decachlorobiphenyl (S)	86	%	30-125	1	05/17/23 14:28	05/18/23 16:47	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B

Pace Analytical Services - Minneapolis

Aluminum	<b>12200</b>	mg/kg	11.4	1	05/23/23 12:24	05/28/23 12:22	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:22	7440-36-0	
Arsenic	<b>2.4</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:22	7440-38-2	
Barium	<b>189</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7440-39-3	
Beryllium	<b>0.22J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 12:22	7440-41-7	
Cadmium	<b>0.20</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:22	7440-43-9	
Chromium	<b>9.5</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7440-47-3	
Cobalt	<b>4.7</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7440-48-4	
Iron	<b>15100</b>	mg/kg	28.6	5	05/23/23 12:24	05/28/23 13:10	7439-89-6	
Lead	<b>11.0</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7439-92-1	
Manganese	<b>239</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7439-96-5	
Molybdenum	<b>0.34J</b>	mg/kg	0.86	1	05/23/23 12:24	05/28/23 12:22	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:22	7782-49-2	
Silver	ND	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:22	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:22	7440-28-0	
Vanadium	<b>14.1</b>	mg/kg	0.86	1	05/23/23 12:24	05/28/23 12:22	7440-62-2	

**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B

Pace Analytical Services - Minneapolis

Mercury	<b>0.015J</b>	mg/kg	0.021	1	05/23/23 12:36	05/25/23 14:09	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974

Pace Analytical Services - Minneapolis

Percent Moisture	<b>17.2</b>	%	0.10	1	05/17/23 15:24		N2	
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### ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-4-3**      **Lab ID: 10653080012**      Collected: 05/10/23 09:42      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.4	1	05/17/23 14:28	05/18/23 17:03	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	86	%	46-125	1	05/17/23 14:28	05/18/23 17:03	877-09-8	
Decachlorobiphenyl (S)	84	%	30-125	1	05/17/23 14:28	05/18/23 17:03	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B  
Pace Analytical Services - Minneapolis

Aluminum	<b>10900</b>	mg/kg	10.9	1	05/23/23 12:24	05/28/23 12:24	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:24	7440-36-0	
Arsenic	<b>4.8</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:24	7440-38-2	
Barium	<b>190</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7440-39-3	
Beryllium	<b>0.23J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 12:24	7440-41-7	
Cadmium	<b>0.15J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:24	7440-43-9	
Chromium	<b>10.1</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7440-47-3	
Cobalt	<b>4.8</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7440-48-4	
Iron	<b>14800</b>	mg/kg	27.3	5	05/23/23 12:24	05/28/23 13:12	7439-89-6	
Lead	<b>7.9</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7439-92-1	
Manganese	<b>196</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7439-96-5	
Molybdenum	ND	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:24	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:24	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:24	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:24	7440-28-0	
Vanadium	<b>18.2</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:24	7440-62-2	

**7471B Mercury**

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

Mercury	<b>0.019J</b>	mg/kg	0.023	1	05/23/23 12:36	05/25/23 14:11	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>16.5</b>	%	0.10	1		05/17/23 15:24		N2
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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-5-0**      **Lab ID: 10653080013**      Collected: 05/10/23 09:58      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	54.9	1	05/17/23 14:28	05/18/23 17:51	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	89	%	46-125	1	05/17/23 14:28	05/18/23 17:51	877-09-8	
Decachlorobiphenyl (S)	71	%	30-125	1	05/17/23 14:28	05/18/23 17:51	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>5290</b>	mg/kg	10.5	1	05/23/23 12:24	05/28/23 12:26	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:26	7440-36-0	
Arsenic	<b>2.1</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:26	7440-38-2	
Barium	<b>94.1</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7440-39-3	
Beryllium	ND	mg/kg	0.26	1	05/23/23 12:24	05/28/23 12:26	7440-41-7	
Cadmium	<b>0.14J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:26	7440-43-9	
Chromium	<b>11.8</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7440-47-3	
Cobalt	<b>3.8</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7440-48-4	
Iron	<b>12100</b>	mg/kg	26.3	5	05/23/23 12:24	05/28/23 13:13	7439-89-6	
Lead	<b>8.8</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7439-92-1	
Manganese	<b>206</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7439-96-5	
Molybdenum	<b>0.92</b>	mg/kg	0.79	1	05/23/23 12:24	05/28/23 12:26	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:26	7782-49-2	
Silver	ND	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:26	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:26	7440-28-0	
Vanadium	<b>15.4</b>	mg/kg	0.79	1	05/23/23 12:24	05/28/23 12:26	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.014J</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 14:16	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>10.3</b>	%	0.10	1		05/17/23 15:24		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-5-2**      **Lab ID: 10653080014**      Collected: 05/10/23 10:00      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	57.8	1	05/17/23 14:28	05/18/23 18:06	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	87	%	46-125	1	05/17/23 14:28	05/18/23 18:06	877-09-8	
Decachlorobiphenyl (S)	71	%	30-125	1	05/17/23 14:28	05/18/23 18:06	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>11800</b>	mg/kg	11.5	1	05/23/23 12:24	05/28/23 12:27	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:27	7440-36-0	
Arsenic	<b>1.4</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:27	7440-38-2	
Barium	<b>175</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7440-39-3	
Beryllium	<b>0.15J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 12:27	7440-41-7	
Cadmium	<b>0.15J</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:27	7440-43-9	
Chromium	<b>8.0</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7440-47-3	
Cobalt	<b>4.0</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7440-48-4	
Iron	<b>10100</b>	mg/kg	5.7	1	05/23/23 12:24	05/28/23 12:27	7439-89-6	
Lead	<b>7.4</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7439-92-1	
Manganese	<b>250</b>	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7439-96-5	
Molybdenum	ND	mg/kg	0.86	1	05/23/23 12:24	05/28/23 12:27	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:27	7782-49-2	
Silver	ND	mg/kg	0.57	1	05/23/23 12:24	05/28/23 12:27	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:27	7440-28-0	
Vanadium	<b>10.7</b>	mg/kg	0.86	1	05/23/23 12:24	05/28/23 12:27	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.015J</b>	mg/kg	0.021	1	05/23/23 12:36	05/25/23 14:17	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>16.1</b>	%	0.10	1		05/17/23 15:25		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-5-3**      **Lab ID: 10653080015**      Collected: 05/10/23 10:02      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	56.4	1	05/17/23 14:28	05/18/23 18:22	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	83	%	46-125	1	05/17/23 14:28	05/18/23 18:22	877-09-8	
Decachlorobiphenyl (S)	77	%	30-125	1	05/17/23 14:28	05/18/23 18:22	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>8880</b>	mg/kg	10.9	1	05/23/23 12:24	05/28/23 12:29	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:29	7440-36-0	
Arsenic	<b>2.1</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:29	7440-38-2	
Barium	<b>140</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7440-39-3	
Beryllium	<b>0.10J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 12:29	7440-41-7	
Cadmium	<b>0.14J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:29	7440-43-9	
Chromium	<b>7.5</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7440-47-3	
Cobalt	<b>3.3</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7440-48-4	
Iron	<b>9530</b>	mg/kg	5.5	1	05/23/23 12:24	05/28/23 12:29	7439-89-6	
Lead	<b>10.3</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7439-92-1	
Manganese	<b>195</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7439-96-5	
Molybdenum	<b>0.40J</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:29	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:29	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/23/23 12:24	05/28/23 12:29	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:29	7440-28-0	
Vanadium	<b>9.5</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 12:29	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.013J</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 14:19	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>13.0</b>	%	0.10	1		05/17/23 15:25		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-6-0**      **Lab ID: 10653080016**      Collected: 05/10/23 10:25      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	62.3	1	05/17/23 14:28	05/18/23 18:38	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	76	%	46-125	1	05/17/23 14:28	05/18/23 18:38	877-09-8	
Decachlorobiphenyl (S)	77	%	30-125	1	05/17/23 14:28	05/18/23 18:38	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>15700</b>	mg/kg	12.1	1	05/23/23 12:24	05/28/23 12:31	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:31	7440-36-0	
Arsenic	<b>3.0</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:31	7440-38-2	
Barium	<b>253</b>	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7440-39-3	
Beryllium	<b>0.23J</b>	mg/kg	0.30	1	05/23/23 12:24	05/28/23 12:31	7440-41-7	
Cadmium	<b>0.19</b>	mg/kg	0.18	1	05/23/23 12:24	05/28/23 12:31	7440-43-9	
Chromium	<b>10.1</b>	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7440-47-3	
Cobalt	<b>5.5</b>	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7440-48-4	
Iron	<b>17900</b>	mg/kg	30.3	5	05/23/23 12:24	05/28/23 13:15	7439-89-6	
Lead	<b>9.3</b>	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7439-92-1	
Manganese	<b>334</b>	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7439-96-5	
Molybdenum	<b>0.47J</b>	mg/kg	0.91	1	05/23/23 12:24	05/28/23 12:31	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:31	7782-49-2	
Silver	ND	mg/kg	0.61	1	05/23/23 12:24	05/28/23 12:31	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:31	7440-28-0	
Vanadium	<b>14.5</b>	mg/kg	0.91	1	05/23/23 12:24	05/28/23 12:31	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.012J</b>	mg/kg	0.025	1	05/23/23 12:36	05/25/23 14:21	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>22.9</b>	%	0.10	1		05/17/23 15:25		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-6-2**      **Lab ID: 10653080017**      Collected: 05/10/23 10:27      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	57.2	1	05/17/23 14:28	05/18/23 18:54	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	46-125	1	05/17/23 14:28	05/18/23 18:54	877-09-8	
Decachlorobiphenyl (S)	79	%	30-125	1	05/17/23 14:28	05/18/23 18:54	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>18100</b>	mg/kg	23.1	2	05/23/23 12:24	05/28/23 13:17	7429-90-5	
Antimony	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:17	7440-36-0	D3
Arsenic	<b>2.8</b>	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:17	7440-38-2	
Barium	<b>280</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7440-39-3	
Beryllium	<b>0.33J</b>	mg/kg	0.58	2	05/23/23 12:24	05/28/23 13:17	7440-41-7	D3
Cadmium	<b>0.20J</b>	mg/kg	0.35	2	05/23/23 12:24	05/28/23 13:17	7440-43-9	D3
Chromium	<b>14.8</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7440-47-3	
Cobalt	<b>9.4</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7440-48-4	
Iron	<b>17300</b>	mg/kg	11.5	2	05/23/23 12:24	05/28/23 13:17	7439-89-6	
Lead	<b>12.1</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7439-92-1	
Manganese	<b>821</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7439-96-5	
Molybdenum	<b>0.75J</b>	mg/kg	1.7	2	05/23/23 12:24	05/28/23 13:17	7439-98-7	D3
Selenium	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:17	7782-49-2	D3
Silver	ND	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:17	7440-22-4	D3
Thallium	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:17	7440-28-0	D3
Vanadium	<b>18.3</b>	mg/kg	1.7	2	05/23/23 12:24	05/28/23 13:17	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.020</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 14:22	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>13.9</b>	%	0.10	1		05/17/23 15:25		N2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-6-3**      **Lab ID: 10653080018**      Collected: 05/10/23 10:29      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546

Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	58.7	1	05/17/23 14:28	05/18/23 19:10	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	82	%	46-125	1	05/17/23 14:28	05/18/23 19:10	877-09-8	
Decachlorobiphenyl (S)	79	%	30-125	1	05/17/23 14:28	05/18/23 19:10	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B

Pace Analytical Services - Minneapolis

Aluminum	<b>17900</b>	mg/kg	23.2	2	05/23/23 12:24	05/28/23 13:18	7429-90-5	
Antimony	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:18	7440-36-0	D3
Arsenic	<b>1.5J</b>	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:18	7440-38-2	D3
Barium	<b>260</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7440-39-3	
Beryllium	<b>0.28J</b>	mg/kg	0.58	2	05/23/23 12:24	05/28/23 13:18	7440-41-7	D3
Cadmium	<b>0.088J</b>	mg/kg	0.35	2	05/23/23 12:24	05/28/23 13:18	7440-43-9	D3
Chromium	<b>15.6</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7440-47-3	
Cobalt	<b>4.6</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7440-48-4	
Iron	<b>17100</b>	mg/kg	11.6	2	05/23/23 12:24	05/28/23 13:18	7439-89-6	
Lead	<b>9.2</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7439-92-1	
Manganese	<b>168</b>	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7439-96-5	
Molybdenum	ND	mg/kg	1.7	2	05/23/23 12:24	05/28/23 13:18	7439-98-7	D3
Selenium	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:18	7782-49-2	D3
Silver	ND	mg/kg	1.2	2	05/23/23 12:24	05/28/23 13:18	7440-22-4	D3
Thallium	ND	mg/kg	2.3	2	05/23/23 12:24	05/28/23 13:18	7440-28-0	D3
Vanadium	<b>16.6</b>	mg/kg	1.7	2	05/23/23 12:24	05/28/23 13:18	7440-62-2	

**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B

Pace Analytical Services - Minneapolis

Mercury	<b>0.029</b>	mg/kg	0.024	1	05/23/23 12:36	05/25/23 14:24	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974

Pace Analytical Services - Minneapolis

Percent Moisture	<b>18.4</b>	%	0.10	1		05/17/23 15:25		N2
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### ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-7-0**      **Lab ID: 10653080019**      Collected: 05/10/23 11:15      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	57.5	1	05/17/23 14:28	05/18/23 19:26	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	46-125	1	05/17/23 14:28	05/18/23 19:26	877-09-8	
Decachlorobiphenyl (S)	80	%	30-125	1	05/17/23 14:28	05/18/23 19:26	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>8640</b>	mg/kg	10.6	1	05/23/23 12:24	05/28/23 12:47	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:47	7440-36-0	
Arsenic	<b>2.0</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:47	7440-38-2	
Barium	<b>125</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7440-39-3	
Beryllium	<b>0.12J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 12:47	7440-41-7	
Cadmium	<b>0.097J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 12:47	7440-43-9	
Chromium	<b>8.2</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7440-47-3	
Cobalt	<b>3.6</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7440-48-4	
Iron	<b>9160</b>	mg/kg	5.3	1	05/23/23 12:24	05/28/23 12:47	7439-89-6	
Lead	<b>5.9</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7439-92-1	
Manganese	<b>163</b>	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7439-96-5	
Molybdenum	<b>0.28J</b>	mg/kg	0.80	1	05/23/23 12:24	05/28/23 12:47	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:47	7782-49-2	
Silver	ND	mg/kg	0.53	1	05/23/23 12:24	05/28/23 12:47	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 12:47	7440-28-0	
Vanadium	<b>12.7</b>	mg/kg	0.80	1	05/23/23 12:24	05/28/23 12:47	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.012J</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 14:25	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>14.0</b>	%	0.10	1		05/17/23 15:26		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-7-2**      **Lab ID: 10653080020**      Collected: 05/10/23 11:17      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.0	1	05/17/23 14:28	05/18/23 19:42	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	83	%	46-125	1	05/17/23 14:28	05/18/23 19:42	877-09-8	
Decachlorobiphenyl (S)	80	%	30-125	1	05/17/23 14:28	05/18/23 19:42	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>13900</b>	mg/kg	11.7	1	05/23/23 12:24	05/28/23 12:50	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:50	7440-36-0	
Arsenic	<b>3.0</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:50	7440-38-2	
Barium	<b>204</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7440-39-3	
Beryllium	<b>0.24J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 12:50	7440-41-7	
Cadmium	<b>0.17J</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 12:50	7440-43-9	
Chromium	<b>11.6</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7440-47-3	
Cobalt	<b>5.0</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7440-48-4	
Iron	<b>18200</b>	mg/kg	29.1	5	05/23/23 12:24	05/28/23 13:20	7439-89-6	
Lead	<b>8.9</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7439-92-1	
Manganese	<b>298</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7439-96-5	
Molybdenum	ND	mg/kg	0.87	1	05/23/23 12:24	05/28/23 12:50	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:50	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/23/23 12:24	05/28/23 12:50	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 12:50	7440-28-0	
Vanadium	<b>15.7</b>	mg/kg	0.87	1	05/23/23 12:24	05/28/23 12:50	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.022</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 14:27	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>16.1</b>	%	0.10	1		05/17/23 15:26		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-7-3**      **Lab ID: 10653080021**      Collected: 05/10/23 11:19      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	53.8	1	05/17/23 16:57	05/18/23 21:33	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	82	%	46-125	1	05/17/23 16:57	05/18/23 21:33	877-09-8	
Decachlorobiphenyl (S)	69	%	30-125	1	05/17/23 16:57	05/18/23 21:33	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>8380</b>	mg/kg	10.5	1	05/23/23 12:24	05/28/23 13:32	7429-90-5	P6
Antimony	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:32	7440-36-0	M1
Arsenic	<b>2.1</b>	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:32	7440-38-2	
Barium	<b>119</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7440-39-3	M1
Beryllium	<b>0.17J</b>	mg/kg	0.26	1	05/23/23 12:24	05/28/23 13:32	7440-41-7	
Cadmium	<b>0.12J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 13:32	7440-43-9	
Chromium	<b>8.0</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7440-47-3	
Cobalt	<b>3.6</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7440-48-4	
Iron	<b>10500</b>	mg/kg	10.5	2	05/23/23 12:24	05/28/23 14:02	7439-89-6	P6
Lead	<b>5.7</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7439-92-1	
Manganese	<b>167</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7439-96-5	M1,R1
Molybdenum	<b>0.56J</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 13:32	7439-98-7	
Selenium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:32	7782-49-2	M1
Silver	ND	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:32	7440-22-4	
Thallium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:32	7440-28-0	
Vanadium	<b>12.5</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 13:32	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.011J</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 12:32	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>8.1</b>	%	0.10	1		05/18/23 10:19		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-8-0**      **Lab ID: 10653080022**      Collected: 05/10/23 10:50      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	55.7	1	05/17/23 16:57	05/18/23 22:20	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	85	%	46-125	1	05/17/23 16:57	05/18/23 22:20	877-09-8	
Decachlorobiphenyl (S)	80	%	30-125	1	05/17/23 16:57	05/18/23 22:20	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>10300</b>	mg/kg	10.4	1	05/23/23 12:24	05/28/23 13:40	7429-90-5	
Antimony	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:40	7440-36-0	
Arsenic	<b>2.2</b>	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:40	7440-38-2	
Barium	<b>154</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7440-39-3	
Beryllium	<b>0.16J</b>	mg/kg	0.26	1	05/23/23 12:24	05/28/23 13:40	7440-41-7	
Cadmium	<b>0.16</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 13:40	7440-43-9	
Chromium	<b>9.1</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7440-47-3	
Cobalt	<b>4.9</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7440-48-4	
Iron	<b>13100</b>	mg/kg	26.1	5	05/23/23 12:24	05/28/23 14:10	7439-89-6	
Lead	<b>9.3</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7439-92-1	
Manganese	<b>278</b>	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7439-96-5	
Molybdenum	<b>0.26J</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 13:40	7439-98-7	
Selenium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:40	7782-49-2	
Silver	ND	mg/kg	0.52	1	05/23/23 12:24	05/28/23 13:40	7440-22-4	
Thallium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 13:40	7440-28-0	
Vanadium	<b>11.9</b>	mg/kg	0.78	1	05/23/23 12:24	05/28/23 13:40	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.014J</b>	mg/kg	0.020	1	05/23/23 12:36	05/25/23 12:37	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>12.9</b>	%	0.10	1		05/18/23 10:19		N2

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-8-2**      **Lab ID: 10653080023**      Collected: 05/10/23 10:52      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546  
Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	55.5	1	05/17/23 16:57	05/18/23 22:36	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	77	%	46-125	1	05/17/23 16:57	05/18/23 22:36	877-09-8	
Decachlorobiphenyl (S)	74	%	30-125	1	05/17/23 16:57	05/18/23 22:36	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B  
Pace Analytical Services - Minneapolis

Aluminum	<b>15700</b>	mg/kg	21.2	2	05/23/23 12:24	05/28/23 14:12	7429-90-5	
Antimony	ND	mg/kg	2.1	2	05/23/23 12:24	05/28/23 14:12	7440-36-0	D3
Arsenic	<b>3.3</b>	mg/kg	2.1	2	05/23/23 12:24	05/28/23 14:12	7440-38-2	
Barium	<b>218</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7440-39-3	
Beryllium	<b>0.29J</b>	mg/kg	0.53	2	05/23/23 12:24	05/28/23 14:12	7440-41-7	D3
Cadmium	<b>0.17J</b>	mg/kg	0.32	2	05/23/23 12:24	05/28/23 14:12	7440-43-9	D3
Chromium	<b>11.5</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7440-47-3	
Cobalt	<b>6.6</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7440-48-4	
Iron	<b>15300</b>	mg/kg	10.6	2	05/23/23 12:24	05/28/23 14:12	7439-89-6	
Lead	<b>11.4</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7439-92-1	
Manganese	<b>357</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7439-96-5	
Molybdenum	ND	mg/kg	1.6	2	05/23/23 12:24	05/28/23 14:12	7439-98-7	D3
Selenium	ND	mg/kg	2.1	2	05/23/23 12:24	05/28/23 14:12	7782-49-2	D3
Silver	ND	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:12	7440-22-4	D3
Thallium	ND	mg/kg	2.1	2	05/23/23 12:24	05/28/23 14:12	7440-28-0	D3
Vanadium	<b>15.7</b>	mg/kg	1.6	2	05/23/23 12:24	05/28/23 14:12	7440-62-2	

**7471B Mercury**

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

Mercury	<b>0.019J</b>	mg/kg	0.022	1	05/23/23 12:36	05/25/23 12:39	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974  
Pace Analytical Services - Minneapolis

Percent Moisture	<b>10.6</b>	%	0.10	1		05/18/23 10:19		N2
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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-8-3**      **Lab ID: 10653080024**      Collected: 05/10/23 10:54      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546

Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	59.8	1	05/17/23 16:57	05/18/23 22:52	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	78	%	46-125	1	05/17/23 16:57	05/18/23 22:52	877-09-8	
Decachlorobiphenyl (S)	75	%	30-125	1	05/17/23 16:57	05/18/23 22:52	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B

Pace Analytical Services - Minneapolis

Aluminum	<b>16400</b>	mg/kg	22.4	2	05/23/23 12:24	05/28/23 14:13	7429-90-5	
Antimony	ND	mg/kg	2.2	2	05/23/23 12:24	05/28/23 14:13	7440-36-0	D3
Arsenic	<b>2.7</b>	mg/kg	2.2	2	05/23/23 12:24	05/28/23 14:13	7440-38-2	
Barium	<b>272</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7440-39-3	
Beryllium	<b>0.20J</b>	mg/kg	0.56	2	05/23/23 12:24	05/28/23 14:13	7440-41-7	D3
Cadmium	<b>0.20J</b>	mg/kg	0.34	2	05/23/23 12:24	05/28/23 14:13	7440-43-9	D3
Chromium	<b>11.6</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7440-47-3	
Cobalt	<b>7.9</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7440-48-4	
Iron	<b>15100</b>	mg/kg	11.2	2	05/23/23 12:24	05/28/23 14:13	7439-89-6	
Lead	<b>11.6</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7439-92-1	
Manganese	<b>589</b>	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7439-96-5	
Molybdenum	<b>0.58J</b>	mg/kg	1.7	2	05/23/23 12:24	05/28/23 14:13	7439-98-7	D3
Selenium	ND	mg/kg	2.2	2	05/23/23 12:24	05/28/23 14:13	7782-49-2	D3
Silver	ND	mg/kg	1.1	2	05/23/23 12:24	05/28/23 14:13	7440-22-4	D3
Thallium	ND	mg/kg	2.2	2	05/23/23 12:24	05/28/23 14:13	7440-28-0	D3
Vanadium	<b>16.2</b>	mg/kg	1.7	2	05/23/23 12:24	05/28/23 14:13	7440-62-2	

**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B

Pace Analytical Services - Minneapolis

Mercury	<b>0.016J</b>	mg/kg	0.024	1	05/23/23 12:36	05/25/23 12:40	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974

Pace Analytical Services - Minneapolis

Percent Moisture	<b>17.6</b>	%	0.10	1		05/18/23 10:19		N2
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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-9-0**      **Lab ID: 10653080025**      Collected: 05/10/23 12:18      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	62.5	1	05/17/23 16:57	05/18/23 23:07	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	73	%	46-125	1	05/17/23 16:57	05/18/23 23:07	877-09-8	
Decachlorobiphenyl (S)	71	%	30-125	1	05/17/23 16:57	05/18/23 23:07	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>13000</b>	mg/kg	12.0	1	05/23/23 12:24	05/28/23 13:45	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:45	7440-36-0	
Arsenic	<b>2.5</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:45	7440-38-2	
Barium	<b>208</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7440-39-3	
Beryllium	<b>0.27J</b>	mg/kg	0.30	1	05/23/23 12:24	05/28/23 13:45	7440-41-7	
Cadmium	<b>0.23</b>	mg/kg	0.18	1	05/23/23 12:24	05/28/23 13:45	7440-43-9	
Chromium	<b>11.5</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7440-47-3	
Cobalt	<b>5.6</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7440-48-4	
Iron	<b>17400</b>	mg/kg	30.0	5	05/23/23 12:24	05/28/23 14:20	7439-89-6	
Lead	<b>9.6</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7439-92-1	
Manganese	<b>299</b>	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7439-96-5	
Molybdenum	<b>0.27J</b>	mg/kg	0.90	1	05/23/23 12:24	05/28/23 13:45	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:45	7782-49-2	
Silver	ND	mg/kg	0.60	1	05/23/23 12:24	05/28/23 13:45	7440-22-4	
Thallium	<b>0.43J</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:45	7440-28-0	
Vanadium	<b>15.4</b>	mg/kg	0.90	1	05/23/23 12:24	05/28/23 13:45	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.024</b>	mg/kg	0.022	1	05/23/23 12:36	05/25/23 12:45	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>20.1</b>	%	0.10	1		05/18/23 10:20		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-9-3**      **Lab ID: 10653080026**      Collected: 05/10/23 12:20      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	58.1	1	05/17/23 16:57	05/18/23 23:23	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	78	%	46-125	1	05/17/23 16:57	05/18/23 23:23	877-09-8	
Decachlorobiphenyl (S)	74	%	30-125	1	05/17/23 16:57	05/18/23 23:23	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>12800</b>	mg/kg	11.5	1	05/23/23 12:24	05/28/23 13:47	7429-90-5	
Antimony	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:47	7440-36-0	
Arsenic	<b>2.4</b>	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:47	7440-38-2	
Barium	<b>198</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7440-39-3	
Beryllium	<b>0.23J</b>	mg/kg	0.29	1	05/23/23 12:24	05/28/23 13:47	7440-41-7	
Cadmium	<b>0.12J</b>	mg/kg	0.17	1	05/23/23 12:24	05/28/23 13:47	7440-43-9	
Chromium	<b>10.1</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7440-47-3	
Cobalt	<b>5.2</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7440-48-4	
Iron	<b>15900</b>	mg/kg	28.8	5	05/23/23 12:24	05/28/23 14:22	7439-89-6	
Lead	<b>8.2</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7439-92-1	
Manganese	<b>251</b>	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7439-96-5	
Molybdenum	ND	mg/kg	0.86	1	05/23/23 12:24	05/28/23 13:47	7439-98-7	
Selenium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:47	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/23/23 12:24	05/28/23 13:47	7440-22-4	
Thallium	ND	mg/kg	1.2	1	05/23/23 12:24	05/28/23 13:47	7440-28-0	
Vanadium	<b>13.8</b>	mg/kg	0.86	1	05/23/23 12:24	05/28/23 13:47	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	<b>0.021</b>	mg/kg	0.021	1	05/23/23 12:36	05/25/23 12:47	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>17.1</b>	%	0.10	1		05/18/23 10:20		N2

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-10-0**      **Lab ID: 10653080027**      Collected: 05/10/23 12:00      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8082A GCS PCB**

Analytical Method: EPA 8082A      Preparation Method: EPA 3546

Pace Analytical Services - Minneapolis

PCB-1016 (Aroclor 1016)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	56.4	1	05/17/23 16:57	05/18/23 23:39	11096-82-5	

**Surrogates**

Tetrachloro-m-xylene (S)	70	%	46-125	1	05/17/23 16:57	05/18/23 23:39	877-09-8	
Decachlorobiphenyl (S)	71	%	30-125	1	05/17/23 16:57	05/18/23 23:39	2051-24-3	

**6010D MET ICP**

Analytical Method: EPA 6010D      Preparation Method: EPA 3050B

Pace Analytical Services - Minneapolis

Aluminum	<b>10000</b>	mg/kg	10.9	1	05/23/23 12:24	05/28/23 13:58	7429-90-5	
Antimony	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 13:58	7440-36-0	
Arsenic	<b>3.4</b>	mg/kg	1.1	1	05/23/23 12:24	05/28/23 13:58	7440-38-2	
Barium	<b>117</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7440-39-3	
Beryllium	<b>0.14J</b>	mg/kg	0.27	1	05/23/23 12:24	05/28/23 13:58	7440-41-7	
Cadmium	<b>0.16J</b>	mg/kg	0.16	1	05/23/23 12:24	05/28/23 13:58	7440-43-9	
Chromium	<b>9.9</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7440-47-3	
Cobalt	<b>4.1</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7440-48-4	
Iron	<b>13600</b>	mg/kg	27.3	5	05/23/23 12:24	05/28/23 14:24	7439-89-6	
Lead	<b>7.3</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7439-92-1	
Manganese	<b>191</b>	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7439-96-5	
Molybdenum	<b>0.30J</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 13:58	7439-98-7	
Selenium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 13:58	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/23/23 12:24	05/28/23 13:58	7440-22-4	
Thallium	ND	mg/kg	1.1	1	05/23/23 12:24	05/28/23 13:58	7440-28-0	
Vanadium	<b>15.5</b>	mg/kg	0.82	1	05/23/23 12:24	05/28/23 13:58	7440-62-2	

**7471B Mercury**

Analytical Method: EPA 7471B      Preparation Method: EPA 7471B

Pace Analytical Services - Minneapolis

Mercury	<b>0.012J</b>	mg/kg	0.021	1	05/23/23 12:36	05/25/23 12:48	7439-97-6	
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**Dry Weight / %M by ASTM D2974**

Analytical Method: ASTM D2974

Pace Analytical Services - Minneapolis

Percent Moisture	<b>12.0</b>	%	0.10	1		05/18/23 10:20		N2
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## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

**Sample: B-10-3**      **Lab ID: 10653080028**      Collected: 05/10/23 12:02      Received: 05/12/23 08:50      Matrix: Solid

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

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082A GCS PCB</b>								
Analytical Method: EPA 8082A    Preparation Method: EPA 3546								
Pace Analytical Services - Minneapolis								
PCB-1016 (Aroclor 1016)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/kg	50.0	1	05/17/23 16:57	05/18/23 23:55	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	75	%	46-125	1	05/17/23 16:57	05/18/23 23:55	877-09-8	
Decachlorobiphenyl (S)	74	%	30-125	1	05/17/23 16:57	05/18/23 23:55	2051-24-3	
<b>6010D MET ICP</b>								
Analytical Method: EPA 6010D    Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Aluminum	<b>3210</b>	mg/kg	10.2	1	05/23/23 12:24	05/28/23 14:00	7429-90-5	
Antimony	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 14:00	7440-36-0	
Arsenic	<b>1.5</b>	mg/kg	1.0	1	05/23/23 12:24	05/28/23 14:00	7440-38-2	
Barium	<b>40.0</b>	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7440-39-3	
Beryllium	<b>0.034J</b>	mg/kg	0.26	1	05/23/23 12:24	05/28/23 14:00	7440-41-7	
Cadmium	ND	mg/kg	0.15	1	05/23/23 12:24	05/28/23 14:00	7440-43-9	
Chromium	<b>3.8</b>	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7440-47-3	
Cobalt	<b>2.8</b>	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7440-48-4	
Iron	<b>5550</b>	mg/kg	5.1	1	05/23/23 12:24	05/28/23 14:00	7439-89-6	
Lead	<b>2.5</b>	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7439-92-1	
Manganese	<b>122</b>	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7439-96-5	
Molybdenum	<b>0.51J</b>	mg/kg	0.77	1	05/23/23 12:24	05/28/23 14:00	7439-98-7	
Selenium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 14:00	7782-49-2	
Silver	ND	mg/kg	0.51	1	05/23/23 12:24	05/28/23 14:00	7440-22-4	
Thallium	ND	mg/kg	1.0	1	05/23/23 12:24	05/28/23 14:00	7440-28-0	
Vanadium	<b>4.4</b>	mg/kg	0.77	1	05/23/23 12:24	05/28/23 14:00	7440-62-2	
<b>7471B Mercury</b>								
Analytical Method: EPA 7471B    Preparation Method: EPA 7471B								
Pace Analytical Services - Minneapolis								
Mercury	ND	mg/kg	0.020	1	05/23/23 12:36	05/25/23 12:50	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	<b>2.5</b>	%	0.10	1		05/18/23 10:20		N2

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch:	881939	Analysis Method:	EPA 7471B
QC Batch Method:	EPA 7471B	Analysis Description:	7471B Mercury Solids
		Laboratory:	Pace Analytical Services - Minneapolis
Associated Lab Samples:	10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020		

METHOD BLANK:	4647435	Matrix:	Solid
Associated Lab Samples:	10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.018	05/25/23 13:31	

LABORATORY CONTROL SAMPLE:	4647436					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.44	0.43	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:	4647437			4647438								
Parameter	Units	10653080001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.010J	0.55	0.54	0.54	0.53	96	96	80-120	1	20	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch:	881940	Analysis Method:	EPA 7471B
QC Batch Method:	EPA 7471B	Analysis Description:	7471B Mercury Solids
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

METHOD BLANK: 4647439 Matrix: Solid

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.017	05/25/23 12:29	

LABORATORY CONTROL SAMPLE: 4647440

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.44	0.45	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4647441 4647442

Parameter	Units	10653080021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.011J	0.47	0.46	0.47	0.46	99	97	80-120	2	20	

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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QC Batch:	881931	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3050B	Analysis Description:	6010D Solids
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020

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METHOD BLANK: 4647402 Matrix: Solid

Associated Lab Samples: 10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	mg/kg	ND	9.6	05/28/23 11:49	
Antimony	mg/kg	ND	0.96	05/28/23 11:49	
Arsenic	mg/kg	ND	0.96	05/28/23 11:49	
Barium	mg/kg	ND	0.48	05/28/23 11:49	
Beryllium	mg/kg	ND	0.24	05/28/23 11:49	
Cadmium	mg/kg	ND	0.14	05/28/23 11:49	
Chromium	mg/kg	ND	0.48	05/28/23 11:49	
Cobalt	mg/kg	ND	0.48	05/28/23 11:49	
Iron	mg/kg	ND	4.8	05/28/23 11:49	
Lead	mg/kg	ND	0.48	05/28/23 11:49	
Manganese	mg/kg	ND	0.48	05/28/23 11:49	
Molybdenum	mg/kg	ND	0.72	05/28/23 11:49	
Selenium	mg/kg	ND	0.96	05/28/23 11:49	
Silver	mg/kg	ND	0.48	05/28/23 11:49	
Thallium	mg/kg	ND	0.96	05/28/23 11:49	
Vanadium	mg/kg	ND	0.72	05/28/23 11:49	

LABORATORY CONTROL SAMPLE: 4647403

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	mg/kg	966	1020	105	80-120	
Antimony	mg/kg	48.3	46.0	95	80-120	
Arsenic	mg/kg	48.3	44.6	92	80-120	
Barium	mg/kg	48.3	49.2	102	80-120	
Beryllium	mg/kg	48.3	46.3	96	80-120	
Cadmium	mg/kg	48.3	49.0	102	80-120	
Chromium	mg/kg	48.3	48.5	100	80-120	
Cobalt	mg/kg	48.3	48.6	101	80-120	
Iron	mg/kg	966	992	103	80-120	
Lead	mg/kg	48.3	48.6	101	80-120	
Manganese	mg/kg	48.3	49.5	103	80-120	
Molybdenum	mg/kg	48.3	51.1	106	80-120	
Selenium	mg/kg	48.3	43.9	91	80-120	
Silver	mg/kg	24.2	22.2	92	80-120	
Thallium	mg/kg	48.3	48.6	101	80-120	

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

LABORATORY CONTROL SAMPLE: 4647403

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/kg	48.3	49.3	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4647404 4647405

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10653080001 Result	Spike Conc.	Spike Conc.	MS Result						
Aluminum	mg/kg	10700	1150	1190	17200	16800	557	512	75-125	2	20 P6
Antimony	mg/kg	ND	57.8	59.4	21.9	21.2	38	36	75-125	3	20 M1
Arsenic	mg/kg	2.4	57.8	59.4	46.6	47.0	77	75	75-125	1	20
Barium	mg/kg	126	57.8	59.4	190	215	110	151	75-125	13	20 M1
Beryllium	mg/kg	0.16J	57.8	59.4	45.6	47.3	79	79	75-125	4	20
Cadmium	mg/kg	0.17J	57.8	59.4	45.5	47.1	79	79	75-125	3	20
Chromium	mg/kg	9.2	57.8	59.4	58.3	59.9	85	85	75-125	3	20
Cobalt	mg/kg	4.1	57.8	59.4	50.0	51.3	80	79	75-125	2	20
Iron	mg/kg	13400	1150	1190	19100	17000	498	305	75-125	12	20 P6
Lead	mg/kg	8.8	57.8	59.4	55.2	56.4	80	80	75-125	2	20
Manganese	mg/kg	224	57.8	59.4	327	282	178	97	75-125	15	20 M1
Molybdenum	mg/kg	0.69J	57.8	59.4	46.9	49.0	80	81	75-125	4	20
Selenium	mg/kg	ND	57.8	59.4	42.6	43.7	73	73	75-125	3	20 M1
Silver	mg/kg	ND	28.9	29.7	22.4	22.8	78	77	75-125	2	20
Thallium	mg/kg	ND	57.8	59.4	44.4	45.9	77	77	75-125	3	20
Vanadium	mg/kg	12.3	57.8	59.4	64.3	64.5	90	88	75-125	0	20

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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QC Batch:	881933	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3050B	Analysis Description:	6010D Solids
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

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METHOD BLANK: 4647409 Matrix: Solid

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	mg/kg	ND	9.6	05/28/23 16:19	
Antimony	mg/kg	ND	0.96	05/28/23 16:19	
Arsenic	mg/kg	ND	0.96	05/28/23 16:19	
Barium	mg/kg	ND	0.48	05/28/23 16:19	
Beryllium	mg/kg	ND	0.24	05/28/23 16:19	
Cadmium	mg/kg	ND	0.14	05/28/23 16:19	
Chromium	mg/kg	ND	0.48	05/28/23 16:19	
Cobalt	mg/kg	ND	0.48	05/28/23 16:19	
Iron	mg/kg	1.2J	4.8	05/28/23 16:19	
Lead	mg/kg	ND	0.48	05/28/23 16:19	
Manganese	mg/kg	ND	0.48	05/28/23 16:19	
Molybdenum	mg/kg	ND	0.72	05/28/23 16:19	
Selenium	mg/kg	ND	0.96	05/28/23 16:19	
Silver	mg/kg	ND	0.48	05/28/23 16:19	
Thallium	mg/kg	ND	0.96	05/28/23 16:19	
Vanadium	mg/kg	ND	0.72	05/28/23 16:19	

LABORATORY CONTROL SAMPLE: 4647410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	mg/kg	989	1010	102	80-120	
Antimony	mg/kg	49.5	45.5	92	80-120	
Arsenic	mg/kg	49.5	44.0	89	80-120	
Barium	mg/kg	49.5	49.1	99	80-120	
Beryllium	mg/kg	49.5	46.1	93	80-120	
Cadmium	mg/kg	49.5	48.9	99	80-120	
Chromium	mg/kg	49.5	48.2	97	80-120	
Cobalt	mg/kg	49.5	48.4	98	80-120	
Iron	mg/kg	989	987	100	80-120	
Lead	mg/kg	49.5	48.6	98	80-120	
Manganese	mg/kg	49.5	49.5	100	80-120	
Molybdenum	mg/kg	49.5	50.2	101	80-120	
Selenium	mg/kg	49.5	42.6	86	80-120	
Silver	mg/kg	24.7	22.1	89	80-120	
Thallium	mg/kg	49.5	47.5	96	80-120	
Vanadium	mg/kg	49.5	48.9	99	80-120	

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4647411 4647412												
Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		10653080021	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Aluminum	mg/kg	8380	1060	1020	11300	10900	273	243	75-125	4	20	P6
Antimony	mg/kg	ND	53.1	51	19.3	18.2	36	36	75-125	6	20	M1
Arsenic	mg/kg	2.1	53.1	51	42.5	40.7	76	76	75-125	4	20	
Barium	mg/kg	119	53.1	51	189	157	132	74	75-125	19	20	M1
Beryllium	mg/kg	0.17J	53.1	51	41.2	40.4	77	79	75-125	2	20	
Cadmium	mg/kg	0.12J	53.1	51	42.8	41.7	81	81	75-125	3	20	
Chromium	mg/kg	8.0	53.1	51	51.9	50.3	83	83	75-125	3	20	
Cobalt	mg/kg	3.6	53.1	51	45.7	44.4	79	80	75-125	3	20	
Iron	mg/kg	10500	1060	1020	12600	11300	200	84	75-125	11	20	P6
Lead	mg/kg	5.7	53.1	51	48.1	46.7	80	80	75-125	3	20	
Manganese	mg/kg	167	53.1	51	351	183	345	31	75-125	63	20	M1, R1
Molybdenum	mg/kg	0.56J	53.1	51	44.5	43.0	83	83	75-125	3	20	
Selenium	mg/kg	ND	53.1	51	39.5	38.6	74	75	75-125	2	20	M1
Silver	mg/kg	ND	26.5	25.6	20.3	19.7	77	77	75-125	3	20	
Thallium	mg/kg	ND	53.1	51	41.6	40.3	78	79	75-125	3	20	
Vanadium	mg/kg	12.5	53.1	51	57.8	55.3	85	84	75-125	4	20	

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**QUALITY CONTROL DATA**

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch: 881790

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: 10653080001, 10653080002

SAMPLE DUPLICATE: 4647028

Parameter	Units	10653071014 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	36.3	30.3	18	30	N2

SAMPLE DUPLICATE: 4647029

Parameter	Units	10653079002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	37.9	36.6	4	30	N2

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**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL DATA**

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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QC Batch:	881846	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: 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020

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SAMPLE DUPLICATE: 4646921

Parameter	Units	10653500008 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.9	15.5	4	30	N2

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SAMPLE DUPLICATE: 4646922

Parameter	Units	10653080020 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.1	16.5	2	30	N2

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### QUALITY CONTROL DATA

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch: 881944

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: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

SAMPLE DUPLICATE: 4647456

Parameter	Units	10653202004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	6.9	7.1	2	30	N2

SAMPLE DUPLICATE: 4647768

Parameter	Units	10653082003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.8	18.0	5	30	N2

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**QUALITY CONTROL DATA**

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch:	881746	Analysis Method:	EPA 8082A
QC Batch Method:	EPA 3546	Analysis Description:	8082A GCS PCB
		Laboratory:	Pace Analytical Services - Minneapolis
Associated Lab Samples:	10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020		

METHOD BLANK:	4646478	Matrix:	Solid
Associated Lab Samples:	10653080001, 10653080002, 10653080003, 10653080004, 10653080005, 10653080006, 10653080007, 10653080008, 10653080009, 10653080010, 10653080011, 10653080012, 10653080013, 10653080014, 10653080015, 10653080016, 10653080017, 10653080018, 10653080019, 10653080020		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1221 (Aroclor 1221)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1232 (Aroclor 1232)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1242 (Aroclor 1242)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1248 (Aroclor 1248)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1254 (Aroclor 1254)	ug/kg	ND	50.0	05/18/23 13:06	
PCB-1260 (Aroclor 1260)	ug/kg	ND	50.0	05/18/23 13:06	
Decachlorobiphenyl (S)	%	85	30-125	05/18/23 13:06	
Tetrachloro-m-xylene (S)	%	87	46-125	05/18/23 13:06	

LABORATORY CONTROL SAMPLE:	4646479					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	1000	828	83	62-125	
PCB-1260 (Aroclor 1260)	ug/kg	1000	845	85	67-125	
Decachlorobiphenyl (S)	%			88	30-125	
Tetrachloro-m-xylene (S)	%			87	46-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:	4646480			4646481								
Parameter	Units	10653080001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	ND	1170	1200	993	1030	85	86	34-136	3	30	
PCB-1260 (Aroclor 1260)	ug/kg	46.3J	1170	1200	993	1010	81	80	30-127	2	30	
Decachlorobiphenyl (S)	%						84	84	30-125			
Tetrachloro-m-xylene (S)	%						90	91	46-125			

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**QUALITY CONTROL DATA**

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

QC Batch:	881750	Analysis Method:	EPA 8082A
QC Batch Method:	EPA 3546	Analysis Description:	8082A GCS PCB
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

METHOD BLANK: 4646491 Matrix: Solid

Associated Lab Samples: 10653080021, 10653080022, 10653080023, 10653080024, 10653080025, 10653080026, 10653080027, 10653080028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1221 (Aroclor 1221)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1232 (Aroclor 1232)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1242 (Aroclor 1242)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1248 (Aroclor 1248)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1254 (Aroclor 1254)	ug/kg	ND	50.0	05/18/23 20:13	
PCB-1260 (Aroclor 1260)	ug/kg	ND	50.0	05/18/23 20:13	
Decachlorobiphenyl (S)	%	82	30-125	05/18/23 20:13	
Tetrachloro-m-xylene (S)	%	83	46-125	05/18/23 20:13	

LABORATORY CONTROL SAMPLE: 4646492

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	1000	873	87	62-125	
PCB-1260 (Aroclor 1260)	ug/kg	1000	877	88	67-125	
Decachlorobiphenyl (S)	%			76	30-125	
Tetrachloro-m-xylene (S)	%			78	46-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4646493 4646494

Parameter	Units	MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10653080021 Result	MS Spike Conc.								
PCB-1016 (Aroclor 1016)	ug/kg	ND	1090	1090	908	922	84	85	34-136	2	30
PCB-1260 (Aroclor 1260)	ug/kg	ND	1090	1090	906	914	83	84	30-127	1	30
Decachlorobiphenyl (S)	%						82	81	30-125		
Tetrachloro-m-xylene (S)	%						86	85	46-125		

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**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

- |    |   |
|----|---|
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.  |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.   |
| N2 | The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request. |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.   |
| R1 | RPD value was outside control limits.   |

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10653080001	B-1-0	EPA 3546	881746	EPA 8082A	881955
10653080002	B-1-1	EPA 3546	881746	EPA 8082A	881955
10653080003	B-1-2	EPA 3546	881746	EPA 8082A	881955
10653080004	B-2-0	EPA 3546	881746	EPA 8082A	881955
10653080005	B-2-2	EPA 3546	881746	EPA 8082A	881955
10653080006	B-2-3	EPA 3546	881746	EPA 8082A	881955
10653080007	B-3-0	EPA 3546	881746	EPA 8082A	881955
10653080008	B-3-1	EPA 3546	881746	EPA 8082A	881955
10653080009	B-3-2	EPA 3546	881746	EPA 8082A	881955
10653080010	B-4-0	EPA 3546	881746	EPA 8082A	881955
10653080011	B-4-2	EPA 3546	881746	EPA 8082A	881955
10653080012	B-4-3	EPA 3546	881746	EPA 8082A	881955
10653080013	B-5-0	EPA 3546	881746	EPA 8082A	881955
10653080014	B-5-2	EPA 3546	881746	EPA 8082A	881955
10653080015	B-5-3	EPA 3546	881746	EPA 8082A	881955
10653080016	B-6-0	EPA 3546	881746	EPA 8082A	881955
10653080017	B-6-2	EPA 3546	881746	EPA 8082A	881955
10653080018	B-6-3	EPA 3546	881746	EPA 8082A	881955
10653080019	B-7-0	EPA 3546	881746	EPA 8082A	881955
10653080020	B-7-2	EPA 3546	881746	EPA 8082A	881955
10653080021	B-7-3	EPA 3546	881750	EPA 8082A	881957
10653080022	B-8-0	EPA 3546	881750	EPA 8082A	881957
10653080023	B-8-2	EPA 3546	881750	EPA 8082A	881957
10653080024	B-8-3	EPA 3546	881750	EPA 8082A	881957
10653080025	B-9-0	EPA 3546	881750	EPA 8082A	881957
10653080026	B-9-3	EPA 3546	881750	EPA 8082A	881957
10653080027	B-10-0	EPA 3546	881750	EPA 8082A	881957
10653080028	B-10-3	EPA 3546	881750	EPA 8082A	881957
10653080001	B-1-0	EPA 3050B	881931	EPA 6010D	883276
10653080002	B-1-1	EPA 3050B	881931	EPA 6010D	883276
10653080003	B-1-2	EPA 3050B	881931	EPA 6010D	883276
10653080004	B-2-0	EPA 3050B	881931	EPA 6010D	883276
10653080005	B-2-2	EPA 3050B	881931	EPA 6010D	883276
10653080006	B-2-3	EPA 3050B	881931	EPA 6010D	883276
10653080007	B-3-0	EPA 3050B	881931	EPA 6010D	883276
10653080008	B-3-1	EPA 3050B	881931	EPA 6010D	883276
10653080009	B-3-2	EPA 3050B	881931	EPA 6010D	883276
10653080010	B-4-0	EPA 3050B	881931	EPA 6010D	883276
10653080011	B-4-2	EPA 3050B	881931	EPA 6010D	883276
10653080012	B-4-3	EPA 3050B	881931	EPA 6010D	883276
10653080013	B-5-0	EPA 3050B	881931	EPA 6010D	883276
10653080014	B-5-2	EPA 3050B	881931	EPA 6010D	883276
10653080015	B-5-3	EPA 3050B	881931	EPA 6010D	883276
10653080016	B-6-0	EPA 3050B	881931	EPA 6010D	883276
10653080017	B-6-2	EPA 3050B	881931	EPA 6010D	883276
10653080018	B-6-3	EPA 3050B	881931	EPA 6010D	883276
10653080019	B-7-0	EPA 3050B	881931	EPA 6010D	883276
10653080020	B-7-2	EPA 3050B	881931	EPA 6010D	883276

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10653080021	B-7-3	EPA 3050B	881933	EPA 6010D	883284
10653080022	B-8-0	EPA 3050B	881933	EPA 6010D	883284
10653080023	B-8-2	EPA 3050B	881933	EPA 6010D	883284
10653080024	B-8-3	EPA 3050B	881933	EPA 6010D	883284
10653080025	B-9-0	EPA 3050B	881933	EPA 6010D	883284
10653080026	B-9-3	EPA 3050B	881933	EPA 6010D	883284
10653080027	B-10-0	EPA 3050B	881933	EPA 6010D	883284
10653080028	B-10-3	EPA 3050B	881933	EPA 6010D	883284
10653080001	B-1-0	EPA 7471B	881939	EPA 7471B	883089
10653080002	B-1-1	EPA 7471B	881939	EPA 7471B	883089
10653080003	B-1-2	EPA 7471B	881939	EPA 7471B	883089
10653080004	B-2-0	EPA 7471B	881939	EPA 7471B	883089
10653080005	B-2-2	EPA 7471B	881939	EPA 7471B	883089
10653080006	B-2-3	EPA 7471B	881939	EPA 7471B	883089
10653080007	B-3-0	EPA 7471B	881939	EPA 7471B	883089
10653080008	B-3-1	EPA 7471B	881939	EPA 7471B	883089
10653080009	B-3-2	EPA 7471B	881939	EPA 7471B	883089
10653080010	B-4-0	EPA 7471B	881939	EPA 7471B	883089
10653080011	B-4-2	EPA 7471B	881939	EPA 7471B	883089
10653080012	B-4-3	EPA 7471B	881939	EPA 7471B	883089
10653080013	B-5-0	EPA 7471B	881939	EPA 7471B	883089
10653080014	B-5-2	EPA 7471B	881939	EPA 7471B	883089
10653080015	B-5-3	EPA 7471B	881939	EPA 7471B	883089
10653080016	B-6-0	EPA 7471B	881939	EPA 7471B	883089
10653080017	B-6-2	EPA 7471B	881939	EPA 7471B	883089
10653080018	B-6-3	EPA 7471B	881939	EPA 7471B	883089
10653080019	B-7-0	EPA 7471B	881939	EPA 7471B	883089
10653080020	B-7-2	EPA 7471B	881939	EPA 7471B	883089
10653080021	B-7-3	EPA 7471B	881940	EPA 7471B	883087
10653080022	B-8-0	EPA 7471B	881940	EPA 7471B	883087
10653080023	B-8-2	EPA 7471B	881940	EPA 7471B	883087
10653080024	B-8-3	EPA 7471B	881940	EPA 7471B	883087
10653080025	B-9-0	EPA 7471B	881940	EPA 7471B	883087
10653080026	B-9-3	EPA 7471B	881940	EPA 7471B	883087
10653080027	B-10-0	EPA 7471B	881940	EPA 7471B	883087
10653080028	B-10-3	EPA 7471B	881940	EPA 7471B	883087
10653080001	B-1-0	ASTM D2974	881790		
10653080002	B-1-1	ASTM D2974	881790		
10653080003	B-1-2	ASTM D2974	881846		
10653080004	B-2-0	ASTM D2974	881846		
10653080005	B-2-2	ASTM D2974	881846		
10653080006	B-2-3	ASTM D2974	881846		
10653080007	B-3-0	ASTM D2974	881846		
10653080008	B-3-1	ASTM D2974	881846		
10653080009	B-3-2	ASTM D2974	881846		
10653080010	B-4-0	ASTM D2974	881846		

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 10042464-183 MDT Missoula

Pace Project No.: 10653080

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10653080011	B-4-2	ASTM D2974	881846		
10653080012	B-4-3	ASTM D2974	881846		
10653080013	B-5-0	ASTM D2974	881846		
10653080014	B-5-2	ASTM D2974	881846		
10653080015	B-5-3	ASTM D2974	881846		
10653080016	B-6-0	ASTM D2974	881846		
10653080017	B-6-2	ASTM D2974	881846		
10653080018	B-6-3	ASTM D2974	881846		
10653080019	B-7-0	ASTM D2974	881846		
10653080020	B-7-2	ASTM D2974	881846		
10653080021	B-7-3	ASTM D2974	881944		
10653080022	B-8-0	ASTM D2974	881944		
10653080023	B-8-2	ASTM D2974	881944		
10653080024	B-8-3	ASTM D2974	881944		
10653080025	B-9-0	ASTM D2974	881944		
10653080026	B-9-3	ASTM D2974	881944		
10653080027	B-10-0	ASTM D2974	881944		
10653080028	B-10-3	ASTM D2974	881944		

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# CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

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

ALL SHADED AREAS are for LAB USE ONLY

Company: **HOR EOC**

Billing Information: **369 Inverness Pkwy, Suite 325  
Englewood CO 80112**

Address: **369 Inverness Pkwy, Suite 325**

Report To: **Clayton Mohri**

Email To: **Clayton.Mohri@hdrinc.com**

Copy To: **Alec.Binder@hdrinc.com**

Site Collection Info/Address:

Customer Project Name/Number: **MDT Missoula / 10042464-183**

State: **MT** County/City: **Missoula** Time Zone Collected: **[ ] PT [ ] MT [ ] CT [ ] ET**

Phone: **530-902-7106**  
Email: **Clayton.Mohri@hdrinc.com**

Site/Facility ID #: \_\_\_\_\_  
Purchase Order #: \_\_\_\_\_  
Quote #: \_\_\_\_\_

Compliance Monitoring?  
 Yes  No

Collected By (print): **Alec Binder**

Turnaround Date Required: \_\_\_\_\_

DW PWS ID #: \_\_\_\_\_  
DW Location Code: \_\_\_\_\_

Collected By (signature): **[Signature]**

Rush:  Same Day  Next Day  
 2 Day  3 Day  4 Day  5 Day  
(Expedite Charges Apply)

Immediately Packed on Ice:  
 Yes  No

Sample Disposal:  
 Dispose as appropriate  Return  
 Archive: \_\_\_\_\_  
 Hold: \_\_\_\_\_

Field Filtered (if applicable):  
 Yes  No  
Analysis: \_\_\_\_\_

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res CI	# of Ctns	Analyses										
			Date	Time	Date	Time													
B-4-2	SL	G	5/10/23	0940			Z	X	X	X									
B-4-3	SL	G	5/10/23	0942			Z	X	X	X									
B-5-0	SL	G	5/10/23	0958			Z	X	X	X									
B-5-2	SL	G	5/10/23	1000			Z	X	X	X									
B-5-3	SL	G	5/10/23	1002			Z	X	X	X									
B-6-0	SL	G	5/10/23	1025			Z	X	X	X									
B-6-2	SL	G	5/10/23	1027			Z	X	X	X									
B-6-3	SL	G	5/10/23	1029			Z	X	X	X									
B-7-0	SL	G	5/10/23	1115			Z	X	X	X									
B-7-2	SL	G	5/10/23	1117			Z	X	X	X									

Dioxins/Furans by EPA method 8280  
PCB's by EPA Method 8082A  
Metals (see comments)

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

Lab Profile/Line: **4568**  
Lab Sample Receipt Checklist:  
Custody Seals Present/Intact Y N NA  
Custody Signatures Present Y N NA  
Collector Signature Present Y N NA  
Bottles Intact Y N NA  
Correct Bottles Y N NA  
Sufficient Volume Y N NA  
Samples Received on Ice Y N NA  
VOA - Headspace Acceptable Y N NA  
USDA Regulated Soils Y N NA  
Samples in Holding Time Y N NA  
Residual Chlorine Present Y N NA  
Cl Strips:  
Sample pH Acceptable Y N NA  
pH Strips:  
Sulfide Present Y N NA  
Lead Acetate Strips: \_\_\_\_\_

LAB USE ONLY:  
Lab Sample # / Comments:

011  
012  
013  
014  
015  
016  
017  
018  
019  
020

Customer Remarks / Special Conditions / Possible Hazards:  
**Metals include: Al, As, Hg, Sb, Ba, Be, Cd, Cr, Co, Fe, Pb, Mo, Mn, Se, Ag, Tl, and V by EPA method 6010B/6020/7174A**

Type of Ice Used: Wet Blue Dry None  
Packing Material Used:  
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A  
Lab Tracking #: **2846560**  
Samples received via:  
FEDEX UPS Client Courier Pace Courier

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

Relinquished by/Company: (Signature)  
**[Signature]** HOR EOC  
Relinquished by/Company: (Signature)  
**[Signature]**  
Relinquished by/Company: (Signature)  
**[Signature]**

Date/Time: **5/11/23 0930**  
Received by/Company: (Signature)  
**[Signature]** Pace  
Date/Time: **5-12-23 0850**  
Received by/Company: (Signature)  
Date/Time:  
Received by/Company: (Signature)  
Date/Time:

Date/Time:  
Date/Time:  
Date/Time:  
Date/Time:  
Date/Time:  
Date/Time:  
Date/Time:

MTJL LAB USE ONLY  
Table #:  
Acctnum:  
Template:  
Prelogin:  
PM:  
PB:  
Trip Blank Received: Y N NA  
HCL MeOH TSP Other  
Non Conformance(s): YES / NO  
Page: \_\_\_\_\_ of: \_\_\_\_\_



Effective Date: 4/14/2023

Sample Condition: **Upon Receipt**  
 Client Name: **HDR EOC**

Project #: **WO#: 10653080**  
 PM: **KV** Due Date: **05/26/23**  
 CLIENT: **HDR\_MT**

Courier:  FedEx  UPS  USPS  Client  
 Pace  Speedee  Commercial

Tracking Number: **6092 7236 6250**  See Exceptions  
 ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present?  Yes  No Seals Intact?  Yes  No  
 Packing Material:  Bubble Wrap  Bubble Bags  None  Other  
 Thermometer:  T1 (0461)  T2 (0436)  T3 (0459)  T4 (0402)  T5 (0178)  
 T6 (0235)  T7 (0042)  T8 (0775)  T9(0727)  01339252/1710  
 Biological Tissue Frozen?  Yes  No  N/A  
 Temp Blank?  Yes  No  
 Type of Ice:  Wet  Blue  Dry  None  
 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: **4.6, 4.5 °C**  
 Correction Factor: **0.3+** Cooler Temp Corrected w/temp blank: **4.9, 4.8 °C**  
 Average Corrected Temp (no temp blank only): \_\_\_\_\_ °C  
 See Exceptions ENV-FRM-MIN4-0142  1 Container

USDA Regulated Soil: ( N/A, water sample/other: \_\_\_\_\_)

Date/Initials of Person Examining Contents: **AC 5-12-23**

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

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

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

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

Date/Time: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

Labeled By: **NF**

Page 53 of 56





DC#\_ Title: ENV-FRM-MIN4-0142 v02\_Sample Condition Upon Receipt (SCUR) Exception Form

Effective Date: 09/22/2022

Workorder #: \_\_\_\_\_

No Temp Blank		
Read Temp	Corrected Temp	Average temp

PM Notified of Out of Temp Cooler?  Yes  No

If yes, indicate who was contacted, date and time.  
If no, indicate reason why.

\_\_\_\_\_

Multiple Cooler Project?  Yes  No

If anything is OVER 6.0° C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature
609272366272	

Out of Temp Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type Of Preserve	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	
								<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	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:



Effective Date: 4/14/2023

Sample Condition Upon Receipt: **HDR EOC**

Client Name:

Project #:

**WO#: 10652972**

PM: KV

Due Date: 06/05/23

CLIENT: HDR\_MT

Courier:  FedEx  UPS  USPS  Client  
 Pace  Speedee  Commercial

Tracking Number: **6092 7236 6261**  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 *not directly on ice so avg we use*  
 Type of Ice:  Wet  Blue  Dry  None  Melted

Thermometer:  T1 (0461)  T2 (0436)  T3 (0459)  T4 (0402)  T5 (0178)  
 T6 (0235)  T7 (0042)  T8 (0775)  T9(0727)  01339252/1710

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	Average Corrected Temp (no temp blank only): <b>5.5</b> °C
Correction Factor: <b>-0.1</b>	Cooler Temp Corrected w/temp blank: <b>8.0</b> °C
	<input checked="" 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: **CVI 5/12/23**

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

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

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

Location (Check one):	COMMENTS
<input type="checkbox"/> Duluth <input checked="" type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 4. If fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E.coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrom <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 6.
Sufficient Sample Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A 10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 11. <i>If no, write ID/Date/Time of container below:</i> <b>2 additional samples not on chain</b> <input checked="" type="checkbox"/> See Exceptions 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 # KV 5/15/23
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <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"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Positive for Residual Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
	<b>pH Paper Lot #</b> Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in Methyl Mercury Container?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A 13.
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A 14. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
3 Trip Blanks Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A 15.
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: 5/15/23

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: **RNC**

Line: **3**





DC#\_ Title: ENV-FRM-MIN4-0142 v02\_Sample Condition Upon Receipt (SCUR) Exception Form

Effective Date: 09/22/2022

Workorder #: \_\_\_\_\_

No Temp Blank		
Read Temp	Corrected Temp	Average temp
5.5	5.4	5.5
6.6	6.5	
5.0	4.9	
5.5	5.4	

PM Notified of Out of Temp Cooler?  Yes  No  
 If yes, indicate who was contacted, date and time.  
 If no, indicate reason why.  
 avg was w/in temp

Multiple Cooler Project?  Yes  No

If anything is OVER 6.0° C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature

Out of Temp Sample ID	Container Type	# of Containers
<del>B-7-0</del>	<del>JGFU</del>	<del>2</del>
<del>5/10/23 11:15</del>		<del>KV 5/15/23</del>
<del>B-7-2</del>	<del>JGFU</del>	<del>2</del>
<del>5/10/23 11:17</del>		

**pH Adjustment Log for Preserved Samples**

Sample ID	Type Of Preserve	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	
								<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:

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